**NOTICE OF 30-DAY PERIOD
FOR PUBLIC COMMENT**

**Preliminary Findings Regarding a
Significant Modification to a
Part 70 Operating Permit**

For Mag Pellet LLC in White County

Prevention of Significant Deterioration and Significant Source Modification No. 181-33965-00054
Significant Permit Modification No. 181-34210-00054

The Indiana Department of Environmental Management (IDEM) has received an application from Mag Pellet LLC located at 64 East 100 North, Reynolds, Indiana 47980 for a significant modification of its Part 70 Operating Permit issued on December 10, 2013. If approved by IDEM's Office of Air Quality (OAQ), this proposed modification would allow Mag Pellet LLC to make certain changes at its existing source. Mag Pellet LLC has applied to add new equipment.

The applicant intends to construct (and/or operate) new equipment that will emit air pollutants; therefore, the permit contains new or different permit conditions. In addition, some conditions from previously issued permits/approvals have been corrected, changed or removed. These corrections, changes, and removals may include Title I changes (ex changes that add or modify synthetic minor emission limits). IDEM has reviewed this application, and has developed preliminary findings, consisting of a draft permit and several supporting documents, that would allow the applicant to make this change.

A copy of the permit application and IDEM's preliminary findings are available at:

Monticello Union Township Library
321 West Broadway Street
Monticello, IN 47960

A copy of the preliminary findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

How can you participate in this process?

The date that this notice is published in a newspaper marks the beginning of a 30-day public comment period. If the 30th day of the comment period falls on a day when IDEM offices are closed for business, all comments must be postmarked or delivered in person on the next business day that IDEM is open.

You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the **air pollution impact** of this draft permit are received, with a request for a public hearing, IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM's mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit application, please contact IDEM at the address below. Please refer to PSD/Significant Source Modification No. 181-33965-00054 and Significant Permit Modification No. 181-34210-00054 in all correspondence.

Comments should be sent to:

Julie Alexander
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension 3-1782
Or dial directly: (317) 23X3-1782
Fax: (317)-232-6749 attn: Julie Alexander
E-mail: JuAlexan@idem.IN.gov

All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor or noise. For such issues, please contact your local officials.

For additional information about air permits and how you can participate, please see IDEM's **Guide for Citizen Participation** and **Permit Guide** on the Internet at: www.idem.in.gov.

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251.

If you have any questions please contact Julie Alexander of my staff at the above address.

Jenny Acker, Section Chief
Permits Branch
Office of Air Quality

jla

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

DRAFT

Ms. Barb Mansfield
Mag Pellet LLC
64 East 100 North
Reynolds, IN, 47980

Re: 181-33956-00054
PSD/Significant Source Modification

Dear Ms. Mansfield:

Mag Pellet LLC was issued Part 70 Operating Permit No. T181-32081-00054 on April 16, 2013 for a stationary iron oxide agglomeration/benefication manufacturing plant located at 64 East 100 North, Reynolds, Indiana 47980. An application to modify the source was received on December 09, 2013. Pursuant to the provisions of 326 IAC 2-7-10.5, a Prevention of Significant Deterioration (PSD) and Significant Source Modification is hereby approved as described in the attached Technical Support Document.

Pursuant to 326 IAC 2-7-10.5, the following emission units are approved for construction at the source:

(a) One (1) iron ore concentrate unloading and storage building, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

(1) One (1) rotary rail car dumper, one (1) pedestal mount jack hammer/breaker, one (1) stationary grizzly, two (2) apron feeders, one (1) dribble conveyor, one (1) product conveyor, and one (1) breaker, identified as EU001a, located in the car dumper building, using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains one (1) shuttle conveyor, a storage pile, two (2) loader hoppers, and two (2) covered conveyors, identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloader hopper, equipped with one (1) screen, identified as EU002a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor and one (1) loader hopper, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloader hopper, equipped with one (1) screen, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor and one (1) loader hopper, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart

OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloader hopper, equipped with one (1) screen, identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, one (1) covered belt feeder, one (1) additive conveyor, and one (1) coke breeze grinding mill bin identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) bentonite storage bin with a maximum capacity of 440 tons using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder with soda ash unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) organic binder with soda ash storage bin with a maximum capacity of 55 tons, using bin vent CE006 as control, exhausting inside the building.

(g) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller grinding mill for coke breeze with emergency explosion vent with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons with emergency explosion vent.

(h) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, one (1) hopper discharge feeder, and one (1) covered belt feeder, identified as EU025a, exhausting into the limestone and dolomite storage building.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the additive grinding building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(i) One (1) ground limestone and dolomite additive system, identified as EU010, approved in 2014 for construction, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller grinding mill for limestone and dolomite with a nominal capacity of 71 tons per hour, one (1) product separation cyclone, one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and

dolomite ground additive pneumatic transfer system, and one (1) limestone and dolomite bin with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater, with a maximum heat input capacity of 23 MMBtu per hour.

(j) One (1) mixing area material handling system, identified as EU011, approved in 2014 for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders, , two (2) mixer feed conveyors, and two (2) mixers.

(k) One (1) hearth layer bin system, identified as EU012, approved in 2013 for construction, with a maximum capacity of 660 tons of iron oxide pellets per hour, using baghouse CE012 as control, exhausting to stack SV012, consisting of two (2) hearth layer conveyors and one (1) hearth layer bin.

(l) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) machine discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour, and one (1) emergency discharge chute.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, approved in 2014 for construction, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(m) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting to stack SV020, consisting of the following:

(1) Two (2) product conveyors, identified as P1 and P2, with a maximum capacity of 660 and 770 tons per hour respectively.

(2) Two (2) hearth layer conveyors, identified as HL-1 and HL-2, each with a maximum capacity of 440 tons per hour.

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, one (1) reclaim conveyor, two (2) reclaim hoppers, and one (1) emergency discharge chute.

(n) One (1) oxide pellet storage and loadout system, with a maximum capacity of 550 tons per hour, consisting of the following:

(1) One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction, using baghouse CE019a as control, exhausting to stack SV018a, consisting of two (2) conveyors and two (2) 8800-ton storage bins

(2) One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of two (2) 99-ton weigh bins.

(o) One (1) WBE lime unloading and storage area, identified as EU020, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 7.0 tons per hour, and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(p) One (1) WBE residual product storage and loadout area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(q) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using baghouse CE024 as control, exhausting inside the building.

(r) One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.

(s) Natural gas-fired combustion sources (EU021) with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: [326 IAC 2-2]

(1) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 2013 for construction, with a maximum heat input capacity of 1.7 MMBtu per hour.

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for

construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water eaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(t) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(u) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(v) Other emission units, not regulated by a NESHAP, with PM_{10}, NO_x, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters, three (3) covered conveyors, and a filter cake feed bin, exhausting inside a building. [326 IAC 2-2] [326 IAC 6-3-2]

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

The following construction conditions are applicable to the proposed modification:

<u>General Construction Conditions</u>

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to <u>any</u> proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

<u>Effective Date of the Permit</u>

3. Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

<u>Commenced Construction</u>

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(j), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Approval to Construct

6. Pursuant to 326 IAC 2-7-10.5(h)(2), this Significant Source Modification authorizes the construction of the new emission unit(s), when the Significant Source Modification has been issued.

   Pursuant to 326 IAC 2-7-10.5(m), the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

   Pursuant to 326 IAC 2-7-12, operation of the new emission unit(s) is not approved until the Significant Permit Modification has been issued. Operating conditions shall be incorporated into the Part 70 Operating Permit as a Significant Permit Modification in accordance with 326 IAC 2-7-10.5(m)(2) and 326 IAC 2-7-12 (Permit Modification).

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's Guide for Citizen Participation and, refer to the IDEM's Permit Guide on the Internet at: www.idem.in.gov

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 Julie Alexander of my staff, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for Julie Alexander or extension 3-1782 or dial (317) 233-1782.

Sincerely,

Jenny Acker, Section Chief
Permits Branch
Office of Air Quality

Attachments: Significant Source Modification and Technical Support Document

cc: File - White County
White County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

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Draft

PSD/Significant Source Modification to a Part 70 Source OFFICE OF AIR QUALITY

Mag Pellet LLC
64 East 100 North
Reynolds, Indiana 47980

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

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.
This permit also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-7-10.5, applicable to those conditions.

PSD/Significant Source Modification No.: 181-33965-00054	
Issued by: Jenny Acker, Section Chief, Permits Branch Office of Air Quality	Issuance Date:

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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 iron ore concenrtate pelletizing plant.

Source Address:	64 East 100 North, Reynolds, Indiana 47980
General Source Phone Number:	(574)297-4227
SIC Code:	1011
County Location:	White
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Major Source, under PSD Rules Major Source, Section 112 of the Clean Air Act Not 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:

Note: All references to "ton" used throughout this document are short tons (i.e. One short ton equals 2,000 pounds).

(a) One (1) iron ore concentrate unloading and storage area, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

 (1) One (1) rotary rail car dumper, one (1) pedestal mount jack hammer/breaker, one (1) stationary grizzly, two (2) apron feeders, one (1) dribble conveyor, one (1) product conveyor, and one (1) breaker, identified as EU001a, located in the car dumper building, using baghouse CE001 as control, exhausting to stack SV001.

 (2) One (1) covered conveyor transferring to concentrate storage building which contains one (1) shuttle conveyor, a storage pile, two (2) loader hoppers, and two (2) covered conveyors, identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

 (1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU002a, exhausting uncontrolled to atmosphere.

 (2) One (1) covered conveyor, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, one (1) covered belt feeder, one (1) additive conveyor, and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) bentonite storage bin with a maximum capacity of 440 tons using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder with soda ash unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) organic binder with soda ash storage bin with a maximum capacity of 55 tons, using bin vent CE006 as control, exhausting inside the building.

(g) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller grinding mill for coke breeze with emergency explosion vent with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons with emergency explosion vent.

(h) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, one (1) hopper discharge feeder, and one (1) covered belt feeder, identified as EU025a, exhausting into the limestone and dolomite storage building.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the additive grinding building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(i) One (1) ground limestone and dolomite additive system, identified as EU010, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller grinding mill for limestone and dolomite with a nominal capacity of 71 tons per hour, one (1) product separation cyclone, one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system, and one (1) limestone and dolomite bin, approved in 2013 for construction, with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater, approved in 2014, with a maximum heat input capacity of 23 MMBtu per hour.

(j) One (1) mixing area material handling system, identified as EU011, approved in 2014 for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders, two (2) mixer feed conveyors, and two (2) mixers.

(k) One (1) hearth layer bin system, identified as EU012, approved in 2013 for construction, with a maximum capacity of 660 tons of iron oxide pellets per hour, using baghouse CE012 as control, exhausting to stack SV012, consisting of two (2) hearth layer conveyors and one (1) hearth layer bin.

(l) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) machine discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour, and one (1) emergency discharge chute.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, approved in 2014 for construction, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(m) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting to stack SV020, consisting of the following:

(1) Two (2) product conveyors, identified as P1 and P2, with a maximum capacity of 660 and 770 tons per hour respectively.

(2) Two (2) hearth layer conveyors, identified as HL-1 and HL-2, each with a maximum capacity of 440 tons per hour.

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, one (1) reclaim conveyor, two (2) reclaim hoppers, and one (1) emergency discharge chute.

(n) One (1) oxide pellet storage and loadout system, with a maximum capacity of 550 tons per hour, consisting of the following:

(1) One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction, using baghouse CE019a as control, exhausting to stack SV018a, consisting of two (2) conveyors and two (2) 8800-ton storage bins

(2) One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of two (2) 99-ton weigh bins.

(o) One (1) WBE lime unloading and storage area, identified as EU020, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 7.0 tons per hour, and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(p) One (1) WBE residual product storage and loadout area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(q) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using baghouse CE024 as control, exhausting inside the building.

(r) One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.

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 specifically regulated insignificant activities, as defined in 326 IAC 2-7-1(21):

(a) Natural gas-fired combustion sources (EU021) with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: [326 IAC 2-2]

(1) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 4.3 MMBtu per hour.

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(b) A petroleum fuel (other than gasoline) dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less. [326 IAC 2-2]

(c) Paved and unpaved roads and parking lots with public access. [326 IAC 2-2] [326 IAC 6-4]

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(f) Other emission units, not regulated by a NESHAP, with PM_{10}, NO_x, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters, three (3) covered conveyors, and a filter cake feed bin, exhausting inside a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) One (1) greenball production system, approved in 2013 for construction, with a maximum capacity of 900 tons per hour, using a wet spray process as control, consisting of six (6) 110-ton balling disc feed bins, six (6) balling discs, six (6) green pellet roller screens, six (6) shredders, one (1) single deck roller screen, and thirty-one (31) conveyors, exhausting into a building. [326 IAC 2-2] [326 IAC 6-3-2]

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

A.4 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, as defined in 326 IAC 2-7-1(21):

(a) Combustion source flame safety purging on startup.

(b) Refractory storage not requiring air pollution control equipment.

(c) Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to 1% by volume.

(d) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment.

(e) Cooling tower quench water blowdown.

(f) Process water blowdown.

(g) A laboratory, as defined in 326 IAC 2-7-1(21)(H).

A.5 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 Revocation of Permits [326 IAC 2-1.1-9(5)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)] [326 IAC 2-5.1-4]

This document shall also become the approval to operate pursuant to 326 IAC 2-5.1-4 when prior to the start of operation, the following requirements are met:

(a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.

(c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

B.4 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, T181-32081-00054, 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.5 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.6 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.7 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.8 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.9 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.10 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.11 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 July 1 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.12 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.13 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, 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

(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.14 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.15 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 T181-32081-00054 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 combined permit, all previous registrations and permits are superseded by this combined new source review and part 70 operating permit.

B.16 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.17 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.18 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.19 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.20 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.21 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.22 Source Modification Requirement [326 IAC 2-7-10.5]

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

B.23 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.24 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.25 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.26 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 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 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 forty percent (40%) 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.3 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.4 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.5 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.6 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

C.7 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.8 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.9 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.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)] [40 CFR 64] [326 IAC 3-8]

(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.11 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.12 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 prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval 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 180 days from the date on which this source commences operation.

The ERP 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) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) 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.13 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.14 Response to Excursions or Exceedances [40 CFR 64] [326 IAC 3-8] [326 IAC 2-7-5] [326 IAC 2-7-6]

(I) 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.15 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.16 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]

In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), starting in 2004 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. 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(33) (“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.17 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.18 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11] [326 IAC 2-2] [40 CFR 64] [326 IAC 3-8]

(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) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. 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.19 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: Raw Material Handling

(a) One (1) iron ore concentrate unloading and storage area, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

(1) One (1) rotary rail car dumper, one (1) pedestal mount jack hammer/breaker, one (1) stationary grizzly, two (2) apron feeders, one (1) dribble conveyor, one (1) product conveyor, and one (1) breaker, identified as EU001a, located in the car dumper building, using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains one (1) shuttle conveyor, a storage pile, two (2) loader hoppers, and two (2) covered conveyors, identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU002a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloading hopper, equipped with one (1) screen, identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, one (1) covered belt feeder, one (1) additive conveyor, and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) bentonite storage bin with a maximum capacity of 440 tons using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder with soda ash unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) organic binder with soda ash storage bin with a maximum capacity of 55 tons, using bin vent CE006 as control, exhausting inside the building.

(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 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Raw Material Handling operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	PM	0.002	1.17
		PM_{10}*	0.002	1.17
		$PM_{2.5}$*	0.002	1.17
Coke Breeze Unloading and Storage Area (EU004b)	Baghouse CE004 (SV004)	PM	0.002	0.1388
		PM_{10}*	0.002	0.1388
		$PM_{2.5}$*	0.002	0.1388
Bentonite Unloading and Storage Area (EU005)	Bin Vent Filter CE005 (inside building)	PM	0.002	0.0496
		PM_{10}*	0.002	0.0496
		$PM_{2.5}$*	0.002	0.0496
Organic Binder with Soda Ash Unloading and Storage Area (EU006)	Bin Vent Filter CE006 (inside building)	PM	0.002	0.0429
		PM_{10}*	0.002	0.0429
		$PM_{2.5}$*	0.002	0.0429

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the following Raw Material Handling operations shall be a fugitive dust control plan, an enclosure, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Iron Ore Concentrate Transfer and Storage Area	EU001b	PM	7.86	34.42
		PM_{10}*	3.14	13.77
		$PM_{2.5}$*	0.31	1.38
Limestone Conveyor & Enclosed Storage (Pile)	EU002b	PM	0.20	0.41
		PM_{10}*	0.07	0.15
		$PM_{2.5}$*	0.01	0.02
Dolomite Conveyor & Enclosed Storage (Pile)	EU003b	PM	0.10	0.23
		PM_{10}*	0.04	0.08
		$PM_{2.5}$*	0.04	0.01

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the following Truck Unloading operations shall be a fugitive dust control plan, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Limestone Unloading (Truck)	EU002a	PM	1.07 E-03	2.20 E-03
		PM_{10}*	1.07 E-03	2.20 E-03
		$PM_{2.5}$*	1.07 E-03	2.20 E-03
Dolomite Unloading (Truck)	EU003a	PM	5.33 E-04	1.22 E-03
		PM_{10}*	5.33 E-04	1.22 E-03
		$PM_{2.5}$*	5.33 E-04	1.22 E-03
Coke Breeze Unloading (Truck)	EU004a	PM	7.45 E-04	3.26 E-03
		PM_{10}*	3.52 E-04	1.54 E-03
		$PM_{2.5}$*	1.02 E-04	4.45 E-04

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Raw Material Handling operations shall be as follows:

(1) The weighted average Fluoride Concentration in the Iron Ore Concentrate shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and the following:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	F	5.84 E-05

D.1.2 NAAAQS Limit [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the Air Quality Analysis for PM, PM_{10}, and $PM_{2.5}$ for the Iron Ore Concentrate Unloading (EU001a), the hours of operation shall be limited to 2,190 hours per twelve (12) consecutive month period with compliance determined monthly.

D.1.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations for Manufacturing Processing), the allowable particulate emission rate (E) shall not exceed the listed pounds per hour when operating at the associated process weight rate (P) tons per hour:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Iron Ore Concentrate Transfer and Storage Area (EU001b)	4,950	100.2
Limestone Unloading and Storage (EU002a)	495	68.8
Dolomite Unloading and Storage (EU003a)	495	68.8
Coke Breeze Unloading (EU004a)	7	15.1

(a) The pounds per hour limitation (E) was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0\ P^{0.11} - 40$$

Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

(b) Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the emission limits shown paragraph (a), provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.1.4 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.1.5 Particulate Control

(a) In order to comply with Conditions D.1.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
Iron Ore Concentrate Unloading & Storage Area	EU001	Baghouse CE001
Coke Breeze Pneumatic Conveyance & Storage Bin	EU004b	Baghouse CE004
Bentonite Unloading & Storage Area	EU005	Bin Vent CE005
Organic Binder Unloading with Soda Ash & Storage Area	EU006	Bin Vent CE006

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(c) In order to comply with Conditions D.1.1, the Permittee shall only used clean, washed limestone and dolomite.

D.1.6 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Group 1 Testing Requirements

Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.1.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse CE001 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

(b) Group 2 Testing Requirements

Not later than 180 days from the date the last of the tests required in Conditions D.1.5(a), D.2.6(a), D.3.8, and D.4.4(a) is completed or not later than 360 days from plant startup, whichever is later, in order to demonstrate compliance with Condition D.1.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse CE004 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

D.1.7 Total Fluorides Emissions and Fluoride Content

(I) In order to ensure compliance with Condition D.1.1(d), the Permittee shall utilize one of the following options:

(a) Providing vendor analysis of iron ore concentrate delivered. The certification shall include:

(1) The name of the iron ore concentrate supplier; and

(2) The location of the ore concentrate when the sample was collected for analysis to determine the properties of the iron ore concentrate, specifically including whether the iron ore concentrate was sampled as delivered to the affected facility or whether the iron ore concentrate was collected from iron ore concentrate in storage at an iron ore concentrate preparation plant, at a iron ore concentrate supplier's facility, or at another location. The certification shall include the name of the iron ore concentrate storage facility, or iron ore concentrate preparation plant (where the sample was collected); and

(3) The results of the analysis of the iron ore concentrate from which the shipment came (or of the shipment itself).

(4) The methods used to determine the fluoride concentration of the iron ore concentrate; or

(b) Sampling and analyzing the iron ore concentrate by using the following procedures:

(1) Minimum Iron Ore Concentrate Sampling Requirements and Analysis Methods:

(A) The iron ore concentrate sample acquisition point shall be at a location where representative samples of the total iron ore concentrate are delivered to Magnetation, LLC;

(B) Iron ore concentrate shall be sampled at least one (1) time per delivery;

(C) Preparation of the iron ore concentrate sample and fluoride concentration analysis shall be conducted utilizing methods as approved by the commissioner.

For samples for which the fluoride concentration is less than the detection limit, the Permittee shall use a fluoride concentration level equal to one-half the detection limit.

(II) Compliance with the Fluoride Concentration limit in Condition D.1.1(d) shall be determined using a monthly weighted average. The monthly weighted average shall be determined by the following equation:

$$WA_{Month} = \left[\sum_i \left(A_i \times S_i\right)\right] \div \left[\sum_i S_i\right]$$

Where:

WA_{MONTH} = the Fluoride Concentrate weighted average in mg/kg for the month

A_i = the Fluoride concentration of the iron ore concentrate shipment (i) as determined under Condition D.1.6(I).

S_i = the weight of the iron ore concentrate shipment (i).

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

D.1.8 Visible Emissions Notations

(a) Visible emission notations of the exhausts from baghouses CE001 and CE004 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.1.9 Baghouse Parametric Monitoring

The Permittee shall record the pressure drop across baghouses CE001 and CE004 at least once per day when the associated emission unit is in operation. When, for any one reading, the pressure drop across the baghouse is outside of the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop of 0.5 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.1.10 Bin Vent Inspections

The Permittee shall perform semi-annual bin vent inspections for bin vents CE005 and CE006. All defective filters shall be replaced.

D.1.11 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces, or triboflows.

D.1.12 Bin Vent Filter Failure Detection

In the event that a bin vent filter malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.1.13 Record Keeping Requirements

(a) Weighted Average Fluoride Concentration

To document the compliance status with Condition D.1.1(c) and D.1.7, the Permittee shall maintain monthly records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.1.1(c).

(1) Calendar dates covered in the compliance determination period.

(2) Fluoride concentration of the iron ore concentrate from each shipment.

(3) The weight of each shipment of iron ore concentrate.

(4) The weighted average Fluoride concentration in the iron ore concentrate for the compliance period.

(b) To document the compliance status with Condition D.1.8, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouses CE001 and CE004. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(c) To document the compliance status with Condition D.1.9, the Permittee shall maintain a daily record of the pressure drop across baghouses CE001 and CE004. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).-

(d) To document the compliance status with Condition D.1.10, the Permittee shall maintain a record of the semi-annual inspections of bin vents CE005 and CE006.

(e) To document compliance status with Condition D.1.1(a), the Permittee shall maintain records of the manufacturer's specifications for bin vents CE005 and CE006.

(f) To document compliance status with Condition D.1.2, the Permittee shall maintain records of the hours of operation for the Iron Ore Concentrate Unloading (EU001a) operation.

(g) To document compliance status with Condition D1.1 and D.1.5(c), the Permittee shall maintain the vendor guarantee that the limestone and dolomite has been cleaned.

(h) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.1.14 Reporting Requirements

(a) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate delivered to EU001 and a quarterly summary of the information to document the compliance status with D.1.1(c) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Additive Grinding and Mixing

(g) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller grinding mill for coke breeze with emergency explosion vent with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons with emergency explosion vent.

(h) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, one (1) hopper discharge feeder, and one (1) covered belt feeder, identified as EU025a, exhausting into the limestone and dolomite storage building.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the additive grinding building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(i) One (1) ground limestone and dolomite additive system, identified as EU010, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller grinding mill for limestone and dolomite with a nominal capacity of 71 tons per hour, one (1) product separation cyclone, one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system, and one (1) limestone and dolomite bin, approved in 2013 for construction, with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater, approved in 2014, with a maximum heat input capacity of 23 MMBtu per hour.

(j) One (1) mixing area material handling system, identified as EU011, approved in 2014 for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders, two (2) mixer feed conveyors, and two (2) mixers.

(k) One (1) hearth layer bin system, identified as EU012, approved in 2013 for construction, with a maximum capacity of 660 tons of iron oxide pellets per hour, using baghouse CE012 as control, exhausting to stack SV012, consisting of two (2) hearth layer conveyors and one (1) hearth layer bin.

(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.2.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Additive Grinding and Mixing operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Coke Breeze Additive System (EU009)	Baghouse CE009 (SV009)	PM	0.002	0.14
		PM_{10}*	0.002	0.14
		$PM_{2.5}$*	0.002	0.14
Limestone and Dolomite Grinding Mill Bin Area (EU025b)	Baghouse CE023 (inside building)	PM	0.002	0.26
		PM_{10}*	0.002	0.26
		$PM_{2.5}$*	0.002	0.26
Ground Limestone and Dolomite Area Additive System (EU010)	Baghouse CE010 (SV010)	PM	0.002	0.32
		PM_{10}*	0.002	0.32
		$PM_{2.5}$*	0.002	0.32
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	PM	0.002	0.77
		PM_{10}*	0.002	0.77
		$PM_{2.5}$*	0.002	0.77
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	PM	0.002	0.11
		PM_{10}*	0.002	0.11
		$PM_{2.5}$*	0.002	0.11

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Additive Grinding and Mixing operations shall be an enclosed conveyor and Grizzly Feeder, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Limestone/Dolomite Hopper &Grizzly Feeder/Screener and Belt Feeder	EU025a	PM	0.60	1.28
		PM_{10}*	0.22	0.47
		$PM_{2.5}$*	0.02	0.05

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the Additive Grinding and Mixing operations shall be as follows:

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Ground Limestone/ Dolomite Additive System Air Heater (EU010)	No Control	SO_2	0.00048 lb/MMBtu
	Low NO_x Burners	NO_x	0.012 lb/MMBtu
	No Control	F	9.40×10^{-6} lb/MMBtu
		GHG (as CO_2e)	11,787 tons per 12-month period

*Note: PM, PM10, and PM2.5 combustion emissions for EU010 are accounted for in the material handling limits under Condition D.2.1(a).

This unit shall only combust natural gas, and the Permittee shall practice good combustion practices when this unit is combusting natural gas.

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Additive Grinding and Mixing operations shall be as follows:

(1) The weighted average Fluoride Concentration in the blended filter cake handled by the mixing area material handling system (EU011) and hearth layer bin system (EU012) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	F	3.83 E -05
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	F	5.48 E -06

D.2.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations for Manufacturing Processing), the allowable particulate emission rate (E) shall not exceed the listed pounds per hour when operating at the associated process weight rate (P) tons per hour:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Limestone and Dolomite Grinding Mill Bin Area (EU025a)	495	68.8

(a) The pounds per hour limitation (E) was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0\ P^{0.11} - 40$$

Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

(b) Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the emission limits shown paragraph (a), provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.2.3 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.2.4 Particulate Control

(a) In order to comply with Conditions D.2.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
Coke Breeze Additive System	EU009	Baghouse CE009
Limestone/Dolomite Grinding Mill Bin Area	EU025b	Baghouse CE023
Ground Limestone/ Dolomite Additive System	EU010	Baghouse CE010
Mixing Area Material Handling System	EU011	Baghouse CE011
Hearth Layer Bin System	EU012	Baghouse CE012

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.2.5 NOx Control

In order to comply with Condition D.2.1(c), low NO_x burners for NO_x control shall be in operation and control NO_x emissions from the Ground Limestone/Dolomite Additive System Air Heater (EU010) at all times the emission unit is in operation.

D.2.6 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

(a) Group 1 Testing Requirements

Not later than 180 days from plant startup, in order to demonstrate compliance with Conditions D.2.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouses CE009, CE023, and CE010 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

(b) Group 2 Testing Requirements

Not later than 180 days from the date the last of the tests required in Conditions D.1.5(a), D.2.6(a), D.3.8, and D.4.4(a) is completed or not later than 360 days from plant startup, whichever is later, in order to demonstrate compliance with Condition D.2.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouses CE011 and CE012 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

D.2.7 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.2.1(d), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

D.2.8 Greenhouse Gases (GHGs)

To determine the compliance status with Condition D.2.1(c), the following equation shall be used to determine the CO_2e emissions from the Ground Limestone/ Dolomite Additive System Air Heater, identified as EU010:

CO_2e emissions (tons/month) = Fuel Usage (mmscf/month) x Heat Content (mmbtu/mmscf) x [CO_2 EF (kg/mmbtu) x CO_2 GWP + CH_4 EF (kg/mmbtu) x CH_4 GWP + N_2O EF (kg/mmbtu) x N_2O GWP] x 2.2046 (lb/kg) x 1/2000 (ton/lb)

Where:
Fuel Usage (mmscf/month) = monthly fuel usage data from company records
Heat Content (mmbtu/mmscf) = standard value in AP-42 for natural gas or vendor data, if available
CO_2 EF (kg/mmbtu) = emission factor from GHG Mandatory Reporting Rule (MRR) (40 CFR 98, Subpart C) for natural gas
CH_4 EF (kg/mmbtu) = emission factor from GHG MRR (40 CFR 98, Subpart C) for natural gas
N_2O EF (kg/mmbtu) = emission factor from GHG MRR (40 CFR 98, Subpart C) for natural gas
CO_2 GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)
CH_4 GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)
N_2O GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)

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

D.2.9 Visible Emissions Notations

(a) Visible emission notations of the exhausts from baghouses CE009, CE010, and CE012 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.2.10 Baghouse Parametric Monitoring

The Permittee shall record the pressure drop across baghouses CE009, CE010, and CE012 at least once per day when the associated emission unit is in operation. When, for any one reading, the pressure drop across the baghouse is outside of the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop of 0.5 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.2.11 Baghouse and Bin Vent Inspections

The Permittee shall perform semi-annual inspections for baghouses CE023 and CE011. All defective bags shall be replaced.

D.2.12 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces, or triboflows.

D.2.13 Bin Vent Filter Failure Detection

In the event that a bin vent filter malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.2.14 Record Keeping Requirements

(a) To document the compliance status with Conditions D.2.1(c) and D.2.8 the Permittee shall maintain records in accordance with (1) through (3) below. Records maintained for (1) through (3) shall be taken monthly and shall be complete and sufficient to establish compliance with the emission limits established in Condition D.2.1(c).

(1) Calendar dates covered in the compliance determination period.

(2) Natural gas usage for the Ground Limestone/Dolomite Additive System Air Heater (EU010).

(3) Monthly records of the CO_2e emissions.

(b) To document the compliance status with Conditions D.2.1(d) and D.2.7, the Permittee shall comply with the record keeping requirements of Condition D.1.12(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition

D.1.12(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.2.1(d).

(c) To document the compliance status with Condition D.2.9, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouses CE009, CE010, and CE012. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(d) To document the compliance status with Condition D.2.10, the Permittee shall maintain a daily record of the pressure drop across baghouses CE009, CE010, and CE012. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(e) To document the compliance status with Condition D.2.11, the Permittee shall maintain a record of the semi-annual inspections of baghouses CE023 and CE011.

(f) To document compliance status with Condition D.2.1(a), the Permittee shall maintain records of the manufacturer's specifications for baghouses CE023 and CE011.

(g) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.2.15 Reporting Requirements

(a) A quarterly report of CO_2e emissions and a quarterly summary of the information to document the compliance status with Condition D.2.1(c) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate, utilized at EU011 and EU012, and a quarterly summary of the information to document the compliance status with D.2.1(d) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(c) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Induration

(l) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) machine discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour, and one (1) emergency discharge chute.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, approved in 2014 for construction, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(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.3.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the Induration operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Hood Exhaust (EU013)	Baghouse CE013 (SV013A)	PM	0.004 gr/dscf
		PM	11.40 lb/hr
		PM_{10}*	0.008 gr/dscf
		PM_{10}*	22.01 lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	22.01 lb/hr
		Opacity	5% (6-min average)
	No Control	SO_2	7.1 ppmv wet corrected to 20% O_2 and 21.68 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	No Control	F	2.1 ppmv wet corrected to 20% O_2 and 1.98 lb/hr

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Windbox Exhaust (EU014)	Baghouse CE016 (SV013B)	PM	0.004 gr/dscf
		PM	18.25 lb/hr
		PM_{10}*	0.008 gr/dscf
		PM_{10}*	35.22 lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	35.22 lb/hr
		Opacity	5% (6-min average)
	GSA Dry Scrubber	SO_2	5.0 ppmv wet corrected to 15% O_2 and 19.61 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	GSA Dry Scrubber	F	11.4 ppmv wet corrected to 15% O_2 and 12.34 lb/hr
Machine Discharge System (EU015)	Baghouse CE017 (SV014)	PM	0.002 gr/dscf
		PM	1.01 lb/hr
		PM_{10}*	0.002 gr/dscf
		PM_{10}*	1.01 lb/hr
		$PM_{2.5}$*	0.002 gr/dscf
		$PM_{2.5}$*	1.01 lb/hr

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Machine Discharge System (EU015) shall be as follows:

(1) The weighted average Fluoride Concentration in the oxide pellets handled by the Machine discharge system (EU015) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Machine Discharge System (EU015)	Baghouse CE017 (SV014)	F	5.06E-05

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for greenhouse gases (as CO_2e) for the Induration operations shall be as follows:

Emission Unit Description	GHG (as CO_2e) Emission Limit (tons per 12-month period)
Hardening Furnace	661,208

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation.

D.3.2 Prevention of Significant Deterioration (PSD) Minor Limit for Lead [326 IAC 2-2]

The Lead emissions from the following emission shall not exceed the emission limits in the table below:

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Hood Exhaust (EU013)	Baghouse CE013 (SV013A)	Lead	0.03 lb/hr
Furnace Windbox Exhaust (EU014)	Baghouse CE016 (SV013B)	Lead	0.05 lb/hr

Compliance with the above Lead emission limits, in conjunction with the unrestricted PTE from this source, shall limit the potential to emit of Lead from the entire source to less than 0.6 tons per twelve (12) consecutive month period.. Therefore, the requirements of 326 IAC 2-2, Prevention of Significant Deterioration (PSD), are not applicable to the source for Lead.

D.3.3 Major Sources of Hazardous Air Pollutants (HAPs) [326 IAC 2-4.1]

Pursuant to 326 IAC 2-4.1, the Maximum Available Control Technology (MACT) for hydrogen fluoride (HF) emissions for the Furnace Windbox Exhaust (EU014) shall be the use of a GSA dry scrubber with a maximum outlet HF concentration of 11.4 ppmv wet and a corresponding 12.34 lb/hr limit.

D.3.4 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.3.5 Particulate and Lead Control

(a) In order to comply with Condition D.3.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
Furnace Hood Exhaust	EU013	Baghouse CE013
Furnace Windbox Exhaust	EU014	Baghouse CE016
Machine Discharge System	EU015	Baghouse CE017

(b) In order to comply with Condition D.3.2, the following control devices for lead control shall be in operation and control lead emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
Furnace Hood Exhaust	EU013	Baghouse CE013
Furnace Windbox Exhaust	EU014	Baghouse CE016

(c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.3.6 SO2, Fluorides, and HF Control

In order to comply with Conditions D.3.1 and D.3.3, gas suspension absorber CE015 for SO_2, fluorides, and HF control shall be in operation and control SO_2, fluorides, and HF emissions from emission unit EU014 at all times the emission unit is in operation.

D.3.7 NOx Control

In order to comply with Condition D.3.1, low NO_x LE burners for NO_x control shall be in operation and control NO_x emissions from emission units EU013 and EU014 at all times those emission units are in operation.

D.3.8 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Group 1 Testing Requirements

(a) Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.3.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for stacks SV013A, SV013B and SV014 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

(b) Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.3.1, the Permittee shall perform SO_2, NO_X, and Fluoride testing for stacks SV013A and SV013B utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section.

(c) Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.3.2, the Permittee shall perform lead testing for stacks SV013A and SV013B utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section.

(d) Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.3.3, the Permittee shall perform HF testing for stack SV013B utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section.

(e) Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.3.1(c), the Permittee shall perform CO2 testing for stacks SV013A and SV013B utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section.

D.3.9 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.3.1(b), for the Machine Discharge System (EU015), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

D.3.10 Greenhouse Gases (GHGs)

To determine the compliance status with Condition D.3.1(c), the Permittee shall calculate the CO_2e emissions from the hardening furnace using the following equation:

CO_2e emissions (tons/month) =
{Natural Gas Usage (mmscf/month) x Heat Content (mmbtu/mmscf) x [CO_2 EF_{NG} (kg/mmbtu) x CO_2 GWP + CH_4 EF_{NG} (kg/mmbtu) x CH_4 GWP + N_2O EF_{NG} (kg/mmbtu) x N_2O GWP] x 2.2046 (lb/kg) x 1/2000 (ton/lb)}
+ {Iron Ore Concentrate Usage (metric tonnes/month) x CO_2 EF_{IRN} (metric tonne CO_2/metric tonne material) x 1.1023 (ton/metric tonne) x CO_2 GWP}
+ {Limestone Usage (metric tonnes/month) x CO_2 EF_{LMST} (metric tonne CO_2/metric tonne material) x 1.1023 (ton/metric tonne) x CO_2 GWP}
+ {Dolomite Usage (metric tonnes/month) x CO_2 EF_{DOL} (metric tonne CO_2/metric tonne material) x 1.1023 (ton/metric tonne) x CO_2 GWP}
+ {Coke Breeze Usage (metric tonnes/month) x CO_2 EF_{CKBZ} (metric tonne CO_2/metric tonne material) x 1.1023 (ton/metric tonne) x CO_2 GWP}
+ {Soda Ash Usage (metric tonnes/month) x CO_2 EF_{SODA} (metric tonne CO_2/metric tonne material) x 1.1023 (ton/metric tonne) x CO_2 GWP}

Where:

Parameter	Numerical Value	Source
Fuel Usage (mmscf/month)	**	Monthly natural gas usage from company records.
Heat Content (mmbtu/mmscf)	1020	or vendor data
CO_2 EF_{NG} (kg/mmbtu)	53.02	40 CFR 98, Subpart C
CH_4 EF_{NG} (kg/mmbtu)	1.0E-03	40 CFR 98, Subpart C
N_2O EF_{NG} (kg/mmbtu)	1.0E-04	40 CFR 98, Subpart C
CO_2 GWP	1	40 CFR 98, Subpart A
CH_4 GWP	21	40 CFR 98, Subpart A
N_2O GWP	310	40 CFR 98, Subpart A
Iron Ore Concentrate Usage (metric tonnes / month)	**	Monthly iron ore concentrate usage data from company records.
Iron Ore Concentrate CO_2 EF_{IRN} (metric tonne CO_2/metric tonne material)	0.006	Midland Research Center analysis obtained from 1998 Minnesota Iron & Steel pilot study.
Limestone Usage (metric tonnes / month)	**	Monthly limestone usage data from company records.
Limestone CO_2 EF_{LMST} (metric tonne CO_2/metric tonne material)	0.43971	40 CFR 98, Subpart U
Dolomite Usage (metric tonnes / month)	**	Monthly dolomite usage data from company records.
Dolomite CO_2 EF_{DOL} (metric tonne CO_2/metric tonne material)	0.47732	40 CFR 98, Subpart U
Coke Breeze Usage (metric tonnes / month)	**	Monthly coke breeze usage data from company records.

Parameter	Numerical Value	Source
Coke Breeze CO_2 EF_{CKBZ} (metric tonne CO_2/metric tonne material)	3.66	Assume coke breeze is 100% carbon and it all converts to CO_2.
Soda Ash Usage (metric tonnes / month)	**	Monthly soda ash usage data from company records.
Soda Ash CO_2 EF_{SODA} (metric tonne CO_2/metric tonne material)	0.41492	40 CFR 98, Subpart U

** Value based on monthly data.

D.3.11 Cooling Tower Total Dissolved Solids

(a) To determine the compliance status with Condition D.3.1(d), the Permittee shall perform tests of the total dissolved solids (TDS) in the blow-down water on a weekly basis using an EPA approved test. The Permittee shall make a notation of water circulation rate at the time of the test.

(b) The Permittee shall calculate the PM, PM_{10}, and $PM_{2.5}$ emission rates using an EPA-approved calculation based on the TDS testing results and the water circulation rate at the time of the TDS testing.

(c) This test shall not be required for any seven (7) day period in which the cooling tower is not in operation provided the Permittee maintains a log of the cooling tower operation.

When for any one reading the TDS exceeds 6,009 milligrams per liter, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee's obligation.

D.3.12 Sulfur Content

In order to demonstrate compliance with Condition D.3.1(a), the input of sulfur, as a component of coke breeze, shall not exceed 101 pounds/hour, with compliance demonstrated using one of the following options:

(a) If the coke breeze meets the following criteria, the Permittee is in compliance:

(1) The sulfur content of the coke breeze (% SCCB) shall not exceed 0.74%, and

(2) The amount of coke breeze used per hour shall not exceed 6.82 ton/hr.

(b) For any hour that either one of the above criteria is exceeded, the Permittee shall calculate the sulfur input from the hardening furnace using the following equation:

$$S(lb/hr) = (\%SCCB) \times CB(ton/hr) \times \left(\frac{2000lb}{1ton}\right)$$

Where:

S (lbs/hr)	=	Sulfur input to the hardening furnace as a component of coke breeze
% SCCB	=	% of actual Sulfur Content of Coke Breeze used
CB (ton/hr)	=	Hourly usage of coke breeze from company records

D.3.13 Sulfur Content of Coke Breeze

The sulfur content of the coke breeze shall be determined using one of the following options:

(a) Providing vendor analysis of coke breeze delivered. The certification shall include:

(1) The name of the coke breeze supplier; and

(2) The location of the coke breeze when the sample was collected for analysis to determine the properties of the coke breeze, specifically including whether the coke breeze was sampled as delivered to the affected facility or whether the coke breeze was collected from coke breeze in storage at a coke breeze preparation plant, at a coke breeze supplier's facility, or at another location. The certification shall include the name of the coke breeze storage facility, or coke breeze preparation plant (where the sample was collected); and

(3) The results of the analysis of the coke breeze from which the shipment came (or of the shipment itself); and

(4) The methods used to determine the sulfur concentration of the coke breeze; or

(b) Sampling and analyzing the coke breeze by using the following procedures:

(1) Minimum coke breeze Sampling Requirements and Analysis Methods:

(A) The coke breeze sample acquisition point shall be at a location where representative samples of the total coke breeze are delivered to Magnetation, LLC;

(B) Coke breeze shall be sampled at least one (1) time per delivery;

(C) Preparation of the coke breeze sample and sulfur concentration analysis shall be conducted utilizing methods as approved by the commissioner.

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

D.3.14 Visible Emissions Notations

(a) Visible emission notations of the exhausts from baghouses CE013, CE016, and CE017 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.3.15 Baghouse Parametric Monitoring

The Permittee shall record the pressure drop across baghouses CE013, CE016, and CE017 at least once per day when the associated emission unit is in operation. When, for any one reading, the pressure drop across the baghouse is outside of the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop of 5.0 and 10.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.3.16 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces, or triboflows.

D.3.17 Gas Suspension Absorber Parametric Monitoring

(a) The Permittee shall monitor and record the air flow rate through the reactor of gas suspension absorber CE015, as determined by the static pressure of the venturi, at least once per day when the hardening furnace is in operation. From the date of startup until the stack test results are available, the Permittee shall maintain the air flow rate at or above the minimum of 250,000 dscfm (68^{o}F and 1 atm).

(b) The Permittee shall determine the minimum air flow rate from the latest valid stack test that demonstrates compliance with limits in Conditions D.3.1 and D.3.3.

(c) On and after the date the stack test results are available, the Permittee shall maintain an air flow rate at or above the minimum rate as observed during the latest compliant stack test.

(d) When for any one reading, the air flow rate is below the above mentioned minimum, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the minimum air flow rate shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

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

D.3.18 Record Keeping Requirements

(a) To document the compliance status with Conditions D.3.1(b) and D.3.9, the Permittee shall comply with the record keeping requirements of Condition D.1.12(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition D.1.12(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.3.1(b).

(b) To document the compliance status with Conditions D.3.1(a), D.3.12, and D.3.13, the Permitee shall maintain monthly records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.3.1(a).

(1) Calendar dates and times covered in the compliance period.

(2) Sulfur content of coke breeze for each shipment and the documentation and methodology for how the content was obtained.

(3) Hourly amount of coke breeze use.

(4) Hourly amount of sulfur input to the hardening furnace.

(c) To document the compliance status with Conditions D.3.1(c) and D.3.10, the Permittee shall maintain monthly records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.3.1(c).

(1) Calendar dates covered in the compliance determination period.

(2) Natural gas usage for the induction hardening furnace.

(3) Monthly usage (metric tonnes) of iron ore concentrate, limestone, dolomite, coke breeze, and organic binder with soda ash.

(4) Monthly records of CO2e emissions.

(d) To document the compliance status with Conditions D.3.1(d) and D.3.11, the Permittee shall maintain a log that contains the date and result of each TDS test, the water circulation rate at the time of the test, and the resulting mass emission rates. The Permittee shall include in its log when the testing in not conducted and the reason for the lack of a log (e.g. the cooling tower was not operational for the prescribed period.)

(e) To document the compliance status with Condition D.3.14, the Permittee shall maintain a daily record of visible emission notations of the exhausts from the baghouses CE013, CE016, CE017. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(f) To document the compliance status with Condition D.3.15, the Permittee shall maintain a daily record of the pressure drop across baghouses CE013, CE016, and CE017. The

Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(g) To document the compliance status with Condition D.3.17, the Permittee shall maintain a daily record of the minimum air flow rate through the reactor of gas suspension absorber CE015. The Permittee shall include in its daily record when a minimum air flow rate reading is not taken and the reason for the lack of a minimum air flow rate reading (e.g. the process did not operate that day).

(h) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.3.19 Reporting Requirements

(a) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate and a quarterly summary of the information to document the compliance status with D.3.1(b) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) A quarterly report of the hourly sulfur input to the indurating furnace, when demonstration compliance with D.3.12(b) - Sulfur Content, and a quarterly summary of the information to document the compliance status with D.3.1(a) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(c) A quarterly report of CO_2e emissions to document the compliance status with Condition D.3.1(c) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(d) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Separation and Loadout

(m) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting to stack SV020, consisting of the following:

(1) Two (2) product conveyors, identified as P1 and P2, with a maximum capacity of 660 and 770 tons per hour respectively.

(2) Two (2) hearth layer conveyors, identified as HL-1 and HL-2, each with a maximum capacity of 440 tons per hour.

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, one (1) reclaim conveyor, two (2) reclaim hoppers, and one (1) emergency discharge chute.

(n) One (1) oxide pellet storage and loadout system, with a maximum capacity of 550 tons per hour, consisting of the following:

(1) One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction, using baghouse CE019a as control, exhausting to stack SV018a, consisting of two (2) conveyors and two (2) 8800-ton storage bins

(2) One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of two (2) 99-ton weigh bins.

(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.4.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Separation**,** Storage and Loadout operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (SV020)	PM	0.002	0.49
		PM_{10}*	0.002	0.49
		$PM_{2.5}$*	0.002	0.49
Oxide Pellet Storage System (EU019a)	Baghouse CE019 (SV018a)	PM	0.002	0.13
		PM_{10}*	0.002	0.13
		$PM_{2.5}$*	0.002	0.13
Oxide Pellet Loadout System (EU019b)	Baghouse CE019 (SV018b)	PM	0.002	1.0
		PM_{10}*	0.002	1.0
		$PM_{2.5}$*	0.002	1.0

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Separation**,** Storage and Loadout operations shall be as follows:

(1) The weighted average Fluoride Concentration in the finished oxide pellets handled by the hearth layer separation system (EU016) and the oxide pellet storage system (EU019a) and the oxide pellet loadout system (EU019b) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (SV020)	F	2.34E-05
Oxide Pellet Storage System (EU019a)	Baghouse CE019 (SV018a)	F	6.34E-06
Oxide Pellet Loadout System (EU019b)	Baghouse CE019 (SV018b)	F	5.01 E-05

D.4.2 NAAAQS Limit [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the Air Quality for PM, PM_{10}, and $PM_{2.5}$ for the Oxide Pellet Loadout System (EU019b), the hours of operation shall be limited to 1,095 hours per twelve (12) consecutive month period with compliance determined monthly.

D.4.3 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.4.4 Particulate Control

(a) In order to comply with Conditions D.4.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
Hearth Layer Separation System	EU016	Baghouse CE018
Oxide Pellet Storage System	EU019a	Baghouse CE019a
Oxide Pellet Loadout System	EU019b	Baghouse CE019b

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.4.5 Testing Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Group 1 Testing Requirements

Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.4.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouses CE019a and CE019b utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

(b) Group 2 Testing Requirements

Not later than 180 days from the date the last of the tests required in Conditions D.1.6(a), D.2.6(a), D.3.8, and D.4.5(a) is completed or not later than 360 days from plant startup, whichever is later, in order to demonstrate compliance with Condition D.4.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse CE018 utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

D.4.6 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.4.1(b), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

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

D.4.7 Visible Emissions Notations

(a) Visible emission notations of the exhausts from baghouses CE018, CE019a, and CE019b shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.4.8 Baghouse Parametric Monitoring

(a) The Permittee shall record the pressure drop across baghouses CE018, CE019a, and CE019b at least once per day when the associated emission unit is in operation.

(b) When, for any one reading, the pressure drop across the baghouse is outside of the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop of 5.0 and 10.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

(c) The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.4.9 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces, or triboflows.

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

D.4.10 Record Keeping Requirements

(a) To document the compliance status with Condition D.4.1(b) and D.4.6, the Permittee shall the Permittee shall comply with the record keeping requirements of Condition D.1.13(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition D.1.13(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.4.1(b).

(b) To document the compliance status with Condition D.4.7, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouses CE018, CE019a, and CE019b. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(c) To document the compliance status with Condition D.4.8, the Permittee shall maintain a daily record of the pressure drop across baghouses CE018, CE019a, and CE019b. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(d) To document compliance status with Condition D.4.2, the Permittee shall maintain records of the hours of operation for the Oxide Pellet Loadout System (EU019b).

(e) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.4.11 Reporting Requirements

(a) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate and a quarterly summary of the information to document the compliance status with D.4.1(b) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Windbox Exhaust Air Pollution Control Equipment

(o) One (1) WBE lime unloading and storage area, identified as EU020, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 7.0 tons per hour, and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(p) One (1) WBE residual product storage and loadout area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(q) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using baghouse CE024 as control, exhausting inside the building.

(r) One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.

(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.5.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Windbox Exhaust Air Pollution Control Equipment operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
WBE Lime Storage Area (EU020)	Bin Vent CE020 (inside building)	PM	0.002	0.02
		PM_{10}*	0.002	0.02
		$PM_{2.5}$*	0.002	0.02
WBE Residual Product Loading Area (EU022)	Bin Vent CE021 (inside building)	PM	0.002	0.02
		PM_{10}*	0.002	0.02
		$PM_{2.5}$*	0.002	0.02
Recycled Dust Storage Area (EU026)	Baghouse CE024 (inside building)	PM	0.002	0.16
		PM_{10}*	0.002	0.16
		$PM_{2.5}$*	0.002	0.16
Dust Recycle Surge Hopper (EU027)	Baghouse CE027 (SV027)	PM	0.002	0.05
		PM_{10}*	0.002	0.05
		$PM_{2.5}$*	0.002	0.05

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Windbox Exhaust Air Pollution Control Equipment shall be as follows:

(1) The weighted average Fluoride Concentration in the recycled dust handled by the recycled dust storage area (EU026) and the dust recycle surge hopper (EU027) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Recycled Dust Storage Area (EU026)	Baghouse CE024 (inside building)	F	7.88 E-06
Dust Recycle Surge Hopper (EU027)	Baghouse CE027 (SV027)	F	2.45 E-06

D.5.2 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.5.3 Particulate Control

(a) In order to comply with Conditions D.5.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Emission Unit ID	Control Device
WBE Lime Storage Silo	EU020	Bin Vent CE020
WBE Residual Product Loading Area	EU022	Bin Vent CE021
Recycled Dust Storage Area	EU026	Baghouse CE024
Dust Recycle Surge Hopper	EU027	Baghouse CE027

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.5.4 Testing Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

Group 2 Testing Requirements

Not later than 180 days from the date the last of the tests required in Conditions D.1.5(a), D.2.6(a), D.3.8, and D.4.4(a) is completed or not later than 360 days from plant startup, whichever is later, in order to demonstrate compliance with Condition D.5.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse CE027 and CE024, utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

D.5.5 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.5.1(b), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

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

D.5.6 Visible Emissions Notations

(a) Visible emission notations of CE027 stack exhausts shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C – Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.5.7 Parametric Monitoring

The Permittee shall record the pressure drop across CE027 at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a baghouse is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 3.0 and 10.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure shall comply with Section C – Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.5.8 Baghouse and Bin Vent Inspections

(a) The Permittee shall perform semi-annual inspections for baghouse CE024. All defective bags shall be replaced.

(b) The Permittee shall perform semi-annual inspections for bin vents CE020 and CE021. All defective filters shall be replaced.

D.5.9 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emissions unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces, or triboflows.

D.5.10 Bin Vent Filter Failure Detection

In the event that a bin vent filter malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.5.11 Record Keeping Requirements

(a) To document the compliance status with Conditions D.5.1(b) and D.5.5, the Permittee shall comply with the record keeping requirements of Condition D.1.12(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition D.1.12(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.5.1(b).

(b) To document the compliance status with Conditions D.5.6, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouse CE027. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(c) To document the compliance status with Conditions D.5.7, the Permittee shall maintain a daily record of the pressure drop across baghouse CE027. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(d) To document the compliance status with Condition D.5.8, the Permittee shall maintain a record of the semi-annual inspections of bin vents CE020 and CE021 and baghouse CE024.

(e) To document compliance status with Condition D.5.1(a), the Permittee shall maintain records of the manufacturer's specifications for bin vents CE020 and CE021 and for baghouse CE024.

(f) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.5.12 Reporting Requirements

(a) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate and a quarterly summary of the information to document the compliance status with D.5.1(b) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Insignificant Activities

(a) Natural gas-fired combustion sources (EU021) with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: [326 IAC 2-2]

(1) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 4.3 MMBtu per hour.

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(b) A petroleum fuel (other than gasoline) dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less. [326 IAC 2-2]

(c) Paved and unpaved roads and parking lots with public access. [326 IAC 2-2] [326 IAC 6-4]

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

(f) Other emission units, not regulated by a NESHAP, with PM_{10}, NO_x, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters, three (3) covered conveyors, and a filter cake feed bin, exhausting inside a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) One (1) greenball production system, approved in 2013 for construction, with a maximum capacity of 900 tons per hour, using a wet spray process as control, consisting of six (6) 110-ton balling disc feed bins, six (6) balling discs, six (6) green pellet roller screens, six (6) shredders, one (1) single deck roller screen, and thirty-one (31) conveyors, exhausting into a building. [326 IAC 2-2] [326 IAC 6-3-2]

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

(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.6.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the insignificant activities shall be as follows:

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Emergency Generators (EU017a and EU017b)	No Control	PM	0.20 g/kw-hr, each
		PM_{10}*	0.20 g/kw-hr, each
		$PM_{2.5}$*	0.20 g/kw-hr, each
		SO_2	0.0015 g/kw-hr, each
		NO_x	0.50 g/hp-hr, each
		F	6.95×10^{-6} lb/MMBtu, each
Space Heaters (EU021), Coke Breeze Additive System Air Heater (EU009)	No Control	PM	0.0072 lb/MMBtu, each
		PM_{10}*	0.0072 lb/MMBtu, each
		$PM_{2.5}$*	0.0072 lb/MMBtu, each
		SO_2	0.00048 lb/MMBtu, each
	Low NO_x Burners	NO_x	0.05 lb/MMBtu, each
	No Control	F	9.40×10^{-6} lb/MMBtu, each
Fire Pump (EU018)	No Control	PM	3.10 E -01 lb/MMBtu
		PM_{10}*	3.10 E -01 lb/MMBtu
		$PM_{2.5}$*	3.10 E -01 lb/MMBtu
		SO_2	2.90 E -01 lb/MMBtu
		NO_x	4.41 lb/MMBtu
		F	1.18 E -03 lb/MMBtu

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(1) Emergency generators (EU017a and EU017b) and Space Heaters (EU021) shall only combust natural gas, and the Permittee shall practice good combustion practices when these units are combusting natural gas.

(2) The emergency generators (EU017a and EU017b) shall not exceed 500 hours of operation, each, per 12-month period.

(3) The fire pump (EU018) shall not exceed 500 hours of operation per 12-month period.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for greenhouse gases (as CO_2e) for the insignificant activities shall be as follows:

Emission Unit		GHG (as CO_2e) Emission Limit (tons per 12-month period)
Description	Unit No.	
Emergency Generator	EU017a	382.35
Emergency Generator	EU017b	382.35
Fire Pump	EU018	92
Space Heaters	EU021	11,801

Emission Unit		GHG (as CO_2e) Emission Limit (tons per 12-month period)
Description	Unit No.	
Coke Breeze Additive System Air Heater	EU009	2,203.2

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Iron Ore Wet Grinding and Filter Cake Production and the Greenball Production System shall be that the opacity shall not exceed five percent (5%) on a six (6) minute average and the following:

Emission Unit Description	Emission Limitations		
	Pollutant	Lb/hr	TPY
Iron Ore Wet Grinding and Filter Cake Production	PM	0.77	3.37
	PM_{10}*	0.07	0.31
	$PM_{2.5}$*	0.07	0.31
Greenball Production System	PM	0.77	3.37
	PM_{10}*	0.07	0.31
	$PM_{2.5}$*	0.07	0.31

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the insignificant activities shall be as follows:

(1) The weighted average Fluoride Concentration in the material handled by the iron ore concentrate wet grinding and filter cake production and greenball production system shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly.

(e) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Paved Roads shall be controlled through the development, maintenance, and implementation of a fugitive dust control plan, which shall include vacuum sweeping and water flushing as necessary and the implementation of a speed reduction plan.

(f) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation.

D.6.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations for Manufacturing Processing), the allowable particulate emission rate (E) shall not exceed the listed pounds per hour when operating at the associated process weight rate (P) tons per hour:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Iron Ore Concentrate Wet Grinding and Filter Cake Production System	900	76.2
Greenball Production System	700	73.0

(a) The pounds per hour limitation (E) was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0\ P^{0.11} - 40$$

Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

(b) Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the emission limits shown paragraph (a), provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.6.3 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.6.4 Particulate Control

In order to comply with Conditions D.6.1, the following control devices for particulate control shall be in operation and control particulate emissions from the associated emission units at all times those emission units are in operation:

Emission Unit Description	Control Device
Iron Ore Concentrate Wet Grinding and Filter Cake Production System	Wet Spray
Greenball Production System	Wet Spray

D.6.5 NOx Control

In order to comply with Condition D.6.1, low NO_x burners for NO_x control shall be in operation and control NO_x emissions from emission units EU021 and EU009 at all times those emission units are in operation.

D.6.6 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.6.1(d), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

D.6.7 Cooling Tower Total Dissolved Solids

(a) To determine the compliance status with Condition D.6.1(f), the Permittee shall perform tests of the total dissolved solids (TDS) in the blow-down water on a weekly basis using an EPA approved test. The Permittee shall make a notation of water circulation rate at the time of the test.

(b) The Permittee shall calculate the PM, PM_{10}, and $PM_{2.5}$ emission rates using an EPA-approved calculation based on the TDS testing results and the water circulation rate at the time of the TDS testing.

(c) This test shall not be required for any seven (7) day period in which the cooling tower is not in operation provided the Permittee maintains a log of the cooling tower operation.

When for any one reading the TDS exceeds 6,009 milligrams per liter, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee's obligation.

D.6.8 Greenhouse Gases (GHGs)

To determine the compliance status with Condition D.6.1(b), the following equation shall be used to determine the CO_2e emissions from the Emergency Generators (EU017a and EU017b), Fire Pump (EU018), Space Heaters (EU021), and Coke Breeze Additive System Air Heater (EU009):

CO_2e emissions (tons/month) = Fuel Usage (mmscf/month) x Heat Content (mmbtu/mmscf) x [CO_2 EF (kg/mmbtu) x CO_2 GWP + CH_4 EF (kg/mmbtu) x CH_4 GWP + N_2O EF (kg/mmbtu) x N_2O GWP] x 2.2046 (lb/kg) x 1/2000 (ton/lb)

Where:
Fuel Usage (mmscf/month) = monthly fuel usage data from company records
Heat Content (mmbtu/mmscf) = standard value in AP-42 for natural gas or vendor data, if available
CO_2 EF (kg/mmbtu) = emission factor from GHG Mandatory Reporting Rule (MRR) (40 CFR 98, Subpart C) for natural gas
CH_4 EF (kg/mmbtu) = emission factor from GHG MRR (40 CFR 98, Subpart C) for natural gas
N_2O EF (kg/mmbtu) = emission factor from GHG MRR (40 CFR 98, Subpart C) for natural gas
CO_2 GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)
CH_4 GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)
N_2O GWP = global warming potential from GHG MRR (40 CFR 98, Subpart A)

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

D.6.9 Record Keeping Requirements

(a) To document the compliance status with Conditions D.6.1(b) and D.6.7, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the emission limits established in Condition D.6.1(b).

(1) Calendar dates covered in the compliance determination period;

(2) Hours of operation for each of the Emergency Generators (EU017a and EU017b) and Fire Pump (EU018).

(3) Natural gas usage for the Emergency Generators (EU017a and EU017b), Space Heaters (EU021), and Coke Breeze Additive System Air Heater (EU009).

(4) Diesel fuel usage for the backup jockey fire water pump (EU018).

(5) Monthly records of the CO_2e emissions.

(b) To document the compliance status with Conditions D.6.1(d) and D.6.6, the Permittee shall comply with the record keeping requirements of Condition D.1.12(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition D.1.12(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.6.1(d).

(c) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

D.6.10 Reporting Requirements

(a) A quarterly report of the weighted average fluoride concentration of the iron ore concentrate and a quarterly summary of the information to document the compliance status with D.6.1(d) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(b) A quarterly report of hours of operation to document the compliance status with Conditions D.6.1(a)(2) and D.6.1(a)(3) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(c) A quarterly report of CO_2e emissions to document the compliance status with Condition D.6.1(b) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

(d) Section C – General Reporting contains the Permittee's obligations 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(34).

SECTION E.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(14)]: Nonmetallic Mineral Processing Plants

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(2) One (1) covered conveyor and one (1) loader hopper, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(2) One (1) covered conveyor and one (1) loader hopper, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(h) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, one (1) hopper discharge feeder, and one (1) covered belt feeder, identified as EU025a, exhausting into the limestone and dolomite storage building.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the additive grinding building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(i) One (1) ground limestone and dolomite additive system, identified as EU010, approved in 2014 for construction, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller grinding mill for limestone and dolomite with a nominal capacity of 71 tons per hour, one (1) product separation cyclone, one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system, and one (1) limestone and dolomite bin with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

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

E.1.1 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 emission units EU002b, EU003b, EU025a, EU025b, and EU010 except as otherwise specified in 40 CFR Part 60, Subpart OOO.

(b) Pursuant to 40 CFR 60.19, 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

E.1.2 New Source Performance Standard for Nonmetallic Mineral Processing Plants [40 CFR Part 60, Subpart OOO]

The Permittee which engages in nonmetallic mineral processing shall comply with the following provisions of 40 CFR Part 60, Subpart OOO, which are incorporated by reference as 326 IAC 12 (included as Attachment A of this permit):

(a) 40 CFR 60.670(a), (e), (f);
(b) 40 CFR 60.671;
(c) 40 CFR 60.672(a), (b), (d), (e);
(d) 40 CFR 60.673;
(e) 40 CFR 60.674(c), (d);
(f) 40 CFR 60.675(a), (b), (c)(1)(i), (c)(1)(ii), (c)(3), (d), (e), (g), (i);
(g) 40 CFR 60.676(b), (f), (h), (i)(1), (j), (k);
(h) Table 1 to 40 CFR 63, Subpart OOO;
(i) Table 2 to 40 CFR 63, Subpart OOO; and
(j) Table 3 to 40 CFR 63, Subpart OOO.

SECTION E.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(14)]: Spark Ignition Internal Combustion Engines

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][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.)

E.2.1 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 emission units EU017a and EU017b except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.19, 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

E.2.2 New Source Performance Standards for Spark Ignition Internal Combustion Engines [40 CFR Part 60, Subpart JJJJ]

The Permittee which utilizes spark ignition internal combustion engines shall comply with the following provisions of 40 CFR Part 60, Subpart JJJJ, which are incorporated by reference as 326 IAC 12 (included as Attachment B of this permit):

(a) 40 CFR 60.4230(a)(3)(iv), (a)(4)(iv), (a)(6);
(b) 40 CFR 60.4233(e), (h);
(c) 40 CFR 60.4234;
(d) 40 CFR 60.4236;
(e) 40 CFR 60.4237(a), (b);
(f) 40 CFR 60.4243(b), (d), (e), (f), (g);
(g) 40 CFR 60.4244;
(h) 40 CFR 60.4245;
(i) 40 CFR 60.4246;
(j) 40 CFR 60.4248;
(k) Table 1 to 40 CFR 60, Subpart JJJJ; and
(l) Table 2 to 40 CFR 60, Subpart JJJJ.

SECTION E.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(14)]: Reciprocating Internal Combustion Engines

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [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.)

E.3.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 63.1, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for emission units EU018 except as otherwise specified in 40 CFR Part 63, Subpart IIII.

(b) Pursuant to 40 CFR 63.19, 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

E.3.2 New Source Performance Standards for Compression Ignition Internal Combustion Engines [40 CFR Part 60, Subpart IIII]

The Permittee which utilizes reciprocating internal combustion engines shall comply with the following provisions of 40 CFR Part 63, Subpart IIII, which are incorporated by reference as 326 IAC 12 (included as Attachment C of this permit):

(a) 40 CFR 60.4200(e);
(b) 40 CFR 60.4205(c);
(c) 40 CFR 60.4215(c);
(d) 40 CFR 60.4207(a), (b), (c);
(e) 40 CFR 60.4208(h), (i);
(f) 40 CFR 60.4209(a);
(g) 40 CFR 60.4206;
(h) 40 CFR 60.4211(a), (c), (f), (g);
(i) 40 CFR 60.4212;
(j) 40 CFR 60.4214(b); and
(k) 40 CFR 60.Table 8 to 40 CFR 60, Subpart IIII.

SECTION E.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(14)]: Reciprocating Internal Combustion Engines

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [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.)

E.4.1 General Provisions Relating to NESHAP ZZZZ [326 IAC 20-1] [40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.6580, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1, as specified in 40 CFR 63, Subpart ZZZZ in accordance with Table 8 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 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 National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines [40 CFR Part 63, Subpart ZZZZ] [326 IAC 20-82]

The Permittee which utilizes reciprocating internal combustion engines shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment D of this permit):

(a) 40 CFR 63.6580;
(b) 40 CFR 63.6585(a), (b);
(c) 40 CFR 63.6590(a)(2)(i), (a)(2)(ii), (b)(1)(i), (c)(6);
(d) 40 CFR 63.6645(f);
(e) 40 CFR 63.6665;

(f) 40 CFR 63.6670; and
(g) 40 CFR 63.6675.

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

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054

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: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054

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**) daytime 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 Usage Report
(Submit Report Quarterly)

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054
Facility: Induration Machine
Parameter: Input of Sulfur as a component of Coke Breeze
Limit: Shall not exceed 101 pounds per hour.

Month: ________________ Day: _____________ Year: _____________

Hour	Sulfur input outside D.3.12(a) range	Hour	Sulfur input outside D.3.12(a) range
1		13	
2		14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	

☐ No deviation occurred in this month.

☐ Deviation/s occurred in this month.
Deviation has been reported on________________________________

Submitted by: ____________________________________
Title / Position: ____________________________________
Signature:____
Date: ____
Phone: ____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name:	Mag Pellet LLC
Source Address:	64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.:	T181-32081-00054
Facility:	Iron Ore Concentrate Unloading and Storage Area (EU001), Mixing Area Material Handling System (EU011), Hearth Layer Bin System (EU012), Machine Discharge System (EU015), Hearth Layer Separation System (EU016), Oxide Pellet Storage and Unloading System (EU019), Recycled Dust Storage Area (EU026), Iron Ore Concentrate Wet Grinding and Filter Cake Production, Greenball Production System
Parameter:	Weighted Average Fluoride Concentration of Iron Ore Concentrate
Limit:	Shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: _____________

Month	Column 1	Column 2	[Column 1 + Column 2]/ 12
	This Month	Previous 11 Months	12 Month Average
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature:____
Date: ____
Phone: ____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name:	Mag Pellet LLC
Source Address:	64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.:	T181-32081-00054
Facility:	Ground Limestone/Dolomite Additive System Air Heater (EU010)
Parameter:	GHG (as CO_2e) Emissions
Limit:	Shall not exceed 11,787 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: ______________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature: ______________________________________
Date: ______________________________________
Phone: ______________________________________

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054
Facility: Hardening Furnace
Parameter: GHG (as CO_2e) Emissions
Limit: Shall not exceed 661,208 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: ______________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature:____
Date: ____
Phone: ____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name:	Mag Pellet LLC
Source Address:	64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.:	T181-32081-00054
Facility:	Emergency Generator (EU017a) Emergency Generator (EU17b) Fire Pump (EU018)
Parameter:	Hours of Operation
Limit:	Shall not exceed 500 hours, each, per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: ______________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ____
Title / Position: ____
Signature:____
Date: ____
Phone: ____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054
Facility: Emergency Generator (EU017a)
Emergency Generator (EU17b)
Parameter: GHG (as CO_2e) Emissions
Limit: Shall not exceed 382.35 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :_______________ QUARTER : ________________ YEAR: ______________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ____
Title / Position: ____
Signature: ____
Date: ____
Phone: ____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name:	Mag Pellet LLC
Source Address:	64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.:	T181-32081-00054
Facility:	Fire Pump (EU018)
Parameter:	GHG (as CO_2e) Emissions
Limit:	Shall not exceed 92 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: _____________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature: ______________________________________
Date: ______________________________________
Phone: ______________________________________

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054
Facility: Space Heaters (EU021)
Parameter: GHG (as CO_2e) Emissions
Limit: Shall not exceed 11,801 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: _____________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature: ______________________________________
Date: ______________________________________
Phone: ______________________________________

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054
Facility: Coke Breeze Additive System Air Heater (EU009)
Parameter: GHG (as CO_2e) Emissions
Limit: Shall not exceed 2203.2 tons per twelve (12) consecutive month period with compliance determined at the end of each month

FACILITY :______________ QUARTER : _______________ YEAR: _____________

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:

Submitted by: ______________________________________
Title / Position: ______________________________________
Signature:______________________________________
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: Mag Pellet LLC
Source Address: 64 East 100 North, Reynolds, Indiana 47980
Part 70 Permit No.: T181-32081-00054

Months: ________ to __________ Year: ___________

Page 1 of 2

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:	

Page 2 of 2

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: ____

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

Mag Pellet LLC
64 East 100 North
Reynolds, Indiana 47980

Affidavit of Construction

I, ____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in ______________________________ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of ________________________ for ________________________.
(Title) (Company Name)

3. By virtue of my position with __________________________________, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of ____.
(Company Name)

4. I hereby certify that Mag Pellet LLC 64 East 100 North, Reynolds, Indiana 47980, completed construction of the iron ore pelletizing plant on _____________________in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on ***Reviewer: Insert date application received at IDEM*** and as permitted pursuant to New Source Construction Permit and Part 70 Operating Permit No. T181-32081-00054, Plant ID No. 181-00054 issued on __________.

5. **Permittee, please cross out the following statement if it does not apply:** Additional (operations/facilities) were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature____
Date____

STATE OF INDIANA)
)SS

COUNTY OF ____________________)

Subscribed and sworn to me, a notary public in and for ______________________ County and State of Indiana

on this ___________________ day of _________________, 20 _____. My Commission expires: _______________.

Signature______________________________
Name__________________________ (typed or printed)

Attachment A to Part 70 Operating Permit No. T181-32081-00054
FUGITIVE DUST CONTROL PLAN

I. General Information

Source Name:	Mag Pellet LLC
County Location:	White
Source Contact:	Environmental Engineer
Source Address:	64 East 100 North, Reynolds, Indiana 47980
Plant ID No.:	181-00054

II. Process Description

Mag Pellet LLC owns and operates an iron oxide concentrate pelletizing plant. The facility's major components include:

A. Rail and truck unloading and indoor storage (bins, silos, buildings) of raw materials including iron concentrate, limestone, dolomite, organic binder, and finely divided metallurgical coke;
B. An agglomeration facility which includes concentrate slurrying, grinding, raw materials mixing, filtration to set moisture conditions and "balling" (formation of green balls of a consistent size and density);
C. Induration of green balls to form hardened iron oxide pellets;
D. Storage and loadout of iron oxide pellets; and
E. Associated utilities to support plant operations such as electrical substations, natural gas supply piping, fire protection, etc.

The following source categories, which may generate fugitive dust, are present at the facility:

A. Paved roads and parking lots: There are paved roads at the facility. Vehicles using the roads range from light-duty passenger vehicles to tractor-trailer trucks.
B. Material transfer and storage: The majority of the material handling occurs within closed conveyance systems and/or buildings. Materials are delivered to these conveyance systems via truck and rail. Various types of equipment are used to transfer material from storage piles within buildings.
C. Material transportation activities: Raw materials, finished products and some waste materials are transported to and from the facility via truck and or rail.

Complete process descriptions are included in the facility air operating permit. The facility will maintain a current site map that depicts the above source categories.

III. Control Strategies

A. Paved roads and parking lots

Fugitive dust emission from paved roads and parking lots shall be controlled by one or more of the following measures, on an as needed basis:

1. Implement a speed reduction plan,
2. Vacuum sweeping;
3. Water flushing; and/or
4. Mechanical sweeping.

B. Material transfer and storage.

Fugitive dust emissions from material handling, transfer, and storage shall be controlled by one or more of the following measures, on an as needed basis:

1. Minimizing the vehicular distance between transfer points;
2. Using enclosed vehicles and/or containers;
3. Tarping vehicles;
4. Reducing free fall distance between transfer points;
5. Enclosing the transfer points; and/or

6. Applying water to the materials.
7. Where emission units exhaust inside a building or enclosure, that building shall be maintained under some amount of negative pressure while material transfer operations are being conducted.

C. Material transportation.

Fugitive dust emissions from material transportation shall be controlled by one or more of the following measures, on an as needed basis:
1. Minimizing the vehicular travel distance;
2. Truck transportation for material delivery at the facility is restricted to paved roadways;

IV. Implementation

This plan will be implemented upon startup of facility operations.

To ensure the long-term effectiveness of the Control Plan, periodic internal review of facility vehicular activity, traffic patterns, and site conditions shall occur.

V. Recordkeeping

For each mechanical cleaning event (vacuum sweeping, water flushing and/or mechanical sweeping) on paved roads and parking lots, the following shall be recorded:
A. The date and time of each cleaning event.
B. Name of operator conducting the work
C. The type of cleaning conducted.

The facility will document any deviation from plan section III.B.7.

Records will be retained on site for five (5) years.

Attachment B
to Part 70 Operating Permit No. T181-32081-00054

[Downloaded from the eCFR on May 13, 2013]

Electronic Code of Federal Regulations

Title 40: Protection of Environment

Part 60, Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants

Source: 74 FR 19309, Apr. 28, 2009, unless otherwise noted.

§ 60.670 Applicability and designation of affected facility.

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in § 60.671).

(b) An affected facility that is subject to the provisions of subparts F or I of this part or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in § 60.671, of 23 megagrams per hour (25 tons per hour) or less;

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in § 60.671, of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities, as defined in § 60.671, of 9 megagrams per hour (10 tons per hour) or less.

(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in § 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of §§ 60.672, 60.674, and 60.675 except as provided for in paragraph (d)(3) of this section.

(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in § 60.676(a).

(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§ 60.672, 60.674 and 60.675.

(e) An affected facility under paragraph (a) of this section that commences construction, modification, or reconstruction after August 31, 1983, is subject to the requirements of this part.

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that do not apply to owners and operators of affected facilities subject to this subpart or that apply with certain exceptions.

§ 60.671 Definitions.

All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

Bagging operation means the mechanical process by which bags are filled with nonmetallic minerals.

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Bucket elevator means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

Building means any frame structure with a roof.

Capacity means the cumulative rated capacity of all initial crushers that are part of the plant.

Capture system means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more affected facilities to a control device.

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more affected facilities at a nonmetallic mineral processing plant.

Conveying system means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include but are not limited to the following: Feeders, belt conveyors, bucket elevators and pneumatic systems.

Crush or *Crushing* means to reduce the size of nonmetallic mineral material by means of physical impaction of the crusher or grinding mill upon the material.

Crusher means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: Jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

Enclosed truck or railcar loading station means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

Fixed plant means any nonmetallic mineral processing plant at which the processing equipment specified in § 60.670(a) is attached by a cable, chain, turnbuckle, bolt or other means (except electrical connections) to any anchor, slab, or structure including bedrock.

Fugitive emission means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

Grinding mill means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: Hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

Initial crusher means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.

Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals:

(1) Crushed and Broken Stone, including Limestone, Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.

(2) Sand and Gravel.

(3) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.

(4) Rock Salt.

(5) Gypsum (natural or synthetic).

(6) Sodium Compounds, including Sodium Carbonate, Sodium Chloride, and Sodium Sulfate.

(7) Pumice.

(8) Gilsonite.

(9) Talc and Pyrophyllite.

(10) Boron, including Borax, Kernite, and Colemanite.

(11) Barite.

(12) Fluorospar.

(13) Feldspar.

(14) Diatomite.

(15) Perlite.

(16) Vermiculite.

(17) Mica.

(18) Kyanite, including Andalusite, Sillimanite, Topaz, and Dumortierite.

Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in § 60.670 (b) and (c).

Portable plant means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

Production line means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

Saturated material means, for purposes of this subpart, mineral material with sufficient surface moisture such that particulate matter emissions are not generated from processing of the material through screening operations, bucket elevators and belt conveyors. Material that is wetted solely by wet suppression systems is not considered to be "saturated" for purposes of this definition.

Screening operation means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens). Grizzly feeders associated with truck dumping and static (non-moving) grizzlies used anywhere in the nonmetallic mineral processing plant are not considered to be screening operations.

Seasonal shut down means shut down of an affected facility for a period of at least 45 consecutive days due to weather or seasonal market conditions.

Size means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

Stack emission means the particulate matter that is released to the atmosphere from a capture system.

Storage bin means a facility for storage (including surge bins) of nonmetallic minerals prior to further processing or loading.

Transfer point means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

Truck dumping means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include but are not limited to: Trucks, front end loaders, skip hoists, and railcars.

Vent means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

Wet material processing operation(s) means any of the following:

(1) Wet screening operations (as defined in this section) and subsequent screening operations, bucket elevators and belt conveyors in the production line that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line; or

(2) Screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations (as defined in this section) that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line.

Wet mining operation means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this subpart from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.

Wet screening operation means a screening operation at a nonmetallic mineral processing plant which removes unwanted material or which separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.

§ 60.672 Standard for particulate matter (PM).

(a) Affected facilities must meet the stack emission limits and compliance requirements in Table 2 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under § 60.8. The requirements in Table 2 of this subpart apply for affected facilities with capture systems used to capture and transport particulate matter to a control device.

(b) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under § 60.11. The requirements in Table 3 of this subpart apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

(c) [Reserved]

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

(e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in § 60.671) must not exceed 7 percent opacity; and

(2) Vents (as defined in § 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of this subpart.

(f) Any baghouse that controls emissions from only an individual, enclosed storage bin is exempt from the applicable stack PM concentration limit (and associated performance testing) in Table 2 of this subpart but must meet the applicable stack opacity limit and compliance requirements in Table 2 of this subpart. This exemption from the stack PM concentration limit does not apply for multiple storage bins with combined stack emissions.

§ 60.673 Reconstruction.

(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the “fixed capital cost of the new components” or the “fixed capital cost that would be required to construct a comparable new facility” under § 60.15. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

(b) Under § 60.15, the “fixed capital cost of the new components” includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following August 31, 1983.

§ 60.674 Monitoring of operations.

(a) The owner or operator of any affected facility subject to the provisions of this subpart which uses a wet scrubber to control emissions shall install, calibrate, maintain and operate the following monitoring devices:

(1) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals ±1 inch water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(2) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(b) The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under § 60.676(b).

(1) If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of this subpart provided that the affected facility meets the criteria in paragraphs (b)(1)(i) and (ii) of this section:

(i) The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to paragraph (b) of this section and § 60.676(b), and

(ii) The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under § 60.11 of this part and § 60.675 of this subpart.

(2) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under § 60.676(b) must specify the control mechanism being used instead of the water sprays.

(c) Except as specified in paragraph (d) or (e) of this section, the owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses a baghouse to control emissions must conduct quarterly 30-minute visible emissions inspections using EPA Method 22 (40 CFR part 60, Appendix A-7). The Method 22 (40 CFR part 60, Appendix A-7) test shall be conducted while the baghouse is operating. The test is successful if no visible emissions are observed. If any visible emissions are observed, the owner or operator of the affected facility must initiate corrective action within 24 hours to return the baghouse to normal operation. The owner or operator must record each Method 22 (40 CFR part 60, Appendix A-7) test, including the date and any corrective actions taken, in the logbook required under § 60.676(b). The owner or operator of the affected facility may establish a different baghouse-specific success level for the visible emissions test (other than no visible emissions) by conducting a PM performance test according to § 60.675(b) simultaneously with a Method 22 (40 CFR part 60, Appendix A-7) to determine what constitutes normal visible emissions from that affected facility's baghouse when it is in compliance with the applicable PM concentration limit in Table 2 of this subpart. The revised visible emissions success level must be incorporated into the permit for the affected facility.

(d) As an alternative to the periodic Method 22 (40 CFR part 60, Appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses a baghouse to control emissions may use a bag leak detection system. The owner or operator must install, operate, and maintain the bag leak detection system according to paragraphs (d)(1) through (3) of this section.

(1) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(1)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per dry standard cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator shall continuously record the output from the bag leak detection system using electronic or other means (*e.g.* , using a strip chart recorder or a data logger).

(iii) The bag leak detection system must be equipped with an alarm system that will sound when the system detects an increase in relative particulate loading over the alarm set point established according to paragraph (d)(1)(iv) of this section, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) In the initial adjustment of the bag leak detection system, the owner or operator must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(v) Following initial adjustment, the owner or operator shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided in paragraph (d)(1)(vi) of this section.

(vi) Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by paragraph (d)(2) of this section.

(vii) The owner or operator must install the bag leak detection sensor downstream of the fabric filter.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) The owner or operator of the affected facility must develop and submit to the Administrator or delegated authority for approval of a site-specific monitoring plan for each bag leak detection system. The owner or operator must operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system, including quality assurance procedures;

(iv) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(v) How the bag leak detection system output will be recorded and stored; and

(vi) Corrective action procedures as specified in paragraph (d)(3) of this section. In approving the site-specific monitoring plan, the Administrator or delegated authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

(3) For each bag leak detection system, the owner or operator must initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in paragraph (d)(2)(vi) of this section, the owner or operator must alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(i) Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in PM emissions;

(ii) Sealing off defective bags or filter media;

(iii) Replacing defective bags or filter media or otherwise repairing the control device;

(iv) Sealing off a defective fabric filter compartment;

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or

(vi) Shutting down the process producing the PM emissions.

(e) As an alternative to the periodic Method 22 (40 CFR part 60, Appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility that is subject to the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) may follow the continuous compliance requirements in row 1 items (i) through (iii) of Table 6 to Subpart AAAAA of 40 CFR part 63.

§ 60.675 Test methods and procedures.

(a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendices A-1 through A-7 of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(b) The owner or operator shall determine compliance with the PM standards in § 60.672(a) as follows:

(1) Except as specified in paragraphs (e)(3) and (4) of this section, Method 5 of Appendix A-3 of this part or Method 17 of Appendix A-6 of this part shall be used to determine the particulate matter concentration. The sample volume shall be at least 1.70 dscm (60 dscf). For Method 5 (40 CFR part 60, Appendix A-3), if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters. If the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than 121 °C (250 °F), to prevent water condensation on the filter.

(2) Method 9 of Appendix A-4 of this part and the procedures in § 60.11 shall be used to determine opacity.

(c)(1) In determining compliance with the particulate matter standards in § 60.672(b) or § 60.672(e)(1), the owner or operator shall use Method 9 of Appendix A-4 of this part and the procedures in § 60.11, with the following additions:

(i) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (*e.g.,* road dust). The required observer position relative to the sun (Method 9 of Appendix A-4 of this part, Section 2.1) must be followed.

(iii) For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(2)(i) In determining compliance with the opacity of stack emissions from any baghouse that controls emissions only from an individual enclosed storage bin under § 60.672(f) of this subpart, using Method 9 (40 CFR part 60, Appendix A-4), the duration of the Method 9 (40 CFR part 60, Appendix A-4) observations shall be 1 hour (ten 6-minute averages).

(ii) The duration of the Method 9 (40 CFR part 60, Appendix A-4) observations may be reduced to the duration the affected facility operates (but not less than 30 minutes) for baghouses that control storage bins or enclosed truck or railcar loading stations that operate for less than 1 hour at a time.

(3) When determining compliance with the fugitive emissions standard for any affected facility described under § 60.672(b) or § 60.672(e)(1) of this subpart, the duration of the Method 9 (40 CFR part 60, Appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 of this subpart must be based on the average of the five 6-minute averages.

(d) To demonstrate compliance with the fugitive emission limits for buildings specified in § 60.672(e)(1), the owner or operator must complete the testing specified in paragraph (d)(1) and (2) of this section. Performance tests must be conducted while all affected facilities inside the building are operating.

(1) If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR part 60, Appendix A-4) performance test according to this section and § 60.11.

(2) If the building encloses only affected facilities that commenced construction, modification, or reconstruction before April 22, 2008, and the owner or operator has previously conducted an initial Method 22 (40 CFR part 60, Appendix A-7) performance test showing zero visible emissions, then the owner or operator has demonstrated compliance with

the opacity limit in § 60.672(e)(1). If the owner or operator has not conducted an initial performance test for the building before April 22, 2008, then the owner or operator must conduct an initial Method 9 (40 CFR part 60, Appendix A-4) performance test according to this section and § 60.11 to show compliance with the opacity limit in § 60.672(e)(1).

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of paragraph (c) of this section, if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

(i) No more than three emission points may be read concurrently.

(ii) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

(iii) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

(3) Method 5I of Appendix A-3 of this part may be used to determine the PM concentration as an alternative to the methods specified in paragraph (b)(1) of this section. Method 5I (40 CFR part 60, Appendix A-3) may be useful for affected facilities that operate for less than 1 hour at a time such as (but not limited to) storage bins or enclosed truck or railcar loading stations.

(4) In some cases, velocities of exhaust gases from building vents may be too low to measure accurately with the type S pitot tube specified in EPA Method 2 of Appendix A-1 of this part [*i.e.,* velocity head <1.3 mm H_2O (0.05 in. H_2O)] and referred to in EPA Method 5 of Appendix A-3 of this part. For these conditions, the owner or operator may determine the average gas flow rate produced by the power fans (*e.g.,* from vendor-supplied fan curves) to the building vent. The owner or operator may calculate the average gas velocity at the building vent measurement site using Equation 1 of this section and use this average velocity in determining and maintaining isokinetic sampling rates.

$$v_e = \frac{Q_f}{A_e} \qquad \text{(Eq. 1)}$$

Where:

V_e = average building vent velocity (feet per minute);

Q_f = average fan flow rate (cubic feet per minute); and

A_e = area of building vent and measurement location (square feet).

(f) To comply with § 60.676(d), the owner or operator shall record the measurements as required in § 60.676(c) using the monitoring devices in § 60.674 (a)(1) and (2) during each particulate matter run and shall determine the averages.

(g) For performance tests involving only Method 9 (40 CFR part 60 Appendix A-4) testing, the owner or operator may reduce the 30-day advance notification of performance test in § 60.7(a)(6) and 60.8(d) to a 7-day advance notification.

(h) [Reserved]

(i) If the initial performance test date for an affected facility falls during a seasonal shut down (as defined in § 60.671 of this subpart) of the affected facility, then with approval from the permitting authority, the owner or operator may postpone the initial performance test until no later than 60 calendar days after resuming operation of the affected facility.

§ 60.676 Reporting and recordkeeping.

(a) Each owner or operator seeking to comply with § 60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment.

(1) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and

(ii) The rated capacity in tons per hour of the replacement equipment.

(2) For a screening operation:

(i) The total surface area of the top screen of the existing screening operation being replaced and

(ii) The total surface area of the top screen of the replacement screening operation.

(3) For a conveyor belt:

(i) The width of the existing belt being replaced and

(ii) The width of the replacement conveyor belt.

(4) For a storage bin:

(i) The rated capacity in megagrams or tons of the existing storage bin being replaced and

(ii) The rated capacity in megagrams or tons of replacement storage bins.

(b)(1) Owners or operators of affected facilities (as defined in §§ 60.670 and 60.671) for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under § 60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Administrator upon request.

(2) For each bag leak detection system installed and operated according to § 60.674(d), the owner or operator must keep the records specified in paragraphs (b)(2)(i) through (iii) of this section.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and whether the cause of the alarm was alleviated within 3 hours of the alarm.

(3) The owner or operator of each affected facility demonstrating compliance according to § 60.674(e) by following the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) must maintain records of visible emissions observations required by § 63.7132(a)(3) and (b) of 40 CFR part 63, subpart AAAAA.

(c) During the initial performance test of a wet scrubber, and daily thereafter, the owner or operator shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.

(d) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss and liquid flow rate decrease by more than 30 percent from the average determined during the most recent performance test.

(e) The reports required under paragraph (d) of this section shall be postmarked within 30 days following end of the second and fourth calendar quarters.

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in § 60.672 of this subpart, including reports of opacity observations made using Method 9 (40 CFR part 60, Appendix A-4) to demonstrate compliance with § 60.672(b), (e) and (f).

(g) The owner or operator of any wet material processing operation that processes saturated and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. At the time of such change, this screening operation, bucket elevator, or belt conveyor becomes subject to the applicable opacity limit in § 60.672(b) and the emission test requirements of § 60.11.

(h) The subpart A requirement under § 60.7(a)(1) for notification of the date construction or reconstruction commenced is waived for affected facilities under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

(2) For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

(j) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected facilities within the State will be relieved of the obligation to comply with the reporting requirements of this section, provided that they comply with requirements established by the State.

(k) Notifications and reports required under this subpart and under subpart A of this part to demonstrate compliance with this subpart need only to be sent to the EPA Region or the State which has been delegated authority according to § 60.4(b).

Table 1 to Subpart OOO of Part 60—Exceptions to Applicability of Subpart A to Subpart OOO

Subpart A reference	Applies to subpart OOO	Explanation
60.4, Address	Yes	Except in § 60.4(a) and (b) submittals need not be submitted to both the EPA Region and delegated State authority (§ 60.676(k)).
60.7, Notification and recordkeeping	Yes	Except in (a)(1) notification of the date construction or reconstruction commenced (§ 60.676(h)).
		Also, except in (a)(6) performance tests involving only Method 9 (40 CFR part 60, Appendix A-4) require a 7-day advance notification instead of 30 days (§ 60.675(g)).
60.8, Performance tests	Yes	Except in (d) performance tests involving only Method 9 (40 CFR part 60, Appendix A-4) require a 7-day advance notification instead of 30 days (§ 60.675(g)).
60.11, Compliance with standards and maintenance requirements	Yes	Except in (b) under certain conditions (§§ 60.675(c)), Method 9 (40 CFR part 60, Appendix A-4) observation is reduced from 3 hours to 30 minutes for fugitive emissions.
60.18, General control device	No	Flares will not be used to comply with the emission limits.

Table 2 to Subpart OOO of Part 60—Stack Emission Limits for Affected Facilities With Capture Systems

For * * *	The owner or operator must meet a PM limit of * * *	And the owner or operator must meet an opacity limit of * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
Affected facilities (as defined in §§ 60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008	0.05 g/dscm (0.022 gr/dscf) [a]	7 percent for dry control devices [b]	An initial performance test according to § 60.8 of this part and § 60.675 of this subpart; and Monitoring of wet scrubber parameters according to § 60.674(a) and § 60.676(c), (d), and (e).
Affected facilities (as defined in §§ 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	0.032 g/dscm (0.014 gr/dscf) [a]	Not applicable (except for individual enclosed storage bins) 7 percent for dry control devices on individual enclosed storage bins	An initial performance test according to § 60.8 of this part and § 60.675 of this subpart; and Monitoring of wet scrubber parameters according to § 60.674(a) and § 60.676(c), (d), and (e); and
			Monitoring of baghouses according to § 60.674(c), (d), or (e) and § 60.676(b).

[a] Exceptions to the PM limit apply for individual enclosed storage bins and other equipment. See § 60.672(d) through (f).

[b] The stack opacity limit and associated opacity testing requirements do not apply for affected facilities using wet scrubbers.

Table 3 to Subpart OOO of Part 60—Fugitive Emission Limits

For * * *	The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in §§ 60.670 and 60.671) * * *	The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
Affected facilities (as defined in §§ 60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008	10 percent opacity	15 percent opacity	An initial performance test according to § 60.11 of this part and § 60.675 of this subpart.
Affected facilities (as defined in §§ 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	7 percent opacity	12 percent opacity	An initial performance test according to § 60.11 of this part and § 60.675 of this subpart; and Periodic inspections of water sprays according to § 60.674(b) and § 60.676(b); and
			A repeat performance test according to § 60.11 of this part and § 60.675 of this subpart within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in § 60.674(b) and § 60.676(b) are exempt from this 5-year repeat testing requirement.

Attachment C
to Part 70 Operating Permit No. T181-32081-00054

[Downloaded from the eCFR on May 13, 2013]

Electronic Code of Federal Regulations

Title 40: Protection of Environment

Part 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Source: 71 FR 39172, July 11, 2006, unless otherwise noted.

What This Subpart Covers

§ 60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) 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 CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines;

(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of § 60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE 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 applicable to area sources.

(d) Stationary CI 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 part 89, subpart J and 40 CFR part 94, subpart J, 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.

(e) Owners and operators of facilities with CI ICE 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.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

Emission Standards for Manufacturers

§ 60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.

(d) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2007 model year through 2012 non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(3) Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(e) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(f) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 1 to 40 CFR 1042.1 identifies 40 CFR part 1042 as being applicable, 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:

(1) Areas of Alaska not accessible by the Federal Aid Highway System (FAHS); and

(2) Marine offshore installations.

(g) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI 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 CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(1) For engines with a maximum engine power less than 37 KW (50 HP):

(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and

(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.

(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

(c) [Reserved]

(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;

(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and

(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(f) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI internal combustion engines identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 2 to 40 CFR 1042.101 identifies Tier 3 standards as being applicable, the requirements applicable to Tier 3 engines in 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:

(1) Areas of Alaska not accessible by the FAHS; and

(2) Marine offshore installations.

(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI 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 (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

§ 60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§ 60.4201 and 60.4202 during the certified emissions life of the engines.

[76 FR 37968, June 28, 2011]

Emission Standards for Owners and Operators

§ 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in § 60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

(1) For engines installed prior to January 1, 2012, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);

(ii) 45 · n−0.2 g/KW-hr (34 · n−0.2 g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) 44 · n−0.23 g/KW-hr (33 · n−0.23 g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) For engines installed on or after January 1, 2016, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) 9.0 · n−0.20 g/KW-hr (6.7 · n−0.20 g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and

(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.

(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in § 60.4212.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

§ 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in § 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in § 60.4212.

(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§ 60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§ 60.4204 and 60.4205 over the entire life of the engine.

[76 FR 37969, June 28, 2011]

Fuel Requirements for Owners and Operators

§ 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under § 60.4200(d) are also exempt from the fuel requirements in this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

Other Requirements for Owners and Operators

§ 60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§ 60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§ 60.4209   What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in § 60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in § 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

Compliance Requirements

§ 60.4210   What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in § 60.4201(a) through (c) and § 60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in § 60.4201(d) and (e) and § 60.4202(e) and (f) using the certification procedures required in 40 CFR part 94, subpart C, or 40 CFR part 1042, subpart C, as applicable, and must test their engines as specified in 40 CFR part 94 or 1042, as applicable.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89, 40 CFR part 94 or 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate, but the words “stationary” must be included instead of “nonroad” or “marine” on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines 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.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR parts 89, 94, 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) 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.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words “and stationary” after the word “nonroad” or “marine,” as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in § 60.4202 but does not meet all the emission standards for non-emergency engines in § 60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as “Fire Pump Applications Only”.

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §§ 60.4201 or 60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§ 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§ 60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in § 60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. 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.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in § 60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in § 60.4204(b) or § 60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in § 60.4205(c), you must comply by purchasing an engine certified to the emission standards in § 60.4204(b), or § 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in § 60.4204(c) or § 60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in § 60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

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

(iii) 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;

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

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

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in § 60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in § 60.4204(e) or § 60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in § 60.4204(e) or § 60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in § 60.4212 or § 60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(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 (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(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 (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 paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(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 (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar 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]

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power 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. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI 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 to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI 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 to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

Testing Requirements for Owners and Operators

§ 60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \qquad \text{(Eq. 1)}$$

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in § 60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in § 60.4204(a), § 60.4205(a), or § 60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in § 60.4204(a), § 60.4205(a), or § 60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in § 60.4204(a), § 60.4205(a), or § 60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in § 60.4204(a), § 60.4205(a), or § 60.4205(c) may follow the testing procedures specified in § 60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

§ 60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted according to the requirements in § 60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 60.8(c).

(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 last at least 1 hour.

(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.

(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad (\text{Eq. } 2)$$

Where:

Ci = concentration of NOX or PM at the control device inlet,

Co = concentration of NOX or PM at the control device outlet, and

R = percent reduction of NOX or PM emissions.

(2) You must normalize the NOX or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O2) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO2) using the procedures described in paragraph (d)(3) of this section.

$$C_{adj} = C_d \frac{5.9}{20.9 - \% O_2} \qquad (\text{Eq. } 3)$$

Where:

Cadj = Calculated NOX or PM concentration adjusted to 15 percent O2 .

Cd = Measured concentration of NOX or PM, uncorrected.

5.9 = 20.9 percent O2 −15 percent O2 , the defined O2 correction value, percent.

%O2 = Measured O2 concentration, dry basis, percent.

(3) If pollutant concentrations are to be corrected to 15 percent O2 and CO2 concentration is measured in lieu of O2 concentration measurement, a CO2 correction factor is needed. Calculate the CO2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.

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

$$F_o = \frac{0.209_{F_d}}{F_c} \qquad (\text{Eq. } 4)$$

Where:

Fo = Fuel factor based on the ratio of O2 volume to the ultimate CO2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is O2 , percent/100.

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

Fc = Ratio of the volume of CO2 produced to the gross calorific value of the fuel from Method 19, dsm3 /J (dscf/106 Btu).

(ii) Calculate the CO2 correction factor for correcting measurement data to 15 percent O2 , as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \qquad \text{(Eq. 5)}$$

Where:

XCO2 = CO2 correction factor, percent.

5.9 = 20.9 percent O2 −15 percent O2 , the defined O2 correction value, percent.

(iii) Calculate the NOX and PM gas concentrations adjusted to 15 percent O2 using CO2 as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \qquad \text{(Eq. 6)}$$

Where:

Cadj = Calculated NOX or PM concentration adjusted to 15 percent O2 .

Cd = Measured concentration of NOX or PM, uncorrected.

%CO2 = Measured CO2 concentration, dry basis, percent.

(e) To determine compliance with the NOX mass per unit output emission limitation, convert the concentration of NOX in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{\text{KW-hour}} \qquad \text{(Eq. 7)}$$

Where:

ER = Emission rate in grams per KW-hour.

Cd = Measured NOX concentration in ppm.

1.912x10−3 = Conversion constant for ppm NOX to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{\text{KW-hour}} \qquad \text{(Eq. 8)}$$

Where:

ER = Emission rate in grams per KW-hour.

Cadj = Calculated PM concentration in grams per standard cubic meter.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

Notification, Reports, and Records for Owners and Operators

§ 60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in § 60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI 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 § 60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in § 60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(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 § 60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in § 60.4211(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in § 60.4211(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in § 60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in § 60.4211(f)(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.

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013]

Special Requirements

§ 60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§ 60.4202 and 60.4205.

(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in § 60.4207.

(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:

(1) For engines installed prior to January 1, 2012, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) 45 · $n^{-0.2}$ g/KW-hr (34 · $n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NOX in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) 44 · $n^{-0.23}$ g/KW-hr (33 · $n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

§ 60.4216 What requirements must I meet for engines used in Alaska?

(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.

(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in areas of Alaska not accessible by the FAHS may meet the requirements of this subpart by manufacturing and installing engines meeting the requirements of 40 CFR parts 94 or 1042, as appropriate, rather than the otherwise applicable requirements of 40 CFR parts 89 and 1039, as indicated in sections §§ 60.4201(f) and 60.4202(g) of this subpart.

(c) Manufacturers, owners and operators of stationary CI ICE that are located in areas of Alaska not accessible by the FAHS may choose to meet the applicable emission standards for emergency engines in § 60.4202 and § 60.4205, and not those for non-emergency engines in § 60.4201 and § 60.4204, except that for 2014 model year and later non-emergency CI ICE, the owner or operator of any such engine that was not certified as meeting Tier 4 PM standards, must meet the applicable requirements for PM in § 60.4201 and § 60.4204 or install a PM emission control device that achieves PM emission reductions of 85 percent, or 60 percent for engines with a displacement of greater than or equal to 30 liters per cylinder, compared to engine-out emissions.

(d) The provisions of § 60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS.

(e) The provisions of § 60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.

(f) The provisions of this section and § 60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.

[76 FR 37971, June 28, 2011]

§ 60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in § 60.4204 or § 60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.

[76 FR 37972, June 28, 2011]

General Provisions

§ 60.4218 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§ 60.1 through 60.19 apply to you.

Definitions

§ 60.4219 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 CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).

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.

Diesel particulate filter means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.

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 § 60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in § 60.4211(f), 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 § 60.4211(f).

(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 § 60.4211(f)(2)(ii) or (iii) and § 60.4211(f)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of “manufacturer” in this section.

Fire pump engine means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Manufacturer has the meaning given in section 216(1) of the 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 sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

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”).

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.

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

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 a gasoline, natural gas, or liquefied petroleum gas 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 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.

Subpart means 40 CFR part 60, subpart IIII.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013]

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

[As stated in §§ 60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	$NMHC + NO_X$	HC	NO_X	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

[As stated in § 60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO_X+ NMHC	CO	PM
KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines

As stated in § 60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to § 60.4202(d)[1]
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

[1]Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§ 60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO_X	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011+	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011+	7.5 (5.6)		0.40 (0.30)

Maximum engine power	Model year(s)	NMHC + NO_X	CO	PM
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011+	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ [1]	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ [1]	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+ [2]	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ [3]	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ [3]	4.0 (3.0)		0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008+	6.4 (4.8)		0.20 (0.15)

[1] For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2] For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3] In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines

[You must comply with the labeling requirements in § 60.4210(f) and the recordkeeping requirements in § 60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	Starting model year
19≤KW<56 (25≤HP<75)	2013
56≤KW<130 (75≤HP<175)	2012
KW≥130 (HP≥175)	2011

Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines

[As stated in § 60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

Mode No.	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Rated	100	0.30
2	Rated	75	0.50
3	Rated	50	0.20

[1] Engine speed: ±2 percent of point.

[2] Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.

Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder

[As stated in § 60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:]

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥30 liters per cylinder	a. Reduce NO_X emissions by 90 percent or more	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) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and,	(3) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.
		iv. Measure NO_X at the inlet and outlet of the control device	(4) Method 7E of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(d) NO_X 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.

For each	Complying with the requirement to	You must	Using	According to the following requirements
	b. Limit the concentration of NO_X in the stationary CI 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_2 concentration of the stationary internal combustion engine exhaust at the sampling port location; and,	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_X concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and,	(3) Method 4 of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.
		iv. Measure NO_X at the exhaust of the stationary internal combustion engine	(4) Method 7E of 40 CFR part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see § 60.17)	(d) NO_X 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.
	c. Reduce PM emissions by 60 percent or more	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) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the inlet and outlet of the control device	(4) Method 5 of 40 CFR part 60, appendix A	(d) PM 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.
	d. Limit the concentration of PM in the stationary CI 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.

For each	Complying with the requirement to	You must	Using	According to the following requirements
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine	(4) Method 5 of 40 CFR part 60, appendix A	(d) PM 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.

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in § 60.4218, 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 § 60.4219.
§ 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 § 60.4214(a).
§ 60.8	Performance tests	Yes	Except that § 60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§ 60.9	Availability of information	Yes	
§ 60.10	State Authority	Yes	
§ 60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart IIII.
§ 60.12	Circumvention	Yes	
§ 60.13	Monitoring requirements	Yes	Except that § 60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder.
§ 60.14	Modification	Yes	
§ 60.15	Reconstruction	Yes	
§ 60.16	Priority list	Yes	

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§ 60.17	Incorporations by reference	Yes	
§ 60.18	General control device requirements	No	
§ 60.19	General notification and reporting requirements	Yes	

Attachment D
to Part 70 Operating Permit No. T181-32081-00054

Electronic Code of Federal Regulations

Title 40: Protection of Environment

Part 60, 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:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP-hr} \qquad \text{(Eq. 1)}$$

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:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP-hr} \qquad \text{(Eq. 2)}$$

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.

$$C_{icorr} = RF_i \times C_{imeas} \qquad \text{(Eq. 5)}$$

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.

$$C_{Peq} = 0.6098 \times C_{icorr} \qquad \text{(Eq. 6)}$$

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_X 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_2 concentration 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_2 concentration must be made at the same time as the measurements for NO_X 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.	

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	

Attachment E
To Part 70 Operating Permit No.: T181-32081-00054

Electronic Code of Federal Regulations

Title 40: Protection of Environment

Part 63, 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, dsm^3 /J (dscf/10^6 Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3 /J (dscf/10^6 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 1 a 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 1 b 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 2 a 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	

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
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 2 b 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	

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
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 2 c 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.	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
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.	
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]	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
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.	
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 2 d 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.	
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.	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
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]	
	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	

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.	
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	
	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	

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 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]
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, 63.6612, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

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. 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, or ASTM Method D6522-00 (Reapproved 2005).[a c]	(a) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		ii. Measure the CO at the inlet and the outlet of the control device	(1) ASTM D6522-00 (Reapproved 2005) [a b c] or Method 10 of 40 CFR part 60, appendix A	(a) 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 of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A § 63.7(d)(1)(i)	(a) sampling sites must be located at the inlet and outlet of the control device.
		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, or ASTM Method D6522-00 (Reapproved 2005).[a]	(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, or Test 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.
		iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formaldehyde 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	(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 concentration of formaldehyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A § 63.7(d)(1)(i)	(a) if using a control device, the sampling site must be located at the outlet of the control device.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		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, or ASTM Method D6522-00 (Reapproved 2005).[a]	(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 stationary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A, or Test 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.
		iv. Measure formaldehyde at the exhaust of the stationary 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 stationary RICE.	(1) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522-00 (2005),[a c] 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] Incorporated by reference, see 40 CFR 63.14. You may also obtain copies from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b] You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03.

[c] ASTM-D6522-00 (2005) may be used to test both CI and SI stationary RICE.

[78 FR 6711, Jan. 30, 2013]

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.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
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

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		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.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
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

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		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.
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]

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
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.
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.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
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
		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

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		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
		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.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
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.

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
		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).
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.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 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.	
§ 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.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 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.
§ 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.

General provisions citation	Subject of citation	Applies to subpart	Explanation
		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.	
§ 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.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§ 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											
″											
″											
″											
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Measurement Data Phase											
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[78 FR 6721, Jan. 30, 2013]

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source and a Significant Permit Modification

Source Description and Location

Source Name:	**Mag Pellet LLC**
Source Location:	**64 East 100 North, Reynolds, Indiana 47980**
County:	**White**
SIC Code:	**1011**
Operation Permit No.:	**T181-32081-00054**
Operation Permit Issuance Date:	**April 16, 2013**
PSD/Significant Source Modification No.:	**181-33965-00054**
Significant Permit Modification No.:	**181-34210-00054**
Permit Reviewer:	**Julie Alexander**

Existing Approvals

The source was issued Part 70 Operating Permit No. T181-32081-00054 on April 16, 2013. There have been no subsequent approvals issued.

County Attainment Status

The source is located in White County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard.[1]
$PM_{2.5}$	Unclassifiable or attainment effective April 5, 2005, 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}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.
[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.	

(a) Ozone Standards
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. White County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) $PM_{2.5}$
White County has been classified as attainment for $PM_{2.5}$. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for $PM_{2.5}$ emissions. These rules became effective on July 15, 2008. On May 4, 2011, the air pollution control board issued an emergency rule establishing the direct $PM_{2.5}$ significant

level at ten (10) tons per year. This rule became effective June 28, 2011. 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
White 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 type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, and there is no applicable New Source Performance Standard that was in effect on August 7, 1980, fugitive emissions are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Source Status

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	Greater than 100, Less than 250
PM_{10}	Greater than 100, Less than 250
$PM_{2.5}$	Greater than 100, Less than 250
SO_2	Greater than 100, Less than 250
NOx	Greater than 250
VOC	Less than 100
CO	Less than 100
Lead	Less than 100
GHGs as CO_2e	Greater than 100,000
Total HAPs	Greater than 25
Worst Single HAP	Greater than 10

(a) This existing source is a major stationary source, under PSD (326 IAC 2-2), because a regulated pollutant is emitted at a rate of 250 tons per year or more, emissions of GHGs are equal to or greater than one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) per year, and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) These emissions are based upon Operational Permit No. T181-32081-00054.

(c) This existing source is a major source of HAPs, as defined in 40 CFR 63.2, because HAP emissions are greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for a combination of HAPs. Therefore, this source is a major 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 Mag Pellet LLC on April 16, 2013, relating to changes to the existing permitted equipment, the addition of new equipment along with the change in the Responsible Official.

Upon further development of the Mag Pellet LLC, the Permittee has decided to change the specifications of some units and increase the number of some units to be installed as shown below. Deleted language appears as strikethroughs and new language appears in **bold**:

Note: All references to "ton" used throughout this document are short tons (i.e. One short ton equals 2,000 pounds).

(a) One (1) iron ore concentrate unloading and storage area, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

(1) One ~~(1) thaw shed, one~~ (1) rotary rail car dumper, one (1) pedestal mount **jack hammer/**breaker, **one (1) stationary grizzly** ~~two (2) grizzlies~~, two (2) apron feeders, one (1) dribble conveyor, **one (1) product conveyor, and** one (1) breaker, identified as EU001a, **located in the car dumper building,** using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains **one (1) shuttle conveyor** ~~four (4) covered conveyors~~, **a storage pile, two (2)** ~~four (4)~~ load**er** hoppers, and **two (2) covered conveyors,** ~~a storage pile~~ identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU002a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen**, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) **covered conveyor, one (1) covered belt feeder, one (1) additive conveyor,** ~~pneumatic conveyance system~~ and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) bentonite storage bin with a maximum capacity of 440 tons~~, with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder **with soda ash** unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) organic binder **with soda ash storage** ~~feed~~ bin with a maximum capacity of 55 tons, ~~with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE006 as control, exhausting inside the building.

~~(g) One (1) soda ash unloading and storage area, identified as EU007, approved in 2013 for construction, consisting of one (1) soda ash feed bin with a maximum capacity of 55 tons, with a maximum capacity of 3.0 tons per hour, using bin vent CE007 as control, exhausting inside the building.~~

~~(h) One (1) bentonite additive system, identified as EU008, approved in 2013 for construction, consisting of one (1) bentonite feed bin with a maximum capacity of 220 ton, with a maximum capacity of 3.0 tons per hour, using bin vent CE008 as control, exhausting inside the building.~~

(**g**~~i~~) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller **grinding** mill for coke breeze **with emergency explosion vent** ~~grinding~~ with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons **with emergency explosion vent**.

(**h**~~j~~) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, ~~one (1) enclosed vibrating grizzly feeder/screener~~ **one (1) hopper discharge** feeder, and one (1) covered belt feeder, identified as EU025a, exhausting **into the limestone and dolomite storage building** ~~uncontrolled to the atmosphere~~.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the **additive grinding** building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(**i**~~k~~) One (1) ground limestone and dolomite additive system, identified as EU010, ~~approved in 2013 for construction~~, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller **grinding** mill for limestone and dolomite **with a nominal capacity of 71 tons per hour**, one (1) product separation cyclone, **one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system,** and one (1) limestone and dolomite bin**, approved in 2013 for construction,** with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater**, approved in 2014,** with a maximum heat input capacity of **23** ~~19~~ MMBtu per hour.

(**j**~~l~~) One (1) mixing area material handling system, identified as EU011, approved in 201**4**~~3~~ for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors**, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders,** two (2) mixer feed conveyors, and two (2) mixers.

(**k**~~m~~) One (1) hearth layer bin system, identified as EU012, approved in 2013 for construction, with a maximum capacity of 660 tons of iron oxide pellets per hour, using baghouse CE012 as control, exhausting to stack SV012, consisting of two (2) hearth layer conveyors and one (1) hearth layer bin.

(**l**~~n~~) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) ~~furnace~~ **machine** discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, ~~and~~ two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour**, and one (1) emergency discharge chute**.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, **approved in 2014 for construction,** with a capacity of **2,300** ~~4,600~~ gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(**m**~~o~~) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting **to stack SV020** ~~inside the building~~, consisting of the following:

(1) Two (2) product conveyors, identified as P1 and P2, with a maximum capacity of 660 and 770 tons per hour respectively.

(2) Two (2) hearth layer conveyors, identified as HL-1 and HL-2, each with a maximum capacity of 440 tons per hour.

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, **one (1) reclaim conveyor,** ~~and~~ two (2) reclaim hoppers**, and one (1) emergency discharge chute**.

(**n**~~p~~) One (1) oxide pellet storage and loadout system, ~~identified as EU019, approved in 2013 for construction~~, with a maximum capacity of 550 tons per hour, **consisting of the following:**

(1) One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction, using baghouse CE019**a** as control, exhausting to stack SV018**a**, consisting of two (2) conveyors **and** two (2) 8800-ton storage bins

(2) One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of~~, and~~ two (2) 99-ton **weigh** ~~storage~~ bins.

(**o**~~q~~) One (1) WBE lime **unloading and** storage area, identified as EU020, approved in 2013 for construction, **consisting of one (1) pneumatic truck unloader and conveyance system,** with a maximum capacity of 7.0 tons per hour, ~~consisting of one (1) lime feed conveyor~~ and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(**p**~~r~~) One (1) WBE residual product **storage and loadout** ~~loading~~ area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(**q**~~s~~) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of **one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and** one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using ~~dust recycle~~ baghouse CE024 as control, exhausting inside the building.

(r) One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.

Insignificant Activities

(a) Natural gas-fired combustion sources **(EU021)** with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: **[326 IAC 2-2]**

~~(1) Seven (7) natural gas fired space heaters, identified as EU021, approved in 2013 for construction, each with a maximum heat input capacity of 1.0 MMBtu per hour. [326 IAC 2-2]~~

(**1**~~2~~) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 201**4**~~3~~ for construction, with a maximum heat input capacity of ~~1.7~~ **4.3** MMBtu per hour. ~~[326 IAC 2-2]~~

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(b) A petroleum fuel (other than gasoline) dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less. [326 IAC 2-2]

(c) Paved and unpaved roads and parking lots with public access. [326 IAC 2-2] [326 IAC 6-4]

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 201**4**~~3~~ for construction, consisting of one (1) 300 hp **diesel** ~~natural gas~~ engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart **IIII**~~JJJJ~~] [40 CFR 63, Subpart ZZZZ]

(f) Other emission units, not regulated by a NESHAP, with PM_{10}, NO_x, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of **one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters,** three (3) **covered** conveyors, and a filter cake feed bin, exhausting ~~uncontrolled into~~ **inside** a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) One (1) greenball production system, approved in 2013 for construction, with a maximum capacity of 900 tons per hour, using a wet spray process as control, consisting of six (6) 110-ton balling disc feed bins, six (6) balling discs, six (6) green pellet roller screens, six (6) shredders, one (1) single deck roller screen, and thirty-one (31) conveyors, exhausting into a building. [326 IAC 2-2] [326 IAC 6-3-2]

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

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

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.

Increase in PTE Before Controls of the Modification	
Pollutant	**Potential To Emit** (ton/yr)
PM	14,514.21
PM_{10}	26,894.10
$PM_{2.5}$	26,876.29
SO_2	1,266.20
VOC	24.66
CO	67.25
NO_X	498.11
Single HAPs	>10
Total HAPs	>25

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

This source modification is subject to 326 IAC 2-7-10.5(g)(1) because this modification "is subject to 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-4.1". Additionally, the modification will be incorporated into the Part 70 Operating Permit through a significant permit modification issued pursuant to 326 IAC 2-7-12(d)(1), because this application is "requesting a Part 70 permit modification that does not qualify as minor permit modifications or as administrative amendments."

Permit Level Determination – PSD

This modification is being aggregated with the greenfeild source permit T181-32081-00054 and therefore is major of PSD. Pursuant to 326 IAC 2-2, the PSD requirements do apply to this modification. The Best Available Control Technology (PSD BACT) for shall be as follows:

Raw Material Handling

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Raw Material Handling operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	PM	0.002	1.17
		PM_{10}*	0.002	1.17
		$PM_{2.5}$*	0.002	1.17
Coke Breeze Unloading and Storage Area (EU004b)	Baghouse CE004 (SV004)	PM	0.002	0.1388
		PM_{10}*	0.002	0.1388
		$PM_{2.5}$*	0.002	0.1388
Bentonite Unloading and Storage Area (EU005)	Bin Vent Filter CE005 (inside building)	PM	0.002	0.0496
		PM_{10}*	0.002	0.0496
		$PM_{2.5}$*	0.002	0.0496
Organic Binder with Soda Ash Unloading and Storage Area (EU006)	Bin Vent Filter CE006 (inside building)	PM	0.002	0.0429
		PM_{10}*	0.002	0.0429
		$PM_{2.5}$*	0.002	0.0429

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Iron Ore Concentrate Unloading (EU001), the hours of operation shall be limited to 2,190 hours per twelve (12) consecutive month period.

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the following Raw Material Handling operations shall be a fugitive dust control plan, an enclosure, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Iron Ore Concentrate Transfer and Storage Area	EU001b	PM	7.86	34.42
		PM_{10}*	3.14	13.77
		$PM_{2.5}$*	0.31	1.38
Limestone Conveyor & Enclosed Storage (Pile)	EU002b	PM	0.20	0.41
		PM_{10}*	0.07	0.15
		$PM_{2.5}$*	0.01	0.02
Dolomite Conveyor & Enclosed Storage (Pile)	EU003b	PM	0.10	0.23
		PM_{10}*	0.04	0.08
		$PM_{2.5}$*	0.04	0.01

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the following Truck Unloading operations shall be a fugitive dust control plan, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Limestone Unloading (Truck)	EU002a	PM	1.07 E-03	2.20 E-03
		PM_{10}*	1.07 E-03	2.20 E-03
		$PM_{2.5}$*	1.07 E-03	2.20 E-03
Dolomite Unloading (Truck)	EU003a	PM	5.33 E-04	1.22 E-03
		PM_{10}*	5.33 E-04	1.22 E-03
		$PM_{2.5}$*	5.33 E-04	1.22 E-03
Coke Breeze Unloading (Truck)	EU004a	PM	7.45 E-04	3.26 E-03
		PM_{10}*	3.52 E-04	1.54 E-03
		$PM_{2.5}$*	1.02 E-04	4.45 E-04

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(e) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Raw Material Handling operations shall be as follows:

(1) The weighted average Fluoride Concentration in the Iron Ore Concentrate shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and the following:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	F	5.84 E-05

Additive Grinding and Mixing

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Additive Grinding and Mixing operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Coke Breeze Additive System (EU009)	Baghouse CE009 (SV009)	PM	0.002	0.14
		PM_{10}*	0.002	0.14
		$PM_{2.5}$*	0.002	0.14
Limestone and Dolomite Grinding Mill Bin Area (EU025b)	Baghouse CE023 (inside building)	PM	0.002	0.26
		PM_{10}*	0.002	0.26
		$PM_{2.5}$*	0.002	0.26
Ground Limestone and Dolomite Area Additive System (EU010)	Baghouse CE010 (SV010)	PM	0.002	0.32
		PM_{10}*	0.002	0.32
		$PM_{2.5}$*	0.002	0.32
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	PM	0.002	0.77
		PM_{10}*	0.002	0.77
		$PM_{2.5}$*	0.002	0.77
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	PM	0.002	0.11
		PM_{10}*	0.002	0.11
		$PM_{2.5}$*	0.002	0.11

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Additive Grinding and Mixing operations shall be an enclosure conveyor and Grizzly Feeder, that the opacity shall not exceed five percent (5%) on a six-minute average and the following:

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Limestone/Dolomite Hopper &Grizzly Feeder/Screener and Belt Feeder	EU025a	PM	0.60	1.28
		PM_{10}*	0.22	0.47
		$PM_{2.5}$*	0.02	0.05

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the Additive Grinding and Mixing operations shall be as follows:

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Ground Limestone/ Dolomite Additive System Air Heater (EU010)	No Control	SO_2	0.00048 lb/MMBtu
	Low NO_x Burners	NO_x	0.012 lb/MMBtu
	No Control	F	9.40 x 10^{-6} lb/MMBtu
		GHG (as CO_2e)	11,787 tons per 12-month period

*Note: PM, PM10, and PM2.5 combustion emissions for EU010 are accounted for in the material handling limits under Condition D.2.1(a).

This unit shall only combust natural gas, and the Permittee shall practice good combustion practices when this unit is combusting natural gas.

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Additive Grinding and Mixing operations shall be as follows:

(1) The weighted average Fluoride Concentration in the blended filter cake handled by the mixing area material handling system (EU011) and hearth layer bin system (EU012) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	F	3.83 E -05
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	F	5.48 E -06

Induration

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the Induration operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Hood Exhaust (EU013)	Baghouse CE013 (SV013A)	PM	0.004 gr/dscf
		PM	11.40 lb/hr
		PM_{10}*	0.008 gr/dscf
		PM_{10}*	22.01 lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	22.01 lb/hr
		Opacity	5% (6-min average)
	No Control	SO_2	7.1 ppmv wet corrected to 20% O_2 and 21.68 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	No Control	F	2.1 ppmv wet corrected to 20% O_2 and 1.98 lb/hr

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Windbox Exhaust (EU014)	Baghouse CE016 (SV013B)	PM	0.004 gr/dscf
		PM	18.25 lb/hr
		PM_{10}*	0.008 gr/dscf
		PM_{10}*	35.22 lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	35.22 lb/hr
		Opacity	5% (6-min average)
	GSA Dry Scrubber	SO_2	5.0 ppmv wet corrected to 15% O_2 and 19.61 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	GSA Dry Scrubber	F	11.4 ppmv wet corrected to 15% O_2 and 12.34 lb/hr
Machine Discharge System (EU015)	Baghouse CE017 (SV014)	PM	0.002 gr/dscf
		PM	1.01 lb/hr
		PM_{10}*	0.002 gr/dscf
		PM_{10}*	1.01 lb/hr
		$PM_{2.5}$*	0.002 gr/dscf
		$PM_{2.5}$*	1.01 lb/hr

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Machine Discharge System (EU015) shall be as follows:

(1) The weighted average Fluoride Concentration in the oxide pellets handled by the Machine discharge system (EU015) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Machine Discharge System (EU015)	Baghouse CE017 (SV014)	F	5.06E-05

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for greenhouse gases (as CO_2e) for the Induration operations shall be as follows:

Emission Unit Description	GHG (as CO_2e) Emission Limit (tons per 12-month period)
Hardening Furnace	661,208

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation.

Separation and Loadout

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Separation**,** Storage and Loadout operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (SV020)	PM	0.002	0.49
		PM_{10}*	0.002	0.49
		$PM_{2.5}$*	0.002	0.49
Oxide Pellet Storage System (EU019)	Baghouse CE019 (SV018a)	PM	0.002	0.13
		PM_{10}*	0.002	0.13
		$PM_{2.5}$*	0.002	0.13
Oxide Pellet Loadout System (EU019b)	Baghouse CE019 (SV018b)	PM	0.002	1.0
		PM_{10}*	0.002	1.0
		$PM_{2.5}$*	0.002	1.0

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Separation**,** Storage and Loadout operations shall be as follows:

(1) The weighted average Fluoride Concentration in the finished oxide pellets handled by the hearth layer separation system (EU016) and the oxide pellet storage system (EU019a) and the oxide pellet loadout system (EU019b) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (SV020)	F	2.34E-05
Oxide Pellet Storage System (EU019a)	Baghouse CE019 (SV018a)	F	6.34E-06

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Oxide Pellet Loadout System (EU019b)	Baghouse CE019 (SV018b)	F	5.01 E-05

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Oxide Pallet Loadout System (EU019b), the hours of operation shall be limited to 1,095 hours per twelve (12) consecutive month period with compliance determined monthly.

Windbox Exhaust Air Pollution Control Equipment

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Windbox Exhaust Air Pollution Control Equipment operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
WBE Lime Storage Area (EU020)	Bin Vent CE020 (inside building)	PM	0.002	0.02
		PM_{10}*	0.002	0.02
		$PM_{2.5}$*	0.002	0.02
WBE Residual Product Loading Area (EU022)	Bin Vent CE021 (inside building)	PM	0.002	0.02
		PM_{10}*	0.002	0.02
		$PM_{2.5}$*	0.002	0.02
Recycled Dust Storage Area (EU026)	Baghouse CE024 (inside building)	PM	0.002	0.16
		PM_{10}*	0.002	0.16
		$PM_{2.5}$*	0.002	0.16
Dust Recycle Surge Hopper (EU027)	Baghouse CE027 (SV027)	PM	0.002	0.05
		PM_{10}*	0.002	0.05
		$PM_{2.5}$*	0.002	0.05

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Windbox Exhaust Air Pollution Control Equipment shall be as follows:

(1) The weighted average Fluoride Concentration in the recycled handled by the recycled dust storage areas (EU026) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Recycled Dust Storage Area (EU026)	Baghouse CE024 (inside building)	F	7.88 E-06
Dust Recycle Surge Hopper (EU027)	Baghouse CE027 (SV027)	F	2.45 E -06

Insignificant Activities

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for the insignificant activities shall be as follows:

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Emergency Generators (EU017a and EU017b)	No Control	PM	0.20 g/kw-hr, each
		PM_{10}*	0.20 g/kw-hr, each
		$PM_{2.5}$*	0.20 g/kw-hr, each
		SO_2	0.0015 g/kw-hr, each
		NO_x	0.50 g/hp-hr, each
		F	6.95×10^{-6} lb/MMBtu, each
Space Heaters (EU021), Coke Breeze Additive System Air Heater (EU009)	No Control	PM	0.0072 lb/MMBtu, each
		PM_{10}*	0.0072 lb/MMBtu, each
		$PM_{2.5}$*	0.0072 lb/MMBtu, each
		SO_2	0.00048 lb/MMBtu, each
	Low NO_x Burners	NO_x	0.05 lb/MMBtu, each
	No Control	F	9.40×10^{-6} lb/MMBtu, each
Fire Pump (EU018)	No Control	PM	3.10 E -01 lb/MMBtu
		PM_{10}*	3.10 E -01 lb/MMBtu
		$PM_{2.5}$*	3.10 E -01 lb/MMBtu
		SO_2	2.90 E -01 lb/MMBtu
		NO_x	4.41 lb/MMBtu
		F	1.18 E .03 lb/MMBtu

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(1) These units shall only combust natural gas, and the Permittee shall practice good combustion practices when these units are combusting natural gas.

(2) The emergency generator (EU017a and EU017b) shall not exceed 500 hours of operation, each, per 12-month period.

(3) The fire pump (EU018) shall not exceed 500 hours of operation per 12-month period.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for greenhouse gases (as CO_2e) for the insignificant activities shall be as follows:

Emission Unit		GHG (as CO_2e) Emission Limit (tons per 12-month period)
Description	Unit No.	
Emergency Generator	EU017a	382.35
Emergency Generator	EU017b	382.35
Fire Pump	EU018	92
Space Heaters	EU021	11,801
Coke Breeze Additive System Air Heater	EU009	2,203.2

(c) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Iron Ore Wet Grinding and Filter Cake Production and the Greenball Production System shall be that the opacity shall not exceed five percent (5%) on a six (6) minute average and the following:

Emission Unit Description	Emission Limitations		
	Pollutant	Lb/hr	TPY
Iron Ore Wet Grinding and Filter Cake Production	PM	0.77	3.37
	PM_{10}*	0.07	0.31
	$PM_{2.5}$*	0.07	0.31
Greenball Production System	PM	0.77	3.37
	PM_{10}*	0.07	0.31
	$PM_{2.5}$*	0.07	0.31

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the insignificant activities shall be as follows:

(1) The weighted average Fluoride Concentration in the material handled by the iron ore concentrate wet grinding and filter cake production and greenball production system shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly.

(e) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Paved Roads shall be controlled through the development, maintenance, and implementation of a fugitive dust control plan, which shall include vacuum sweeping and water flushing as necessary and the implementation of a speed reduction plan.

(f) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation.

Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any new control equipment is considered federally enforceable only after issuance of this Significant Source Modification and Significant Permit Modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance (tons/year)									
	PM	PM_{10}*	$PM_{2.5}$**	SO_2	NO_x	VOC	CO	GHGs	Total HAPs	Worst Single HAP (Hydrogen Fluoride)
Iron Concentrate Unloading	1.28	1.28	1.28	-	-	-	-	-	4.45E-03	-
Iron Concentrate Transfer & Storage Area (pile)	34.42	13.77	1.38	-	-	-	-	-		
Limestone Unloading (truck)	2.20E-03	2.20E-03	2.20E-04	-	-	-	-	-	4.79E-04	-
Limestone Conveyor & Enclosed Storage (pile)	0.82	0.30	0.03	-	-	-	-	-		
Dolomite Unloading (truck)	1.22E-03	1.22E-03	1.22E-04	-	-	-	-	-	-	-
Dolomite Conveyor & Enclosed Storage (pile)	0.46	0.17	0.02	-	-	-	-	-		
Coke Breeze Unloading (truck)	3.26E-03	1.54E-03	4.45E-04	-	-	-	-	-	3.65E-03	-
Coke Breeze Pneumatic Coveyance & Storage Bin	0.61	0.61	0.61	-	-	-	-			
Bentonite Unloading (truck), Conveyance System & Storage Area	0.22	0.22	0.22	-	-	-	-	-	-	-
Organic Binder Unloading & Storage Area	0.19	0.19	0.19	-	-	-	-	-	1.82E-02	-
Coke Breeze Additive System	0.61	0.61	0.61	-	-	-	-	-	3.85E-02	-
Coke Breeze Additive System Air Heater				9.04E-03	0.23	0.10	1.55	2,204		

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance (tons/year)									
	PM	PM_{10}*	$PM_{2.5}$**	SO_2	NO_x	VOC	CO	GHGs	Total HAPs	Worst Single HAP (Hydrogen Fluoride)
Limestone/Dolomite reclaim loader hopper, grizzly feeder	1.28	0.47	0.05	-	-	-	-	-	1.03E-03	-
Limestone and Dolomite Grinding Mill Bin Area	1.14	1.14	1.14	-	-	-	-	-		
Ground Limestone and Dolomite Additive System	1.39	1.39	1.39	-	-	-	-	-	0.19	-
Limestone/Dolomite Additive System Air Heater				0.05	1.21	0.54	8.30	11,787		
Mixing Area Material Handling System	3.36	3.36	3.36	-	-	-	-	-	2.30E-03	-
Hearth Layer Bin System	0.48	0.48	0.48	-	-	-	-	-	3.28E-04	-
Furnace Hood Exhaust *	48.19	96.39	96.39	94.94	477.42	1.74	3.62	661,208	15.18	9.11
Furnace Windbox Exhaust *	77.13	154.26	154.26	85.89		21.41	44.60		78.48	56.90
Machine Discharge System *	4.43	4.43	4.43	-	-	-	-	-	3.17E-03	-
Hearth Layer Separation System	2.12	2.12	2.12	-	-	-	-	-	1.52E-03	-
Oxide Pellet Storage & Unloading System	0.56	0.56	0.56	-	-	-	-	-	3.97E-04	-
Oxide Pellet Storage & Unloading System	0.55	0.55	0.55	-	-	-	-	-	3.14E-03	-
WBE Lime Storage Area	0.08	0.08	0.08	-	-	-	-	-	1.50E-05	-
WBE Residual Product Loading Area	0.08	0.08	0.08	-	-	-	-	-	1.50E-05	-
Recycled Dust Storage Area	0.69	0.69	0.69	-	-	-	-	-	4.93E-04	-
Dust Recycle Surge Hopper and Blow Tank Area	0.21	0.21	0.21	-	-	-	-	-	1.53E-04	-
Space Heaters & Lab furnaces	0.73	0.73	0.73	0.05	5.04	0.54	8.31	11,801	0.19	-
Emergency Generators (Two generators) - Natural Gas	0.29	0.29	0.29	2.15E-03	0.96	0.26	0.70	765	8.30	-
Fire Water Pump - Diesel	0.06	0.06	0.06	5.53E-02	0.84	0.07	0.18	31	1.38E-02	-
Cooling Tower - furnace discharge system	0.30	0.30	0.30	-	-	-	-	-	-	-
Iron Ore Wet Grinding and Filter Cake Production	3.37	0.31	0.31	-	-	-	-	-	2.41E-03	-
Cooling Tower - wet grinding and filter cake production	0.30	0.30	0.30	-	-	-	-	-	-	-
Greenball Production System	3.37	0.31	0.31	-	-	-	-	-	2.41E-03	-
Paved Roads	1.56	0.31	0.08	-	-	-	-	-	-	-

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance (tons/year)									
	PM	PM_{10}*	$PM_{2.5}$**	SO_2	NO_x	VOC	CO	GHGs	Total HAPs	Worst Single HAP (Hydrogen Fluoride)
Total PTE of Entire Source	**190.27**	**285.96**	**272.48**	**180.99**	**485.70**	**24.66**	**67.25**	**687,795**	**102.43**	**66.02**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000 CO_2e	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000 CO_2e	NA	NA

Federal Rule Applicability Determination

NSPS:

(a) The coke breeze unloading and storage area (EU004a and EU004b) is not subject to the requirements of the New Source Performance Standards for Coal Preparation and Processing Plants, 40 CFR 60.250, Subpart Y because coke breeze does not meet the definition of coal, pursuant to 40 CFR 60.251.

(b) The source is not subject to the requirements of the New Source Performance Standards for Metallic Mineral Processing Plants, 40 CFR 60.380, Subpart LL because the source does not meet the definition of a metallic mineral processing plant, pursuant to 40 CFR 60.381. The source does not produce metallic mineral concentrates from ore; it receives iron ore concentrate and converts it into iron pellets.

(c) The source is not subject to the requirements of the New Source Performance Standards for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO, as folows:

(1) The following facilities are not subject to the requirements of the New Source Performance Standards for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO because they handle or process materials that do not meet the definition of a nonmetallic mineral, pursuant to 40 CFR 60.671:

(a) One (1) iron ore concentrate unloading and storage area, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

(1) One (1) pedestal mount jack hammer/breaker, one (1) stationary grizzly and one (1) product conveyor, identified as EU001a, using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains one (1) shuttle conveyor, a storage pile, two (2) loader hoppers, and two (2) covered conveyors, identified as EU001b, exhausting inside the building.

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) screen, and one (1) loader hopper, identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) covered conveyor, one (1) covered belt feeder, and one (1) additive conveyor, using baghouse CE004 as control, exhausting to stack SV004.

(g) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller grinding mill for coke breeze with emergency explosion vent with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons with emergency explosion vent.

(2) The following facilities are not subject to the requirements of the New Source Performance Standards for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO because they do not meet the definition of a nonmetallic mineral processing plant, pursuant to 40 CFR 60.671, since the corresponding nonmetallic mineral is not crushed or ground as part of the process:

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder with soda ash unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and one (1) organic binder with soda ash storage bin with a maximum capacity of 55 tons, using bin vent CE006 as control, exhausting inside the building.

(3) Truck dumping into feed hoppers is not subject to the requirements of the Standards of Performance for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO because, pursuant to 40 CFR 60.672(d), the process is exempt from the requirements of this section. Pursuant to 40 CFR 60.671, truck dumping includes dumping from both trucks and front end loaders.

(4) The following facilities are not subject to the requirements of the New Source Performance Standards for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO:

(j) One (1) mixing area material handling system, identified as EU011, approved in 2013 for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders, two (2) mixer feed conveyors, and two (2) mixers.

Pursuant to EPA's Applicability Determination Index (ADI) database (http://www.epa.gov/compliance/monitoring/programs/caa/adi.html) posting dated August 15, 2002 (Control Number: 0200088), since the nonmetallic mineral coming from the storage bins is used in the manufacture of final product rather than being crushed or ground, all emission units following the storage locations are not affected facilities in a production line at a nonmetallic mineral processing plant. Therefore, the facilities listed above are not subject to the requirements of the Standards of Performance for Nonmetallic Mineral Processing Plants, 40 CFR 60.670, Subpart OOO.

(d) The source is subject to the New Source Performance Standards for Nonmetallic Mineral Processing Plants (40 CFR 60.670, Subpart OOO), which is incorporated by reference as 326 IAC 12. Pursuant to 40 CFR 60.670(a)(1), the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. The facilities subject to this rule include the following:

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(2) One (1) covered conveyor, one (1) covered belt feeder, one (1) additive conveyor, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(2) One (1) loader hopper, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(i) One (1) ground limestone and dolomite additive system, identified as EU010, approved in 2013 for construction, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) roller grinding mill for limestone and dolomite with a nominal capacity of 71 tons per hour, one (1) limestone and dolomite ground additive surge hopper, and one (1) limestone and dolomite ground additive pneumatic transfer system. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

The entire rule has been included as Attachment A to the permit. These facilities are subject to the following portions of 40 CFR 60, Subpart OOO:

(1) 40 CFR 60.670(a), (e), (f);
(2) 40 CFR 60.671;
(3) 40 CFR 60.672(a), (b), (d), (e);
(4) 40 CFR 60.673;
(5) 40 CFR 60.674(c), (d);
(6) 40 CFR 60.675(a), (b), (c)(1)(i), (c)(1)(ii), (c)(3), (d), (e), (g), (i);
(7) 40 CFR 60.676(b), (f), (h), (i)(1), (j), (k);
(8) Table 1 to 40 CFR 63, Subpart OOO;
(9) Table 2 to 40 CFR 63, Subpart OOO; and
(10) Table 3 to 40 CFR 63, Subpart OOO.

(e) Magnetation LLC is not subject to the requirements of the Standards of Performance for Calciners and Dryers in Mineral Industries, 40 CFR 60.730, Subpart UUU. Pursuant to 40 CFR 60.731, a mineral processing plant means any facility that processes or produces any of the following minerals, their concentrates, or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.

(1) Since coke breeze, limestone, and dolomite are not listed in this definition, the air heaters for the coke breeze grinding system (EU009) and the ground limestone and dolomite additive system (EU010) are not part of a mineral processing plant and therefore are not subject to the requirements of 40 CFR 63, Subpart UUU.

(2) Bentonite is listed in the definition of a mineral processing plant. However, the ground bentonite utilized at the source is not processed or conveyed with any form of a calciner or dryer. Therefore, the bentonite unloading and storage area (EU005) and the bentonite additive system (EU008) are not subject to the requirements of 40 CFR 63, Subpart UUU.

(3) Since the manufactured greenballs do not contain a mixture of which the majority is any of the above stated minerals, the induration machine is not part of a mineral processing plant and therefore is not subject to the requirements of 40 CFR 63, Subpart UUU.

(f) The emergency generator (EU017a and EU017b) are not subject to the requirements of the New Source Performance Standard for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60.4200, Subpart IIII because these emission units utilize spark ignition internal combustion engines.

The emergency fire pump (EU018) is subject to the requirements of the New Source Performance Standard for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60.4200, Subpart IIII because it is a spark ignition internal combustion engine.

The entire rule has been included as Attachment A to the permit. These facilities are subject to the following portions of 40 CFR 60, Subpart IIII:

(1) 40 CFR 60.4200(e);
(2) 40 CFR 60.4205(c);
(3) 40 CFR 60.4215(c);
(4) 40 CFR 60.4207(a), (b), (c);
(5) 40 CFR 60.4208(h), (i);
(6) 40 CFR 60.4209(a);
(7) 40 CFR 60.4206;
(8) 40 CFR 60.4211(a), (c), (f), (g);
(9) 40 CFR 60.4212;
(10) 40 CFR 60.4214(b); and
(11) 40 CFR 60.Table 8 to 40 CFR 60, Subpart IIII.

(g) The source is 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 specifically regulated insignificant activities subject to this rule include the following:

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2013 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

Pursuant to 40 CFR 60.4230(a), the date that construction commences is the date the engine is ordered by the owner or operator. These engines were ordered after June 12, 2006 and were manufactured after 2007.

The entire rule has been included as Attachment B to the permit. This unit is subject to the following portions of 40 CFR 60, Subpart JJJJ:

(1) 40 CFR 60.4230(a)(3)(iv), (a)(4)(iv), (a)(6);
(2) 40 CFR 60.4233(e), (h);
(3) 40 CFR 60.4234;
(4) 40 CFR 60.4236;
(5) 40 CFR 60.4237(a), (b);
(6) 40 CFR 60.4243(b), (d), (e), (f), (g);
(7) 40 CFR 60.4244;
(8) 40 CFR 60.4245;
(9) 40 CFR 60.4246;
(10) 40 CFR 60.4248;
(11) Table 1 to 40 CFR 60, Subpart JJJJ; and
(12) Table 2 to 40 CFR 60, Subpart JJJJ.

NESHAP:

(h) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs): Publicly Owned Treatment Works, 40 CFR 63.1580, Subpart VVV because the source does not meet the definition of a publicly owned treatment works (POTW), pursuant to 40 CFR 63.1595. The water treatment facility at this source will be owned by the source and not by a State, municipality, or intermunicipal or interstate agency.

(i) This source is 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 specifically regulated insignificant activities subject to this rule include the following:

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017a, approved in 2013 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2013 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [40 CFR 63, Subpart ZZZZ]

The entire rule has been included as Attachment C to the permit. These units are subject to the following portions of 40 CFR 63, Subpart ZZZZ:

(1) 40 CFR 63.6580;
(2) 40 CFR 63.6585(a), (b);
(3) 40 CFR 63.6590(a)(2)(i), (a)(2)(ii), (b)(1)(i), (c)(6);
(4) 40 CFR 63.6645(f);

(5) 40 CFR 63.6665;
(6) 40 CFR 63.6670; and
(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.

(j) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Lime Manufacturing Plants, 40 CFR 63.7080, Subpart AAAAA because the source does not meet the definition of a lime manufacturing plant, pursuant to 40 CFR 63.7143.

(k) The requirements of the National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, Subpart DDDDD are not included in the permit as follows:

(1) The space heaters are not subject to the requirements of 40 CFR 63, Subpart DDDDD because they do not meet the definition of "process heater" pursuant to 40 CFR 63.7575. Specifically, process heaters do not include units used for comfort heat or space heat.

(2) The following combustion units are not subject to the requirements of 40 CFR 63, Subpart DDDDD because they do not meet the definition of "process heater" pursuant to 40 CFR 63.7575:

- Ground limestone and dolomite additive system (EU010) natural gas fired air heater,
- Induration machine (EU013 and EU014), and
- Coke breeze additive system (EU009) natural gas fired air heater

Specifically, process heaters are units in which the combustion gases do not directly come into contact with process materials. These combustion units are direct-fired.

(l) The requirements of the following NESHAPs under 40 CFR Part 63 are not included in the permit:

- NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources (40 CFR 63.11193, Subpart JJJJJJ).

These NESHAPs apply only to area sources of hazardous air pollutants. Since the potential to emit of any single HAP is greater than 10 tons per year and the potential to emit of all combined HAPs is greater than 25 tons per year, Magnetation LLC is a major source of HAPs; therefore, Magnetation LLC is not subject to these NESHAPs.

CAM:

(m) 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.

The following table is used to identify the applicability of each of the criteria, under 40 CFR 64.1, to each new or modified emission unit involved:

CAM Applicability Analysis							
Emission Unit/ Pollutant	**Control Device Used**	**Emission Limitation** (Y/N)	**Uncontrolled PTE** (tons/yr)	**Controlled PTE** (tons/yr)	**Part 70 Major Source Threshold** (tons/yr)	**CAM Applicable** (Y/N)	**Large Unit** (Y/N)
Iron Concentrate Unloading (EU001a): PM	Baghouse CE001	Y	> 100	< 100	100	Y	N
Iron Concentrate Unloading (EU001a): $PM_{10}/PM_{2.5}$	Baghouse CE001	Y	> 100	< 100	100	Y	N
Iron Concentrate Unloading (EU001a): Total Fluorides	Baghouse CE001	Y	< 0.01	---	100	N	N
Coke Breeze Unloading/Storage Area (EU004b): PM	Baghouse CE004	Y	< 100	---	100	N	N
Coke Breeze Unloading/Storage Area (EU004b): $PM_{10}/PM_{2.5}$	Baghouse CE004	Y	< 100	---	100	N	N
Bentonite Unloading/Storage Area (EU005): PM	Bin Vent CE005	Y	< 100	---	100	N	---
Bentonite Unloading/Storage Area (EU005): $PM_{10}/PM_{2.5}$	Bin Vent CE005	Y	< 100	---	100	N	---
Organic Binder Unloading/Storage Area (EU006): PM	Bin Vent CE006	Y	< 100	---	100	N	---
Organic Binder Unloading/Storage Area (EU006): $PM_{10}/PM_{2.5}$	Bin Vent CE006	Y	< 100	---	100	N	---
Coke Breeze Additive System (EU009): PM	Baghouse CE009	Y	< 100	---	100	N	---
Coke Breeze Additive System (EU009): $PM_{10}/PM_{2.5}$	Baghouse CE009	Y	< 100	---	100	N	---
Limestone/Dolomite Grinding Mill Bin Area (EU025b): PM	Baghouse CE023	Y	< 100	---	100	N	---
Limestone/Dolomite Grinding Mill Bin Area (EU025b): $PM_{10}/PM_{2.5}$	Baghouse CE023	Y	< 100	---	100	N	---
Ground Limestone/ Dolomite Additive System (EU010): PM	Baghouse CE010	Y	> 100	< 100	100	Y	N
Ground Limestone/ Dolomite Additive System (EU010): $PM_{10}/PM_{2.5}$	Baghouse CE010	Y	> 100	< 100	100	Y	N

CAM Applicability Analysis							
Emission Unit/ Pollutant	**Control Device Used**	**Emission Limitation** (Y/N)	**Uncontrolled PTE** (tons/yr)	**Controlled PTE** (tons/yr)	**Part 70 Major Source Threshold** (tons/yr)	**CAM Applicable** (Y/N)	**Large Unit** (Y/N)
Mixing Area Material Handling System (EU011): PM	Baghouse CE011	Y	> 100	< 100	100	Y	N
Mixing Area Material Handling System (EU011): $PM_{10}/PM_{2.5}$	Baghouse CE011	Y	> 100	< 100	100	Y	N
Mixing Area Material Handling System (EU011): Total Fluorides	Baghouse CE011	Y	< 0.1	---	100	N	---
Furnace Discharge System (EU015): PM	Baghouse CE017	Y	> 100	< 100	100	Y	N
Furnace Discharge System (EU015): $PM_{10}/PM_{2.5}$	Baghouse CE017	Y	> 100	< 100	100	Y	N
Furnace Discharge System (EU015): Total Fluorides	Baghouse CE017	Y	< 0.1	---	100	N	---
Hearth Layer Separation System (EU016): PM	Baghouse CE018	Y	> 100	< 100	100	Y	N
Hearth Layer Separation System (EU016): $PM_{10}/PM_{2.5}$	Baghouse CE018	Y	> 100	< 100	100	Y	N
Hearth Layer Separation System (EU016): Total Fluorides	Baghouse CE018	Y	< 0.1	---	100	N	---
Oxide Pellet Storage System (EU019a): PM	Baghouse CE019a	Y	> 100	< 100	100	Y	N
Oxide Pellet Storage System (EU019a): $PM_{10}/PM_{2.5}$	Baghouse CE019a	Y	> 100	< 100	100	Y	N
Oxide Pellet Storage System (EU019a): Total Fluorides	Baghouse CE019a	Y	< 0.1	---	100	N	---
Oxide Pellet Loadout System (EU019b): PM	Baghouse CE019b	Y	> 100	< 100	100	Y	N
Oxide Pellet Loadout System (EU019b): $PM_{10}/PM_{2.5}$	Baghouse CE019b	Y	> 100	< 100	100	Y	N
Oxide Pellet Loadout System (EU019b): Total Fluorides	Baghouse CE019b	Y	< 0.1	---	100	N	---
WBE Lime Storage Area (EU020): PM	Bin Vent CE020	Y	< 100	---	100	N	---
WBE Lime Storage Area (EU020): $PM_{10}/PM_{2.5}$	Bin Vent CE020	Y	< 100	---	100	N	---
Recycled Dust Storage Area (EU026): PM	Baghouse CE024	Y	< 100	---	100	N	---

CAM Applicability Analysis							
Emission Unit/ Pollutant	**Control Device Used**	**Emission Limitation** (Y/N)	**Uncontrolled PTE** (tons/yr)	**Controlled PTE** (tons/yr)	**Part 70 Major Source Threshold** (tons/yr)	**CAM Applicable** (Y/N)	**Large Unit** (Y/N)
Recycled Dust Storage Area (EU026): $PM_{10}/PM_{2.5}$	Baghouse CE024	Y	< 100	---	100	N	---
Recycled Dust Storage Area (EU026): Total Fluorides	Baghouse CE024	Y	< 0.1	---	100	N	---
Dust Recycle Surge Hopper and Blow Tank Area (EU027): PM	Baghouse CE027	Y	< 100	---	100	N	---
Dust Recycle Surge Hopper and Blow Tank Area (EU027): $PM_{10}/PM_{2.5}$	Baghouse CE027	Y	< 100	---	100	N	---
Dust Recycle Surge Hopper and Blow Tank Area (EU027): Total Fluorides	Baghouse CE027	Y	< 0.1	---	100	N	---

[1] These devices for controlling NO_x do not meet the definition of "control device" per 40 CFR 64.1.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are applicable to the Iron Concentrate Unloading (EU001a), Ground Limestone/ Dolomite Additive System (EU010), Mixing Area Material Handling System (EU011), Furnace Discharge System (EU015), Hearth Layer Separation System (EU016), Oxide Pellet Storage System (EU019a) and Oxide Pellet Loadout System (EU019b) for PM, PM_{10}, and $PM_{2.5}$ upon issuance of the Title V Renewal. A CAM plan must be submitted as part of the renewal application.

State Rule Applicability - Entire Source

326 IAC 2-2-3 (PSD BACT)
This modification is being aggregated with the Greenfield source permit T181-32081-00054 and therefore is major for PSD. Pursuant to 326 IAC 2-2, the PSD requirements do apply to this modification. This determination is outlined in Permit Level Determination - PSD section of this TSD.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

(a) The operation of the Furnace Windbox Exhaust, identified as EU014, will emit greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 will apply. MACT is determined to be the use of a GSA dry scrubber with a maximum outlet HF concentration of 11.4 ppmv wet corrected to 15% O_2 and a corresponding 12.34 lb/hr limit. A detailed MACT analysis is included in Appendix E.

(b) The operation of the remaining emission units 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, each. Therefore, 326 IAC 2-4.1 does not apply to these units.

326 IAC 2-6 (Emission Reporting)
This source, not located in Lake, Porter, or LaPorte County, is subject to 326 IAC 2-6 (Emission Reporting) because it is required to have an operating permit pursuant to 326 IAC 2-7 (Part 70). The potential to emit of VOC and PM_{10} is less than 250 tons per year each, and the potential to emit of CO, NO_x, and SO_2 is less than 2,500 tons per year each. Therefore, pursuant to 326 IAC

2-6-3(a)(2), triennial reporting is required. An emission statement shall be submitted in accordance with the compliance schedule in 326 IAC 2-6-3 by July 1, 2013, and every three (3) years thereafter. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)
This source is subject to the opacity limitations specified in 326 IAC 5-1-2(1).

326 IAC 6-4 (Fugitive Dust Emissions)
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 6-5 (Fugitive Particulate Matter Emission Limitations)
This source is not subject to 326 IAC 6-5 because it has fugitive particulate emissions less than 25 tons per year.

326 IAC 6.5 (PM Limitations Except Lake County)
This source is not subject to 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne.

326 IAC 7-1.1 Sulfur Dioxide Emission Limitations

(a) The potential to emit SO_2 from the furnace hood exhaust (EU013) and the furnace windbox exhaust (EU014) are greater than twenty-five (25) tons per year or ten (10) pounds per hour, each. Therefore, each emission unit is subject to the requirements of 326 IAC 7-1.1; however, there are no limits under this rule for natural gas combustion, coke breeze combustion, or non-combustion sources of sulfur dioxide. The source must comply with the reporting requirements in 326 IAC 7-2-1.

(b) The SO_2 emissions from the entire source are less than ten thousand (10,000) tons per year. Therefore, the requirements of 326 IAC 7-3 are not applicable.

(c) Magnetation LLC is located in White County. Therefore, the requirements of 326 IAC 7-4 are not applicable.

(d) The operation of the remaining emission units are not subject to 326 IAC 326 IAC 7-1.1 because the SO_2 PTE of each emission unit is less than 25 tons per year or 10 pounds per hour.

326 IAC 8-1-6 (New Facilities; General Reduction Requirements)
326 IAC 8-1-6 does not apply since the potential VOC emissions from each emission unit is less than twenty-five (25) tons per year.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)
This source is located in White County. Therefore, the requirements of 326 IAC 8-9 are not applicable.

326 IAC 9-1 (Carbon Monoxide Emission Limits)
Although this is a stationary source of CO emissions commencing operation after March 21, 1972, there are no applicable CO emission limits for this type of source pursuant to 326 IAC 9-1-2. Therefore, 326 IAC 9-1 does not apply.

326 IAC 10-1 (Nitrogen Oxide Emission Limitations)
The plant is not subject to the requirements of 326 IAC 10-1 (Nitrogen Oxide Emission Limitations) because the plant is not located in Clark County or Floyd County.

State Rule Applicability - Section D.1 (Raw Material Handling)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

(a) Pursuant to 326 IAC 6-3-2(e)(1), the allowable particulate emissions from each of the following processes shall not exceed the pound per hour limitations specified in the following table:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Iron Concentrate Transfer & Storage Area (EU001b)	4,950	100.2
Limestone Unloading & Storage Area (EU002a and EU002b)	495	68.8
Dolomite Unloading & Storage Area (EU003a and EU003b)	495	68.8
Coke Breeze Unloading & Storage Area (EU004a and EU004b)	7	15.1

The pounds per hour limitations were calculated with the following equations:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the above emission limits, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

Each of these emission units is capable of complying with the corresponding 326 IAC 6-3-2 limit without the use of controls.

(b) Particulate limitations pursuant to 326 IAC 2-2-3 have been established for the Iron Concentrate Unloading (EU001a), Bentonite Unloading & Storage Area (EU005), and Organic Binder Unloading & Storage Area (EU006) that are more stringent than limitations established in 326 IAC 6-3-2(e)(1). Therefore, pursuant to 326 IAC 6-3-2(c)(1), 326 IAC 6-3-2 does not apply to these emission units.

State Rule Applicability - Section D.2 (Additive Grinding and Mixing)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

(a) Pursuant to 326 IAC 6-3-2(e)(1), the allowable particulate emissions from each of the following processes shall not exceed the pound per hour limitations specified in the following table:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Limestone & Dolomite Grinding Mill Bin Area (EU025a)	495	68.8

The pounds per hour limitations were calculated with the following equations:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the above emission limits, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

Each of these emission units is capable of complying with the corresponding 326 IAC 6-3-2 limit without the use of controls.

(b) Particulate limitations pursuant to 326 IAC 2-2-3 have been established for the Coke Breeze Additive System (EU009), Ground Limestone & Dolomite Additive System (EU010), and Mixing Area Material Handling System (EU011) that are more stringent than limitations established in 326 IAC 6-3-2(e)(1). Therefore, pursuant to 326 IAC 6-3-2(c)(1), 326 IAC 6-3-2 does not apply to these emission units.

State Rule Applicability - Section D.3 (Induration)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Particulate limitations pursuant to 326 IAC 2-2-3 have been established for the Furnace Discharge System (EU015) that are more stringent than limitations established in 326 IAC 6-3-2(e)(1). Therefore, pursuant to 326 IAC 6-3-2(c)(1), 326 IAC 6-3-2 does not apply to these emission units.

State Rule Applicability - Section D.4 (Separation and Loadout)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Particulate limitations pursuant to 326 IAC 2-2-3 have been established for the Hearth Layer Separation System (EU016), Oxide Pellet Storage System (EU019a) and Oxide Pellet Loadout System (EU019b) that are more stringent than limitations established in 326 IAC 6-3-2(e)(1). Therefore, pursuant to 326 IAC 6-3-2(c)(1), 326 IAC 6-3-2 does not apply to these emission units.

State Rule Applicability - Section D.5 (Windbox Exhaust Air Pollution Control Equipment)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Particulate limitations pursuant to 326 IAC 2-2-3 have been established for the WBE Lime Storage Silo (EU020), WBE Residual Product Loading Area (EU022), and Recycled Dust Storage Area (EU026) that are more stringent than limitations established in 326 IAC 6-3-2(e)(1). Therefore, pursuant to 326 IAC 6-3-2(c)(1), 326 IAC 6-3-2 does not apply to these emission units.

State Rule Applicability - Section D.6 (Insignificant Activities)

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to 326 IAC 6-3-2(e)(1), the allowable particulate emissions from each of the following processes shall not exceed the pound per hour limitations specified in the following table:

Unit Description	Max. Process Weight Rate (tons/hr)	Particulate Emission Limit (lb/hr)
Iron Concentrate Wet Grinding and Filter Cake Production System	900	76.2

The pounds per hour limitations were calculated with the following equations:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emissions may exceed the above emission limits, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

Each of these emission units is capable of complying with the corresponding 326 IAC 6-3-2 limit without the use of controls.

326 IAC 8-4-6 (Gasoline Dispensing Facilities)
The insignificant petroleum fuel dispensing facility does not meet the definition of a "gasoline dispensing facility" because, pursuant to 326 IAC 8-4-6(a)(8), diesel fuel is not considered to be a motor vehicle fuel. Therefore, the requirements of 326 IAC 8-4-6 are not applicable.

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.

(a) The emission units associated with Raw Material Handling have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control devices, as listed in the table below, when the corresponding units are in operation:

Emission Unit	Control Device
Iron Concentrate Unloading (EU001a)	Baghouse CE001

Emission Unit	Control Device
Coke Breeze Unloading/Storage Area (EU004b)	Baghouse CE004
Bentonite Unloading/Storage Area (EU005)	Bin Vent CE005
Organic Binder Unloading/Storage Area (EU006)	Bin Vent CE006

(2) Testing Requirements
Not later than 180 days from plant startup, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 1 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 1 Emission Points
Baghouse CE001
Baghouse CE009
Stacks SV013A, SV013B, SV014
Baghouse CE019

Not later than 180 days from the date the last of the tests required above is completed or not later than 360 days from plant startup, whichever is later, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 2 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 2 Emission Points
Baghouse CE004
Baghouse CE023
Baghouse CE010
Baghouse CE011
Baghouse CE012
Baghouse CE018
Baghouse CE024

(3) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the iron concentrate to ensure compliance with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

(b) The emission units associated with Additive Grinding and Mixing have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control device, as listed in the table below, when the corresponding units are in operation:

Emission Unit	Control Device
Bentonite Additive System (EU008)	Bin Vent CE008
Coke Breeze Additive System (EU009)	Baghouse CE009
Limestone/Dolomite Grinding Mill Bin Area (EU025b)	Baghouse CE023

Emission Unit	Control Device
Ground Limestone/ Dolomite Additive System (EU010)	Baghouse CE010
Mixing Area Material Handling System (EU011)	Baghouse CE011
Hearth Layer Bin System (EU012)	Baghouse CE012
Ground Limestone/ Dolomite Additive System Air Heater (EU010)	Low NO_x Burners

(2) Testing Requirements
Not later than 180 days from plant startup, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 1 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 1 Emission Points
Baghouse CE001
Baghouse CE009
Stacks SV013A, SV013B, SV014
Baghouse CE019

Not later than 180 days from the date the last of the tests required above is completed or not later than 360 days from plant startup, whichever is later, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 2 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 2 Emission Points
Baghouse CE004
Baghouse CE023
Baghouse CE010
Baghouse CE011
Baghouse CE012
Baghouse CE018
Baghouse CE024

(3) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the oxide pellets (greenballs) to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

(4) Greenhouse Gases
The Permittee shall use the given CO_2e emissions formula to determine to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

(c) The emission units associated with Induration have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control device, as listed in the table below, when the corresponding units are in operation:

Emission Unit	**Control Device**
Furnace Hood Exhaust (EU013)	Baghouse CE013
Furnace Windbox Exhaust (EU014)	Low NO_x LE Burners
Furnace Windbox Exhaust (EU014)	Gas Suspension Absorber CE015
Furnace Windbox Exhaust (EU014)	Baghouse CE016
Furnace Discharge System (EU015)	Baghouse CE017

(2) Testing Requirements

(a) Not later than 180 days from plant startup, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 1 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 1 Emission Points
Baghouse CE001
Baghouse CE009
Stacks SV013A, SV013B, SV014
Baghouse CE019

(b) Not later than 180 days from plant startup, the Permittee shall perform SO_2, NO_x, and Fluoride testing for stacks SV013A and SV013B utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

(c) Not later than 180 days from plant startup, the Permittee shall perform lead testing for stacks SV013A and SV013B utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

(3) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the finished oxide pellets to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

(4) Greenhouse Gases
The Permittee shall use the given CO_2e emissions formula to determine to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

(5) Cooling Tower Total Dissolved Solids
The Permittee shall perform tests of the total dissolved solids (TDS) in the blow-down water on a weekly basis using an EPA approved test and shall make a notation of water circulation rate at the time of the test. The Permittee shall calculate the PM, PM_{10}, and $PM_{2.5}$ emission rates using an EPA-approved calculation based on the TDS testing results and the water circulation rate at the time of the TDS testing.

(4) Sulfur Content
The Permittee shall use the given Sulfur emissions formula to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

(d) The emission units associated with Separation and Loadout have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control device, as listed in the table below, when the corresponding units are in operation:

Emission Unit	Control Device
Hearth Layer Separation System (EU016)	Baghouse CE018
Oxide Pellet Storage/Unloading System (EU019)	Baghouse CE019

(2) Testing Requirements
Not later than 180 days from plant startup, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 1 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 1 Emission Points
Baghouse CE001
Baghouse CE009
Stacks SV013A, SV013B, SV014
Baghouse CE019

Not later than 180 days from the date the last of the tests required above is completed or not later than 360 days from plant startup, whichever is later, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 2 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 2 Emission Points
Baghouse CE004
Baghouse CE023
Baghouse CE010
Baghouse CE011
Baghouse CE012
Baghouse CE018
Baghouse CE024

(3) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the finished oxide pellets to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

(e) The emission units associated with Windbox Exhaust Air Pollution Control Equipment have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control device, as listed in the table below, when the corresponding units are in operation:

Emission Unit	Control Device

Emission Unit	**Control Device**
WBE Lime Storage Area (EU020)	Bin Vent CE020
WBE Residual Product Loading Area (EU022)	Bin Vent CE021
Recycled Dust Storage Area (EU026)	Baghouse CE024

(2) Testing Requirements
Not later than 180 days from the date the last of the tests required of the Group 1 emission points is completed or not later than 360 days from plant startup, whichever is later, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing of the Group 2 emission points (as indicated below) utilizing methods as approved by the Commissioner. Testing shall be repeated every five (5) years.

Group 2 Emission Points
Baghouse CE004
Baghouse CE023
Baghouse CE010
Baghouse CE011
Baghouse CE012
Baghouse CE018
Baghouse CE024

(3) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the recycled dust to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

(f) The emission units associated with Insignificant Activities have applicable compliance determination conditions as specified below:

(1) Emission Controls Operation
Each of the following emission units shall be controlled by the associated control device, as listed in the table below, when the corresponding units are in operation:

Emission Unit Description	Control Device
Iron Concentrate Wet Grinding and Filter Cake Production System	Wet Spray
Greenball Production System	Wet Spray
Space Heaters (EU021)	Low NOx Burners
Coke Breeze Additive System Air Heater (EU009)	Low NOx Burners

(2) Total Fluorides Emissions and Fluoride Content
The Permittee shall provide a documentation and/or analysis of the fluoride concentration of the filter cake material and greenball material to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

(3) Cooling Tower Total Dissolved Solids
The Permittee shall perform tests of the total dissolved solids (TDS) in the blow-down water on a weekly basis using an EPA approved test and shall make a notation of water circulation rate at the time of the test. The Permittee shall calculate the PM, PM_{10}, and $PM_{2.5}$ emission rates using an EPA-approved

calculation based on the TDS testing results and the water circulation rate at the time of the TDS testing.

(4) Greenhouse Gases
The Permittee shall use the given CO_2e emissions formula to determine to determine the compliance status with the emission limitations pursuant to 326 IAC 2-2-3 (PSD BACT).

These requirements are required to ensure compliance with 326 IAC 2-2 (PSD) and 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes).

The compliance monitoring requirements applicable to this source are as follows:

(a) The emission units associated with Raw Material Handling have applicable compliance determination conditions as specified below:

(1) Visible Emissions Notations
The Permittee shall perform daily visible emission notations of the following stack exhausts: baghouses CE001 and CE004.

(2) Baghouse Parametric Monitoring
The Permittee shall record the pressure drop across baghouses CE001 and CE004 at least once per day when the associated emission units are in operation.

(3) Bin Vent Inspections
The Permittee shall perform semi-annual inspections of the following bin vents: bin vents CE005 and CE006.

(4) Broken or Failed Bag Detection
The Permittee shall maintain the baghouses and replace broken or failed bags as needed.

(5) Bin Vent Filter Failure Detection
The Permittee shall maintain the bin vents and replace broken or failed bags as needed.

These monitoring conditions are necessary because the baghouses and bin vents must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

(b) The emission units associated with Additive Grinding and Mixing have applicable compliance determination conditions as specified below:

(1) Visible Emissions Notations
The Permittee shall perform daily visible emission notations of the following stack exhausts: baghouses CE009, CE010, and CE012.

(2) Baghouse Parametric Monitoring
The Permittee shall record the pressure drop across baghouses CE009, CE010, and CE012 at least once per day when the associated emission units are in operation.

(3) Baghouse and Bin Vent Inspections
The Permittee shall perform semi-annual inspections of baghouses CE023 and CE011 and bin vent CE008.

(4) Broken or Failed Bag Detection
The Permittee shall maintain the baghouses and replace broken or failed bags as needed.

(5) Bin Vent Filter Failure Detection
The Permittee shall maintain the bin vents and replace broken or failed bags as needed.

These monitoring conditions are necessary because the baghouses and bin vents must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

(c) The emission units associated with Induration have applicable compliance determination conditions as specified below:

(1) Visible Emissions Notations
The Permittee shall perform daily visible emission notations of the following stack exhaust: baghouse CE017.

(2) Baghouse Parametric Monitoring
The Permittee shall record the pressure drop across baghouse CE017 at least once per day when the associated emission units are in operation.

(3) Broken or Failed Bag Detection
The Permittee shall maintain the baghouse and replace broken or failed bags as needed.

(4) Gas Suspension Absorber Monitoring
The Permittee shall monitor the minimum air flow rate through the reactor at least once per day when the hardening furnace is in operation.

These monitoring conditions are necessary because the baghouses and gas suspension absorber must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), 326 IAC 2-2 (PSD), 40 CFR 64 (CAM), and 326 IAC 2-7 (Part 70).

(d) The emission units associated with Separation and Loadout have applicable compliance determination conditions as specified below:

(1) Visible Emissions Notations
The Permittee shall perform daily visible emission notations of the following stack exhaust: baghouse CE018, CE019a, and CE019b.

(2) Baghouse Parametric Monitoring
The Permittee shall record the pressure drop across baghouse CE018, CE019a, and CE019b at least once per day when the associated emission units are in operation.

(3) Baghouse Inspections
The Permittee shall perform semi-annual inspections of baghouse CE018.

(4) Broken or Failed Bag Detection
The Permittee shall maintain the baghouse and replace broken or failed bags as needed.

These monitoring conditions are necessary because the baghouses must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

(e) The emission units associated with Windbox Exhaust Air Pollution Control Equipment have applicable compliance determination conditions as specified below:

(1) Visible Emissions Notations
The Permittee shall perform daily visible emission notations of the following stack exhaust: baghouse CE027.

(2) Baghouse Parametric Monitoring
The Permittee shall record the pressure drop across baghouse CE027 at least once per day when the associated emission units are in operation.

(2) Baghouse and Bin Vent Inspections
The Permittee shall perform semi-annual inspections of baghouse CE024 and bin vents CE020 and CE021.

(3) Broken or Failed Bag Detection
The Permittee shall maintain the baghouse and replace broken or failed bags as needed.

(4) Bin Vent Filter Failure Detection
The Permittee shall maintain the bin vents and replace broken or failed bags as needed.

These monitoring conditions are necessary because the baghouses and bin vents must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

(f) There are no applicable compliance determination conditions associated with the Insignificant Activities.

Proposed Changes

The changes listed below have been made to Part 70 Operating Permit No. 181-32081-00054. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**:

Changes Affecting Conditions Throughout the Permit

(a) *Multuple Conditions - Rule Citations*
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, Section B - Operational Flexibility, Section C - Emission Statement.

(b) *Multiple Conditions - Company Name Change*
The company name has been changed from Magnetation LLC to Mag Pellet LLC.

Pervious Source Name: ~~Magnetation LLC~~
New Source Name: **Mag Pellet LLC**

(c) *Multiple Conditions - Typographical Errors, Language Clarification*
Throughout the permit, typographical and grammatical errors have been corrected. Additionally, changes to language for clarification or to align with the current preferred permit language conventions have been made.

Changes Specific to Section A of the Permit

(a) Section A.1 has been updated to include the phone number.

(b) Section A.2 and A.3 has been updated to include the new emission units.

Section A of the permit has been revised as follows:

SECTION A SOURCE SUMMARY

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

***

General Source Phone Number: ~~To Be Provided~~ **(574)297-4227**

***

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

***

(a) ***

(1) One ~~(1) thaw shed, one~~ (1) rotary rail car dumper, one (1) pedestal mount **jack hammer/**breaker, **one (1) stationary grizzly** ~~two (2) grizzlies~~, two (2) apron feeders, one (1) dribble conveyor, **one (1) product conveyor, and** one (1) breaker, identified as EU001a, **located in the car dumper building,** using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains **one (1) shuttle conveyor** ~~four (4) covered conveyors~~, **a storage pile, two (2)** ~~four (4)~~ load**er** hoppers, and **two (2) covered conveyors,** ~~a storage pile~~ identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU002a, exhausting uncontrolled to atmosphere.

(2) ***

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen**, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) ***

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) **covered conveyor, one (1) covered belt feeder, one (1) additive conveyor,** ~~pneumatic conveyance system~~ and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) bentonite storage bin with a maximum capacity of 440 tons~~, with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder **with soda ash** unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) organic binder **with soda ash storage** ~~feed~~ bin with a maximum capacity of 55 tons, ~~with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE006 as control, exhausting inside the building.

~~(g) One (1) soda ash unloading and storage area, identified as EU007, approved in 2013 for construction, consisting of one (1) soda ash feed bin with a maximum capacity of 55 tons, with a maximum capacity of 3.0 tons per hour, using bin vent CE007 as control, exhausting inside the building.~~

~~(h) One (1) bentonite additive system, identified as EU008, approved in 2013 for construction, consisting of one (1) bentonite feed bin with a maximum capacity of 220 ton, with a maximum capacity of 3.0 tons per hour, using bin vent CE008 as control, exhausting inside the building.~~

(**g**~~i~~) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller **grinding** mill for coke breeze **with emergency explosion vent** ~~grinding~~ with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons **with emergency explosion vent**.

(**h**~~j~~) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, ~~one (1) enclosed vibrating grizzly feeder/screener~~ **one (1) hopper discharge** feeder, and one (1) covered belt feeder, identified as EU025a, exhausting **into the limestone and dolomite storage building** ~~uncontrolled to the atmosphere~~.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the **additive grinding** building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(**i**~~k~~) One (1) ground limestone and dolomite additive system, identified as EU010, ~~approved in 2013 for construction~~, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller **grinding** mill for limestone and dolomite **with a nominal capacity of 71 tons per hour**, one (1) product separation cyclone, **one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system,** and one (1) limestone and dolomite bin**, approved in 2013 for construction,** with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of

the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater**, approved in 2014,** with a maximum heat input capacity of **23** ~~19~~ MMBtu per hour.

(**j**~~l~~) One (1) mixing area material handling system, identified as EU011, approved in 201**4**~~3~~ for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors**, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders,** two (2) mixer feed conveyors, and two (2) mixers.

(**k**~~m~~) ***

(**l**~~n~~) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) ~~furnace~~ **machine** discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, ~~and~~ two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour**, and one (1) emergency discharge chute**.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, **approved in 2014 for construction,** with a capacity of **2,300** ~~4,600~~ gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(**m**~~o~~) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting **to stack SV020** ~~inside the building~~, consisting of the following:

(1) Two (2) product conveyors, identified as P1 and P2, with a maximum capacity of 660 and 770 tons per hour respectively.

(2) Two (2) hearth layer conveyors, identified as HL-1 and HL-2, each with a maximum capacity of 440 tons per hour.

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, **one (1) reclaim conveyor,** ~~and~~ two (2) reclaim hoppers**, and one (1) emergency discharge chute**.

(**n**~~p~~) One (1) oxide pellet storage and loadout system, ~~identified as EU019, approved in 2013 for construction~~, with a maximum capacity of 550 tons per hour, **consisting of the following:**

(1) **One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction,** using baghouse CE019**a** as control, exhausting to stack SV018**a**, consisting of two (2) conveyors **and** two (2) 8800-ton storage bins

(2) **One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of**~~, and~~ two (2) 99-ton **weigh** ~~storage~~ bins.

(**o**~~q~~) One (1) WBE lime **unloading and** storage area, identified as EU020, approved in 2013 for construction, **consisting of one (1) pneumatic truck unloader and conveyance system,** with a maximum capacity of 7.0 tons per hour, ~~consisting of one (1) lime feed conveyor~~ and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(**p**~~r~~) One (1) WBE residual product **storage and loadout** ~~loading~~ area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(**q**~~s~~) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of **one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and** one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using ~~dust recycle~~ baghouse CE024 as control, exhausting inside the building.

(r) **One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.**

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 ~~specifically regulated~~ insignificant activities **which are specifically regulated**, as defined in 326 IAC 2-7-1(21):

(a) Natural gas-fired combustion sources **(EU021)** with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: **[326 IAC 2-2]**

~~(1) Seven (7) natural gas fired space heaters, identified as EU021, approved in 2013 for construction, each with a maximum heat input capacity of 1.0 MMBtu per hour. [326 IAC 2-2]~~

(**1**~~2~~) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 201**4**~~3~~ for construction, with a maximum heat input capacity of ~~1.7~~ **4.3** MMBtu per hour. ~~[326 IAC 2-2]~~

(2) **Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.**

(3) **One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.**

(4) **Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input**

capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(b) ***

(c) ***

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 201**4**~~3~~ for construction, consisting of one (1) 300 hp **diesel** ~~natural gas~~ engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart **IIII**~~JJJJ~~] [40 CFR 63, Subpart ZZZZ]

(f) ***

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of **one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters,** three (3) **covered** conveyors, and a filter cake feed bin, exhausting ~~uncontrolled into~~ **inside** a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) ***

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

Changes Specific to Section B and C of the Permit

(a) *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.

(b) *Section C - Instrument Specifications*
IDEM has clarified Section C - Instrument Specifications to indicate that the analog instrument must be capable of measuring the parameters outside the normal range.

(c) *Section C - General Record Keeping Requirements*
IDEM has added "where applicable" to the lists in Section C - General Record Keeping Requirements to more closely match the underlining rule.

Section B and C of the permit has been revised as follows:

SECTION B GENERAL CONDITIONS

B.18 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.21 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

***

(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:

***

SECTION C SOURCE OPERATION CONDITIONS

C.10 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)][40 CFR 64][326 IAC 3-8])]

(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. 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~~ 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.11 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) ***

C.16 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]

***

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(~~32~~**33**) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

***

C.17 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**:

***

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

***

<u>Changes Specific to Section D, E and Forms of the Permit</u>

(a) All D, E sections have been updated to include the new and updated emission unit descriptions.

(b) Conditions D.1.1, D.2.1, D.3.1, D.4.1, D.5.1, D.6.1 and the forms have been updated to include the new PSD limits.

(c) Conditions D.1.12, D.4.10, D.5.11 and D.6.8 have been updated to include new recording requirement caused by the change in emission units or limits.

(d) Conditions D.3.12 and D3.18 have been updated to an hourly SO2 content compliance demonstration.

(e) Conditions D.4.4 and D.5.4 have been updated to include new testing requirements for the new emission units.

(f) Conditions D.4.6 and D.5.6 have been updated to include Visible Emission Notions for the new emission units.

(g) Conditions D.4.7 and D.5.7 have been updated to include new monitoring requirements for the new emission units.

(h) Condition D.6.7 has been updated to include new GHG limits for the new emission units.

(i) Section E.3 was renumber to be E.4 to accommodate 40 CFR Part 63, Subpart IIII which is the new E.3.

(j) The Emergency Occurrence Report form was updated to better reflect the requirements of the underlying rule.

Section D, E and Forms of the permit has been revised as follows:

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

****

(a) ***

(1) One ~~(1) thaw shed, one~~ (1) rotary rail car dumper, one (1) pedestal mount **jack hammer/**breaker, **one (1) stationary grizzly** ~~two (2) grizzlies~~, two (2) apron feeders, one (1) dribble conveyor, **one (1) product conveyor, and** one (1) breaker, identified as EU001a, **located in the car dumper building,** using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains

one (1) shuttle conveyor ~~four (4) covered conveyors~~, **a storage pile, two (2)** ~~four (4)~~ load**er** hoppers, and **two (2) covered conveyors,** ~~a storage pile~~ identified as EU001b, exhausting inside the building.

(b) ***

(1) One (1) truck unloa**ding hopper**, **equipped with one (1) screen,** identified as EU002a, exhausting uncontrolled to atmosphere.

(2) ***

(c) ***

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen**, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) ***

(d) ***

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) **covered conveyor, one (1) covered belt feeder, one (1) additive conveyor,** ~~pneumatic conveyance system~~ and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) bentonite storage bin with a maximum capacity of 440 tons~~, with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder **with soda ash** unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) organic binder **with soda ash storage** ~~feed~~ bin with a maximum capacity of 55 tons, ~~with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE006 as control, exhausting inside the building.

~~(g) One (1) soda ash unloading and storage area, identified as EU007, approved in 2013 for construction, consisting of one (1) soda ash feed bin with a maximum capacity of 55 tons, with a maximum capacity of 3.0 tons per hour, using bin vent CE007 as control, exhausting inside the building.~~

***

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

D.1.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) ***

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	PM	0.002	~~0.95~~ **1.17**
		PM_{10}*	0.002	~~0.95~~ **1.17**
		$PM_{2.5}$*	0.002	~~0.95~~ **1.17**

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Coke Breeze Unloading and Storage Area (EU004b)	Baghouse CE004 (SV004)	PM	0.002	~~0.0429~~ **0.1388**
		PM_{10}*	0.002	~~0.0429~~ **0.1388**
		$PM_{2.5}$*	0.002	~~0.0429~~ **0.1388**
Bentonite Unloading and Storage Area (EU005)	Bin Vent Filter CE005 (inside building)	PM	0.002	0.049**6**
		PM_{10}*	0.002	0.049**6**
		$PM_{2.5}$*	0.002	0.049**6**
Organic Binder **with Soda Ash** Unloading and Storage Area (EU006)	Bin Vent Filter CE006 (inside building)	***		
		***		
		***		
~~Soda Ash Unloading and Storage Area (EU007)~~	~~Bin Vent Filter CE007 (inside building)~~	~~PM~~	~~0.002~~	~~0.0429~~
		~~PM_{10}*~~	~~0.002~~	~~0.0429~~
		~~$PM_{2.5}$*~~	~~0.002~~	~~0.0429~~

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) ***

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Iron Ore Concentrate Transfer and Storage Area	EU001b	PM	~~3.93~~ **7.86**	~~17.21~~ **34.42**
		PM_{10}*	~~1.57~~ **3.14**	~~6.88~~ **13.77**
		$PM_{2.5}$*	~~1.57~~ **0.31**	~~6.88~~ **1.38**
Limestone Conveyor & Enclosed Storage (Pile)	EU002b	PM	~~0.05~~ **0.20**	~~0.10~~ **0.41**
		PM_{10}*	~~0.02~~ **0.07**	~~0.04~~ **0.15**
		$PM_{2.5}$*	~~0.02~~ **0.01**	~~0.04~~ **0.02**
Dolomite Conveyor & Enclosed Storage (Pile)	EU003b	PM	~~0.03~~ **0.10**	~~0.06~~ **0.23**
		PM_{10}*	~~0.01~~ **0.04**	~~0.02~~ **0.08**
		$PM_{2.5}$*	~~0.01~~ **0.04**	~~0.02~~ **0.01**

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(c) ***

(d) ***

(1) ***

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Iron Ore Concentrate Unloading (EU001a)	Baghouse CE001 (SV001)	F	~~4.73~~ **5.84** E-05

D.1.2 NAAAQS Limit [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the Air Quality Analysis for PM, PM_{10}, and $PM_{2.5}$ for the Iron Ore Concentrate Unloading (EU001a), the hours of operation shall be limited to 2,190 hours per twelve (12) consecutive month period with compliance determined monthly.

D.1.~~2~~**3** Particulate [326 IAC 6-3-2]

***

D.1.~~3~~**4** Preventive Maintenance Plan [326 IAC 2-7-5(12)]

***

D.1.~~4~~**5** Particulate Control

(a) ***

Emission Unit Description	Emission Unit ID	Control Device
***	***	***
Organic Binder Unloading **with Soda Ash** & Storage Area	EU006	Bin Vent CE006
~~Soda Ash Unloading & Storage Area~~	~~EU007~~	~~Bin Vent CE007~~

(b) ***

(c) In order to comply with Conditions D.1.1, the Permittee shall only used clean, washed limestone and dolomite.

D.1.~~5~~**6** Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

***

D.1.~~6~~**7** Total Fluorides Emissions and Fluoride Content

****

D.1.~~7~~**8** Visible Emissions Notations

***

D.1.~~8~~**9** Baghouse Parametric Monitoring

***

D.1.~~9~~**10** Bin Vent Inspections

The Permittee shall perform semi-annual bin vent inspections for bin vents CE005~~,~~ **and** CE006~~, and CE007~~. All defective filters shall be replaced.

D.1.1~~2~~**3** Record Keeping Requirements

(a) ***

(b) ***

(c) ***

(d) To document the compliance status with Condition D.1.9, the Permittee shall maintain a record of the semi-annual inspections of bin vents CE005~~,~~ **and** CE006~~, and CE007~~.

(e) To document compliance status with Condition D.1.1(a), the Permittee shall maintain records of the manufacturer's specifications for bin vents CE005~~,~~ **and** CE006~~, and CE007~~.

(f) To document compliance status with Condition D.1.1(b), the Permittee shall maintain records of the hours of operation for the Iron Ore Concentrate Unloading (EU001a) operation.

(g) To document compliance status with Condition D1.1 and D.1.4(c), the Permittee shall maintain the vendor guarantee that the limestone and dolomite has been cleaned.

(~~f~~**h**) ***

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

****

~~(h) One (1) bentonite additive system, identified as EU008, approved in 2013 for construction, consisting of one (1) bentonite feed bin with a maximum capacity of 220 ton, with a maximum capacity of 3.0 tons per hour, using bin vent CE008 as control, exhausting inside the building.~~

(**g**~~i~~) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller **grinding** mill for coke breeze **with emergency explosion vent** ~~grinding~~ with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons **with emergency explosion vent**.

(**h**~~j~~) ***

(1) One (1) load hopper, ~~one (1) enclosed vibrating grizzly feeder/screener~~ **one (1) hopper discharge** feeder, and one (1) covered belt feeder, identified as EU025a, exhausting **into the limestone and dolomite storage building** ~~uncontrolled to the atmosphere~~.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the **additive grinding** building.

***

(**i**~~k~~) One (1) ground limestone and dolomite additive system, identified as EU010, ~~approved in 2013 for construction,~~ with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller **grinding** mill for limestone and dolomite **with a nominal capacity of 71 tons per hour**, one (1) product separation cyclone, **one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system,** and one (1) limestone and dolomite bin**, approved in 2013 for construction,** with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater**, approved in 2014,** with a maximum heat input capacity of **23** ~~19~~ MMBtu per hour.

(**j**~~l~~) One (1) mixing area material handling system, identified as EU011, approved in 201**4**~~3~~ for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors**, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders,** two (2) mixer feed conveyors, and two (2) mixers.

(**k**~~m~~) ***
***

D.2.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) ***

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
~~Bentonite Additive System (EU008)~~	~~Bin Vent Filter CE008 (inside building)~~	~~PM~~	~~0.002~~	~~0.0429~~
		~~PM_{10}*~~	~~0.002~~	~~0.0429~~
		~~$PM_{2.5}$*~~	~~0.002~~	~~0.0429~~
Coke Breeze Additive System (EU009)	Baghouse CE009 (SV009)	PM	0.002	~~0.09~~ **0.14**
		PM_{10}*	0.002	~~0.09~~ **0.14**
		$PM_{2.5}$*	0.002	~~0.09~~ **0.14**
Limestone and Dolomite Grinding Mill Bin Area (EU025b)	Baghouse CE023 (inside building)	PM	0.002	~~0.22~~ **0.26**
		PM_{10}*	0.002	~~0.22~~ **0.26**
		$PM_{2.5}$*	0.002	~~0.22~~ **0.26**
Ground Limestone and Dolomite Area Additive System (EU010)	Baghouse CE010 (SV010)	PM	0.002	0.32
		PM_{10}*	0.002	0.32
		$PM_{2.5}$*	0.002	0.32
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	PM	0.002	~~0.34~~ **0.77**
		PM_{10}*	0.002	~~0.34~~ **0.77**
		$PM_{2.5}$*	0.002	~~0.34~~ **0.77**
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	PM	0.002	~~0.15~~ **0.11**
		PM_{10}*	0.002	~~0.15~~ **0.11**
		$PM_{2.5}$*	0.002	~~0.15~~ **0.11**

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) ***

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Limestone/Dolomite Hopper &Grizzly Feeder/Screener and Belt Feeder	EU025a	PM	~~0.90~~ **0.60**	~~1.92~~ **1.28**
		PM_{10}*	~~0.33~~ **0.22**	~~0.70~~ **0.47**
		$PM_{2.5}$*	~~0.33~~ **0.02**	~~0.70~~ **0.05**

(c) ***

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Ground Limestone/ Dolomite Additive System Air Heater (EU010)	No Control	SO_2	0.00048 lb/MMBtu
	Low NO_x Burners	NO_x	0.012 lb/MMBtu
	No Control	F	9.40 x 10^{-6} lb/MMBtu
		GHG (as CO_2e)	~~9,737~~ **11,787** tons per 12-month period

*Note: PM, PM10, and PM2.5 combustion emissions for EU010 are accounted for in the material handling limits under Condition D.2.1(a).

***

(d) ***

(1) ***

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Mixing Area Material Handling System (EU011)	Baghouse CE011 (inside building)	F	~~1.71 E-05~~ **3.83 E -05**
Hearth Layer Bin System (EU012)	Baghouse CE012 (SV012)	F	~~7.55 E-06~~ **5.48 E -06**

D.2.4 Particulate Control

(a) ***

Emission Unit Description	Emission Unit ID	Control Device
~~Bentonite Additive System~~	~~EU008~~	~~Bin Vent Filter CE008~~
***	***	***

(b) ***

D.2.11 Baghouse and Bin Vent Inspections

~~(a)~~ ***

~~(b) The Permittee shall perform semi-annual inspections for bin vent CE008. All defective filters shall be replaced.~~

D.2.14 Record Keeping Requirements

***

(e) To document the compliance status with Condition D.2.11, the Permittee shall maintain a record of the semi-annual inspections of ~~bin vent CE008 and~~ baghouses CE023 and CE011.

(f) To document compliance status with Condition D.2.1(a), the Permittee shall maintain records of the manufacturer's specifications for ~~bin vent CE008 and~~ baghouses CE023 and CE011.

***

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

****

(**l**~~n~~) ***

(1) ***

(2) ***

(3) One (1) ~~furnace~~ **machine** discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, ~~and~~ two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour**, and one (1) emergency discharge chute**.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, **approved in 2014 for construction,** with a capacity of **2,300** ~~4,600~~ gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

***

D.3.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) ***

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Hood Exhaust (EU013)	Baghouse CE013 (SV013A)	PM	0.004 gr/dscf
		PM	~~10.12~~ **11.40** lb/hr
		PM_{10}*	0.008 gr/dscf

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
		PM_{10}*	~~20.23~~ **22.01** lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	~~20.23~~ **22.01** lb/hr
		Opacity	5% (6-min average)
	No Control	SO_2	7.1 ppmv wet corrected to 20% O_2 and 21.68 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	No Control	F	2.1 ppmv wet corrected to 20% O_2 and 1.98 lb/hr

Emission Unit Description (ID)	Control Device (Stack ID)	Pollutant	Emission Limitations
Furnace Windbox Exhaust (EU014)	Baghouse CE016 (SV013B)	PM	0.004 gr/dscf
		PM	~~12.12~~ **18.25** lb/hr
		PM_{10}*	0.008 gr/dscf
		PM_{10}*	~~24.25~~ **35.22** lb/hr
		$PM_{2.5}$*	0.008 gr/dscf
		$PM_{2.5}$*	~~24.25~~ **35.22** lb/hr
		Opacity	5% (6-min average)
	GSA Dry Scrubber	SO_2	5.0 ppmv wet corrected to 15% O_2 and 19.61 lb/hr
	Low NO_x Burners	NO_x	0.25 lb NO_x/MMBtu and 109 lb/hr (combined emissions SV013A and SV013B)
	GSA Dry Scrubber	F	11.4 ppmv wet corrected to 15% O_2 and 12.34 lb/hr
~~Furnace~~ **Machine** Discharge System (EU015)	Baghouse CE017 (SV014)	PM	0.002 gr/dscf
		PM	~~0.73~~ **1.01** lb/hr
		PM_{10}*	0.002 gr/dscf
		PM_{10}*	~~0.73~~ **1.01** lb/hr
		$PM_{2.5}$*	0.002 gr/dscf
		$PM_{2.5}$*	~~0.73~~ **1.01** lb/hr

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the ~~Furnace~~ **Machine** Discharge System (EU015) shall be as follows:

(1) The weighted average Fluoride Concentration in the oxide pellets handled by the ~~Furnace~~ **Machine** discharge system (EU015) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
~~Furnace~~ **Machine** Discharge System (EU015)	Baghouse CE017 (SV014)	F	~~3.65 E-05~~ **5.06E-05**

(c) ***

(d) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a ~~0.138~~ **0.07** pound per hour limitation.

D.3.5 Particulate and Lead Control

(a) ***

Emission Unit Description	Emission Unit ID	Control Device
Furnace Hood Exhaust	EU013	Baghouse CE013
Furnace Windbox Exhaust	EU014	Baghouse CE016
~~Furnace~~ **Machine** Discharge System	EU015	Baghouse CE017

(b) ***

(c) ***

D.3.9 Total Fluorides Emissions and Fluoride Content

In order to ensure compliance with Condition D.3.1(b), for the ~~Furnace~~ **Machine** Discharge System (EU015), the Permittee shall comply with the requirements of Condition D.1.6 (Total Fluorides Emissions and Fluoride Content).

D.3.12 Sulfur Content

In order to demonstrate compliance with Condition D.3.1(a), the input of sulfur, as a component of coke breeze, shall not exceed 101 pounds ~~on a three (3) hour average~~**/hour, with compliance demonstrated using one of the following options:**

(a) If the coke breeze meets the following criteria, the Permittee is in compliance:

(~~b~~**1)** The sulfur content of the coke breeze (% SCCB) shall not exceed 0.74%**, and**

(2) The amount of coke breeze used per hour shall not exceed 6.82 ton/hr.

(b) For any hour that either one of the above criteria is exceeded, the Permittee shall calculate the ~~three (3) hour average~~ sulfur input from the hardening furnace using the following equation:

$$S(lb/\cancel{3}hr \cancel{-ave}) = [(\%SCCB) \times CB(ton/\cancel{3}hr \cancel{-ave}) \times \left(\frac{2000lb}{1ton}\right)] \cancel{\div 3}$$

Where:

S (lbs/**hr**~~3hr-ave~~) = ~~3-hr rolling average of~~ Sulfur input to the hardening furnace as a component of coke breeze
% SCCB = ~~0.74~~% **of actual** Sulfur Content of Coke Breeze **used**
CB (ton/**hr**~~3 hr-ave~~) = ~~3-hr rolling average of~~ coke breeze usage from company records

D.3.18 Record Keeping Requirements

(a) ***

(b) To document the compliance status with Conditions D.3.1(a), D.3.12, and D.3.13, the Permitee shall maintain monthly records in accordance with (1~~0~~**)** through (4) below. Records maintained for (1) through (4) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.3.1(a).

(1) Calendar dates and times covered in the compliance period.

(2) Sulfur content of coke breeze for each shipment and the documentation and methodology for how the content was obtained.

(3) **hourly amount of** ~~3-hr rolling average of~~ coke breeze usage.

(4) ~~3-hr rolling average~~ **hourly amount of** sulfur input to the hardening furnace.

(c) ***

(1) ***

(2) ***

(3) Monthly usage (metric tonnes) of iron ore concentrate, limestone, dolomite, coke breeze, and **organic binder with** soda ash.

(4) ***

(d) ***

(e) To document the compliance status with Condition D.3.14, the Permittee shall maintain a daily record of visible emission notations of the exhausts from the ~~hardening furnace and~~ baghouse CE013, CE016, CE017. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(f) ***

(g) ***

(h) ***

D.3.19 Reporting Requirements

***

(b) A quarterly report of the hourly sulfur input to the indurating furnace, **when demonstration compliance with D.3.12(b) - Sulfur Content,** and a quarterly summary of the information to document the compliance status with D.3.1(a) shall be submitted not later than thirty (30) days after the end of the quarter being reported.

***

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

****

(**m**~~o~~) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting **to stack SV020** ~~inside the building~~, consisting of the following:

(1) ***

(2) ***

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, **one (1) reclaim conveyor,** ~~and~~ two (2) reclaim hoppers**, and one (1) emergency discharge chute**.

(**n**~~p~~) One (1) oxide pellet storage and loadout system, ~~identified as EU019, approved in 2013 for~~

~~construction~~, with a maximum capacity of 550 tons per hour, **consisting of the following:**

(1) **One (1) oxide pellet storage system, identified~~s~~ as EU019a, approved in 2013 for construction,** using baghouse CE019**a** as control, exhausting to stack SV018**a**, consisting of two (2) conveyors **and** two (2) 8800-ton storage bins

(2) **One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of**~~, and~~ two (2) 99-ton **weigh** ~~storage~~ bins.

***

D.4.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the Separation**, Storage** and Loadout operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	Gr/dscf	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (~~inside building~~**SV020**)	PM	0.002	~~0.79~~ **0.49**
		PM_{10}*	0.002	~~0.79~~ **0.49**
		$PM_{2.5}$*	0.002	~~0.79~~ **0.49**
Oxide Pellet Storage ~~and Unloading~~ System (EU019a)	Baghouse CE019 (SV018**a**)	PM	0.002	~~0.63~~ **0.13**
		PM_{10}*	0.002	~~0.63~~ **0.13**
		$PM_{2.5}$*	0.002	~~0.63~~ **0.13**
Oxide Pellet Loadout System (EU019b)	**Baghouse CE019 (SV018b)**	**PM**	**0.002**	**1.0**
		PM_{10}*	**0.002**	**1.0**
		$PM_{2.5}$*	**0.002**	**1.0**

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for total fluorides for the Separation**, Storage** and Loadout operations shall be as follows:

(1) The weighted average Fluoride Concentration in the finished oxide pellets handled by the hearth layer separation system (EU016) and the oxide pellet storage **system (EU019a)** and ~~unloading~~ **the oxide pellet loadout** system (EU019**b**) shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
Hearth Layer Separation System (EU016)	Baghouse CE018 (~~inside building~~ **SV020**)	F	~~3.94 E-05~~ **2.34E-05**
Oxide Pellet Storage ~~and Unloading~~ System (EU019**a**)	Baghouse CE019 (SV018**a**)	F	~~3.15 E-05~~ **6.34E-06**
Oxide Pellet Loadout System (EU019b)	**Baghouse CE019 (SV018b)**	**F**	**5.01 E-05**

D.4.2 NAAAQS Limit [326 IAC 2-2-4]

Pursuant to 326 IAC 2-2-4, the Air Quality for PM, PM_{10}, and $PM_{2.5}$ for the Oxide Pellet Loadout System (EU019b), the hours of operation shall be limited to 1,095 hours per twelve (12) consecutive month period with compliance determined monthly.

D.4.**3**~~2~~ Preventive Maintenance Plan [326 IAC 2-7-5(12)]

***

D.4.**4**~~3~~ Particulate Control

(a) ***

Emission Unit Description	Emission Unit ID	Control Device
***	***	***
Oxide Pellet Storage ~~and Unloading~~ System	EU019**a**	Baghouse CE019**a**
Oxide Pellet Loadout System	**EU019b**	**Baghouse CE019b**

(b) ***

D.4.**5**~~4~~ Testing Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Group 1 Testing Requirements

Not later than 180 days from plant startup, in order to demonstrate compliance with Condition D.4.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse**s** CE019**a and CE019b** utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

(b) ***

D.4.**6**~~5~~ Total Fluorides Emissions and Fluoride Content

***

D.4.**7**~~6~~ Visible Emissions Notations

(a) Visible emission notations of the exhausts from baghouse**s CE018,** CE019**a, and CE019b** shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) ***

(c) ***

(d) ***

(e) ***

D.4.**8**~~7~~ Baghouse Parametric Monitoring

(a) The Permittee shall record the pressure drop across baghouse**s CE018,** CE019**a, and CE019b** at least once per day when the associated emission unit is in operation.

(b) ***

(c) ***

~~D.4.8 Baghouse Inspections~~

~~The Permittee shall perform semi-annual inspections for baghouse CE018. All defective bags shall be replaced.~~

D.4.**10** Record Keeping Requirements

(a) ***

(b) To document the compliance status with Condition D.4.6, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouse**s CE018,** CE019**a, and CE019b**. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(c) To document the compliance status with Condition D.4.7, the Permittee shall maintain a daily record of the pressure drop across baghouse**s** CE018, ~~and~~ CE019**a, and CE019b**. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

~~(d) To document the compliance status with Condition D.4.9, the Permittee shall maintain a record of the semi-annual inspections of baghouse CE018.~~

~~(e) To document compliance status with Condition D.4.1(a), the Permittee shall maintain records of the manufacturer's specifications for baghouse CE018.~~

(d) To document compliance status with Condition D.4.1(c), the Permittee shall maintain records of the hours of operation for the Oxide Pellet Loadout System (EU019b).

(**e**~~f~~) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required to be maintained by this condition.

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

***

(**o**~~q~~) One (1) WBE lime **unloading and** storage area, identified as EU020, approved in 2013 for construction, **consisting of one (1) pneumatic truck unloader and conveyance system,** with a maximum capacity of 7.0 tons per hour, ~~consisting of one (1) lime feed conveyor~~ and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(**p**~~r~~) One (1) WBE residual product **storage and loadout** ~~loading~~ area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(**q**~~s~~) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of **one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and** one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using ~~dust recycle~~ baghouse CE024 as control, exhausting inside the building.

(r) One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.

***

D.5.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) ***

Emission Unit	Control Device	Emission Limitations

Description (ID)	(Stack ID)	Pollutant	Gr/dscf	Lb/hr
***	***	***	***	***
Dust Recycle Surge Hopper (EU027)	**Baghouse CE027 (SV027)**	**PM**	**0.002**	**0.05**
		PM_{10}*	**0.002**	**0.05**
		$PM_{2.5}$*	**0.002**	**0.05**

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(b) ***

(1) The weighted average Fluoride Concentration in the recycled **dust** handled by the recycled dust storage area (EU026) **and the dust recycle surge hopper (EU027)**shall be less than or equal to 50.0 mg/kg, per twelve (12) consecutive month period with compliance determined monthly, and

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations	
		Pollutant	Lb/hr
***	***	*	***
Dust Recycle Surge Hopper (EU027)	**Baghouse CE027 (SV027)**	**F**	**2.45 E -06**

D.5.3 Particulate Control

(a) ***

Emission Unit Description	Emission Unit ID	Control Device
***	***	***
Dust Recycle Surge Hopper	**EU027**	**Baghouse CE027**

(b) ***

D.5.4 Testing Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

Group 2 Testing Requirements

Not later than 180 days from the date the last of the tests required in Conditions D.1.5(a), D.2.6(a), D.3.8, and D.4.4(a) is completed or not later than 360 days from plant startup, whichever is later, in order to demonstrate compliance with Condition D.5.1, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$ testing for baghouse **CE027 and** CE024, utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this section. PM_{10} and $PM_{2.5}$ includes filterable and condensible PM_{10} and $PM_{2.5}$.

D.5.6 Visible Emissions Notations

(a) Visible emission notations of CE027 stack exhausts shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal

visible emissions for that specific process.

(e) **If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C – Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.**

D.5.7 Parametric Monitoring

The Permittee shall record the pressure drop across CE027 at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a baghouse is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 3.0 and 10.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure shall comply with Section C – Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer's specifications, if used.

D.5.~~6~~**8** Baghouse and Bin Vent Inspections

***

D.5.~~7~~**9** Broken or Failed Bag Detection

***

D.5.~~8~~**10** Bin Vent Filter Failure Detection

***

D.5.~~9~~**11** Record Keeping Requirements

(a) To document the compliance status with Conditions D.5.1(b) and D.5.5, the Permittee shall ~~the Permittee shall~~ comply with the record keeping requirements of Condition D.1.12(a) (Weighted Average Fluoride Concentration). Records maintained in accordance with Condition D.1.12(a) shall be complete and sufficient to establish compliance with the emission limits established in Condition D.5.1(b).

(b) **To document the compliance status with Conditions D.5.6, the Permittee shall maintain a daily record of visible emission notations of the exhausts from baghouse CE027. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).**

(c) **To document the compliance status with Conditions D.5.7, the Permittee shall maintain a daily record of the pressure drop across baghouse CE027. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).**

(**d**~~b~~) To document the compliance status with Condition D.5.**8**~~6~~, the Permittee shall maintain a record of the semi-annual inspections of bin vents CE020 and CE021 and baghouse CE024.

(**e**~~c~~) ***

(**f**~~d~~) ***

D.5.1~~0~~**2** Reporting Requirements

***

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

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(a) Natural gas-fired combustion sources **(EU021)** with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: **[326 IAC 2-2]**

~~(1) Seven (7) natural gas fired space heaters, identified as EU021, approved in 2013 for construction, each with a maximum heat input capacity of 1.0 MMBtu per hour. [326 IAC 2-2]~~

(**1**~~2~~) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 2013 for construction, with a maximum heat input capacity of 4.3 MMBtu per hour. ~~[326 IAC 2-2]~~

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) **One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.**

(13) **One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.**

(14) **Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.**

(15) **One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.**

(16) **One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.**

(17) **Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.**

(18) **Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.**

(b) ***

(c) ***

(d) ***

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) **One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]**

(e) ***

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 201**4**~~3~~ for construction, consisting of one (1) 300 hp **diesel** ~~natural gas~~ engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart **IIII**~~JJJJ~~] [40 CFR 63, Subpart ZZZZ]

(f) ***

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of **one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters,** three (3) **covered** conveyors, and a filter cake feed bin, exhausting ~~uncontrolled into~~ **inside** a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) ***

(3) **One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326**

IAC 2-2]
***

D.6.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]

(a) ***

Emission Unit Description (ID)	Control Device	Pollutant	Emission Limitations
Emergency Generator**s** (EU017**a and EU017b**)~~,~~ ~~Fire Pump (EU018)~~	***	***	***
***	***	***	***
Fire Pump (EU018)	**No Control**	**PM**	**3.10 E -01 lb/MMBtu**
		PM_{10}*	**3.10 E -01 lb/MMBtu**
		$PM_{2.5}$*	**3.10 E -01 lb/MMBtu**
		SO_2	**2.90 E -01 lb/MMBtu**
		NO_x	**4.41 lb/MMBtu**
		F	**1.18 E -03 lb/MMBtu**

*PM_{10} and $PM_{2.5}$ include both filterable and condensible.

(1) ~~These units~~ **Emergency generators (EU017a and EU017b) and Space Heaters (EU021)** shall only combust natural gas, and the Permittee shall practice good combustion practices when these units are combusting natural gas.

(2) The emergency generators (EU017**a and EU017b**) shall not exceed 500 hours of operation**, each,** per 12-month period.

(3) ***

(b) ***

Emission Unit		GHG (as CO_2e) Emission Limit (tons per 12-month period)
Description	Unit No.	
Emergency Generator	EU017**a**	~~144~~ **382.35**
Emergency Generator	**EU017b**	**382.35**
Fire Pump	EU018	~~66~~ **92**
Space Heaters	EU021	~~3,587~~ **11,801**
Coke Breeze Additive System Air Heater	EU009	~~871~~ **2,203.2**

(c) ***

(d) ***

(e) ***

(f) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM_{10}, and $PM_{2.5}$ for the cooling tower shall be the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation.

D.6.7 Cooling Tower Total Dissolved Solids

(a) To determine the compliance status with Condition D.6.1(f), the Permittee shall perform tests of the total dissolved solids (TDS) in the blow-down water on a weekly basis using an EPA approved test. The Permittee shall make a notation of water circulation rate at the time of the test.

(b) The Permittee shall calculate the PM, PM_{10}, and $PM_{2.5}$ emission rates using an EPA-approved calculation based on the TDS testing results and the water circulation rate at the time of the TDS testing.

(c) This test shall not be required for any seven (7) day period in which the cooling tower is not in operation provided the Permittee maintains a log of the cooling tower operation.

When for any one reading the TDS exceeds 6,009 milligrams per liter, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee's obligation.

D.6.~~7~~**8** Greenhouse Gases (GHGs)

To determine the compliance status with Condition D.6.1(b), the following equation shall be used to determine the CO_2e emissions from the Emergency Generators (EU017**a and EU017b**), Fire Pump (EU018), Space Heaters (EU021), and Coke Breeze Additive System Air Heater (EU009):
***

D.6.~~8~~**9** Record Keeping Requirements

(a) ***

(1) ***

(2) Hours of operation for **each of** the Emergency Generators (EU017**a and EU017b**) and Fire Pump (EU018).

(3) Natural gas usage for the Emergency Generators (EU017**a and EU017b**), ~~Fire Pump (EU018),~~ Space Heaters (EU021), and Coke Breeze Additive System Air Heater (EU009).

(4) Diesel fuel usage for the backup jockey fire water pump (EU018).

(**5**~~4~~) ***

(b) ***

(c) ***

D.6.~~9~~**10** Reporting Requirements

***

SECTION E.1 FACILITY OPERATION CONDITIONS

***

(b) ***

(2) One (1) covered conveyor **and one (1) loader hopper**, identified as EU002b, exhausting inside the limestone storage pile enclosure. Under 40 CFR 60, Subpart OOO, the limestone unloading and storage area conveyor is considered an affected facility.

(c) ***

(2) One (1) covered conveyor **and one (1) loader hopper**, identified as EU003b, exhausting inside the dolomite storage pile enclosure. Under 40 CFR 60, Subpart OOO, the dolomite unloading and storage area conveyor is considered an affected facility.

(**h**~~j~~) ***

(1) One (1) load hopper, ~~one (1) enclosed vibrating grizzly feeder/screener~~ **one (1) hopper discharge** feeder, and one (1) covered belt feeder, identified as EU025a, exhausting **into the limestone and dolomite storage building** ~~uncontrolled to the atmosphere~~.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the **additive grinding** building.

***

(**i**~~k~~) One (1) ground limestone and dolomite additive system, identified as EU010, approved in 201**4**~~3~~ for construction, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller **grinding** mill for limestone and dolomite **with a nominal capacity of 71 tons per hour**, one (1) product separation cyclone, **one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system,** and one (1) limestone and dolomite bin with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

***

***

SECTION E.2 FACILITY OPERATION CONDITIONS

*****

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

~~(e) Stationary fire pump engines, including the following:~~

~~(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2013 for construction, consisting of one (1) 300 hp natural gas engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]~~

***

SECTION E.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(14)]: Reciprocating Internal Combustion Engines

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 2014 for construction, consisting of one (1) 300 hp diesel engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart IIII] [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.)

E.3.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 63.1, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for emission units EU018 except as otherwise specified in 40 CFR Part 63, Subpart IIII.

(b) Pursuant to 40 CFR 63.19, 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

E.3.2 New Source Performance Standards for Compression Ignition Internal Combustion Engines [40 CFR Part 60, Subpart IIII]

The Permittee which utilizes reciprocating internal combustion engines shall comply with the following provisions of 40 CFR Part 63, Subpart IIII, which are incorporated by reference as 326 IAC 12 (included as Attachment B of this permit):

(a) 40 CFR 60.4200(e);
(b) 40 CFR 60.4205(c);
(c) 40 CFR 60.4215(c);
(d) 40 CFR 60.4207(a), (b), (c);
(e) 40 CFR 60.4208(h), (i);
(f) 40 CFR 60.4209(a);
(g) 40 CFR 60.4206;
(h) 40 CFR 60.4211(a), (c), (f), (g);
(i) 40 CFR 60.4212;
(j) 40 CFR 60.4214(b); and
(k) 40 CFR 60.Table 8 to 40 CFR 60, Subpart IIII.

SECTION E.~~3~~**4** FACILITY OPERATION CONDITIONS

****

(d) ***

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) **One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]**

(e) ***

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 201**4**~~3~~ for construction, consisting of one (1) 300 hp **diesel** ~~natural gas~~ engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart **IIII**~~JJJJ~~] [40 CFR 63, Subpart ZZZZ]

***

E.**4**~~3~~.1 General Provisions Relating to NESHAP ZZZZ [326 IAC 20-1] [40 CFR Part 63, Subpart A]

***

E.**4**~~3~~.2 National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines [40 CFR Part 63, Subpart ZZZZ] [326 IAC 20-82]

***

EMERGENCY OCCURRENCE REPORT

***

☐ 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**) **daytime** 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.

***

Part 70 Usage Report

***

Hour	~~3-hr Average~~ **Sulfur input outside D.3.12(a) range**	Hour	~~3-hr Average~~ **Sulfur input outside D.3.12(a) range**
***		***	

***

Part 70 Quarterly Report

***

Facility: Iron Ore Concentrate Unloading and Storage Area (EU001), Mixing Area Material Handling System (EU011), Hearth Layer Bin System (EU012), **Machine**~~Furnace~~ Discharge System (EU015), Hearth Layer Separation System (EU016), Oxide Pellet Storage and Unloading System (EU019), Recycled Dust Storage Area (EU026), Iron Ore Concentrate Wet Grinding and Filter Cake Production, Greenball Production System

***

Part 70 Quarterly Report

***

Limit:	Shall not exceed ~~9,737~~ **11,787** tons per twelve (12) consecutive month period with compliance determined at the end of each month

Part 70 Quarterly Report

***

Facility:	Emergency Generator (EU017**a**) **Emergency Generator (EU17b)** Fire Pump (EU018)

***

Part 70 Quarterly Report

***

Facility:	Emergency Generator (EU017**a**) **Emergency Generator (EU17b)**

***

Limit:	Shall not exceed ~~144~~ **382.35** tons per twelve (12) consecutive month period with compliance determined at the end of each month

Part 70 Quarterly Report

***

Limit:	Shall not exceed ~~66~~ **92** tons per twelve (12) consecutive month period with compliance determined at the end of each month

***

Part 70 Quarterly Report

***

Limit:	Shall not exceed **11,801** ~~3,587~~ tons per twelve (12) consecutive month period with compliance determined at the end of each month

***

Part 70 Quarterly Report

***

Limit:	Shall not exceed **2203.2** ~~871~~ tons per twelve (12) consecutive month period with compliance determined at the end of each month

Conclusion and Recommendation

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 181-33965-00054 and Significant Permit Modification No. 181-34210-00054. The staff recommend to the Commissioner that this Part 70 Significant Source and Significant Permit Modification be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Julie Alexander 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) 233-1782 or toll free at 1-800-451-6027 extension 3-1782.

(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's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

Appendix A: Emissions Calculations
Source Summary
Potential to Emit

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Uncontrolled Potential to Emit (tons/yr)																
Emission Units	Emission Unit ID	Control Device	Control Equipment ID	Stack ID	PM (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	SO_2 (tons/yr)	NO_x (tons/yr)	VOC (tons/yr)	CO (tons/yr)	Pb (tons/yr)	Fluorides (tons/yr)	H_2SO_4 (tons/yr)	GHGs as CO_2e (tons/yr)
Iron Concentrate Unloading	EU001a	Baghouse	CE001	SV001	128.00	128.00	128.00	-	-	-	-	1.69E-02	6.40E-03	-	-
Iron Concentrate Transfer & Storage Area (pile)	EU001b	fugitives	---	enclosure (Building C (along entire length of building))	34.42	13.77	1.38	-	-	-	-		1.72E-03	-	-
Limestone Unloading (truck)	EU002a	fugitives	---	atmosphere	2.20E-03	2.20E-03	2.20E-04	-	-	-	-	4.13E-06	-	-	-
Limestone Conveyor & Enclosed Storage (pile)	EU002b	fugitives	---	enclosure (Building D)	0.82	0.30	0.03	-	-	-	-		-	-	-
Dolomite Unloading (truck)	EU003a	fugitives	---	atmosphere	1.22E-03	1.22E-03	1.22E-04	-	-	-	-	-	-	-	-
Dolomite Conveyor & Enclosed Storage (pile)	EU003b	fugitives	---	enclosure (Building D)	0.46	0.17	0.02	-	-	-	-		-	-	-
Coke Breeze Unloading (truck)	EU004a	fugitives	---	atmosphere	3.26E-03	1.54E-03	4.45E-04	-	-	-	-	7.90E-03	-	-	-
Coke Breeze Pneumatic Coveyance & Storage Bin	EU004b	Baghouse	CE004	SV004	60.77	60.77	60.77	-	-	-	-		-	-	-
Bentonite Unloading (truck), Conveyance System & Storage Area	EU005	Bin Vent	CE005	Building F	21.72	21.72	21.72	-	-	-	-	-	-	-	-
Organic Binder (w/soda ash) Unloading & Storage Area	EU006	Bin Vent	CE006	Building F	18.77	18.77	18.77	-	-	-	-	-	-	-	-
Coke Breeze Additive System	EU009	Baghouse	CE009	SV009	60.77	60.77	60.77	-	-	-	-	7.90E-03	-	-	-
Coke Breeze Additive System - Natural Gas Air Heater		--	---	--				1.11E-02	0.92	0.10	1.55	9.23E-06	1.74E-07	-	2,204
Limestone/Dolomite reclaim loader hopper, grizzly feeder	EU025a	fugitives	---	enclosure (Building D)	1.28	0.47	0.05	-	-	-	-	3.86E-03	-	-	-
Limestone and Dolomite Grinding Mill Bin Area	EU025b	Baghouse	CE023	Building E	114.34	114.34	114.34	-	-	-	-		-	-	-
Ground Limestone and Dolomite Additive System	EU010	Baghouse	CE010	SV010	138.96	138.96	138.96	-	-	-	-	3.27E-04	-	-	-
Limestone/Dolomite Additive System Air Heater		--	---	--				0.06	4.94	0.54	8.30	4.94E-05	9.28E-07	-	11,787
Mixing Area Material Handling System	EU011	Baghouse	CE011	Building E	335.87	335.87	335.87	-	-	-	-	3.36E-03	1.68E-02	-	-
Hearth Layer Bin System	EU012	Baghouse	CE012	SV012	47.97	47.97	47.97	-	-	-	-	4.80E-04	2.40E-03	-	-
Furnace Hood Exhaust	EU013	Baghouse	CE013	SV013a	4,819.47	9,638.93	9,638.93	94.94	35.81	1.74	3.62	1.40	8.66	0.24	661,208
Furnace Windbox Exhaust	EU014	Baghouse/GSA	CE016/CE015	SV013b	7,712.88	15,425.76	15,425.76	1,170.90	441.61	21.41	44.60	1.77	164.51	3.01	
Machine Discharge System	EU015	Baghouse	CE017	SV014	443.30	443.30	443.30	-	-	-	-	8.87E-04	2.22E-02	-	-
Hearth Layer Separation System	EU016	Baghouse	CE018	SV020	212.43	212.43	212.43	-	-	-	-	4.25E-04	1.06E-02	-	-
Oxide Pellet Storage & Unloading System	EU019a	Baghouse	CE019a	SV018a	55.56	55.56	55.56	-	-	-	-	1.11E-04	2.78E-03	-	-
Oxide Pellet Storage & Unloading System	EU019b	Baghouse	CE019b	SV018b	54.86	54.86	54.86	-	-	-	-	8.78E-04	2.74E-03	-	-
WBE Lime Storage Area	EU020	Bin Vent	CE020	Building S (GSA Structure)	7.51	7.51	7.51	-	-	-	-	-	-	-	-
WBE Residual Product Loading Area	EU022	Bin Vent	CE021	Building S (GSA Structure)	7.51	7.51	7.51	-	-	-	-	-	-	-	-
Recycled Dust Storage Area	EU026	Baghouse	CE024	Building E	69.00	69.00	69.00	-	-	-	-	1.38E-04	3.45E-03	-	-
Dust Recycle Surge Hopper and Blow Tank Area	EU027	Baghouse	CE027	SV027	21.44	21.44	21.44	-	-	-	-	9.79E-06	1.07E-03	-	-
Space Heaters & Lab furnaces	IA	--	---	--	0.19	0.75	0.75	0.06	4.94	0.54	8.31	-	9.30E-07	-	11,801
Emergency Generators (Two generators) - Natural Gas	EU017a/EU017b	--	---	EU017a/EU017b	0.02	0.00	0.00	1.30E-03	9.04	0.26	0.70	-	1.54E-05	-	765
Fire Water Pump - Diesel	EU018	--	---	SV017	0.06	0.06	0.06	5.53E-02	0.84	0.07	0.18	-	2.82E-05	-	31
Cooling Tower - furnace discharge system	EU024	--	---	SV022	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Iron Ore Wet Grinding and Filter Cake Production	IA	Wet Suppression	---	Building M	67.40	6.20	6.20	-	-	-	-	6.74E-04	3.37E-03	-	-
Cooling Tower - wet grinding and filter cake production	EU028	---	---	SV028	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Greenball Production System	IA	Wet Suppression	---	Building G	67.40	6.20	6.20	-	-	-	-	6.74E-04	3.37E-03	-	-
Paved Roads	IA	fugitives	---	atmosphere	10.41	2.08	0.51	-	-	-	-	-	-	-	-
				Total PTE at Entire Source (Including Fugitives)	**14,514.21**	**26,894.10**	**26,879.29**	**1,266.02**	**498.11**	**24.66**	**67.25**	**3.22**	**173.24**	**3.25**	**687,795**

Appendix A: Emissions Calculations
Source Summary
Potential to Emit

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Potential to Emit after Control (tons/yr)

Emission Units					PM (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	SO_2 (tons/yr)	NO_x (tons/yr)	VOC (tons/yr)	CO (tons/yr)	Pb (tons/yr)	Fluorides (tons/yr)	H_2SO_4 (tons/yr)	GHGs as CO_2e (tons/yr)
Iron Concentrate Unloading	EU001a	Baghouse	CE001	SV001	1.28	1.28	1.28	-	-	-	-	1.69E-04	6.40E-05	-	-
Iron Concentrate Transfer & Storage Area (pile)	EU001b	fugitives	---	enclosure (Building C (along entire length of building))	34.42	13.77	1.38	-	-	-	-		1.72E-03	-	-
Limestone Unloading (truck)	EU002a	fugitives	---	atmosphere	2.20E-03	2.20E-03	2.20E-04	-	-	-	-	4.13E-06	-	-	-
Limestone Conveyor & Enclosed Storage (pile)	EU002b	fugitives	---	enclosure (Building D)	0.82	0.30	0.03	-	-	-	-		-	-	-
Dolomite Unloading (truck)	EU003a	fugitives	---	atmosphere	1.22E-03	1.22E-03	1.22E-04	-	-	-	-	-	-	-	-
Dolomite Conveyor & Enclosed Storage (pile)	EU003b	fugitives	---	enclosure (Building D)	0.46	0.17	0.02	-	-	-	-		-	-	-
Coke Breeze Unloading (truck)	EU004a	fugitives	---	atmosphere	3.26E-03	1.54E-03	4.45E-04	-	-	-	-	7.94E-05	-	-	-
Coke Breeze Pneumatic Coveyance & Storage Bin	EU004b	Baghouse	CE004	SV004	0.61	0.61	0.61	-	-	-	-		-	-	
Bentonite Unloading (truck), Conveyance System & Storage Area	EU005	Bin Vent	CE005	Building F	0.22	0.22	0.22	-	-	-	-	-	-	-	-
Organic Binder Unloading & Storage Area	EU006	Bin Vent	CE006	Building F	0.19	0.19	0.19	-	-	-	-	-	-	-	-
Coke Breeze Additive System	EU009	Baghouse	CE009	SV009	0.61	0.61	0.61	-	-	-	-	-	-	-	-
Coke Breeze Additive System Air Heater		--	---	--				1.11E-02	0.92	0.10	1.55	8.82E-05	1.74E-07	-	2,204
Limestone/Dolomite reclaim loader hopper, grizzly feeder	EU025a	fugitives	---	Building D	1.28	0.47	0.05	-	-	-	-	8.86E-06	-	-	-
Limestone and Dolomite Grinding Mill Bin Area	EU025b	Baghouse	CE023	Building E	1.14	1.14	1.14	-	-	-	-		-	-	-
Ground Limestone and Dolomite Additive System	EU010	Baghouse	CE010	SV010	1.39	1.39	1.39	-	-	-	-	-	-	-	-
Limestone/Dolomite Additive System Air Heater		---	---	--				0.06	4.94	0.54	8.30	5.26E-05	9.28E-07	-	11,787
Mixing Area Material Handling System	EU011	Baghouse	CE011	Building E	3.36	3.36	3.36	-	-	-	-	3.36E-05	1.68E-04	-	-
Hearth Layer Bin System	EU012	Baghouse	CE012	SV012	0.48	0.48	0.48	-	-	-	-	4.80E-06	2.40E-05	-	-
Furnace Hood Exhaust	EU013	Baghouse	CE013	SV013a	48.19	96.39	96.39	94.94	35.81	1.74	3.62	7.71E-03	8.66	0.02	661,208
Furnace Windbox Exhaust	EU014	Baghouse/GSA	CE016/CE015	SV013b	77.13	154.26	154.26	85.89	441.61	21.41	44.60	7.71E-03	54.06	0.22	
Machine Discharge System	EU015	Baghouse	CE017	SV014	4.43	4.43	4.43	-	-	-	-	8.87E-06	2.22E-04	-	-
Hearth Layer Separation System	EU016	Baghouse	CE018	SV020	2.12	2.12	2.12	-	-	-	-	4.25E-06	1.06E-04	-	-
Oxide Pellet Storage & Unloading System	EU019a	Baghouse	CE019a	SV018a	0.56	0.56	0.56	-	-	-	-	1.11E-06	2.78E-05	-	-
Oxide Pellet Storage & Unloading System	EU019b	Baghouse	CE019b	SV018b	0.55	0.55	0.55	-	-	-	-	8.78E-06	2.74E-05	-	-
WBE Lime Storage Area	EU020	Bin Vent	CE020	Building S (GSA Structure)	0.08	0.08	0.08	-	-	-	-	-	-	-	-
WBE Residual Product Loading Area	EU022	Bin Vent	CE021	Building S (GSA Structure)	0.08	0.08	0.08	-	-	-	-	-	-	-	-
Recycled Dust Storage Area	EU026	Baghouse	CE024	Building E	0.69	0.69	0.69	-	-	-	-	1.38E-06	3.45E-05	-	-
Dust Recycle Surge Hopper and Blow Tank Area	EU027	Baghouse	CE027	SV027	0.21	0.21	0.21	-	-	-	-	9.79E-08	1.07E-05	-	-
Space Heaters & Lab furnaces	IA	--	---	--	0.19	0.75	0.75	0.06	4.94	0.54	8.31	-	9.30E-07	-	11,801
Emergency Generators (Two generators) - Natural Gas	EU017a/EU017b	--	---	SV016a/SV016b	0.02	0.00	0.00	1.30E-03	9.04	0.26	0.70	-	1.54E-05	-	765
Fire Water Pump - Diesel	EU018	--	---	SV017	0.06	0.06	0.06	5.53E-02	0.84	0.07	0.18	-	2.25E-04	-	31
Cooling Tower - furnace discharge system	EU024	--	---	SV022	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Iron Ore Wet Grinding and Filter Cake Production	IA	Wet Suppression	---	Building M	3.37	0.31	0.31	-	-	-	-	6.74E-06	1.68E-04	-	-
Cooling Tower - wet grinding and filter cake production	EU028	---	---	SV028	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Greenball Production System	IA	Wet Suppression	---	Building G	3.37	0.31	0.31	-	-	-	-	6.74E-06	1.68E-04	-	-
Paved Roads	IA	fugitives	---	atmosphere	1.56	0.31	0.08	-	-	-	-	-	-	-	-
Total PTE at Entire Source (Including Fugitives)					**189.47**	**285.69**	**272.22**	**181.01**	**498.11**	**24.66**	**67.25**	**0.02**	**62.72**	**0.24**	**687,795**

Appendix A: Emissions Calculations
Source Summary
Potential to Emit

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

					Potential to Emit after Issuance (tons/yr)										
Emission Units					PM (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	SO_2 (tons/yr)	NO_x (tons/yr)	VOC (tons/yr)	CO (tons/yr)	Pb (tons/yr)	Fluorides (tons/yr)	H_2SO_4 (tons/yr)	GHGs as CO_2e (tons/yr)
Iron Concentrate Unloading	EU001a	Baghouse	CE001	SV001	1.28	1.28	1.28	-	-	-	-	1.69E-04	6.40E-05	-	-
Iron Concentrate Transfer & Storage Area (pile)	EU001b	fugitives	---	enclosure (Building C (along entire length of building))	34.42	13.77	1.38	-	-	-	-		1.72E-03	-	-
Limestone Unloading (truck)	EU002a	fugitives	---	atmosphere	2.20E-03	2.20E-03	2.20E-04	-	-	-	-	4.13E-06	-	-	-
Limestone Conveyor & Enclosed Storage (pile)	EU002b	fugitives	---	enclosure (Building D)	0.82	0.30	0.03	-	-	-	-		-	-	-
Dolomite Unloading (truck)	EU003a	fugitives	---	atmosphere	1.22E-03	1.22E-03	1.22E-04	-	-	-	-	-	-	-	-
Dolomite Conveyor & Enclosed Storage (pile)	EU003b	fugitives	---	enclosure (Building D)	0.46	0.17	0.02	-	-	-	-		-	-	-
Coke Breeze Unloading (truck)	EU004a	fugitives	---	atmosphere	3.26E-03	1.54E-03	4.45E-04	-	-	-	-	7.94E-05	-	-	-
Coke Breeze Pneumatic Coveyance & Storage Bin	EU004b	Baghouse	CE004	SV004	0.61	0.61	0.61	-	-	-	-		-	-	
Bentonite Unloading (truck), Conveyance System & Storage Area	EU005	Bin Vent	CE005	Building F	0.22	0.22	0.22	-	-	-	-	-	-	-	-
Organic Binder Unloading & Storage Area	EU006	Bin Vent	CE006	Building F	0.19	0.19	0.19	-	-	-	-	-	-	-	-
Coke Breeze Additive System	EU009	Baghouse	CE009	SV009	0.61	0.61	0.61	-	-	-	-	-	-	-	-
Coke Breeze Additive System Air Heater		--	---	--				9.04E-03	0.23	0.10	1.55	8.82E-05	1.77E-04	-	2,204
Limestone/Dolomite reclaim loader hopper, grizzly feeder	EU025a	fugitives	---	Building D	1.28	0.47	0.05	-	-	-	-	8.86E-06	-	-	
Limestone and Dolomite Grinding Mill Bin Area	EU025b	Baghouse	CE023	Building E	1.14	1.14	1.14	-	-	-	-		-	-	
Ground Limestone and Dolomite Additive System	EU010	Baghouse	CE010	SV010	1.39	1.39	1.39	-	-	-	-	-	-	-	-
Limestone/Dolomite Additive System Air Heater		---	---	--				0.05	1.21	0.54	8.30	5.26E-05	9.47E-04	-	11,787
Mixing Area Material Handling System	EU011	Baghouse	CE011	Building E	3.36	3.36	3.36	-	-	-	-	3.36E-05	1.68E-04	-	-
Hearth Layer Bin System	EU012	Baghouse	CE012	SV012	0.48	0.48	0.48	-	-	-	-	4.80E-06	2.40E-05	-	-
Furnace Hood Exhaust *	EU013	Baghouse	CE013	SV013a	48.19	96.39	96.39	94.94	477.42	1.74	3.62	7.71E-03	8.66	0.02	661,208
Furnace Windbox Exhaust *	EU014	Baghouse/GSA	CE016/CE015	SV013b	77.13	154.26	154.26	85.89		21.41	44.60	7.71E-03	54.06	0.22	
Machine Discharge System *	EU015	Baghouse	CE017	SV014	4.43	4.43	4.43	-	-	-	-	8.87E-06	2.22E-04	-	-
Hearth Layer Separation System	EU016	Baghouse	CE018	SV020	2.12	2.12	2.12	-	-	-	-	4.25E-06	1.06E-04	-	-
Oxide Pellet Storage & Unloading System	EU019a	Baghouse	CE019a	SV018a	0.56	0.56	0.56	-	-	-	-	1.11E-06	2.78E-05	-	-
Oxide Pellet Storage & Unloading System	EU019b	Baghouse	CE019b	SV018b	0.55	0.55	0.55	-	-	-	-	8.78E-06	2.74E-05	-	-
WBE Lime Storage Area	EU020	Bin Vent	CE020	Building S (GSA Structure)	0.08	0.08	0.08	-	-	-	-	-	-	-	-
WBE Residual Product Loading Area	EU022	Bin Vent	CE021	Building S (GSA Structure)	0.08	0.08	0.08	-	-	-	-	-	-	-	-
Recycled Dust Storage Area	EU026	Baghouse	CE024	Building E	0.69	0.69	0.69	-	-	-	-	1.38E-06	3.45E-05	-	-
Dust Recycle Surge Hopper and Blow Tank Area	EU027	Baghouse	CE027	SV027	0.21	0.21	0.21	-	-	-	-	9.79E-08	1.07E-05	-	-
Space Heaters & Lab furnaces	IA	--	---	--	0.73	0.73	0.73	0.05	5.04	0.54	8.31	-	9.48E-04	-	11,801
Emergency Generators (Two generators) - Natural Gas	EU017a/EU017b	--	---	SV016a/SV016b	0.29	0.29	0.29	2.15E-03	0.96	0.26	0.70	-	1.54E-05	-	765
Fire Water Pump - Diesel	EU018	--	---	SV017	0.06	0.06	0.06	5.53E-02	0.84	0.07	0.18	-	2.25E-04	-	31
Cooling Tower - furnace discharge system	EU024	--	---	SV022	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Iron Ore Wet Grinding and Filter Cake Production	IA	Wet Suppression	---	Building M	3.37	0.31	0.31	-	-	-	-	6.74E-06	1.68E-04	-	-
Cooling Tower - wet grinding and filter cake production	EU028	---	---	SV028	0.30	0.30	0.30	-	-	-	-	-	-	-	-
Greenball Production System	IA	Wet Suppression	---	Building G	3.37	0.31	0.31	-	-	-	-	6.74E-06	1.68E-04	-	-
Paved Roads	IA	fugitives	---	atmosphere	1.56	0.31	0.08	-	-	-	-	-	-	-	-
				Total PTE at Entire Source (Including Fugitives)	**190.27**	**285.96**	**272.48**	**180.99**	**485.70**	**24.66**	**67.25**	**0.02**	**62.72**	**0.24**	**687,795**

* Lead PTE (tpy) was based on the baghouse achieving 85% control efficiency for the Furnace Hood Exhaust and the Furnace Windbox Exhaust and a permit limited value of 0.03 lb Pb/hr from SV013A and 0.05 lb Pb/hr from SV013B

Appendix A: Emissions Calculations
Source Summary
Potential to Emit of HAPs
Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Uncontrolled Potential to Emit (lb/hr)

Emission Unit ID:	EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU017a EU017b	EU018	EU019a	EU019b	EU020	EU022	EU026	EU027	Filter Cake	Greenball	Space Heaters & Lab Furnace	**Total HAPs (lbs/hr)**	**Total HAPs (tons/yr)**
Stack/Vent ID:	SV001	atm & bldg	atm & SV004	bldg	SV009	atm & bldg	SV010	bldg	SV012	SV013A		SV013B		SV014	bldg	SV016 and SV019	SV017	SV018a	SV018b	bldg	bldg	bldg	bldg	NA	NA	NA		
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.32E-04	-	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.98E-03	2.98E-05	-	-	-	-	-	-	-	-	-	**7.01E-03**	**3.07E-02**
1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.90E-04	-	-	-	-	-	-	-	-	-	-	**6.90E-04**	**3.02E-03**
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-03	-	-	-	-	-	-	-	-	-	-	**6.54E-03**	**2.86E-02**
Acenaphthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	3.27E-05	1.08E-06	-	-	-	-	-	-	-	-	4.06E-08	**3.46E-05**	**1.52E-04**
Acenaphthylene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	1.45E-04	3.86E-06	-	-	-	-	-	-	-	-	4.06E-08	**1.49E-04**	**6.54E-04**
Acetaldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.19E-01	5.85E-04	-	-	-	-	-	-	-	-	-	**0.22**	**0.96**
Acrolein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34E-01	7.06E-05	-	-	-	-	-	-	-	-	-	**0.13**	**0.59**
Anthracene	-	-	-	-	1.01E-08	-	5.41E-08	-	-		5.13E-08		9.75E-07	-	-	-	1.43E-06	-	-	-	-	-	-	-	-	5.42E-08	**2.57E-06**	**1.13E-05**
Antimony Compounds	5.84E-04	5.01E-08	-	-	-	1.34E-04	3.97E-06	3.83E-04	5.48E-05	5.50E-03	-	8.80E-03	-	5.06E-04	2.43E-04	-	-	6.34E-05	5.01E-04	-	-	-	-	7.69E-05	7.69E-05	-	**1.69E-02**	**7.42E-02**
Arsenic Compounds	8.18E-04	8.00E-07	6.94E-04	-	6.95E-04	1.87E-04	6.78E-05	3.30E-04	4.72E-05	3.22E-03	4.27E-06	6.11E-02	8.12E-05	6.07E-05	2.91E-05	-	-	7.61E-06	6.01E-05	-	-	9.45E-06	2.94E-06	6.63E-05	6.63E-05	4.52E-06	**6.76E-02**	**0.30**
Benz(a)anthracene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	-	1.28E-06	-	-	-	-	-	-	-	-	4.06E-08	**2.14E-06**	**9.37E-06**
Benzene	-	-	-	-	8.85E-06	-	4.74E-05	-	-		4.49E-05		8.53E-04	-	-	1.15E-02	7.12E-04	-	-	-	-	-	-	-	-	4.74E-05	**1.32E-02**	**5.79E-02**
Benzo(a)pyrene	-	-	-	-	5.06E-09	-	2.71E-08	-	-		2.56E-08		4.87E-07	-	-	-	1.43E-07	-	-	-	-	-	-	-	-	2.71E-08	**7.16E-07**	**3.13E-06**
Benzo(b)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	4.34E-06	7.56E-08	-	-	-	-	-	-	-	-	4.06E-08	**5.27E-06**	**2.31E-05**
Benzo(g,h,i)perylene	-	-	-	-	5.06E-09	-	2.71E-08	-	-		2.56E-08		4.87E-07	-	-	1.08E-05	3.73E-07	-	-	-	-	-	-	-	-	2.71E-08	**1.18E-05**	**5.16E-05**
Benzo(k)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	-	1.18E-07	-	-	-	-	-	-	-	-	4.06E-08	**9.76E-07**	**4.28E-06**
Beryllium Compounds	3.27E-05	1.20E-07	-	-	5.06E-08	7.48E-06	9.79E-06	1.69E-04	2.41E-05	2.42E-03	2.56E-07	3.87E-03	4.87E-06	5.47E-05	2.62E-05	-	-	6.85E-06	5.41E-05	-	-	8.51E-06	2.64E-06	3.39E-05	3.39E-05	2.71E-07	**6.76E-03**	**2.96E-02**
Biphenyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.54E-03	-	-	-	-	-	-	-	-	-	-	**5.54E-03**	**2.43E-02**
Cadmium Compounds	1.40E-04	2.81E-08	4.02E-05	-	4.49E-05	3.20E-05	2.70E-05	7.67E-05	1.10E-05	4.29E-03	2.35E-05	6.78E-03	4.47E-04	5.06E-05	2.43E-05	-	-	6.34E-06	5.01E-05	-	-	7.88E-06	2.45E-06	1.54E-05	1.54E-05	2.48E-05	**1.21E-02**	**5.30E-02**
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.60E-04	-	-	-	-	-	-	-	-	-	-	**9.60E-04**	**4.20E-03**
Chlorine	1.17E-03	-	1.53E-02	4.16E-01	1.53E-02	-	-	6.13E-03	8.76E-04	4.40E-03	1.21E+00	1.41E-01	1.94E+00	4.05E-03	1.94E-03	-	-	5.07E-04	4.01E-03	-	-	6.30E-04	1.96E-04	1.23E-03	1.23E-03	-	**3.76**	**16.48**
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-04	-	-	-	-	-	-	-	-	-	-	**7.95E-04**	**3.48E-03**
Chloroform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.45E-04	-	-	-	-	-	-	-	-	-	-	**7.45E-04**	**3.26E-03**
Chromium Compounds	1.75E-03	7.02E-07	-	-	5.90E-06	4.01E-04	8.71E-05	1.92E-03	2.74E-04	2.80E-03	2.99E-05	5.32E-02	5.69E-04	2.73E-03	1.31E-03	0.00E+00	-	3.43E-04	2.71E-03	-	-	4.25E-04	1.32E-04	3.85E-04	3.85E-04	3.16E-05	**6.94E-02**	**0.30**
Chrysene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	1.81E-05	2.69E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.92E-05**	**8.43E-05**
Cobalt Compounds	3.27E-04	3.41E-07	-	-	3.54E-07	7.48E-05	2.89E-05	2.68E-04	3.83E-05	5.05E-05	1.80E-06	9.60E-04	3.41E-05	5.06E-05	2.43E-05	-	-	6.34E-06	5.01E-05	-	-	7.88E-06	2.45E-06	5.39E-05	5.39E-05	-	**2.03E-03**	**8.91E-03**
Dibenz(a,h)anthracene	-	-	-	-	5.06E-09	-	2.71E-08	-	-		2.56E-08		4.87E-07	-	-	-	-	-	-	-	-	-	-	-	-	1.90E-06	**2.44E-06**	**1.07E-05**
Dichlorobenzene	-	-	-	-	5.06E-06	-	2.71E-05	-	-		2.56E-05		4.87E-04	-	-	-	4.45E-07	-	-	-	-	-	-	-	-	2.71E-08	**5.46E-04**	**2.39E-03**
Dimethylbenz(a)anthracene, 7,12-	-	-	-	-	6.75E-08	-	3.61E-07	-	-		3.42E-07		6.50E-06	-	-	-	-	-	-	-	-	-	-	-	-	2.71E-05	**3.44E-05**	**1.50E-04**
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.61E-07	**3.61E-07**	**1.58E-06**
Ethylene Dibromide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04E-03	-	-	-	-	-	-	-	-	-	-	**1.04E-03**	**4.55E-03**
Fluoranthene	-	-	-	-	1.26E-08	-	6.76E-08	-	-		6.41E-08		1.22E-06	-	-	1.16E-03	-	-	-	-	-	-	-	-	-	-	**1.16E-03**	**5.08E-03**
Fluorene	-	-	-	-	1.18E-08	-	6.31E-08	-	-		5.98E-08		1.14E-06	-	-	2.90E-05	5.80E-06	-	-	-	-	-	-	-	-	6.77E-08	**3.62E-05**	**1.58E-04**
Formaldehyde	-	-	-	-	3.16E-04	-	1.69E-03	-	-	6.54E-03	-	1.24E-01	-	-	-	1.48E-04	2.23E-05	-	-	-	-	-	-	-	-	6.32E-08	**0.13**	**0.58**
Hexane	-	-	-	-	7.59E-03	-	4.06E-02	-	-		3.85E-02		7.31E-01	-	-	1.38E+00	9.00E-04	-	-	-	-	-	-	-	-	1.69E-03	**2.20**	**9.64**
Hydrogen Chloride	-	-	-	-	-	-	-	-	-	9.97E-02	-	1.90E+00	-	-	-	2.90E-02	-	-	-	-	-	-	-	-	-	4.06E-02	**2.06**	**9.04**
Hydrogen Fluoride	-	-	-	-	-	-	-	-	-	2.08E+00	-	3.95E+01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**41.62**	**182.28**
Indeno(1,2,3-cd)pyrene	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	9.81E-06	2.86E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.10E-05**	**4.80E-05**
Lead	3.86E-03	9.43E-07	1.80E-03	-	1.81E-03	8.81E-04	8.58E-05	7.67E-04	1.10E-04	3.19E-01	1.07E-05	4.05E-01	2.03E-04	2.02E-04	9.70E-05	-	-	2.54E-05	2.00E-04	-	-	3.15E-05	9.79E-06	1.54E-04	1.54E-04	1.13E-05	**0.73**	**3.22**
Manganese Compounds	8.88E-02	1.05E-04	5.79E-02	-	5.79E-02	2.03E-02	8.34E-03	4.14E-02	5.91E-03	5.19E+00	8.12E-06	8.30E+00	1.54E-04	6.48E-02	3.10E-02	-	-	8.12E-03	6.41E-02	3.43E-04	3.43E-04	1.01E-02	3.13E-03	8.31E-03	8.31E-03	8.58E-06	**13.97**	**61.20**
Mercury Compounds	6.20E-07	2.79E-10	2.89E-08	-	1.12E-06	1.42E-07	5.88E-06	4.06E-07	5.80E-08	1.50E-03	5.56E-06	2.67E-03	1.06E-04	7.08E-09	3.40E-09	-	-	8.88E-10	7.01E-09	-	-	1.10E-09	3.43E-10	8.16E-08	8.16E-08	5.87E-06	**4.30E-03**	**1.88E-02**
Methanol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-02	-	-	-	-	-	-	-	-	-	-	**6.54E-02**	**0.29**
Methylchloranthrene, 3-	-	-	-	-	7.59E-09	-	4.06E-08	-	-		3.85E-08		7.31E-07	-	-	-	-	-	-	-	-	-	-	-	-	4.06E-08	**8.58E-07**	**3.76E-06**
Methylene Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.23E-04	-	-	-	-	-	-	-	-	-	-	**5.23E-04**	**2.29E-03**
Methylnapthalene, 2-	-	-	-	-	1.01E-07	-	5.41E-07	-	-		5.13E-07		9.75E-06	-	-	8.68E-04	-	-	-	-	-	-	-	-	-	5.42E-07	**8.80E-04**	**3.85E-03**
Naphthalene	-	-	-	-	2.57E-06	-	1.38E-05	-	-		1.30E-05		2.48E-04	-	-	1.95E-03	6.47E-05	-	-	-	-	-	-	-	-	1.38E-05	**2.30E-03**	**1.01E-02**
Nickel Compounds	2.10E-03	1.08E-06	2.30E-03	-	2.31E-03	4.81E-04	1.33E-04	3.83E-04	5.48E-05	4.17E-04	4.49E-05	7.93E-03	8.53E-04	1.01E-04	4.85E-05	-	-	1.27E-05	1.00E-04	-	-	1.58E-05	4.89E-06	7.69E-05	7.69E-05	4.74E-05	**1.75E-02**	**7.67E-02**
PAH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.03E-04	1.28E-04	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
Phenanthrene	-	-	-	-	7.17E-08	-	3.83E-07	-	-		3.63E-07		6.90E-06	-	-	2.72E-04	2.24E-05	-	-	-	-	-	-	-	-	3.84E-07	**3.02E-04**	**1.32E-03**
Phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.28E-04	-	-	-	-	-	-	-	-	-	-	**6.28E-04**	**2.75E-03**
Polycyclic Organic Material	-	-	-	-	3.72E-07	-	1.99E-06	-	-		1.89E-06		3.58E-05	-	-	7.12E-03	6.35E-05	-	-	-	-	-	-	-	-	1.99E-06	**7.22E-03**	**3.16E-02**
Pyrene	-	-	-	-	2.11E-08	-	1.13E-07	-	-		1.07E-07		2.03E-06	-	-	3.56E-05	3.65E-06	-	-	-	-	-	-	-	-	1.13E-07	**4.16E-05**	**1.82E-04**
Selenium Compounds	1.99E-03	1.20E-07	2.73E-05	-	2.74E-05	4.54E-04	1.01E-05	5.75E-04	8.21E-05	1.04E-02	5.13E-07	1.67E-02	9.75E-06	2.53E-04	1.21E-04	-	-	3.17E-05	2.50E-04	-	-	3.94E-05	1.22E-05	1.15E-04	1.15E-04	5.42E-07	**3.12E-02**	**0.14**
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.17E-04	-	-	-	-	-	-	-	-	-	-	**6.17E-04**	**2.70E-03**
Toluene	-	-	-	-	1.43E-05	-	7.67E-05	-	-		7.27E-05		1.38E-03	-	-	1.07E-02	3.12E-04	-	-	-	-	-	-	-	-	7.68E-05	**1.26E-02**	**5.52E-02**
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.90E-04	-	-	-	-	-	-	-	-	-	-	**3.90E-04**	**1.71E-03**
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.81E-03	2.17E-04	-	-	-	-	-	-	-	-	-	**5.03E-03**	**2.20E-02**
Total HAPs (lb/hr)	**0.10**	**1.09E-04**	**7.81E-02**	**0.42**	**8.60E-02**	**2.29E-02**	**5.12E-02**	**5.24E-02**	**7.49E-03**	**7.73**	**1.25**	**50.57**	**2.67**	**7.28E-02**	**3.49E-02**	**1.89**	**3.15E-03**	**9.13E-03**	**7.21E-02**	**3.43E-04**	**3.43E-04**	**1.13E-02**	**3.50E-03**	**1.05E-02**	**1.05E-02**	**4.26E-02**	**65.20**	**285.58**
Total HAPS (tons/yr)	**0.45**	**4.79E-04**	**0.34**	**1.82**	**0.38**	**0.10**	**0.22**	**0.23**	**3.28E-02**	**33.86**	**5.47**	**221.48**	**11.71**	**0.32**	**0.15**	**8.30**	**1.38E-02**	**4.00E-02**	**0.32**	**1.50E-03**	**1.50E-03**	**4.93E-02**	**1.53E-02**	**4.61E-02**	**4.61E-02**	**0.19**	**285.58**	

Appendix A: Emissions Calculations
Source Summary
Potential to Emit of HAPs
Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Potential to Emit after Controls (lb/hr)

Emission Unit ID:	EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU017a EU017b	EU018	EU019a	EU019b	EU020	EU022	EU026	EU027	Filter Cake	Greenball	Space Heaters & Lab Furnace	**Total HAPs (lbs/hr)**	**Total HAPs (tons/yr)**
Stack/Vent ID:	SV001	atm & bldg	atm & SV004	bldg	SV009	atm & bldg	SV010	bldg	SV012	SV013A		SV013B		SV014	bldg	SV016 and SV019	SV017	SV018a	SV018b	bldg	bldg	bldg	bldg	NA	NA	NA		
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.32E-04	-	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.98E-03	2.98E-05	-	-	-	-	-	-	-	-	-	**7.01E-03**	**3.07E-02**
1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.90E-04	-	-	-	-	-	-	-	-	-	-	**6.90E-04**	**3.02E-03**
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-03	-	-	-	-	-	-	-	-	-	-	**6.54E-03**	**2.86E-02**
Acenaphthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	3.27E-05	1.08E-06	-	-	-	-	-	-	-	-	4.06E-08	**3.46E-05**	**1.52E-04**
Acenaphthylene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	1.45E-04	3.86E-06	-	-	-	-	-	-	-	-	4.06E-08	**1.49E-04**	**6.54E-04**
Acetaldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.19E-01	5.85E-04	-	-	-	-	-	-	-	-	-	**0.22**	**0.96**
Acrolein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34E-01	7.06E-05	-	-	-	-	-	-	-	-	-	**0.13**	**0.59**
Anthracene	-	-	-	-	1.01E-08	-	5.41E-08	-	-	-	5.13E-08	-	9.75E-07	-	-	-	1.43E-06	-	-	-	-	-	-	-	-	5.42E-08	**2.57E-06**	**1.13E-05**
Antimony Compounds	5.84E-06	5.01E-08	-	-	-	1.08E-07	3.97E-08	3.83E-06	5.48E-07	5.50E-05	-	8.80E-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1.53E-04**	**6.72E-04**
Arsenic Compounds	8.18E-06	8.00E-07	6.97E-06	-	7.78E-06	1.72E-06	5.14E-06	3.30E-06	4.72E-07	3.22E-03	4.27E-06	6.11E-02	8.12E-05	6.07E-07	2.91E-07	-	-	7.61E-08	6.01E-07	-	-	9.45E-08	2.94E-08	4.62E-07	4.62E-07	4.52E-06	**6.45E-02**	**0.28**
Benz(a)anthracene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	1.28E-06	-	-	-	-	-	-	-	-	4.06E-08	**2.14E-06**	**9.37E-06**
Benzene	-	-	-	-	8.85E-06	-	4.74E-05	-	-	-	4.49E-05	-	8.53E-04	-	-	1.15E-02	7.12E-04	-	-	-	-	-	-	-	-	4.74E-05	**1.32E-02**	**5.79E-02**
Benzo(a)pyrene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	-	1.43E-07	-	-	-	-	-	-	-	-	2.71E-08	**7.16E-07**	**3.13E-06**
Benzo(b)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	4.34E-06	7.56E-08	-	-	-	-	-	-	-	-	4.06E-08	**5.27E-06**	**2.31E-05**
Benzo(g,h,i)perylene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	1.08E-05	3.73E-07	-	-	-	-	-	-	-	-	2.71E-08	**1.18E-05**	**5.16E-05**
Benzo(k)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	1.18E-07	-	-	-	-	-	-	-	-	4.06E-08	**9.76E-07**	**4.28E-06**
Beryllium Compounds	3.27E-07	1.20E-07	-	-	5.06E-08	2.58E-07	3.66E-07	1.69E-06	2.41E-07	2.42E-05	2.56E-07	3.87E-05	4.87E-06	5.47E-07	2.62E-07	-	-	6.85E-08	5.41E-07	-	-	8.51E-08	2.64E-08	4.15E-07	4.15E-07	2.71E-07	**7.38E-05**	**3.23E-04**
Biphenyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.54E-03	-	-	-	-	-	-	-	-	-	-	**5.54E-03**	**2.43E-02**
Cadmium Compounds	1.40E-06	2.81E-08	4.05E-07	-	5.04E-06	6.03E-08	2.22E-08	7.67E-07	1.10E-07	4.29E-05	2.35E-05	6.87E-05	4.47E-04	5.06E-07	2.43E-07	-	-	6.34E-08	5.01E-07	-	-	7.88E-08	2.45E-08	3.85E-07	3.85E-07	2.48E-05	**6.17E-04**	**2.70E-03**
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.60E-04	-	-	-	-	-	-	-	-	-	-	**9.60E-04**	**4.20E-03**
Chlorine	1.17E-05	0.00E+00	1.53E-04	4.16E-03	1.53E-04	-	-	6.13E-05	8.76E-06	1.30E-02	1.21E+00	2.08E-02	1.94E+00	4.05E-05	1.94E-05	-	-	5.07E-06	4.01E-05	-	-	6.30E-06	1.96E-06	3.08E-05	3.08E-05	-	**3.19**	**13.95**
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-04	-	-	-	-	-	-	-	-	-	-	**7.95E-04**	**3.48E-03**
Chloroform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.45E-04	-	-	-	-	-	-	-	-	-	-	**7.45E-04**	**3.26E-03**
Chromium Compounds	1.75E-05	7.02E-07	4.74E-05	0.00E+00	5.31E-05	1.51E-06	2.54E-05	1.92E-05	2.74E-06	2.80E-03	2.99E-05	5.32E-02	5.69E-04	2.73E-05	1.31E-05	-	-	3.43E-06	2.71E-05	-	-	4.25E-06	1.32E-06	2.08E-05	2.08E-05	3.16E-05	**5.69E-02**	**0.25**
Chrysene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	1.81E-05	2.69E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.92E-05**	**8.43E-05**
Cobalt Compounds	3.27E-06	3.41E-07	-	-	3.54E-07	-	2.16E-06	2.68E-06	3.83E-07	5.05E-05	1.80E-06	9.60E-04	3.41E-05	5.06E-07	2.43E-07	-	-	6.34E-08	5.01E-07	-	-	7.88E-08	2.45E-08	3.85E-07	3.85E-07	-	**1.06E-03**	**4.64E-03**
Dibenz(a,h)anthracene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	-	-	-	-	-	-	-	-	-	-	1.90E-06	**2.44E-06**	**1.07E-05**
Dichlorobenzene	-	-	-	-	5.06E-06	-	2.71E-05	-	-	-	2.56E-05	-	4.87E-04	-	-	-	4.45E-07	-	-	-	-	-	-	-	-	2.71E-08	**5.46E-04**	**2.39E-03**
Dimethylbenz(a)anthracene, 7,12-	-	-	-	-	6.75E-08	-	3.61E-07	-	-	-	3.42E-07	-	6.50E-06	-	-	-	-	-	-	-	-	-	-	-	-	2.71E-05	**3.44E-05**	**1.50E-04**
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.61E-07	**3.61E-07**	**1.58E-06**
Ethylene Dibromide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04E-03	-	-	-	-	-	-	-	-	-	-	**1.04E-03**	**4.55E-03**
Fluoranthene	-	-	-	-	1.26E-08	-	6.76E-08	-	-	-	6.41E-08	-	1.22E-06	-	-	1.16E-03	-	-	-	-	-	-	-	-	-	-	**1.16E-03**	**5.08E-03**
Fluorene	-	-	-	-	1.18E-08	-	6.31E-08	-	-	-	5.98E-08	-	1.14E-06	-	-	2.90E-05	5.80E-06	-	-	-	-	-	-	-	-	6.77E-08	**3.62E-05**	**1.58E-04**
Formaldehyde	-	-	-	-	3.16E-04	-	1.69E-03	-	-	6.54E-03	-	1.24E-01	-	-	-	1.48E-04	2.23E-05	-	-	-	-	-	-	-	-	6.32E-08	**0.13**	**0.58**
Hexane	-	-	-	-	7.59E-03	-	4.06E-02	-	-	-	3.85E-02	-	7.31E-01	-	-	1.38	9.00E-04	-	-	-	-	-	-	-	-	1.69E-03	**2.20**	**9.64**
Hydrogen Chloride	-	-	-	-	-	-	-	-	-	9.97E-02	-	1.90E+00	-	-	-	2.90E-02	-	-	-	-	-	-	-	-	-	4.06E-02	**2.06**	**9.04**
Hydrogen Fluoride	-	-	-	-	-	-	-	-	-	2.08E+00	-	1.30E+01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**15.07**	**66.02**
Indeno(1,2,3-cd)pyrene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	9.81E-06	2.86E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.10E-05**	**4.80E-05**
Lead	3.86E-05	9.43E-07	1.81E-05	-	2.01E-05	2.02E-06	1.20E-05	7.67E-06	1.10E-06	3.19E-03	1.07E-05	4.05E-03	2.03E-04	2.02E-06	9.70E-07	-	-	2.54E-07	2.00E-06	0.00E+00	0.00E+00	3.15E-07	9.79E-08	1.54E-06	1.54E-06	1.13E-05	**7.58E-03**	**3.32E-02**
Manganese Compounds	8.88E-04	1.05E-04	5.83E-04	-	5.81E-04	2.26E-04	9.18E-05	4.14E-04	5.91E-05	5.94E-03	8.12E-06	8.30E-02	1.54E-04	6.48E-04	3.10E-04	-	-	8.12E-05	6.41E-04	3.43E-06	3.43E-06	1.01E-04	3.13E-05	4.92E-04	4.92E-04	8.58E-06	**9.49E-02**	**0.42**
Mercury Compounds	6.20E-09	2.79E-10	2.90E-10	-	1.10E-06	5.98E-10	5.86E-06	4.06E-09	5.80E-10	1.50E-03	5.56E-06	2.67E-03	1.06E-04	7.08E-11	3.40E-11	-	-	8.88E-12	7.01E-11	-	-	1.10E-11	3.43E-12	5.39E-11	5.39E-11	5.87E-06	**4.29E-03**	**1.88E-02**
Methanol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-02	-	-	-	-	-	-	-	-	-	-	**6.54E-02**	**0.29**
Methylchloranthrene, 3-	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	-	-	-	-	-	-	-	-	-	4.06E-08	**8.58E-07**	**3.76E-06**
Methylene Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.23E-04	-	-	-	-	-	-	-	-	-	-	**5.23E-04**	**2.29E-03**
Methylnapthalene, 2-	-	-	-	-	1.01E-07	-	5.41E-07	-	-	-	5.13E-07	-	9.75E-06	-	-	8.68E-04	-	-	-	-	-	-	-	-	-	5.42E-07	**8.80E-04**	**3.85E-03**
Naphthalene	-	-	-	-	2.57E-06	-	1.38E-05	-	-	-	1.30E-05	-	2.48E-04	-	-	1.95E-03	6.47E-05	-	-	-	-	-	-	-	-	1.38E-05	**2.30E-03**	**1.01E-02**
Nickel Compounds	2.10E-05	1.08E-06	2.32E-05	-	3.19E-05	2.32E-06	4.82E-05	3.83E-06	5.48E-07	4.17E-04	4.49E-05	7.93E-03	8.53E-04	1.01E-06	4.85E-07	-	-	1.27E-07	1.00E-06	-	-	1.58E-07	4.89E-08	7.69E-07	7.69E-07	4.74E-05	**9.43E-03**	**4.13E-02**
PAH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.03E-04	1.28E-04	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
Phenanthrene	-	-	-	-	7.17E-08	-	3.83E-07	-	-	-	3.63E-07	-	6.90E-06	-	-	2.72E-04	2.24E-05	-	-	-	-	-	-	-	-	3.84E-07	**3.02E-04**	**1.32E-03**
Phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.28E-04	-	-	-	-	-	-	-	-	-	-	**6.28E-04**	**2.75E-03**
Polycyclic Organic Material	-	-	-	-	3.72E-07	-	1.99E-06	-	-	-	1.89E-06	-	3.58E-05	-	-	7.12E-03	6.35E-05	-	-	-	-	-	-	-	-	1.99E-06	**7.22E-03**	**3.16E-02**
Pyrene	-	-	-	-	2.11E-08	-	1.13E-07	-	-	-	1.07E-07	-	2.03E-06	-	-	3.56E-05	3.65E-06	-	-	-	-	-	-	-	-	1.13E-07	**4.16E-05**	**1.82E-04**
Selenium Compounds	1.99E-05	1.20E-07	2.75E-07	-	3.75E-07	2.58E-07	6.36E-07	5.75E-06	8.21E-07	1.04E-04	5.13E-07	1.67E-04	9.75E-06	2.53E-06	1.21E-06	-	-	3.17E-07	2.50E-06	-	-	3.94E-07	1.22E-07	1.92E-06	1.92E-06	5.42E-07	**3.21E-04**	**1.41E-03**
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.17E-04	-	-	-	-	-	-	-	-	-	-	**6.17E-04**	**2.70E-03**
Toluene	-	-	-	-	1.43E-05	-	7.67E-05	-	-	-	7.27E-05	-	1.38E-03	-	-	1.07E-02	3.12E-04	-	-	-	-	-	-	-	-	7.68E-05	**1.26E-02**	**5.52E-02**
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.90E-04	-	-	-	-	-	-	-	-	-	-	**3.90E-04**	**1.71E-03**
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.81E-03	2.17E-04	-	-	-	-	-	-	-	-	-	**5.03E-03**	**2.20E-02**
Total HAPs (lb/hr)	**1.02E-03**	**1.09E-04**	**8.32E-04**	**4.16E-03**	**8.79E-03**	**2.34E-04**	**4.26E-02**	**5.24E-04**	**7.49E-05**	**2.22**	**1.25**	**15.25**	**2.67**	**7.23E-04**	**3.47E-04**	**1.89**	**3.15E-03**	**9.07E-05**	**7.16E-04**	**3.43E-06**	**3.43E-06**	**1.13E-04**	**3.50E-05**	**5.50E-04**	**5.50E-04**	**4.26E-02**	**23.39**	**102.43**
Total HAPS (tons/yr)	**4.45E-03**	**4.79E-04**	**3.65E-03**	**1.82E-02**	**3.85E-02**	**1.03E-03**	**0.19**	**2.30E-03**	**3.28E-04**	**9.71**	**5.47**	**66.77**	**11.71**	**3.17E-03**	**1.52E-03**	**8.30**	**1.38E-02**	**3.97E-04**	**3.14E-03**	**1.50E-05**	**1.50E-05**	**4.93E-04**	**1.53E-04**	**2.41E-03**	**2.41E-03**	**0.19**	**102.43**	

Appendix A: Emissions Calculations
Source Summary
Potential to Emit of HAPs

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Potential to Emit after Issuance (lb/hr)

Emission Unit ID:	EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU017a EU017b	EU018	EU019a	EU019b	EU020	EU022	EU026	EU027	Filter Cake	Greenball	Space Heaters & Lab Furnace	**Total HAPs (lbs/hr)**	**Total HAPs (tons/yr)**
Stack/Vent ID:	SV001	atm & bldg	atm & SV004	bldg	SV009	atm & bldg	SV010	bldg	SV012	SV013A		SV013B		SV014	bldg	SV016 and SV019	SV017	SV018a	SV018b	bldg	bldg	bldg	bldg	NA	NA	NA		
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.32E-04	-	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.98E-03	2.98E-05	-	-	-	-	-	-	-	-	-	**7.01E-03**	**3.07E-02**
1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.90E-04	-	-	-	-	-	-	-	-	-	-	**6.90E-04**	**3.02E-03**
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-03	-	-	-	-	-	-	-	-	-	-	**6.54E-03**	**2.86E-02**
Acenaphthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	3.27E-05	1.08E-06	-	-	-	-	-	-	-	-	4.06E-08	**3.46E-05**	**1.52E-04**
Acenaphthylene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	1.45E-04	3.86E-06	-	-	-	-	-	-	-	-	4.06E-08	**1.49E-04**	**6.54E-04**
Acetaldehyde	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.19E-01	5.85E-04	-	-	-	-	-	-	-	-	-	**0.22**	**0.96**
Acrolein	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34E-01	7.06E-05	-	-	-	-	-	-	-	-	-	**0.13**	**0.59**
Anthracene	-	-	-	-	1.01E-08	-	5.41E-08	-	-	-	5.13E-08	-	9.75E-07	-	-	-	1.43E-06	-	-	-	-	-	-	-	-	5.42E-08	**2.57E-06**	**1.13E-05**
Antimony Compounds	5.84E-06	5.01E-08	-	-	-	1.08E-07	3.97E-08	3.83E-06	5.48E-07	5.50E-05	-	8.80E-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1.53E-04**	**6.72E-04**
Arsenic Compounds	8.18E-06	8.00E-07	6.97E-06	-	7.78E-06	1.72E-06	5.14E-06	3.30E-06	4.72E-07	3.22E-03	4.27E-06	6.11E-02	8.12E-05	6.07E-07	2.91E-07	-	-	7.61E-08	6.01E-07	-	-	9.45E-08	2.94E-08	4.62E-07	4.62E-07	4.52E-06	**6.45E-02**	**0.28**
Benz(a)anthracene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	1.28E-06	-	-	-	-	-	-	-	-	4.06E-08	**2.14E-06**	**9.37E-06**
Benzene	-	-	-	-	8.85E-06	-	4.74E-05	-	-	-	4.49E-05	-	8.53E-04	-	-	1.15E-02	7.12E-04	-	-	-	-	-	-	-	-	4.74E-05	**1.32E-02**	**5.79E-02**
Benzo(a)pyrene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	-	1.43E-07	-	-	-	-	-	-	-	-	2.71E-08	**7.16E-07**	**3.13E-06**
Benzo(b)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	4.34E-06	7.56E-08	-	-	-	-	-	-	-	-	4.06E-08	**5.27E-06**	**2.31E-05**
Benzo(g,h,i)perylene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	1.08E-05	3.73E-07	-	-	-	-	-	-	-	-	2.71E-08	**1.18E-05**	**5.16E-05**
Benzo(k)fluoranthene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	1.18E-07	-	-	-	-	-	-	-	-	4.06E-08	**9.76E-07**	**4.28E-06**
Beryllium Compounds	3.27E-07	1.20E-07	-	-	5.06E-08	2.58E-07	3.66E-07	1.69E-06	2.41E-07	2.42E-05	2.56E-07	3.87E-05	4.87E-06	5.47E-07	2.62E-07	-	-	6.85E-08	5.41E-07	-	-	8.51E-08	2.64E-08	4.15E-07	4.15E-07	2.71E-07	**7.38E-05**	**3.23E-04**
Biphenyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.54E-03	-	-	-	-	-	-	-	-	-	-	**5.54E-03**	**2.43E-02**
Cadmium Compounds	1.40E-06	2.81E-08	4.05E-07	-	5.04E-06	6.03E-08	2.22E-08	7.67E-07	1.10E-07	4.29E-05	2.35E-05	6.87E-05	4.47E-04	5.06E-07	2.43E-07	-	-	6.34E-08	5.01E-07	-	-	7.88E-08	2.45E-08	3.85E-07	3.85E-07	2.48E-05	**6.17E-04**	**2.70E-03**
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.60E-04	-	-	-	-	-	-	-	-	-	-	**9.60E-04**	**4.20E-03**
Chlorine	1.17E-05	0.00E+00	1.53E-04	4.16E-03	1.53E-04	-	-	6.13E-05	8.76E-06	1.30E-02	1.21	2.08E-02	1.94E+00	4.05E-05	1.94E-05	-	-	5.07E-06	4.01E-05	-	-	6.30E-06	1.96E-06	3.08E-05	3.08E-05	-	**3.19**	**13.95**
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-04	-	-	-	-	-	-	-	-	-	-	**7.95E-04**	**3.48E-03**
Chloroform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.45E-04	-	-	-	-	-	-	-	-	-	-	**7.45E-04**	**3.26E-03**
Chromium Compounds	1.75E-05	7.02E-07	4.74E-05	0.00E+00	5.31E-05	1.51E-06	2.54E-05	1.92E-05	2.74E-06	2.80E-03	2.99E-05	5.32E-02	5.69E-04	2.73E-05	1.31E-05	-	-	3.43E-06	2.71E-05	-	-	4.25E-06	1.32E-06	2.08E-05	2.08E-05	3.16E-05	**5.69E-02**	**0.25**
Chrysene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	1.81E-05	2.69E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.92E-05**	**8.43E-05**
Cobalt Compounds	3.27E-06	3.41E-07	-	-	3.54E-07	-	2.16E-06	2.68E-06	3.83E-07	5.05E-05	1.80E-06	9.60E-04	3.41E-05	5.06E-07	2.43E-07	-	-	6.34E-08	5.01E-07	-	-	7.88E-08	2.45E-08	3.85E-07	3.85E-07	-	**1.06E-03**	**4.64E-03**
Dibenz(a,h)anthracene	-	-	-	-	5.06E-09	-	2.71E-08	-	-	-	2.56E-08	-	4.87E-07	-	-	-	-	-	-	-	-	-	-	-	-	1.90E-06	**2.44E-06**	**1.07E-05**
Dichlorobenzene	-	-	-	-	5.06E-06	-	2.71E-05	-	-	-	2.56E-05	-	4.87E-04	-	-	-	4.45E-07	-	-	-	-	-	-	-	-	2.71E-08	**5.46E-04**	**2.39E-03**
Dimethylbenz(a)anthracene, 7,12-	-	-	-	-	6.75E-08	-	3.61E-07	-	-	-	3.42E-07	-	6.50E-06	-	-	-	-	-	-	-	-	-	-	-	-	2.71E-05	**3.44E-05**	**1.50E-04**
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.61E-07	**3.61E-07**	**1.58E-06**
Ethylene Dibromide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04E-03	-	-	-	-	-	-	-	-	-	-	**1.04E-03**	**4.55E-03**
Fluoranthene	-	-	-	-	1.26E-08	-	6.76E-08	-	-	-	6.41E-08	-	1.22E-06	-	-	1.16E-03	-	-	-	-	-	-	-	-	-	-	**1.16E-03**	**5.08E-03**
Fluorene	-	-	-	-	1.18E-08	-	6.31E-08	-	-	-	5.98E-08	-	1.14E-06	-	-	2.90E-05	5.80E-06	-	-	-	-	-	-	-	-	6.77E-08	**3.62E-05**	**1.58E-04**
Formaldehyde	-	-	-	-	3.16E-04	-	1.69E-03	-	-	6.54E-03	-	1.24E-01	-	-	-	1.48E-04	2.23E-05	-	-	-	-	-	-	-	-	6.32E-08	**0.13**	**0.58**
Hexane	-	-	-	-	7.59E-03	-	4.06E-02	-	-	-	3.85E-02	-	7.31E-01	-	-	1.38E+00	9.00E-04	-	-	-	-	-	-	-	-	1.69E-03	**2.20**	**9.64**
Hydrogen Chloride	-	-	-	-	-	-	-	-	-	9.97E-02	-	1.90	-	-	-	2.90E-02	-	-	-	-	-	-	-	-	-	4.06E-02	**2.06**	**9.04**
Hydrogen Fluoride	-	-	-	-	-	-	-	-	-	2.08	-	12.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**15.07**	**66.02**
Indeno(1,2,3-cd)pyrene	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	9.81E-06	2.86E-07	-	-	-	-	-	-	-	-	4.06E-08	**1.10E-05**	**4.80E-05**
Lead	3.86E-05	9.43E-07	1.81E-05	-	2.01E-05	2.02E-06	1.20E-05	7.67E-06	1.10E-06	3.19E-03	1.07E-05	4.05E-03	2.03E-04	2.02E-06	9.70E-07	-	-	2.54E-07	2.00E-06	0.00E+00	0.00E+00	3.15E-07	9.79E-08	1.54E-06	1.54E-06	1.13E-05	**7.58E-03**	**3.32E-02**
Manganese Compounds	8.88E-04	1.05E-04	5.83E-04	-	5.81E-04	2.26E-04	9.18E-05	4.14E-04	5.91E-05	5.94E-03	8.12E-06	8.30E-02	1.54E-04	6.48E-04	3.10E-04	-	-	8.12E-05	6.41E-04	3.43E-06	3.43E-06	1.01E-04	3.13E-05	4.92E-04	4.92E-04	8.58E-06	**9.49E-02**	**0.42**
Mercury Compounds	6.20E-09	2.79E-10	2.90E-10	-	1.10E-06	5.98E-10	5.86E-06	4.06E-09	5.80E-10	1.50E-03	5.56E-06	2.67E-03	1.06E-04	7.08E-11	3.40E-11	-	-	8.88E-12	7.01E-11	-	-	1.10E-11	3.43E-12	5.39E-11	5.39E-11	5.87E-06	**4.29E-03**	**1.88E-02**
Methanol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.54E-02	-	-	-	-	-	-	-	-	-	-	**6.54E-02**	**0.29**
Methylchloranthrene, 3-	-	-	-	-	7.59E-09	-	4.06E-08	-	-	-	3.85E-08	-	7.31E-07	-	-	-	-	-	-	-	-	-	-	-	-	4.06E-08	**8.58E-07**	**3.76E-06**
Methylene Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.23E-04	-	-	-	-	-	-	-	-	-	-	**5.23E-04**	**2.29E-03**
Methylnapthalene, 2-	-	-	-	-	1.01E-07	-	5.41E-07	-	-	-	5.13E-07	-	9.75E-06	-	-	8.68E-04	-	-	-	-	-	-	-	-	-	5.42E-07	**8.80E-04**	**3.85E-03**
Naphthalene	-	-	-	-	2.57E-06	-	1.38E-05	-	-	-	1.30E-05	-	2.48E-04	-	-	1.95E-03	6.47E-05	-	-	-	-	-	-	-	-	1.38E-05	**2.30E-03**	**1.01E-02**
Nickel Compounds	2.10E-05	1.08E-06	2.32E-05	-	3.19E-05	2.32E-06	4.82E-05	3.83E-06	5.48E-07	4.17E-04	4.49E-05	7.93E-03	8.53E-04	1.01E-06	4.85E-07	-	-	1.27E-07	1.00E-06	-	-	1.58E-07	4.89E-08	7.69E-07	7.69E-07	4.74E-05	**9.43E-03**	**4.13E-02**
PAH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.03E-04	1.28E-04	-	-	-	-	-	-	-	-	-	**8.32E-04**	**3.64E-03**
Phenanthrene	-	-	-	-	7.17E-08	-	3.83E-07	-	-	-	3.63E-07	-	6.90E-06	-	-	2.72E-04	2.24E-05	-	-	-	-	-	-	-	-	3.84E-07	**3.02E-04**	**1.32E-03**
Phenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.28E-04	-	-	-	-	-	-	-	-	-	-	**6.28E-04**	**2.75E-03**
Polycyclic Organic Material	-	-	-	-	3.72E-07	-	1.99E-06	-	-	-	1.89E-06	-	3.58E-05	-	-	7.12E-03	6.35E-05	-	-	-	-	-	-	-	-	1.99E-06	**7.22E-03**	**3.16E-02**
Pyrene	-	-	-	-	2.11E-08	-	1.13E-07	-	-	-	1.07E-07	-	2.03E-06	-	-	3.56E-05	3.65E-06	-	-	-	-	-	-	-	-	1.13E-07	**4.16E-05**	**1.82E-04**
Selenium Compounds	1.99E-05	1.20E-07	2.75E-07	-	3.75E-07	2.58E-07	6.36E-07	5.75E-06	8.21E-07	1.04E-04	5.13E-07	1.67E-04	9.75E-06	2.53E-06	1.21E-06	-	-	3.17E-07	2.50E-06	-	-	3.94E-07	1.22E-07	1.92E-06	1.92E-06	5.42E-07	**3.21E-04**	**1.41E-03**
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.17E-04	-	-	-	-	-	-	-	-	-	-	**6.17E-04**	**2.70E-03**
Toluene	-	-	-	-	1.43E-05	-	7.67E-05	-	-	-	7.27E-05	-	1.38E-03	-	-	1.07E-02	3.12E-04	-	-	-	-	-	-	-	-	7.68E-05	**1.26E-02**	**5.52E-02**
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.90E-04	-	-	-	-	-	-	-	-	-	-	**3.90E-04**	**1.71E-03**
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.81E-03	2.17E-04	-	-	-	-	-	-	-	-	-	**5.03E-03**	**2.20E-02**
Total HAPs (lb/hr)	**1.02E-03**	**1.09E-04**	**8.32E-04**	**4.16E-03**	**8.79E-03**	**2.34E-04**	**4.26E-02**	**5.24E-04**	**7.49E-05**	**2.22**	**1.25**	**15.25**	**2.67**	**7.23E-04**	**3.47E-04**	**1.89**	**3.15E-03**	**9.07E-05**	**7.16E-04**	**3.43E-06**	**3.43E-06**	**1.13E-04**	**3.50E-05**	**5.50E-04**	**5.50E-04**	**4.26E-02**	**23.39**	**102.43**
Total HAPS (tons/yr)	**4.45E-03**	**4.79E-04**	**3.65E-03**	**1.82E-02**	**3.85E-02**	**1.03E-03**	**0.19**	**2.30E-03**	**3.28E-04**	**9.71**	**5.47**	**66.77**	**11.71**	**3.17E-03**	**1.52E-03**	**8.30**	**1.38E-02**	**3.97E-04**	**3.14E-03**	**1.50E-05**	**1.50E-05**	**4.93E-04**	**1.53E-04**	**2.41E-03**	**2.41E-03**	**0.19**	**102.43**	

Appendix A: Emission Calculations
Criteria Emissions Inventory
Point Sources

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
CE001 / SV001	EU001a	Iron Concentrate Unloading	PM	68,190	dcfm	2,190	hr/yr	0.0020	gr/dscf	1.17	1.28	99	116.90	128.00
			PM_{10}	68,190	dcfm	2,190	hr/yr	0.0020	gr/dscf	1.17	1.28	99	116.90	128.00
			$PM_{2.5}$	68,190	dcfm	2,190	hr/yr	0.0020	gr/dscf	1.17	1.28	99	116.90	128.00
			Fluorides	116.90	lb/hr PM	128.00	tons/yr PM	5.00E-03	wt%	5.84E-05	6.40E-05	99	5.84E-03	6.40E-03
fugitives - building	EU001b	Iron Concentrate Transfer & Storage Area (pile) (2 drop points per ton material)	PM	392.9	st iron/hr	3,441,530	tons/yr	0.02	lb/st iron	7.86	34.42	0	7.86	34.42
			PM_{10}	392.9	st iron/hr	3,441,530	tons/yr	0.008	lb/st iron	3.14	13.77	0	3.14	13.77
			$PM_{2.5}$	392.9	st iron/hr	3,441,530	tons/yr	0.001	lb/st iron	0.31	1.38	0	0.31	1.38
			Fluorides	7.86	lb/hr PM	34.42	tons/yr PM	5.00E-03	wt%	3.93E-04	1.72E-03	0	3.93E-04	1.72E-03
fugitives - atmosphere	EU002a	Limestone Unloading (truck) (1 drop point per ton material)	PM	66.7	st limestone/hr	274,769	tons/yr	1.6E-05	lb/st limestone	1.07E-03	2.20E-03	0	1.1E-03	2.20E-03
			PM_{10}	66.7	st limestone/hr	274,769	tons/yr	1.6E-05	lb/st limestone	1.07E-03	2.20E-03	0	1.1E-03	2.20E-03
			$PM_{2.5}$	66.7	st limestone/hr	274,769	tons/yr	1.6E-06	lb/st limestone	1.07E-04	2.20E-04	0	1.1E-04	2.20E-04
fugitives - building	EU002b	Limestone Conveyor & Enclosed Storage Pile (2 drop points per ton material)	PM	66.7	st limestone/hr	274,769	tons/yr	0.00600	lb/st limestone	0.40	0.82	0	0.40	0.82
			PM_{10}	66.7	st limestone/hr	274,769	tons/yr	0.00220	lb/st limestone	0.15	0.30	0	0.15	0.30
			$PM_{2.5}$	66.7	st limestone/hr	274,769	tons/yr	0.00022	lb/st limestone	0.01	0.030	0	0.01	0.03
fugitives - atmosphere	EU003a	Dolomite Unloading (1 drop point per ton material)	PM	33.3	st dolomite/hr	152,210	tons/yr	1.6E-05	lb/st dolomite	5.33E-04	1.22E-03	0	5.33E-04	1.22E-03
			PM_{10}	33.3	st dolomite/hr	152,210	tons/yr	1.6E-05	lb/st dolomite	5.33E-04	1.22E-03	0	5.33E-04	1.22E-03
			$PM_{2.5}$	33.3	st dolomite/hr	152,210	tons/yr	1.6E-06	lb/st dolomite	5.33E-05	1.22E-04	0	5.33E-05	1.22E-04
fugitives - enclosure	EU003b	Dolomite Conveyor & Enclosed Storage Pile - (2 drop points per ton material)	PM	33.3	st dolomite/hr	152,210	tons/yr	0.00600	lb/st dolomite	0.20	0.46	0	0.20	0.46
			PM_{10}	33.3	st dolomite/hr	152,210	tons/yr	0.00220	lb/st dolomite	0.073	0.167	0	0.07	0.17
			$PM_{2.5}$	33.3	st dolomite/hr	152,210	tons/yr	0.00022	lb/st dolomite	0.0073	0.0167	0	0.01	0.02
fugitives - atmosphere	EU004a	Coke Breeze Unloading (truck) (1 drop point per ton material)	PM	6.8	st coke breeze/hr	59,303	tons/yr	0.00011	lb/st coke breeze	7.45E-04	3.26E-03	0	7.45E-04	3.26E-03
			PM_{10}	6.8	st coke breeze/hr	59,303	tons/yr	0.000052	lb/st coke breeze	3.52E-04	1.54E-03	0	3.52E-04	1.54E-03
			$PM_{2.5}$	6.8	st coke breeze/hr	59,303	tons/yr	0.000015	lb/st coke breeze	1.02E-04	4.45E-04	0	1.02E-04	4.45E-04
CE004 / SV004	EU004b	Coke Breeze Unloading & Storage Area	PM	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.1388	0.61	99	13.88	60.77
			PM_{10}	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.1388	0.61	99	13.88	60.77
			$PM_{2.5}$	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.1388	0.61	99	13.88	60.77
CE005 / building	EU005	Bentonite Unloading (truck), Conveyance System & Storage Area	PM	2,893	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0496	0.22	99	4.96	21.72
			PM_{10}	2,893	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0496	0.22	99	4.96	21.72
			$PM_{2.5}$	2,893	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0496	0.22	99	4.96	21.72
CE006 / building	EU006	Organic Binder (w/Soda ash) Unloading & Storage Area	PM	2,500	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0429	0.19	99	4.29	18.77
			PM_{10}	2,500	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0429	0.19	99	4.29	18.77
			$PM_{2.5}$	2,500	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.0429	0.19	99	4.29	18.77
CE009 / SV009	EU009	Coke Breeze Additive System (Material Handling)	PM	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.14	0.61	99	13.88	60.77
			PM_{10}	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.14	0.61	99	13.88	60.77
			$PM_{2.5}$	8,094	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.14	0.61	99	13.88	60.77

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Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
CE009 / SV009	EU009	Coke Breeze Additive System Air Heater	PM	0.0042	MMscf/hr	37	MMscf/yr	1.9	lb/MMscf	** Included in BACT limit for EU009 (see above)	** Included in BACT limit for EU009 (see above)	0	0.01	0.04
			PM_{10}	0.0042	MMscf/hr	37	MMscf/yr	7.6	lb/MMscf			0	0.03	0.14
			$PM_{2.5}$	0.0042	MMscf/hr	37	MMscf/yr	7.6	lb/MMscf			0	0.03	0.14
			SO_2	0.0042	MMscf/hr	37	MMscf/yr	0.6	lb/MMscf	2.53E-03	1.11E-02	0	2.53E-03	1.11E-02
			NO_x	0.0042	MMscf/hr	37	MMscf/yr	50	lb/MMscf	0.21	0.92	inherent	0.21	0.92
			CO	0.0042	MMscf/hr	37	MMscf/yr	84	lb/MMscf	0.35	1.55	0	0.35	1.55
			VOC	0.0042	MMscf/hr	37	MMscf/yr	5.5	lb/MMscf	0.02	0.10	0	0.02	0.10
			Fluorides	0.0042	MMscf/hr	37	MMscf/yr	9.40E-06	lb/MMscf	3.96E-08	1.74E-07	0	3.96E-08	1.74E-07
fugitives - building	EU025a	Limestone/Dolomite reclaim loader hopper, grizzly feeder (2 drop points per ton of material)	PM	100.0	st aggregate/hr	426,979	tons/yr	0.0060	lb/st aggregate	0.60	1.28	0	0.60	1.28
			PM_{10}	100.0	st aggregate/hr	426,979	tons/yr	0.00220	lb/st aggregate	0.22	0.47	0	0.22	0.47
			$PM_{2.5}$	100.0	st aggregate/hr	426,979	tons/yr	0.00022	lb/st aggregate	0.02	0.05	0	0.02	0.05
CE023 / building	EU025b	Limestone/Dolomite Grinding Mill Bin Area	PM	15,228	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.26	1.14	99	26.11	114.34
			PM_{10}	15,228	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.26	1.14	99	26.11	114.34
			$PM_{2.5}$	15,228	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.26	1.14	99	26.11	114.34
CE010 / SV010	EU010	Ground Limestone/Dolomite Additive System	PM	18,506	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.32	1.39	99	31.73	138.96
			PM_{10}	18,506	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.32	1.39	99	31.73	138.96
			$PM_{2.5}$	18,506	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.32	1.39	99	31.73	138.96
CE010 / SV010	EU010	Ground Limestone/Dolomite Additive System Air Heater	PM	0.02	MMscf/hr	198	MMscf/yr	1.9	lb/MMscf	** Included in BACT limit for EU010 (see above)	** Included in BACT limit for EU010 (see above)	0	0.04	0.19
			PM_{10}	0.02	MMscf/hr	198	MMscf/yr	7.6	lb/MMscf			0	0.17	0.75
			$PM_{2.5}$	0.02	MMscf/hr	198	MMscf/yr	7.6	lb/MMscf			0	0.17	0.75
			SO_2	0.02	MMscf/hr	198	MMscf/yr	0.6	lb/MMscf	0.01	0.059	0	0.01	0.06
			NO_x	0.02	MMscf/hr	198	MMscf/yr	50	lb/MMscf	1.13	4.94	inherent	1.13	4.94
			CO	0.02	MMscf/hr	198	MMscf/yr	84	lb/MMscf	1.89	8.30	0	1.89	8.30
			VOC	0.02	MMscf/hr	198	MMscf/yr	5.5	lb/MMscf	0.12	0.54	0	0.12	0.54
			Fluorides	0.02	MMscf/hr	198	MMscf/yr	9.40E-06	lb/MMscf	2.12E-07	9.28E-07	0	2.12E-07	9.28E-07
CE011 / building	EU011	Mixing Area Material Handling System	PM	44,732	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.77	3.36	99	76.68	335.87
			PM_{10}	44,732	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.77	3.36	99	76.68	335.87
			$PM_{2.5}$	44,732	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.77	3.36	99	76.68	335.87
			Fluorides	76.68	lb/hr PM	335.87	tons/yr PM	5.00E-03	wt%	3.83E-05	1.68E-04	99	3.83E-03	1.68E-02
CE012 / SV012	EU012	Hearth Layer Bin System	PM	6,389	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.11	0.48	99	10.95	47.97
			PM_{10}	6,389	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.11	0.48	99	10.95	47.97
			$PM_{2.5}$	6,389	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.11	0.48	99	10.95	47.97
			Fluorides	10.95	lb/hr PM	47.97	tons/yr PM	5.00E-03	wt%	5.48E-06	2.40E-05	99	5.48E-04	2.40E-03

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Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
CE013 / SV013a	EU013	Furnace Hood Exhaust	PM	320,931	dcfm	8,760	hr/yr	0.0040	gr/dscf	11.00	48.19	99	1,100.33	4,819.47
			PM_{10}	320,931	dcfm	8,760	hr/yr	0.0080	gr/dscf	22.01	96.39	99	2,200.67	9,638.93
			$PM_{2.5}$	320,931	dcfm	8,760	hr/yr	0.0080	gr/dscf	22.01	96.39	99	2,200.67	9,638.93
			SO_2	444.5	st material/hr	3,894,207	st material/yr	0.015	lb/st material	6.66	29.18	0	6.66	29.18
			SO_2	6.8	st coke breeze/hr	59,303	st coke breeze/yr	2.218	lb/st coke breeze	15.01	65.76	0	15.01	65.76
			NO_x	436	MMBtu/hr	3,819,360	MMBtu/yr	0.019	lb/MMBtu	8.18	35.81	inherent	8.18	35.81
			CO	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0018	lb/st pellets	0.83	3.62	0	0.83	3.62
			VOC	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0009	lb/st pellets	0.40	1.74	0	0.40	1.74
			Lead	451.3	st pellets/hr	3,953,510	st pellets/yr	0.00039	lb/st pellets	1.76E-03	7.71E-03	99	0.18	0.77
			H_2SO_4	451.3	st pellets/hr	3,953,510	st pellets/yr	0.00012	lb/st pellets	0.01	0.02	91	0.06	0.24
			Fluorides	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0044	lb/st pellets	1.98	8.66	0	1.98	8.66
CE015 & CE016 / SV013b	EU014	Furnace Windbox Exhaust	PM	513,605	dcfm	8,760	hr/yr	0.0040	gr/dscf	17.61	77.13	99	1,760.93	7,712.88
			PM_{10}	513,605	dcfm	8,760	hr/yr	0.0080	gr/dscf	35.22	154.26	99	3,521.86	15,425.76
			$PM_{2.5}$	513,605	dcfm	8,760	hr/yr	0.0080	gr/dscf	35.22	154.26	99	3,521.86	15,425.76
			SO_2	513,605	dcfm	8,760	hr/yr	5	ppm	19.61	85.89	93	267.33	1,170.90
			NO_x	436	MMBtu/hr	3,819,360	MMBtu/yr	0.231	lb/MMBtu	100.83	441.61	inherent	100.83	441.61
			CO	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0226	lb/st pellets	10.18	44.60	0	10.18	44.60
			VOC	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0108	lb/st pellets	4.89	21.41	0	4.89	21.41
			Lead	451.3	st pellets/hr	3,953,510	st pellets/yr	0.00039	lb/st pellets	1.76E-03	7.71E-03	99	0.18	0.77
			H_2SO_4	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0015	lb/st pellets	0.05	0.22	93	0.69	3.01
			Fluorides	451.3	st pellets/hr	3,953,510	st pellets/yr	0.0832	lb/st pellets	12.34	54.06	67	37.56	164.51
CE017 / SV014	EU015	Furnace Discharge System	PM	59,039	dcfm	8,760	hr/yr	0.0020	gr/dscf	1.01	4.43	99	101.21	443.30
			PM_{10}	59,039	dcfm	8,760	hr/yr	0.0020	gr/dscf	1.01	4.43	99	101.21	443.30
			$PM_{2.5}$	59,039	dcfm	8,760	hr/yr	0.0020	gr/dscf	1.01	4.43	99	101.21	443.30
			Fluorides	101.21	lb/hr PM	443.30	tons/yr PM	5.00E-03	wt%	5.06E-05	2.22E-04	99	5.06E-03	2.22E-02
NA / SV022	EU024	Cooling Tower - furnace discharge system	PM	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
			PM_{10}	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
			$PM_{2.5}$	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
SV028	EU028	Cooling Tower- wet grinding and filter cake production	PM	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
			PM_{10}	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
			$PM_{2.5}$	2,300	gal/min	1.21E+09	gal/yr	0.0010%	total drift	0.07	0.30	inherent	0.07	0.30
CE018 / SV020	EU016	Hearth Layer Separation System	PM	28,292	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.49	2.12	99	48.50	212.43
			PM_{10}	28,292	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.49	2.12	99	48.50	212.43
			$PM_{2.5}$	28,292	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.49	2.12	99	48.50	212.43
			Fluorides	48.50	lb/hr PM	212.43	tons/yr PM	5.00E-03	wt%	2.43E-05	1.06E-04	99	2.43E-03	1.06E-02

Appendix A: Emission Calculations
Criteria Emissions Inventory
Point Sources

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
NA / SV016a & b	EU017a&b	Emergency Generators - Natural Gas (Two generators, 1300 KW each)	PM	8.865	MMBtu/hr	4,432	MMBtu/yr	9.91E-03	lb/MMBtu	8.78E-02	2.20E-02	0	8.78E-02	2.20E-02
			PM_{10}	8.865	MMBtu/hr	4,432	MMBtu/yr	7.71E-05	lb/MMBtu	6.83E-04	1.71E-04	0	6.83E-04	1.71E-04
			$PM_{2.5}$	8.865	MMBtu/hr	4,432	MMBtu/yr	7.71E-05	lb/MMBtu	6.83E-04	1.71E-04	0	6.83E-04	1.71E-04
			SO_2	8.865	MMBtu/hr	4,432	MMBtu/yr	5.88E-04	lb/MMBtu	5.21E-03	1.30E-03	0	5.21E-03	1.30E-03
			NO_x	8.865	MMBtu/hr	4,432	MMBtu/yr	4.08E+00	lb/MMBtu	36.17	9.04	0	3.62E+01	9.04E+00
			CO	8.865	MMBtu/hr	4,432	MMBtu/yr	3.17E-01	lb/MMBtu	2.81	0.70	0	2.81E+00	7.03E-01
			VOC	8.865	MMBtu/hr	4,432	MMBtu/yr	1.18E-01	lb/MMBtu	1.05	0.26	0	1.05E+00	2.62E-01
			Fluorides	8.865	MMBtu/hr	4,432	MMBtu/yr	6.95E-06	lb/MMBtu	6.16E-05	1.54E-05	0	6.16E-05	1.54E-05
NA / SV017	EU018	Fire Water Pump - Diesel (300 HP)	PM	0.763	MMBtu/hr	381	MMBtu/yr	3.10E-01	lb/MMBtu	0.24	0.06	0	2.36E-01	5.91E-02
			PM_{10}	0.763	MMBtu/hr	381	MMBtu/yr	3.10E-01	lb/MMBtu	0.24	0.059	0	2.36E-01	5.91E-02
			$PM_{2.5}$	0.763	MMBtu/hr	381	MMBtu/yr	3.10E-01	lb/MMBtu	0.24	0.059	0	2.36E-01	5.91E-02
			SO_2	0.763	MMBtu/hr	381	MMBtu/yr	2.90E-01	lb/MMBtu	2.21E-01	5.53E-02	0	2.21E-01	5.53E-02
			NO_x	0.763	MMBtu/hr	381	MMBtu/yr	4.41E+00	lb/MMBtu	3.36	0.84	0	3.36E+00	8.41E-01
			CO	0.763	MMBtu/hr	381	MMBtu/yr	9.50E-01	lb/MMBtu	0.72	0.18	0	7.25E-01	1.81E-01
			VOC	0.763	MMBtu/hr	381	MMBtu/yr	3.60E-01	lb/MMBtu	0.27	0.07	0	2.75E-01	6.86E-02
			Formaldehyde	0.763	MMBtu/hr	381	MMBtu/yr	1.18E-03	lb/MMBtu	9.00E-04	2.25E-04	0	9.00E-04	2.25E-04
CE019a / SV018a	EU019a	Oxide Pellet Storage & Unloading System	PM	7,400	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.13	0.56	99	12.69	55.56
			PM_{10}	7,400	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.13	0.56	99	12.69	55.56
			$PM_{2.5}$	7,400	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.13	0.56	99	12.69	55.56
			Fluorides	12.69	lb/hr PM	55.56	tons/yr PM	5.00E-03	wt%	6.34E-06	2.78E-05	99	6.34E-04	2.78E-03
CE019b / SV018b	EU019b	Oxide Pellet Storage & Unloading System	PM	58,449	dcfm	1,095	hr/yr	0.0020	gr/dscf	1.00	0.55	99	100.20	54.86
			PM_{10}	58,449	dcfm	1,095	hr/yr	0.0020	gr/dscf	1.00	0.55	99	100.20	54.86
			$PM_{2.5}$	58,449	dcfm	1,095	hr/yr	0.0020	gr/dscf	1.00	0.55	99	100.20	54.86
			Fluorides	100.20	lb/hr PM	54.86	tons/yr PM	5.00E-03	wt%	5.01E-05	2.74E-05	99	5.01E-03	2.74E-03
CE020 / building	EU020	WBE Lime Storage Area	PM	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
			PM_{10}	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
			$PM_{2.5}$	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
CE021 / building	EU022	WBE Residual Product Loading Area	PM	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
			PM_{10}	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
			$PM_{2.5}$	1,000	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.02	0.075	99	1.71	7.51
CE024 / building	EU026	Recycled Dust Storage Area	PM	9,190	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.16	0.69	99	15.75	69.00
			PM_{10}	9,190	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.16	0.69	99	15.75	69.00
			$PM_{2.5}$	9,190	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.16	0.69	99	15.75	69.00
			Fluorides	15.75	lb/hr PM	69.00	tons/yr PM	5.00E-03	wt%	7.88E-06	3.45E-05	99	7.88E-04	3.45E-03
CE027 / SV027	EU027	Dust Recycle Surge Hopper	PM	2,855.33	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.05	0.21	99	4.89	21.44
			PM_{10}	2,855.33	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.05	0.21	99	4.89	21.44
			$PM_{2.5}$	2,855.33	dcfm	8,760	hr/yr	0.0020	gr/dscf	0.05	0.21	99	4.89	21.44

Appendix A: Emission Calculations
Criteria Emissions Inventory
Point Sources

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Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
			Fluorides	4.89	lb/hr PM	21.44	tons/yr PM	0.0050	wt%	2.45E-06	1.07E-05	99	2.45E-04	1.07E-03

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Control ID / Stack No.	EU	Unit Name	Pollutant	Maximum Hourly Rate	Units	Maximum Annual Rate	Units	Emission Factor	Units	Controlled Emission Rate (lb/hr)	Controlled Potential to Emit (tons/yr)	Control Factor (%)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Potential to Emit (tons/yr)
NA	EU021	Space Heaters & Lab Furnaces	PM	0.0226	MMscf/hr	198	MMscf/yr	1.9	lb/MMscf	0.04	0.19	0	0.04	0.19
			PM_{10}	0.0226	MMscf/hr	198	MMscf/yr	7.6	lb/MMscf	0.17	0.752	0	0.17	0.75
			$PM_{2.5}$	0.0226	MMscf/hr	198	MMscf/yr	7.6	lb/MMscf	0.17	0.752	0	0.17	0.75
			SO_2	0.0226	MMscf/hr	198	MMscf/yr	0.6	lb/MMscf	0.014	0.06	0	0.014	0.06
			NO_x	0.0226	MMscf/hr	198	MMscf/yr	50	lb/MMscf	1.13	4.94	inherent	1.13	4.94
			CO	0.0226	MMscf/hr	198	MMscf/yr	84	lb/MMscf	1.90	8.31	0	1.90	8.31
			VOC	0.0226	MMscf/hr	198	MMscf/yr	5.5	lb/MMscf	0.12	0.54	0	0.12	0.54
			Fluorides	0.0226	MMscf/hr	198	MMscf/yr	9.40E-06	lb/MMscf	2.12E-07	9.30E-07	0	2.12E-07	9.30E-07
NA	IA01	Iron Ore Wet Grinding and Filter Cake Production	PM	615.5	st aggregate/hr	5,391,780	tons/yr	0.025	lb/st pellets	0.77	3.37	95	15.39	67.40
			PM_{10}	615.5	st aggregate/hr	5,391,780	tons/yr	0.0023	lb/st pellets	0.07	0.31	95	1.42	6.20
			$PM_{2.5}$	615.5	st aggregate/hr	5,391,780	tons/yr	0.0023	lb/st pellets	0.07	0.31	95	1.42	6.20
			Fluorides	15.39	lb/hr PM	67.40	tons/yr PM	5.00E-03	wt%	3.85E-05	1.68E-04	95	7.69E-04	3.37E-03
NA	IA02	Greenball Production System	PM	615.5	st aggregate/hr	5,391,780	tons/yr	0.025	lb/st pellets	0.77	3.37	95	15.39	67.40
			PM_{10}	615.5	st aggregate/hr	5,391,780	tons/yr	0.0023	lb/st pellets	0.07	0.31	95	1.42	6.20
			$PM_{2.5}$	615.5	st aggregate/hr	5,391,780	tons/yr	0.0023	lb/st pellets	0.07	0.31	95	1.42	6.20
			Fluorides	15.39	lb/hr PM	67.40	tons/yr PM	5.00E-03	wt%	3.85E-05	1.68E-04	95	7.69E-04	3.37E-03

Appendix A: Emission Calculations
Hazardous Air Pollutants
Non-Combustion Units

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: Feb 12, 2014

Uncontrolled Potential to Emit

Pollutant Name		EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU019a	EU019b	EU020	EU022	EU026	EU027	IA	IA	Subtotal (lb/hr)	Subtotal (tons/yr)
	Emission Unit ID:	EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU019a	EU019b	EU020	EU022	EU026	EU027	IA	IA		
	Stack/Vent ID:	SV001	atm & bldg	atm & SV004	bldg	SV009	atm & bldg	SV010	bldg	SV012	SV013A[1]		SV013B[1]		SV014	bldg	SV018a	SV018b	bldg	bldg	bldg	bldg	bldg	bldg		
	Material Type:	Concentrate	Limestone	Coke Breeze	Organic Binder (Alcotac)	Coke Breeze	Limestone	Limestone	Greenball	Greenball	Greenball	Coke Breeze	Greenball	Coke Breeze	Pellet	Pellet	Pellet	Pellet	Lime	Residual Product	Recycled Dust	Recycled Dust	Filter Cake	Greenball		
	PM (lb/hr):	116.90	0.40	13.88	4.29	13.88	26.71	31.73	76.68	10.95	1,100.33		1,760.93		101.21	48.50	12.69	100.20	1.71	1.71	15.75	4.89	15.39	15.39		
Antimony Compounds		5.84E-04	5.01E-08	0	0	0	1.34E-04	3.97E-06	3.83E-04	5.48E-05	5.50E-03	0	8.80E-03	0	5.06E-04	2.43E-04	6.34E-05	5.01E-04	0	0	0	0	7.69E-05	7.69E-05	**1.69E-02**	**7.42E-02**
Arsenic Compounds[2]		8.18E-04	8.00E-07	6.94E-04	0	6.94E-04	1.87E-04	6.33E-05	3.30E-04	4.72E-05	3.22E-03		6.11E-02		6.07E-05	2.91E-05	7.61E-06	6.01E-05	0	0	9.45E-06	2.94E-06	6.63E-05	6.63E-05	**6.75E-02**	**2.96E-01**
Beryllium Compounds		3.27E-05	1.20E-07	0	0	0	7.48E-06	9.52E-06	1.69E-04	2.41E-05	2.42E-03	0	3.87E-03	0	5.47E-05	2.62E-05	6.85E-06	5.41E-05	0	0	8.51E-06	2.64E-06	3.39E-05	3.39E-05	**6.76E-03**	**2.96E-02**
Cadmium Compounds		1.40E-04	2.81E-08	4.02E-05	0	4.02E-05	3.20E-05	2.22E-06	7.67E-05	1.10E-05	1.10E-03	3.19E-03	1.67E-03	5.11E-03	5.06E-05	2.43E-05	6.34E-06	5.01E-05	0	0	7.88E-06	2.45E-06	1.54E-05	1.54E-05	**1.16E-02**	**5.07E-02**
Chlorine		1.17E-03	0	1.53E-02	4.16E-01	1.53E-02	0	0	6.13E-03	8.76E-04	4.40E-03	1.21E+00	1.41E-01	1.94E+00	4.05E-03	1.94E-03	5.07E-04	4.01E-03	0	0	6.30E-04	1.96E-04	1.23E-03	1.23E-03	**3.76E+00**	**1.65E+01**
Chromium Compounds[3]		1.75E-03	7.02E-07	0	0	0	4.01E-04	5.55E-05	1.92E-03	2.74E-04	2.80E-03		5.32E-02		2.73E-03	1.31E-03	3.43E-04	2.71E-03	0	0	4.25E-04	1.32E-04	3.85E-04	3.85E-04	**6.88E-02**	**3.01E-01**
Cobalt Compounds[4]		3.27E-04	3.41E-07	0	0	0	7.48E-05	2.70E-05	2.68E-04	3.83E-05	5.05E-05		9.60E-04		5.06E-04	2.43E-05	6.34E-06	5.01E-05	0	0	7.88E-06	2.45E-06	5.39E-05	5.39E-05	**2.00E-03**	**8.74E-03**
Formaldehyde[5]		0	0	0	0	0	0	0	0	0	6.54E-03		1.24E-01		0	0	0	0	0	0	0	0	0	0	**1.31E-01**	**5.73E-01**
Hydrogen Chloride[6]		0	0	0	0	0	0	0	0	0	9.97E-02		1.90E+00		0	0	0	0	0	0	0	0	0	0	**1.99E+00**	**8.74E+00**
Hydrogen Fluoride[7]		0	0	0	0	0	0	0	0	0	2.08E+00		3.95E+01		0	0	0	0	0	0	0	0	0	0	**4.16E+01**	**1.82E+02**
Lead		3.86E-03	9.43E-07	1.80E-03	0	1.80E-03	8.81E-04	7.46E-05	7.67E-04	1.10E-04	1.76E-01	1.43E-01	1.76E-01	2.29E-01	2.02E-04	9.70E-05	2.54E-05	2.00E-04	0	0	3.15E-05	9.79E-06	1.54E-04	1.54E-04	**7.34E-01**	**3.22E+00**
Manganese Compounds		8.88E-02	1.05E-04	5.79E-02	0	5.79E-02	2.03E-02	8.33E-03	4.14E-02	5.91E-03	5.94E-01	4.59E+00	9.51E-01	7.35E+00	6.48E-02	3.10E-02	8.12E-03	6.41E-02	3.43E-04	3.43E-04	1.01E-02	3.13E-03	8.31E-03	8.31E-03	**1.40E+01**	**6.12E+01**
Mercury Compounds[8]		6.20E-07	2.79E-10	2.89E-08	0	2.89E-08	1.42E-07	2.20E-08	4.06E-07	5.80E-08	1.504E-03		2.674E-03		7.08E-09	3.40E-09	8.88E-10	7.01E-09	0	0	1.10E-09	3.43E-10	8.16E-08	8.16E-08	**4.18E-03**	**1.83E-02**
Nickel Compounds[9]		2.10E-03	1.08E-06	2.30E-03	0	2.30E-03	4.81E-04	8.57E-05	3.83E-04	5.48E-05	4.17E-04		7.93E-03		1.01E-04	4.85E-05	1.27E-05	1.00E-04	0	0	1.58E-05	4.89E-06	7.69E-05	7.69E-05	**1.65E-02**	**7.23E-02**
Selenium Compounds		1.99E-03	1.20E-07	2.73E-05	0	2.73E-05	4.54E-04	9.52E-06	5.75E-04	8.21E-05	8.25E-03	2.17E-03	1.32E-02	3.47E-03	2.53E-04	1.21E-04	3.17E-05	2.50E-04	0	0	3.94E-05	1.22E-05	1.15E-04	1.15E-04	**3.12E-02**	**1.37E-01**
Total HAPs (lb/hr)		**0.10**	**1.09E-04**	**0.08**	**0.42**	**0.08**	**0.02**	**0.01**	**0.05**	**0.01**	**8.94**		**52.50**		**0.07**	**0.03**	**0.01**	**0.07**	**3.43E-04**	**3.43E-04**	**0.01**	**0.00**	**0.01**	**0.01**	**62.44**	
Total HAPs (tons/yr)		**0.45**	**4.79E-04**	**0.34**	**1.82**	**0.34**	**0.10**	**0.04**	**0.23**	**0.03**	**39.16**		**229.97**		**0.32**	**0.15**	**0.04**	**0.32**	**1.50E-03**	**1.50E-03**	**0.05**	**0.02**	**0.05**	**0.05**		**273.47**

Limited Potential to Emit

Pollutant Name		EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU019a	EU019b	EU020	EU022	EU026	EU027	IA	IA	Subtotal (lb/hr)	Subtotal (tons/yr)
	Emission Unit ID:	EU001	EU002	EU004	EU006	EU009	EU025	EU010	EU011	EU012	EU013		EU014		EU015	EU016	EU019a	EU019b	EU020	EU022	EU026	EU027	IA	IA		
	Stack/Vent ID:	SV001	atm & bldg	atm & SV004	bldg	SV009	atm & bldg	SV010	bldg	SV012	SV013A[1]		SV013B[1]		SV014	bldg	SV018a	SV018b	bldg	bldg	bldg	bldg	bldg	bldg		
	Material Type:	Concentrate	Limestone	Coke Breeze	Organic Binder (Alcotac)	Coke Breeze	Limestone	Limestone	Greenball	Greenball	Greenball	Coke Breeze	Greenball	Coke Breeze	Pellet	Pellet	Pellet	Pellet	Lime	Residual Product	Recycled Dust	Recycled Dust	Filter Cake	Greenball		
	PM (lb/hr):	1.17	4.01E-01	1.39E-01	0.04	0.14	0.86	0.32	0.77	0.11	11.00		17.61		1.01	0.49	0.13	1.00	0.02	0.02	0.16	0.05	0.77	0.77		
Antimony Compounds		5.84E-06	5.01E-08	0	0	0	1.08E-07	3.97E-08	3.83E-06	5.48E-07	5.50E-05	0	8.80E-05	0	0	0	0	0	0	0	0	0	0	0	**1.53E-04**	**6.72E-04**
Arsenic Compounds[2]		8.18E-06	8.00E-07	6.97E-06	0	6.94E-06	1.72E-06	6.33E-07	3.30E-06	4.72E-07	3.22E-03		6.11E-02		6.07E-07	2.91E-07	7.61E-08	6.01E-07	0	0	9.45E-08	2.94E-08	4.62E-07	4.62E-07	**6.44E-02**	**2.82E-01**
Beryllium Compounds		3.27E-07	1.20E-07	0	0	0	2.58E-07	9.52E-08	1.69E-06	2.41E-07	2.42E-05	0	3.87E-05	0	5.47E-07	2.62E-07	6.85E-08	5.41E-07	0	0	8.51E-08	2.64E-08	4.15E-07	4.15E-07	**6.80E-05**	**2.98E-04**
Cadmium Compounds		1.40E-06	2.81E-08	4.05E-07	0	4.02E-07	6.03E-08	2.22E-08	7.67E-07	1.10E-07	1.10E-05	3.19E-05	1.76E-05	5.11E-05	5.06E-07	2.43E-07	6.34E-08	5.01E-07	0	0	7.88E-08	2.45E-08	3.85E-07	3.85E-07	**1.17E-04**	**5.12E-04**
Chlorine		1.17E-05	0	1.53E-04	4.16E-03	1.53E-04	0	0	6.13E-05	8.76E-06	8.80E-04	1.21E-02	1.41E-03	1.94E-02	4.05E-05	1.94E-05	5.07E-06	4.01E-05	0	0	6.30E-06	1.96E-06	3.08E-05	3.08E-05	**3.85E-02**	**1.69E-01**
Chromium Compounds[3]		1.75E-05	7.02E-07	4.74E-05	0	4.72E-05	1.51E-06	5.55E-07	1.92E-05	2.74E-06	2.80E-03		5.32E-02		2.73E-05	1.31E-05	3.43E-06	2.71E-05	0	0	4.25E-06	1.32E-06	2.08E-05	2.08E-05	**5.62E-02**	**2.46E-01**
Cobalt Compounds[4]		3.27E-06	3.41E-07	0	0	0	7.32E-07	2.70E-07	2.68E-06	3.83E-07	5.05E-05		9.60E-04		5.06E-07	2.43E-07	6.34E-08	5.01E-07	0	0	7.88E-08	2.45E-08	3.85E-07	3.85E-07	**1.02E-03**	**4.47E-03**
Formaldehyde[5]		0	0	0	0	0	0	0	0	0	6.54E-03		1.24E-01		0	0	0	0	0	0	0	0	0	0	**1.31E-01**	**0.57**
Hydrogen Chloride[6]		0	0	0	0	0	0	0	0	0	9.97E-02		1.90E+00		0	0	0	0	0	0	0	0	0	0	**1.99E+00**	**8.74**
Hydrogen Fluoride[7]		0	0	0	0	0	0	0	0	0	2.08E+00		1.30E+01		0	0	0	0	0	0	0	0	0	0	**1.51E+01**	**66.02**
Lead		3.86E-05	9.43E-07	1.81E-05	0	1.80E-05	2.02E-06	7.46E-07	7.67E-06	1.10E-06	1.76E-03	1.43E-03	1.76E-03	2.29E-03	2.02E-06	9.70E-07	2.54E-07	2.00E-06	0	0	3.15E-07	9.79E-08	1.54E-06	1.54E-06	**7.34E-03**	**3.21E-02**
Manganese Compounds		8.88E-04	1.05E-04	5.83E-04	0	5.79E-04	2.26E-04	8.33E-05	4.14E-04	5.91E-05	5.94E-03	4.59E-02	9.51E-03	7.35E-02	6.48E-04	3.10E-04	8.12E-05	6.41E-04	3.43E-06	3.43E-06	1.01E-04	3.13E-05	4.92E-04	4.92E-04	**1.41E-01**	**6.16E-01**
Mercury Compounds[8]		6.20E-09	2.79E-10	2.90E-10	0	2.89E-10	5.98E-10	2.20E-10	4.06E-09	5.80E-10	1.499E-03		2.665E-03		7.08E-11	3.40E-11	8.88E-12	7.01E-11	0	0	1.10E-11	3.43E-12	5.39E-11	5.39E-11	**4.16E-03**	**1.82E-02**
Nickel Compounds[9]		2.10E-05	1.08E-06	2.32E-05	0	2.30E-05	2.32E-06	8.57E-07	3.83E-06	5.48E-07	4.17E-04		7.93E-03		1.01E-06	4.85E-07	1.27E-07	1.00E-06	0	0	1.58E-07	4.89E-08	7.69E-07	7.69E-07	**8.43E-03**	**3.69E-02**
Selenium Compounds		1.99E-05	1.20E-07	2.75E-07	0	2.73E-07	2.58E-07	9.52E-08	5.75E-06	8.21E-07	8.25E-05	2.17E-05	1.32E-04	3.47E-05	2.53E-06	1.21E-06	3.17E-07	2.50E-06	0	0	3.94E-07	1.22E-07	1.92E-06	1.92E-06	**3.09E-04**	**1.35E-03**
Total HAPs (lb/hr)		**1.02E-03**	**1.09E-04**	**8.32E-04**	**4.16E-03**	**8.28E-04**	**2.35E-04**	**8.66E-05**	**5.24E-04**	**7.49E-05**	**2.26**		**15.25**		**7.23E-04**	**3.47E-04**	**9.07E-05**	**7.16E-04**	**3.43E-06**	**3.43E-06**	**1.13E-04**	**3.50E-05**	**5.50E-04**	**5.50E-04**	**1.75E+01**	
Total HAPs (tons/yr)		**4.45E-03**	**4.79E-04**	**3.65E-03**	**1.82E-02**	**3.63E-03**	**1.03E-03**	**3.79E-04**	**2.30E-03**	**3.28E-04**	**9.91**		**66.77**		**3.17E-03**	**1.52E-03**	**3.97E-04**	**3.14E-03**	**1.50E-05**	**1.50E-05**	**4.93E-04**	**1.53E-04**	**2.41E-03**	**2.41E-03**		**76.73**

Notes:

[1] Assume 5% of the natural gas combustion emissions exit through the hood exhaust and 95% exit through the waste gas stack
[2] Arsenic emissions from emission units EU013 and EU014 are assumed to be equal to 71.3 ppb (by wgt) per ton of pellets produced (per Jiang paper). Emissions = 71.3 (ppb) * Pellet Production Rate (st/hr) * 2000 lb/ton * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)
[3] Chromium emissions from emission units EU013 and EU014 are assumed to be equal to 62 ppb (by wgt) per ton of pellets produced (per Jiang paper). Emissions = 62 (ppb) * Pellet Production Rate (st/hr) * 2000 lb/ton * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)
[4] Cobalt emissions from emission units EU013 and EU014 are assumed to be equal to 1.12 ppb (by wgt) per ton of pellets produced (per Jiang paper). Emissions = 62 (ppb) * Pellet Production Rate (st/hr) * 2000 lb/ton * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)
[5] Formaldehyde emissions from emission units EU013 and EU014 are assumed to be equal to 0.00029 per ton of pellets produced (based on Hibbtac results). Emissions = 0.00029 lb/st * Pellet Production Rate (st/hr) * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)
[6] Hydrogen chloride emissions are assumed to be equal to 0.00442 per ton of pellets produced (based on Hibbtac results). Emissions = 0.00442 lb/st * Pellet Production Rate (st/hr) * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)
[7] The hydrogen fluoride emissions have been assumed to be equal to the emission rate of total fluorides (as calculated on the Criteria table) times the weight ratio of 20/19 (HF/F).
[8] The hood exhaust exceeds the temperature where mercury is typically released, so 36% of the mercury is assumed to exit through the hood exhaust and 64% through the windbox stack. Emissions = Material Concentration (%) * Pellet Production Rate (st/hr) * Percent of PM emitted from the Hood Exhaust or Windbox Stack (36% or 64%
[9] Nickel emissions are assumed to be equal to 9.25 ppb (by wgt) per ton of pellets produced (per Jiang paper). Emissions = 9.25 (ppb) * Pellet Production Rate (st/hr) * 2000 lb/ton * Percent of PM emitted from the Hood Exhaust or Windbox Stack (5% or 95%)

References:

Jiang, H., Arkly, S., and Wickman, T (2000) Mercury emissions from taconite concentrate pellets - stack testing results from facilities in Minnesota. Presented at USEPA conference "Assessing and managing mercury from historic and current mining activities". San Francisco, November 28-30, 18 pages.

Appendix A: Emission Calculations
Hazardous Air Pollutants
Non-Combustion Units

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: Feb 12, 2014

UNCONTROLLED	(mass balance analysis)				
	Hg entering EU013		Hg leaving EU014		
	max rate for permit (lb/hr)	Hg (lb/hr)	max rate for permit (lb/hr)	Hg (lb/hr)	
pellets			902,628	6.32E-05	
concentrate	785,737	4.16E-03			
coke breeze	13,539	2.82E-05			
limestone	69,245	4.81E-05			
dolomite	34,106	0			
total	902,628	4.24E-03		6.32E-05	
			emitted	4.18E-03	
		EU013	EU014	total	
	distribution	0.36	0.64		
	lb/hr	**1.504E-03**	**2.674E-03**	**4.18E-03**	
UNCONTROLLED	lb/yr	13.17	23.42	36.60	
Uncontrolled if part of PM					
PM emission rate	(lb/hr)	1,100.33	1,760.93	2,861.27	proprate entering by mass percentage
	Hg (lb/hr)	**5.17E-06**	**8.27E-06**	**1.34E-05**	
	Hg (lb/yr)	0.0453	0.0725	0.1178	
Caught in baghouse	PM (lb/hr)	1,089.33	1,743.32		99% collection in baghouses
	Hg (lb/hr)	**5.12E-06**	**8.19E-06**	**1.33083E-05**	=Hg entering EU013*PM caught/greenball entering EU013
	Hg (lb/yr)	0.045	0.072	0.117	
EMITTED to atmosphere	**Hg (lb/hr)**	1.499E-03	2.665E-03	4.16E-03	
	Hg (lb/yr)	13.129	23.349	36.478	

Appendix A: Emission Calculations
Hazardous Air Pollutants
Natural Gas Combustion

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Pollutant Name	Combustion Emission Factors			Emission Unit ID:	EU009	EU010	EU013	EU014	EU017a EU017b	EU018	IA	**Subtotal (lb/hr)**	**Subtotal (tons/yr)**
				Stack/Vent ID:	SV009	SV010	SV013A[3]	SV013B[3]	SV016 and SV019	SV017	NA - Space Heaters & Lab Furnace		
	EF Natural Gas Reciprocating Engine[1] (lb/MMBtu)	EF Natural Gas Combustion[2] (lb/MMcf)	EF Diesel Reciprocating Engine[5] (lb/MMBtu)	Material Type:	Combustion	Combustion	Combustion	Combustion	Engines	Engine	Combustion		
				MMBtu/hr:	4.30	23.00	21.80	414.20	26.15	0.76	23.03		
				MMcf/hr:	0.004	0.02	0.02	0.41	0.18		0.02		
Acetaldehyde	8.36E-03		7.7E-04		0	0	0	0	2.19E-01	5.85E-04	0	**2.19E-01**	**9.60E-01**
Acrolein	5.14E-03		9.3E-05		0	0	0	0	1.34E-01	7.06E-05	0	**1.34E-01**	**5.89E-01**
Arsenic Compounds		2.0E-04			8.43E-07	4.51E-06	4.27E-06	8.12E-05	0	0.00E+00	4.52E-06	**9.54E-05**	**4.18E-04**
Benzene	4.40E-04	2.1E-03	9.3E-04		8.85E-06	4.74E-05	4.49E-05	8.53E-04	1.15E-02	7.12E-04	4.74E-05	**1.32E-02**	**5.79E-02**
Beryllium Compounds		1.2E-05			5.06E-08	2.71E-07	2.56E-07	4.87E-06	0	0	2.71E-07	**5.72E-06**	**2.51E-05**
1,3-Butadiene	2.67E-04		3.9E-05		0	0	0	0	6.98E-03	2.98E-05	0	**7.01E-03**	**3.07E-02**
Cadmium Compounds		1.1E-03			4.64E-06	2.48E-05	2.35E-05	4.47E-04	0	0	2.48E-05	**5.24E-04**	**2.30E-03**
Carbon Tetrachloride	3.67E-05				0	0	0	0	9.60E-04	0	0	**9.60E-04**	**4.20E-03**
Chlorobenzene	3.04E-05				0	0	0	0	7.95E-04	0	0	**7.95E-04**	**3.48E-03**
Chloroform	2.85E-05				0	0	0	0	7.45E-04	0	0	**7.45E-04**	**3.26E-03**
Chromium Compounds		1.4E-03			5.90E-06	3.16E-05	2.99E-05	5.69E-04	0	0	3.16E-05	**6.68E-04**	**2.92E-03**
Cobalt Compounds		8.4E-05			3.54E-07	1.89E-06	1.80E-06	3.41E-05	0	0	1.90E-06	**4.01E-05**	**1.75E-04**
Dichlorobenzene		1.2E-03			5.06E-06	2.71E-05	2.56E-05	4.87E-04	0	0	2.71E-05	**5.72E-04**	**2.51E-03**
1,3-Dichloropropene	2.64E-05				0	0	0	0	6.90E-04	0	0	**6.90E-04**	**3.02E-03**
Ethylbenzene	3.97E-05				0	0	0	0	1.04E-03	0	0	**1.04E-03**	**4.55E-03**
Ethylene Dibromide	4.43E-05				0	0	0	0	1.16E-03	0	0	**1.16E-03**	**5.07E-03**
Formaldehyde	5.28E-02	7.5E-02	1.2E-03		3.16E-04	1.69E-03	see note[4]	see note[4]	1.38E+00	9.00E-04	1.69E-03	**1.39E+00**	**6.07E+00**
Hexane	1.11E-03	1.8E+00			7.59E-03	4.06E-02	3.85E-02	7.31E-01	2.90E-02	0	4.06E-02	**8.87E-01**	**3.89E+00**
Lead		0.0005			2.11E-06	1.13E-05	1.07E-05	2.03E-04	0	0	1.13E-05	**2.38E-04**	**1.04E-03**
Manganese Compounds		3.8E-04			1.60E-06	8.57E-06	8.12E-06	1.54E-04	0	0	8.58E-06	**1.81E-04**	**7.94E-04**
Mercury Compounds		2.6E-04			1.10E-06	5.86E-06	5.56E-06	1.06E-04	0	0	5.87E-06	**1.24E-04**	**5.43E-04**
Methanol	2.50E-03				0	0	0	0	6.54E-02	0	0	**6.54E-02**	**2.86E-01**
Methylene Chloride	2.00E-05				0	0	0	0	5.23E-04	0	0	**5.23E-04**	**2.29E-03**
Naphthalene	7.44E-05	6.1E-04	8.5E-05		2.57E-06	1.38E-05	1.30E-05	2.48E-04	1.95E-03	6.47E-05	1.38E-05	**2.30E-03**	**1.01E-02**
Nickel Compounds		2.1E-03			8.85E-06	4.74E-05	4.49E-05	8.53E-04	0	0	4.74E-05	**1.00E-03**	**4.39E-03**
PAH	2.69E-05		1.7E-04		0	0	0	0	7.03E-04	1.28E-04	0	**8.32E-04**	**3.64E-03**
Phenol	2.40E-05				0	0	0	0	6.28E-04	0	0	**6.28E-04**	**2.75E-03**
Selenium Compounds		2.4E-05			1.01E-07	5.41E-07	5.13E-07	9.75E-06	0	0	5.42E-07	**1.14E-05**	**5.01E-05**
Styrene	2.36E-05				0	0	0	0	6.17E-04	0	0	**6.17E-04**	**2.70E-03**
Toluene	4.08E-04	3.4E-03	4.1E-04		1.43E-05	7.67E-05	7.27E-05	1.38E-03	1.07E-02	3.12E-04	7.68E-05	**1.26E-02**	**5.52E-02**
1,1,2-Trichloroethane	3.18E-05				0	0	0	0	8.32E-04	0	0	**8.32E-04**	**3.64E-03**

Appendix A: Emission Calculations
Hazardous Air Pollutants
Natural Gas Combustion

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Pollutant Name	Combustion Emission Factors			Emission Unit ID:	EU009	EU010	EU013	EU014	EU017a EU017b	EU018	IA	**Subtotal (lb/hr)**	**Subtotal (tons/yr)**
				Stack/Vent ID:	SV009	SV010	SV013A[3]	SV013B[3]	SV016 and SV019	SV017	NA - Space Heaters & Lab Furnace		
	EF Natural Gas Reciprocating Engine[1] (lb/MMBtu)	EF Natural Gas Combustion[2] (lb/MMcf)	EF Diesel Reciprocating Engine[5] (lb/MMBtu)	Material Type:	Combustion	Combustion	Combustion	Combustion	Engines	Engine	Combustion		
				MMBtu/hr:	4.30	23.00	21.80	414.20	26.15	0.76	23.03		
				MMcf/hr:	0.004	0.02	0.02	0.41	0.18		0.02		
2,2,4-Trimethylpentane	2.50E-04				0	0	0	0	6.54E-03	0	0	**6.54E-03**	**2.86E-02**
Xylene	1.84E-04		2.9E-04		0	0	0	0	4.81E-03	2.17E-04	0	**5.03E-03**	**2.20E-02**
Vinyl Chloride	1.49E-05				0	0	0	0	3.90E-04	0	0	**3.90E-04**	**1.71E-03**
Polycyclic Organic Material	2.72E-04	8.8E-05	8.3E-05		3.72E-07	1.99E-06	1.89E-06	3.58E-05	7.12E-03	6.35082E-05	1.99E-06	**7.22E-03**	**3.16E-02**
Acenaphthene	1.25E-06	1.8E-06	1.4E-06		7.59E-09	4.06E-08	3.85E-08	7.31E-07	3.27E-05	1.08311E-06	4.06E-08	**3.46E-05**	**1.52E-04**
Acenaphthylene	5.53E-06	1.8E-06	5.1E-06		7.59E-09	4.06E-08	3.85E-08	7.31E-07	1.45E-04	3.85952E-06	4.06E-08	**1.49E-04**	**6.54E-04**
Anthracene		2.4E-06	1.9E-06		1.01E-08	5.41E-08	5.13E-08	9.75E-07	0	1.42634E-06	5.42E-08	**2.57E-06**	**1.13E-05**
Benz(a)anthracene		1.8E-06	1.7E-06		7.59E-09	4.06E-08	3.85E-08	7.31E-07	0	1.28142E-06	4.06E-08	**2.14E-06**	**9.37E-06**
Benzo(a)pyrene		1.2E-06	1.9E-07		5.06E-09	2.71E-08	2.56E-08	4.87E-07	0	1.43397E-07	2.71E-08	**7.16E-07**	**3.13E-06**
Benzo(b)fluoranthene	1.66E-07	1.8E-06	9.9E-08		7.59E-09	4.06E-08	3.85E-08	7.31E-07	4.34E-06	7.55885E-08	4.06E-08	**5.27E-06**	**2.31E-05**
Benzo(g,h,i)perylene	4.14E-07	1.2E-06	4.9E-07		5.06E-09	2.71E-08	2.56E-08	4.87E-07	1.08E-05	3.72985E-07	2.71E-08	**1.18E-05**	**5.16E-05**
Benzo(k)fluoranthene		1.8E-06	1.6E-07		7.59E-09	4.06E-08	3.85E-08	7.31E-07	0	1.18226E-07	4.06E-08	**9.76E-07**	**4.28E-06**
Biphenyl	2.12E-04				0	0	0	0	5.54E-03	0	0	**5.54E-03**	**2.43E-02**
Chrysene	6.93E-07	1.8E-06	3.5E-07		7.59E-09	4.06E-08	3.85E-08	7.31E-07	1.81E-05	2.69251E-07	4.06E-08	**1.92E-05**	**8.43E-05**
Dibenz(a,h)anthracene		1.2E-06	5.8E-07		5.06E-09	2.71E-08	2.56E-08	4.87E-07	0	4.44683E-07	2.71E-08	**1.02E-06**	**4.45E-06**
Dimethylbenz(a)anthracene, 7,12-		1.6E-05			6.75E-08	3.61E-07	3.42E-07	6.50E-06	0	0	3.61E-07	**7.63E-06**	**3.34E-05**
Fluoranthene	1.11E-06	3.0E-06	7.6E-06		1.26E-08	6.76E-08	6.41E-08	1.22E-06	2.90E-05	5.80453E-06	6.77E-08	**3.63E-05**	**1.59E-04**
Fluorene	5.67E-06	2.8E-06	2.9E-05		1.18E-08	6.31E-08	5.98E-08	1.14E-06	1.48E-04	2.22723E-05	6.32E-08	**1.72E-04**	**7.53E-04**
Indeno(1,2,3-cd)pyrene	3.75E-07	1.8E-06	3.8E-07		7.59E-09	4.06E-08	3.85E-08	7.31E-07	9.81E-06	2.86031E-07	4.06E-08	**1.10E-05**	**4.80E-05**
Methylchloranthrene, 3-		1.8E-06			7.59E-09	4.06E-08	3.85E-08	7.31E-07	0	0	4.06E-08	**8.58E-07**	**3.76E-06**
Methylnapthalene, 2-	3.32E-05	2.4E-05			1.01E-07	5.41E-07	5.13E-07	9.75E-06	8.68E-04	0	5.42E-07	**8.80E-04**	**3.85E-03**
Phenanthrene	1.04E-05	1.7E-05	2.9E-05		7.17E-08	3.83E-07	3.63E-07	6.90E-06	2.72E-04	2.24249E-05	3.84E-07	**3.02E-04**	**1.32E-03**
Pyrene	1.36E-06	5.0E-06	4.8E-06		2.11E-08	1.13E-07	1.07E-07	2.03E-06	3.56E-05	3.64595E-06	1.13E-07	**4.16E-05**	**1.82E-04**
Total HAPs (lb/hr)					**0.008**	**0.04**	**0.04**	**0.74**	**1.89**	**0.00**	**0.04**	**2.76**	
Total HAPs (tons/yr)					**0.03**	**0.19**	**0.17**	**3.23**	**8.26**	**0.01**	**0.19**		**12.08**

Notes:

[1] The emission factors for natural gas-fired reciprocating engines (4-stroke, lean-burn) are from AP-42, 10/96, Table 3.2-2.

[2] The emission factors for natural gas combustion are from AP-42, 7/98, Tables 1.4-2, 1.4-3, and 1.4-4.

[3] Assume 5% of the natural gas combustion emissions exit through the hood exhaust (SV013A) and 95% exit through the windbox stack (SV013B).

[4] Formaldehyde emissions have been calculated as part of the Non-Combustion units.

Appendix A: Emission Calculations
Hazardous Air Pollutants
Natural Gas Combustion

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Pollutant Name	Combustion Emission Factors											**Subtotal (lb/hr)**	**Subtotal (tons/yr)**
				Emission Unit ID:	EU009	EU010	EU013	EU014	EU017a EU017b	EU018	IA		
				Stack/Vent ID:	SV009	SV010	SV013A[3]	SV013B[3]	SV016 and SV019	SV017	NA - Space Heaters & Lab Furnace		
	EF Natural Gas Reciprocating Engine[1] (lb/MMBtu)	EF Natural Gas Combustion[2] (lb/MMcf)	EF Diesel Reciprocating Engine[5] (lb/MMBtu)	Material Type:	Combustion	Combustion	Combustion	Combustion	Engines	Engine	Combustion		
				MMBtu/hr:	4.30	23.00	21.80	414.20	26.15	0.76	23.03		
				MMcf/hr:	0.004	0.02	0.02	0.41	0.18		0.02		

[5] The emission factors for diesel-fired reciprocating engines are from AP-42, 10/96, Table 3.3-2.

Appendix A: Emission Calculations
Greenhouse Gas Emissions
Coke Breeze Scenario

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February Wed, 2014

Unit ID #	Emission Unit Name	Pollutant	Maximum Rate (units/hr)	Maximum Rate (units/yr)	Units	Emission Factor	Emission Factor Units	Ref.	Potential to Emit (short tons/yr)	Global Warming Potential (GWP) [1]	Potential to Emit (short tons CO2-e/yr)
Induration Furnace Emissions											
EU013 / EU014	Furnace Hood Exhaust / Furnace Windbox Exhaust	CO_2	436	3,819,360	MMBtu	53.02	kg/MMBtu	[2]	223,218	1	223,218
EU013 / EU014	Furnace Hood Exhaust / Furnace Windbox Exhaust	CH_4	436	3,819,360	MMBtu	1.0E-03	kg/MMBtu	[2]	4.21	21	88
EU013 / EU014	Furnace Hood Exhaust / Furnace Windbox Exhaust	N_2O	436	3,819,360	MMBtu	1.0E-04	kg/MMBtu	[2]	0.42	310	131
---	Concentrate	CO_2	---	3,122,136	mt concentrate	0.006	mt/mt concentrate	[3]	20,178	1	20,178
---	Limestone	CO_2	---	249,269	mt limestone	0.44	mt/mt limestone	[4]	120,898	1	120,898
---	Dolomite	CO_2	---	138,084	mt dolomite	0.48	mt/mt dolomite	[4]	73,061	1	73,061
---	Coke Breeze	CO_2	---	53,799	mt coke	3.66	mt CO_2 / mt C	[5]	217,311	1	217,311
---	Soda Ash	CO_2	---	13,988	mt soda ash	0.41	mt/mt soda ash	[4]	6,322	1	6,322
Stationary Combustion Emissions											
EU010	Ground Limestone/Dolomite Additive System Air Heater	CO_2	23.0	201,480	MMBtu	53.02	kg/MMBtu	[2]	11,775	1	11,775
EU010	Ground Limestone/Dolomite Additive System Air Heater	CH_4	23.0	201,480	MMBtu	1.0E-03	kg/MMBtu	[2]	2.22E-01	21	4.7
EU010	Ground Limestone/Dolomite Additive System Air Heater	N_2O	23.0	201,480	MMBtu	1.0E-04	kg/MMBtu	[2]	2.22E-02	310	6.9
EU017a & EU017b	Emergency Generators - Natural Gas	CO_2	26.15	13,075	MMBtu	53.02	kg/MMBtu	[2]	764	1	764
EU017a & EU017b	Emergency Generators - Natural Gas	CH_4	26.15	13,075	MMBtu	1.0E-03	kg/MMBtu	[2]	1.44E-02	21	0.3
EU017a & EU017b	Emergency Generators - Natural Gas	N_2O	26.15	13,075	MMBtu	1.0E-04	kg/MMBtu	[2]	1.44E-03	310	0.4
EU018	Fire Water Pump - Diesel	CO_2	0.76	381	MMBtu	73.96	kg/MMBtu	[2]	31	1	31
EU018	Fire Water Pump - Diesel	CH_4	0.76	381	MMBtu	3.0E-03	kg/MMBtu	[2]	1.26E-03	21	0.03
EU018	Fire Water Pump - Diesel	N_2O	0.76	381	MMBtu	6.0E-04	kg/MMBtu	[2]	2.52E-04	310	0.08
EU021	Space Heaters & Lab Furnaces	CO_2	23.0	201,725	MMBtu	53.02	kg/MMBtu	[2]	11,790	1	11,790
EU021	Space Heaters & Lab Furnaces	CH_4	23.0	201,725	MMBtu	1.0E-03	kg/MMBtu	[2]	0.22	21	4.7
EU021	Space Heaters & Lab Furnaces	N_2O	23.0	201,725	MMBtu	1.0E-04	kg/MMBtu	[2]	2.22E-02	310	6.9
EU009	Coke Breeze Additive System Air Heater	CO_2	4.3	37,668	MMBtu	53.02	kg/MMBtu	[2]	2,201	1	2,201
EU009	Coke Breeze Additive System Air Heater	CH_4	4.3	37,668	MMBtu	1.0E-03	kg/MMBtu	[2]	0.04	21	0.9
EU009	Coke Breeze Additive System Air Heater	N_2O	4.3	37,668	MMBtu	1.0E-04	kg/MMBtu	[2]	4.15E-03	310	1.3

TOTAL DIRECT	CO_2	EMISSIONS	687,550		
TOTAL DIRECT	CH_4	EMISSIONS	4.71		
TOTAL DIRECT	N_2O	EMISSIONS	0.47		
TOTAL DIRECT	GHG	EMISSIONS (tons CO_2-equivalents)			687,795

Notes:

a. Emissions are calculated using the MPCA's General Guidance for Carbon Footprint Development in Environmental Review (July 2008) and emission factors from The Climate Registry (TCR) General Reporting Protocol (GRP) version 1.1 (May 2008).
b. The bentonite and organic binder do not contain any carbon fraction.
c. mt (metric tonne) = 1000 kg = 2204.6 lbs = 1.1023 short tons

[1] Global Warming Potential values are from Table A-1 of 40 CFR 98.
[2] Emission factors in Table C-1 and Table C-2 of 40 CFR 98 for natural gas.
[3] When using carbon fractions, the assumption is made that all carbon is oxidized to CO_2.

Carbon fraction:		Source:
Concentrate	0.0016	Midland Research Center analysis obtained from 1998 Minnesota Iron & Steel pilot study.

[4] Limestone, dolomite, and soda ash emission factors are from WRI/WBCSD GHG Protocol Iron & Steel Sector Worksheet, Table 4, January 2008. Worksheet from http://www.ghgprotocol.org.
[5] Assume coke breeze is 100% carbon and that all of it converts to CO_2 in the furnace. Molecular weights: C = 12.01 lb/lb-mol; CO_2 = 44.01 lb/lb-mol to give a molar conversion factor from C to CO_2 = 3.66 g CO_2/g C.

Appendix A: Emission Calculations
Process Inputs

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Throughputs

Material / Process	Annual Capacities			Operating Hours	Calculated Hourly Rate	Max. Rate Increase	Maximum Hourly Rate for Permitting			Maximum Annual Rate for Permitting		
	metric tonnes/yr	short tons/yr	long tons/yr	hours/year	metric tonnes/hr	%	metric tonnes/hr	short tons/hr	long tons/hr	metric tonnes/yr	short tons/yr	long tons/yr
Oxide Pellets / Pelletizer	3,000,000	3,306,900	2,952,589	8060	372	10	409.4	451.3	403.0	3,586,600	3,953,510	3,529,919

Material	% of Material	Basis Material or Product	Production Rates for Permitting				Notes
			metric tonnes/yr	short tons/yr	metric tonnes/hr	short tons/hr	
Concentrate	87.0500%	Oxide Pellets	3,122,136	3,441,530	356.4	392.9	Balance with additives
Concentrate to Stockpile	100%	Concentrate Required	3,122,136	3,441,530	356.4	392.9	Assume all concentrate goes to stockpile.
Limestone	6.95%	Oxide Pellets	249,269	274,769	---	66.7	Annual - Jacobs Process Description & Design Basis June 2012. Hourly - Assume max of 100 tph truck delivery of additives, limestone:dolomite is about 2:1 (per Mike Twite call 6/11/12 @ 15:45)
Bentonite Binder	0.65%	Oxide Pellets	23,313	25,698	---	---	Jacobs Process Description & Design Basis June 2012
Organic Binder (Alcotac)	0.26%	Oxide Pellets	9,325	10,279	---	---	Bentonite can be replaced with a binder and soda ash mixture that is 2 parts organic binder and 3 parts soda ash.
Soda Ash	0.39%	Oxide Pellets	13,988	15,419	---	---	Bentonite can be replaced with a binder and soda ash mixture that is 2 parts organic binder and 3 parts soda ash.
Dolomite Binder	3.85%	Oxide Pellets	138,084	152,210	---	33.3	Annual - Jacobs Process Description & Design Basis June 2012. Hourly - Assume max of 100 tph truck delivery of additives, limestone:dolomite is about 2:1 (per Mike Twite call 6/11/12 @ 15:45)
Coke Breeze	1.50%	Oxide Pellets	53,799	59,303	---	6.8	Jacobs Process Description & Design Basis June 2012
Oxide Product Stockpile	100%	Oxide Pellets	3,586,600	3,953,510	409.4	451.3	Assume all oxide pellets go to stockpile. Maximum hourly rate onto the pile is that of the oxide pellet rate production
Oxide Product Railcar Loading	100%	Oxide Pellets	3,586,600	3,953,510	409.4	451.3	Assume all oxide pellets go to railcar loading. Maximum hourly rate onto the pile is that of the oxide pellet rate production

Natural Gas Usage

EU Description	EU ID	MMscf/hr	MMscf/yr	Nm3/mt	MMBtu/hr	MMBtu/yr	Notes
Furnace Hood Exhaust	EU013	0.43	3744.47	28	436	3,819,360	Total installed burner capacity - Induration Furnace
Furnace Windbox Exhaust	EU014						
Space Heaters & Lab Furnaces	EU021	0.0226	198	---	23.028	201,725	
Ground Limestone/Dolomite Additive System Air Heater	EU010	0.02	198	---	23	201,480	
Coke Breeze Additive System Air Heater	EU009	0.0042	37	---	4.3	37,668	

NOTE: Nm^3 are at 0°C (32°F) and natural gas ft^3 are at 60°F (industry std). Temperature corrected conversion = 37.324 ft^3 per Nm^3

Heating Value (HHV): 1020 MMBtu/MMscf

Natural Gas Usage - Internal Combustion Engines

EU Description	EU ID	kW	hp	MMBtu/hr	hr/yr	MMBtu/yr	Notes
Emergency Generators - Natural Gas (Two generators, 1300 KW each)	EU017a&b	2600	3487	8.865	500	4,432	Jacobs section 2.6.3 & performance info for CAT C-15 genset

Diesel Usage - Internal Combustion Engines

EU Description	EU ID	kW	hp	MMBtu/hr	hr/yr	MMBtu/yr	Notes
Fire Water Pump - Diesel (300 HP)	EU018	224	300	0.763	500	381	Magnetation's Pellet Plant EU-CE Descriptions 6.4.12

Coke Breeze Combustion

EU Description	EU ID	BTU/lb	MMBtu/hr	MMBtu/yr	Notes
Hardening Furnace	EU013 & EU014	12,000	162	1,423,264	Coke breeze heat content from Mike Twite email sent 4/11/12 to LLS

Notes:
1 hp (mechanical) = 2,542.5 Btu/hr (AP-42, Appendix A, page A-13)
Calculated Hourly Rate = Annual Capacity / Plant Operating Hours (8,060 hours/yr)
Maximum Hourly Rate for Permitting = Calculated Hourly Rate * Max. Rate Increase
Maximum Annual Rate for Permitting = Maximum Hourly Rate for Permitting * 8,760 hours/yr

Appendix A: Emission Calculations
BACT Limits
Emission Units with Control Devices

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

BACT Limits & Stack Parameters

Stack ID	Emission Unit ID	Description		Control Equip ID	Designer	PERMITTED Magnetation Stack Flow* (acfm)	DESIGNED Stack Flow* (acfm)	PERMITTED Magnetation Stack Flow* (dcfm)	DESIGNED Stack Flow (dscfm)	PERMITTED Magnetation Stack Temp (ºF)	DESIGNED Stack Temp (ºF)	PERMITTED Magnetation Stack Moisture (%)	DESIGNED Stack Moisture (%)	PERMITTED Magnetation Stack Pressure (psi)	DESIGNED Stack Pressure (psi)	PM Assumed Grain Loading (gr/dscf)	$PM_{10}/PM_{2.5}$ Assumed Grain Loading (gr/dscf)	Velocity (ft/min)	Stack Height (ft)	Diameter (ft)	Area (ft2)	Orientation	Direction
SV001	EU001	Iron Concentrate Unloading & Storage Area	EU001a	CE001	NORAMCO	60,000	70,000	55,140	68,190	77	70	2.0%	1.0%	14.02	14.52	0.0020	0.0020	2,948	82	5.5	23.75	vertical	up
SV004	EU004	Coke Breeze Unloading & Storage Area	EU004b	CE004	Metso/Jacobs	2,720	13,000	2,500	12,733	77	77	2.0%	2.0%	14.02	14.52	0.0020	0.0020	2,650	165	2.5	4.91	vertical	up
N/A	EU005	Bentonite Unloading & Storage Area	EU005	CE005	Metso/Jacobs	2,720	3,000	2,500	2,893	77	70	2.0%	2.0%	14.02	14.7	0.0020	0.0020						
N/A	EU006	Organic Binder (w/Soda Ash) Unloading & Storage Area	EU006	CE006	Metso/Jacobs	2,720	2,720	2,500	2,500	77	77	2.0%	2.0%	14.02	14.7	0.0020	0.0020						
SV009	EU009	Coke Breeze Additive System	EU009	CE009	Metso/Jacobs	5,985	11,000	5,500	8,094	77	180	2.0%	9.7%	14.02	14.52	0.0020	0.0020	2,242	150	2.5	4.91	horizontal	west
N/A	EU025	Limestone and Dolomite Grinding Mill Bin Area	EU025b	CE023	Metso/Jacobs	14,000	16,000	12,866	15,228	77	77	2.0%	2.0%	14.02	14.52	0.0020	0.0020						
SV010	EU010	Ground Limestone and Dolomite Additive System	EU010	CE010	Metso/Jacobs	24,000	24,000	18,506	16,174	180	180	2.0%	17.3%	14.02	14.52	0.0020	0.0020	2,496	150	3.5	9.62	horizontal	west
N/A	EU011	Mixing Area Material Handling System	EU011	CE011a	Metso/Jacobs	21,763	47,000	20,000	44,732	77	77	2.0%	2.0%	14.02	14.02	0.0020	0.0020						
				CE011b												0.0020	0.0020						
SV012	EU012	Hearth Layer Bin System	EU012	CE012	Metso/Jacobs	10,000	7,000	8,813	6,389	100	100	2.0%	2.0%	14.02	14.52	0.0020	0.0020	2,229	75	2	3.14	horizontal	south
SV013	EU013	Furnace Hood Exhaust	EU013	CE013	Metso/Jacobs	434,116	1,120,650	295,062	320,931	246	144.1	4.7%	10.8%	14.02	14.01	0.0040	0.0080	2,699	246	23	415.27	vertical	up
	EU014	Furnace Windbox Exhaust	EU014	CE016	Metso/Jacobs	487,070		353,620	513,605	156		11.2%		14.02		0.0040	0.0080						
SV014	EU015	Machine Discharge System	EU015	CE017a	Metso/Jacobs	54,000	67,000	42,639	59,039	165	120	2.0%	2.0%	14.02	14.52	0.0020	0.0020	2,821	82	5.5	23.75	vertical	up
				CE017b																			
SV020	EU016	Hearth Layer Separation System	EU016	CE018	Metso/Jacobs	50,000	31,000	45,950	28,292	77	100	2.0%	2.0%	14.02	14.02	0.0020	0.0020	2,468	25	4	12.56	vertical	up
SV018a	EU019a	Oxide Pellet Storage & Unloading System	EU019a	CE019a	NORAMCO	40,000	9,400	36,760	7,400	77	100	2.0%	20.0%	14.02	14.52	0.0020	0.0020	2,206	30	2.33	4.26	vertical	up
SV018b	EU019b	Oxide Pellet Storage & Unloading System	EU019b	CE019b	NORAMCO		60,000		58,449		100		1.0%		14.52	0.0020	0.0020	2,527	82	5.5	23.75	vertical	up
N/A	EU020	WBE Lime Storage Area	EU020		Metso/Jacobs	1,088	1,088	1,000	99,987	77	77	2.0%	2.0%	14.02	1402	0.0020	0.0020						
N/A	EU022	WBE Residual Product Loading Area	EU022		Metso/Jacobs	1,088	1,088	1,000	1,000	77	77	2.0%	2.0%	14.02	14.02	0.0020	0.0020						
N/A	EU026	Recycled Dust Storage Area	EU026		Metso/Jacobs	10,000	3,000	9,190	2,757	77	77	2.0%	2.0%	14.02	14.02	0.0020	0.0020						
SV027	EU027	Dust Recycle Surge Hopper	EU027	CE027	Metso/Jacobs		3,000	0	2,855	77	77	2.0%	2.0%	14.02	14.52	0.0020	0.0020	2,160	50	1.33	1.39	vertical	up
	EU002a	Limestone truck unloader	EU002a	uncontrolled																			
	EU003a	Dolomite truck unloader	EU003a	uncontrolled																			
	EU004a	Coke breeze truck unloader	EU004a	uncontrolled																			
	EU025a	Limestone/dolomite grizzly feeder/screen	EU025a	uncontrolled																			
SV022	EU024	Furnace cooling tower	EU024	uncontrolled			236,400			100	100							1,867	12	12.7	126.61	vertical	up
SV028	EU028	Vac pump seal water cooling tower	EU028	uncontrolled			236,400				100							1,867	12	12.7	126.61	vertical	up
SV016a	EU017a	Two Emergency Power Generators - Natural Gas	EU017a	uncontrolled			11,923				974				14.52			11,159	15	1.17	1.07	vertical	up
SV016b	EU017b	Two Emergency Power Generators - Natural Gas	EU017b	uncontrolled			11,923				974				14.52			11,159	15	1.17	1.07	vertical	up
SV017	EU018	Fire Water emergency Pump - Diesel	EU018	uncontrolled			2,539		1,102		716	2.0%	2.0%		14.5			3,159	20.51	0.66	0.34	vertical	up

* Calculated stack flows assume a standard temperture and pressure (STP) of 68°F and 14.7 psi.

Baghouse Control Efficiency & Hours of Operation

99	% is the assumed control efficiency for all material handling baghouses. This value is used to calculate uncontrolled emissions from BACT stacks.
8760	Hours per year assumed for calculating annual emissions from hourly emissions

Pelletizing Furnace

NO_x rates assume 7.5% and 92.5% of total emissions for the SV013A and SV013B respectively.

Windbox Exhaust

Pollutant	BACT Limit	Units
SO_2	5	ppm
F	10.00	mg/Nm^3

Cooling Tower - furnace discharge system

2,300	Circulation Flow Rate (gal/min)
0.001%	Total Drift (% of the Circulating Flow)
6,009	Total Dissolved Solids (ppm)
8.346	Density of Water (lb/gal)
0.069	lb/hr
0.30	tons/yr

Cooling Tower- wet grinding and filter cake production

2,300	Circulation Flow Rate (gal/min)
0.001%	Total Drift (% of the Circulating Flow)
6,009	Total Dissolved Solids (ppm)
8.346	Density of Water (lb/gal)
0.069	lb/hr
0.30	tons/yr

Appendix A: Emission Calculations
Emission Factors

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Stack ID	EU ID	Emission Unit Description	Pollutant	Emission Factor	EF Units	Emission Factor References / Assumptions / Equations
fugitives - building	EU001b	Iron Concentrate Transfer & Storage Area (pile) (2 drop points per ton material)	PM	0.01	lb/st iron	AP-42 5th Ed, Section 11.24 Table 2 - Metallic Minerals Procesing; High Moisture Ore - Material Handling and Transfer - All Minerals Except Bauxite (SCC 3-03-024-04)
			PM_{10}	0.004	lb/st iron	AP-42 5th Ed, Section 11.24 Table 2 - Metallic Minerals Procesing; High Moisture Ore - Material Handling and Transfer - All Minerals Except Bauxite (SCC 3-03-024-04)
			$PM_{2.5}$	0.0004	lb/st iron	$PM_{2.5}$ = 10% PM_{10}
fugitives - atmosphere	EU002a	Limestone Unloading (truck) (1 drop point per ton material)	PM	1.6E-05	lb/st limestone	PM = PM_{10}
			PM_{10}	1.6E-05	lb/st limestone	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Truck Unloading - Fragmented Stone (SCC 3-05-020-31)
			$PM_{2.5}$	1.6E-06	lb/st limestone	$PM_{2.5}$ = 10% PM_{10}
fugitives - building	EU002b	Limestone Reclaim	PM	0.0030	lb/st limestone	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			PM_{10}	0.00110	lb/st limestone	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			$PM_{2.5}$	0.00011	lb/st limestone	$PM_{2.5}$ = 10% PM_{10}
fugitives - atmosphere	EU003a	Dolomite Unloading (1 drop point per ton material)	PM	1.6E-05	lb/st dolomite	PM = PM_{10}
			PM_{10}	1.6E-05	lb/st dolomite	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Truck Unloading - Fragmented Stone (SCC 3-05-020-31)
			$PM_{2.5}$	1.6E-06	lb/st dolomite	$PM_{2.5}$ = 10% PM_{10}
fugitives - building	EU003b	Dolomite Reclaim	PM	0.0030	lb/st dolomite	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			PM_{10}	0.00110	lb/st dolomite	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			$PM_{2.5}$	0.00011	lb/st dolomite	$PM_{2.5}$ = 10% PM_{10}
fugitives - atmosphere	EU004a	Coke Breeze Unloading (truck) (1 drop point per ton material)	PM	0.00011	lb/st coke breeze	AP-42 5th Ed, Section 12.5 Table 12.5-4 - Pile formation: Coal
			PM_{10}	0.000052	lb/st coke breeze	AP-42 5th Ed, Section 12.5 Table 12.5-4 - Pile formation: Coal
			$PM_{2.5}$	0.000015	lb/st coke breeze	AP-42 5th Ed, Section 12.5 Table 12.5-4 - Pile formation: Coal
fugitives - atmosphere	EU025a	Limestone/Dolomite reclaim loader hopper, grizzly feeder	PM	0.0030	lb/st aggregate	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			PM_{10}	0.00110	lb/st aggregate	AP-42 5th Ed, Section 11.19.2 Table 2 - Crushed Stone Procesing (including limestone and dolomite); Conveyor Transfer Point - uncontrolled (SCC 3-05-020-06)
			$PM_{2.5}$	0.00011	lb/st aggregate	$PM_{2.5}$ = 10% PM_{10}
SV013A	EU013	Furnace Hood Exhaust	SO_2	0.015	lb/st pellets	Assumes greenball sulfur concentration of 0.014% and pellet sulfur concentration of 0.009%, so that 0.005% by weight of sulfur is released from the pellets in the furnace. Also assumes that the sulfur leaves the furnace as SO_2. Assume 7.5% exits the Hood Exhaust (based on the NO_x emissions ratio of the Hood Exhaust and the Windbox Exhaust). SO_2 = 0.005% * 2000 lb/st * 1.998 [convert S to SO_2] * 7.5% (exiting through the Hood Exhaust)
			SO_2	2.218	lb/st coke breeze	Assume that all sulfur is released from the coke breeze in the furnace and that the sulfur leaves the furnace as SO_2. Sulfur data from testing results listed in Mike Twite's email sent 3/20/12 - 0.74 wt% is maximum. Assume 7.5% exits the Hood Exhaust (based on the NO_x emissions ratio of the Hood Exhaust and the Windbox Exhaust). SO_2 = 0.74% * 2000 lb/st * 1.998 [convert S to SO_2] * 7.5% (exiting through the Hood Exhaust)
			NO_x	0.019	lb/MMBtu	Based on burner design. Assume 7.5% exits the Hood Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and the Windbox Exhaust). NO_x = 0.25 lb/MMBtu * 7.5% (exiting through the Hood Exhaust)
			CO	0.0018	lb/st pellets	Based on Hibbtac results. Assume 7.5% exits the Hood Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and the Windbox Exhaust). CO = 10 lb/hr ÷ 410 short ton of oxide pellets produced/hr * 7.5% (exiting through the Hood Exhaust)
			VOC	0.0009	lb/st pellets	Based on Hibbtac results (reported as propane). Assume 7.5% exits the Hood Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and the Windbox Exhaust). VOC = 4.8 lb/hr ÷ 410 short ton of oxide pellets produced/hr * 7.5% (exiting through the Hood Exhaust)
			Pb	0.00039	lb/st pellets	Based on Hibbtac results. Assume 95% wet scrubber control efficiency to back calculate uncontrolled from Hibbtac test results. Assume the total Pb emissions divided equally between the Hood Exhaust and Waste Gas stack, similar to PM and assumes that lead is mainly particulate-based. Pb = 0.016 lb/hr ÷ 410 short ton of oxide pellets produced/hr ÷ (1 - 95% control efficiency) * 50% (evenly divided between stacks)
			H_2SO_4	0.00012	lb/st pellets	Based on 'Estimating Sulfuric Acid Aerosol Emissions from Coal-Fired Power Plants' US-DOE, March 1998. SO_3/SO_2 ratio ranges from 0.0011 to 0.0067, max used. H_2SO_4 = lb SO_2/short ton pellets * 0.0067 * 1.23 [H_2SO_4/SO_3]

Appendix A: Emission Calculations
Emission Factors

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

			Fluorides	0.0044	lb/st pellets	Emission factor based on chemical analysis of fluoride in green balls and fired pellets. Information provided by MPCA (Hongming) and analysed by Barr (BSB). UCL of 43.8 ppm used. Assume 5% exits the hood exhaust and 95% exits the waste gas stack (based on reference to MPCA comment). F = 43.8 lb F/1,000,000 lb pellets * 2,000 lb/st * 5% (exiting the Hood Exhaust)
SV013B	EU014	Furnace Windbox Exhaust	SO_2	0.185	lb/st pellets	Assumes greenball sulfur concentration of 0.014% and pellet sulfur concentration of 0.009%; therefore, 0.005% by weight of sulfur is released from the pellets in the furnace. Assume that the sulfur leaves the furnace as SO_2. Assume 92.5% exits the Windbox Exhaust (based on the NO_x emissions ratio of the Hood Exhaust and the Windbox Exhaust). SO_2 = 0.005% * 2000 lb/st * 1.998 [convert S to SO_2] * 92.5% (exiting through the Windbox Exhaust)
			SO_2	27.353	lb/st coke breeze	Assume that all sulfur is released from the coke breeze in the furnace and that the sulfur leaves the furnace as SO_2. Sulfur data from testing results listed in Mike Twite's email sent 3/20/12 - 0.74 wt% is maximum. Assume 92.5% exits the Windbox Exhaust (based on the NO_x emissions ratio of the Hood Exhaust and the Windbox Exhaust). SO_2 = 0.74% * 2000 lb/st * 1.998 [convert S to SO_2] * 92.5% (exiting through the Windbox Exhaust)
			SO_2	19.61	lb/hr	Assume controlled concentration of 5 ppm for BACT. Air parameters: molar weight as 68°F and 29.92 in Hg = 24.04 L/g-mol, air flow = 353,620 dcfm, stack moisture = 11.2%. Controlled SO_2 = 5 ft^3 SO_2/1,000,000 ft^3 air * 0.028 m^3/ft^3 * 1000 L/m^3 ÷ 24.04 L/g-mol * 2.2 x 10^{-3} lb-mol/g-mol * 64.064 lb SO_2/lb-mol SO_2 * 353,620 dcfm ÷ (1 - 0.112) * 60 min/hr
			NO_x	0.231	lb/MMBtu	Based on burner design. Assume 92.5% exits the Windbox Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and Windbox Exhaust). NO_x = 0.25 lb/MMBtu * 92.5% (exiting through the Windbox Exhaust)
			CO	0.0226	lb/st pellets	Based on Hibbtac results. Assume 92.5% exits the Windbox Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and Windbox Exhaust). CO = 10 lb/hr ÷ 410 short ton of oxide pellets produced/hr * 92.5% (exiting through the Windbox Exhaust)
			VOC	0.0108	lb/st pellets	Based on Hibbtac results (reported as propane). Assume 92.5% exits the Windbox Exhaust (based on the vendor provided NO_x ratio between the Hood Exhaust and Windbox Exhaust). VOC = 4.8 lb/hr ÷ 410 short ton of oxide pellets produced/hr * 92.5% (exiting through the Windbox Exhaust)
			Pb	0.00039	lb/st pellets	Based on Hibbtac results. Assume 95% wet scrubber control efficiency to back calculate uncontrolled from Hibbtac test results. Assume the total Pb emissions divided equally between the Hood Exhaust and Waste Gas stack, similar to PM and assumes that lead is mainly particulate-based. Pb = 0.016 lb/hr ÷ 410 short ton of oxide pellets produced/hr ÷ (1 - 95% control efficiency) * 50% (evenly divided between stacks)
			H_2SO_4	0.0015	lb/st pellets	Based on 'Estimating Sulfuric Acid Aerosol Emissions from Coal-Fired Power Plants' US-DOE, March 1998. SO_3/SO_2 ratio ranges from 0.0011 to 0.0067, max used. H_2SO_4 = lb SO_2/short ton pellets X 0.0067 X 1.23 [H_2SO_4/SO_3]
			Fluorides	0.0832	lb/st pellets	Emission factor based on chemical analysis of fluoride in green balls and fired pellets. Information provided by MPCA (Hongming) and analysed by Barr (BSB). UCL of 43.8 ppm used. Assume 5% exits the hood exhaust and 95% exits the waste gas stack (based on reference to MPCA comment). F = 43.8 lb F/1,000,000 lb pellets * 2,000 lb/st * 95% (exiting the Waste Gas stack)
SV016	EU017	Emergency Generators - Natural Gas (Two generators, 1300 KW each)	PM	9.91E-03	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			PM_{10}	7.71E-05	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			$PM_{2.5}$	7.71E-05	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			SO_2	5.88E-04	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			NO_x	4.08E+00	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			CO	3.17E-01	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			VOC	1.18E-01	lb/MMBtu	4-stroke lean-burn engine combustion emission factors from AP-42 Table 3.2-2.
			Fluorides	6.95E-06	lb/MMBtu	Sum of fluoride containing pollutants from AP-42 Table 3.2-2.
SV017	EU018	Fire Water Pump - Diesel (300 HP)	PM	3.10E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			PM_{10}	3.10E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			$PM_{2.5}$	3.10E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			SO_2	2.90E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			NO_x	4.41E+00	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			CO	9.50E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			VOC	3.60E-01	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-1
			Formaldehyde	1.18E-03	lb/MMBtu	Diesel engine combustion emission factors from AP-42 Table 3.3-2
			PM	1.9	lb/MMscf	Emission factors from AP-42 Tables 1.4-1 and 1.4-2
			PM_{10}	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10}
			$PM_{2.5}$	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10}

Appendix A: Emission Calculations
Emission Factors

Company Name: **Magnetation LLC**
Address City IN Zip: **64 East 100 North, Reynolds, IN 47980**
Significant Source Modification: **181-33965-00054**
Significant Permit Modification: **181-34210-00054**
Reviewer: **Julie Alexander**
Date: **February 12, 2014**

NA	IA	Space Heaters & Lab Furnaces	CO	84	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			SO_2	0.6	lb/MMscf	Table 1.4-2
			VOC	5.5	lb/MMscf	Table 1.4-2
			NO_x	50	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			Fluorides	9.40E-06	lb/MMscf	Sum of fluoride containing pollutants from AP-42 Table 1.4-3.

Appendix A: Emission Calculations
Emission Factors

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

SV010	EU010	Ground Limestone/Dolomite Additive System Air Heater	PM	1.9	lb/MMscf	Emission factors from AP-42 Tables 1.4-1 and 1.4-2
			PM_{10}	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10} = PM
			$PM_{2.5}$	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10} = PM
			CO	84	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			SO_2	0.6	lb/MMscf	Table 1.4-2
			VOC	5.5	lb/MMscf	Table 1.4-2
			NO_x	50	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			Fluorides	9.40E-06	lb/MMscf	Sum of fluoride containing pollutants from AP-42 Table 1.4-3.
SV009	EU009	Coke Breeze Additive System Air Heater	PM	1.9	lb/MMscf	Emission factors from AP-42 Tables 1.4-1 and 1.4-2
			PM_{10}	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10} = PM
			$PM_{2.5}$	7.6	lb/MMscf	Per AP-42, assume $PM_{2.5}$ = PM_{10} = PM
			CO	84	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			SO_2	0.6	lb/MMscf	Table 1.4-2
			VOC	5.5	lb/MMscf	Table 1.4-2
			NO_x	50	lb/MMscf	Table 1.4-1 (Small Boiler, Controlled - Low NOx Burners)
			Fluorides	9.40E-06	lb/MMscf	Sum of fluoride containing pollutants from AP-42 Table 1.4-3.
NA	IA	Iron Ore Wet Grinding and Filter Cake Production	PM	0.025	lb/st pellets	AP-42 5th Ed, Section 11.3 Table 11.3-1 - Brick Manufacturing Operations; Grinding and screening operations - processing wet material (SCC 3-05-003-02)
			PM_{10}	0.0023	lb/st pellets	AP-42 5th Ed, Section 11.3 Table 11.3-1 - Brick Manufacturing Operations; Grinding and screening operations - processing wet material (SCC 3-05-003-02)
			$PM_{2.5}$	0.0023	lb/st pellets	$PM_{2.5}$ = PM_{10}
NA	IA	Greenball Production System	PM	0.025	lb/st pellets	AP-42 5th Ed, Section 11.3 Table 11.3-1 - Brick Manufacturing Operations; Grinding and screening operations - processing wet material (SCC 3-05-003-02)
			PM_{10}	0.0023	lb/st pellets	AP-42 5th Ed, Section 11.3 Table 11.3-1 - Brick Manufacturing Operations; Grinding and screening operations - processing wet material (SCC 3-05-003-02)
			$PM_{2.5}$	0.0023	lb/st pellets	$PM_{2.5}$ = PM_{10}

Appendix A: Emission Calculations
Raw Material
Composition Data

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Pollutant Name	Iron Ore Concentrate	Limestone (CaCO3)	Dolomite Binder	Coke Breeze	Bentonite Binder	Organic Binder (Alcotac)	Soda Ash (Na_2CO_3)	Greenball	Pellet	Lime (CaO)	Residual Product[1]	Recycled Dust[2]	Filter Cake[3]
	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)	(wt. %)
Antimony Compounds[4]	5.00E-04	1.25E-05						5.00E-04					5.00E-04
Arsenic Compounds	7.00E-04	2.00E-04		5.00E-03			1.00E-05	4.31E-04	6.00E-05			6.00E-05	4.31E-04
Beryllium Compounds	2.80E-05	3.00E-05						2.20E-04	5.40E-05			5.40E-05	2.20E-04
Cadmium Compounds	1.20E-04	7.00E-06		2.90E-04				1.00E-04	5.00E-05			5.00E-05	1.00E-04
Chlorine[5]	1.00E-03			1.10E-01		9.72E+00	1.30E-01	8.00E-03	4.00E-03			4.00E-03	8.00E-03
Chromium Compounds[6]	1.50E-03	1.75E-04		3.40E-02				2.50E-03	2.70E-03			2.70E-03	2.50E-03
Cobalt Compounds	2.80E-04	8.50E-05	-		-			3.50E-04	5.00E-05			5.00E-05	3.50E-04
Flourides[4]	5.00E-03							5.00E-03	5.00E-03			5.00E-03	5.00E-03
Lead	3.30E-03	2.35E-04		1.30E-02			1.00E-04	1.00E-03	2.00E-04			2.00E-04	1.00E-03
Manganese Compounds	7.60E-02	2.63E-02		4.18E-01				5.40E-02	6.40E-02	2.00E-02	2.00E-02	6.40E-02	5.40E-02
Mercury Compounds[7,8]	5.30E-07	6.95E-08		2.08E-07				5.30E-07	7.00E-09			7.00E-09	5.30E-07
Nickel Compounds	1.80E-03	2.70E-04		1.66E-02				5.00E-04	1.00E-04			1.00E-04	5.00E-04
Selenium Compounds	1.70E-03	3.00E-05		1.97E-04				7.50E-04	2.50E-04			2.50E-04	7.50E-04

Notes:

[1] Assume that the composition of the residual product is equal to the composition of the lime because the raw material was not analyzed.
[2] Assume that the composition of the recycled dust is equal to the composition of the pellet because the raw material was not analyzed.
[3] Assume that the composition of the filter cake is equal to the composition of the greenball because the raw material was not analyzed.
[4] Assume that the concentration of the iron ore concentrate and greenball is equal to the concentration of the pellet.
[5] Assume that the chlorine concentration of the organic binder is equal to the sodium chloride concentration less the sodium concentration.
[6] Assume that the chromium compound concentration of the coke breeze is equal to the total chromium concentration.
[7] Assume that the concentration of the iron ore concentrate is equal to the concentration of the greenball.
[8] The mercury concentration of the limestone is calculated as follows: (0.91+0.48)/2 ppb
This is from Northshore Mining limestone (Engesser and Niles 1997), found in "Mercury Mining in Minnesota" 10/15/05 report.

References:

AK Steel Coke Breeze materials spreadsheet from Mike Twite (emailed 4/2/12). If <DL, used DL.
Composition data from 2005 Minnesota Steel pilot plant study
H. Jiang's (10/13/2000) Hg Paper. Speciation (Material Composition) Information, Page 2 of 4; File: Tac_haps
Coke Breeze data from Randal Telesz
Coke Breeze data from AK Steel testing of coke breeze samples collected 3/26/12; mercury is max from Magnetation testing sampled on 3/28/12.

Appendix A: Emissions Calculations
Paved Road Fugitive Emission Calculations

Company Name: Magnetation LLC
Address City IN Zip: 64 East 100 North, Reynolds, IN 47980
Significant Source Modification: 181-33965-00054
Significant Permit Modification: 181-34210-00054
Reviewer: Julie Alexander
Date: February 12, 2014

Type of Truck	Status	Vehicle Weight (tons) [1]	Number of Trips per Day [2]	VMT per Trip (miles) [3]		Weighted Vehicle Weight (tons) [4]	VMT per Day (miles) [5]		PM Emission Factor (lb/VMT) [7]	PM Emission Rate (lb/day) [8]	PM Emission Rate (tons/yr) [9]		PM_{10} Emission Factor (lb/VMT) [7]	PM_{10} Emission Rate (lb/day) [8]	PM_{10} Emission Rate (tons/yr) [9]		$PM_{2.5}$ Emission Factor (lb/VMT) [7]	$PM_{2.5}$ Emission Rate (lb/day) [8]	$PM_{2.5}$ Emission Rate (tons/yr) [9]
Limestone (Route 1)	Full	40.00	38.00	0.073		1,520.00	2.785		3.4244	9.54	1.74		0.6849	1.91	0.35		0.1681	0.47	0.09
	Empty	19.00	38.00	0.138		722.00	5.225		1.6026	8.37	1.53		0.3205	1.67	0.31		0.0787	0.41	0.08
Dolomite (Route 2)	Full	40.00	21.00	0.207		840.00	4.355		3.4244	14.91	2.72		0.6849	2.98	0.54		0.1681	0.73	0.13
	Empty	19.00	21.00	0.194		399.00	4.073		1.6026	6.53	1.19		0.3205	1.31	0.24		0.0787	0.32	0.06
Coke Breeze (Route 3)	Full	40.00	8.00	0.196		320.00	1.567		3.4244	5.36	0.98		0.6849	1.07	0.20		0.1681	0.26	0.05
	Empty	19.00	8.00	0.141		152.00	1.124		1.6026	1.80	0.33		0.3205	0.36	0.07		0.0787	0.09	0.02
GSA Lime and Waste Haul (Routes 4 & 5)	Full	40.00	2.00	0.293		80.00	0.585		3.4244	2.00	0.37		0.6849	0.40	0.07		0.1681	0.10	0.02
	Empty	19.00	2.00	0.293		38.00	0.585		1.6026	0.94	0.17		0.3205	0.19	0.03		0.0787	0.05	0.01
Warehouse (Route 6)	Full	20.00	0.14	0.164		2.86	0.023		1.6886	0.04	0.01		0.3377	0.01	0.00		0.0829	0.00	0.00
	Empty	15.00	0.14	0.164		2.14	0.023		1.2592	0.03	0.01		0.2518	0.01	0.00		0.0618	0.00	0.00
Employee (Route 7)	Entering	2.00	100.00	0.133		200.00	13.258		0.1613	2.14	0.39		0.0323	0.43	0.08		0.0079	0.10	0.02
	Leaving	2.00	100.00	0.133		200.00	13.258		0.1613	2.14	0.39		0.0323	0.43	0.08		0.0079	0.10	0.02
Bentonite (Route 8)	Full	40.00	4.00	0.161		160.00	0.644		3.4244	2.21	0.40		0.6849	0.44	0.08		0.1681	0.11	0.02
	Empty	19.00	4.00	0.161		76.00	0.644		1.6026	1.03	0.19		0.3205	0.21	0.04		0.0787	0.05	0.01
									TOTAL	**57.04**	**10.41**			**11.41**	**2.08**			**2.80**	**0.51**

Notes:
[1] Provided by the source
[2] Provided by the source
[3] Provided by the source
[4] Weighted Vehicle Weight (tons) = Vehicle Weight (tons) x Number of Trips per Day
[5] VMT per Day (miles) = VMT per Trip (miles) x Number of Trips per Day
[6] Average Vehicle Weight (tons) = Σ [Weighted Vehicle Weight (tons)] ÷ Σ (Number of Trips per Day)
[7] Emission factor equation taken from AP-42, Section 13.2.1.3, eq. 2 (published 1/11):

$$E = (k) \times (sL^{0.91}) \times (W^{1.02}) \times (1 - P \div (4 \times N))$$

where:
E = Emission Rate (lb/VMT)
k = 0.011 lb/VMT for PM, 0.0022 lb/VMT for PM_{10}, 0.00054 lb/VMT for $PM_{2.5}$ (Table 13.2-1.1 Particle Size Multipliers for Paved Road Equation)
sL = Silt Loading = 9.7 g/m^2 (AP-42, Section 13.2.1, Table 13.2.1-3 (Iron and Steel Production))
W = Average Vehicle Weight (tons)
P = Number of "Wet" Days with at least 0.254 mm (0.01 in) of Precipitation during the Averaging Period = 125 (AP-42, Section 13.2.1, Figure 13.2.1-2)
N = Number of Days in the Averaging Period = 365
[8] Emission Rate (lb/day) = Emission Factor (lb/VMT) x Σ [VMT per Day (miles)]
[9] Emission Rate (tons/yr) = Emission Rate (lb/day) x 365 days/yr ÷ 2000 lb/ton

Indiana Department of Environmental Management
Office of Air Quality

Appendix B
Best Available Control Technology (BACT) Analysis Determination

Source Background and Description

Source Name:	Mag Pellet LLC
Source Location:	64 East 100 North, Reynolds, Indiana 47980
County:	White
SIC Code:	1011
Operation Permit No.:	T181-32081-00054
PSD/SSM No.:	181-33965-00054
SPM No.:	181-34210-00054
Permit Reviewer:	Julie Alexander

Proposed Project

On April 16, 2013, Mag Pellet LLC was issued a New Source Title V (Major PSD) permit to construct and operate an iron ore concentrate pelletizing plant to be located at 64 East 100 North, Reynolds, Indiana. On December 9, 2013, Mag Pellet LLC submitted an application to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) for a Prevention of Significant Deterioration (PSD) and Significant Source Modification, and a Significant Permit Modification to modify the permit for the iron ore concentrate pelletizing plant to be located at 64 East 100 North, Reynolds, Indiana. This plant will consist of the following emission units and specifically regulated insignificant activities (language that has been removed from the initial New Source Construction and Title V operating permit are shown as strikeout, and new language is shown in bold text):

Note: All references to "ton" used throughout this document are short tons (i.e. One short ton equals 2,000 pounds).

(a) One (1) iron ore concentrate unloading and storage area, identified as EU001, approved in 2013 for construction, with a maximum capacity of 4,950 tons per hour, consisting of the following:

(1) One ~~(1) thaw shed, one~~ (1) rotary rail car dumper, one (1) pedestal mount **jack hammer/**breaker, **one (1) stationary grizzly** ~~two (2) grizzlies~~, two (2) apron feeders, one (1) dribble conveyor, **one (1) product conveyor, and** one (1) breaker, identified as EU001a, **located in the car dumper building,** using baghouse CE001 as control, exhausting to stack SV001.

(2) One (1) covered conveyor transferring to concentrate storage building which contains **one (1) shuttle conveyor** ~~four (4) covered conveyors~~, **a storage pile, two (2)** ~~four (4)~~ load**er** hoppers, and **two (2) covered conveyors,** ~~a storage pile~~ identified as EU001b, exhausting inside the building.

(b) One (1) limestone unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU002a, exhausting uncontrolled to atmosphere.

(2) ***

(c) One (1) dolomite unloading and storage area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen**, identified as EU003a, exhausting uncontrolled to atmosphere.

(2) ***

(d) One (1) coke breeze unloading and storage area, approved in 2013 for construction, with a maximum capacity of 7 tons per hour, consisting of the following:

(1) One (1) truck unloading **hopper**, **equipped with one (1) screen,** identified as EU004a, exhausting uncontrolled to atmosphere.

(2) One (1) **covered conveyor, one (1) covered belt feeder, one (1) additive conveyor,** ~~pneumatic conveyance system~~ and one (1) coke breeze grinding mill bin, identified as EU004b, with a maximum capacity of 1,100 tons, using baghouse CE004 as control, exhausting to stack SV004.

(e) One (1) bentonite unloading and storage area, identified as EU005, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) bentonite storage bin with a maximum capacity of 440 tons~~, with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE005 as control, exhausting inside the building.

(f) One (1) organic binder **with soda ash** unloading and storage area, identified as EU006, approved in 2013 for construction, consisting of **one (1) pneumatic truck unloader and conveyance system, with a maximum capacity of 18.0 tons per hour, and** one (1) organic binder **with soda ash storage** ~~feed~~ bin with a maximum capacity of 55 tons, ~~with a maximum capacity of 3.0 tons per hour,~~ using bin vent CE006 as control, exhausting inside the building.

~~(g) One (1) soda ash unloading and storage area, identified as EU007, approved in 2013 for construction, consisting of one (1) soda ash feed bin with a maximum capacity of 55 tons, with a maximum capacity of 3.0 tons per hour, using bin vent CE007 as control, exhausting inside the building.~~

~~(h) One (1) bentonite additive system, identified as EU008, approved in 2013 for construction, consisting of one (1) bentonite feed bin with a maximum capacity of 220 ton, with a maximum capacity of 3.0 tons per hour, using bin vent CE008 as control, exhausting inside the building.~~

(**g**~~i~~) One (1) coke breeze additive system, identified as EU009, approved in 2013 for construction, with a maximum capacity of 16.5 tons per hour, using baghouse CE009 as control, exhausting to stack SV009, consisting of one (1) coke breeze conveyor, one (1) roller **grinding** mill for coke breeze **with emergency explosion vent** ~~grinding~~ with a nominal capacity of 11 tons per hour, one (1) product separation cyclone, and one (1) coke breeze bin with a maximum capacity of 220 tons **with emergency explosion vent**.

(**h**~~j~~) One (1) limestone and dolomite grinding mill bin area, approved in 2013 for construction, with a maximum capacity of 495 tons per hour, consisting of the following:

(1) One (1) load hopper, ~~one (1) enclosed vibrating grizzly feeder/screener~~ **one (1) hopper discharge** feeder, and one (1) covered belt feeder, identified as

EU025a, exhausting **into the limestone and dolomite storage building** ~~uncontrolled to the atmosphere~~.

(2) One (1) additive conveyor, one (1) dolomite grinding mill bin with a maximum capacity of 440 tons, and one (1) limestone grinding mill bin with a maximum capacity of 440 tons, identified as EU025b, using baghouse CE023 as control, exhausting inside the **additive grinding** building.

Under 40 CFR 60, Subpart OOO, these units of the limestone and dolomite grinding mill bin area are considered affected facilities.

(**i**~~k~~) One (1) ground limestone and dolomite additive system, identified as EU010, ~~approved in 2013 for construction~~, with a maximum capacity of 132 tons per hour, using baghouse CE010 as control, exhausting to stack SV010, consisting of the following:

(1) One (1) limestone feed conveyor, one (1) dolomite feed conveyor, one (1) roller mill feed conveyor, one (1) roller **grinding** mill for limestone and dolomite **with a nominal capacity of 71 tons per hour**, one (1) product separation cyclone, **one (1) limestone and dolomite ground additive surge hopper, one (1) limestone and dolomite ground additive pneumatic transfer system,** and one (1) limestone and dolomite bin**, approved in 2013 for construction,** with a maximum capacity of 1,100 tons. Under 40 CFR 60, Subpart OOO, these units of the ground limestone and dolomite additive system are considered affected facilities.

(2) One (1) natural gas fired air heater**, approved in 2014,** with a maximum heat input capacity of **23** ~~19~~ MMBtu per hour.

(**j**~~l~~) One (1) mixing area material handling system, identified as EU011, approved in 201**4**~~3~~ for construction, with a maximum capacity of 780 tons per hour, using baghouse CE011 as control, exhausting inside the building, consisting of two (2) filter cake feed conveyors**, two (2) organic binder with soda ash loss-in-weight feeders, two (2) bentonite feed conveyors, two (2) ground coke breeze feed conveyors, two (2) ground limestone and dolomite feed conveyors, two (2) dust recycle loss-in-weight feeders,** two (2) mixer feed conveyors, and two (2) mixers.

(**k**~~m~~) ***

(**l**~~n~~) One (1) induration machine, approved in 2013 for construction, consisting of one (1) natural gas fired pellet hardening furnace, with a maximum heat input capacity of 436 MMBtu per hour and a maximum throughput rate of 450 tons per hour of iron oxide pellets, equipped with the following:

(1) One (1) furnace hood exhaust, identified as EU013, using hood exhaust baghouse CE013 as control, exhausting to stack SV013A.

(2) One (1) furnace windbox exhaust (WBE), identified as EU014, using one (1) gas suspension absorber (GSA) (CE015) and one (1) WBE baghouse (CE016) as control, exhausting to stack SV013B.

(3) One (1) ~~furnace~~ **machine** discharge system, identified as EU015, using baghouse CE017 as control, exhausting to stack SV014, consisting of one (1) dribble conveyor, one (1) discharge hopper, ~~and~~ two (2) discharge vibrating feeders each with a maximum throughput of 1,155 tons per hour**, and one (1) emergency discharge chute**.

(4) One (1) induced draft cross flow wet cooling tower, identified as EU024, **approved in 2014 for construction,** with a capacity of **2,300** ~~4,600~~ gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to stack SV022.

(**m**~~o~~) One (1) hearth layer separation system, identified as EU016, approved in 2013 for construction, using baghouse CE018 as control, exhausting **to stack SV020** ~~inside the building~~, consisting of the following:

(1) ***

(2) ***

(3) One (1) hearth layer separation bin, one (1) hearth layer separation grizzly, **one (1) reclaim conveyor,** ~~and~~ two (2) reclaim hoppers**, and one (1) emergency discharge chute**.

(**n**~~p~~) One (1) oxide pellet storage and loadout system, ~~identified as EU019, approved in 2013 for construction~~, with a maximum capacity of 550 tons per hour, **consisting of the following:**

(1) **One (1) oxide pellet storage system, identified as EU019a, approved in 2013 for construction,** using baghouse CE019**a** as control, exhausting to stack SV018**a**, consisting of two (2) conveyors **and** two (2) 8800-ton storage bins

(2) **One (1) oxide pellet loadout system, identified as EU019b, approved in 2014 for construction, using baghouse CE019b as control, exhausting to stack SV018b, consisting of**~~, and~~ two (2) 99-ton **weigh** ~~storage~~ bins.

(**o**~~q~~) One (1) WBE lime **unloading and** storage area, identified as EU020, approved in 2013 for construction, **consisting of one (1) pneumatic truck unloader and conveyance system,** with a maximum capacity of 7.0 tons per hour, ~~consisting of one (1) lime feed conveyor~~ and one (1) 80 cubic meter lime storage silo, using bin vent CE020 as control, exhausting inside the building.

(**p**~~r~~) One (1) WBE residual product **storage and loadout** ~~loading~~ area, identified as EU022, approved in 2013 for construction, with a maximum capacity of 7.0 tons per hour, consisting of one (1) GSA reactor conveyor, one (1) GSA product conveyor, one (1) WBE conveyor, and one (1) 100 cubic meter storage silo, using bin vent CE021 as control, exhausting inside the building.

(**q**~~s~~) One (1) recycled dust storage area, identified as EU026, approved in 2013 for construction, consisting of **one (1) pneumatic conveyance system with a maximum capacity of 25.0 tons per hour and** one (1) 55-ton storage bin, with a maximum capacity of 7.0 tons per hour, using ~~dust recycle~~ baghouse CE024 as control, exhausting inside the building.

(r) **One (1) dust recycle surge hopper and blow tank area, identified as EU027, approved in 2014 for construction, consisting of five (5) pneumatic conveyance systems, one (1) 28 ton dust recycle surge hopper and one (1) blow tank, with a maximum capacity of 28.0 tons per hour, using baghouse CE027 as control, exhausting to stack SV027.**

Specifically Regulated Insignificant Activities

(a) Natural gas-fired combustion sources **(EU021)** with heat input equal to or less than ten million (10,000,000) Btu per hour, including the following: **[326 IAC 2-2]**

~~(1) Seven (7) natural gas fired space heaters, identified as EU021, approved in 2013 for construction, each with a maximum heat input capacity of 1.0 MMBtu per hour. [326 IAC 2-2]~~

(**1**~~2~~) One (1) coke breeze additive system (EU009) natural gas fired air heater, approved in 201**4**~~3~~ for construction, with a maximum heat input capacity of ~~1.7~~ **4.3** MMBtu per hour. ~~[326 IAC 2-2]~~

(2) Sixty (60) thaw shed natural gas fired infrared heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.175 MMBTU per hour.

(3) One (1) rotary rail car dumper below grade natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(4) Two (2) rotary rail car dumper above grade natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(5) One (1) HV system drive house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 2.5 MMBtu per hour.

(6) Two (2) HV system ball mill building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.25 MMBtu per hour.

(7) One (1) filter building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(8) One (1) concentrate grinding building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(9) One (1) Metso thickener overflow pump building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.5 MMBtu per hour.

(10) One (1) indurating discharge end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(11) One (1) indurating feed end natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(12) One (1) pump house natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(13) One (1) water treatment building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 1.0 MMBtu per hour.

(14) Nine (9) warehouse building natural gas fired air heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.125 MMBtu per hour.

(15) One (1) locker room natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(16) One (1) office building natural gas fired air heater, approved in 2014 for construction, with a maximum heat input capacity of 0.05 MMBtu per hour.

(17) Four (4) locker room natural gas fired water heaters, approved in 2014 for construction, each with a maximum heat input capacity of 0.2 MMBtu per hour.

(18) Three (3) laboratory natural gas fired furnaces, approved in 2014 for construction, each with a maximum heat input capacity of 0.001 MMBtu per hour.

(b) ***

(c) ***

(d) Emergency generators, including the following:

(1) One (1) emergency natural gas generator, identified as EU017**a**, approved in **2014**~~3~~ for construction, with a maximum capacity not to exceed **1300 KW** ~~620 hp~~, exhausting to stack SV016A. [326 IAC 2-2] [40 CFR 60, Subpart JJJJ] [40 CFR 63, Subpart ZZZZ]

(2) One (1) emergency natural gas generator, identified as EU017b, approved in 2014 for construction, with a maximum capacity not to exceed 1300 KW, exhausting to stack SV016B. [326 IAC 2-2][40 CFR 60, Subpart JJJJ][40 CFR 63, Subpart ZZZZ]

(e) Stationary fire pump engines, including the following:

(1) One (1) backup jockey fire water pump, identified as EU018, approved in 201**4**~~3~~ for construction, consisting of one (1) 300 hp **diesel** ~~natural gas~~ engine, exhausting to stack SV017. [326 IAC 2-2] [40 CFR 60, Subpart **IIII**~~JJJJ~~] [40 CFR 63, Subpart ZZZZ]

(f) Other emission units, not regulated by a NESHAP, with PM_{10}, NO_x, and SO_2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) iron ore concentrate wet grinding and filter cake production system, approved in 2013 for construction, with a maximum capacity of 700 tons per hour, consisting of **one (1) repulper sump, one (1) thickener feed box, one (1) feed thickener, two (2) slurry tanks, one (1) ball mill cyclone feed sump, two (2) cyclones, one (1) ball mill, one (1) ball mill cyclone overflow sump, one (1) concentrate thickener, one (1) slurry diverter, two (2) slurry storage tanks, one (1) pressure slurry distributer, six (6) disc filters,** three (3) **covered** conveyors, and a filter cake feed bin, exhausting ~~uncontrolled into~~ **inside** a building. [326 IAC 2-2] [326 IAC 6-3-2]

(2) ***

(3) One (1) induced draft cross flow wet cooling tower, identified as EU028, approved for construction in 2014, with a capacity of 2,300 gallons of circulating water per minute and a maximum drift rate of 0.001%, exhausting to SV028. [326 IAC 2-2]

Requirement for Best Available Control Technology (BACT)

326 IAC 2-2 requires a best available control technology (BACT) review to be performed for the construction of any new major stationary source or the major modification of any existing major stationary source in an area designated as attainment or unclassifiable in 326 IAC 1-4. White County has been designated attainment or unclassifiable for all criteria pollutants. Therefore, if the net emissions increase of any of the pollutants listed in 326 IAC 2-2-1(ww)(1) exceeds the corresponding significant levels, PSD BACT analysis shall be performed.

Each pollutant shall be evaluated separately. A discussion of the emissions units for which PSD BACT analysis has been conducted will be included under each pollutant evaluation.

This modification is subject to BACT analysis for PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, and GHGs because the proposed project has:

(1) Particulate matter (PM) potential to emit greater than 25 tons per year;

(2) Particulate matter with an aerodynamic diameter less than or equal to ten (10) micrometers (PM_{10}) potential to emit greater than 15 tons per year;

(3) Particulate matter with an aerodynamic diameter less than or equal to two-and-a-half (2.5) micrometers ($PM_{2.5}$) potential to emit greater than 10 tons per year;

(4) Sulfur dioxide potential to emit greater than 40 tons per year;

(5) Nitrogen oxides potential to emit greater than 40 tons per year;

(6) Fluorides potential to emit greater than 3 tons per year; and

(7) Greenhouse gases potential to emit greater than 100,000 tons per year CO_2e.

Mag Pellet request approval for **design changes** to the following emission units previously permitted through this permit application:

Emission Unit		Associated Emission Point (Control Device)	BACT Proposed for Following Pollutants:
Iron Concentrate Unloading	EU001a	SV001 (CE001)	PM, PM_{10}, $PM_{2.5}$, F
Iron Concentrate Transfer & Storage Area	EU001b	**fugitive	PM, PM_{10}, $PM_{2.5}$, F

Emission Unit		Associated Emission Point (Control Device)	BACT Proposed for Following Pollutants:
Limestone Unloading & Storage Area	EU002a	**fugitive	$PM_{2.5}$
Limestone Unloading & Storage Area	EU002b	**fugitive	PM, PM_{10}, $PM_{2.5}$, F
Dolomite Unloading & Storage Area	EU003a	**fugitive	$PM_{2.5}$
Dolomite Unloading & Storage Area	EU003b	**fugitive	PM, PM_{10}, $PM_{2.5}$, F
Coke Breeze Conveyance & Storage Bin	EU004b	SV004 (CE004)	PM, PM_{10}, $PM_{2.5}$
Bentonite Unloading (Truck) & Storage Area	EU005	** (CE005)	PM, PM_{10}, $PM_{2.5}$
Coke Breeze Additive System	EU009	SV009 (CE009)	PM, PM_{10}, $PM_{2.5}$
Coke Breeze Additive System Air Heater	EU009	SV009 (CE009)	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, GHGs
Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener	EU025a	**fugitive	PM, PM_{10}, $PM_{2.5}$
Limestone/Dolomite Grinding Mill Bin Area	EU025b	** (CE023)	PM, PM_{10}, $PM_{2.5}$
Ground Limestone/Dolomite Additive System Air Heater	EU010	SV010 (CE010)	PM, PM_{10}, $PM_{2.5}$, (included with Additive System material handling) SO_2, NO_x, F, GHGs
Mixing Area Material Handling System	EU011	** (CE011)	PM, PM_{10}, $PM_{2.5}$, F
Hearth Layer Bin System	EU012	SV012 (CE012)	PM, PM_{10}, $PM_{2.5}$, F
Furnace Hood Exhaust	EU013	SV013A (CE013)	PM, PM_{10}, $PM_{2.5}$, SO_2
Furnace Windbox Exhaust (WBE)	EU014	SV013B (CE015, CE016)	PM, PM_{10}, $PM_{2.5}$, SO_2
Machine Discharge System	EU015	SV014 (CE017)	PM, PM_{10}, $PM_{2.5}$, F
Hearth Layer Separation System	EU016	SV020 (CE018)	PM, PM_{10}, $PM_{2.5}$, F
Oxide Pellet Storage System	EU019a	SV018a (CE019a)	PM, PM_{10}, $PM_{2.5}$, F
Oxide Pellet Loadout System	EU019b	SV018b (CE019b)	PM, PM_{10}, $PM_{2.5}$, F
Wet Cooling Tower for Induration Machine	EU024	SV024	PM, PM_{10}, $PM_{2.5}$

** This process vents inside a building.

Note: Design changes include physical changes to the equipment grouping exhausting to a stack, changes in the air flow of a stack, and changes to methodology utilized to calculate the PTE.

The following emission units are new units being **added** through this permit application:

Emission Unit		Associated Emission Point (Control Device)	BACT Proposed for Following Pollutants:
Dust Recycle Surge Hopper & Blow Tank Area	EU027	SV027 (CE027)	PM, PM_{10}, $PM_{2.5}$, F
Natural Gas Fired Space Heaters, Water Heater & Furnaces, as follows: Sixty (60) Thaw Shed Infrared Heaters (0.175 MMBut/hr, each) One (1) Rotary Rail Car Dumper (0.5 MMBtu/hr) Two (2) Rotary Rail Car Dumpers (0.25 MMBtu/hr, each) One (1) HV System Drive House Air Heater (2.5 MMBtu/hr) Two (2) HV System Ball Mill Building Air Heaters (0.25 MMBtu/hr, each) One (1) Filter Building Air Heater (1.0 MMBtu/hr) One (1) Concentrate Grinding Building Air Heater (1.0 MMBtu/hr) One (1) Metso Thickner Overflow Pump (0.5 MMBtu/hr) One (1) Indurating Discharge End Air Heater (1.0 MMBtu/hr) One (1) Indurating Feed End Air Heater (1.0 MMBtu/hr) One (1) Pump House End Air Heater (1.0 MMBtu/hr) One (1) Water Treatment House Air Heater (1.0 MMBtu/hr) Nine (9) Warehouse Treatment Building Air Heaters (0.125 MMBtu/hr, each) One (1) Locker Room End Air Heater (0.5 MMBtu/hr) Four (4)Office Building Water Heaters (0.2 MMBtu/hr, each) Three (3) Laboratory Furnaces (0.001 MMBtu/hr, each)	EU021	various	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, GHGs
Emergency Generator	EU17a	SV016a	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, GHGs
Emergency Generator	EU017b	SV016b	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, GHGs
Diesel Fire Water Pump	EU018	SV017	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_x, F, GHGs
Wet Cooling Tower	EU028	SV028	PM, PM_{10}, $PM_{2.5}$

Summary of the Best Available Control Technology (BACT) Process

Pursuant to 326 IAC 2-2-1(i), Best Available Control Technology (BACT) is defined as "an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant that would be emitted from any proposed major stationary source or major modification, that the commissioner, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for the source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the pollutant. In no event shall application of best available control technology result in emissions of any pollutant that would exceed the emissions allowed by any applicable standard under 40 CFR Part 60 and 40 CFR Part 61. If the commissioner determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard not feasible, a design, equipment, work practice, operational standard, or combination thereof may be prescribed instead to satisfy the requirements for the application of best available control technology. The standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of the design, equipment, work practice, or operation and shall provide for compliance by means that achieve equivalent results."

Federal guidance on BACT requires an evaluation that follows a “top down” process, consisting of five (5) steps. The Office of Air Quality (OAQ) makes BACT determinations by following the five (5) steps as outlined below.

Step 1: Identify Potential Control Technologies

The first step is to identify potentially “available” control options for each emission unit and for each pollutant under review. Available options should consist of a comprehensive list of those technologies with a potentially practical application to the emissions unit and the regulated pollutant under evaluation. The list should include lowest achievable emission rate (LAER) technologies, innovative technologies, and controls applied to similar source categories. There is no requirement in the State or Federal regulations to require innovative control to be used as BACT.

Step 2: Eliminate Technically Infeasible Options

The second step is to eliminate technically infeasible options from further consideration. To be considered feasible, a technology must be both available and applicable. It is important in this step that any presentation of a technical argument for eliminating a technology from further consideration be clearly documented based on physical, chemical, engineering, and source-specific factors related to safe and successful use of the controls. Innovative control means a control that has not been demonstrated in a commercial application on similar units. Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. Based on this, the OAQ will not evaluate or require any innovative controls for this BACT analysis. Only available and proven control technologies are evaluated. A control technology is considered available when there are sufficient data indicating that the technology results in a reduction in emissions of regulated pollutants.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for each pollutant of concern. The ranked alternatives are reviewed in terms of control effectiveness, expected emission rate, expected emission reduction, and environmental, energy, and economic impacts specific to the proposed modification. If the analysis determines that the evaluated alternative is not appropriate as BACT due to any of the impacts, then the next most effective is evaluated. This process is repeated until a control alternative is chosen as BACT. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation, except for the environmental analyses.

Step 4: Evaluate the Most Effective Controls and Document the Results

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts.

Step 5: Select BACT

The fifth and final step is to select as BACT the most effective of the remaining technologies under consideration for each pollutant of concern. For the technologies determined to be feasible, there may be several different limits that have been set as BACT for the same control technology. The permitting agency has to choose the most stringent limit as BACT unless the applicant demonstrates in a convincing manner why that limit is not feasible. The final BACT determination would be the technology with the most stringent corresponding limit that is economically feasible. BACT must, at a minimum, be no less stringent than the level of control required by any applicable New Source Performance Standard (NSPS) and National Emissions Standard for Hazardous Air Pollutants (NESHAP) or state regulatory standards applicable to the emission units included in the permits.

This BACT determination is based on the following information:

(1) The EPA RACT/BACT/LAER (RBLC) Clearinghouse;

(2) EPA and State air quality permits;

(3) Communications with control device equipment manufacturers;

(4) The EPA New Source Review website;

(5) Technical books and articles; and

(6) Guidance documents from and communications with state agencies.

Particulate Matter (PM) BACT

The PM BACT analysis is divided into five categories: material handling operations, induration furnace, combustion units, cooling towers, and fugitive emissions.

Step 1 of the BACT process is shown below for this PM BACT analysis describes particulate control devices that are applicable for controlling particulate across a wide range of processes. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific PM control devices may be discussed in individual BACT analyses.

Step 1: Identify Potential Control Technologies (PM)

Particulate matter (PM) is a complex mixture of small particles and liquid droplets. PM can be made up of a variety of components, including acids, organic chemicals, metals, and soil or dust particles. PM includes any size of filterable particulate. Filterable particulate is the particulate that is emitted directly as a solid or liquid at the stack.

Emissions of particulate matter (PM) are generally controlled with add-on control equipment designed to capture the emissions prior to the time they are exhausted to the atmosphere. In cases where the material being emitted is organic, particulate matter may be controlled through a combustion process. Generally, PM emissions are controlled through one of the following mechanisms:

(1) Mechanical collectors (such as cyclones or multiclones).

(2) Wet scrubbers.

(3) Electrostatic precipitators (ESP).

(4) Fabric filter dust collectors (baghouses).

PM emissions from a combustion process are typically controlled through one of the following mechanisms:

(1) Clean fuels.

(2) Good combustion practices.

(3) Usage limitation.

(4) Catalyzed diesel particulate filter (CDPF).

PM emissions from cooling towers are typically controlled through one of the following mechanisms:

(1) Drift eliminators.

(2) Minimizing total dissolved solids (TDS).

The choice of which technology is most appropriate for a specific application depends upon several factors, including particle size to be collected, particle loading, stack gas flow rate, stack gas physical characteristics (e.g., temperature, moisture content, presence of reactive materials), and desired collection efficiency.

Mechanical Collectors (such as Cyclones or Multiclones)

Mechanical collectors use the inertia of the particles for collection. The particulate-laden gas stream enters the control device and is forced to move in a cyclonic manner, which causes the particles to move toward the outside of the vortex. Most of the large-diameter particles enter a hopper below the cyclonic tubes while the gas stream turns and exits the device.

Cyclones are typically used to remove relatively large particles from gas streams. Conventional single cyclones are estimated to control PM at 70-90%, PM_{10} at 30-90%, and $PM_{2.5}$ at 0-40%. High efficiency single cyclones are designed to achieve higher control of smaller particles and multiclones may also achieve higher control of smaller particles. Collection efficiency generally increases with particle size and/or density, inlet duct velocity, cyclone body length, number of gas revolutions in the cyclone, ratio of cyclone body diameter to gas exit diameter, dust loading, and smoothness of the cyclone inner wall. Cyclone efficiency will decrease with increases in gas viscosity, body diameter, gas exit diameter, gas inlet duct area, and gas density.

Cyclones are often used for recovery and recycling of material or as precleaners for more expensive final control devices such as fabric filters or electrostatic precipitators. Cyclones are used for applications such as after spray drying operations in the food and chemical industries; after crushing/grinding/calcining operations in the mineral and chemical industries to collect salable or useful material; for first stage control of PM from sinter plants, roasters, kilns, and furnaces in the metallurgical industries; for catalyst recycling in the fluid-cracking process; and for precleaning fossil-fuel and wood-waste fired industrial and commercial fuel combustion units.

The typical gas flow rates for a single cyclone are 1,060 to 25,400 scfm. Flows that are higher use multiple cyclones in parallel. Inlet gas temperatures are only limited by the material of construction of the cyclone. Cyclones perform more efficiently with higher pollutant loadings, with loadings typically ranging from 1.0 to 100 gr/scf. Cyclones are unable to handle sticky or tacky materials.

Wet Scrubbers

A wet scrubber is an air pollution control device that removes PM from waste gas streams primarily through the impaction, diffusion, interception and/or absorption of the pollutant onto droplets of liquid. The liquid containing the pollutant is then collected for disposal. There are numerous types of wet scrubbers that remove PM, including venturi, impingement and sieve plate, spray towers, mechanically aided, condensation growth, packed beds, ejector, mobile bed, caternary grid, froth tower, oriented fiber pad, and wetted mist eliminators. Collection efficiencies for wet scrubbers vary with the particle size distribution of the waste gas stream. In general, collection efficiency decreases as the PM size decreases. Collection efficiencies also vary with scrubber type. Collection efficiencies range from greater than 99% for venturi scrubbers to 40-60% (or lower) for simple spray towers. Wet scrubbers are smaller and more compact than baghouses or ESPs. They have lower capital costs and comparable operation and maintenance (O&M) costs. Wet scrubbers are particularly useful in the removal of PM with the following characteristics:

(1) Sticky and/or hygroscopic materials (materials that readily absorb water);

(2) Combustible, corrosive and explosive materials;

(3) Particles which are difficult to remove in their dry form;

(4) PM in the presence of soluble gases; and

(5) PM in waste gas streams with high moisture content.

Some applications of wet scrubbers include the following:

- Condensation scrubbers: for controlling fine PM-containing waste-gas streams.

- Fiber-bed scrubbers (wetted-fiber scrubbers or mist eliminators): for controlling aerosol emissions from chemical, plastics, asphalt, sulfuric acid, and surface coating industries; for controlling lubricant mist emission from rotating machinery and storage tanks; and for eliminating visible plume downstream of other control devices.

- Impingement-plate/tray-tower scrubbers: for the food and agriculture industry and at gray and iron foundries. These types of scrubbers may be used to control other pollutants such as SO_2, VOC, and HAPs in other settings.

- Mechanically-aided scrubbers: for food processing paper, pharmaceuticals, chemicals, plastics, tobacco, fiberglass, ceramics, and fertilizer. Processes controlled include dryers, cookers, crushing and grinding operations, spraying, ventilation, and material handling.

- Orifice scrubbers: for food processing and packaging; pharmaceutical processing and packaging; manufacture of chemicals, rubber and plastics, ceramics, and fertilizer. Processes controlled include dryers, cookers, crushing and grinding operations, spraying, ventilation, and material handling.

- Packed-bed/packed-tower wet scrubbers: for the chemical, aluminum, coke and ferroalloy, food and agriculture, and chromium electroplating industries.

- Spray-chamber/spray-tower wet scrubbers: often used as part of a flue gas desulfurization systems, where they are used to control emissions from coal and oil combustion from electric utilities and industrial sources.

- Venturi scrubbers: for controlling PM emissions from utility, industrial, commercial, and institutional boilers fired with coal, oil, wood, and liquid waste; for sources in the chemical, mineral products, wood, pulp and paper, rock products, and asphalt manufacturing industries; for lead, aluminum, iron and steel, and gray iron production industries; for municipal solid waste incinerators. They are typically used where it is necessary to obtain high collection efficiencies for fine PM.

The primary disadvantage of wet scrubbers is that increased collection efficiency comes at the cost of increased pressure drop across the control system. Another disadvantage is that they generate waste in the form of a sludge which requires treatment and/or disposal. Lastly, downstream plume visibility problems can result unless the added moisture is removed from the gas stream.

Electrostatic Precipitators

An electrostatic precipitator (ESP) is a particle control device that uses electrical forces to move the particles out of the flowing gas stream and onto collector plates. The particles are given an electrical charge by forcing them to pass through a corona, a region in which gaseous ions flow. The electrical field that forces the charged particles to the walls comes from electrodes maintained at high voltage in the center of the flow lane.

Once the particles are collected on the plates, they must be removed from the plates without re-entraining them into the gas stream. This is usually accomplished by knocking them loose from the plates, allowing the collected layer of particles to slide down into a hopper from which they are evacuated. Some precipitators remove the particles by intermittent or continuous washing with water.

Dry-type ESPs are primarily used in the electric utility industry and may also be used by the textile industry, pulp and paper facilities, the metallurgical industry, cement and mineral industry, sulfuric acid manufacturing plants, as well as for coke ovens and hazardous waste incinerators. Dust characteristics are a limiting factor for dry-type ESPs. Sticky, moist, high resistivity, flammable, or explosive dusts and particles are not well-suited for dry-type ESPs. Wet ESPs are used in situations for which dry ESPs are not suited, such as when the material to be collected is wet, sticky, flammable, explosive, or has a high resistivity. Wet ESPs are commonly used by the textile industry, pulp and paper facilities, the metallurgical industry, and sulfuric acid manufacturing plants. The limiting factor for wet ESPs is temperature; typically wet ESPs cannot handle operating temperatures exceeding 170°F.

ESP control efficiencies are very high and can range from 95% to 99.9% due to the strong electrical forces applied to small particles and can handle high temperatures (dry ESPs), pressures, and gas flow rates. The composition of the particulate matter is very important because it influences the conductivity within the dust layers on the collection plate. Wet ESPs are effective at collecting sticky particles and mist, help to cool and condition gas streams, and may provide for control of other aerosolized pollutants in the gas stream. ESPs in general are not suited for use in processes which are highly variable because they are very sensitive to fluctuations in gas stream conditions (flow rates, temperatures, particulate and gas composition, and particulate loadings). They have high capital costs and require large installation space. Dry ESPs are not recommended for removing sticky or moist particles. Wet ESPs can have potential problems with corrosion and they generate wastewater slurry that must be handled.

Fabric Filtration

A fabric filter unit consists of one or more isolated compartments containing rows of fabric bags in the form of round, flat, or shaped tubes, or pleated cartridges. Particle laden gas passes up (usually) along the surface of the bags then radially through the fabric. Particles are retained on the upstream face of the bags, and the cleaned gas stream is vented to the atmosphere. The filter is operated cyclically, alternating between relatively long periods of filtering and short periods of cleaning. During cleaning, dust that has accumulated on the bags is removed from the fabric surface and deposited in a hopper for subsequent disposal.

Fabric filters collect particles with sizes ranging from submicron to several hundred microns in diameter at efficiencies generally in excess of 99 or 99.9%. The layer of dust, or dust cake, collected on the fabric is primarily responsible for such high efficiency. The cake is a barrier with tortuous pores that trap particles as they travel through the cake. Gas temperatures up to about 500°F, with surges to about 550°F, can be accommodated routinely in some configurations. Most of the energy used to operate the system appears as pressure drop across the bags and associated hardware and ducting.

Fabric filters are used where high efficiency particle collection is required and can be used in most any process where dust is generated and can be collected and ducted to a central location. Limitations are imposed by gas characteristics (temperature and corrosivity) and particle characteristics (primarily stickiness) that affect the fabric or its operation and that cannot be economically accommodated. Important process variables include particle characteristics, gas characteristics, and fabric properties. The most important design parameter is the air- or gas-to-cloth ratio (the amount of gas in ft^3/min that penetrates one ft^2 of fabric) and the usual operating parameter of interest is pressure drop across the filter system. Fabric filters are usually made of woven or (more commonly) needle-punched felts sewn to the desired shape, mounted in a plenum with special hardware, and used across a wide range of dust concentrations.

Fabric filters provide high collection efficiency for both coarse and fine particles and are relatively insensitive to fluctuations in gas stream conditions. Operation is simple and fabric filters are useful for collecting particles with resistivities either too low or too high for collection with ESPs. Fabric filters have limited application for high temperatures and corrosive or moist exhaust.

Catalyzed Diesel Particulate Filter (CDPF)

The particulate matter emissions in exhaust gas is trapped by a ceramic filter and oxidized using a metallic catalyst or a base. The operating temperature ranges between 480 - 570°F. The exhaust gas temperature must be high enough over an extended period of time to allow for filter regeneration.

Fugitive Dust Control Plan

Fugitive dust emissions are particulate emissions which occur from the mechanical disturbance of granular material exposed to the air. These emissions are termed “fugitive” because they are not discharged to the atmosphere in a confined air stream.

A Fugitive Dust Control Plan typically contains a variety of methods for the minimization of these particulates including paving of roads, vacuum sweeping, water spreading, chemical treatment, and vehicle speed reduction. Each Fugitive Dust Control Plan is site-specific; each source must determine the appropriate combination of controls depending the source location and layout.

(a) Material Handling Operations (PM)

The emissions from the material handling operations are in the form of particulate matter (PM, PM_{10}, and $PM_{2.5}$). Particulate matter emissions are primarily due to the attrition of particles (dust) from the feedstocks, iron oxide pellets, and by-products. This is caused by the abrasion of materials rubbing against each other and the process equipment as they move through the process.

Existing and Proposed PM BACT Determinations for Material Handling Operations

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for material handling operations at iron ore pelletizing plants. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

PM BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Material Handling Operations: EU001a, EU004b, EU005, EU009, EU025b, EU011, EU012, EU015,EU016, EU019a, EU019b, EU027	PM: Baghouse/Bin Vent, 0.002 gr/dscf, lb/hr limits, 2,190 hr/yr (EU001a only)	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU001b	PM: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU002b	PM: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU003b	PM: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Transfer): EU025a	PM: Fugitive Dust Control Plan Enclosed conveyor and grizzly, 5% opacity (6-min avg), lb/hr and tpy limits	NI	BACT-PSD
Existing PM BACT Determinations - Material Handling Operations					
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Oxide Pellet Stockpile Conveyor Gallery	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.77 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Bin	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 1.40 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Feed	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.12 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Discharge	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 3.30 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Screening and Handling	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 2.90 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD

PM BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Carbon Bin for Mercury Control	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Lime Bin for Scrubber	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Primary Grinding Mill Line 3	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.23 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Grizzly Transfer Tower	PM: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.079 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Dozer Activity at Tailings Basin	PM: Fugitive Dust Control Plan, 5% opacity (6-min avg)	NI	BACT-PSD
		Grading at Tailings Basin	PM: Fugitive Dust Control Plan, 5% opacity (6-min avg)	NI	BACT-PSD
		120K Ton Concentrate Stockpile Loadout	PM: Fugitive Dust Control Plan, 5% opacity (6-min avg)	NI	BACT-PSD
		Oxide Product Loadout to Railcars	PM: Fugitive Dust Control Plan, 5% opacity (6-min avg)	NI	BACT-PSD
		These BACT requirements include daily check for visible emissions during daylight hours while fugitive emission operations are occurring.			
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Bentonite Bin	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.021 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	94%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Intermediate Dry Fuel Silo	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.11 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Prepared Dry Fuel Silo	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.07 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Final Transfer Conveyors and Loadout Conveyor	PM: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Reclaim Conveyor	PM: Baghouse with Leak Detection, 0.002 gr/dscf and 0.31 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Emergency Pellet Conveyor Transfer	PM: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD

PM BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Coal Bin 2	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.14 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Limestone Bin	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Mill Feeder 1	PM: Baghouse with Leak Detection, 0.002 gr/dscf and 0.51 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Lime Bin	PM: Baghouse/Bin Vent, 0.002 gr/dscf and 0.02 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
Nucor Steel Louisiana: Convent, LA	LA-0239/PSD-LA-740 (5/24/2010)	PIL-102 Iron Ore Pellet Storage Piles (5,512 tons/hr)	Filterable PM: Wet Suppression, 5.61 lb/hr, 13.88 tons/yr	90%	BACT-PSD
Nucor Steel Louisiana: Convent, LA	LA-0239/PSD-LA-740 (5/24/2010)	PIL-103 Flux Storage Piles (1,323 tons/hr)	Filterable PM: Wet Suppression, 1.98 lb/hr, 2.18 tons/yr	90%	BACT-PSD
		From Process Notes: Flux material includes Limestone and Dolomite			
Nucor Steel Louisiana: Convent, LA	LA-0239/PSD-LA-740 (5/24/2010)	PIL-104 Pig Iron Storage Piles (1,102 tons/hr)	Filterable PM: Wet Suppression, 0.27 lb/hr, 0.78 tons/yr	NI	BACT-PSD
Nucor Steel Louisiana: Convent, LA	LA-0239/PSD-LA-740 (5/24/2010)	PIL-107 Coke Breeze Storage Piles (661 tons/hr)	Filterable PM: Wet Suppression, 0.51 lb/hr, 1.27 tons/yr	NI	BACT-PSD
V & M Star: Youngstown, OH	OH-0316/ P0103660 (9/23/2008)	Alloy, Additives, & Flux Handling (134 tons/hr)	PM: Silo Bin Vent Filters, 6% opacity (6-min avg)	NI	BACT-PSD
New Steel International: Haverhill, OH	OH-0315/07-00587 (5/6/2008)	Direct Reduced Iron (DRI) Material Handling	PM: Enclosures/Baghouse, 0.47 lb/hr, 2.06 tons/yr, 0% opacity	NI	BACT-PSD
New Steel International: Haverhill, OH	OH-0315/07-00587 (5/6/2008)	Coal and Iron Ore Unloading	PM: Enclosures/Baghouse, 0.93 lb/hr, 4.07 tons/yr, 0.0022 gr/dscf, 0% opacity	NI	BACT-PSD
	Permit # 07-00587 (5/6/2008)	Coal and Iron Ore Unloading	PM: Fugitive Dust Control Plan, 6.15 tons/yr	NI	BACT-PSD
	A review of the permit shows that the process consists of a crane partially controlled by a three-sided enclosure transferring material to a hopper which is vented to the baghouse. The remaining emissions from the process are listed as fugitive emissions.				
New Steel International: Haverhill, OH	OH-0315/07-00587 (5/6/2008)	Alloy, Flux, Carbon, Limestone, & Coke Handling	PM: Enclosures/Baghouse, 1.4 lb/hr, 6.13 tons/yr, 0.0022 gr/dscf, 0% opacity	NI	BACT-PSD
New Steel International: Haverhill, OH	OH-0315/07-00587 (5/6/2008)	Iron Ore Grinding (992tons/yr)	PM: Baghouse with Cyclones, 1.04 lb/hr, 4.56 tons/yr, 0.0022 gr/dscf, 0% opacity	NI	BACT-PSD

PM BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
	Permit # 07-00587 (5/6/2008)	Iron Ore Handling Line (992 tons/yr)	PM: Fugitive Dust Control Plan, 1.03 tons/yr	NI	BACT-PSD
	A review of the permit shows that only Grinder 4A is controlled by the cyclones and baghouse. The remaining handling units (Grizzly Feeder 5A, Conveyor 6A, and Hopper 4A) are listed as fugitive emissions.				
New Steel International: Haverhill, OH	OH-0315/07-00587 (5/6/2008)	Conveyors, Hoppers, Screens to Rotary Hearth Furnace (227 tons/yr)	PM: Baghouse, 1.4 lb/hr, 6.13 tons/yr, 0.0022 gr/dscf	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Ore Crushing and Handling	PM: No Control, 0.0025 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
		While the RBLC doesn't list a baghouse as control for PM, a baghouse is required for this process for the control of PM_{10} (filterable), lead, and fluorides.			
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Additive Handling	PM: Baghouse, 0.0025 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Oxide Pellet Handling	PM: Wet Scrubber, 0.005 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Small Material Loading Bins	PM: Baghouse, 0.0025 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	DRI Pellet Silos	PM: Baghouse, 0.0025 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	DRI Pellet Handling	PM: Wet Scrubber, 0.005 gr/dscf, 5% opacity (6-min avg)	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Tertiary Ore Crushing: Crusher Lines 4 & 104 (700 LT/hr)	PM: Fabric Filter, 0.0025 gr/dscf	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Nine Concentrate Storage Bins (200 LT/hr each)	PM: Fabric Filter, 0.003 gr/dscf	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Furnace Discharge (160 LT/hr each)	PM: Wet Scrubber, 0.005 gr/dscf	NI	BACT-PSD
Mesabi Nugget: Hoyt Lakes, MN	MN-0061/ 13700318-001 (6/26/2005)	Material Transfer Operations (100,000 dscfm)	PM: Fabric Filter, 0.005 gr/dscf, 10% opacity (6-min avg)	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Material Handling Operations (PM)

Dry Material Handling
The air streams associated with dry material handling operations are characterized by air streams at or near ambient temperature and moisture content. Such streams would not be expected to contain materials that would be considered to be acidic or corrosive. As such, none of the listed particulate matter control devices were eliminated from consideration for the dry material handling operations because of technical infeasibility.

Raw Material Unloading and Storage Areas
Control devices draw pollutant laden air into themselves through ventilation hoods or other ducted enclosures, which must be close to the pollutant generation point in order to gather the air. The dumping of material from a truck is an irregular process, likely damaging or destroying any hoods

near the truck's drop point. As such, stand-alone control devices were eliminated from consideration for the truck unloading areas because of technical infeasibility.

Similarly, when material is dropped from a conveyor onto a storage pile, the emission generation point is not at the conveyor but at the top of the storage pile itself. Since ventilation hoods or other ducted enclosures cannot be located close to the actual pollutant generation point, which is constantly changing in size, stand-alone control devices were eliminated from consideration for the storage piles and the loading of storage piles because of technical infeasibility.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Material Handling Operations (PM)

The control technologies for dry material handling operations are ranked as follows:

(1) Fabric filter dust collectors: 99% - 99.9%+

(2) Electrostatic precipitators: 95% - 99.9%+

(3) Wet scrubbers: 70% - 90%

(4) Cyclones: 70% - 90%

(5) Wet suppression: 50% - 90%

The control technologies for raw material unloading and storage areas are ranked as follows:

(1) Wet suppression: 50% - 90%

(2) Process enclosures: 50% - 90%

Step 4: Evaluate the Most Effective Controls and Document the Results - Material Handling Operations (PM)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for dry material handling operations at iron ore pelletizing plants is fabric filtration. A few operations are controlled by wet scrubbers or wet suppression. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of PM. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.002 gr/dscf to 0.005 gr/dscf, with most processes being limited at 0.002 gr/dscf, which was determined to be BACT for many types of material handling operations.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material truck unloading at iron ore pelletizing plants is the use of a fugitive dust control plan.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material storage at iron ore pelletizing plants is the use of an enclosure. Inclusion of raw material storage into a fugitive dust control plan is also implemented.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material transfer at iron ore pelletizing plants is enclosures and fabric filtration that are appropriate to the material being handled and that are appropriate for the specific process. Since emission unit EU025a includes the dumping of material from a truck and the dropping of material from one conveyor to another, stand-alone control devices are not technical feasible as stated in Step 2. Therefore, emission unit EU025a (Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener) shall be controlled by the use of a site-specific fugitive dust control plan, enclosures for the Conveyor and Grizzly Feeder, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

BACT Proposal

(a) Material Handling Emission Units:

Material Handling Emission Units	
Description	Unit No.
Iron Concentrate Unloading	EU001a
Coke Breeze Conveyance & Storage Bin	EU004b
Bentonite Unloading (Truck) & Storage Area	EU005
Limestone and Dolomite Grinding Mill Bin Area	EU025b
Mixing Area Material Handling System	EU011
Hearth Layer Bin System	EU012
Machine Discharge System	EU015
Hearth Layer Separation System	EU016
Oxide Pellet Storage System	EU019a
Oxide Pellet Loadout System	EU019b
Dust Recycle Surge Hopper & Blow Tank Area	EU027

BACT for the Material Handling emission units has been proposed to be the use of baghouses or bin vent filters with a grain loading of 0.002 gr/dscf and an appropriate pound per hour limitation.

(b) Raw Material Storage Emission Units:

Raw Material Storage Emission Units	
Description	Unit No.
Iron Concentrate Transfer & Storage Area	EU001b
Limestone Unloading & Storage Area	EU002b
Dolomite Unloading & Storage Area	EU003b

BACT for the Raw Material Storage emission units has been proposed to be the use of a site-specific fugitive dust control plan, the use of enclosures, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

(c) Raw Material Transfer Emission Units (Raw Material Transfer):

Raw Material Transfer Emission Units	
Description	Unit No.
Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener	EU025a

BACT for the Raw Material Transfer emission units has been proposed to be the use of a site-specific fugitive dust control plan, enclosures for the Conveyor and Grizzly Feeder, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

Step 5: Select BACT - Material Handling Operations (PM)

The proposed BACT for PM meets the most stringent BACT found in the RBLC for material handling operations. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM BACT for the above Material Handling Operations is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(b) <u>Induration Furnaces (PM)</u>

Particulate matter emissions are primarily due to the attrition of particles (dust) from the iron oxide pellets. This is caused by the abrasion of pellets rubbing against each other and the process equipment as the pellets move through the induration furnace. Particulate matter is emitted from both the waste gas and hood exhaust vents.

The waste gas also contains a small amount of condensable particulate matter. The condensable particulates are primarily inorganic compounds like sulfates, acid gases, chlorides, and fluorides which are generated as a byproduct of pellet induration. The waste gas may also contain volatile organic compounds, which are products of incomplete natural gas combustion.

Clean Fuels

Recent court and regulatory agency determinations have held that “clean fuels” must be considered as one of the emission control options in a BACT analysis. The fuels analysis will be based on pollutant emissions directly associated with the use of a particular fuel. Emissions from a specific fuel may be related to the inherent properties of the fuel (e.g., sulfur content) or by the nature of the combustion process and will be accounted for based on the uncontrolled pollutant emission factors for each fuel.

Historically EPA policy has held that a facility need not consider emission control options which would fundamentally “re-define” the proposed project. For example, a coal-fired power plant would not need to consider installation of a natural gas-fired turbine as BACT for emissions control as an alternative to the proposed coal-fired plant. However, recent court decisions have held that clean fuels must be considered in a BACT review. So, for example, natural gas must be considered as an alternative fuel for a coal-fired boiler application (a turbine option is still excluded).

Good Combustion Practices

The organic particulate matter emissions are caused through incomplete combustion. When fuel and air are not well mixed in the combustion zone, low oxygen regions form in the fuel injection plume that cause unburned fuel to pyrolize at the high temperature and form soot. Soot formation can be minimized by improving the fuel air mixing through enhanced fuel injection systems, air management systems, and combustion system designs.

Existing and Proposed PM BACT Determinations for Induration Furnaces

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for induration furnaces at iron ore pelletizing plants. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

PM BACT Determinations – Induration Furnace					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Furnace Hood Exhaust EU013 (450 tons/hr pellets)	PM: Baghouse, 0.004 gr/dscf, lb/hr limits, 5% opacity (6-min avg)	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Furnace Windbox Exhaust EU014 (450 tons/hr pellets)	PM: Baghouse, 0.004 gr/dscf, lb/hr limits, 5% opacity (6-min avg)	NI	BACT-PSD
Existing PM BACT Determinations – Induration Furnaces					
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Furnace Hood Exhaust (624 st/hr pellets)	PM: Fabric Filter with Leak Detection, 0.004 gr/dscf and 27.00 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Furnace Waste Gas (624 st/hr pellets)	PM: Fabric Filter with Leak Detection, 0.004 gr/dscf and 18.00 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	NI	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 1 (450 tons/hr pellets)	PM: Dry ESP, 0.006 gr/dscf and 10.50 lb/hr (3-hr rolling avg), 1% opacity (6-min avg)	99.9%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 2 (450 tons/hr pellets)	PM: Dry ESP, 0.006 gr/dscf and 7.10 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Furnace Hood Exhaust (624 st/hr pellets)	PM: Wet Scrubber, 0.006 gr/dscf and 23.00 lb/hr (3-hr rolling avg), 10% opacity (6-min avg)	93%	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Furnace Waste Gas (624 st/hr pellets)	PM: Wet Scrubber, 0.006 gr/dscf and 17.00 lb/hr (3-hr rolling avg), 10% opacity (6-min avg)	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Furnace 5 Hood Exhaust (Waste Gas #501, #502, #503) (160 LT/hr pellets)	PM: Wet ESP, 0.01 gr/dscf, 0.18 lb/MMBtu	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options – Induration Furnaces (PM)

Historically, baghouses have been deemed technically infeasible in iron induration furnaces due to the temperature limitations of the filter bag material. This is a concern primarily during malfunctions which result in high temperature excursions within the induration furnace. The straight grate induration furnace which Mag Pellet is proposing has features which can mitigate the effects of high temperature excursions which are not present in the grate/kiln design. The following is a description of those mitigating features that make a baghouse feasible on the Mag Pellet furnace:

- The traveling grate in a straight-grate furnace is not as susceptible to temperature swings as a grate/kiln. This is because a grate/kiln has one main burner while a traveling grate furnace has many individual gas burners. In Mag Pellet's case, multiple burners of varying size will be installed. This allows much more flexibility in temperature control within a straight grate furnace.

- A straight-grate furnace has the capability to divert gases from the hood exhaust stream into the firing zone for additional cooling via the tempering air stream to prevent high temperatures from damaging filter bags in waste gas service. The air in this stream is from the outlet of the second cooler and it has a much lower temperature than the firing zone gases. Additional cooling can be provided by drawing in ambient air via the air intake damper on the second cooler duct.

- A baghouse on the waste gas stream would receive exhaust gas after the proposed gas suspension absorber (see the SO_2 BACT determinations for furnace hood exhausts and furnace waste gas exhausts). Lime slurry and water are added in the absorber for SO_2 control. The evaporation of this water is a significant source of cooling, thus significantly reducing the potential for high temperature from reaching the waste gas baghouse.

- A baghouse on the hood exhaust would receive exhaust gas from the drying zone of the furnace where temperatures are low to begin with (<500°F) and the risk of temperature spiking very remote, and the risk of temperature spiking can be mitigated by adding the ability to introduce outside tempering air.

- Filter bags made with fiberglass and PTFE membrane coatings can withstand operating temperatures up to 500°F.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Induration Furnaces (PM)

The control technologies for induration furnace operations are ranked as follows:

(1) Fabric filter dust collectors: 99% - 99.9%+

(2) Electrostatic precipitators: 95% - 99.9%+

(3) Wet scrubbers: 70% - 99%+

Step 4: Evaluate the Most Effective Controls and Document the Results - Induration Furnaces (PM)

Based on a review of the U.S. EPA RBLC, the primary control used for induration furnaces is dry capture, either using fabric filtration or a dry ESP. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of PM. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.006 gr/dscf to 0.01 gr/dscf.

BACT Proposal – Induration Furnace (PM)

BACT for the PM emissions from the induration furnace has been proposed to be controlled through the use of a baghouse with a maximum outlet concentration of 0.004 gr/dscf, an appropriate pound per hour limitation, and that the opacity shall not exceed five percent (5%) on a six (6) minute average.

Step 5: Select BACT - Induration Furnace (PM)

The proposed BACT for PM meets the most stringent BACT found in the RBLC for induration furnaces. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM BACT for the induration furnace is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(c) <u>Combustion Units (PM)</u>

Emission units associated with combustion processes are subject to PM BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, diesel fired fire pumps, and natural gas fired heaters.

Clean Fuels

Recent court and regulatory agency determinations have held that “clean fuels” must be considered as one of the emission control options in a BACT analysis. The fuels analysis will be based on pollutant emissions directly associated with the use of a particular fuel. Emissions from a specific fuel may be related to the inherent properties of the fuel (e.g., sulfur content) or by the nature of the combustion process and will be accounted for based on the uncontrolled pollutant emission factors for each fuel.

Historically EPA policy has held that a facility need not consider emission control options which would fundamentally “re-define” the proposed project. For example, a coal-fired power plant would not need to consider installation of a natural gas-fired turbine as BACT for emissions control as an alternative to the proposed coal-fired plant. However, recent court decisions have held that clean fuels must be considered in a BACT review. So, for example, natural gas must be considered as an alternative fuel for a coal-fired boiler application (a turbine option is still excluded).

Good Combustion Practices

The organic particulate matter emissions are caused through incomplete combustion. When fuel and air are not well mixed in the combustion zone, low oxygen regions form in the fuel injection plume that cause unburned fuel to pyrolize at the high engine temperature and form soot. Soot formation can be minimized by improving the fuel air mixing through enhanced fuel injection systems, air management systems, combustion system designs, and pre-mixed diesel combustion.

(1) Natural Gas Fired Emergency Generators (PM)

The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing BACT and Proposed Determinations – Natural Gas Fired Emergency Generators (PM)

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to January 2014 for natural gas fired generators only used for emergency purposes.

PM BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Emergency Generators EU017a and EU017b (1300 kw each)	PM for each: Use of natural gas, good combustion practices, 0.20 g/kw-hr, 500 hours/year	NI	BACT-PSD

PM BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Existing PM BACT Determinations - Emergency Generators					
Westlake Vinyls Company LP: Geismar, LA	LA-0256/ PSD-LA-754 (12/6/2011)	Emergency Generator 1,818 hp (1,384 kw)	TSP: Use of natural gas, good combustion practices, < 0.01 lb/hr	NI	BACT-PSD
Avenal Power Center: Kettleman City, CA	CA-1192/ SJ 08-01 (6/21/2011)	Emergency IC Engine 550 kw (860 hp)	TPM: Use of pipeline quality natural gas, 0.34 g/hp-hr (0.44 g/kw-hr)	NI	BACT-PSD
Allegheny Ludlum Corp.: Brackenridge, PA	PA-0274/ 0059-I008 (2/16/2010)	Emerg. Generator #1 2,250 kw (3,015 hp)	PM: Use of pipeline quality natural gas, 0.54 g/kw-hr, 2.66 lb/hr, 0.27 tons/yr, 200 hours/year	NI	BACT-PSD
		Emerg. Generator #2 1,000 kw (1,340 hp)	PM: Use of pipeline quality natural gas, 0.20 g/kw-hr, 0.44 lb/hr, 0.04 tons/yr, 200 hours/year	NI	BACT-PSD
		There is no documented basis to include the annual operational limit as part of the BACT. The 200 hr/yr limit is only to limit the PTE of the unit.			

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generator (PM)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generator (PM)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generator (PM)

EPA determined in the development of NSPS JJJJ that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the emergency generator.

The natural gas fired emergency generators (EU017a and EU017b) will be subject to 40 CFR 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of grams per kilowatt-hour and/or pounds per hour of PM. Grams per kilowatt-hour is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM standards for compression ignition engines with a maximum engine power of greater than 560 kw (735 hp) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2007.

BACT for the natural gas fired emergency generators has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an emission limit, which is 0.20 g/kw-hr for the proposed generators. Additionally under 326 IAC 2-7, an emergency generator is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency natural gas fired generators in the same size category.

Step 5: Select BACT - Natural Gas Fired Emergency Generator (PM)

A detailed PM BACT for the natural gas fired emergency generators is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(2) Diesel Fired Fire Pump (PM)
The Fire Pump (EU018) will be fueled by diesel fuel.

Existing BACT and Proposed Determinations – Diesel Fired Fire Pumps (PM)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps that are only diesel fired.

PM BACT Determinations – Diesel Fire Pump					
Facility: County, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Fire Pump EU018 300 hp (224 kw)	PM: Use of good combustion practices, 0.15 g/hp-hr, 500 hours/year	NI	BACT-PSD
Existing PM BACT Determinations – Emergency Diesel Fire Pump					
Walter Scott Jr. Energy CenterWalter Scott Jr. Energy Center, Pottawa, IA	IA-0067 02-528 6/17/2003	Diesel Fire Pump Engine (509 HP)	PM: good combustion practices, 0.31 lb/MMBtu (includes condensibles)	NI	BACT-PSD
Arsenal Hill Power Plant, Caddo, LA	LA-0224 PSD-LA-726 3/20/2008	DFP Diesel Fire Pump (310HP)	PM: Low Sulfur fuels, limit hours of operation and proper maintenance, 0.68 lb/hr	NI	BACT-PSD, NSPS
Duke Energy Washington County LLC, Washington, OH	OH-0254 06-06792 8/14/2003	Emergency Diesel Fire Pump (400 HP)	PM: 0.88 Lb/hr, 022 tons/yr	NI	BACT-PSD, NSPS
PSI Energy – Madison Station, Butler, OH	OH-0275 14-04682 8/24/2004	Emergency Diesel Fire Pump (1.6 MMBtu/hr)	PM: 0.31 lb/MMBtu (SIP)	NI	SIP-lb/hr limit, BACT-PSD – T/Y limit
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (660 HP)	PM: good combustion practices, 0.64 lb/hr, 0.16 ton/yr	NI	BACT-PSD
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (525 HP)	PM: good combustion practices, 0.28 lb/hr, 0.07 ton/yr	NI	BACT-PSD

PM BACT Determinations – Diesel Fire Pump					
Facility: County, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
GP Allendale LP Allendale, SC	SC-0114 / 0160-0020-CB 11/25/2008	Fire Water Diesel Pump (525 HP)	PM: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
GP Clarendon LP Clarendon, SC	SC-0115 / 0680-0046-CB 02/10/2009	Fire Water Diesel Pump (525 HP)	PM: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
Cheyenne Prairie Generating Station Laramie, WY	WY-0070 / CT-12636 08/28/2012	Diesel Fire Pump Engine (327 HP)	PM: no emission limits for PM in the RBLC for this unit	NI	BACT-PSD
Gainsville Renewable Energy Center	FL-0323 / PSD-FL-411 (0010131-001-AC)	Emergency Diesel Fire Pump (275 HP)	PM: 0.15 g/hp-hr	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (PM)

No technologies were eliminated from consideration because of technical infeasibility for diesel fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (PM)

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

(4) Catalyzed diesel particulate filter (CDPF).

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (PM)

EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the fire pump.

The diesel fired fire pump (EU018) will be subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits for emergency diesel fire pumps, the primary control used for diesel fired emergency generators is , the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of grams per kilowatt-hour, grams per horsepower-hour and/or pounds per hour of PM. Grams per kilowatt-hour or grams per horsepower-hour are the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM standards for compression ignition engines with a maximum engine power of equal to or greater than 225 kW (300 HP) and less than 450 kW (600 HP) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2006.

PM BACT for the diesel fired fire pump has been proposed to be the use of good combustion practices, and an emission limit, which is 0.15 g/hp-hr for the proposed diesel fire pump. Additionally under 326 IAC 2-7, an emergency fire pump is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency natural gdiesel fired fire pumps in the same size category.

Step 5: Select BACT - Diesel Fired Fire Pump (PM)

A detailed PM BACT for the Diesel fired fire pump is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(3) Natural Gas Fired Heaters, and Furnaces (PM)

The Space Heaters and Lab Furnaces (EU021), Coke Breeze Additive System Air Heater (EU009), and Ground Limestone/Dolomite Additive System Air Heater (EU010), will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (PM)

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2006 to December 2013 for space heaters, air heaters, and process heaters with a heat input capacity less than 50 MMBtu/hr that combust only natural gas.

PM BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters and Lab Furnaces (EU021) (23.028 MMBtu/hr total)	PM: Use of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Proposed BACT for MAG Pellet LLC		Coke Breeze Additive System Air Heater (EU009)	PM: Used of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC*		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	PM: Baghouse, use of natural gas, good combustion practices	NI	BACT-PSD
Existing PM BACT Determinations - Heaters Firing Natural Gas					
City of Palmdale: Palmdale, CA	CA-1212/ SE 09-01 (10/18/2011)	Auxiliary Heater (40 MMBtu/hr)	TPM: Use of pipeline quality natural gas, 0.30 lb/hr	NI	BACT-PSD
City of Victorville: Victorville, CA	CA-1191/ SE 07-02 (3/11/2010)	Auxiliary Heater (40 MMBtu/hr)	TPM: Use of pipeline quality natural gas, 1000 hours/year, 0.20 gr/100 dscf	NI	BACT-PSD
Pryor Plant Chemical : Oklahoma City, OK	OK-0135/ 2008-100-C PSD (2/23/2009)	Nitric Acid Preheaters #1, #3, and #4 (20 MMBtu/hr)	TPM: 0.15 lb/hr	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P.2008.0066 (2/10/2009)	ASU Regen Heater SRC13 (0.1 MMBtu/hr)	PM: Good combustion practices, 20% opacity	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P.2008.0066 (2/10/2009)	Gasifier Heaters SRC14 & SRC15 (25 MMBtu/hr)	PM: Good combustion practices, 20% opacity	NI	BACT-PSD

PM BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
GP Clarendon LP: Manning, SC	SC-0115/ 0680-0046-CB (2/10/2009)	Natural Gas Space Heaters - 14 Units (ID 17) (20.89 MMBtu/hr)	TPM: 0.15 lb/hr, 0.66 tons/yr	NI	BACT-PSD
GP Allendale LP: Fairfax, SC	SC-0114/ 0160-0020-CB (11/25/2008)	Natural Gas Space Heaters - 14 Units (ID 18) (20.89 MMBtu/hr)	TPM: 0.15 lb/hr, 0.66 tons/yr	NI	BACT-PSD

*Note: PM combustion emissions for EU010 are accounted for in the material handling limits.

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (PM)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (PM)

The control technologies for natural gas fired heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

(4) Catalyzed diesel particulate filter (CDPF).

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (PM)

Based on a review of the RBLC, add-on control devices are generally not used for controlling particulate emissions from natural gas fired space heaters or air heaters. Most facilities express emission limitations in terms of pounds per hour of PM. Pounds per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. Emission limits for PM (when converted for comparison) varied from 0.0072 lb/MMBtu to 0.0075 lb/MMBtu.

BACT has been proposed to be the restricted use of only natural gas and the use of good combustion practices along with an emission limit, which is 0.0072 lb/MMBtu for each of the proposed heaters.

Step 5: Select BACT - Natural Gas Fired Space Heater, Lab furnaces and Air Heaters (PM)

A detailed PM BACT for natural gas fired heaters & lab furnaces is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(d) <u>Cooling Towers (PM)</u>

Particulate matter emissions are primarily due to the dissipation of heat loads from plant condensate to the atmosphere. Some of the liquid water may be entrained in the air stream and can be carried out of the tower as "drift" droplets. As the droplet evaporates in the atmosphere, any suspended or dissolved material will solidify as particulate matter.

Drift Eliminators

Cooling towers are a source of particulate matter emissions from the small amount of water mist that is entrained with the cooling air as "drift". The cooling water contains small amounts of dissolved solids which become particulate emissions once the water mist evaporates. To reduce the drift from cooling towers, drift eliminators are typically incorporated into the tower design to remove as many droplets as practical from the air stream before exiting the tower.

Particulate matter emissions occur from cooling towers when suspended solids contained in water used in the cooling tower becomes airborne as the water is circulated and cooled. Drift eliminators contain packing which is used to limit the amount of this particulate matter which becomes airborne during the cooling process. As mist passes through the packing, the particles in the air contact and adhere to the surface of the packing. As condensed water flows down this packing, these particles are removed.

Total Dissolved Solids

The minimization of the total dissolved solids (TDS) of the water entering the cooling tower prior to the entrainment of the air reduces the amount of particulate emitted to atmosphere.

Existing and Proposed PM BACT Determinations for Cooling Towers

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for cooling towers at iron ore pelletizing plants. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries), as well as various sources with cooling towers of comparable size, from January 2004 to January 2014.

PM BACT Determinations – Cooling Towers					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Cooling Towers, EU024 and EU028 (2,300 gpm each)	Filterable PM- For each unit: Drift eliminator with a maximum drift rate of 0.001% of the circulating water flow rate, use of cooling water with less than 6,009 milligrams per liter TDS concentration, lb/hr limits, 10% opacity (6-min avg)	NI	BACT-PSD
Existing PM BACT Determinations – Cooling Towers					
V & M Star: Youngstown, OH	OH-0344/ P0107088 (1/27/2011)	Cooling Water Towers (2) and Contact Water (1,372,000 gpm)	PM: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 10% opacity (6-min avg)	NI	Other Case-by-Case
			This BACT is listed under the pollutant Visible Emissions.		
Nucor Steel Marion, Inc.: Marion, OH	OH-0341/ P0105283 (12/23/2010)	Melt Shop Spray Contact Cooling Tower (198,360 gpm)	TPM: 0.22 lb/hr, 0.96 tons/yr, 10% opacity (6-min avg)	NI	BACT-PSD
			Process Notes: Cooling tower with 0.005% drift rate and a maximum TDS content of 2,650 mg/L		

PM BACT Determinations – Cooling Towers					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Nucor Steel Marion, Inc.: Marion, OH	OH-0341/ P0105283 (12/23/2010)	Rolling Mill Contact Cooling Tower (225,000 gpm)	TPM: 0.46 lb/hr, 2.01 tons/yr, 10% opacity (6-min avg)	NI	BACT-PSD
			Process Notes: Cooling tower with 0.005% drift rate and a maximum TDS content of 2,650 mg/L		
Consolidated Environmental Management Inc. – Nucor Steel Louisiana: Convent, LA	LA-0239/ PSD-LA-740 (5/24/2010)	TWR-101: Blast Furnace Cooling Tower	Filterable PM: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration	NI	BACT-PSD
Consolidated Environmental Management Inc. – Nucor Steel Louisiana: Convent, LA	LA-0239/ PSD-LA-740 (5/24/2010)	TWR-102: Iron Solidification Cooling Tower	Filterable PM: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.042 lb/hr, 0.18 tons/yr	NI	BACT-PSD
Consolidated Environmental Management Inc. – Nucor Steel Louisiana: Convent, LA	LA-0239/ PSD-LA-740 (5/24/2010)	TWR-103: Air Separation Plant Cooling Tower	Filterable PM: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.026 lb/hr, 0.11 tons/yr	NI	BACT-PSD
V & M Star: Youngstown, OH	OH-0328/ P0103995 (4/10/2009)	Pipe Mill Cooling Tower (1,800,000 gpm)	PM: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 10% opacity (6-min avg)	NI	Other Case-by-Case
			This BACT is listed under the pollutant Visible Emissions.		
V & M Star: Youngstown, OH	OH-0328/ P0103995 (4/10/2009)	Melt Shop Cooling Tower (3,000,000 gpm)	PM: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 10% opacity (6-min avg)	NI	Other Case-by-Case
			This BACT is listed under the pollutant Visible Emissions.		
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Cooling Towers (12) (1,440,000 gpm)	PM: Drift Eliminators, 3.42 lb/hr and 14.99 tons/yr (combined)	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Cooling Tower	PM: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 20% opacity (6-min avg)	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options – Cooling Towers (PM)

No technologies were eliminated from consideration because of technical infeasibility for cooling towers.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Cooling Towers (PM)

The control technologies for cooling towers are ranked as follows:

(1) Drift eliminators.

(2) Minimization of total dissolved solids (TDS).

Step 4: Evaluate the Most Effective Controls and Document the Results – Cooling Towers (PM)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for cooling towers at iron ore pelletizing plants is drift eliminators. Most facilities express emission limitations in terms of maximum drift rate and an associated pound per hour limitation. However, all of the cooling towers listed in the RBLC for the pollutant PM are not comparable to the one proposed by Mag Pellet due to size differences; therefore, a second review of the RBLC was performed for similarly sized cooling towers under the pollutant PM_{10}. The only cooling tower in the range of the proposed cooling tower with a listed drift rate is located at Entergy New Orleans, Inc. (Michoud Electric Plant). The drift rate is 0.001%.

BACT Proposal

BACT has been proposed to be the use of drift eliminators with a maximum drift rate of 0.001%, use of cooling water with less than 6,009 milligrams per liter TDS concentration, and an appropriate pound per hour limitation. The basis for the TDS concentration is documented in the RBLC PM_{10} BACT determination table for cooling towers under the entry for Entergy New Orleans, Inc. (Michoud Electric Plant).

Step 5: Select BACT – Cooling Towers (PM)

The proposed BACT for PM meets the most stringent BACT found in the RBLC for cooling towers of comparable size. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM BACT for the cooling towers is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

Particulate Matter Less than 10 Microns (PM_{10}) BACT

The PM_{10} BACT analysis is divided into five categories: material handling operations, induration furnaces, combustion units, cooling towers, and fugitive emissions.

Step 1 of the BACT process is shown below for this PM_{10} BACT analysis to describe general particulate control devices. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific PM_{10} control devices may be discussed in individual BACT analyses. A summary of the PM_{10} BACT determinations is provided at the end of this section.

Step 1: Identify Potential Control Technologies (PM_{10})

Particulate matter less than 10 microns (PM_{10}) is a subset of PM that includes particulate with a diameter of 10 micrometers or less. PM_{10} may be referred to as coarse particles and can cause health and environmental problems.

Particulate is typically measured as filterable or condensable particulate. Filterable particulate is emitted directly as solid or liquid at the stack, whereas condensable particulate is in the vapor phase at the stack and condenses upon cooling in the ambient air to form solid or liquid particulate. Filterable particulate may be PM, PM_{10}, or $PM_{2.5}$. Condensable particulate exists mostly as $PM_{2.5}$, but PM_{10} may also include a condensable portion. Combustion processes and industrial processes involving heat tend to form both filterable and condensable particulate. Industrial processes that don't involve heat and moisture typically only produce filterable particulate.

The control technologies for emissions of PM_{10} are generally going to be similar as those for PM. These technologies (mechanical collectors, wet scrubber, electrostatic precipitators, and fabric filter dust collectors) are discussed in the PM BACT analysis.

(a) Material Handling Operations (PM_{10})

The emissions from the material handling operations are in the form of particulate matter (PM, PM_{10}, and $PM_{2.5}$). Particulate matter emissions are primarily due to the attrition of particles (dust) from the feedstocks, iron oxide pellets, and by-products. This is caused by the abrasion of materials rubbing against each other and the process equipment as they move through the process.

Existing and Proposed PM_{10} BACT Determinations for Material Handling Operations
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for material handling operations at iron ore pelletizing plants. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

PM_{10} BACT Determinations - Material Handling Operations

Facility: City, State	RBLC ID/ Permit # (Issuance Date)	Process	Pollutant: Control, Emission Limits	Control Efficiency	Basis
Proposed BACT for Mag Pellet LLC		Material Handling Operations: EU001a, EU004b, EU005, EU009, EU025b, EU011, EU012, EU015, EU016, EU019a, EU019b, EU027	PM_{10}: Baghouse/Bin Vent, 0.002 gr/dscf, lb/hr limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU001b	PM_{10}: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU002b	PM_{10}: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU003b	PM_{10}: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Transfer): EU025a	PM_{10}: Enclosed conveyor and grizzly, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD

PM_{10} BACT Determinations - Material Handling Operations

Facility: City, State	RBLC ID/ Permit # (Issuance Date)	Process	Pollutant: Control, Emission Limits	Control Efficiency	Basis
Existing PM_{10} BACT Determinations - Material Handling Operations					
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Oxide Pellet Stockpile Conveyor Gallery	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.77 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Bin	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 1.40 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Feed	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.12 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Discharge	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 3.30 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Screening and Handling	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 2.90 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Carbon Bin for Mercury Control	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Lime Bin for Scrubber	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Primary Grinding Mill Line 3	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.23 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Grizzly Transfer Tower	Filterable PM_{10}: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.079 lb/hr (3-hr rolling avg)	NI	BACT-PSD

PM$_{10}$ BACT Determinations - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Dozer Activity at Tailings Basin	PM$_{10}$: Fugitive Dust Control Plan	NI	BACT-PSD
		Grading at Tailings Basin	PM$_{10}$: Fugitive Dust Control Plan	NI	BACT-PSD
		120K Ton Concentrate Stockpile Loadout	PM$_{10}$: Fugitive Dust Control Plan	NI	BACT-PSD
		Oxide Product Loadout to Railcars	PM$_{10}$: Fugitive Dust Control Plan	NI	BACT-PSD
		These BACTs are listed under the pollutant Visible Emissions. The BACT determination (Table 1-12) states the limit is the use of the Fugitive Dust Control Plan.			
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Bentonite Bin	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	94%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Intermediate Dry Fuel 44 Silo	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.11 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Prepared Dry Fuel Silo	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.07 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Final Transfer Conveyors and Loadout Conveyor	Filterable PM$_{10}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Reclaim Conveyor	Filterable PM$_{10}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.31 lb/hr (3-hr rolling avg), 5% opacity (6-min avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Emergency Pellet Conveyor Transfer	Filterable PM$_{10}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Coal Bin 2	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.14 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Limestone Bin	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Mill Feeder 1	Filterable PM$_{10}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.51 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Lime Bin	Filterable PM$_{10}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.02 lb/hr (3-hr rolling avg)	95%	BACT-PSD

PM_{10} BACT Determinations - Material Handling Operations

Facility: City, State	RBLC ID/ Permit # (Issuance Date)	Process	Pollutant: Control, Emission Limits	Control Efficiency	Basis
V & M Star: Youngstown, OH	OH-0316 (9/23/2008)	Alloy, Additives, & Flux Handling (134 tons/hr)	Filterable PM_{10}: Silo Bin Vent Filters, 0.11 lb/hr, 0.33 tons/yr	NI	BACT-PSD
Mid American Steel Rolling Mill: Madill, OK	OK-0128/ 2003-106-C (M-1)(PSD) (9/8/2008)	Storage Silos (3) (Lime, Carbon, Baghouse Catch)	Filterable PM_{10}: Baghouses, 0.005 gr/dscf, 0.03 lb/hr/silo	99.9%	BACT-PSD
Mid American Steel Rolling Mill: Madill, OK	OK-0128/ 2003-106-C (M-1)(PSD) (9/8/2008)	Slag Processing	Filterable PM_{10}: Unit Must Process Wet Material	99.9%	BACT-PSD
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Direct Reduced Iron (DRI) Material Handling	PM_{10}: No control, 0.56 tons/yr	NI	LAER
		Coal and Iron Ore Unloading	PM_{10}: No control, 0.99 tons/yr	NI	BACT-PSD
		Alloy, Flux, Carbon, Limestone, & Coke Handling	PM_{10}: No control, 2.10 tons/yr	NI	BACT-PSD
		Iron Ore Grinding (992 tons/yr)	PM_{10}: No control, 0.40 tons/yr	NI	BACT-PSD
		Conveyors, Hoppers, Screens to Rotary Hearth Furnace (227 tons/yr)	PM_{10}: No control, 1.88 tons/yr	NI	BACT-PSD
		These BACTs are listed under the pollutant Particulate Matter, Fugitive.			
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Ore Crushing and Handling	Filterable PM_{10}: Baghouse, 0.0025 gr/dscf	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Additive Handling	Filterable PM_{10}: Baghouse, 0.0025 gr/dscf	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Oxide Pellet Handling	Filterable PM_{10}: Wet Scrubber, 0.005 gr/dscf	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Small Material Loading Bins (Lime, Limestone, Carbon, Fluorospar, Bauxite)	Filterable PM_{10}: No Control, 0.0025 gr/dscf	NI	BACT-PSD
		While the RBLC doesn't list a baghouse as control for PM_{10}, a baghouse is required for this process for the control of PM.			
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	DRI Pellet Handling	Filterable PM_{10}: Wet Scrubber, 0.005 gr/dscf	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0090/ 1139-AOP-R6 (4/3/2006)	Slag Processing	Filterable PM_{10}: Water Sprays, 1.5 lb/hr, 2.2 tons/yr	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0090/ 1139-AOP-R6 (4/3/2006)	Miscellaneous Dust Sources (Scale Removal, Scale Breaker, Chromate Spray, Lime Silo)	Filterable PM_{10}: Fabric Filter, 0.003 gr/dscf	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Tertiary Ore Crushing: Crusher Lines 4 & 104 (700 LT/hr)	Filterable PM_{10}: Fabric Filter, 0.0025 gr/dscf	NI	BACT-PSD

PM_{10} BACT Determinations - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Nine Concentrate Storage Bins (200 LT/hr each)	Filterable PM_{10}: Fabric Filter, 0.003 gr/dscf	NI	BACT-PSD
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Furnace Discharge (160 LT/hr each)	Filterable PM_{10}: Fabric Filter, 0.01 gr/dscf, 0.18 lb/MMBtu	NI	BACT-PSD
Mesabi Nugget: Hoyt Lakes, MN	MN-0061/ 13700318-001 (6/26/2005)	Material Transfer Operations (100,000 dscfm)	Filterable PM_{10}: Fabric Filter, 0.005 gr/dscf	98%	BACT-PSD
Bluewater Project: Osceola, AR	AR-0077/ 2062-AOP-R0 (7/22/2004)	Material Handling Silos	Filterable PM_{10}: Fabric Filters, 0.01 gr/dscf	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0078/ 1139-AOP-R5 (6/9/2003)	Material Handling	Filterable PM_{10}: Fabric Filter, 0.01 gr/dscf	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0078/ 1139-AOP-R5 (6/9/2003)	Lime Silo	Filterable PM_{10}: Fabric Filter, 0.005 gr/dscf, 0.1 lb/hr, 0.1 tons/yr	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0078/ 1139-AOP-R5 (6/9/2003)	Carbon Silo	Filterable PM_{10}: Fabric Filter, 0.01 gr/dscf, 0.1 lb/hr, 0.5 tons/yr	NI	BACT-PSD
Nucor Steel: Blytheville, AR	AR-0078/ 1139-AOP-R5 (6/9/2003)	Slag Processing	Filterable PM_{10}: Use of Wet Material, 1.8 lb/hr, 4.1 tons/yr	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Material Handling Operations (PM_{10})

Dry Material Handling
The air streams associated with dry material handling operations are characterized by air streams at or near ambient temperature and moisture content. Such streams would not be expected to contain materials that would be considered to be acidic or corrosive. As such, none of the listed particulate matter control devices were eliminated from consideration for the dry material handling operations because of technical infeasibility.

Raw Material Unloading and Storage Areas
Control devices draw pollutant laden air into themselves through ventilation hoods or other ducted enclosures, which must be close to the pollutant generation point in order to gather the air. The dumping of material from a truck is an irregular process, likely damaging or destroying any hoods near the truck's drop point. As such, stand-alone control devices were eliminated from consideration for the truck unloading areas because of technical infeasibility.

Similarly, when material is dropped from a conveyor onto a storage pile, the emission generation point is not at the conveyor but at the top of the storage pile itself. Since ventilation hoods or other ducted enclosures cannot be located close to the actual pollutant generation point, which is constantly changing in size, stand-alone control devices were eliminated from consideration for the storage piles and the loading of storage piles because of technical infeasibility.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Material Handling Operations (PM_{10})

The control technologies for dry material handling operations are ranked as follows:

(1) Fabric filter dust collectors: 99% - 99.9%+

(2) Electrostatic precipitators: 95% - 99.9%+

(3) Wet scrubbers: 70% - 90%

(4) Cyclones: 70% - 90%

(5) Wet suppression: 50% - 90%

The control technologies for truck unloading areas are ranked as follows:

(1) Wet suppression: 50% - 90%

(2) Process enclosures: 50% - 90%

Step 4: Evaluate the Most Effective Controls and Document the Results - Material Handling Operations (PM_{10})

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for dry material handling operations at iron ore pelletizing plants is fabric filtration. A few operations are controlled by wet scrubbers or wet suppression. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of PM_{10}. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.002 gr/dscf to 0.005 gr/dscf, with most processes being limited at 0.002 gr/dscf, which was determined to be BACT for many types of material handling operations.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material truck unloading at iron ore pelletizing plants is the use of a fugitive dust control plan.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material storage at iron ore pelletizing plants is the use of an enclosure. Inclusion of raw material storage into a fugitive dust control plan can also be implemented.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material transfer at iron ore pelletizing plants is enclosures and fabric filtration that are appropriate to the material being handled and that are appropriate for the specific process. Since emission unit EU025a includes the dumping of material from a truck and the dropping of material from one conveyor to another, stand-alone control devices are not technical feasible as stated in Step 2. Therefore, emission unit EU025a (Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener) shall be controlled by the use of a site-specific fugitive dust control plan, enclosures for the Conveyor and Grizzly Feeder, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

BACT Proposal

(a) Material Handling Emission Units:

Material Handling Emission Units	
Description	Unit No.
Iron Concentrate Unloading & Storage Area	EU001
Coke Breeze Conveyance & Storage Bin	EU004b

Material Handling Emission Units	
Description	Unit No.
Bentonite Unloading (Truck) & Storage Area	EU005
Limestone and Dolomite Grinding Mill Bin Area	EU025b
Mixing Area Material Handling System	EU011
Hearth Layer Bin System	EU012
Machine Discharge System	EU015
Hearth Layer Separation System	EU016
Oxide Pellet Storage System	EU019a
Oxide Pellet Loadout System	EU019b
Dust Recycle Surge Hopper & Blow Tank Area	EU027

BACT for the Material Handling emission units has been proposed to be the use of baghouses or bin vent filters with a grain loading of 0.002 gr/dscf and an appropriate pound per hour limitation.

(b) Raw Material Storage Emission Units):

Raw Material Storage Emission Units	
Description	Unit No.
Iron Concentrate Transfer & Storage Area	EU001b
Limestone Unloading & Storage Area	EU002b
Dolomite Unloading & Storage Area	EU003b

BACT for the Raw Material Storage emission units has been proposed to be the use of a site-specific fugitive dust control plan, of enclosures, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

(c) Raw Material Transfer Emission Units:

Group 4 Emission Units	
Description	Unit No.
Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener	EU025a

BACT for the Raw Material Transfer emission units has been proposed to be the use of a site-specific fugitive dust control plan, enclosures, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

Step 5: Select BACT - Material Handling Operations (PM_{10})

The proposed BACT for PM_{10} meets the most stringent BACT found in the RBLC for material handling operations. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM_{10} BACT for the above Material Handling Operations is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(b) Induration Furnace (PM_{10})

Particulate matter emissions are primarily due to the attrition of particles (dust) from the iron oxide pellets. This is caused by the abrasion of pellets rubbing against each other and the process equipment as the pellets move through the induration furnace. Particulate matter is emitted from both the waste gas and hood exhaust vents.

The waste gas also contains a small amount of condensable particulate matter. The condensable particulates are primarily inorganic compounds like sulfates, acid gases, chlorides, and fluorides which are generated as a byproduct of pellet induration. The waste gas may also contain volatile organic compounds, which are products of incomplete natural gas combustion.

Existing and Proposed PM_{10} BACT Determinations for Induration Furnaces

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for induration furnaces at iron ore pelletizing plants. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2002 to January 2012.

Existing PM_{10} BACT Determinations – Induration Furnaces					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Furnace Hood Exhaust EU013 (450 tons/hr pellets)	PM_{10}: Baghouse, 0.008 gr/dscf, lb/hr limit	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Furnace Windbox Exhaust EU014 (450 tons/hr pellets)	PM_{10}: Baghouse, 0.008 gr/dscf, lb/hr limit	NI	BACT-PSD
Existing PM10 BACT Determinations – Induration Furnaces					
Essar Steel Minnesota LLC: Nashwauk, MN	**MN-0085/ 06100067-004 (5/10/2012)**	**Furnace Hood Exhaust (624 st/hr pellets)**	**Filterable PM_{10}: Fabric Filter with Leak Detection, 0.008 gr/dscf and 54.00 lb/hr (3-hr rolling avg)**	**NI**	**BACT-PSD**
Essar Steel Minnesota LLC: Nashwauk, MN	**MN-0085/ 06100067-004 (5/10/2012)**	**Furnace Waste Gas (624 st/hr pellets)**	**Filterable PM_{10}: Fabric Filter with Leak Detection, 0.008 gr/dscf and 37.00 lb/hr (3-hr rolling avg)**	**NI**	**BACT-PSD**
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 1 (450 t/hr pellets)	Filterable PM_{10}: Dry ESP, 0.012 gr/dscf and 21.00 lb/hr (3-hr rolling avg)	99%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 2 (450 t/hr pellets)	Filterable PM_{10}: Dry ESP, 0.012 gr/dscf and 14.20 lb/hr (3-hr rolling avg)	95%	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Indurating Furnace - Hood Exhaust (624 st/hr pellets)	PM_{10}: Wet Scrubber, 0.012 gr/dscf, 47 lb/hr	86%	BACT-PSD
		Pollutant Notes from PM Pollutant listing: PM_{10} includes condensible fraction.			
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Indurating Furnace - Waste Gas (624 st/hr pellets)	Filterable PM_{10}: Wet Scrubber, 0.012 gr/dscf, 33 lb/hr	90%	BACT-PSD
		Pollutant Notes: PM_{10} includes condensible fraction.			
Cleveland - Cliffs, Inc. (Northshore Mining Co.): Silver Bay, MN	MN-0064/ 07500003-003 (3/22/2006)	Furnace 5 Hood Exhaust (Waste Gas #501, #502, #503) (160 LT/hr pellets)	Filterable PM_{10}: HE Wet Scrubber, 0.005 gr/dscf	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options – Induration Furnaces (PM_{10})

Historically, baghouses have been deemed technically infeasible in iron induration furnaces due to the temperature limitations of the filter bag material. This is a concern primarily during malfunctions which result in high temperature excursions within the induration furnace. The straight grate induration furnace which Mag Pellet is proposing has features which can mitigate the effects of high temperature excursions which are not present in the grate/kiln design. The following is a description of those mitigating features that make a baghouse feasible on the Mag Pellet furnace:

- The traveling grate in a straight-grate furnace is not as susceptible to temperature swings as a grate/kiln. This is because a grate/kiln has one main burner while a traveling grate furnace has many individual gas burners. In Mag Pellet's case, multiple burners of varying size will be installed. This allows much more flexibility in temperature control within a straight grate furnace.

- A straight-grate furnace has the capability to divert gases from the hood exhaust stream into the firing zone for additional cooling via the tempering air stream to prevent high temperatures from damaging filter bags in waste gas service. The air in this stream is from the outlet of the second cooler and it has a much lower temperature than the firing zone gases. Additional cooling can be provided by drawing in ambient air via the air intake damper on the second cooler duct.

- A baghouse on the waste gas stream would receive exhaust gas after the proposed gas suspension absorber (see the SO_2 BACT determinations for furnace hood exhausts and furnace waste gas exhausts). Lime slurry and water are added in the absorber for SO_2 control. The evaporation of this water is a significant source of cooling, thus significantly reducing the potential for high temperature from reaching the waste gas baghouse.

- A baghouse on the hood exhaust would receive exhaust gas from the drying zone of the furnace where temperatures are low to begin with (<500°F) and the risk of temperature spiking very remote, and the risk of temperature spiking can be mitigated by adding the ability to introduce outside tempering air.

- Filter bags made with fiberglass and PTFE membrane coatings can withstand operating temperatures up to 500°F.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Induration Furnaces (PM_{10})

The control technologies for induration furnace operations are ranked as follows:

(1) Fabric filter dust collectors: 99% - 99.9%+

(2) Electrostatic precipitators: 95% - 99.9%+

(3) Wet scrubbers: 70% - 99%+

Step 4: Evaluate the Most Effective Controls and Document the Results - Induration Furnace (PM_{10})

Based on a review of the U.S. EPA RBLC, the primary control used for induration furnaces is dry capture, either using fabric filtration or a dry ESP. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of PM_{10}. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.005 gr/dscf to 0.012 gr/dscf for a wet scrubber and from 0.008 gr/dscf to 0.012 gr/dscf for a baghouse.

The most stringent BACT for waste gas/windbox exhausts from the table above is for Cleveland - Cliffs, Inc. in Silver Bay, MN. BACT for the PM_{10} emissions from the induration furnace at this source is control through the use of a high-efficiency wet scrubber with a maximum outlet concentration of 0.005 gr/dscf. However, this induration furnace has a maximum throughput of 160 long tons of pellets per year whereas the proposed induration furnace has a maximum throughput of 450 tons of pellets; hence, the furnace at Cleveland - Cliffs, Inc. is not comparable in size with the proposed furnace. Therefore, the PM_{10} limits specified for Cleveland - Cliffs, Inc. will not be considered as BACT for Mag Pellet LLC.

BACT Proposal – Induration Furnace (PM_{10})

BACT for the PM_{10} emissions from the induration furnace has been proposed to be controlled through the use of a baghouse with a maximum outlet concentration of 0.008 gr/dscf and an appropriate pound per hour limitation.

Step 5: Select BACT - Induration Furnace (PM_{10})

The proposed BACT for PM_{10} meets the most stringent BACT found in the RBLC for induration furnaces controlled with a baghouse. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM_{10} BACT for the Induration Furnace is given in the BACT Conclusion for PM, $PM_{10,}$ and PM2.5.

(c) Combustion Units (PM_{10})

Emission units associated with combustion processes are subject to PM_{10} BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, diesel fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators (PM_{10})
The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing and Proposed BACT Determinations – Natural Gas Fired Emergency Generators (PM_{10})
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2012 for natural gas fired generators only used for emergency purposes.

PM_{10} BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet		Emergency Generator EU017a and EU107b (1300 kw each)	PM_{10}: Use of natural gas, good combustion practices, 0.20 g/kw-hr, 500 hours/year	NI	BACT-PSD
Existing PM_{10} BACT Determinations - Emergency Generators					
VC Energy LLC (Midland Power Station): Midland, MI	MI-0401/ 24-11B (12/21/2011)	Emergency Generator 1,200 kw (1,576 hp)	TPM_{10}: Certified to meet NSPS Subpart JJJJ, proper combustion design, 0.01 lb/MMBtu	NI	BACT-PSD

PM_{10} BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Westlake Vinyls Company LP: Geismar, LA	LA-0256/ PSD-LA-754 (12/6/2011)	Emergency Generator 1,818 hp (1,384 kw)	TPM_{10}: Use of natural gas, good combustion practices, < 0.01 lb/hr	NI	BACT-PSD
Avenal Power Center: Kettleman City, CA	CA-1192/ SJ 08-01 (6/21/2011)	Emergency IC Engine 550 kw (860 hp)	TPM_{10}: Use of pipeline quality natural gas, 0.34 g/hp-hr (0.44 g/kw-hr)	NI	BACT-PSD
Allegheny Ludlum Corp.: Brackenridge, PA	PA-0274/ 0059-I008 (2/16/2010)	Emerg. Generator #1 2,250 kw (3,015 hp)	Filterable PM_{10}: Use of pipeline quality natural gas, 2.66 lb/hr, 0.27 tons/yr, 200 hours/year	NI	BACT-PSD
		Emerg. Generator #2 1,000 kw (1,340 hp)	Filterable PM_{10}: Use of pipeline quality natural gas, 0.44 lb/hr, 0.04 tons/yr, 200 hours/yr	NI	BACT-PSD
		There is no documented basis to include the annual operational limit as part of the BACT. The 200 hr/yr limit is only to limit the PTE of the unit.			
Dominion Cove Point: Lusby, MD	MD-0036/ CPCN 9055 (3/10/2006)	Emergency Generator 770 kw (1,085 bhp)	Filterable PM_{10}: Use of low sulfur natural gas, good combustion practices, proper O&M Plan, 0.0099 lb/MMBtu, 200 hours/yr	NI	BACT-PSD
City of Sacramento PW: Sacramento, CA	CA-1132/ 17661 (5/3/2004)	ICE: Emergency, Spark Ignition 310 bhp (236 kw)	Filterable PM_{10}: 0.152 g/bhp-hr (0.20 g/kw-hr)	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generators (PM_{10})

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generators (PM_{10})

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generators (PM_{10})

EPA determined in the development of NSPS JJJJ that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the emergency generators.

The natural gas fired emergency generators (EU017a and EU017b) will be subject to 40 CFR 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of grams per kilowatt-hour and/or pounds per hour of PM_{10}.

Grams per kilowatt-hour is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM_{10} standards for compression ignition engines with a maximum engine power of greater than 560 kw (735 hp) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2007.

BACT for the natural gas fired emergency generators has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an emission limit, which is 0.20 g/kw-hr for the proposed fire pump. Additionally under 326 IAC 2-7, an emergency generator is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency natural gas fired generators in the same size category.

Step 5: Select BACT - Natural Gas Fired Emergency Generators (PM_{10})

A detailed PM_{10} BACT for the natural gas fired emergency generators is given in the BACT Conclusion for PM, $PM_{10,}$ and $PM_{2.5}$.

(2) Diesel Fired Fire Pump (PM_{10})
The Fire Pump (EU018) will be fueled by diesel fuel.

Existing and Proposed BACT Determinations –Diesel Fired Fire Pump (PM_{10})
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps that are only diesel fired.

PM_{10} BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Fire Pump EU018 300 hp (224 kw)	PM_{10}: Use of diesel, good combustion practices, 0.15 g/hp-hr, 500 hours/year	NI	BACT-PSD
Existing PM_{10} BACT Determinations - Emergency Generators					
Walter Scott Jr. Energy CenterWalter Scott Jr. Energy Center, Pottawa, IA	IA-0067 02-528 6/17/2003	Diesel Fire Pump Engine (509 HP)	PM_{10}: good combustion practices, 0.31 lb/MMBtu	NI	BACT-PSD
Arsenal Hill Power Plant, Caddo, LA	LA-0224 PSD-LA-726 3/20/2008	DFP Diesel Fire Pump (310HP)	PM_{10}: Low Sulfur fuels, limit hours of operation and proper maintenance, 0.68 lb/hr	NI	BACT-PSD, NSPS
Duke Energy Washington County LLC, Washington, OH	OH-0254 06-06792 8/14/2003	Emergency Diesel Fire Pump (400 HP)	PM_{10}: no emission limits for PM_{10}in the RBLC for this unit	NI	BACT-PSD, NSPS
PSI Energy – Madison Station, Butler, OH	OH-0275 14-04682 8/24/2004	Emergency Diesel Fire Pump (1.6 MMBtu/hr)	PM_{10}: 0.12 tons/yr (SIP)	NI	SIP-lb/hr limit, BACT-PSD – T/Y limit

PM_{10} BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (660 HP)	PM_{10}: good combustion practices, 0.64 lb/hr, 0.16 ton/yr	NI	BACT-PSD
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (525 HP)	PM_{10}: good combustion practices, 0.28 lb/hr, 0.07 ton/yr	NI	BACT-PSD
GP Allendale LP Allendale, SC	SC-0114 / 0160-0020-CB 11/25/2008	Fire Water Diesel Pump (525 HP)	PM_{10}: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
GP Clarendon LP Clarendon, SC	SC-0115 / 0680-0046-CB 02/10/2009	Fire Water Diesel Pump (525 HP)	PM_{10}: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
Cheyenne Prairie Generating Station Laramie, WY	WY-0070 / CT-12636 08/28/2012	Diesel Fire Pump Engine (327 HP)	PM_{10}: no emission limits for PM_{10}in the RBLC for this unit	NI	BACT-PSD
Gainsville Renewable Energy Center	FL-0323 / PSD-FL-411 (0010131-001-AC)	Emergency Diesel Fire Pump (275 HP)	PM_{10}: 0.15 g/hp-hr	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (PM_{10})

No technologies were eliminated from consideration because of technical infeasibility for diesel fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (PM_{10})

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

(4) Catalyzed diesel particulate filter (CDPF).

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (PM_{10})

EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the fire pump.

The diesel fired fire pump (EU018) will be subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. There Based on a review of the U.S. EPA RBLC and other Indiana permits for similar diesel fired fire pumps, the primary control used for diesel fired emergency generators is the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of grams per kilowatt-hour, grams per horsepower-hour, and/or pounds per hour of PM_{10}. Grams per kilowatt-hour is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM_{10} standards for compression ignition engines with a maximum engine power of greater than 560 kw (735 hp) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2007.

BACT for the diesel fired fire pump has been proposed to the use of good combustion practices, and an emission limit, which is 0.15 g/hp-hr for the proposed fire pump. Additionally under 326 IAC 2-7, an emergency fire pump is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency diesel fired fire pumps in the same size category.

Step 5: Select BACT - Diesel Fired Fire Pump (PM_{10})

A detailed PM_{10} BACT for the diesel fired fire pump is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(3) Natural Gas Fired Space Heaters & lab furnaces and Air Heaters (PM_{10})
The Space Heaters & lab furnaces (EU021), Coke Breeze Additive System Air Heater (EU009), and Ground Limestone/Dolomite Additive System Air Heater (EU010) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (PM_{10})
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2006 to December 2013 for space heaters, air heaters, and process heaters with a heat input capacity less than 50 MMBtu/hr that combust only natural gas.

PM_{10} BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet		Space Heaters & lab furnaces (EU021) (23.028 MMBtu/hr)	PM_{10}: Use of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet		Coke Breeze Additive System Air Heater (EU009)	PM_{10}: Use of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet*		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	PM_{10}: Baghouse, use of natural gas, good combustion practices	NI	BACT-PSD
Existing PM_{10} BACT Determinations - Heaters Firing Natural Gas					
City of Palmdale: Palmdale, CA	CA-1212/ SE 09-01 (10/18/2011)	Auxiliary Heater (40 MMBtu/hr)	TPM_{10}: Use of pipeline quality natural gas, 0.30 lb/hr	NI	BACT-PSD
Pryor Plant Chemical : Oklahoma City, OK	OK-0135/ 2008-100-C PSD (2/23/2009)	Nitric Acid Preheaters #1, #3, and #4 (20 MMBtu/hr)	TPM_{10}: 0.15 lb/hr	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P.2008.0066 (2/10/2009)	ASU Regen Heater SRC13 (0.1 MMBtu/hr)	Filterable PM_{10}: Good combustion practices	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P.2008.0066 (2/10/2009)	Gasifier Heaters SRC14 & SRC15 (25 MMBtu/hr)	Filterable PM_{10}: Good combustion practices	NI	BACT-PSD

PM_{10} BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
GP Clarendon LP: Manning, SC	SC-0115/ 0680-0046-CB (2/10/2009)	Natural Gas Space Heaters - 14 Units (ID 17) (20.89 MMBtu/hr)	Filterable PM_{10}: 0.15 lb/hr, 0.66 tons/yr	NI	BACT-PSD
GP Allendale LP: Fairfax, SC	SC-0114/ 0160-0020-CB (11/25/2008)	Natural Gas Space Heaters - 14 Units (ID 18) (20.89 MMBtu/hr)	Filterable PM_{10}: 0.15 lb/hr, 0.66 tons/yr	NI	BACT-PSD

***Note: PM10 combustion emissions for EU010 are accounted for in the material handling limits.**

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (PM_{10})

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (PM_{10})

The control technologies for natural gas fired heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitation

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (PM_{10})

Based on a review of the RBLC, add-on control devices are generally not used for controlling particulate emissions from natural gas fired space heaters or air heaters. Most facilities express emission limitations in terms of pounds per hour of PM_{10}. Pounds per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. Emission limits for PM_{10} (when converted for comparison) varied from 0.0072 lb/MMBtu to 0.0075 lb/MMBtu.

BACT for the natural gas fired heaters has been proposed to be the restricted use of only natural gas and the use of good combustion practices along with an emission limit, which is 0.0072 lb/MMBtu for each of the proposed heaters.

Step 5: Select BACT - Natural Gas Fired Space Heaters and Air Heaters (PM_{10})

A detailed PM_{10} BACT for natural gas fired heaters is given in the BACT Conclusion for PM, $PM_{10,}$ and $PM_{2.5}$.

(d) Cooling Towers (PM_{10})

Particulate matter emissions are primarily due to the dissipation of heat loads from plant condensate to the atmosphere. Some of the liquid water may be entrained in the air stream and can be carried out of the tower as "drift" droplets. As the droplet evaporates in the atmosphere, any suspended or dissolved material will solidify as particulate matter.

Existing and Proposed PM_{10} BACT Determinations for Cooling Towers

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for cooling towers at iron ore pelletizing plants. The table below summarizes these PM_{10} BACT determinations as provided by the RBLC, as well as other IDEM permits. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries), as well as various sources with cooling towers of comparable size, from January 2004 to December 2013.

PM_{10} BACT Determinations – Cooling Tower					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet		Cooling Towers, EU024 and EU028 (2,300 gpm each)	Filterable PM_{10} - For each unit: Drift eliminator with a maximum drift rate of 0.001% of the circulating water flow rate, use of cooling water with less than 6,009 milligrams per liter TDS concentration, lb/hr limits	NI	BACT-PSD
Existing PM_{10} BACT Determinations – Cooling Towers					
Crawford Renewable Energy: Carbondale, PA	PA-0275/ 20-305A (10/24/2011)	Material Handling, Plant Roadways, and Cooling Tower (92,500 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.003% of the circulating water flow rate, use of cooling water with less than 1,115 milligrams per liter TDS concentration	NI	BACT-PSD
Consolidated Environmental Management Inc. - Nucor: Convent, LA	LA-0248/ PSD-LA-751 (1/27/2011)	DRI-113: DRI Unit #1 Process Water Cooling Tower (26,857 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.11 lb/hr, 0.40 tons/yr	NI	BACT-PSD
Consolidated Environmental Management Inc. - Nucor: Convent, LA	LA-0248/ PSD-LA-751 (1/27/2011)	DRI-213: DRI Unit #2 Process Water Cooling Tower (26,857 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.11 lb/hr, 0.40 tons/yr	NI	BACT-PSD
Consolidated Environmental Management Inc. - Nucor: Convent, LA	LA-0248/ PSD-LA-751 (1/27/2011)	DRI-114: DRI Unit #1 Clean Water Cooling Tower (17,611 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.07 lb/hr, 0.29 tons/yr	NI	BACT-PSD

PM_{10} BACT Determinations – Cooling Tower

Facility: City, State	RBLC ID/ Permit # (Issuance Date)	Process	Pollutant: Control, Emission Limits	Control Efficiency	Basis
Consolidated Environmental Management Inc. - Nucor: Convent, LA	LA-0248/ PSD-LA-751 (1/27/2011)	DRI-214: DRI Unit #2 Clean Water Cooling Tower (17,611 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.0005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.07 lb/hr, 0.29 tons/yr	NI	BACT-PSD
V & M Star: Youngstown, OH	OH-0344/ P0107088 (1/27/2011)	Cooling Water Towers (2) and Contact Water (1,372,000 gpm)	TPM_{10}: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 0.572 lb/hr, 2.51 tons/yr	NI	Other Case-by-Case
Osceola Steel Co.: Adel, GA	GA-0142/ 3312-075-0024-P-01-0 (12/29/2010)	Cooling Towers CT1, CT21, CT22, and CT23	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration	NI	BACT-PSD
V & M Star: Youngstown, OH	OH-0328/ P0103995 (4/10/2009)	Pipe Mill Cooling Tower (1,800,000 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, use of cooling water with less than 1,000 milligrams per liter TDS concentration, 0.75 lb/hr, 3.29 tons/yr	NI	BACT-PSD
V & M Star: Youngstown, OH	OH-0328/ P0103995 (4/10/2009)	Melt Shop Cooling Tower (3,000,000 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate, 1.25 lb/hr, 5.48 tons/yr	NI	BACT-PSD
Mid American Steel and Wire Company: Madill, OK	OK-0128/ 2003-106-C (M-1) PSD (9/8/2008)	Cooling Towers (3) (3,000 gpm)	Filterable PM_{10}: High efficiency drift eliminators	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Cooling Tower	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.005% of the circulating water flow rate	NI	BACT-PSD
Marathon Petroleum: Garyville, LA	LA-0211/ PSD-LA-719 (12/27/2006)	Cooling Tower Nos. 1 & 2 (24-08 & 32-08) and Hydrogen Plant Cooling Tower (53-08) (30,000 gpm; 96,250 gpm; and 2,500 gpm respectively)	Filterable PM_{10}: High efficiency drift eliminators with a maximum drift rate of 0.005% of the circulating water flow rate	NI	BACT-PSD
Entergy New Orleans, Inc. (Michoud Electric Plant): New Orleans, LA	LA-0191/ PSD-LA-700 (10/12/2004)	Cooling Tower (1,728 gpm)	Filterable PM_{10}: Drift eliminator with a maximum drift rate of 0.001% of the circulating water flow rate, 0.052 lb/hr, 0.205 tons/yr	NI	BACT-PSD
	Note: 0.052 lb/hr * 1000000 ppm / (8.346 lb/gal * 1728 gpm * 60 min/hr * 0.001%) = 6,009 ppm TDS				

Step 2: Eliminate Technically Infeasible Options – Cooling Towers (PM_{10})

No technologies were eliminated from consideration because of technical infeasibility for cooling towers.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Cooling Towers (PM_{10})

The control technologies for cooling towers are ranked as follows:

(1) Drift eliminators.

(2) Minimization of total dissolved solids (TDS).

Step 4: Evaluate the Most Effective Controls and Document the Results – Cooling Towers (PM_{10})

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for cooling towers at iron ore pelletizing plants is drift eliminators. Most facilities express emission limitations in terms of maximum drift rate and an associated pound per hour limitation. The only cooling tower in the range of the proposed cooling tower with a listed drift rate is located at Entergy New Orleans, Inc. (Michoud Electric Plant). The drift rate is 0.001%. Although the RBLC lists cooling towers with lower drift rates, the cooling towers are not comparable to the one proposed by Mag Pellet due to the size differences.

BACT Proposal

BACT has been proposed to be the use of drift eliminators with a maximum drift rate of 0.001%, use of cooling water with less than 6,009 milligrams per liter TDS concentration, and an appropriate pound per hour limitation. The basis for the TDS concentration is documented in the above RBLC BACT determination table for cooling towers under the entry for Entergy New Orleans, Inc. (Michoud Electric Plant).

Step 5: Select BACT – Cooling Towers (PM_{10})

The proposed BACT for PM_{10} meets the most stringent BACT found in the RBLC for cooling towers of comparable size. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed PM_{10} BACT for the cooling towers is given in the BACT Conclusion for PM, $PM_{10,}$ and $PM_{2.5}$.

Particulate Matter Less than 2.5 Microns ($PM_{2.5}$) BACT

The $PM_{2.5}$ BACT analysis is divided into five categories: material handling operations, induration furnaces, combustion units, cooling towers, and fugitive emissions.

Step 1 of the BACT process is shown below for this $PM_{2.5}$ BACT analysis to describe general particulate control devices. A discussion of $PM_{2.5}$ is then given as applicable to each of the categories of processes.

$PM_{2.5}$ Discussion

$PM_{2.5}$ is particulate matter that is 2.5 micrometers in diameter or smaller, otherwise known as fine particles. This subset of particulate matter is believed to pose a greater health threat than larger particles because the small size allows for deeper penetration into the lungs. They also remain suspended in the air for longer times and can travel farther distances than larger particles. These particles exist in solid, liquid, or gaseous form and are a result of combustion processes and various industrial processes. Fine particulate can be emitted either directly from the source (primary particles) or formed secondarily (secondary particulate) in the atmosphere from precursors such as SO_2, NO_x, VOC, NH_3, and VOCs that react in the atmosphere with condensable particulate matter.

Particulate is typically measured as filterable or condensable particulate. Filterable particulate is emitted directly as solid or liquid at the stack, whereas condensable particulate is in the vapor phase at the stack and condenses upon cooling in the ambient air to form solid or liquid particulate. Filterable particulate may be PM, PM_{10}, or $PM_{2.5}$. Condensable particulate exists mostly as $PM_{2.5}$ and can be a significant fraction of total $PM_{2.5}$. Combustion processes and industrial processes involving heat tend to form both filterable and condensable particulate. Industrial processes that don't involve heat and moisture typically only produce filterable particulate.

Step 1: Identify Potential Control Technologies ($PM_{2.5}$)

Data on the nature and amount of $PM_{2.5}$, specifically the condensable fraction, from various sources is limited. This may be in part due to the fact that $PM_{2.5}$ has not been directly regulated often and that accurate testing of the condensable fraction has proven to be challenging. Discussions of particulate control technologies in the literature do not usually include control efficiencies achievable for $PM_{2.5}$ and if they do, they tend to only include the filterable fraction of $PM_{2.5}$. In addition, the RBLC does not contain extensive entries for $PM_{2.5}$ (filterable or total) in comparison to the number of entries for PM and PM_{10}.

This $PM_{2.5}$ BACT review will use available information and best engineering judgment to evaluate the $PM_{2.5}$ BACT for the required facilities as part of this modification in light of the PM and PM_{10} BACT determinations. The main considerations will be evaluating the portions of filterable and condensable $PM_{2.5}$ from each unit and determining whether or not the existing PM and PM_{10} BACT determinations are also BACT for $PM_{2.5}$.

The control technologies for emissions of filterable $PM_{2.5}$ are generally going to be similar as those for PM and PM_{10}. However, due to the nature of the fine particles and the potentially high fraction of condensable particulate, some controls may be more effective at controlling PM and PM_{10} than $PM_{2.5}$. For example, a baghouse is not going to be as effective at controlling $PM_{2.5}$ that exists in a condensable phase as it is for controlling PM, which exists only as filterable particulate, and PM_{10} which may exist as larger filterable particulate and a condensable fraction. Current EPA approved test methods do not distinguish between condensable particle size.

Traditional particulate collection devices: mechanical collectors, wet scrubbers, electrostatic precipitators, and fabric filter dust collectors are discussed in the PM BACT analysis. Additional comments related to the control of $PM_{2.5}$ are included here along with other potential control technologies geared toward $PM_{2.5}$ control.

Mechanical Collectors (e.g. cyclones or multiclones)
Mechanical collectors have low capital and maintenance costs (due to lack of moving parts) and are good at removing larger particles and at pre-cleaning exhaust streams. However, mechanical collectors are not as efficient at controlling fine particles since inertial and gravitational forces are not as effective for the low mass of fine particles, and these types of control devices would likely have little impact on controlling condensable particulate. They may be viable as a pre-collection device for $PM_{2.5}$ as they would allow for time for a heated exhaust stream to cool and for gaseous fractions to condense and be controlled by another downstream device.

Electrostatic Precipitators
Electrostatic precipitators can treat large volumes of exhaust over a wide range of temperatures and are efficient for controlling even smaller particles. A dry ESP would be effective for controlling filterable $PM_{2.5}$, but would do little to control condensable particulate. For exhaust

streams with condensable particulate, increased collection may be achieved through lowering the exhaust temperature; however, this may lead to condensation on the ESP collection plates, leading to corrosion. High resistivity particles may need to be conditioned prior to being treated by a dry ESP. Dry ESPs are also more sensitive to changes in particulate loading and characteristics than fabric filters.

Wet ESPs, however, are very effective at controlling both the filterable and condensable fractions of particulate. Collection efficiency may drop for particles in the range of 0.1 to 1 microns, however, for both dry and wet ESPs. Typically, wet ESPs cannot handle exhaust temperatures exceeding 170°F and may suffer clogging problems due to build up of fine particles on the high voltage and collection electrodes. Wet ESPs may be used as a polishing unit after another particulate control device for further $PM_{2.5}$ removal.

Fabric Filters

Fabric filters offer particulate control for a wide variety of particle sizes. The fabric itself is responsible for some filtration, but the filter cake that forms on the fabric acts as a highly efficient filter. Fabric filters can handle a variety of types of dusts and airflows, but are typically limited to dry exhaust streams, as moist or sticky conditions can cause clogging or blinding of the fabric. Blinding can also occur if large quantities of fine particles are present. Typical fabric filters are easily degraded at high temperatures, although there are special fabrics that can withstand higher temperatures. Fabric filters can be very efficient at collecting fine particles; however, fabric filters never really achieve a steady state of particle collection because when cleaning is necessary, part of the filter cake that helps to filter the fine particles is removed. In addition, if high air-to-cloth ratios are present, smaller particles may migrate through the filter cake and get re-entrained in the exhaust gas stream. Fabric filters are primarily used for controlling filterable particulate; however, some condensable particulate may be controlled. One study found that changing the material of the bag in a fabric filter system from a felt bag to a membrane bag did not change the overall particulate control, but changed the fraction of filterable and condensable particulate controlled[1]. The felt bag was much more effective at controlling the condensable portion of particulate, whereas the membrane bag was more effective at controlling the filterable portion of particulate. It was theorized that this was due to the lack of cake retention on the membrane filter.

[1]McMenus, Michael, Robert E. Snyder and Kevin E. Redinger, "Impact of Fabric Filter Media and SDA Operations on Multi-Pollutant Emissions", *EPRI-DOE-EPA-AWMA Combined Power Plant Air Pollutant Control Mega Symposium*, Baltimore, MD, 2006

Wet Scrubbers

Wet scrubbers have many applications for particulate (and gaseous pollutant) control and can handle almost any kind of exhaust, including flammable, explosive, moist, or sticky dusts. Along with particulate, they can also handle mists or gases. Conventional scrubbers may not be suitable for particulate less than 1 micron in diameter; however, scrubbers such as venturi, condensation, and charged scrubbers are capable of removing fine particles at higher efficiencies. Higher control efficiencies of submicron particles require increased power consumption, however. Wet scrubbers can achieve higher levels of control for condensable PM than dry control technology because the scrubbers help to condense the condensable fraction during particulate removal.

Advanced Hybrid™ Filter Technology

Advanced Hybrid™ filter technology combines electrostatic precipitation with fabric filtration. The configuration of the control device involves alternating rows of ESP components and filter bags. Exhaust gas enters an ESP zone, which removes most of the particulate. A perforated collecting plate then allows the gas flow to pass to a filter bag zone. The ESP zones help to also capture filter dust cake when the filter bag is pulsed clean. The collecting plates and discharge electrodes are periodically cleaned by rapping methods. This type of technology has been applied to the coal-fired power plant industry with an overall particulate capture efficiency of 99.99%. While this may prove to be an effective control for $PM_{2.5}$, it has not been demonstrated in the iron ore pelletizing industry. Therefore, it will not be considered further in this evaluation.

Cloud Chamber System

This emergent technology involves multiple steps. The exhaust gas enters a pre-conditioning chamber, where coarse particles are removed by spray impaction and fine and ultra-fine particles are grown through agglomeration and coagulation. The gas then enters the first cloud generation vessel, where positively charged droplets are used to capture fine particles that are simultaneously scrubbed. The gas flow then continues to a second cloud generation vessel, where negatively charged droplets are used to capture a substantial portion of the remaining fine, ultra-fine, and condensable particulate. Captured particles are removed from the bottom of the system as a low-volume slurry.

This type of system can handle exhaust temperatures of up to 2500 °F, high particulates loadings, and changes in flow volume. Particle solubility, reactivity, and resistivity do not affect performance. This type of control has been used for controlling particulates from glass melting furnaces. One study indicated control of 95%+ for filterable particulate and 90%+ for total particulate (including condensable particulate). Other tests conducted by the manufacturer indicated removal of total particulates in excess of 99%. The manufacturer indicates that this type of control could be used for other applications such as large stationary diesel engines, fiber optic manufacturing, solar panel fabrication, syn-gas cleaning, asphalt shingle manufacturing, solid fuel industrial boilers, oil and gas fired boilers, waste incinerators, abrasive production, smelters and foundries, chemical manufacturing, curing ovens, dryers, rotary kilns, plastics manufacturing, sulfuric and nitric acid production, and more. While this may prove to be an effective control for $PM_{2.5}$, it has not been demonstrated in the iron ore pelletizing industry. Therefore, it will not be considered further in this evaluation.

The table below shows control efficiencies for $PM_{2.5}$ as found in the literature. When the fraction of $PM_{2.5}$ wasn't specified, it was assumed that the control efficiency was given for filterable $PM_{2.5}$.

$PM_{2.5}$ Control Efficiencies as Found in the Literature

Control Device Description	PM2.5-FIL		PM-CON		PM2.5-PRI		Source
	Min	Max	Min	Max	Min	Max	
Single Cyclone		10%					[1]
Single Cyclone	60%	75%					[2] (assumed filterable)
Single Cyclone	20%	70%					[3]
Single Cyclone	5%	45%					[4]
Multiple Cyclones		80%					[1]
Multiple Cyclones	80%	90%					[2] (assumed filterable)
Multiple Cyclones	10%	65%					[4]
Wet Scrubber - High Efficiency, Venturi Scrubber	80%	90%	10%	40%	45%	68%	[5]
Wet Scrubber - High Efficiency, Venturi Scrubber		90%					[1]
Wet Scrubber - High Efficiency, Venturi Scrubber	80%	90%					[2] (assumed filterable)
Wet Scrubber - High Efficiency, Venturi Scrubber	50%	99%					[6]
Wet Scrubber - Gas Atomized Venturi Scrubber	90%	99.99%					[7] (assumed filterable)
Wet Scrubber - VenturiPak™		99.5%		99%			[8]

$PM_{2.5}$ Control Efficiencies as Found in the Literature

Control Device Description	PM2.5-FIL		PM-CON		PM2.5-PRI		Source
	Min	Max	Min	Max	Min	Max	
Wet Scrubber - Venturi Scrubber (100 in water pressure drop)	90%	99.9%					[4]
Wet Scrubber - Venturi Scrubber (20 in water pressure drop)	20%	99.0%					[4]
Wet Flue Gas Desulfurization		80.0%		80%			[4a]
Ionizing Venturi Scrubber	87%	99.0%					[4]
Electrostatic Scrubber	90%	98.0%					[4]
Dry Electrostatic Precipitator	80%	95%	10%	60%	24%	67%	[5]
Dry Electrostatic Precipitator		95%					[1]
Dry Electrostatic Precipitator	90%	99.2%					[2] (assumed filterable)
Dry Electrostatic Precipitator	96%	99.2%					[9] (assumed filterable)
Dry Electrostatic Precipitator					75%	90%	[10]
Dry Electrostatic Precipitator	96%	99.5%					[4]
Dry Electrostatic Precipitator		99.6%		0%			[4a]
Fabric Filter	30%	60%	10%	60%	14%	60%	[5]
Fabric Filter		99%					[1]
Fabric Filter	93.4%	99.3%					[2] (assumed filterable)
Fabric Filter	99.6%	99.9%					[6]
Fabric Filter	99.0%	99.8%					[4]
Fabric Filter					90%	94%	[10]
Fabric Filter with specialty filters		99.5%		30%			[4a]
Wet ESP				90%			[5] (sulfuric acid aerosol)
Wet ESP					80%	99%	[11]
Wet ESP	90.0%	99.2%					[12] (assumed filterable)
Wet ESP	97.0%	99.0%					[4]
Wet ESP					86%	92%	[10]
Wet ESP		96.0%		90%			[4a]
Cloud Chamber System	95.0%				90%	99+%	[13]

[1] U.S. EPA, *AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors*, Appendix B.2, Table B.2-3, September 1996: http://www.epa.gov/ttn/chief/ap42/appendix/appb-2.pdf

[2] EC/R Incorporated, *Stationary Source Control Techniques Document for Fine Particulate Matter*, EPA Contract No. 68-D-98-026, Chapel Hill, NC, 1998: http://www.epa.gov/ttn/oarpg/t1/reports/pmctd.pdf

[3] EPA-452/F-03-005, EPA Air Pollution Control Technology Fact Sheet: Cyclones, 2003: http://www.epa.gov/ttn/catc/dir1/fcyclon.pdf

[4] Perry, Robert H. and Don W. Green, *Perry's Chemical Engineers' Handbook*, Seventh Edition, McGraw Hill, 1997.

[4a] Southern Montana Electric Generation and Transmission Cooperative Highwood Generating Station, Air Quality Permit #3423-01, Montana Department of Environmental Quality Permitting and Compliance Division, November 26, 2008.

[5] E.H. Pechan & Associates, Inc., "Evaluation of Potential PM2.5 Reductions by Improving Performance of Control Devices: PM2.5 Emission Estimates", Final Report, Springfield, VA, September 27, 2005: http://www.epa.gov/pm/measures/pm25_emission_estimates_2007.pdf

$PM_{2.5}$ Control Efficiencies as Found in the Literature							
Control Device Description	PM2.5-FIL		PM-CON		PM2.5-PRI		Source
	Min	Max	Min	Max	Min	Max	
[6] U.S. EPA, *EPA Air Pollution Control Cost Manual*, Sixth Edition (EPA 452/B-02-001): http://epa.gov/ttn/catc/products.html#cccinfo							
[7] Bionomic Industries Inc., Gas Atomized Venturi Scrubber: http://www.bionomicind.com/							
[8] EnviroCare, VenturiPak™: http://www.envirocare.com/files/ENVIRO-J141_R8.pdf							
[9] EPA-452/F-03-028, EPA Air Pollution Control Technology Fact Sheet: Dry Electrostatic Precipitator - Wire-Plate Type, 2003: http://www.epa.gov/ttn/catc/dir1/fdespwpl.pdf							
[10] Louisville Gas & Electric Company Trimble County Generating Station, Final Revised Statement of Basis, Commonwealth of Kentucky Division for Air Quality, Permit No. V-08-001 R2, January 28, 2010: http://www.air.ky.gov/NR/rdonlyres/E363916B-AE4F-4824-A2B4-1C88D8C22C95/0/V08001R2Basis_12810.pdf							
[11] Bologa, A., H.-R. Paur, H. Seifert, and K. Woletz, "Novel Wet Electrostatic Precipitator for Sub-Micron Particles": http://www.dustconf.com/CLIENT/DUSTCONF/UPLOAD/S11/BOLOGA_D.PDF							
[12] EPA-452/F-03-030, EPA Air Pollution Control Technology Fact Sheet: Wet Electrostatic Precipitator - Wire-Plate Type, 2003: http://www.epa.gov/ttn/catc/dir1/fwespwpl.pdf							
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(a) Material Handling Operations ($PM_{2.5}$)

The emissions from the material handling operations are in the form of particulate matter (PM, PM_{10}, and $PM_{2.5}$). Particulate matter emissions are primarily due to the attrition of particles (dust) from the feedstocks, iron oxide pellets, and by-products. This is caused by the abrasion of materials rubbing against each other and the process equipment as they move through the process.

Existing and Proposed $PM_{2.5}$ BACT Determinations for Material Handling Operations

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for material handling operations at iron ore pelletizing plants. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

$PM_{2.5}$ BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Material Handling Operations: EU001a, EU004b, EU005, EU009, EU025b, EU011, EU012, EU015, EU016, EU019a, EU019b, EU027	$PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf, lb/hr limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU001b	$PM_{2.5}$: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Transfer): EU002a	$PM_{2.5}$: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD

$PM_{2.5}$ BACT - Material Handling Operations

Facility: City, State	RBLC ID/ Permit # (Issuance Date)	Process	Pollutant: Control, Emission Limits	Control Efficiency	Basis
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU002b	$PM_{2.5}$: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Transfer): EU003a	$PM_{2.5}$: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU003b	$PM_{2.5}$: Fugitive Dust Control Plan Enclosure, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Transfer): EU025a	$PM_{2.5}$: Enclosed conveyor and grizzly, 5% opacity (6-min avg) lb/hr and tpy limits	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations - Material Handling Operations					
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Oxide Pellet Stockpile Conveyor Gallery	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.77 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Bin	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 1.40 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Hearth Layer Feed	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.12 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Discharge	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 3.30 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Pellet Screening and Handling	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 2.90 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Carbon Bin for Mercury Control	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Lime Bin for Scrubber	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.017 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Primary Grinding Mill Line 3	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.23 lb/hr (3-hr rolling avg)	NI	BACT-PSD

$PM_{2.5}$ BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Grizzly Transfer Tower	Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.002 gr/dscf and 0.079 lb/hr (3-hr rolling avg)	NI	BACT-PSD
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Dozer Activity at Tailings Basin	$PM_{2.5}$: Fugitive Dust Control Plan	NI	BACT-PSD
		Grading at Tailings Basin	$PM_{2.5}$: Fugitive Dust Control Plan	NI	BACT-PSD
		120K Ton Concentrate Stockpile Loadout	$PM_{2.5}$: Fugitive Dust Control Plan	NI	BACT-PSD
		Oxide Product Loadout to Railcars	$PM_{2.5}$: Fugitive Dust Control Plan	NI	BACT-PSD
		These BACTs are listed under the pollutant Visible Emissions. The BACT determination (Table 1-12) states the limit is the use of the Fugitive Dust Control Plan.			
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Bentonite Bin	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.021 lb/hr (3-hr rolling avg)	94%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Intermediate Dry Fuel Silo	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.11 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Alternative Fuels Prepared Dry Fuel Silo	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.07 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Final Transfer Conveyors and Loadout Conveyor	Filterable $PM_{2.5}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Reclaim Conveyor	Filterable $PM_{2.5}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.31 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Emergency Pellet Conveyor Transfer	Filterable $PM_{2.5}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Coal Bin 2	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.14 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Limestone Bin	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.21 lb/hr (3-hr rolling avg)	95%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Mill Feeder 1	Filterable $PM_{2.5}$: Baghouse with Leak Detection, 0.002 gr/dscf and 0.51 lb/hr (3-hr rolling avg)	95%	BACT-PSD

$PM_{2.5}$ BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Lime Bin	Filterable $PM_{2.5}$: Baghouse/Bin Vent, 0.002 gr/dscf and 0.02 lb/hr (3-hr rolling avg)	95%	BACT-PSD
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Direct Reduced Iron (DRI) Material Handling	Filterable $PM_{2.5}$: Enclosures/Baghouse, 0.47 lb/hr, 2.05 tons/yr	NI	LAER
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Coal and Iron Ore Unloading	Filterable $PM_{2.5}$: Enclosures/Baghouse, 0.0022 gr/dscf, 0.93 lb/hr, 4.07 tons/yr	NI	LAER
	A review of the permit shows that the process consists of a crane partially controlled by a three-sided enclosure transferring material to a hopper which is vented to the baghouse. The remaining emissions from the process are listed as fugitive emissions.				
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Alloy, Flux, Carbon, Limestone, & Coke Handling	Filterable $PM_{2.5}$: Enclosures/Baghouse, 0.0022 gr/dscf, 1.4 lb/hr, 6.13 tons/yr	NI	LAER
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Iron Ore Grinding (992 tons/yr)	Filterable $PM_{2.5}$: Baghouse with 2 Cyclones, 0.0022 gr/dscf, 1.04 lb/hr, 4.56 tons/yr	99%	LAER
	A review of the permit shows that only Grinder 4A is controlled by the cyclones and baghouse. The remaining handling units (Grizzly Feeder 5A, Conveyor 6A, and Hopper 4A) are listed as fugitive emissions.				
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Conveyors, Hoppers, Screens to Rotary Hearth Furnace (227 tons/yr)	Filterable $PM_{2.5}$: Baghouse, 0.0022 gr/dscf, 1.4 lb/hr, 6.13 tons/yr	NI	LAER

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options - Material Handling Operations ($PM_{2.5}$)

Dry Material Handling
The air streams associated with dry material handling operations are characterized by air streams at or near ambient temperature and moisture content. Such streams would not be expected to contain materials that would be considered to be acidic or corrosive. As such, none of the listed particulate matter control devices were eliminated from consideration for the dry material handling operations because of technical infeasibility.

Raw Material Unloading and Storage Areas
Control devices draw pollutant laden air into themselves through ventilation hoods or other ducted enclosures, which must be close to the pollutant generation point in order to gather the air. The dumping of material from a truck is an irregular process, likely damaging or destroying any hoods near the truck's drop point. As such, stand-alone control devices were eliminated from consideration for the truck unloading areas because of technical infeasibility.

Similarly, when material is dropped from a conveyor onto a storage pile, the emission generation point is not at the conveyor but at the top of the storage pile itself. Since ventilation hoods or other ducted enclosures cannot be located close to the actual pollutant generation point, which is constantly changing in size, stand-alone control devices were eliminated from consideration for the storage piles and the loading of storage piles because of technical infeasibility.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Material Handling Operations ($PM_{2.5}$)

The control technologies for dry material handling operations are ranked as follows:

(1) Fabric filter dust collectors: 30% - 99.9%

(2) Wet scrubbers: 20% - 99.9%

(3) Electrostatic precipitators: 80% - 99.6%

(4) Cyclones: 5% - 90%

(5) Wet suppression: 50% - 90%

The control technologies for truck unloading areas are ranked as follows:

(1) Wet suppression: 50% - 90%

(2) Process enclosures: 50% - 90%

Step 4: Evaluate the Most Effective Controls and Document the Results - Material Handling Operations ($PM_{2.5}$)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for dry material handling operations at iron ore pelletizing plants is fabric filtration. A few operations are controlled by wet scrubbers or wet suppression. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of $PM_{2.5}$. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.002 gr/dscf to 0.005 gr/dscf, with most processes being limited at 0.002 gr/dscf, which was determined to be BACT for many types of material handling operations.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material truck unloading at iron ore pelletizing plants is the use of a fugitive dust control plan.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material storage at iron ore pelletizing plants is the use of an enclosure. Inclusion of raw material storage into a fugitive dust control plan can also be implemented.

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for raw material transfer at iron ore pelletizing plants is enclosures and fabric filtration that are appropriate to the material being handled and that are appropriate for the specific process. Since emission unit EU025a includes the dumping of material from a truck and the dropping of material from one conveyor to another, stand-alone control devices are not technical feasible as stated in Step 2. Therefore, emission unit EU025a (Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener) shall be controlled by the use of a site-specific fugitive dust control plan, enclosures for the Conveyor and Grizzly Feeder, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

BACT Proposal

(a) Material Handling Emission Units:

Material Handling Emission Units	
Description	Unit No.
Iron Concentrate Unloading	EU001a
Coke Breeze Conveyance & Storage Bin	EU004b
Bentonite Unloading (Truck) & Storage Area	EU005
Limestone and Dolomite Grinding Mill Bin Area	EU025b
Mixing Area Material Handling System	EU011
Hearth Layer Bin System	EU012
Machine Discharge System	EU015
Hearth Layer Separation System	EU016
Oxide Pellet Storage System	EU019a
Oxide Pellet Loadout System	EU019b
Dust Recycle Surge Hopper & Blow Tank Area	EU027

BACT for the Material Handling emission units has been proposed to be the use of baghouses or bin vent filters with a grain loading of 0.002 gr/dscf and an appropriate pound per hour limitation.

(b) Raw Material Storage Emission Units:

Raw Material Storage Emission Units	
Description	Unit No.
Iron Concentrate Transfer & Storage Area	EU001b
Limestone Unloading & Storage Area	EU002b
Dolomite Unloading & Storage Area	EU003b

BACT for the Raw Material Storage emission units has been proposed to be the use of a site-specific fugitive dust control plan, the use of enclosures, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

(c) Raw Material Transfer Emission Units:

Raw Material Transfer Emission Units	
Description	Unit No.
Limestone Unloading & Storage Area	EU002a
Dolomite Unloading & Storage Area	EU003a
Limestone/Dolomite Hopper, Belt Feeder, Grizzly Feeder/Screener	EU025a

BACT for the Raw Material Transfer emission units has been proposed to be the use of a site-specific fugitive dust control plan, enclosed conveyor and grizzly feeder, that the opacity from each process shall not exceed five percent (5%) on a six (6) minute average, and an appropriate pound per hour and ton per year limitation.

Step 5: Select BACT - Material Handling Operations ($PM_{2.5}$)

The proposed BACT for $PM_{2.5}$ meets the most stringent BACT found in the RBLC for material handling operations. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed $PM_{2.5}$ BACT for the above Material Handling Operations is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(b) Induration Furnace ($PM_{2.5}$)

Particulate matter emissions are primarily due to the attrition of particles (dust) from the iron oxide pellets. This is caused by the abrasion of pellets rubbing against each other and the process equipment as the pellets move through the induration furnace. Particulate matter is emitted from both the waste gas and hood exhaust vents.

The waste gas also contains a small amount of condensable particulate matter. The condensable particulates are primarily inorganic compounds like sulfates, acid gases, chlorides, and fluorides which are generated as a byproduct of pellet induration. The waste gas may also contain volatile organic compounds, which are products of incomplete natural gas combustion.

Existing and Proposed $PM_{2.5}$ BACT Determinations for Induration Furnaces

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for induration furnaces at iron ore pelletizing plants. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

$PM_{2.5}$ BACT Determinations – Induration Furnace					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Furnace Hood Exhaust EU013 (450 tons/hr pellets)	$PM_{2.5}$: Baghouse, 0.008 gr/dscf, lb/hr limit	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Furnace Windbox Exhaust EU014 (450 tons/hr pellets)	$PM_{2.5}$: Baghouse, 0.008 gr/dscf, lb/hr limit	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations – Induration Furnaces					
Essar Steel Minnesota LLC: Nashwauk, MN	**MN-0085/ 06100067-004 (5/10/2012)**	**Furnace Hood Exhaust (624 st/hr pellets)**	**Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.008 gr/dscf and 54.00 lb/hr (3-hr rolling avg)**	**NI**	**BACT-PSD**
Essar Steel Minnesota LLC: Nashwauk, MN	**MN-0085/ 06100067-004 (5/10/2012)**	**Furnace Waste Gas (624 st/hr pellets)**	**Filterable $PM_{2.5}$: Fabric Filter with Leak Detection, 0.008 gr/dscf and 37.00 lb/hr (3-hr rolling avg)**	**NI**	**BACT-PSD**
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 1 (450 tons/hr pellets)	Filterable $PM_{2.5}$: Dry ESP, 0.012 gr/dscf and 21.00 lb/hr (3-hr rolling avg)	99%	BACT-PSD
U.S. Steel Corp - Keetac: Keewatin, MN	MN-0084/ 13700063-004 (12/6/2011)	Grate Kiln – Down Draft Drying Zone 2 (450 tons/hr pellets)	Filterable $PM_{2.5}$: Dry ESP, 0.012 gr/dscf and 14.20 lb/hr (3-hr rolling avg)	95%	BACT-PSD

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options – Induration Furnaces ($PM_{2.5}$)

Historically, baghouses have been deemed technically infeasible in iron induration furnaces due to the temperature limitations of the filter bag material. This is a concern primarily during malfunctions which result in high temperature excursions within the induration furnace. The straight grate induration furnace which Mag Pellet is proposing has features which can mitigate the effects of high temperature excursions which are not present in the grate/kiln design. The following is a description of those mitigating features that make a baghouse feasible on the Mag Pellet furnace:

- The traveling grate in a straight-grate furnace is not as susceptible to temperature swings as a grate/kiln. This is because a grate/kiln has one main burner while a traveling grate furnace has many individual gas burners. In Mag Pellet's case, multiple burners of varying size will be installed. This allows much more flexibility in temperature control within a straight grate furnace.

- A straight-grate furnace has the capability to divert gases from the hood exhaust stream into the firing zone for additional cooling via the tempering air stream to prevent high temperatures from damaging filter bags in waste gas service. The air in this stream is from the outlet of the second cooler and it has a much lower temperature than the firing zone gases. Additional cooling can be provided by drawing in ambient air via the air intake damper on the second cooler duct.

- A baghouse on the waste gas stream would receive exhaust gas after the proposed gas suspension absorber (see the SO_2 BACT determinations for furnace hood exhausts and furnace waste gas exhausts). Lime slurry and water are added in the absorber for SO_2 control. The evaporation of this water is a significant source of cooling, thus significantly reducing the potential for high temperature from reaching the waste gas baghouse.

- A baghouse on the hood exhaust would receive exhaust gas from the drying zone of the furnace where temperatures are low to begin with (<500°F) and the risk of temperature spiking very remote, and the risk of temperature spiking can be mitigated by adding the ability to introduce outside tempering air.

- Filter bags made with fiberglass and PTFE membrane coatings can withstand operating temperatures up to 500°F.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Induration Furnaces ($PM_{2.5}$)

The control technologies for induration furnace operations are ranked as follows:

(1) Fabric filter dust collectors: 30% - 99.9%

(2) Wet scrubbers: 20% - 99.9%

(3) Electrostatic precipitators: 80% - 99.6%

Step 4: Evaluate the Most Effective Controls and Document the Results - Induration Furnace ($PM_{2.5}$)

Based on a review of the U.S. EPA RBLC, the primary control used for induration furnaces is dry capture, either using fabric filtration or a dry ESP. Most facilities express emission limitations in terms of grain loading and/or pounds per hour of $PM_{2.5}$. Grain loading is the most effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The grain loadings given in the review range from 0.008 gr/dscf to 0.012 gr/dscf.

BACT Proposal – Induration Furnace ($PM_{2.5}$)

BACT for the $PM_{2.5}$ emissions from the induration furnace has been proposed to be controlled through the use of a baghouse with a maximum outlet concentration of 0.008 gr/dscf and an appropriate pound per hour limitation.

Step 5: Select BACT - Induration Furnace ($PM_{2.5}$)

The proposed BACT for $PM_{2.5}$ meets the most stringent BACT found in the RBLC for induration furnaces. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed $PM_{2.5}$ BACT for the Induration Furnace is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(c) Combustion Units ($PM_{2.5}$)

Emission units associated with combustion processes are subject to $PM_{2.5}$ BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, natural gas fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators ($PM_{2.5}$)
The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing and Proposed BACT Determinations – Natural Gas Fired Emergency Generators ($PM_{2.5}$)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for natural gas fired generators only used for emergency purposes.

$PM_{2.5}$ BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Emergency Generators EU017a and EU017b 1743.5 hp(1300 kw) each	$PM_{2.5}$: Use of natural gas, good combustion practices, 0.20 g/kw-hr, 500 hours/year	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations - Emergency Generators					
VC Energy LLC (Midland Power Station): Midland, MI	MI-0401/ 24-11B (12/21/2011)	Emergency Generator 1,200 kw (1,576 hp)	$TPM_{2.5}$: Certified to meet NSPS Subpart JJJJ, proper combustion design, 0.01 lb/MMBtu	NI	BACT-PSD
Westlake Vinyls Company LP: Geismar, LA	LA-0256/ PSD-LA-754 (12/6/2011)	Emergency Generator 1,818 hp (1,384 kw)	$TPM_{2.5}$: Use of natural gas, good combustion practices, < 0.01 lb/hr	NI	BACT-PSD
Allegheny Ludlum Corp.: Brackenridge, PA	PA-0274/ 0059-I008 (2/16/2010)	Emerg. Generator #1 2,250 kw (3,015 hp)	Filterable $PM_{2.5}$: Use of pipeline quality natural gas, 2.66 lb/hr, 0.27 tons/yr, 200 hours/year	NI	BACT-PSD
		There is no documented basis to include the annual operational limit as part of the BACT. The 200 hr/yr limit is only to limit the PTE of the unit.			

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generator ($PM_{2.5}$)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generator ($PM_{2.5}$)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generator ($PM_{2.5}$)

EPA determined in the development of NSPS JJJJ that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the emergency generator.

The natural gas fired emergency generators (EU017a and EU017b) will be subject to 40 CFR 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of pounds per hour of $PM_{2.5}$. Grams per kilowatt-hour is a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM standards for compression ignition engines with a maximum engine power of greater than 560 kw (735 hp) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2007.

$PM_{2.5}$ BACT for the diesel fired emergency generator has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an emission limit, which is 0.20 g/kw-hr for the proposed fire pump. Additionally under 326 IAC 2-7, an emergency generator is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency natural gas fired generators in the same size category.

Step 5: Select BACT - Natural Gas Fired Emergency Generator ($PM_{2.5}$)

A detailed $PM_{2.5}$ BACT for the natural gas fired emergency generator is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(2) Diesel Fired Fire Pump ($PM_{2.5}$)
The Fire Pump (EU018) will be fueled by diesel.

Existing and Proposed BACT Determinations –Diesel Fired Fire Pumps ($PM_{2.5}$)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired

fire pumps. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps that are only diesel fired.

$PM_{2.5}$ BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Fire Pump EU018 300 hp (224 kw)	$PM_{2.5}$: Use of, good combustion practices, 0.15 g/hp-hr500 hours/year	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations – Emergency Generators					
Walter Scott Jr. Energy CenterWalter Scott Jr. Energy Center, Pottawa, IA	IA-0067 02-528 6/17/2003	Diesel Fire Pump Engine (509 HP)	$PM_{2.5}$: good combustion practices, 0.31 lb/MMBtu (includes condensibles)	NI	BACT-PSD
Arsenal Hill Power Plant, Caddo, LA	LA-0224 PSD-LA-726 3/20/2008	DFP Diesel Fire Pump (310HP)	$PM_{2.5}$: Low Sulfur fuels, limit hours of operation and proper maintenance, 0.68 lb/hr	NI	BACT-PSD, NSPS
Duke Energy Washington County LLC, Washington, OH	OH-0254 06-06792 8/14/2003	Emergency Diesel Fire Pump (400 HP)	$PM_{2.5}$: no emission limits for $PM_{2.5}$ in the RBLC for this unit	NI	BACT-PSD, NSPS
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (660 HP)	$PM_{2.5}$: good combustion practices, 0.64 lb/hr, 0.16 ton/yr	NI	BACT-PSD
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (525 HP)	$PM_{2.5}$: good combustion practices, 0.28 lb/hr, 0.07 ton/yr	NI	BACT-PSD
GP Allendale LP Allendale, SC	SC-0114 / 0160-0020-CB 11/25/2008	Fire Water Diesel Pump (525 HP)	$PM_{2.5}$: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
GP Clarendon LP Clarendon, SC	SC-0115 / 0680-0046-CB 02/10/2009	Fire Water Diesel Pump (525 HP)	$PM_{2.5}$: Tune-ups, 0.41 lb/hr, 0.1 ton/yr	NI	BACT-PSD
Cheyenne Prairie Generating Station Laramie, WY	WY-0070 / CT-12636 08/28/2012	Diesel Fire Pump Engine (327 HP)	$PM_{2.5}$: no emission limits for PM in the RBLC for this unit	NI	BACT-PSD
Gainsville Renewable Energy Center	FL-0323 / PSD-FL-411 (0010131-001-AC)	Emergency Diesel Fire Pump (275 HP)	$PM_{2.5}$: 0.15 g/hp-hr	NI	BACT-PSD

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps ($PM_{2.5}$)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps ($PM_{2.5}$)

The control technologies for diesel fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

(4) Catalyzed diesel particulate filter (CDPF).

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump ($PM_{2.5}$)

EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE. Therefore, the use of a catalyzed diesel particulate filter is not an economically feasible option for the fire pump.

The diesel fired fire pump (EU018) will be subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits for similar emergency diesel generators, the primary control used for diesel fired emergency generators the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of pounds per hour of $PM_{2.5}$. Grams per kilowatt-hour or grams per horsepower hour are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 0.20 g/kw-hr and 0.54 g/kw-hr, which correspond to the PM standards for compression ignition engines with a maximum engine power of greater than 225 kw (300 hp) and less than 450 kW (600 HP) in 40 CFR 89.112 (Tables 1 and 2) beginning in model year 2006.

$PM_{2.5}$ BACT for the diesel fired fire pump has been proposed to be the the use of good combustion practices, and an emission limit, which is 0.15 g/hp-hr for the proposed fire pump. Additionally under 326 IAC 2-7, an emergency fire pump is one that operates less than 500 hours per year. Therefore, an operation limit of 500 hours per year will be included as part of the BACT determination. This is consistent with other recent BACT determinations for emergency diesel fired fire pumps in the same size category.

Step 5: Select BACT - Diesel Fired Fire Pump ($PM_{2.5}$)

A detailed $PM_{2.5}$ BACT for the diesel fired fire pump is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(3) Natural Gas Fired Space Heaters, lab furnaces and Air Heaters ($PM_{2.5}$)
The Space Heaters & lab furnaces (EU021), Ground Limestone/Dolomite Additive System Air Heater (EU010), and Coke Breeze Additive System Air Heater (EU009) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters ($PM_{2.5}$)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2006 to December 2013 for space heaters, air heaters, and process heaters with a heat input capacity less than 50 MMBtu/hr that combust only natural gas.

$PM_{2.5}$ BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters & lab furnaces (EU021) (23.028 MMBtu/hr)	$PM_{2.5}$: Use of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	$PM_{2.5}$: Baghouse, use of natural gas, good combustion practices	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Coke Breeze Additive System Air Heater (EU009) (4.3 MMBtu/hr)	$PM_{2.5}$: Use of natural gas, good combustion practices, 0.0072 lb/MMBtu	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations - Heaters Firing Natural Gas					
City of Palmdale: Palmdale, CA	CA-1212/ SE 09-01 (10/18/2011)	Auxiliary Heater (40 MMBtu/hr)	$TPM_{2.5}$: Use of pipeline quality natural gas, 0.30 lb/hr	NI	BACT-PSD
City of Victorville: Victorville, CA	CA-1191/ SE 07-02 (3/11/2010)	Auxiliary Heater (40 MMBtu/hr)	$TPM_{2.5}$: 1000 hours/year, 0.20 gr/100 dscf	NI	BACT-PSD

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters ($PM_{2.5}$)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters ($PM_{2.5}$)

The control technologies for natural gas fired space heaters and air heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters ($PM_{2.5}$)

Based on a review of the RBLC, add-on control devices are generally not used for controlling particulate emissions from natural gas fired space heaters or air heaters. Most facilities express emission limitations in terms of pounds per hour of $PM_{2.5}$. Pounds per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The only listed emission limit for $PM_{2.5}$ (when converted for comparison) is 0.0075 lb/MMBtu. Based on a review of the RBLC, emission limits for PM (when converted for comparison) varied from 0.0072 lb/MMBtu to 0.0075 lb/MMBtu.

$PM_{2.5}$ BACT for the natural gas fired heaters has been proposed to be the restricted use of only natural gas and the use of good combustion practices along with an emission limit, which is 0.0072 lb/MMBtu for each of the proposed heaters.

Step 5: Select BACT - Natural Gas Fired Space Heaters and Air Heaters ($PM_{2.5}$)

A detailed $PM_{2.5}$ BACT for natural gas fired heaters is given in the BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$.

(d) Cooling Towers ($PM_{2.5}$)

Particulate matter emissions are primarily due to the dissipation of heat loads from plant condensate to the atmosphere. Some of the liquid water may be entrained in the air stream and can be carried out of the tower as "drift" droplets. As the droplet evaporates in the atmosphere, any suspended or dissolved material will solidify as particulate matter.

Existing and Proposed $PM_{2.5}$ BACT Determinations for Cooling Towers

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for cooling towers at iron ore pelletizing plants. The table below summarizes these $PM_{2.5}$ BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries), as well as various sources with cooling towers of comparable size, from January 2004 to December 2013.

$PM_{2.5}$ BACT Determinations – Cooling Towers					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Cooling Towers EU024 and EU028 (2,300 gpm each)	Filterable $PM_{2.5}$ - For each unit: Drift eliminator with a maximum drift rate of 0.001% of the circulating water flow rate, use of cooling water with less than 6,009 milligrams per liter TDS concentration, lb/hr limits	NI	BACT-PSD
Existing $PM_{2.5}$ BACT Determinations – Cooling Towers					
Nucor Steel Marion, Inc.: Marion, OH	OH-0341/ P0105283 (12/23/2010)	Melt Shop Spray Contact Cooling Tower (198,360 gpm)	$TPM_{2.5}$: 0.04 lb/hr, 0.15 tons/yr	NI	BACT-PSD
			Process Notes: s with 0.005% drift rate and a maximum TDS content of 2,650 mg/L		
Nucor Steel Marion, Inc.: Marion, OH	OH-0341/ P0105283 (12/23/2010)	Rolling Mill Contact Cooling Tower (225,000 gpm)	$TPM_{2.5}$: 0.07 lb/hr, 0.32 tons/yr	NI	BACT-PSD
			Process Notes: Cooling Tower with 0.005% drift rate and a maximum TDS content of 2,650 mg/L		
New Steel International: Haverhill, OH	OH-0315/ 07-00587 (5/6/2008)	Cooling Towers (12) (1,440,000 gpm)	Filterable $PM_{2.5}$: Drift eliminators, 3.42 lb/hr and 14.99 tons/yr (combined)	NI	LAER

These proposed BACT emission limits were based on available RBLC data. Mag Pellet is not aware of any publically available record of compliance testing for $PM_{2.5}$ for condensible particulate testing at the sources listed here.

Step 2: Eliminate Technically Infeasible Options – Cooling Towers ($PM_{2.5}$)

No technologies were eliminated from consideration because of technical infeasibility for cooling towers.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness – Cooling Towers ($PM_{2.5}$)

The control technologies for cooling towers are ranked as follows:

(1) Drift eliminators.

(2) Minimization of total dissolved solids (TDS).

Step 4: Evaluate the Most Effective Controls and Document the Results – Cooling Towers ($PM_{2.5}$)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for cooling towers at iron ore pelletizing plants is drift eliminators. Most facilities express emission limitations in terms of maximum drift rate and an associated pound per hour limitation. However, all of the cooling towers listed in the RBLC for the pollutant $PM_{2.5}$ are not comparable to the one proposed by Mag Pellet due to size differences; therefore, a second review of the RBLC was performed for similarly sized cooling towers under the pollutant PM_{10}. The only cooling tower in the range of the proposed cooling towers with a listed drift rate is located at Entergy New Orleans, Inc. (Michoud Electric Plant). The drift rate is 0.001%.

BACT Proposal

BACT has been proposed to be the use of drift eliminators with a maximum drift rate of 0.001%, use of cooling water with less than 6,009 milligrams per liter TDS concentration, and an appropriate pound per hour limitation. The basis for the TDS concentration is documented in the RBLC PM_{10} BACT determination table for cooling towers under the entry for Entergy New Orleans, Inc. (Michoud Electric Plant).

Step 5: Select BACT – Cooling Towers ($PM_{2.5}$)

The proposed BACT for PM meets the most stringent BACT found in the RBLC for cooling towers of comparable size. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed $PM_{2.5}$ BACT for the cooling towers is given in the BACT Conclusion for PM, PM_{10}, $PM_{2.5}$.

BACT Conclusion for PM, PM_{10}, and $PM_{2.5}$

Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (BACT) for PM, PM_{10} , and $PM_{2.5}$ emissions shall be as follows:

(a) Material Handling Operations

The material handling operations shall be limited as follows:

(1) PM emissions from the following emission units (EU001a, EU004b, EU005, EU025b, EU011, EU012, EU015, EU016, EU019a, and EU019b) shall be controlled by fabric filter dust collectors and shall not exceed the associated emission limits listed in the following table:

Emission Unit Description	(Unit ID)	Control	Emission Limitations Pollutant	gr/dscf	lb/hr
Iron Concentrate Unloading	EU001a	Baghouse CE001	PM	0.002	1.17
			PM_{10}	0.002	1.17
			$PM_{2.5}$	0.002	1.17
Coke Breeze Conveyance & Storage Bin	EU004b	Baghouse CE004	PM	0.002	0.1388
			PM_{10}	0.002	0.1388
			$PM_{2.5}$	0.002	0.1388
Bentonite Unloading (Truck) & Storage Area	EU005	Bin Vent CE005	PM	0.002	0.0496
			PM_{10}	0.002	0.0496
			$PM_{2.5}$	0.002	0.0496
Limestone and Dolomite Grinding Mill Bin Area	EU025b	Baghouse CE023	PM	0.002	0.26
			PM_{10}	0.002	0.26
			$PM_{2.5}$	0.002	0.26
Mixing Area Material Handling System	EU011	Baghouse CE011	PM	0.002	0.77
			PM_{10}	0.002	0.77
			$PM_{2.5}$	0.002	0.77
Hearth Layer Bin System	EU012	Baghouse CE012	PM	0.002	0.11
			PM_{10}	0.002	0.11
			$PM_{2.5}$	0.002	0.11
Machine Discharge System	EU015	Baghouse CE017	PM	0.002	1.01
			PM_{10}	0.002	1.01
			$PM_{2.5}$	0.002	1.01
Hearth Layer Separation System	EU016	Baghouse CE018	PM	0.002	0.49
			PM_{10}	0.002	0.49
			$PM_{2.5}$	0.002	0.49
Oxide Pellet Storage System	EU019a	Baghouse CE019a	PM	0.002	0.13
			PM_{10}	0.002	0.13
			$PM_{2.5}$	0.002	0.13
Oxide Pellet Loadout System	EU019b	Baghouse CE019b	PM	0.002	1.00
			PM_{10}	0.002	1.00
			$PM_{2.5}$	0.002	1.00
Dust Recycle Surge Hopper & Blow Tank Area	EU027	Baghouse CE027	PM	0.002	0.05
Recycled Dust Storage Area	EU026	Baghouse CE024	$PM_{2.5}$	0.002	0.16

*PM_{10} includes both filterable and condensable PM_{10}. $PM_{2.5}$ includes both filterable and condensable $PM_{2.5}$.

(2) PM emissions from the following emission unit (EU001b, EU002b, EU003b) shall be controlled through the development, maintenance, and implementation of a site-specific fugitive dust control plan, by enclosures, that the opacity shall not exceed five percent (5%) on a six-minute average, and shall not exceed the emission limits listed in the following table:

Emission Unit Description	Emission Unit ID	Emission Limitations Pollutant	Lb/hr	TPY
Iron Concentrate Transfer and Storage Area	EU001b	PM	3.93	17.21
		PM_{10}*	3.14	13.77
		$PM_{2.5}$*	0.31	1.38
Limestone Unloading & Storage Area	EU002b	PM	0.20	0.41
		PM_{10}*	0.07	0.15
		$PM_{2.5}$*	0.01	0.015

Emission Unit Description	Emission Unit ID	Emission Limitations		
		Pollutant	Lb/hr	TPY
Dolomite Unloading & Storage Area	EU003b	PM	0.10	0.23
		PM_{10}*	0.037	0.084
		$PM_{2.5}$*	0.0037	0.0084

*PM_{10} includes both filterable and condensable PM_{10}. $PM_{2.5}$ includes both filterable and condensable $PM_{2.5}$.

(3) PM emissions from the following emission unit (EU025a) shall be controlled through the development, maintenance, and implementation of a site-specific fugitive dust control plan, by enclosures, that the opacity shall not exceed five percent (5%) on a six-minute average, and shall not exceed the emission limits listed in the following table:

Emission Unit Description	Emission Limitations		
	Pollutant	Lb/hr	TPY
Limestone/Dolomite Hopper, Belt Feeder & Grizzly Feeder/Screener	PM	0.90	1.92
	PM_{10}*	0.22	0.47
	$PM_{2.5}$*	0.02	0.05

*PM_{10} includes both filterable and condensable PM_{10}. $PM_{2.5}$ includes both filterable and condensable $PM_{2.5}$.

(b) Induration Furnace

The induration furnace operations shall be limited as follows:

PM emissions from the Furnace Hood Exhaust (EU013) and the Furnace Windbox Exhaust (EU014) shall be controlled by fabric filter dust collectors and shall not exceed the emission limits listed in the following table:

Emission Unit		Control	Opacity (6-min avg)	Emission Limitations		
Description	Unit No.			Pollutant	Lb/hr	TPY
Furnace Hood Exhaust	EU013	Baghouse CE013	5%	PM	0.004	11.00*
				PM_{10}*	0.008	22.01*
				$PM_{2.5}$*	0.008	22.01*
Furnace Windbox Exhaust	EU014	Baghouse CE016	5%	PM	0.004	17.61*
				PM_{10}*	0.008	35.22*
				$PM_{2.5}$*	0.008	35.22*

*PM_{10} includes both filterable and condensable PM_{10}. $PM_{2.5}$ includes both filterable and condensable $PM_{2.5}$.

(c) Combustion Units

The combustion units shall be limited as follows:

(1) PM, PM_{10} , and $PM_{2.5}$ emissions from the emergency generators (EU017a and EU017b) shall be controlled through the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 0.20 g/kw-hr.

(2) PM, PM_{10} , and $PM_{2.5}$ emissions from the diesel fire pump (EU018) shall be controlled through the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 0.15 g/hp-hr.

(3) PM, PM_{10} , and $PM_{2.5}$ emissions from the space heaters and lab furnaces (EU021) and Coke Breeze Additive System Air Heater (EU009) shall each be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 0.0072 lb/MMBtu.

(4) PM, PM_{10} , and $PM_{2.5}$ emissions from the Limestone/Dolomite Additive System Air Heater (EU010) shall be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit accounted for in the material handling limits for EU010.

(d) Cooling Towers

The cooling towers PM, PM_{10} , and $PM_{2.5}$ emissions shall be controlled through the use of drift eliminators with a maximum drift rate of 0.001%, the use of cooling water with less than 6,009 milligrams per liter TDS concentration, and a 0.07 pound per hour limitation, each. The basis for the TDS concentration is documented in the RBLC PM_{10} BACT determination table for cooling towers under the entry for Entergy New Orleans, Inc. (Michoud Electric Plant).

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 2-2-3 (PSD BACT) with regards to PM, PM_{10} , and $PM_{2.5}$.

Sulfur Dioxide (SO_2) BACT

The SO_2 BACT analysis is for the combustion units.

Step 1 of the BACT process is shown below for this SO_2 BACT analysis to describe general sulfur dioxide control devices. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific SO_2 control devices may be discussed in individual BACT analyses. A summary of the SO_2 BACT determinations is provided at the end of this section.

Step 1: Identify Potential Control Technologies (SO_2)

Sulfur dioxide and fluoride emissions are concurrently generated from certain sources at Mag Pellet. SO_2 is formed when sulfur in raw materials and/or fuels is oxidized by either process conditions or by combustion.

SO_2 emissions from a combustion process are typically controlled through one of the following mechanisms:

(1) Clean fuels.

(2) Good combustion practices.

(3) Usage limitation.

Clean Fuels

The proposed induration furnace is designed to fire only natural gas in its burners. Natural gas does not contain any fuel bound sulfur compounds and therefore is considered to be a clean fuel for SO_2. However, Mag Pellet is proposing to add coke breeze to the iron ore as it is being processed. The amount of coke breeze will be limited to less than 1.5%. Coke breeze does contain fuel bound sulfur compounds.

It is technically infeasible to burn solid or liquid fuels (e.g., coal and/or fuel oil) in burner systems of a straight grate furnace such as the one designed for the proposed modifications at Mag Pellet.

Good Design Methods and Operating Practices

Good design includes process and mechanical equipment designs which are either inherently lower polluting or are designed to minimize emissions. Good operating practices include operating methods, procedures, and selection of raw materials to minimize emissions. Since these methods are generally source specific (e.g., good operating practices for SO_2 control), they will be addressed for each process when such measures are available.

(a) <u>Combustion Units (SO_2)</u>

Emission units associated with combustion processes are subject to SO_2 BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, natural gas fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators (SO_2)
The Emergency Generators (EU017a and EU17b) will be fueled by natural gas.

Existing and Proposed BACT Determinations – Natural Gas Fired Emergency Generators (SO_2)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these SO_2 BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for natural gas fired generators only used for emergency purposes.

SO_2 BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Emergency Generator EU017a and EU017b 1743.5 hp (1300 kw) each	SO_2: Use of natural gas, good combustion practices, 0.0015 g/kw-hr, 500 hours/year	NI	BACT-PSD
Existing SO_2 BACT Determinations - Emergency Generators					
Allegheny Ludlum Corp.: Brackenridge, PA	PA-0274/ 0059-I008 (2/16/2010)	Emerg. Generator #1 2,250 kw (3,015 hp)	SO_2: Use of pipeline quality natural gas, 0.03 lb/hr, 0.003 tons/yr, 200 hours/year	NI	BACT-PSD
		Emerg. Generator #2 1,000 kw (1,340 hp)	SO_2: Use of pipeline quality natural gas, 0.02 lb/hr, 0.002 tons/yr, 200 hours/year	NI	BACT-PSD
		There is no documented basis to include the annual operational limit as part of the BACT. The 200 hr/yr limit is only to limit the PTE of the unit.			
City of Sacramento PW: Sacramento, CA	CA-1132/ 17661 (5/3/2004)	ICE: Emergency, Spark Ignition 310 bhp (236 kw)	SO_2: 0.002 g/bhp-hr, 200 hours/year	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generator (SO_2)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generator (SO_2)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generator (SO_2)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of pounds per hour of SO_2. Grams per kilowatt-hour is a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The converted emission standards given in the review range between 0.0015 g/kw-hr and 0.14 g/kw-hr.

SO_2 BACT for the natural gas fired emergency generator has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 0.0015 g/kw-hr for the proposed generator.

Step 5: Select BACT - Natural Gas Fired Emergency Generator (SO_2)

A detailed SO_2 BACT for the natural gas fired emergency generator is given in the BACT Conclusion for SO_2.

(2) Diesel Fired Fire Pump (SO_2)
The Fire Pump (EU018) will be fueled by diesel fuel.

Existing and Proposed BACT Determinations –Diesel Fired Fire Pumps (SO_2)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. The table below summarizes these PM BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps that are only diesel fuel fired.

SO_2 BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet		Fire Pump EU018 300 hp (224 kw)	SO_2: Use of good combustion practices, sulfur content of 15 ppm (0.0015%S), 500 hours/year	NI	BACT-PSD

SO_2 BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Existing SO_2 BACT Determinations – Emergency Generators					
Walter Scott Jr. Energy CenterWalter Scott Jr. Energy Center, Pottawa, IA	IA-0067 02-528 6/17/2003	Diesel Fire Pump Engine (509 HP)	SO2: good combustion practices and low sulfur fuel (0.05% content), 0.052 lb/MMBtu, 0.05 tons/yr rolling total	NI	BACT-PSD
Arsenal Hill Power Plant, Caddo, LA	LA-0224 PSD-LA-726 3/20/2008	DFP Diesel Fire Pump (310HP)	SO2: Use of low sulfur fuel, 0.64 lb/hr	NI	BACT-PSD
Duke Energy Washington County LLC, Washington, OH	OH-0254 06-06792 8/14/2003	Emergency Diesel Fire Pump (400 HP)	SO2: Use of low sulfur fuel, 0.84 lb/hr, 0.21 tons/yr	NI	BACT-PSD
PSI Energy – Madison Station, Butler, OH	OH-0275 14-04682 8/24/2004	Emergency Diesel Fire Pump (1.6 MMBtu/hr)	SO2: Use of low sulfur fuel, 0.8 lb/hr, 0.2 tons/yr	NI	BACT-PSD
GP Allendale LP Allendale, SC	SC-0114 / 0160-0020-CB 11/25/2008	Fire Water Diesel Pump (525 HP)	SO2: Tune-ups, 0.39 lb/hr	NI	BACT-PSD
GP Clarendon LP Clarendon, SC	SC-0115 / 0680-0046-CB 02/10/2009	Fire Water Diesel Pump (525 HP)	SO2: Tune-ups, 0.39 lb/hr	NI	BACT-PSD
Cheyenne Prairie Generating Station Laramie, WY	WY-0070 / CT-12636 08/28/2012	Diesel Fire Pump Engine (327 HP)	SO2: Ultra-low sulfur fuel, comply with NSPS	NI	BACT-PSD
Gainsville Renewable Energy Center	FL-0323 / PSD-FL-411 (0010131-001-AC)	Emergency Diesel Fire Pump (275 HP)	SO2: 0.0015% sulfur	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (SO_2)

No technologies were eliminated from consideration because of technical infeasibility for diesel fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (SO_2)

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (SO_2)

Based on a review of the U.S. EPA RBLC and other Indiana permits for diesel fire pumps, the primary control used for diesel fired emergency generators is a limit on the sulfur content of the fuel, the use of good combustion practices, and a limited hours of operation.

SO_2 BACT for the diesel fired fire pump has been determined to be the the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 15 ppm sulfur (0.0015%S) for the proposed fire pump.

Step 5: Select BACT - Diesel Fired Fire Pump (SO_2)

A detailed SO_2 BACT for the diesel fired fire pump is given in the BACT Conclusion for SO_2.

(3) Natural Gas Fired Space Heaters & lab furnaces and Air Heaters (SO_2)
The Space Heaters & lab furnaces (EU021), Ground Limestone/Dolomite Additive System Air Heater (EU010), and Coke Breeze Additive System Air Heater (EU009) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (SO_2)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these SO_2 BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2006 to December 2013 for space heaters, air heaters, and process heaters with a heat input capacity less than 50 MMBtu/hr that combust only natural gas.

SO_2 BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters & lab furnaces (EU021) (23.028 MMBtu/hr)	SO_2: Use of natural gas, good combustion practices, 0.00048 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Coke Breeze Additive System Air Heater (EU009) (4.3 MMBtu/hr)	SO_2: Use of natural gas, good combustion practices, 0.00048 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	SO_2: Use of natural gas, good combustion practices, 0.00048 lb/MMBtu	NI	BACT-PSD
Existing SO_2 BACT Determinations - Heaters Firing Natural Gas					
Lake Charles Cogeneration, LLC: Sulphur, LA	LA-0231/ PSD-LA-742 (6/22/2009)	Shift Reactor Startup Heater (34.20 MMBtu/hr)	SO_2: Use of natural gas, 0.02 lb/hr	NI	BACT-PSD
Lake Charles Cogeneration, LLC: Sulphur, LA	LA-0231/ PSD-LA-742 (6/22/2009)	Gasifier Startup Preheater Burners (5) (35 MMBtu/hr)	SO_2: Use of natural gas, 0.02 lb/hr	NI	BACT-PSD
Pryor Plant Chemical : Oklahoma City, OK	OK-0135/ 2008-100-C PSD (2/23/2009)	Nitric Acid Preheaters #1, #3, and #4 (20 MMBtu/hr)	SO_2: Use of natural gas, 0.03 lb/hr	NI	BACT-PSD
GP Clarendon LP: Manning, SC	SC-0115/ 0680-0046-CB (2/10/2009)	Natural Gas Space Heaters - 14 Units (ID 17) (20.89 MMBtu/hr)	SO_2: 0.01 lb/hr, 0.05 tons/yr	NI	BACT-PSD
GP Allendale LP: Fairfax, SC	SC-0114/ 0160-0020-CB (11/25/2008)	Natural Gas Space Heaters - 14 Units (ID 18) (20.89 MMBtu/hr)	SO_2: 0.01 lb/hr, 0.05 tons/yr	NI	BACT-PSD
Florida Power & Light: Loxahatchee, FL	FL-0303/ 0990646-002-AC (PSD-FL-396) (7/30/2008)	Natural Gas Fired Process Heaters (2) (10 MMBtu/hr)	SO_2: 2 gr/100 scf	NI	BACT-PSD
Florida Power & Light: Loxahatchee, FL	FL-0286/ 0990646-001-AC (PSD-FL-354) (1/10/2007)	Natural Gas Fired Process Heaters (2) (10 MMBtu/hr)	SO_2: 2 gr/100 scf	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (SO_2)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (SO_2)

The control technologies for natural gas fired heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (SO_2)

Based on a review of the RBLC, add-on control devices are generally not used for controlling SO_2 emissions from natural gas fired space heaters or air heaters. Most facilities express emission limitations in terms of pounds per hour of SO_2. Pounds per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. Emission limits for SO_2 (when converted for comparison) varied from 0.00048 lb/MMBtu to 0.0015 lb/MMBtu.

SO_2 BACT for the natural gas fired heaters has been proposed to be the restricted use of only natural gas and the use of good combustion practices along with an emission limit, which is 0.00048 lb/MMBtu for each of the proposed heaters.

Step 5: Select BACT - Natural Gas Fired Space Heaters and Air Heaters (SO_2)

A detailed SO_2 BACT for natural gas fired heaters is given in the BACT Conclusion for SO_2.

BACT Conclusion for SO_2

<u>BACT Conclusion for SO_2</u>

Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (BACT) for SO_2 emissions shall be as follows:

(a) Combustion Units

The combustion units shall be limited as follows:

(1) SO_2 emissions from the emergency generators (EU017a and EU-17b) shall be controlled through the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 0.0015 g/kw-hr.

(2) SO_2 emissions from the fire pump (EU018) shall be controlled through the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 2.9E-01 lb/MMBtu.

(3) SO_2 emissions from the space heaters and lab furnaces (EU021), ground limestone/dolomite additive system air heater (EU010), and coke breeze additive system

air heater (EU009) shall each be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 0.00048 lb/MMBtu.

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 2-2-3 (BACT) with regards to SO_2.

Nitrogen Oxide (NO_x) BACT

The NO_x BACT analysis is for combustion units.

Step 1 of the BACT process is shown below for this NO_x BACT analysis to describe general NO_x control devices. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific NO_x control devices may be discussed in individual BACT analyses. A summary of the NO_x BACT determinations is provided at the end of this section.

Step 1: Identify Potential Control Technologies (NO_x)

There are three mechanisms by which NO_x production occurs. They are thermal, fuel, and prompt NO_x formation.

In the case of natural gas combustion, the primary mechanism of NO_x production is through thermal NO_x formation. This mechanism arises from the thermal dissociation of nitrogen and oxygen molecules in combustion air to nitric oxide (NO). The thermal oxidation reaction is as follows:

$N_2 + O_2 \rightarrow 2NO$ (1)

Downstream of the flame, significant amounts of NO_2 can be formed when NO is mixed with air. The reaction is as follows:

$2NO + O_2 \rightarrow 2NO_2$ (2)

Thermal oxidation is a function of the residence time, free oxygen, and peak reaction temperature.

Prompt NO_x is a form of thermal NO_x which is generated at the flame boundary. It is the result of reactions between nitrogen and hydrocarbon radicals generated during combustion. Only minor amounts of NO_x are emitted as prompt NO_x.

Fuel bound NO_x is primarily a concern with solid and liquid fuel combustion sources; it is formed as nitrogen compounds in the fuel are oxidized in the combustion process. Natural gas has minimal fuel bound nitrogen which eliminates fuel bound NO_x as a major concern.

Various combustion controls exist for NO_x reduction from combustion units. These technologies are summarized below.

New Natural Gas Combustion Chamber Design with Low Emission (LE) Burners

Mag Pellet is proposing to build the new induration furnace with a new natural gas combustion chamber design. The new design has inherently lower NO_x emissions than standard straight grate furnace designs.

Controlling NO_x emissions in induration furnaces is due, in part, to the way the furnace's recuperative heat recovery system works. To minimize energy use, induration furnaces are designed with recuperative heat recovery systems to use heat recovered from pellet cooling to preheat and fire the green pellets. Mag Pellet's induration furnace is being designed to maximize energy efficiency by recovering as much heat via recuperative heat recovery systems as is practicable. Preheated air from the first pellet cooling zone is routed to the pellet firing zones so that the hottest air from the pellet coolers is routed to the hottest part of the furnace.

Traditionally, firing zone burners were designed to fire directly into the preheated air stream from the pellet cooler. This conserved energy by reducing the energy needed to heat the firing zone air up to the proper temperature, and use of preheated air for combustion air improved the thermal efficiency of the burner. Unfortunately, this arrangement also produces high NO_x emissions because:

- The preheated air increases burner flame temperatures. Higher flame temperatures increase NO_x emissions. Preheated combustion air in an induration furnace is approximately 2,000 °F. Preheated combustion air in a gas fired package boiler would range from 400 °F to 600 °F.

- Oxygen levels in the combustion zone cannot be controlled when a direct fired burner is used. To effectively control NO_x emissions, O_2 levels need to be in the 2% to 3% range. When O_2 levels are higher (>3%), more nitrogen is oxidized to form NO_x in the combustion zone. Oxygen levels in the firing zone of an induration furnace are typically 15% to 20% O_2.

Mag Pellet is proposing a new natural gas combustion chamber and burner design which generates substantially less NO_x than the standard design. The new design does this in the following ways:

- The gas combustion chamber design includes a separate chamber for natural gas combustion where conditions are favorable to low NO_x combustion techniques. Hot gases from the combustion chamber then mix with hot air from the pellet cooler in the air duct so that the air stream flowing into the pellet firing zone is at the proper temperature. The air stream flowing into the pellet firing zone is at temperatures where NO_x formation is minimal.

- The new combustion chamber design facilitates the use of pre-mix ultra low NO_x burners and allows control of oxygen levels in the 2% to 3% O_2 range in the combustion zone to optimize performance of the ultra low NO_x burners.

- The Fives Low Emissions (LE) burner is designed to pre-mix the air and fuel prior to combustion. This produces the optimal air-fuel mixture for minimal NO_x formation.

- The combustion chamber is designed in a manner which allows use of combustion air which is at a lower temperature than combustion air supplied directly from the pellet cooler. This further reduces flame temperatures and lowers NO_x emissions. However, this also reduces the thermal efficiency of the burner. Consequently, the final natural gas burner design must strike a balance between energy use and NO_x control.

The premix ultra low NO_x burners used in the new combustion chamber design are Fives North America Low Emissions (LE) lean-premix burners. These burners use a fuel staged, partial premix combustion system. Prior to the primary combustion zone of this burner, fuel and air are intimately mixed in a series of elements internal to the burner body. These mixing elements are integrated into the stabilizer design resulting in a highly uniform, lean burning flame front.

Since the primary zone operates fuel lean, a burner centerline secondary fuel injector supplies fuel to the secondary combustion stage, bringing the overall fuel/air ratio close to stoichiometric conditions. The secondary fuel is injected at high velocity into the Products of Combustion (POC) in the primary combustion zone via a centerline fuel injector. Since the lean premix POC are lower in oxygen than the air in the furnace downcomer, the tendency to form NO_x is reduced. The high velocity injection also provides rapid mixing, a compact secondary fuel flame envelope, and reduced in-flame residence time before combustion is complete. Injecting the secondary fuel at the centerline of the burner prevents interferences from the downcomer air. The reduced residence time also reduces the potential for NO_x emissions because the NO_x reaction does not have time to proceed farther toward equilibrium.

In summary, the new natural gas combustion chamber design is comprised of two parts:

(1) A combustion chamber specifically designed to provide the proper combustion conditions for LE ultra low NO_x burners. The combustion chamber allows the combustion to take place at low oxygen levels and reduced combustion air temperatures.

(2) LE ultra low NO_x burners pre-mix air and fuel to achieve optimal air-fuel mixtures prior to combustion. Pre-mix burners have lower NO_x emission rates than staged burners that inject air and fuel in the combustion zone of the burner. The LE ultra low NO_x burners could not achieve the proposed level of NO_x control if installed directly in the induration furnace or in the recoup air duct feeding the furnace because the oxygen concentrations and combustion air temperature at these locations cannot be controlled at the levels needed for ultra low NO_x burners to effectively minimize NO_x emissions.

Low NO_x Burners (LNB) and Ultra Low NO_x Burners (ULNB)

LNB technology utilizes advanced burner design to reduce NO_x formation through the restriction of oxygen, flame temperature, and/or residence time. LNB technology is a staged combustion process that is designed to split fuel combustion into two zones. In the primary zone, NO_x formation is limited by either one of two conditions; rich or lean fuel. Under a rich (high fuel) condition, oxygen levels and flame temperatures are low resulting in less NO_x formation. The primary zone is then followed by a secondary zone in which the incomplete combustion products formed in the primary zone act as reducing agents.

LNB technology reduces the formation of NO_x during fuel combustion, rather than remove it after formation as do other control devices. LNB are more reliable than other control devices because there are no added pieces of equipment to operate, maintain, or malfunction. LNB do not use additional electricity nor do they generate any wastewater or solid waste streams. They do have the disadvantage that they are not as thermally efficient as standard burners when considering only the thermal requirements and not considering the overall energy (thermal and electrical) as compared to a standard burner technology and the electricity used by a control device and the treatment of wastewater and solid waste disposal.

Second generation low NO_x burners are called Ultra Low NO_x Burners (ULNB). These burners achieve further NO_x reductions by the following techniques:

- Recirculating firebox flue gas within the burner to accomplish the same effect as external flue gas recirculation. Recirculation can be convectively induced or mechanically induced via fuel pressure.

- Tertiary fuel staging to improve upon staged combustion techniques used in standard low NO_x burners

Low Temperature Oxidation (LoTOx)

BOC Gases' LoTOx is a low temperature oxidation NO_x control system. LoTOx technology is an add-on NO_x control system, which uses ozone to oxidize NO to NO_2 and NO_2 to N_2O_5 prior to removal in a wet scrubber (absorber). The N_2O_5 is converted to HNO_3 in the scrubber and may be treated with lime or caustic. The same scrubber may also be used for particulate and/or SO_2 removal. Ozone for LoTOx is generated onsite with an electrically powered ozone generator. The ozone generation rate is controlled to match the amount needed for NO_x control. Ozone is generated from pure oxygen. In order for LoTOx to be economically feasible, a source of low cost oxygen must be available from a pipeline or onsite generation.

The LoTOx chemical reactions are as follows:

$NO + O_3 \rightarrow NO_2 + O_2$ (1)

$NO_2 + O_3 \rightarrow NO_3 + O_2$ (2)

$NO_3 + NO_2 \rightarrow N_2O_5$ (3)

$N_2O_5 + H_2O \rightarrow 2HNO_3$ (4)

$HNO_3 + NaOH \rightarrow NaNO_3 + H_2O$ (5)

The normal NO_x control efficiency range for LoTOx is 80 to 95 percent with outlet NO_x concentrations limited to no lower than 15 ppm to 25 ppm range due to chemical reaction constraints. When LoTOx is in use, scrubber water blowdown contains high levels of nitrates which typically require treatment before the water can be reused or discharged.

Selective Catalytic Reduction (SCR)

SCR is a post combustion NO_x control technology in which ammonia (NH_3) is injected into the flue gas stream in the presence of a catalyst. SCR control efficiency is typically 70 to 90 percent. NO_x is removed through the following chemical reaction:

$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$ (1)

$2NO_2 + 4NH_3 + O_2 \rightarrow 3N_2 + 6H_2O$ (2)

The catalyst bed lowers the activation energy required for NO_x decomposition. The SCR catalyst typically contains vanadium pentoxide as the catalytic agent. However, other metallic compounds may be used in special circumstances. These materials are used for their ability to lower the activation energy required for NO_x decomposition reaction. SCR requires an optimum temperature range of 570°F to 850°F.

Regenerative Selective Catalytic Reduction (RSCR)

RSCR is an energy efficient control technology that uses a catalytic reduction process similar to SCR to remove NO_x from the flue gas. RSCR has a NO_x control efficiency of approximately 75 percent. The goal of the RSCR system is to combine the heat recovery, temperature control, and catalyst elements of the SCR process into a single unit so that SCR technology can be used in low temperature applications. Similar to the SCR technology, RSCR uses a reagent and catalyst to reduce NO_x to N_2 and H_2O through the following chemical reaction:

$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$ (1)

$2NO_2 + 4NH_3 + O_2 \rightarrow 3N_2 + 6H_2O$ (2)

RSCR is a “tail end” SCR that is located after the particulate control device, where temperatures are between 100°F and 200°F. Because this temperature is below the required temperature for SCR catalyst operation, the flue gas temperature must be re-heated to reach catalyst operating temperatures. Tail end SCR systems typically employ special SCR catalysts which operate at temperatures between 400°F and 540°F (Johnson Matthey Catalysts, April 2, 2011 McIlvaine webinar presentation). The Babcock Power RSCR system is designed to operate at 465°F. Temperature elevation takes place in the RSCR, where a regenerative heater (RH) is used. The RH uses beds of ceramic media to achieve thermal efficiencies of >95 percent. Because the ceramic heat recovery beds are critical to RSCR operation, high efficiency particulate controls must be used upstream of the RSCR system. Otherwise, PM in the off-gas could foul or plug up the ceramic heat recovery bed or poison the RSCR catalyst.

Due to the nature of the regenerative heat recovery system, a fraction of the uncontrolled NO_x bypasses the catalyst when the RSCR system switches beds as part of the regenerative heat recovery process. The preheat bed on the inlet side of the RSCR cools off as cold gas passes through it. Once the preheat bed temperatures are reduced below temperatures needed for effective NO_x control; the preheat bed must be switched to a position where it can be reheated. When the RSCR system switches this bed from gas preheat to heat recovery, gas flow in the bed is reversed and NO_x in the bed which has not reached the SCR catalyst is flushed out of the bed as uncontrolled NO_x emissions. This effectively creates a bypass of the catalyst which would not occur in a standard SCR system under normal operating conditions.

Catalyst temperatures in an RSCR will vary as the bed temperatures cycle with the regenerative heat recovery process. Some of the catalyst particles in the bed may be outside of optimal catalyst operating temperature range at the beginning and end of the regenerative heat recovery cycles, diminishing effectiveness.

RSCR is supplementally heated to maintain operating temperatures by a direct fired gas burner. NO_x emissions from the gas burner add to the total NO_x which must be controlled within the RSCR system to meet the overall NO_x control efficiency of the RSCR controls. In other words, the RSCR catalyst must control more NO_x than a standard SCR reactor system to achieve the same control efficiency. These emissions would not be present in a standard SCR reactor system because no direct fired burners are used in a standard SCR system.

Selective Non-Catalytic Reduction (SNCR)

In the SNCR process, urea or ammonia-based chemicals are injected into the flue gas stream to convert NO to molecular nitrogen (N_2) and water. SNCR control efficiency is typically 25 to 50 percent. Without the participation of a catalyst, the reaction requires a high temperature range to obtain activation energy. The relevant reactions are as follows:

$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$ (1)

$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$ (2)

At temperature ranges of 1,470°F to 1,830°F, reaction (1) dominates, and NO_x emissions are controlled. At temperatures above 2,000°F, reaction (2) will dominate, and the ammonia will decompose and increase NO_x emissions. Therefore, it is critical to inject the ammonia or urea reagent into a furnace or boiler in the 1,470°F to 1,830°F temperature range to ensure that NO_x emissions will be controlled.

Non-Selective Catalytic Reduction (NSCR)

NSCR system is a post combustion add-on exhaust gas treatment system. NSCR catalyst is very sensitive to poisoning by sulfur compounds. NSCR is usually applied primarily in natural gas combustion applications. NSCR is often referred to as “three-way conversion” catalyst because it simultaneously reduces NO_x, unburned hydrocarbons, and CO. Typically, NSCR can achieve NO_x emission reductions of 90 percent. In order to operate properly, the combustion process must be near stoichiometric conditions. Under this condition and in the presence of a catalyst, NO_x is reduced by CO, resulting in N_2 and CO_2. The most important reactions for NO_x removal are:

$2CO + 2NO \rightarrow 2CO_2 + N_2$ (1)

$[UBH] + NO \rightarrow N_2 + CO_2 + H_2O$ (2)

Induced Flue Gas Recirculation (IFGR)

Induced flue gas recirculation burners are low NO_x burners which are designed to draw flue gas into the burner to dilute the fuel. This further reduces flame temperature and NO_x formation over levels that can be achieved in a standard low NO_x burner.

External Flue Gas Recirculation (EFGR)

EFGR uses flue gas as an inert material to reduce flame temperatures. In an EFGR system, flue gas is collected from the heater or stack and returned to the burner via a duct and blower. The flue gas is mixed with the combustion air, and this mixture is introduced into the burner. The addition of flue gas reduces the oxygen content of the “combustion air” (air + flue gas) in the burner. The lower oxygen level in the combustion zone reduces flame temperatures, which in turn reduces NO_x emissions.

Low Excess Air (LEA)

LEA is a good combustion practice (GCP) for minimizing NO_x emissions. LEA is implemented by limiting the amount of air used in fuel combustion and by preventing air leaks into the furnace/boiler combustion zone. LEA reduces NO_x emissions by limiting the amount of oxygen in the combustion zone which can react with nitrogen to form NO_x.

Oxyfuel Combustion

Oxyfuel combustion is the use of pure oxygen instead of air for combustion. Using pure oxygen for combustion eliminates the presence of atmospheric nitrogen from the combustion process. Atmospheric nitrogen is the primary source of nitrogen for thermal NO_x formation. Use of pure oxygen in the combustion process leads to very high combustion temperatures, so oxyfuel combustion is limited to very high temperature applications like electric arc furnaces.

Combustion Design Controls

NO_X emissions are caused by oxidation of nitrogen gas in the combustion air during fuel combustion. This occurs due to high combustion temperatures and insufficiently mixed air and fuel in the cylinder where pockets of excess oxygen occur. These effects can be minimized through air-to-fuel ratio control, ignition timing reduction, and exhaust gas recirculation.

Combustion Units (NO_x)

Emission units associated with combustion processes are subject to NO_x BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, diesel fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators (NO_x)
The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing and Proposed BACT Determinations – Natural Gas Fired Emergency Generators (NO_x)

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these NO_x BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for natural gas fired generators only used for emergency purposes.

NO_x BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Emergency Generator EU017a and EU017b 1743.5 hp (1300 kw) each	NO_x: Use of natural gas, good combustion practices, 0.50 g/hp-hr each, 500 hours/year each	NI	BACT-PSD
Existing NO_x BACT Determinations - Emergency Generators					
VC Energy LLC (Midland Power Station): Midland, MI	MI-0401/ 24-11B (12/21/2011)	Emergency Generator 1,200 kw (1,576 hp)	NO_x: Certified to meet NSPS Subpart JJJJ, 0.50 g/hp-hr	NI	BACT-PSD
Avenal Power Center: Kettleman City, CA	CA-1192/ SJ 08-01 (6/21/2011)	Emergency IC Engine 550 kw (722 hp)	NO_x: SCR/oxidation catalyst system, 0.21 g/hp-hr, 50 hours/yr	NI	BACT-PSD
Allegheny Ludlum Corp.: Brackenridge, PA	PA-0274/ 0059-I008 (2/16/2010)	Emerg. Generator #1 2,250 kw (3,015 hp)	NO_x: Use of pipeline quality natural gas, 9.2 g/kw-hr, 200 hours/yr	NI	BACT-PSD
		Emerg. Generator #2 1,000 kw (1,340 hp)	NO_x: Use of pipeline quality natural gas, 6.4 g/kw-hr, 200 hours/yr	NI	BACT-PSD
		There is no documented basis to include the annual operational limit as part of the BACT. The 200 hr/yr limit is only to limit the PTE of the unit.			
Consumers Energy (White Pigeon): White Pigeon, MI	MI-0390/ 137-08 (11/24/2008)	Emergency Generator 1,383 kw (1,818 hp)	NO_x: 0.50 g/bhp-hr	NI	BACT-PSD
Gulf Crossing Pipeline: Sterlington, LA	LA-0232/ PSD-LA-729 (6/24/2008)	Emergency Backup Generator 637 kw (838 hp)	NO_x: Use of natural gas, good combustion practices, 4.80 lb/hr, 1.20 tons/yr	NI	BACT-PSD
Dominion Point Cove: Lusby, MD	MD-0036/ CPCN 9055 (3/10/2006)	Emergency Generator 637 kw (838 hp)	NO_x: Use of natural gas, good combustion practices, 2.00 g/bhp-hr, 200 hours/year	NI	BACT-PSD
City of Sacramento PW: Sacramento, CA	CA-1132/ 17661 (5/3/2004)	ICE: Emergency, Spark Ignition 310 bhp (236 kw)	NO_x: Three way catalyst, 2.13 g/bhp-hr, 200 hours/year	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generator (NO_x)

Selective Catalytic Reduction (SCR) process involves the mixing of anhydrous or aqueous ammonia vapor with flue gas and passing the mixture through a catalytic reactor to reduce NO_X to water and N_2. Under optimal conditions, SCR has a removal efficiency up to 90% when used on steady state processes. The efficiency of removal will be reduced for processes that are not stable or require frequent changes in the mode of operation. The most important factor affecting SCR efficiency is temperature. SCR can operate in a flue gas window ranging from 480°F to 800°F, although the optimum temperature range depends on the type of catalyst and the flue gas composition. In this particular service, the minimum target temperature is approximately 750°F. Temperatures below the optimum decrease catalyst activity and allow NH_3 to slip through; above the optimum range, ammonia will oxidize to form additional NO_x. SCR efficiency is also largely dependent on the stoichiometric molar ratio of NH_3:NO_x; variation of the ideal 1:1 ratio to 0.5:1 ratio can reduce the removal efficiency to 50%. Unreacted reagent may form ammonium sulfates which may plug or corrode downstream equipment. Particulate-laden streams may blind the catalyst and may necessitate the application of a sootblower. Therefore, while catalyst reduction control systems are technically feasible (see RBLC ID# CA-1192 and CA-1132), they are not optimally technically feasible as shown by the majority of the RBLC determinations above and can be eliminated as part of this review.

With selective non-catalytic reduction (SNCR), NO_x is selectively removed by the injection of ammonia or urea into the flue gas at an appropriate temperature window of 1600°F to 2100°F and without employing a catalyst. Similar to SCR without a catalyst bed, the injected chemicals selectively reduce the NO_x to molecular nitrogen and water. This approach avoids the problem related to catalyst fouling, but the temperature window and reagent mixing residence time is critical for conducting the necessary chemical reaction. At the proper temperature, urea decomposes to produce ammonia which is responsible for NO_x reduction. At a higher temperature, the rate of a competing reaction for the direct oxidation of ammonia that actually forms NO_x becomes significant. At a lower temperature, the rates of NO_x reduction reactions become too slow resulting in urea slip (i.e. emissions of unreacted urea). Optimal implementation of SNCR requires the employment of an injection system that can accomplish thorough reagent/gas mixing within the temperature window while accommodating spatial and production rate temperature variability in the gas stream. The attainment of maximum NO_x control performance therefore requires that the source exhibit a favorable opportunity for the application of this technology relative to the location of the reaction temperature range.

Also, U.S. EPA determined in the development of NSPS JJJJ that add-on controls are economically infeasible for emergency ICE.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generator (NO_x)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Combustion design controls

(2) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generator (NO_x)

The natural gas fired emergency generators (EU017a and EU017b) will be subject to 40 CFR 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. Most facilities express exhaust emission limitations in terms of grams per kilowatt-hour, grams per horsepower-hour, and/or pounds per hour of NO_x. Grams per power-hour is a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The emission standards given in the review range between 6.4 g/kw-hr and 9.2 g/kw-hr, which correspond to the NO_x standards for compression ignition engines with a maximum engine power of greater than 560 kw (735 hp) in 40 CFR 89.112 (Table 1) beginning in model year 2007. The emission standards given in the review also listed 0.50 g/hp-hr, which correspond to the NO_x standards for compression ignition engines in 40 CFR 60, Subpart JJJJ.

NO_x BACT for the natural gas fired emergency generator has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 0.50 g/hp-hr for the proposed generator. This is consistent with other recent BACT determinations for emergency natural gas fired generators in the same size category.

Step 5: Select BACT - Natural Gas Fired Emergency Generator (NO_x)

A detailed NO_x BACT for the natural gas fired emergency generator is given in the BACT Conclusion for NO_x.

(2) Diesel Fired Fire Pump (NO_x)
The Fire Pump (EU018) will be fueled by diesel.

Existing and Proposed BACT Determinations – Diesel Fired Fire Pumps (NO_x)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. The table below summarizes these NO_x BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps that are only diesel fuel fired.

NO_x BACT Determinations – Fire Pump					
Facility: County, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Fire Pump EU018 300 hp (224 kw)	NO_x: Use of good combustion practices, NOx: 3 g/hp-hr (NMNC + NOx) (consistent with NSPS Subpart IIII requirements), 500 hours/year	NI	BACT-PSD
Existing NO_x BACT Determinations – Emergency Generators					
Walter Scott Jr. Energy CenterWalter Scott Jr. Energy Center, Pottawa, IA	IA-0067 02-528 6/17/2003	Diesel Fire Pump Engine (509 HP)	NOx: Good combustion practices, 4.41 lb/MMBtu, 4.2 t/yr	NI	BACT-PSD
Arsenal Hill Power Plant, Caddo, LA	LA-0224 PSD-LA-726 3/20/2008	DFP Diesel Fire Pump (310HP)	NOx: Limiting Operating hours and proper engine maintenance, 9.61 lb/hr	NI	BACT-PSD, NSPS
South Harper Peaking Facility, Cass, MO	MO-0067 122004-017 12/29/2004	IC Engine, Emergency Diesel (0.47 MMBtu/hr)	NOx: Ignition timing retartd (ITR), RBLC did not have any lb/hr or t/y limits	NI	BACT-PSD
Duke Energy Washington County LLC, Washington, OH	OH-0254 06-06792 8/14/2003	Emergency Diesel Fire Pump (400 HP)	NOx: Combuston control, 12.8 lb/hr, 3.2 t/y	NI	BACT-PSD
PSI Energy – Madison Station, Butler, OH	OH-0275 14-04682 8/24/2004	Emergency Diesel Fire Pump (1.6 MMBtu/hr)	NOx: 5.14 lb/hr, 1.28 t/y	NI	BACT-PSD, SIP

NO_x BACT Determinations – Fire Pump					
Facility: County, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (660 HP)	NOx: Good combustion practices, 10.07 lb/hr, 2.52 t/y	NI	BACT-PSD, NSPS
Creole Trail LNG Import Terminal Cameron, LA	LA-0219 / PSD-LA-714 8/15/2007	Firewater Pump Diesel Engine (525 HP)	NOx: Good combustion practices, 6.74 lb/hr, 1.69 t/y	NI	BACT-PSD, NSPS
GP Allendale LP Allendale, SC	SC-0114 / 0160-0020-CB 11/25/2008	Fire Water Diesel Pump (525 HP)	NOx: Tune-ups and inspections, 5.9 lb/hr, 1.47 t/y	NI	BACT-PSD
GP Clarendon LP Clarendon, SC	SC-0115 / 0680-0046-CB 02/10/2009	Fire Water Diesel Pump (525 HP)	NOx: Tune-ups and inspections, 5.9 lb/hr, 1.47 t/y	NI	BACT-PSD
Cheyenne Prairie Generating Station Laramie, WY	WY-0070 / CT-12636 08/28/2012	Diesel Fire Pump Engine (327 HP)	NOx: Comply with NSPS, EPA Tier 3 rated	NI	BACT-PSD
Gainsville Renewable Energy Center	FL-0323 / PSD-FL-411 (0010131-001-AC)	Emergency Diesel Fire Pump (275 HP)	NOx: Comply with NSPS, 3 g/hp-hr	NI	BACT-PSD, NSPS, NESHAP

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (NO_x)

Selective Catalytic Reduction (SCR) process involves the mixing of anhydrous or aqueous ammonia vapor with flue gas and passing the mixture through a catalytic reactor to reduce NO_X to water and N_2. Under optimal conditions, SCR has a removal efficiency up to 90% when used on steady state processes. The efficiency of removal will be reduced for processes that are not stable or require frequent changes in the mode of operation. The most important factor affecting SCR efficiency is temperature. SCR can operate in a flue gas window ranging from 480°F to 800°F, although the optimum temperature range depends on the type of catalyst and the flue gas composition. In this particular service, the minimum target temperature is approximately 750°F. Temperatures below the optimum decrease catalyst activity and allow NH_3 to slip through; above the optimum range, ammonia will oxidize to form additional NO_x. SCR efficiency is also largely dependent on the stoichiometric molar ratio of NH_3:NO_x; variation of the ideal 1:1 ratio to 0.5:1 ratio can reduce the removal efficiency to 50%. Unreacted reagent may form ammonium sulfates which may plug or corrode downstream equipment. Particulate-laden streams may blind the catalyst and may necessitate the application of a sootblower. Therefore, while catalyst reduction control systems are technically feasible (see RBLC ID# CA-1192 and CA-1132), they are not optimally technically feasible as shown by the majority of the RBLC determinations above and can be eliminated as part of this review.

With selective non-catalytic reduction (SNCR), NO_x is selectively removed by the injection of ammonia or urea into the flue gas at an appropriate temperature window of 1600°F to 2100°F and without employing a catalyst. Similar to SCR without a catalyst bed, the injected chemicals selectively reduce the NO_x to molecular nitrogen and water. This approach avoids the problem related to catalyst fouling, but the temperature window and reagent mixing residence time is critical for conducting the necessary chemical reaction. At the proper temperature, urea decomposes to produce ammonia which is responsible for NO_x reduction. At a higher temperature, the rate of a competing reaction for the direct oxidation of ammonia that actually forms NO_x becomes significant. At a lower temperature, the rates of NO_x reduction reactions become too slow resulting in urea slip (i.e. emissions of unreacted urea). Optimal implementation of SNCR requires the employment of an injection system that can accomplish thorough reagent/gas mixing within the temperature window while accommodating spatial and production rate temperature variability in the gas stream. The attainment of maximum NO_x control performance therefore requires that the source exhibit a favorable opportunity for the application of this technology relative to the location of the reaction temperature range.

Also, U.S. EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (NO_x)

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Combustion design controls

(2) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (NO_x)

The diesel fired fire pump (EU018) will be subject to 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Based on a review of the U.S. EPA RBLC and other Indiana permits for diesel fire pumps, the primary control is the use of good combustion practices, and a pound per hour limitation.

NO_x BACT for the diesel fired fire pump has been proposed to be the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is NOx: 3 g/hp-hr (NMNC + NOx) (consistent with NSPS Subpart IIII requirements) for the proposed fire pump.

Step 5: Select BACT - Diesel Fired Fire Pump (NO_x)

A detailed NO_x BACT for the diesel fired fire pump is given in the BACT Conclusion for NO_x.

(3) Natural Gas Fired Space Heaters, lab furnaces and Air Heaters (NO_x)
The Space Heaters & lab furnaces (EU021), Ground Limestone/Dolomite Additive System Air Heater (EU010), and Coke Breeze Additive System Air Heater (EU009) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (NO_x)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these NO_x BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2007 to December 2013 for space heaters, air heaters, and process heaters with a heat input capacity less than 50 MMBtu/hr that combust only natural gas.

NO_x BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters & lab furnaces (EU021) (23.028 MMBtu/hr)	NO_x: Low-NO_x burners, good combustion practices, 0.05 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Coke Breeze Additive System Air Heater (EU009) (4.3 MMBtu/hr)	NO_x: Low-NO_x burners, good combustion practices, 0.05 lb/MMBtu	NI	BACT-PSD

NO_x BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	NO_x: Low-NO_x burners, good combustion practices, 0.012 lb/MMBtu	NI	BACT-PSD
Existing NO_x BACT Determinations - Heaters Firing Natural Gas					
Black Hills Power: Cheyenne, WY	WY-0070/ CT-12636 (8/28/2012)	Inlet Air Heater (EP06) (16.10 MMBtu/hr)	NO_x: Ultra low-NO_x burners, 4380 hours/yr, 0.012 lb/MMBtu and 0.20 lb/hr (3-hr avg), 0.40 tons/yr	NI	BACT-PSD
City of Palmdale: Palmdale, CA	CA-1212/ SE 09-01 (10/18/2011)	Auxiliary Heater (40 MMBtu/hr)	NO_x: 9.00 ppmvd @ 3% O_2 (3-hr avg)	NI	BACT-PSD
City of Victorville: Victorville, CA	CA-1191/ SE 07-02 (3/11/2010)	Auxiliary Heater (40 MMBtu/hr)	NO_x: 9.00 ppmvd @ 3% O_2 (3-hr avg)	NI	BACT-PSD
Lake Charles Cogeneration, LLC: Sulphur, LA	LA-0231/ PSD-LA-742 (6/22/2009)	Shift Reactor Startup Heater (34.20 MMBtu/hr)	NO_x: Good design and proper operation, 3.35 lb/hr	NI	BACT-PSD
Lake Charles Cogeneration, LLC: Sulphur, LA	LA-0231/ PSD-LA-742 (6/22/2009)	Gasifier Startup Preheater Burners (5) (35 MMBtu/hr)	NO_x: Good design and proper operation, 3.85 lb/hr	NI	BACT-PSD
Medicine Bow Fuel & Power: Medicine Bow, WY	WY-0066/ CT-5873 (3/4/2009)	Gasification Preheater 1 (21 MMBtu/hr)	NO_x: Low-NO_x burners, 500 hours/yr, 0.05 lb/MMBtu, 1.00 lb/hr, 0.30 tons/yr	NI	BACT-PSD
Pryor Plant Chemical: Oklahoma City, OK	OK-0135/ 2008-100-C PSD (2/23/2009)	Nitric Acid Preheaters #1, #3, and #4 (20 MMBtu/hr)	NO_x: Low-NO_x burners, good combustion practices, 0.98 lb/hr (168-hr rolling cumulative)	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P-2008.0066 (2/10/2009)	ASU Regen Heater (0.1 MMBtu/hr)	NO_x: Good combustion practices	NI	BACT-PSD
Southeast Idaho Energy, LLC: American Falls, ID	ID-0017/ P-2008.0066 (2/10/2009)	Gasifier Heaters (2) (25 MMBtu/hr)	NO_x: Good combustion practices	NI	BACT-PSD
GP Clarendon LP: Manning, SC	SC-0115/ 0680-0046-CB (2/10/2009)	Natural Gas Space Heaters - 14 Units (ID 17) (20.89 MMBtu/hr)	NO_x: 1.99 lb/hr, 8.71 tons/yr	NI	BACT-PSD
GP Allendale LP: Fairfax, SC	SC-0114/ 0160-0020-CB (11/25/2008)	Natural Gas Space Heaters - 14 Units (ID 18) (20.89 MMBtu/hr)	NO_x: 1.99 lb/hr, 8.71 tons/yr	NI	BACT-PSD
Consumers Energy: White Pigeon, MI	MI-0390/ 137-08 (11/24/2008)	Heater (3 MMBtu/hr)	NO_x: Low-NO_x burners, 0.025 lb/MMBtu	NI	BACT-PSD
Competitive Power Ventures: St. Charles, MD	MD-0040/ CPCN Case No. 9129 (11/12/2008)	Heater (1.7 MMBtu/hr)	NO_x: 0.10 lb/MMBtu	NI	BACT-PSD
Florida Power & Light: Loxahatchee, FL	FL-0303/ 0990646-002-AC (PSD-FL-396) (7/30/2008)	Natural Gas Fired Process Heaters (2) (10 MMBtu/hr)	NO_x: Good combustion practices, 0.095 lb/MMBtu	NI	BACT-PSD
Louisiana-Pacific Corporation: Sagola, MI	MI-0387/ 41-03F (1/31/2008)	Natural Gas Thermal Oil Heater (24 MMBtu/hr)	NO_x: Good combustion practices, 2.83 lb/hr	NI	BACT-PSD

NO_x BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Basin Electric Power Cooperative: Gillette, WY	WY-0064/ CT-4631 (10/15/2007)	Inlet Gas Heater (8.36 MMBtu/hr)	NO_x: Good combustion practices, 2000 hours/yr, 0.10 lb/MMBtu, 0.80 lb/hr, 1.00 tons/yr	NI	BACT-PSD
Celite: Vandenberg Village, CA	CA-1146/ ATC 12105A (6/11/2007)	Heater – Other Process (35 MMBtu/hr)	NO_x: 20.0 ppmvd @ 3% O_2 (6-min avg)	NI	BACT-PSD
Florida Power & Light: Loxahatchee, FL	FL-0286/ 0990646-001-AC (PSD-FL-354) (1/10/2007)	Natural Gas Fired Process Heaters (2) (10 MMBtu/hr)	NO_x: 0.095 lb/MMBtu	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (NO_x)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (NO_x)

The control technologies for natural gas fired heaters are ranked as follows:

(1) Low NO_x burners

(2) Clean fuels

(3) Good combustion practices

(4) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (NO_x)

Based on a review of the RBLC, the primary control used for controlling NO_x emissions from natural gas fired space heaters or air heaters is low NO_x burners. Most facilities express emission limitations in terms of pounds per MMBtu and/or pounds per hour of NO_x. Pounds per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. Emission limits for PM (when converted for comparison) varied from 0.012 lb/MMBtu to 0.11 lb/MMBtu.

NO_x BACT for the space heaters and coke breeze additive system air heater (EU009) has been proposed to be the use of low NO_x burners along with the restricted use of only natural gas, the use of good combustion practices, and an emission limit of 0.05 lb/MMBtu for each of the proposed heaters.

NO_x BACT for the ground limestone/dolomite additive system air heater (EU010) has been proposed to be the use of low NO_x burners along with the restricted use of only natural gas, the use of good combustion practices, and an emission limit of 0.012 lb/MMBtu.

Step 5: Select BACT - Natural Gas Fired Space Heaters and Air Heaters (NO_x*)*

A detailed NO_x BACT for natural gas fired heaters is given in the BACT Conclusion for NO_x.

BACT Conclusion for NO_X

BACT Conclusion for NO_x

Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (BACT) for NO_x emissions shall be as follows:

Combustion Units

The combustion units shall be limited as follows:

(1) NO_x emissions from the emergency generators (EU017a and EU017b) shall be controlled through the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year for each generator along with an emission limit of 0.50 g/hp-hr for each generator.

(2) NO_x emissions from the fire pump (EU018) shall be controlled through the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of3 g/hp-hr.

(3) NO_x emissions from the space heaters & lab furnaces (EU021) and coke breeze additive system air heater (EU009) shall each be controlled with the use of low NO_x burners along with the restricted use of only natural gas, the use of good combustion practices, and an emission limit of 0.05 lb/MMBtu.

(4) NO_x emissions from the ground limestone/dolomite additive system air heater (EU010) shall be controlled with the use of low NO_x burners along with the restricted use of only natural gas, the use of good combustion practices, and an emission limit of 0.012 lb/MMBtu.

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 2-2-3 (BACT) with regards to NO_x.

Fluoride (F) BACT

The fluoride BACT analysis is divided into two categories: material handling, and combustion units.

Step 1 of the BACT process is shown below for this fluorides BACT analysis to describe general fluoride control devices. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific fluoride control devices may be discussed in individual BACT analyses. A summary of the fluoride BACT determinations is provided at the end of this section.

Step 1a: Identify Potential Control Technologies (Particulate Fluorides)

Fluoride emissions will be controlled with particulate matter emission controls on sources where fluorides are emitted as dust. Fluoride salts are present in trace quantities in iron concentrate. These salts are emitted as particulate matter along with ore dust during ore processing such as conveying. These salts can be controlled with the same piece of pollution control equipment as the particulate (PM) emissions.

Emissions of particulate matter (PM) are generally controlled with add-on control equipment designed to capture the emissions prior to the time they are exhausted to the atmosphere. In cases where the material being emitted is organic, particulate matter may be controlled through a combustion process. Generally, PM emissions are controlled through one of the following mechanisms:

(1) Mechanical collectors (such as cyclones or multiclones);

(2) Wet scrubbers;

(3) Electrostatic precipitators (ESP); or

(4) Fabric filter dust collectors (baghouses).

The choice of which technology is most appropriate for a specific application depends upon several factors, including particle size to be collected, particle loading, stack gas flow rate, stack gas physical characteristics (e.g., temperature, moisture content, presence of reactive materials), and desired collection efficiency. These control mechanisms are discussed further below:

Mechanical Collectors (such as Cyclones or Multiclones)

Mechanical collectors use the inertia of the particles for collection. The particulate-laden gas stream enters the control device and is forced to move in a cyclonic manner, which causes the particles to move toward the outside of the vortex. Most of the large-diameter particles enter a hopper below the cyclonic tubes while the gas stream turns and exits the device.

Cyclones are typically used to remove relatively large particles from gas streams. Conventional single cyclones are estimated to control PM at 70-90%, PM_{10} at 30-90% and $PM_{2.5}$ at 0-40%. High efficiency single cyclones are designed to achieve higher control of smaller particles and multiclones may also achieve higher control of smaller particles. Collection efficiency generally increases with particle size and/or density, inlet duct velocity, cyclone body length, number of gas revolutions in the cyclone, ratio of cyclone body diameter to gas exit diameter, dust loading, and smoothness of the cyclone inner wall. Cyclone efficiency will decrease with increases in gas viscosity, body diameter, gas exit diameter, gas inlet duct area, and gas density.

Cyclones are often used for recovery and recycling of material or as precleaners for more expensive final control devices such as fabric filters or electrostatic precipitators. Cyclones are used for applications such as after spray drying operations in the food and chemical industries; after crushing/grinding/calcining operations in the mineral and chemical industries to collect salable or useful material; for first stage control of PM from sinter plants, roasters, kilns, and furnaces in the metallurgical industries; for catalyst recycling in the fluid-cracking process; and for precleaning fossil-fuel and wood-waste fired industrial and commercial fuel combustion units.

The typical gas flow rates for a single cyclone are 1,060 to 25,400 scfm. Flows that are higher use multiple cyclones in parallel. Inlet gas temperatures are only limited by the material of construction of the cyclone. Cyclones perform more efficiently with higher pollutant loadings, with loadings typically ranging from 1.0 to 100 gr/scf). Cyclones are unable to handle sticky or tacky materials.

Wet Scrubbers

A wet scrubber is an air pollution control device that removes PM from waste gas streams primarily through the impaction, diffusion, interception and/or absorption of the pollutant onto droplets of liquid. The liquid containing the pollutant is then collected for disposal. There are numerous types of wet scrubbers that remove PM, including venturi, impingement and sieve plate, spray towers, mechanically aided, condensation growth, packed beds, ejector, mobile bed, caternary grid, froth tower, oriented fiber pad, and wetted mist eliminators. Collection efficiencies for wet scrubbers vary with the particle size distribution of the waste gas stream. In general, collection efficiency decreases as the PM size decreases. Collection efficiencies also vary with scrubber type. Collection efficiencies range from greater than 99% for venturi scrubbers to 40-60% (or lower) for simple spray towers. Wet scrubbers are smaller and more compact than baghouses or ESPs. They have lower capital costs and comparable operation and maintenance (O&M) costs. Wet scrubbers are particularly useful in the removal of PM with the following characteristics:

(1) Sticky and/or hygroscopic materials (materials that readily absorb water);

(2) Combustible, corrosive and explosive materials;

(3) Particles which are difficult to remove in their dry form;

(4) PM in the presence of soluble gases; and

(5) PM in waste gas streams with high moisture content.

Some applications of wet scrubbers include the following:

- Condensation scrubbers: for controlling fine PM-containing waste-gas streams.

- Fiber-bed scrubbers (wetted-fiber scrubbers or mist eliminators): for controlling aerosol emissions from chemical, plastics, asphalt, sulfuric acid, and surface coating industries; for controlling lubricant mist emission from rotating machinery and storage tanks; and for eliminating visible plume downstream of other control devices.

- Impingement-plate/tray-tower scrubbers: for the food and agriculture industry and at gray and iron foundries. These types of scrubbers may be used to control other pollutants such as SO_2, VOC, and HAPs in other settings.

- Mechanically-aided scrubbers: for food processing paper, pharmaceuticals, chemicals, plastics, tobacco, fiberglass, ceramics, and fertilizer. Processes controlled include dryers, cookers, crushing and grinding operations, spraying, ventilation, and material handling.

- Orifice scrubbers: for food processing and packaging; pharmaceutical processing and packaging; manufacture of chemicals, rubber and plastics, ceramics, and fertilizer. Processes controlled include dryers, cookers, crushing and grinding operations, spraying, ventilation, and material handling.

- Packed-bed/packed-tower wet scrubbers: for the chemical, aluminum, coke and ferroalloy, food and agriculture, and chromium electroplating industries.

- Spray-chamber/spray-tower wet scrubbers: often used as part of a flue gas desulfurization systems, where they are used to control emissions from coal and oil combustion from electric utilities and industrial sources.

- Venturi scrubbers: for controlling PM emissions from utility, industrial, commercial, and institutional boilers fired with coal, oil, wood, and liquid waste; for sources in the chemical, mineral products, wood, pulp and paper, rock products, and asphalt manufacturing industries; for lead, aluminum, iron and steel, and gray iron production industries; for municipal solid waste incinerators. They are typically used where it is necessary to obtain high collection efficiencies for fine PM.

The primary disadvantage of wet scrubbers is that increased collection efficiency comes at the cost of increased pressure drop across the control system. Another disadvantage is that they are limited to lower waste gas flow rates and temperatures than ESPs or baghouses. Current wet scrubber designs accommodate air flow rates over 100,000 actual cubic feet per minute and temperatures of up to 750°F. Another disadvantage is that they generate waste in the form of a sludge which requires treatment and/or disposal. Lastly, downstream corrosion or plume visibility problems can result unless the added moisture is removed from the gas stream.

Electrostatic Precipitators

An electrostatic precipitator (ESP) is a particle control device that uses electrical forces to move the particles out of the flowing gas stream and onto collector plates. The particles are given an electrical charge by forcing them to pass through a corona, a region in which gaseous ions flow. The electrical field that forces the charged particles to the walls comes from electrodes maintained at high voltage in the center of the flow lane.

Once the particles are collected on the plates, they must be removed from the plates without re-entraining them into the gas stream. This is usually accomplished by knocking them loose from the plates, allowing the collected layer of particles to slide down into a hopper from which they are evacuated. Some precipitators remove the particles by intermittent or continuous washing with water.

Dry-type ESPs are primarily used in the electric utility industry and may also be used by the textile industry, pulp and paper facilities, the metallurgical industry, cement and mineral industry, sulfuric acid manufacturing plants, as well as for coke ovens and hazardous waste incinerators. Dust characteristics are a limiting factor for dry-type ESPs. Sticky, moist, high resistivity, flammable, or explosive dusts and particles are not well-suited for dry-type ESPs. Wet ESPs are used in situations for which dry ESPs are not suited, such as when the material to be collected is wet, sticky, flammable, explosive, or has a high resistivity. Wet ESPs are commonly used by the textile industry, pulp and paper facilities, the metallurgical industry, and sulfuric acid manufacturing plants. The limiting factor for wet ESPs is temperature; typically wet ESPs cannot handle operating temperatures exceeding 170 °F.

ESP control efficiencies are very high and can range from 95% to 99.9% due to the strong electrical forces applied to small particles and can handle high temperatures (dry ESPs), pressures, and gas flow rates. The composition of the particulate matter is very important because it influences the conductivity within the dust layers on the collection plate. Wet ESPs are effective at collecting sticky particles and mist, help to cool and condition gas streams, and may provide for control of other aerosolized pollutants in the gas stream. ESPs in general are not suited for use in processes which are highly variable because they are very sensitive to fluctuations in gas stream conditions (flow rates, temperatures, particulate and gas composition, and particulate loadings). They have high capital costs and require large installation space. Dry ESPs are not recommended for removing sticky or moist particles. Wet ESPs can have potential problems with corrosion and they generate a wastewater slurry that must be handled.

Fabric Filtration

A fabric filter unit consists of one or more isolated compartments containing rows of fabric bags in the form of round, flat, or shaped tubes, or pleated cartridges. Particle laden gas passes up (usually) along the surface of the bags then radially through the fabric. Particles are retained on the upstream face of the bags, and the cleaned gas stream is vented to the atmosphere. The filter is operated cyclically, alternating between relatively long periods of filtering and short periods of cleaning. During cleaning, dust that has accumulated on the bags is removed from the fabric surface and deposited in a hopper for subsequent disposal.

Fabric filters collect particles with sizes ranging from submicron to several hundred microns in diameter at efficiencies generally in excess of 99 or 99.9%. The layer of dust, or dust cake, collected on the fabric is primarily responsible for such high efficiency. The cake is a barrier with tortuous pores that trap particles as they travel through the cake. Gas temperatures up to about 500°F, with surges to about 550°F, can be accommodated routinely in some configurations. Most of the energy used to operate the system appears as pressure drop across the bags and associated hardware and ducting. Typical values of system pressure drop range from about 5 to 20 inches of water.

Fabric filters are used where high efficiency particle collection is required and can be used in most any process where dust is generated and can be collected and ducted to a central location. Limitations are imposed by gas characteristics (temperature and corrosivity) and particle characteristics (primarily stickiness) that affect the fabric or its operation and that cannot be economically accommodated. Important process variables include particle characteristics, gas characteristics, and fabric properties. The most important design parameter is the air- or gas-to-cloth ratio (the amount of gas in ft^3/min that penetrates one ft^2 of fabric) and the usual operating parameter of interest is pressure drop across the filter system. The major operating feature of fabric filters that distinguishes them from other gas filters is the ability to renew the filtering surface periodically by cleaning. Common furnace filters, high efficiency particulate air (HEPA) filters, high efficiency air filters (HEAFs), and automotive induction air filters are examples of filters that must be discarded after a significant layer of dust accumulates on the surface. These filters are typically made of matted fibers, mounted in supporting frames, and used where dust concentrations are relatively low. Fabric filters are usually made of woven or (more commonly) needle-punched felts sewn to the desired shape, mounted in a plenum with special hardware, and used across a wide range of dust concentrations.

Fabric filters provide high collection efficiency for both coarse and fine particles and are relatively insensitive to fluctuations in gas stream conditions. Operation is simple and fabric filters are useful for collecting particles with resistivities either too low or too high for collection with ESPs. Fabric filters have relatively high maintenance requirements, such as periodic bag replacement, and have limited application for high temperatures and corrosive or moist exhaust.

Step 1b: Identify Potential Control Technologies (Gaseous Fluorides)

Fluoride emissions are also emitted in a gaseous state from iron ore at induration temperatures. These gases can be controlled with the same piece of pollution control equipment as the sulfur dioxide (SO_2) emissions.

The primary methods of controlling SO_2 and fluoride emissions are through the use of flue gas desulfurization (FGD) technologies. There are many FGD systems available including wet scrubbing, spray dryer absorption, circulating fluidized bed absorption (also known as a gas suspension absorber), and dry sorbent injection. The FGD systems currently in use to control SO_2 emissions can be classified as either wet or dry systems. In addition, a number of calcium and sodium based SO_2 control reagents may be considered. In most cases, reagent selection will not affect the overall SO_2 control efficiency. This analysis will focus on lime and limestone since they are the most common reagents used in wet scrubbing.

Wet Scrubber

A wet scrubber involves scrubbing the exhaust gas stream with a reagent in slurry form comprised of lime (CaO), limestone ($CaCO_3$), caustic, or soda ash in suspension. The process takes place in a wet scrubbing tower. In some cases, the scrubbing tower is located downstream of a PM control device to reduce the plugging of spray nozzles and other problems caused by the presence of particulates in the scrubber. The SO_2 in the gas stream reacts with the slurry to form calcium sulfite ($CaSO_3$) and calcium sulfate ($CaSO_4$). Wet scrubbing absorption control efficiency is typically in the 90% to 98% range.

In order to meet the SO_2 and particulate levels associated with various requirements two scrubber scenarios are considered. The first is a single high pressure wet scrubber. The advantage of a single high pressure wet scrubber is that it has lower capital cost but the operating costs are higher. To achieve the level of particulate removal necessary with a single scrubber, a very high pressure drop is required. The high pressure drop requires a larger fan which in turn uses more electricity. The second option is to have a lower pressure wet scrubber for SO_2 removal followed by a wet ESP for particulate removal. The wet scrubber with a wet ESP option has a higher capital cost but lower operating cost.

Other materials could be used for scrubbing. MEA is a sorbent which may be used for CO_2 absorption in GHG capture system. The capture of CO_2 is accomplished by an acid base reaction between CO_2 and MEA. This bond may be broken relatively easily with low pressure steam heat. In CO_2 capture systems for GHG control, an MEA solution circulates through an absorption column to capture the CO_2 in an exhaust gas steam and a regeneration column where the CO_2 is released from the MEA solution using low pressure steam as a heat source. The CO_2 from the regeneration is compressed to a liquid for transport and sequestration. The MEA is continuously circulated between the absorption and regeneration columns, and very little MEA is lost in the process.

MEA also reacts with other acid gas such as H_2S, SO_2, and NO_x. The reaction between MEA and SO_2 and the reaction of MEA with NO_x is irreversible, and the chemical bonds cannot be broken in a regeneration column. In a CO_2 capture systems, MEA reacting with SO_2 and NO_x is consumed and fresh MEA must be added to replace the MEA consumed by SO_2 and NO_x. There are also operating costs for removing the MEA salts from the MEA sorbent solution and disposal of the waste material. SO_2 and NO_x removal by MEA is considered an unwanted collateral reaction within a CO_2 capture system. Therefore, SO_2 and NO_x concentrations in coal-fired boiler applications must be reduced to a minimum in an MEA sorbent based CO_2 capture system to control operating costs.

If an MEA solution would be used to capture the remaining SO_2 and NO_x in the post emission control Hood and Waste Gas exhaust streams, it would result in the consumption of 950 tons per year of MEA assuming all SO_2 and NO_x is captured.

MEA is not considered to be an economically viable option as compared to other reagents for SO_2 and NO_x control. The current bulk price of MEA is approximately $2,100 per ton. In contrast, hydrated lime costs around $290 per ton, and about the same amount of lime would be used per ton SO_2 controlled as MEA.

Circulating Fluidized Bed (CFB) Dry Scrubber

Circulating fluidized bed (CFB) absorption is a semi-dry system with lime slurry injection. The flue gas enters the reactor through a venturi, which increases the velocity to ensure that solid material can be transported by the flue gas to create a fluidized bed. The slurry and water are injected into the gas stream at the venturi. The lime reacts with the acids in the flue gas and neutralizes them. The SO_2 in the gas stream reacts with the slurry to form calcium sulfite ($CaSO_3$). The fluidized bed allows for a greater surface for the reaction to take place, thus making the process very efficient. The water is injected to cool down the flue gas. The temperature must be as low as possible because decreased temperatures increase the ability of the slurry to absorb the acids. However, if the temperature is too low, the re-circulating material tends to cake more. A cyclone off the top of the reactor captures particles to be recirculated to the reactor. CFB scrubbing (absorption) control efficiency is typically in the 90% to 98% range depending upon inlet concentrations and conditions.

Spray Dryer Absorption (SDA) Dry Scrubber

Spray dryer absorption (SDA) is a dry scrubbing system that sprays a fine mist of slurried lime into an absorption tower where SO_2 is absorbed by the droplets. The absorption of the SO_2 leads to the formation of calcium sulfite (CaSO3●2H2O) within the droplets. The liquid-to-gas ratio is such that the heat from the exhaust gas causes the water to evaporate before the droplets reach the bottom of the tower. This leads to the formation of a dry powder which is carried out with the gas and collected with a particulate control device. Spray dryer absorption control efficiency is typically in the 70% to 95% range depending upon inlet concentrations and conditions.

Dry Sorbent Injection (DSI) Dry Scrubber

Dry sorbent injection (DSI) involves the injection of a lime or limestone powder into the exhaust gas stream. The process was developed as a lower cost FGD option because the mixing occurs directly in the exhaust gas stream instead of in a separate tower. Sorbent injection control efficiency is typically in the 50% range.

Clean Fuels

The proposed induration furnace is designed to fire only natural gas in its burners. Natural gas does not contain any fuel bound sulfur compounds and therefore is considered to be a clean fuel for SO_2. However, Mag Pellet is proposing to add coke breeze to the iron ore as it is being processed. The amount of coke breeze will be limited to less than 1.5%. Coke breeze does contain fuel bound sulfur compounds.

It is technically infeasible to burn solid or liquid fuels (e.g., coal and/or fuel oil) in burner systems of a straight grate furnace such as the one designed for the proposed modifications at Mag Pellet.

Good Design Methods and Operating Practices

Good design includes process and mechanical equipment designs which are either inherently lower polluting or are designed to minimize emissions. Good operating practices include operating methods, procedures, and selection of raw materials to minimize emissions. Since these methods are generally source specific (e.g., good operating practices for SO_2 control), they will be addressed for each process when such measures are available.

(a) <u>Material Handling Operations (Fluorides)</u>

The emissions from the material handling operations are in the form of particulate matter (PM, PM_{10}, and $PM_{2.5}$). Particulate matter emissions are primarily due to the attrition of particles (dust) from the feedstocks, iron oxide pellets, and by-products. This is caused by the abrasion of materials rubbing against each other and the process equipment as they move through the process.

Fluoride emissions will be controlled with particulate matter emission controls on sources where fluorides are emitted as dust. Fluoride salts are present in trace quantities in iron concentrate. These salts are emitted as particulate matter along with ore dust during ore processing such as conveying. These salts can be controlled with the same piece of pollution control equipment as the particulate (PM) emissions.

Existing and Proposed Fluoride BACT Determinations for Material Handling Operations
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for material handling operations at iron ore pelletizing plants. The table below summarizes these fluoride BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to sources with SIC Codes of 1011 (iron ore beneficiating plants), 3312 (iron and steel mills), and 3325 (steel foundries) from January 2003 to December 2013.

Fluorides BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Material Handling Operations: EU001a, EU011, EU012, EU015,EU016, EU19a, EU019b, EU027	F: Baghouse, concentration limits, lb/hr limitations	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Material Handling Operations (Raw Material Storage): EU001b	F: concentration limit, 5% opacity (6-min avg)	NI	BACT-PSD
Existing Fluorides BACT Determinations - Material Handling Operations					
Essar Steel Minnesota LLC: Nashwauk, MN	MN-0085/ 06100067-004 (5/10/2012)	Oxide Pellet Stockpile Conveyor Gallery	F: 50 mg/kg (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Hearth Layer Bin	F: 50 mg/kg and 0.0001 lb/hr (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Hearth Layer Feed	F: 50 mg/kg (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Pellet Discharge	F: 50 mg/kg and 0.0002 lb/hr (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Pellet Screening and Handling	F: 50 mg/kg and 0.0001 lb/hr (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Pellet Screenings to Regrind Conveyors	F: 50 mg/kg (3-hr avg) of oxide pellets handled	NI	BACT-PSD
		Primary Grinding Mill Line 3	F: 1.00 mg/kg (3-hr avg) of crude ore handled	NI	BACT-PSD
		Grizzly Transfer Tower	F: 1.00 mg/kg (3-hr avg) of crude ore handled	NI	BACT-PSD
		Non-magnetic Cobber Rejects Transfer Tower	F: 1.00 mg/kg (3-hr avg) of crude ore handled	NI	BACT-PSD
		Secondary Screening Crusher/Cobber Line 1	F: 1.00 mg/kg (3-hr avg) of crude ore handled	NI	BACT-PSD
		While the RBLC doesn't list a baghouse as control for fluorides, a baghouse is required for this process for the control of PM, PM_{10} (filterable), $PM_{2.5}$ (filterable), and lead.			
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Ore Crushing and Handling	F: Baghouse, 1.00 mg/kg (12-month rolling avg) of crude ore handled	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Oxide Pellet Handling	F: Wet Scrubber, 50 mg/kg (12-month rolling avg) of oxide pellets handled	NI	BACT-PSD
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	DRI Pellet Silos	F: Baghouse, 50 mg/kg (12-month rolling avg) of DRI pellets handled	NI	BACT-PSD

Fluorides BACT - Material Handling Operations					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	DRI Pellet Handling	F: Wet Scrubber, 50 mg/kg (12-month rolling avg) of DRI pellets handled	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Material Handling Operations (Fluorides)

The air streams associated with dry material handling operations are characterized by air streams at or near ambient temperature and moisture content. Such streams would not be expected to contain materials that would be considered to be acidic or corrosive. As such, none of the listed particulate matter control devices were eliminated from consideration because of technical infeasibility.

The air streams associated with wet material handling operations are characterized by air streams at elevated moisture content. Such streams would be expected to clog and minimize the control efficiency of dry collection systems. As such, fabric filters and cyclones were eliminated from consideration because of technical infeasibility.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Material Handling Operations (Fluorides)

For the following types of material handling operations, all fluoride emissions are emitted as a percentage of the particulate emissions. Therefore, the control effectiveness of the control technologies for fluorides should be comparable to the control effectiveness of the control technologies for PM.

The control technologies for dry material handling operations are ranked as follows:

(1) Fabric filter dust collectors: 99% - 99.9%+

(2) Electrostatic precipitators: 95% - 99.9%+

(3) Wet scrubbers: 70% - 90%

(4) Cyclones: 70% - 90%

(5) Wet suppression: 50% - 90%

Step 4: Evaluate the Most Effective Controls and Document the Results - Material Handling Operations (Fluorides)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for dry material handling operations at iron ore pelletizing plants is fabric filtration. A few operations are controlled by wet scrubbers or wet suppression. Most facilities express emission limitations in terms of the fluoride concentration of the processed materials and/or pounds per hour fluorides. Fluoride concentration is a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures. The fluoride concentrations given in the review range from 1.0 mg/kg to 50.0 mg/kg, which was determined to be BACT for many types of material handling operations.

BACT Proposal

(a) Material Handling Emission Units:

Material Handling Emission Units	
Description	Unit No.
Iron Concentrate Unloading	EU001a
Mixing Area Material Handling System	EU011
Hearth Layer Bin System	EU012
Machine Discharge System	EU015
Hearth Layer Separation System	EU016
Oxide Pellet Storage System	EU019a
Oxide Pellet Loadout System	EU019b
Dust Recycle Surge Hopper & Blow Tank Area	EU027

BACT shall be the use of baghouses with an appropriate fluoride concentration and pound per hour limitation.

(b) Raw Material Storage Emission Units:

Raw Material Storage Emission Units	
Description	Unit No.
Iron Concentrate Transfer & Storage Area	EU001b

BACT shall be an appropriate fluoride concentration and that the opacity material shall not exceed five percent (5%) on a six (6) minute average.

Step 5: Select BACT - Material Handling Operations (Fluorides)

The proposed BACT for fluorides meets the most stringent BACT found in the RBLC for material handling operations. Therefore, no further evaluation of these operations is required, and an economic, energy, or environmental impact analysis is not required as part the BACT evaluation for these operations.

A detailed fluoride BACT for the above Material Handling Operations is given in the BACT Conclusion for fluorides.

(b) <u>Combustion Units (Fluorides)</u>

Emission units associated with combustion processes are subject to Fluoride BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, diesel fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators (Fluorides)
The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing BACT Determinations – Natural Gas Fired Emergency Generators (Fluorides)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. There are no current listings in the RBLC for fluorides for natural gas fired emergency generators or other comparable combustion units.

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generators (Fluorides)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generators (Fluorides)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generators (Fluorides)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. The only facility expresses its exhaust emission limitation in terms of pounds per hour of fluorides. Pound per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures.

Mag Pellet has determined that BACT shall be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 6.95×10^{-6} lb/MMBtu for the proposed generator. This is equivalent to the total of the emission factors for the fluoride containing pollutants (benzo(b)fluoranthene, fluoranthene, and fluorene) in the natural gas as listed in AP-42, Table 3.2-2 for 4-stroke lean-burn reciprocating engines.

Step 5: Select BACT - Natural Gas Fired Emergency Generators (Fluorides)

A detailed fluorides BACT for the natural gas fired emergency generator is given in the BACT Conclusion for fluorides.

(2) Diesel Fired Fire Pump (Fluorides)
The Fire Pump (EU018) will be fueled by diesel.

Existing and Proposed BACT Determinations – Diesel Fired Fire Pumps (Fluorides)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. There are no current listings in the RBLC for fluorides for diesel fired fire pumps or other comparable combustion units.

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (Fluorides)

No technologies were eliminated from consideration because of technical infeasibility for diesel fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (Fluorides)

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (Fluorides)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for diesel fired fire pumps is the use of good combustion practices, and a limited hours of operation. The only facility expresses its exhaust emission limitation in terms of pounds per hour of fluorides. Pound per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures.

Fluorides BACT for the diesel fired fire pump has been proposed to be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 3.7×10^{-5} lb/MMBtu for the proposed fire pump. This is equivalent to the total of the emission factors for the fluoride containing pollutants (benzo(b)fluoranthene, benzo(k)fluoranthene, fluoranthene, and fluorene) in the diesel as listed in AP-42, Table 3.3-2 for diesel engines.

Step 5: Select BACT - Diesel Fired Fire Pump (Fluorides)

A detailed fluorides BACT for the diesel fired fire pump is given in the BACT Conclusion for fluorides.

(3) Natural Gas Fired Space Heaters, Lab Furnaces and Air Heaters (Fluorides)
The Space Heaters & lab furnaces (EU021), Ground Limestone/Dolomite Additive System Air Heater (EU010), and Coke Breeze Additive System Air Heater (EU009) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (Fluorides)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these fluorides BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. Since there are so few entries in the RBLC for total fluorides, the search was only limited to natural gas fired combustion sources, excluding boilers.

Fluoride BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters & lab furnaces (EU021) (23.028 MMBtu/hr)	F: Use of natural gas, good combustion practices, 9.40E-06 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	F: Use of natural gas, good combustion practices, 9.40E-06 lb/MMBtu	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Coke Breeze Additive System Air Heater (EU009) (4.3 MMBtu/hr)	F: Use of natural gas, good combustion practices, 9.40E-06 lb/MMBtu	NI	BACT-PSD
Existing NO_x BACT Determinations - Heaters Firing Natural Gas					
Minnesota Steel Industries: Nashwauk, MN	MN-0070/ 06100067-001 (9/7/2007)	Process Heaters (606 MMBtu/hr)	F: 0.0004 lb/hr (3-hr avg)	NI	BACT-PSD

Fluoride BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
		Compliance is demonstrated through a limit on fluorides in the raw material (oxide pellets) of 1.0 mg/kg.			

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (Fluorides)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (Fluorides)

The control technologies for natural gas fired heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (Fluorides)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired heaters is the restricted use of only natural gas, the use of good combustion practices, and a limited hours of operation. The only facility expresses its exhaust emission limitation in terms of pounds per hour of fluorides. Pound per MMBtu limitations are a more effective way of comparing emission limits because it is a relative measure rather than pounds per hour limitations which are process-specific measures.

The RBLC listing for the process heaters at Minnesota Steel were not considered as part of this BACT determination because the limit is based on the fluoride concentration of the raw material being heated and not on the combustion of the natural gas itself.

Mag Pellet has determined that BACT shall be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 9.40×10^{-6} lb/MMBtu for the proposed heaters. This is equivalent to the total of the emission factors for the fluoride containing pollutants (benzo(b)fluoranthene, benzo(k)fluoranthene, fluoranthene, and fluorene) in the natural gas as listed in AP-42, Table 1.4-3 for general natural gas combustion.

Step 5: Select BACT - Natural Gas Fired Space Heaters and Air Heaters (Fluorides)

A detailed fluorides BACT for natural gas fired heaters is given in the BACT Conclusion for fluorides.

BACT Conclusion for Fluorides

Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (BACT) for fluorides emissions shall be as follows:

(a) Material Handling Operations

The material handling emissions units shall be limited as follows:

Fluorides emissions from the following emission units shall be controlled by fabric filter dust collectors and shall not exceed the emission limits listed in the following table:

Emission Unit		Control	Fluoride Concentration of Oxide Pellets Handled (mg/kg)	Fluoride Concentration of Oxide Pellets Handled (lb/hr)
Description	Unit No.			
Iron Concentrate Unloading	EU001a	Baghouse CE001	50.0	4.73×10^{-5}
Mixing Area Material Handling System	EU011	Baghouse CE011	50.0	1.71×10^{-5}
Hearth Layer Bin System	EU012	Baghouse CE012	50.0	7.55×10^{-6}
Machine Discharge System	EU015	Baghouse CE017	50.0	3.65×10^{-5}
Hearth Layer Separation System	EU016	Baghouse CE018	50.0	2.43×10^{-5}
Oxide Pellet Storage System	EU019a	Baghouse CE019a	50.0	6.34×10^{-6}
Oxide Pellet Loadout System	EU019b	Baghouse CE019b	50.0	3.15×10^{-5}
Dust Recycle Surge Hopper	EU027	Baghouse CE027	50.0	2.45×10^{-6}

The raw material storage emission units shall be limited as follows:

Fluorides emissions from the following emission units shall not exceed the limits listed in the following table:

Emission Unit		Fluoride Concentration of Oxide Pellets Handled (mg/kg)	Opacity
Description	Unit No.		
Iron Concentrate Transfer & Storage Area	EU001b	50.0	5% on a six (6) minute average

(b) Combustion Processes

The combustion processes shall be limited as follows:

(1) Fluorides emissions from the emergency generators (EU017a and EU017b) shall be controlled through the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 6.95×10^{-6} lb/MMBtu.

(2) Fluorides emissions from the fire pump (EU018) shall be controlled through the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 3.71×10^{-5} lb/MMBtu.

(3) Fluorides emissions from the space heaters & lab furnaces (EU021), ground limestone/dolomite additive system air heater (EU010), and coke breeze additive system air heater (EU009) shall each be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 9.40×10^{-6} lb/MMBtu.

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 2-2-3 (PSD BACT) with regards to fluorides.

Greenhouse Gases (GHG) BACT

The GHG BACT analysis is for combustion units.

Step 1 of the BACT process is shown below for this GHG BACT analysis to describe general GHG control devices. Each of the categories of processes undergoing BACT is then described further with the remainder of the BACT process steps. Additional or more specific GHG control devices may be discussed in individual BACT analyses. A summary of the GHG BACT determinations is provided at the end of this section.

Step 1: Identify Potential Control Technologies (GHG)

The list of potential control technologies considered for the GHG BACT analysis, and detailed descriptions of each control technology are included in this section. The emission control technologies evaluated include add-on controls, evaluation of fuel alternatives, and inherently lower pollution from process equipment where applicable. The majority of GHGs that will be emitted from the Mag Pellet project are due to combustion activities; CO_2 is a product of combustion.

Fuels

This fuels analysis is based on pollutant emissions directly associated with the combustion of the fuel. Emissions from a specific fuel may be related to the inherent properties of the fuel (e.g., sulfur content) or by the nature of the combustion process and is assessed on the uncontrolled CO_2 pollutant emission factors for each fuel.

Historically EPA policy has held that a facility need not consider emission control options which would fundamentally “re-define” the proposed project. For example, a coal-fired power plant would not need to consider installation of a natural gas-fired turbine as BACT for emissions control as an alternative to the proposed coal-fired plant. However, recent court decisions have held that clean fuels must be considered in a BACT review. So, for example, natural gas must be considered as an alternative fuel for a coal-fired boiler application (a turbine option is still excluded).

Mag Pellet is proposing the use of natural gas for all of the combustion equipment except for the emergency fire pump. Due to National Fire Protection Association (NFPA) requirement, only the use of diesel is allowed for emergency fire pump engines.

Energy Efficiency

Energy efficiency focuses on reducing the amount of energy/fuel used in the process. Reducing energy is considered a key solution to reducing GHG emissions. Combined heat and power alternatives will not be addressed as an energy efficiency measure in this report. There are no boilers currently included in the proposed project and therefore, these alternatives are considered to be out of scope for this GHG BACT evaluation.

Minimization of Heat Loss (Insulation)

Insulation can be used as a way to reduce heat loss from the process and the indurating furnace. Heat naturally transfers from a warmer to cooler area. Therefore, the heat generated during combustion has a natural tendency to transfer away from the furnace. Insulation is a means of minimizing the heat transfer.

<u>Good Design Practices / Good Operating Practices</u>
Good design includes process and mechanical equipment designs which are either inherently lower polluting or are designed to minimize emissions. Good operating practices include operating methods, procedures, and selection of raw materials (i.e., additives and control reagents) to minimize emissions.

<u>Lower Emitting Processes</u>
In addition to add-on controls and energy efficiency measures, an evaluation of process changes to lower GHG emissions is also considered part of a BACT determination. Most of the process-related GHG emissions from the iron oxide process are the result of the inherent nature of the raw materials and their carbon content.

(a) <u>Combustion Units (GHG)</u>

Emission units associated with combustion processes are subject to GHG BACT requirements. This BACT analysis has been divided into three subsections: natural gas fired emergency generators, diesel fired fire pumps, and natural gas fired heaters.

(1) Natural Gas Fired Emergency Generators (GHG)

The Emergency Generators (EU017a and EU017b) will be fueled by natural gas.

Existing and Proposed BACT Determinations – Natural Gas Fired Emergency Generators (GHG)

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired emergency generators. The table below summarizes these GHG BACT determinations as provided by the RBLC. The search was limited to more recent entries from January 2003 to December 2013 for generators only used for emergency purposes.

GHG (Carbon Dioxide Equivalent) BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Emergency Generator EU017a and EU017b 1743.5 hp (1300 kw) each	CO_2e: Use of natural gas, good combustion practices, 383.5 tons/yr each (12-month rolling total), 500 hours/year	NI	BACT-PSD
Existing GHG (Carbon Dioxide Equivalent) BACT Determinations - Emergency Generators					
Iowa Fertilizer Company: Wever, IA	IA-0105/ 12-219 (10/26/2012)	Emergency Generator - Diesel (2,000 kw)	CO_2e: Good combustion practices, 788.50 tons/yr	NI	BACT-PSD
Pyramax Ceramic, LLC: Rome, GA	GA-0147/ 3295-163-0035-P-01-0 (1/27/2012)	Emergency Generator - Natural Gas (1,818 hp)	CO_2e: 153.00 tons/yr (combined 12-month avg)	NI	BACT-PSD
Westlake Vinyls Company: Geismar, LA	LA-256/ PSD-LA-754 (12/6/2011)	(4) 500 kw Emergency Diesel Generators	CO_2e: Use of natural gas, good combustion practices, 1509.23 lb/hr, 39.24 tons/yr, 52 hours/yr	NI	BACT-PSD

GHG (Carbon Dioxide Equivalent) BACT Determinations - Emergency Generator					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Wolverine Power Supply Cooperative, Inc.: Sumpter, MI	MI-0402/ 81-11 (11/17/2011)	Diesel Fuel-Fired Combustion Engine (732 hp)	CO2e: Good combustion practices, 716.60 lb/hr	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Emergency Generators (GHG)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired emergency generators.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Emergency Generators (GHG)

The control technologies for natural gas fired emergency generators are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Emergency Generators (GHG)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired emergency generators is the restricted use of only natural gas and the use of good combustion practices. Most facilities express exhaust emission limitations in terms of tons per year of carbon dioxide equivalent.

GHG BACT for the natural gas fired emergency generators has been determined to be the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 383 tons of CO_2e per 12-month period for eac of the proposed generators.

Step 5: Select BACT - Natural Gas Fired Emergency Generators (GHG)

A detailed GHG BACT for the natural gas fired emergency generators is given in the BACT Conclusion for GHG.

(2) Diesel Fired Fire Pump (GHG)
The Fire Pump (EU018) will be fueled by diesel fuel.

Existing and Proposed BACT Determinations –Diesel Fired Fire Pump (GHG)
The U.S. EPA RBLC was reviewed to identify control requirements and limitations for diesel fired fire pumps. The table below summarizes these GHG BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to more recent entries from January 2003 to December 2013 for fire pumps only used for emergency purposes.

GHG (Carbon Dioxide Equivalent) BACT Determinations – Fire Pump					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Fire Pump EU018 300 hp (224 kw)	CO_2e: Use of good combustion practices, 31.11 tons/yr (12-month rolling total), 500 hours/year	NI	BACT-PSD
Existing GHG (Carbon Dioxide Equivalent) BACT Determinations – Fire Pumps					
Iowa Fertilizer Company: Wever, IA	IA-0105/ 12-219 (10/26/2012)	Fire Pump - Diesel (235 kw)	CO_2e: Good combustion practices, 91.00 tons/yr (12-month rolling total)	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Diesel Fired Fire Pumps (GHG)

No technologies were eliminated from consideration because of technical infeasibility for diesel fired fire pumps.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Diesel Fired Fire Pumps (GHG)

The control technologies for diesel fired fire pumps are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Diesel Fired Fire Pump (GHG)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for diesel fired fire pumps is the use of good combustion practices. Most facilities express exhaust emission limitations in terms of tons per year of carbon dioxide equivalent.

GHG BACT for the diesel fired fire pump has been determined to be the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit, which is 31.11 tons of CO_2e per 12-month period for the proposed fire pump.

Step 5: Select BACT - Diesel Fired Fire Pump (GHG)

A detailed GHG BACT for the diesel fired fire pump is given in the BACT Conclusion for GHG.

(3) Natural Gas Fired Space Heaters, Lab Furnaces and Air Heaters (GHG)
The Space Heaters & lab furnaces (EU021), Ground Limestone/Dolomite Additive System Air Heater (EU010), and Coke Breeze Additive System Air Heater (EU009) will be fueled by natural gas.

Existing and Proposed BACT Determinations - Natural Gas Fired Space Heaters and Air Heaters (GHG)

The U.S. EPA RBLC was reviewed to identify control requirements and limitations for natural gas fired space heaters and air heaters. The table below summarizes these GHG BACT determinations as provided by the RBLC, as well as other IDEM permits, and documents the proposed BACT limitations for Mag Pellet LLC. The search was limited to entries from January 2003 to December 2013 for space heaters, air heaters, and process heaters that combust only natural gas.

GHG (Carbon Dioxide Equivalent) BACT Determinations - Heaters Firing Natural Gas					
Facility: City, State	**RBLC ID/ Permit # (Issuance Date)**	**Process**	**Pollutant: Control, Emission Limits**	**Control Efficiency**	**Basis**
Proposed BACT for Mag Pellet LLC		Space Heaters & lab furnaces (EU021)	CO_2e: Use of natural gas, good combustion practices, 11,801 tons/yr (12-month rolling total)	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Ground Limestone/Dolomite Additive System Air Heater (EU010) (23 MMBtu/hr)	CO_2e: Use of natural gas, good combustion practices, 11,787 tons/yr (12-month rolling total)	NI	BACT-PSD
Proposed BACT for Mag Pellet LLC		Coke Breeze Additive System Air Heater (EU009) (4.3 MMBtu/hr)	CO_2e: Use of natural gas, good combustion practices, 2,204 tons/yr (12-month rolling total)	NI	BACT-PSD
Existing GHG (Carbon Dioxide Equivalent) BACT Determinations - Heaters Firing Natural Gas					
Iowa Fertilizer Company: Wever, IA	IA-0105/ 12-219 (10/26/2012)	Startup Heater (110.12 MMBtu/hr)	CO_2e: Good combustion practices, 638.00 tons/yr (12-month rolling total)	NI	BACT-PSD
City of Palmdale: Palmdale, CA	CA-1212/ SE 09-01 (10/18/2011)	Auxiliary Heater (40 MMBtu/hr)	CO_2e: Annual boiler tuneups	NI	BACT-PSD

Step 2: Eliminate Technically Infeasible Options - Natural Gas Fired Space Heaters and Air Heaters (GHG)

No technologies were eliminated from consideration because of technical infeasibility for natural gas fired heaters.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness - Natural Gas Fired Space Heaters and Air Heaters (GHG)

The control technologies for natural gas fired heaters are ranked as follows:

(1) Clean fuels

(2) Good combustion practices

(3) Usage limitations

Step 4: Evaluate the Most Effective Controls and Document the Results - Natural Gas Fired Space Heaters and Air Heaters (GHG)

Based on a review of the U.S. EPA RBLC and other Indiana permits, the primary control used for natural gas fired heaters is the use of good combustion practices. Most facilities express exhaust emission limitations in terms of tons per year of carbon dioxide equivalent.

GHG BACT for the natural gas fired heaters and lab furnaces has been determined to be the restricted use of only natural gas, the use of good combustion practices, and appropriate emission limits.

*Step 5: Select BACT - Natural Gas Fired Space Heaters, Lab furnaces and Air Heaters (*GHG*)*

A detailed GHG BACT for natural gas fired heaters & lab furnaces is given in the BACT Conclusion for GHG.

BACT Conclusion for Greenhouse Gases (GHG)

Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (BACT) for GHG emissions shall be as follows:

(a) Combustion Units

The combustion units shall be limited as follows:

(1) GHG emissions from the emergency generators (EU017a and EU017b) shall be controlled through the restricted use of only natural gas, the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of tons of CO_2e per 12-month period.

(2) GHG emissions from the fire pump (EU018) shall be controlled through the use of good combustion practices, and an operation limit of 500 hours per year along with an emission limit of 31.11 tons of CO_2e per 12-month period.

(3) GHG emissions from the space heaters and lab furnaces (EU021) shall be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 11,801 tons of CO_2e per 12-month period.

(4) GHG emissions from the ground limestone/dolomite additive system air heater (EU010) shall be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 11,787 tons of CO_2e per 12-month period.

(5) GHG emissions from the coke breeze additive system air heater (EU009) shall be controlled through the restricted use of only natural gas and the use of good combustion practices along with an emission limit of 2,204 tons of CO_2e per 12-month period.

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 2-2-3 (BACT) with regards to GHG (as CO_2e).

IDEM Contact

Questions regarding this BACT Analysis can be directed to Julie Alexander at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, MC 61-53, Room 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 233-1782 or toll free at 1-800-451-6027 extension 3-1782.

Appendix C
Air Quality Analysis

Mag Pellet, LLC
(Previously know as Magnetation)
Reynolds, Indiana (White County)
PSD/Significant Source Modification No. 181-33965-00054
Significant Permit Modification No. 181-34210-00054

Proposed Project

Mag Pellet, LLC (Mag Pellet) resubmitted their PSD modeling in January 2014 since modifying some existing permitted equipment and adding some new equipment in order to complete the project. This prompted another full review of the facility since it changed the original design of the project.

Mag Pellet proposes to construct and operate an iron oxide pellet production facility at 64 East 100 North, Reynolds, Indiana. Reynolds is located in White County. The proposed project will produce iron oxide pellets from iron concentrate and will be designed to process material sufficient to generate three (3) million metric tons of screened iron oxide pellets per year.

Keramida was the consultant that prepared the modeling portion of the permit application for Mag Pellet. This technical support document provides the air quality analysis review of the submitted modeling by Keramida for Mag Pellet.

Analysis Summary

Based on the potential emissions after controls, a PSD air quality analysis was triggered for SO_2, PM_{10}, $PM_{2.5,}$ NO_2, and fluorides. The significant impact analysis for the affected NAAQs pollutants, determined that modeling concentrations did exceed the significant impact levels (SILs). A refined analysis was required for PM_{10}, $PM_{2.5,}$ NO_2, and SO_2 and showed no violations. Pre-construction monitoring requirements were not necessary since existing monitoring is available. An additional impact analysis was conducted and showed no significant impact. A Hazardous Air Pollutant (HAP) analysis was performed since one HAP was above the 10 ton per year threshold.

Air Quality Impact Objectives

The purpose of the air quality impact analysis in the permit application is to accomplish the following objectives. Each objective is individually addressed in this document in each section outlined below.

A. Establish which pollutants require an air quality analysis based on PSD significant emission rates.

B. Provide analyses of actual stack heights with respect to Good Engineering Practice (GEP), the meteorological data used, a description of the model used in the analysis, and the receptor grid utilized for the analyses.

C. Determine the significant impact level, the area impacted by the source's emissions, and background air quality levels.

D. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or PSD increment if the applicant exceeds significant impact levels.

E. Perform a secondary ozone analysis if the applicant is major for NO_2 and/or VOCs.

F. Perform a secondary PM2.5 analysis if the applicant is major for NO_2 and SO_2.

G. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation, and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park.

H. Perform a HAP screening for informational purposes.

I. Summarize the Air Quality Analysis.

Section A - Pollutants Analyzed for Air Quality Impact

Applicability

The PSD requirements, 326 IAC 2-2, apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1 and in the Code of Federal Regulations (CFR) 52.21(b) (23) (i).

Proposed Project Emissions

PM_{10}, $PM_{2.5,}$ NO_2, SO_2, CO, and fluorides are the main pollutants that will be emitted from Mag Pellet and are summarized below in Table 1. PM_{10}, $PM_{2.5,}$ NO_2, SO_2, and fluorides potential emissions after controls exceed the PSD significant emission rates and require an air quality analysis.

TABLE 1
Significant Emission Rates for PSD

POLLUTANT	**SOURCE EMISSION RATE** (Facility totals in tons/year)	**SIGNIFICANT EMISSION RATE** (tons/year)	**PRELIMINARY AQ ANALYSIS REQUIRED**
NO_2	485.7	40	Yes
CO	67.3	100	No
PM_{10}	285.7	15	Yes
$PM_{2.5}$	272.4	10	Yes
SO_2	180.9	40	Yes
Fluorides	62.7	3	Yes

Mag Pellet’s emission rates were taken from Table 1 of their modeling submittal.

Section B – Good Engineering Practice (GEP), Met Data, Model Used, Receptor Grid and Terrain

Stack Height Compliance with Good Engineering Practice (GEP)

Applicability

Stacks should comply with GEP requirements established in 326 IAC 1-7-4. If stacks are lower than GEP, excessive ambient concentrations due to aerodynamic downwash may occur. Dispersion modeling credit for stacks taller than 65 meters (213 feet) is limited to GEP for the purpose of establishing emission limitations. The GEP stack height takes into account the distance and dimensions of nearby structures, which affects the downwind wake of the stack. The downwind wake is considered to extend five times the lesser of the structure's height or width. A GEP stack height is determined for each nearby structure by the following formula:

$$Hg = H + 1.5L$$

Where: Hg is the GEP stack height
H is the structure height
L is the structure's lesser dimension (height or width)

New Stacks

Since some of the new stack heights for Mag Pellet are below GEP stack height, the effect of aerodynamic downwash is accounted for in the air quality analysis for the project.

Meteorological Data

The National Weather Service (NWS) 1-minute Automated Surface Observation Station (ASOS) meteorological data used in AERMOD consisted of 2008 through 2012 surface data from South Bend, Indiana and upper air measurements taken at Lincoln, Illinois. The meteorological data was preprocessed using the latest versions of AERMINUTE, AERSURFACE, and AERMET at the time the permit was prepared.

Model Description

Keramida used AERMOD Version 12345. The Office of Air Quality (OAQ) used the same model version in their air quality analysis review to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the U.S. EPA approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W “Guideline on Air Quality Models”.

Receptor Grid

OAQ modeling used the same receptor grids generated by Keramida. The receptor grid is outlined below to determine the significant impact area for each pollutant:

- 100 meter spacing along the facility’s property boundary,
- 100 meter spacing out to 1 kilometers,
- 250 meters spacing out to 3 kilometers.
- 500 meters spacing out to 10 kilometers.
- 1000 meters spacing out to 50 kilometers.

NAAQs and increment modeling used a subset of these receptors depending upon the extent of each pollutants significant impact area.

Treatment of Terrain

Receptor terrain elevation inputs were interpolated from NED (National Elevation Dataset) data obtained from the USGS. NED terrain data was preprocessed using AERMAP.

Section C - Significant Impact Level/Area (SIA) and Background Air Quality Levels

A significant impact analysis was conducted to determine if the source would exceed the PSD SILs (concentrations). If the source's concentrations exceed these SILs, further air quality analysis is required. Refined modeling for $PM_{2.5}$, PM_{10}, 1-hour SO_2, and NO_2, was required because the results did exceed the SILs. SILs are defined by the following time periods in Table 2 below with all maximum-modeled concentrations. A Tier II 80% conversion of NO to NO_2 was assumed based on the March 01, 2011, Tyler Fox memorandum.

TABLE 2
Significant Impact Analysis[4]

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED IMPACTS (µg/m^3)	SIGNIFICANT IMPACT LEVEL (µg/m^3)	REFINED AQ ANALYSIS REQUIRED
NO_2	Annual[1]	2.58[5]	1	Yes
NO_2	1-hour[2]	51.63[5]	7.55	Yes
PM_{10}	Annual[1]	3.38	1	Yes
PM_{10}	24-hour[1]	14.49	5	Yes
$PM_{2.5}$	Annual[3]	1.32	.3[7]	Yes
$PM_{2.5}$	24-hour[3]	6.00	1.2[7]	Yes
SO_2	3-hour[1]	16.09	25	No
SO_2	24-hour[1]	4.45	5	No
SO_2	Annual[1]	.5	1	No
SO_2	1-hour[2]	23.28	7.80	Yes
Fluorides	24-hour[1]	1.48	N/A[6]	No –see footnote

[1] The first highest values per the EPA NSR manual dated October 1990.
[2] In accordance with recent U.S. EPA guidance, the highest of the five year modeled averages predicted each year at each receptor. See the March 01, 2011, memorandum.
[3] In accordance with recent U.S. EPA guidance, the highest modeled average over the five years at each receptor. See the March 23, 2010, memorandum.
[4] Impacts are from Mag Pellet only.
[5] NO_2 values were multiplied by .8.
[6] There is no significant impact level for fluorides. This value exceeds the monitoring threshold of .25 µg/m^3 as stated in 326 IAC 2-2-4. There is currently no way to monitor for fluorides and no standard to monitor against.
[7] The $PM_{2.5}$ SIL was vacated on January 22, 2012.

The Court decision on January 22, 2012, vacated the use of the $PM_{2.5}$ SILs. EPA did not interpret the Court's decision to preclude the use of the SILs for $PM_{2.5}$ entirely. The Court instructed additional care needs to be taken on how those SILs are applied so that a source <u>will not cause or contribute to a violation of the $PM_{2.5}$ NAAQs</u>. A test is performed by taking the difference between the NAAQS and the measured $PM_{2.5}$ background in the area to determine if it is greater than the applicable

SIL value. If it is greater than the applicable SIL value, then EPA believes it would be sufficient in most cases to conclude that a source with an impact below the SIL will not cause a new NAAQS violation. Table 3 shows how the test is performed. The monitoring site used for the test is in Lafayette, Indiana. For Mag Pellet, there were no modeled violations for $PM_{2.5}$ so the use of the SILs to determine culpability for a NAAQs violation doesn't apply in their situation.

TABLE 3
$PM_{2.5}$ SIL Test

NAAQS (μg/m³)	BACKGROUND MONITOR (μg/m³)	DIFFERENCE BETWEEN MONITOR AND NAAQS (μg/m³)	SIL (μg/m³)	DIFFERENCE GREATER THAN SIL?	IS THERE A MODELED NAAQS VIOLATION?
12.0	10.0	2.0	0.3	Yes	No
35	23	12	1.2	Yes	No

Pre-construction Monitoring Analysis

Applicability

The PSD rule, 326 IAC 2-2-4, requires an air quality analysis of the new source or the major modification to determine if the pre-construction monitoring threshold is triggered. In most cases, monitoring data taken from a similar geographic location can satisfy this requirement if the pre-construction monitoring threshold has been exceeded. Also, post construction monitoring could be required if the air quality in that area could be adversely impacted by applicant's emissions.

Modeling Results

The modeling results were compared to the PSD pre-construction monitoring thresholds. The results are shown in the table below.

TABLE 4
Preconstruction Monitoring Analysis

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED IMPACTS (μg/m³)	DEMINIMIS LEVEL (μg/m3)	ABOVE DE MINIMIS LEVEL
NO_2	Annual[1]	2.58	14	No
PM_{10}	24-hour[1]	14.49	10	Yes
$PM_{2.5}$	24-hour[2]	6.00	4	Yes
SO_2	24-hour[1]	4.45	13	No

[1] The first highest values per the EPA NSR manual dated October 1990. Maximum modeled impacts are from Mag Pellet only.
[2] In accordance with recent U.S. EPA guidance, the highest average over the five years at each receptor. See the March 23, 2010, memorandums from EPA.

PM_{10} and $PM_{2.5}$ did trigger the pre-construction monitoring threshold level. Mag Pellet can satisfy the preconstruction monitoring requirement since there is air quality monitoring data representative of the area in other counties.

Background Concentrations

Applicability

EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration" (EPA-450/4-87-007) Section 2.4.1 is cited for approval of the monitoring sites chosen for this area.

Background Monitors

Background data was taken from representative monitoring stations for Mag Pellet. It was agreed between Mag Pellet and OAQ that this approach could be taken in place of the pre-construction monitoring requirement.

TABLE 5
Existing Monitoring Data Used For Background Concentrations (ug/m^3)

Pollutant	Averaging Period	Location	Monitoring Site	Monitored Design Values
NO_2	Annual	St. Joseph County - South Bend	18-141-0015	20.9
NO_2	1-hour	St. Joseph County - South Bend	18-141-0015	70.19
PM_{10}	Annual	Porter County - Portage	18-127-0023	22.6
PM_{10}	24-hour	Porter County - Portage	18-127-0023	87.0
$PM_{2.5}$	Annual	Tippecanoe County - Lafayette	18-157-0008	9.9[2]
$PM_{2.5}$	24-hour	Tippecanoe County - Lafayette	18-157-0008	23[2]
SO_2	1-hour	Lima, Ohio[1]	33-003-0009	42.8
SO_2	3-hour	Lima, Ohio[1]	33-003-0009	36.1
SO_2	24-hour	Lima, Ohio[1]	33-003-0009	15.6
SO_2	Annual	Lima, Ohio[1]	33-003-0009	4.9

[1] EPA approved the use of the Lima, Ohio monitor with the Synergy application. This is more representative of a rural location.
[2] Since data was available for $PM_{2.5}$, the latest 3 years 2011- 2013 were used. For all the other pollutants, the latest 3 years 2010-2012 were used.

Section D - NAAQS and PSD Increment

OAQ supplied emission inventories of all point sources in Indiana within a 50-kilometer radius of Mag Pellet. The NAAQS inventories are generated from EMITS **(**Emission Inventory Tracking System) in accordance with 326 IAC 2-6. The PSD increment inventories include sources that affect the increment and are compiled from permits issued by OAQ. All sources with the potential to cause a significant impact in the vicinity of the proposed facility were explicitly included in the modeling.

NAAQS Compliance Analysis and Results

NAAQs modeling for the appropriate time-averaging periods for NO_2, PM_{10}, $PM_{2.5}$, and SO_2 was conducted and compared to the respective NAAQs limit. OAQ modeling results are shown in Table 6. All maximum-modeled concentrations were compared to the respective NAAQS limit. All maximum-modeled concentrations during the five years were below the NAAQS limits and no further modeling was required.

TABLE 6[3]
NAAQS Analysis

Pollutant	Year	Time-Averaging Period	Maximum Concentration ug/m3	Background Concentration ug/m3	Total ug/m3	NAAQS Limit ug/m3	NAAQS Violation
NO_2	2008	Annual[1]	3.21	20.9	24.11	100	No
NO_2	2008-2012	1-hour[4]	117.48	70.19	187.67	188.68	No
PM_{10}	2012	Annual[1]	3.38	22.6	25.98	50	No
PM_{10}	2008-2012	24-hour[3]	12.85	87.0	99.85	150	No
$PM_{2.5}$	2008-2012	Annual	1.32	9.9	11.22	12	No
$PM_{2.5}$	2008-2012	24-hour	4.33	23	27.33	35	No
SO_2	2008-2012	1-hour[5]	59.5	42.8	102.3	195.0	No

[1] First highest values per EPA NSR manual October 1990.
[2] High 2nd high values per EPA NSR manual October 1990.
[3] High 6th High
[4] Any differences between the maximum concentration numbers in Tables 6 and 7 are due to different sources used for the NAAQS and the increment inventories. Table 2 maximum concentrations are from Mag Pellet only.
[5] Based on the new 1-hour design values.

Analysis and Results of Source Impact on the PSD Increment

Applicability

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2-6. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth.

Source Impact

Since Mag Pellet impacts for $PM_{2.5}$, PM_{10}, SO_2, and NO_2 modeled greater than or equal to SILs, a PSD increment analysis for Mag Pellet was required. Because $PM_{2.5}$ increment values were established in 2010 and the PM_{10} surrogacy policy was removed, the baseline date for the increment is within the last few years. The 1-hour SO_2 and NO_2 have no increment standards.

Results of the increment modeling are summarized in Table 7 below.

TABLE 7[1]
Increment Analysis

Pollutant	Year	Time-Averaging Period	Maximum Concentration µg/m3	PSD Increment µg/m3	Percent Impact on the PSD Increment	Increment Violation
$PM_{2.5}$	2011	24-hour[2]	6.03	9	67%	No
$PM_{2.5}$	2008	Annual[3]	1.51	4	37.8%	No
PM_{10}	2010	24-hour	13.15	30	43.8%	No
PM_{10}	2012	Annual	3.38	17	19.8%	No
NO_2	2008	Annual	3.21	25	12.8%	No

[1]Any differences between the maximum concentration numbers in Tables 6 and 7 are due to different sources used for the NAAQS and the increment inventories, and different averaging techniques to obtain maximum concentrations. Tables 2 maximum concentrations are from Mag Pellet only.
[2]In accordance with the Federal Register dated October 20, 2010; the high 2nd high is used.
[3]In accordance with the Federal Register dated October 20, 2010; the highest annual average is used from any of the years modeled.

The results of the increment analysis show all pollutants for all averaging periods were below 80% of the available increment. No further analysis is required.

Part E - Secondary Ozone Formation Analysis

A secondary ozone and/or $PM_{2.5}$ analysis is necessary if a source emits precursors for these pollutants above significant emission rates. The U.S. Environmental Protection Agency (U.S. EPA) has provided guidance to assess the impacts of precursor emissions on ozone and secondary $PM_{2.5}$ formation. The U.S. EPA has outlined three different approaches in its *Draft Guidance for $PM_{2.5}$ Permit Modeling*, dated March 4, 2013. The recommended approaches include:

1. Qualitative assessment
2. Hybrid of qualitative and quantitative assessments utilizing existing technical work
3. Quantitative photochemical grid modeling

The U.S. EPA stated in the draft guidance that in most cases, a qualitative assessment will suffice to address these impacts. A qualitative assessment requires that several factors be considered in the determination of impacts from precursor emissions on ozone and secondary $PM_{2.5}$ formation. This qualitative assessment will review monitoring data, emissions, and meteorological data for the area surrounding the Mag Pellet site located in White County, Indiana. Mag Pellet's proposed emissions were calculated to be 485.7 tons per year of oxides of nitrogen (NO_x) and Sulfur Dioxide (SO_2) emissions were proposed at 181.7 tons per year, both pollutants above their PSD significant emission rates. Direct $PM_{2.5}$ was calculated to be 272.4 tons per year. There are no Volatile Organic Compounds emitted from this source.

Qualitative Assessment of the Potential for Ozone Formation

The qualitative assessment reviewed several factors including the Mag Pellet's proposed NO_x emissions, meteorology, and monitoring data in the northern Indiana area to determine if impacts due to ozone formation from these emissions would cause or contribute to a violation of the 8-hour ozone NAAQS.

1. Wind Roses

Figures 1 and 2 below show the wind roses taken from the meteorological station located at the West Lafayette, Indiana, Purdue University Airport. Data was collected during the ozone season months of April through September for 2010 through 2012 and 2011 through 2013.

Lafayette Wind Roses Covering Months during Ozone Season

FIGURE 1
2010 to 2012

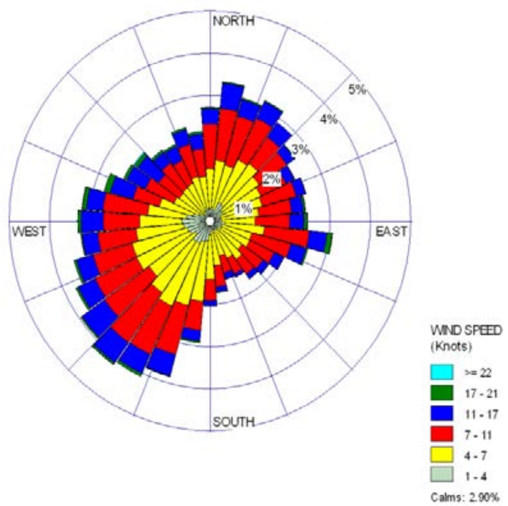
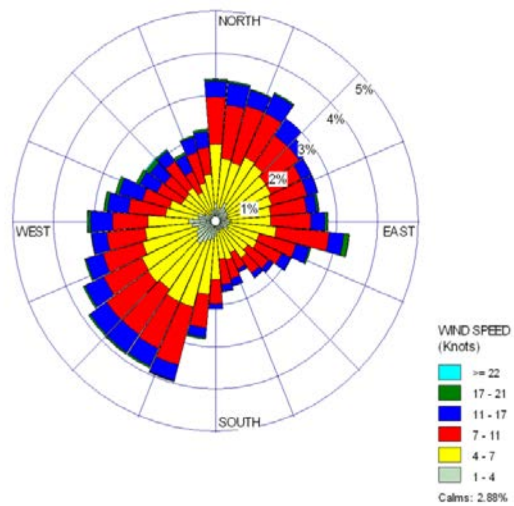


FIGURE 2
2011 to 2013



Prevailing winds were found to occur from the southwest. There was much consistency in the direction of the winds during the four-year period even though 4^{th} high ozone readings at several north central Indiana ozone monitors varied between 7 and 12 parts per billion during this time frame. Mag Pellet would be considered upwind of the ozone monitors in LaPorte, St Joseph, Elkhart, and Huntington counties and ozone impacts would occur northeast of Mag Pellet on ozone conducive days. While Mag Pellet's NO_x emissions would undergo photochemical reactions to form ozone, the impacts on ozone monitors would be anticipated to be small due to Mag Pellet's NO_x emissions as compared to NO_x emissions from White and surrounding counties.

2. 8-hour Ozone Monitoring Data

The nearest ozone monitor to Mag Pellet is the Flora monitor in Carroll County, which is considered upwind of Mag Pellet on ozone conducive days. The current design value for 2011-2013 at the Flora monitor is 69 parts per billion (ppb). Ozone monitors considered downwind of Mag Pellet are located in Porter, LaPorte, St. Joseph, and Huntington Counties; all monitors listed below in Table 8 have current design values below the 8-hour ozone NAAQS of 75 ppb.

TABLE 8
Background 8-hour Ozone Concentrations and Design Values in Northern Indiana (2010-2013)

Design Values (ppb)	2010	2011	2012	2013	2010-2012	2011-2013
Carroll Co. – Flora	72	68	75	65	71	69
St. Joseph Co. – Potato Creek	60	64	70	57	64	63
LaPorte Co. – LaPorte	67	70	79	64	72	71
Porter Co. – Valparaiso	61	63	67	63	63	64
Huntington Co. – Roanoke	62	69	67	59	66	65

It is important to note that ozone monitors in the north central Indiana area are designated as attaining the 8-hour ozone NAAQS. Mag Pellet's 8-hour ozone impacts are anticipated to be small and not cause a violation of the 8-hour ozone NAAQS.

3. Emissions

Mag Pellet's proposed NO_2 emissions would be 485.7 tons per year. Impacts from Mag Pellet, as shown in the wind rose analysis above, would impact White, Tippecanoe, Carroll, Cass, Fulton, Jasper, and Pulaski Counties. Comparison of Mag Pellet's NO_2 emissions with the 2011 U.S. EPA's National Emissions Inventory (NEI) NO_x emissions taken from all point, on road, nonroad, nonpoint, and wildfire emissions sources would represent 2.0% of all NO_x emissions in this seven-county area. NO_x emissions are above the PSD significant emission rate threshold; however, it is anticipated that not all of Mag Pellet's ozone precursor emissions will result in local ozone formation. Ozone formation from photochemical reactions from the NO_x emissions is not immediate and generally occurs at a distance of tens to hundreds of kilometers downwind. This portion of Mag Pellet's NO_x emissions is not expected to cause or contribute to 8-hour ozone NAAQS violations in the area.

Summary of Ozone Results

Mag Pellet's NO_2 emissions were analyzed and their impacts were assessed with the background concentrations, design values of the surrounding area, meteorology, and 2011 NEI emissions comparisons. All ozone monitors in the north central Indiana area have current 8-hour ozone design values that attain the 8-hour ozone NAAQS. NO_x emissions from Mag Pellet are expected to comprise a small portion of the north central Indiana airshed's NO_x emissions. The downwind impacts from Mag Pellet on the Flora ozone monitor in Carroll County and nearby ozone monitors in north central Indiana are anticipated to be minimal. This assessment concludes that Mag Pellet will not have a significant impact on the 8-hour ozone attainment status of White County and any surrounding counties.

Part F - Secondary $PM_{2.5}$ formation Analysis

Qualitative Assessment of the Potential for Secondary $PM_{2.5}$ Formation

An assessment of Mag Pellet's NO_x and SO_2 emissions was conducted to determine impacts on secondary $PM_{2.5}$. In addition to direct emissions of $PM_{2.5}$, other pollutants, chiefly NO_x and SO_2, can lead to formation of particulate nitrates and sulfates further downwind. The photochemical reactions that transform these pollutants into secondary $PM_{2.5}$ usually take place over -hours or days after the pollutants are emitted into the atmosphere. However, it is possible that some of the NO_x and SO_2 transformations into nitrates and sulfates from this source may occur more rapidly and be transported directly downwind. No peer-reviewed regulatory model presently exists to examine the photochemical $PM_{2.5}$ impacts from an individual source of SO_2 and NO_x. All photochemical models are regional in scale and a source of this size does not show any measurable modeled impacts. Therefore, other available information from monitoring data, emissions inventories, meteorological analyses, and other modeling results can be used to qualitatively assess potential secondary $PM_{2.5}$ impacts.

1. Annual and 24-hour $PM_{2.5}$ Monitoring Data

There are several $PM_{2.5}$ monitors within 50 miles of Mag Pellet, providing background concentrations representative of the air quality in the north central Indiana air shed. More rural $PM_{2.5}$ monitoring sites were selected for a better representation of air quality in White County. Table 9 below shows the nearest $PM_{2.5}$ monitor to Mag Pellet is the Greenbush St. monitor in Lafayette, Tippecanoe County. The 2011 – 2013 annual $PM_{2.5}$ design value at the Greenbush monitor in Tippecanoe County is 9.9 micrograms per cubic meter (µg/m^3), below the annual $PM_{2.5}$ NAAQS of 12.0 µg/m^3. Annual $PM_{2.5}$ design values are expected to be low throughout the entire north central Indiana area with all monitoring sites recording design values below the annual $PM_{2.5}$ NAAQS.

TABLE 9
Annual $PM_{2.5}$ Background Concentrations/Design Values in north central Indiana (2009-2013)

Design Values (µg/m^3)	2009	2010	2011	2012	2013	Design Value 2009-2011	Design Value 2010-2012	Design Value 2011-2013
Lafayette – Tippecanoe Co.	10.6	12.0	10.4	9.7	9.8	11.0	10.7	9.9
Larwill - Whitley Co.		10.6	10.4	9.4	9.0		10.1	9.6

The 24-hour $PM_{2.5}$ design value (2011-2013) for the closest $PM_{2.5}$ monitor to Mag Pellet (Greenbush St. monitor in Tippecanoe County) is 23.0 µg/m^3, below the 24-hour $PM_{2.5}$ NAAQS of 35.0 µg/m^3. All other $PM_{2.5}$ monitors in the area have 24-hour $PM_{2.5}$ design values below the 24-hour $PM_{2.5}$ NAAQS. Table 3 below shows all monitors have design values that are trending downward and are anticipated to remain low throughout north central Indiana.

TABLE 10
24-hour $PM_{2.5}$ Background Concentrations/Design Values in north central Indiana (2009-2013)

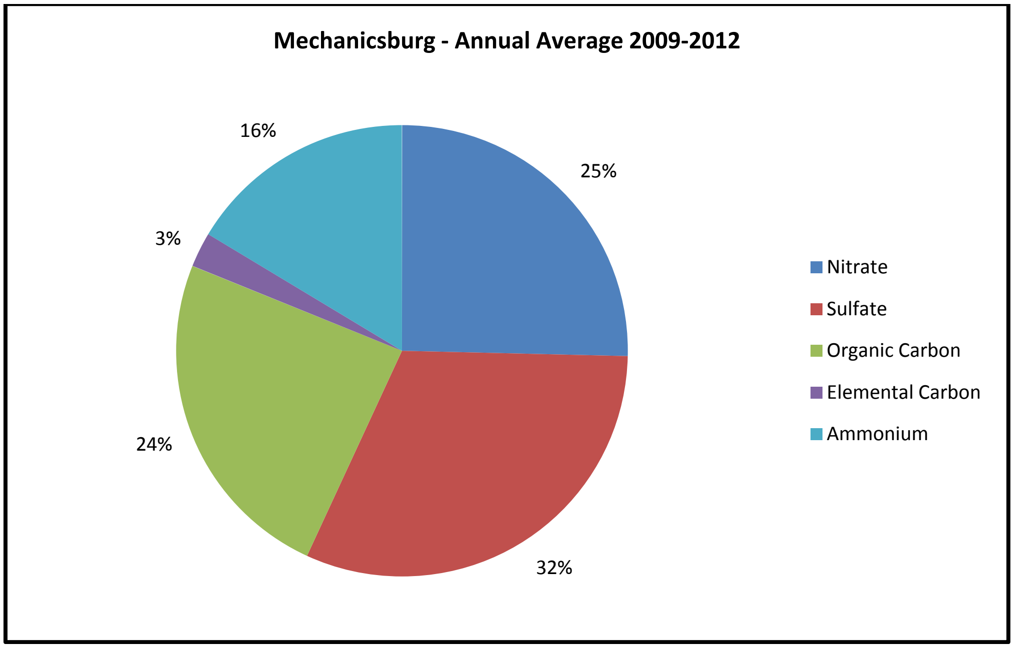
Design Values (µg/m^3)	2009	2010	2011	2012	2013	Design Value 2009-2011	Design Value 2010-2012	Design Value 2011-2013
Lafayette – Tippecanoe Co.	20.6	27.2	23.2	23.8	20.8	24	25	23
Larwill - Whitley Co.		31.8	22.2	25.9	18.7		27	22

With a difference of 12 µg/m^3 between the highest 24-hour $PM_{2.5}$ design value in the north central Indiana area and the 24-hour $PM_{2.5}$ NAAQS of 35.0 µg/m^3, the anticipated secondary $PM_{2.5}$ impacts from Mag Pellet are not expected to not cause or contribute impacts to the area that would approach the 24-hour $PM_{2.5}$ NAAQS.

2. Background Speciated Data

Speciated data taken from the Mechanicsburg, Henry County monitoring site for 2009 through 2012, found below in Chart 1, show the different species in central Indiana's $PM_{2.5}$ composition. The Mechanicsburg monitoring data represents rural $PM_{2.5}$ composition, similar to the airshed in which Mag Pellet is proposing to locate; therefore, this data will be used for this analysis. The percentages of the annual average concentrations show sulfates, nitrates, and organic carbon make up a majority of the $PM_{2.5}$ composition with ammonium and elemental carbon as contributing species to $PM_{2.5}$ as well. There is a high percentage of sulfates present in the $PM_{2.5}$ composition, which reflects the influence of coal-burning power plants in the region.

CHART 1
Speciated $PM_{2.5}$ composition for Rural Central Indiana 2009-2012



Over a decade of speciated monitoring has shown that in Indiana, all northern sites record higher concentrations of nitrates than those in the central and southern parts of the state. Sulfates and nitrates make up approximately one-half of the composition of $PM_{2.5}$ in central and north central Indiana; therefore, Mag Pellet's NO_x and SO_2 emissions and potential impact on secondary $PM_{2.5}$ formation would be considered relatively minor and not would be anticipated to cause or contribute to a 24-hour or annual $PM_{2.5}$ NAAQS violation.

3. Emissions

Mag Pellet's proposed emissions are 485.7 tons per year of NO_2 and 181.7 tons per year of SO_2. Comparison of Mag Pellet's NO_x emissions with the 2011 U.S. EPA's National Emissions Inventory (NEI) NO_x emissions taken from all point, on road, nonroad, nonpoint, and wildfire emission sources in all surrounding counties (White, Tippecanoe, Carroll, Cass, Fulton, Jasper, and Pulaski) would be 2.0%. Mag Pellet's SO_2 emissions were compared with the 2011 NEI SO_2 inventory for White, Tippecanoe, Carroll, Cass, Fulton, Jasper, and Pulaski Counties. Results showed Mag Pellet would represent 0.6% of all point, on road, nonroad, nonpoint, and wildfire SO_2 emissions sources within the seven-county area.

Another way to provide some perspective for these precursor emissions in regard to their $PM_{2.5}$ formation potential is to examine some earlier work U.S. EPA performed for the 2008 $PM_{2.5}$ New Source Review implementation rule. They established presumptive interpollutant trading ratios for conversion of SO_2 and NO_x to $PM_{2.5}$. These ratios were based upon analyses of nine urban areas across the country. In 2011, U.S. EPA determined this policy could no longer be presumptively applied in all locations because of variability in different areas. However, this analysis is instructive in determining the approximate conversion of these pollutants.
The interpollutant trading ratio assumptions U.S. EPA established in 2008:
Tons SO_2 equating to one ton $PM_{2.5}$ - 40 tons
Tons NO_x equating to one ton $PM_{2.5}$ - 200 tons.

To approximate the impact from this proposed project, 485.7 tons of NO_2 and 181.7 tons of SO_2 would equate to 2.43 and 4.54 tons respectively. This total of 6.97 tons of $PM_{2.5}$ is considered small. When added to the direct $PM_{2.5}$ emissions of 272.4 tons per year estimated from this project, the total $PM_{2.5}$ emissions would be 279.37 tons per year.

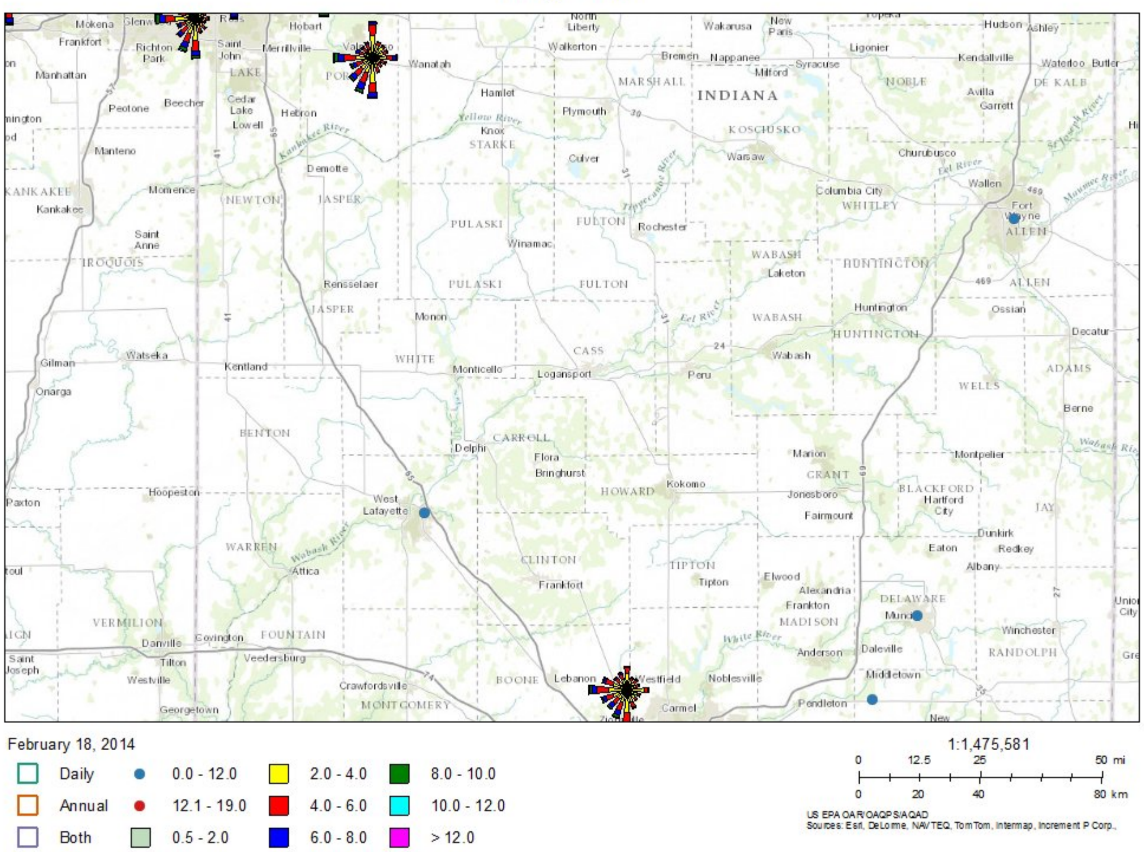
Due to relatively low Mag Pellet's NO_2 and SO_2 emissions compared to NO_x and SO_2 emission totals from the seven county area, Mag Pellet's impacts are not anticipated to result in appreciable secondary $PM_{2.5}$ formation that would cause or contribute to a 24-hour or annual $PM_{2.5}$ NAAQS violation.

4. Regional Winds/Wind Roses

Figure 3 shows annual wind roses for surrounding airport meteorological stations as taken from U.S. EPA's PM Designations Mapping Tools http://geoplatform2.epa.gov/PM_MAP/index.html. These were analyzed and results showed the wind directions were typically from the west, south and southwest. Mag Pellet would be located in the northern portion of White County.

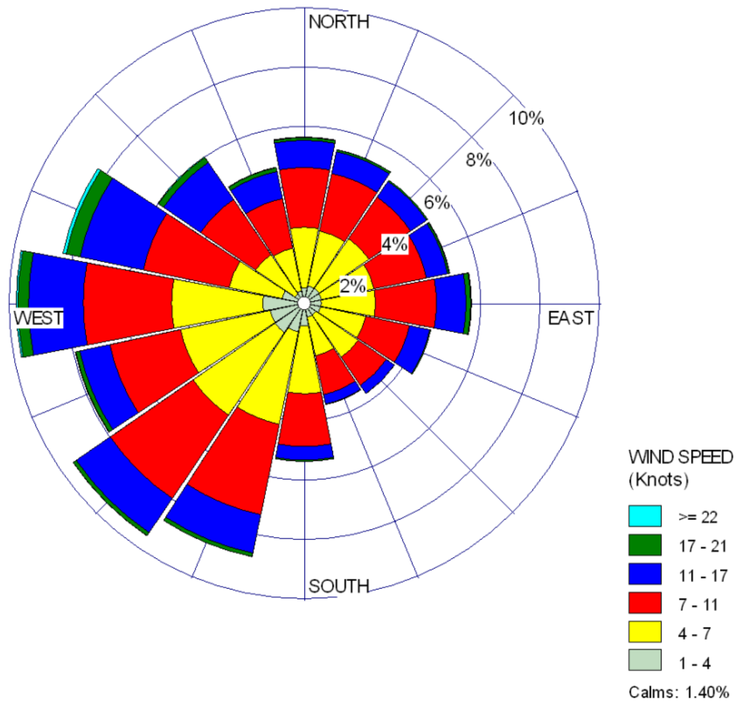
FIGURE 3
Wind Roses for north central Indiana area

Mag Pellet



An annual wind rose of the latest four years of wind data was created from the West Lafayette, Purdue University Airport for 2010 through 2013 to present a more representative wind rose of the immediate area near to the proposed Mag Pellet site. As can be seen in Figure 4, the winds are from the west and southwest for this area of north central Indiana.

FIGURE 4
Lafayette Annual Wind Rose for the Years 2010 - 2013



Mag Pellet is considered downwind of the Lafayette $PM_{2.5}$ monitor and Mag Pellet's emissions will not likely impact this monitor. As mentioned above, secondary $PM_{2.5}$ impacts are anticipated to be small due to the relatively small NO_2 and SO_2 emissions and formation of secondary $PM_{2.5}$ from photochemical reactions is not be expected to occur close to the Mag Pellet source.

5. $PM_{2.5}$ Dispersion Modeling Results

NO_x, SO_2, and $PM_{2.5}$ emissions from Mag Pellet exceeded the significant emission rates and additional dispersion modeling was required to determine impacts. Dispersion modeling for Mag Pellet's $PM_{2.5}$, NO_x, and SO_2 emissions showed that the modeled concentrations for all three pollutants exceeded their respective SILs and additional dispersion modeling was required for $PM_{2.5}$, NO_x, and SO_2. The modeling results, below in Table 11, showed when the maximum annual and 24 -hour $PM_{2.5}$ concentrations were added to the annual and 24-hour $PM_{2.5}$ background concentrations, the cumulative concentrations were well below the annual and 24-hour $PM_{2.5}$ NAAQS thresholds. In order to analyze the effect of secondary $PM_{2.5}$ emissions on direct $PM_{2.5}$ dispersion modeling impacts, the secondary $PM_{2.5}$ emissions, as ratioed from the $PM_{2.5}$ NSR implementation rule, were added to the direct $PM_{2.5}$ emissions. The ratio of direct and secondary $PM_{2.5}$ emissions would yield a modeled impact of 4.44 $\mu g/m^3$ for 24-hour $PM_{2.5}$ and 1.35 $\mu g/m^3$ for annual $PM_{2.5}$. The secondary portion of the $PM_{2.5}$ emissions would not adversely impact $PM_{2.5}$ values in the area.

TABLE 11
$PM_{2.5}$ National Ambient Air Quality Standard Modeling Analysis

Time Averaging Period	Maximum Modeled Impact (µg/m^3)	Ratioed Secondary Impact (µg/m^3)	Total Direct/ Secondary Concentrations (µg/m^3)	Background Concentrations (µg/m^3)	Total Concentration (µg/m^3)
24-hour	4.33	0.11	4.44	23.0	27.44
Annual	1.32	0.03	1.35	9.9	11.25

This is a conservative analysis as the locations for the maximum modeled primary $PM_{2.5}$ concentrations would occur near the fence line, or areas very close to the Mag Pellet property. Maximum secondary $PM_{2.5}$ concentrations, as a result of NO_x and SO_2 emissions photochemically reacting to form nitrates, would be expected to occur further from the emission source; typically over tens to hundreds of kilometers downwind. Secondary $PM_{2.5}$ concentrations would be anticipated to be low. For these reasons, Mag Pellet's emissions are not anticipated to result in secondary $PM_{2.5}$ impacts that would cause or contribute to a 24-hour or annual $PM_{2.5}$ NAAQS violation.

Summary of Annual and 24-hour $PM_{2.5}$ Secondary Impacts

Mag Pellet LLC's NO_x and SO_2 emissions were analyzed to determine what $PM_{2.5}$ impacts may occur as a result of its precursor emissions forming secondary $PM_{2.5}$. When Mag Pellet's secondary pollutant emissions and impacts were compared with the primary $PM_{2.5}$ background concentrations, 2011 NEI county emission inventories, and primary $PM_{2.5}$ dispersion modeling impact on the north central Indiana airshed, it was demonstrated that impacts are anticipated to be relatively small. This assessment concluded that Mag Pellet will not have an adverse impact on the annual and 24-hour $PM_{2.5}$ attainment status of White County or any surrounding counties in the area.

Part G – Qualitative Analysis

Additional Impact Analysis

All PSD permit applicants must prepare an additional impact analysis for each pollutant subject to regulation under the Act. This analysis assesses the impacts on growth, soils and vegetation, endangered species, and visibility caused by any increase in emissions of any regulated pollutant from the source. The Mag Pellet modeling submittal provided an additional impact analysis performed by Keramida.

Economic Growth

The purpose of the growth analysis is to quantify project associated growth and estimate the air quality impacts from this growth either quantitatively or qualitatively.

It is estimated that approximately 100 to 120 additional jobs will be created as a result of the proposed project. Most of the employees will be drawn from surrounding areas. Since the area is predominately rural, it is not expected the growth impacts will cause a violation of the NAAQS or the PSD increment.

Soils and Vegetation Analysis

A list of soil types present in the general area was determined. Soil types include the following: Loamy Glacial Till, Moderate Thick Loess over Loamy Glacial Till and Thin Loess over Loamy Glacial Till.

Due to the agricultural nature of the land, crops in the White County area consist mainly of corn, sorghum, wheat, soybeans, and oats (2002 Agricultural Census for White County). The maximum modeled concentrations for Mag Pellet are well below the threshold limits necessary to have adverse impacts on the surrounding vegetation such as autumn bent, nimblewill, barnyard grass, bishops' cap and horsetail, and milkweed (Flora of Indiana – Charles Deam). Livestock in White County consist mainly of hogs, cattle, and sheep (2002 Agricultural Census for White County) and will not be adversely impacted from the facility. Trees in the area are mainly hardwoods. These are hardy trees and no significant adverse impacts are expected due to modeled concentrations.

Federal and State Endangered Species Analysis

Federal and state endangered are listed by the U.S. Fish and Wildlife Service; Division of Endangered Species for Indiana. For White County this includes 8 mollusks, 4 reptiles, 8 birds, and 1 mammal which have habitat within the county. The mollusks, certain species of birds and mammals are found along rivers and lakes, while the other species of birds and mammals are found in forested areas. The facility is not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the industrial, farming, and residential activities in the area.

Federal and state endangered plants are listed by the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana. At this time 5 state endangered plant species are found in White County. The endangered plants do not thrive in industrialized and residential areas. The facility is not expected to adversely affect any plant on the endangered species list.

Visibility Analysis

The Federal Class I areas include national parks and national wilderness areas and are considered environments for which minimal air quality degradation is allowed.

The nearest Class 1 area to Mag Pellet is Mammoth Cave National Park which is approximately 395 km from the plant. Pursuant to a new federal guidance document (Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase 1 Report – Revised November 2010), the Mag Pellet facility would not be required to conduct a Class 1 area analysis since the combined emissions of visibility impairing pollutants are less the screening threshold. The threshold is calculated by dividing the emissions (Q) by distance (D) for sources more than 50 km from a Class 1 area. If the number is less than 10 then a visibility analysis is not required. Map Pellet emissions are estimated to be 956 tons per year. This gives a Q/D value of 2.42. Mag Pellet did not exceed the threshold of 10.

Initially, Mag Pellet used VISCREEN to assess the visibility impacts within the near-field modeling grid at the White County airport and Interstate 65. The results showed a possible exceedance at the White County airport. This necessitated the use of CALPUFF for a more accurate visibility assessment. CALPUFF is a puff model which tracks individual puffs across the domain and computes chemical transformation of NO_x into NO_3 and SO_2 into SO_4. These particles, along with PM_{10} and $PM_{2.5}$ are then used to calculate the visibility impacts.

The EPA approved version of CALPUFF (Version 5.8.4, Level 130731) was used and run in a CALPUFF-lite type of simulation. Method 8 was used for background light extinction calculations, consistent with the guidance in the Flag 2010 report. Background extinction coefficients were selected from Mammoth Cave National Park. The modeling results show that Mag Pellet will not contribute to visibility impairment at the local level, which is at White County airport and Interstate 65.

Additional Analysis Conclusions

Finally, the results of the additional impact analysis conclude the operation of the facility will have no significant impact on economic growth, soils, vegetation, or visibility in the immediate vicinity or on any Class I area.

Part H – HAPs Analysis

OAQ currently requests data concerning the emission of 189 HAPs listed in the 1990 Clean Air Act Amendments (CAAA) that are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Quality's construction permit application Form GSD-08.

The single HAP with the highest emissions is hydrofluoric acid with estimated annual emissions greater than 10 tons per year.

For Mag Pellet, a full HAP analysis was completed comparing the maximum estimated concentrations of each pollutant with the Unit Risk Factor (URF) or the Inhalation Unit Risk, and the Reference Concentration (RfC). This analysis offers a refined, up to date site specific analysis that takes into account the different potencies and health effects that each pollutant presents to the public.

The URF is the upper-bound excess lifetime cancer risk estimated to result from continuous inhalation exposure to a pollutant over a 70 year lifetime. Multiplying the estimated concentration by the URF will produce a cancer risk estimate. The cancer risk estimate is the conservative probability of developing cancer from exposure to a pollutant or a mixture of pollutants over a 70 year lifetime, usually expressed as the number of additional cancer cases in a given number of people, e.g., one in a million. For screening purposes at Mag Pellet, the cancer estimates for each pollutant are considered to be additive when deriving the cumulative maximum individual cancer risk.

Non-cancer health effects are determined using the Reference Concentration (RfC). The RfC is an estimate of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Dividing the estimated pollutant concentration by the RfC will determine the pollutant's Hazard Quotient (HQ). All of the HAPs' Hazard Quotients were added together to determine Mag Pellet's Hazard Index (HI).

This HAP screening analysis uses health protective assumptions that overestimate the actual risk associated with emissions from Mag Pellet. Estimates 1) assume a 70 year exposure time, 2) assume that all carcinogens cause the same type of cancer, 3) assume that all non-carcinogens have additive health effects, 4) assume maximum permit allowable emissions from the facility, and 5) use conservatively derived dose-response information. The risk analysis cannot accurately predict whether there will be observed health problems around Mag Pellet; rather it identifies possible avenues of risk.

The results of the HAP modeling are in Table 12.

TABLE 12
Hazardous Air Pollutant Modeling Results

Compound	CAS Number	Annual Concentration (µg/m3)	Cancer URF, (µg/m3)-1	Source	Cancer Risk	Non-Cancer Chronic RfC, µg/m3	Source of IDEM RfC	Hazard Quotient
Hydrofluoric acid	7664393	0.09				20.00	IRIS	0.005
				∑ Cancer Risk	**0.0000**		**Hazard Index (HI)**	**0.0045**
				IDEM Standard	**1.0000E-06**		**IDEM Standard**	**1.00+00**
				Comparison	**Below**			**Below**

* Further information on URFs and RfCs can be found at the following EPA web site: http://www.epa.gov/ttn/atw/toxsource/chronicsources.html

The Hazard Index for the project does not exceed 1. Pollutants with a Hazard Quotient (HQ) greater than 1 are considered to be at concentrations that could represent a health concern. Hazard Quotients above 1 do not represent areas where adverse health effects will be observed but indicate that the potential exists.

The additive cancer risk estimate from hydrofluoric acid is 0 additional cancer causes in ten million people. Hydrofluoric acid is not a carcinogen. This means if an individual was exposed to this HAP continuously for 70 years, the risk of getting cancer from this exposure would be 0 in ten million. The US EPA considers one in ten thousand (1.0E-04) excess cancer risks to be the upper range of acceptability with an ample margin of safety. The probability for the general public to be exposed to this HAP for 24 -hours a day, seven days a week, and 52 weeks a year for 70 years is minimal.

Part I - Summary of Air Quality Analysis

Keramida prepared the modeling portion of the PSD application. White County is designated as attainment for all criteria pollutants. PM_{10}, NO_2, SO_2, $PM_{2.5}$, and fluorides emission rates associated with the proposed facility exceeded the respective significant emission rates. Modeling results taken from AERMOD model showed PM_{10}, NO_2, 1-hour SO_2, and $PM_{2.5}$ impacts were predicted to be greater than the SILs. Mag Pellet did trigger the preconstruction monitoring threshold level but can satisfy the preconstruction monitoring requirement since there is existing air quality monitoring data representative of the area. The NAAQS modeling showed no violations of the standard. Mag Pellet was below eighty percent of available increment modeling. Secondary $PM_{2.5}$ and ozone formation will not have an adverse effect. The nearest Class I area is Mammoth Cave National Park in Kentucky, just under 395 kilometers away from the source and they are below the Federal Land Manager guidance screening threshold. An additional impact analysis was performed and the operation of the proposed facility will have no significant impact. A HAP analysis was performed and showed no likely adverse impact.

March 18, 2014

Ms. Barb Mansfield
Mag Pellet, LLC
64 E 100 N
Reynolds, IN 47980

Re: Public Notice
Mag Pellet, LLC
Permit Level: Significant Source Modification &
Significant Permit Modification
Permit Number: 181-33965-00054 &
181-34210-00054

Dear Ms. Mansfield:

Enclosed is a copy of your draft Significant Source Modification, Significant Permit Modification, Technical Support Document, emission calculations, and the Public Notice which will be printed in your local newspaper.

The Office of Air Quality (OAQ) has submitted the draft permit package to the Monticello Union Township Library, 321 West Broadway Street in Monticello, Indiana. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper. The OAQ has requested that the Herald Journal in Monticello, Indiana publish this notice no later than March 21, 2014.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Julie Alexander, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-1782 or dial (317) 233-1782.

Sincerely,

Greg Hotopp

Greg Hotopp
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover letter. dot 3/27/08

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

Notice of Public Comment

March 18, 2014
Mag Pellet, LLC
181-33965-00054 & 181-34210-00054

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has been placed in the Legal Advertising section of your local newspaper. The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: *If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
PN AAA Cover.dot 6/13/13

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

March 18, 2014

To: Monticello Union Township Library

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information to Display Regarding a Public Notice for an Air Permit**

Applicant Name: Mag Pellet, LLC
Permit Number: 181-33965-00054 & 181-34210-00054

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Request to publish the Notice of 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. **Please make this information readily available until you receive a copy of the final package.**

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. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library.dot 6/13/2013

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

March 17, 2014

Herald Journal
114 South Main Street
Monticello, IN 47960

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for Mag Pellet LLC, White County, Indiana.

Since our agency must comply with requirements which call for a Notice of Public Comment, we request that you print this notice one time, no later than March 21, 2014.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1003, 100 North Senate Avenue, Indianapolis, Indiana, 46204.

To ensure proper payment, please reference account # 100174737.

We are required by the Auditor's Office to request that you place the Federal ID Number on all claims. If you have any conflicts, questions, or problems with the publishing of this notice or if you do not receive complete public notice information for this notice, please call Greg Hotopp at 800-451-6027 and ask for extension 4-3493 or dial 317-234-3493.

Sincerely,

Greg Hotopp

Greg Hotopp
Permit Branch
Office of Air Quality

Permit Level: Significant Source Modification and a Significant Permit Modification
To a Part 70 Operating Permit
Permit Number: 181-33965-00054 and 181-34210-00054

Enclosure
PN Newspaper.dot 6/13/2013

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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

AFFECTED STATE NOTIFICATION OF PUBLIC COMMENT PERIOD
DRAFT INDIANA AIR PERMIT

March 18, 2014

A 30-day public comment period has been initiated for:

Permit Number: **181-33965-00054 & 181-34210-00054**
Applicant Name: **Mag Pellet, LLC**
Location: **Reynolds, White County, Indiana**

The public notice, draft permit and technical support documents can be accessed via the **IDEM Air Permits Online** site at:
http://www.in.gov/ai/appfiles/idem-caats/

Questions or comments on this draft permit should be directed to the person identified in the public notice by telephone or in writing to:

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

Questions or comments regarding this email notification or access to this information from the EPA Internet site can be directed to Chris Hammack at chammack@idem.IN.gov or (317) 233-2414.

Affected States Notification.dot 3/13/2013

Mail Code 61-53

IDEM Staff	GHOTOPP 3/18/2014 Mag Pellet LLC 181-34210/33965-00054 Draft		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		Barb Mansfield Mag Pellet LLC 64 E 100 N Reynolds IN 47980 (Source CAATS)									
2		Terry Nanti Mag Pellet LLC 64 E 100 N Reynolds IN 47980 *(RO CAATS)*									
3		Mr. Harry D. DuVall P.O. Box 147 Idaville IN 47950 *(Affected Party)*									
4		White County Commissioners P.O. Box 260 Monticello IN 47960-0260 *(Local Official)*									
5		Monticello Union Township Public Library 321 Broadway St Monticello IN 47690 *(Library)*									
6		Ms. Magie Read P.O. Box 248 Battle Ground IN 47920 *(Affected Party)*									
7		Mr. Robert Kelley 2555 S 30th Street Lafayette IN 44909 *(Affected Party)*									
8		Reynolds Town Council P.O. Box 214 Reynolds IN 47980 *(Local Official)*									
9		White County Health Department 315 N Illinois St Monticello IN 47960 *(Health Department)*									
10		Dennis Coffin 500 N Main St Reynolds IN 47980 *(Affected Party)*									
11		John Haskins PO Box 174 Reynolds IN 47980 *(Affected Party)*									
12		Randy Mitchell PO Box 1031 Monticello IN 47960 *(Affected Party)*									
13		Whitney Riggs 4661 E 225 N Monticello IN 47960 (Affected Party)									
14											
15											

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13			

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