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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: November 22, 2011

RE: Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc. / 089-29606-00356

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval – Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-6-1(b) or IC 13-15-6-1(a) require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204.

For an **initial Title V Operating Permit**, a petition for administrative review must be submitted to the Office of Environmental Adjudication within **thirty (30)** days from the receipt of this notice provided under IC 13-15-5-3, pursuant to IC 13-15-6-1(b).

For a **Title V Operating Permit renewal**, a petition for administrative review must be submitted to the Office of Environmental Adjudication within **fifteen (15)** days from the receipt of this notice provided under IC 13-15-5-3, pursuant to IC 13-15-6-1(a).

The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

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

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

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

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

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

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

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

Enclosures
FNTVOP.dot12/3/07

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Part 70 Operating Permit Renewal
OFFICE OF AIR QUALITY

Beemsterboer Slag Corporation,
a contractor of ArcelorMittal USA, Inc.
3210 Watling St.
East Chicago, Indiana 46312

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

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

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

Operation Permit No.: T089-29606-00356	
Issued by: Donald F. Robin, P.E., Section Chief Permits Branch Office of Air Quality	Issuance Date: November 22,2011 Expiration Date: November 22, 2016

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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(15)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary a slag crushing and sizing operation.

Source Address:	3210 Watling St., East Chicago, Indiana 46312
General Source Phone Number:	773-785-6000
SIC Code:	3312 (source), 3295 (support facility)
County Location:	Lake
Source Location Status:	Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Part 70 Operating Permit Program Major Source, under PSD and Nonattainment NSR; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories

A.2 Part 70 Source Definition [326 IAC 2-7-1(22)]

The source includes ArcelorMittal Indiana Harbor, LLC (Plant ID 089-00318), an integrated steel mill and ArcelorMittal USA, Inc. (Plant ID 089-00316), an integrated iron and steel mill collocated with the following on-site contractor:

(a) Beemsterboer Slag Corporation (Plant ID 089-00537), the on-site contractor (a slag crushing and sizing operation), is located at 3210 Watling Street, East Chicago, Indiana 46312.

Separate Part 70 Operating Permits will be issued to ArcelorMittal Indiana Harbor, LLC, ArcelorMittal USA, Inc. and Beemsterboer Slag Corporation solely for administrative purposes.

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

Beemsterboer Slag Corporation, consisting of the following emission units and pollution control devices:

(a) Feeder Box, with maximum capacity of 800 tons/hr installed in 1992;

(b) One (1) Jaw Crusher (EU2), with maximum capacity of 495 tons/hr, installed in 1992;

(c) Two (2) Cone Crushers (one used as secondary crusher (EU3) with maximum capacity of 670 tons/hr and one used as tertiary crusher (EU4) with maximum capacity of 260 tons/hr), installed in 1992;

(d) Four (4) Screens (EU5) with maximum capacity of 800 tons/hr, installed in 1992;

(e) Two (2) Magnets;

(f) One (1) Electromagnetic Crane;

(g) Twenty-five (25) conveyors (EU6) with maximum capacity of 800 tons/hr, 14 of these conveyors installed in 1992 and 11 of these conveyors installed in 2003;

(h) One conveyor shuttle, installed in 1970 and permitted in 2009, identified as SH035, with a maximum capacity of 425 tons per hour;

(i) One conveyor feeder, installed in 1973 and permitted in 2009, identified as CF017, with a maximum capacity of 350 tons per hour;

(j) One conveyor stacker, installed in 1973 and permitted in 2009, identified as CS003, with a maximum capacity of 380 tons per hour;

(k) One screen, installed in 1973, identified as SP001 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(l) One screen, installed in 1974, identified as SP002 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(m) One diesel generator, installed in 1974, identified as GS004 and permitted in 2009, with a maximum capacity of 200 kW;

(n) One conveyor feeder, installed in 1975, identified as CF024 and permitted in 2009, with a maximum capacity of 450 tons per hour;

(o) One screen, installed in 1975, identified as SP005 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(p) One conveyor stacker, installed in 1976 and permitted in 2009, identified as CS035, with a maximum capacity of 350 tons per hour;

(q) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS018, with a maximum capacity of 300 tons per hour;

(r) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS006, with a maximum capacity of 400 tons per hour;

(s) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS012, with a maximum capacity of 600 tons per hour;

(t) One screen, installed in 1977 and permitted in 2009, identified as SP007, with a maximum capacity of 350 tons per hour;

(u) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH010, with a maximum capacity of 300 tons per hour;

(v) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH013, with a maximum capacity of 425 tons per hour;

(w) One conveyor feeder, installed in 1978 and permitted in 2009, identified as CF013, with a maximum capacity of 350 tons per hour;

(x) One conveyor stacker, installed in 1978 and permitted in 2009, identified as CS028, with a maximum capacity of 400 tons per hour;

(y) One conveyor shuttle, installed in 1978 and permitted in 2009 , identified as SH007, with a maximum capacity of 275 tons per hour;

(z) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH008, with a maximum capacity of 280 tons per hour;

(aa) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH016, with a maximum capacity of 400 tons per hour;

(bb) One conveyor stacker, installed in 1979 and permitted in 2009, identified as CS033, with a maximum capacity of 375 tons per hour;

(cc) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS015, with a maximum capacity of 400 tons per hour;

(dd) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS026, with a maximum capacity of 200 tons per hour;

(ee) One conveyor shuttle, installed in 1980 and permitted in 2009, identified as SH001, with a maximum capacity of 600 tons per hour;

(ff) One screen, installed in 1980 and permitted in 2009, identified as SP003, with a maximum capacity of 300 tons per hour;

(gg) One screen, installed in 1980 and permitted in 2009, identified as SP008, with a maximum capacity of 350 tons per hour;

(hh) One diesel generator, installed in 1980 and permitted in 2009, identified as GS011, with a maximum capacity of 155 kW;

(ii) One diesel generator, installed in 1980 and permitted in 2009, identified as GS013, with a maximum capacity of 100 kW;

(jj) One diesel generator, installed in 1980 and permitted in 2009, identified as GS015, with a maximum capacity of 105 kW;

(kk) Two (2) conveyor feeders, installed in 1981 and permitted in 2009, identified as CF008 and CF009, each with a maximum capacity of 450 tons per hour;

(ll) One conveyor stacker, installed in 1981 and permitted in 2009, identified as CS011, with a maximum capacity of 600 tons per hour;

(mm) One conveyor stacker, installed in 1981 , and permitted in 2009 identified as CS032, with a maximum capacity of 340 tons per hour;

(nn) One diesel generator, installed in 1981 and permitted in 2009, identified as GS016, with a maximum capacity of 60 kW;

(oo) One diesel generator, installed in 1981 and permitted in 2009, identified as GS017, with a maximum capacity of 135 kW;

(pp) One screen, installed in 1982 and permitted in 2009 identified as SP014, with a maximum capacity of 200 tons per hour;

(qq) One conveyor feeder, installed in 1983 and permitted in 2009, identified as BH004, with a maximum capacity of 350 tons per hour;

(rr) One conveyor feeder, installed in 1983 and permitted in 2009, identified as CF011, with a maximum capacity of 250 tons per hour;

(ss) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH006, with a maximum capacity of 375 tons per hour;

(tt) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH011, with a maximum capacity of 475 tons per hour;

(uu) One diesel generator, installed in 1983 and permitted in 2009, identified as GS019, with a maximum capacity of 25 kW;

(vv) One conveyor stacker, installed in 1984 and permitted in 2009, identified as CS021, with a maximum capacity of 340 tons per hour;

(ww) One diesel generator, installed in 1984 and permitted in 2009, identified as GS020, with a maximum capacity of 180 kW;

(xx) One diesel generator, installed in 1984 and permitted in 2009, identified as GS022, with a maximum capacity of 125 kW;

(yy) One conveyor feeder, installed in 1985 and permitted in 2009 , identified as CF012, with a maximum capacity of 250 tons per hour;

(zz) One conveyor feeder, installed in 1985 and permitted in 2009, identified as CF022, with a maximum capacity of 450 tons per hour;

(aaa) One conveyor stacker, installed in 1985 and permitted in 2009, identified as CS030, with a maximum capacity of 340 tons per hour;

(bbb) One conveyor shuttle, installed in 1985 and permitted in 2009, identified as SH012, with a maximum capacity of 425 tons per hour;

(ccc) One diesel generator, installed in 1985 and permitted in 2009, identified as GS021, with a maximum capacity of 40 kW;

(ddd) One diesel generator, installed in 1986, identified as GS023 and permitted in 2009, with a maximum capacity of 150 kW;

(eee) One conveyor feeder, installed in 1987, identified as CF010 and permitted in 2009, with a maximum capacity of 450 tons per hour;

(fff) Two (2) conveyor stackers, installed in 1987, identified as CS023 and CS025 and permitted in 2009, each with a maximum capacity of 340 tons per hour;

(ggg) One diesel generator, installed in 1987 and permitted in 2009, identified as GS024, with a maximum capacity of 180 kW;

(hhh) One crusher, installed in 1988 and permitted in 2009, identified as CP005, with a maximum capacity of 400 tons per hour;

(iii) One conveyor stacker, installed in 1988 and permitted in 2009, identified as CS005, with a maximum capacity of 550 tons per hour;

(jjj) One conveyor shuttle, installed in 1988 and permitted in 2009, identified as SH005, with a maximum capacity of 400 tons per hour;

(kkk) One conveyor shuttle, installed in 1988 and permitted in 2009, identified as SH052, with a maximum capacity of 500 tons per hour;

(lll) One diesel generator, installed in 1988 and permitted in 2009, identified as GS025, with a maximum capacity of 175 kW;

(mmm) One diesel generator, installed in 1988 and permitted in 2009, identified as GS026, with a maximum capacity of 90 kW;

(nnn) One screen, installed in 1989 and permitted in 2009, identified as SP009, with a maximum capacity of 275 tons per hour;

(ooo) One conveyor feeder, installed in 1990 and permitted in 2009, identified as CF014, with a maximum capacity of 350 tons per hour;

(ppp) One conveyor stacker, installed in 1990 and permitted in 2009, identified as CS029, with a maximum capacity of 350 tons per hour;

(qqq) One conveyor feeder, installed in 1991 and permitted in 2009, identified as CF007, with a maximum capacity of 400 tons per hour;

(rrr) One crusher, installed in 1992 and permitted in 2009, identified as CP007, with a maximum capacity of 400 tons per hour;

(sss) One diesel generator, installed in 1992 and permitted in 2009, identified as GS029, with a maximum capacity of 40 kW;

(ttt) One conveyor feeder, installed in 1993 and permitted in 2009, identified as CF026, with a maximum capacity of 500 tons per hour;

(uuu) One diesel generator, installed in 1994 and permitted in 2009, identified as GS030, with a maximum capacity of 40 kW;

(vvv) One conveyor feeder, installed in 1995 and permitted in 2009, identified as CF031, with a maximum capacity of 450 tons per hour;

(www) One conveyor feeder, installed in 1995 and permitted in 2009, identified as CF032, with a maximum capacity of 500 tons per hour;

(xxx) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS036, with a maximum capacity of 250 tons per hour;

(yyy) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS038, with a maximum capacity of 550 tons per hour;

(zzz) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS040, with a maximum capacity of 375 tons per hour;

(aaaa) One swing mag, installed in 1995 and permitted in 2009, identified as MG012, with a maximum capacity of 200 tons per hour;

(bbbb) One conveyor shuttle, installed in 1995 and permitted in 2009, identified as SH040, with a maximum capacity of 425 tons per hour;

(cccc) Two (2) conveyor shuttles, installed in 1995 and permitted in 2009, identified as SH041 and SH042, each with a maximum capacity of 450 tons per hour;

(dddd) One conveyor shuttle, installed in 1995 and permitted in 2009, identified as SH043, with a maximum capacity of 600 tons per hour;

(eeee) One screen, installed in 1995 and permitted in 2009, identified as SP004, with a maximum capacity of 300 tons per hour;

(ffff) One screen, installed in 1995 and permitted in 2009, identified as SP006, with a maximum capacity of 350 tons per hour;

(gggg) One diesel generator, installed in 1995 and permitted in 2009, identified as GS031, with a maximum capacity of 105 kW;

(hhhh) One diesel generator, installed in 1995 and permitted in 2009, identified as GS032, with a maximum capacity of 125 kW;

(iiii) One conveyor feeder, installed in 1996 and permitted in 2009, identified as CF034, with a maximum capacity of 500 tons per hour;

(jjjj) Two (2) conveyor stackers, installed in 1996 and permitted in 2009, identified as CS039 and CS041, each with a maximum capacity of 600 tons per hour;

(kkkk) Two (2) conveyor stackers, installed in 1996 and permitted in 2009, identified as CS044 and CS045, each with a maximum capacity of 900 tons per hour;

(llll) One conveyor shuttle, installed in 1996 and permitted in 2009, identified as SH049, with a maximum capacity of 800 tons per hour;

(mmmm) One conveyor feeder, installed in 1997 and permitted in 2009, identified as CF036, with a maximum capacity of 500 tons per hour;

(nnnn) One crusher, installed in 1997 and permitted in 2009, identified as CP014, with a maximum capacity of 400 tons per hour;

(oooo) One pugmill, installed in 1997 and permitted in 2009, identified as PG004, with a maximum capacity of 225 tons per hour;

(pppp) Two (2) conveyor shuttles and permitted in 2009, installed in 1997, identified as SH050 and SH051, each with a maximum capacity of 450 tons per hour;

(qqqq) One conveyor shuttle, installed in 1997 and permitted in 2009, identified as SH054, with a maximum capacity of 500 tons per hour;

(rrrr) One screen, installed in 1997 and permitted in 2009, identified as SP027, with a maximum capacity of 350 tons per hour;

(ssss) One diesel generator, installed in 1997 and permitted in 2009, identified as GS035, with a maximum capacity of 40 kW;

(tttt) One diesel generator, installed in 1998 and permitted in 2009, identified as GS038, with a maximum capacity of 600 kW;

(uuuu) One conveyor feeder, installed in 1999 and permitted in 2009, identified as CF025, with a maximum capacity of 500 tons per hour;

(vvvv) One crusher, installed in 1999 and permitted in 2009, identified as CP012, with a maximum capacity of 300 tons per hour;

(wwww) One conveyor stacker, installed in 1999 and permitted in 2009, identified as CS043, with a maximum capacity of 1000 tons per hour;

(xxxx) One screen, installed in 1999 and permitted in 2009, identified as SP033, with a maximum capacity of 400 tons per hour;

(yyyy) One diesel generator, installed in 1999 and permitted in 2009, identified as GS040, with a maximum capacity of 600 kW;

(zzzz) One screen, installed in 2000 and permitted in 2009, identified as SP034, with a maximum capacity of 350 tons per hour;

(aaaaa) One diesel generator, installed in 2000 and permitted in 2009, identified as GS042, with a maximum capacity of 320 kW;

(bbbbb) One diesel generator, installed in 1992 and reinstated in 2002 and permitted in 2009, identified as GS033, with a maximum capacity of 600 kW;

(ccccc) One (1) Diesel Generator (EU1/GS043) 1,000 KW (3.43 MMBtu/hr) installed in 2002 and permitted in 2009;

(ddddd) One diesel generator, installed in 2005 and permitted in 2009, identified as GS045, with a maximum capacity of 250 kW;

(eeeee) One diesel generator, installed in 2006, and permitted in 2009, identified as GS046, with a maximum capacity of 200 kW; and

(fffff) One (1) slag crushing plant, approved for construction in 2008, identified as LaFarge Crushing Plant, with PM controlled by wet suppression, and consisting of the following new equipment:

(1) One (1) jaw crusher, identified as jaw crusher CP016, with a maximum capacity of 420 tons per hour;

(2) One (1) feed belt, identified as feed belt CP016, with a maximum capacity of 693.72 tons per hour;

(3) One (1) under belt, identified as under belt CP016, with a maximum capacity of 1,040.58 tons per hour;

(4) One (1) over belt magnet, identified as MG017;

(5) One (1) electrical control room; and

(6) Associated storage piles, loading and unloading of trucks, and road traffic.

A.4 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

Beemsterboer Slag Corporation does not currently have any insignificant activities, as defined in 326 IAC 2-7-1 (21) that have applicable requirements.

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

(a) This permit, T089-29606-00356, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(34), 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(34).

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

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

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

and

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(34).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)][326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

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

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

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

The Permittee shall implement the PMPs.

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

(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(34).

The Permittee shall implement the PMPs.

(c) 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(34).

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

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

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

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

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

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 757-0265; fax: (219) 757-0267.

(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(34).

(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)(9) be revised in response to an emergency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) All terms and conditions of permits established prior to T089-29606-00356 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

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

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

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

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

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

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

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(34).

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

(1) That this permit contains a material mistake.

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

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

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

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

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

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). 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(34).

Request for renewal shall be submitted to:

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

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

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

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

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

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

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

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

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

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(34).

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

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

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

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

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

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b),(c), or (e) 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),(c), or (e). 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), (c)(1), and (e)(2).

(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)) 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(34).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(34).

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

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

(a) The Permittee shall pay annual fees to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. In the event that the source is a sub-contractor and is combined with a larger Part 70 source, the larger Part 70 source may pay the Permittees' annual fees as part of the larger source billing and subject to the fee cap of the larger source. If, however, the larger Part 70 source does not pay its annual Part 70 permit fee, IDEM, OAQ will assess a separate fee in accordance with 326 IAC 2-7-19(c) to be paid by the Permittee. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ, the applicable fee is due April 1 of each year.

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

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

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

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

C.1 Opacity [326 IAC 5-1]

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(h) Material processing facilities shall include the following:

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

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

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

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

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

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

(j) Material transfer limits shall be as follows:

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

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

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

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

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

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

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

C.6 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 by using ambient air quality modeling pursuant to 326 IAC 1-7-4. 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(34).

(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(34).

(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(34).

(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)]

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:

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(34).

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 Continuous Compliance Plan [326 IAC 6.8-8-1] [326 IAC 6.8-8-8]

(a) Pursuant to 326 IAC 326 IAC 6.8-8-1, the Permittee shall submit to IDEM and maintain at source a copy of the Continuous Compliance Plan (CCP). The Permittee shall perform the inspections, monitoring and record keeping in accordance with the information in 326 IAC 6.8-8-5 through 326 IAC 6.8-8-7 or applicable procedures in the CCP.

(b) Pursuant to 326 IAC 6.8-8-8, the Permittee shall update the CCP, as needed, retain a copy of any changes and updates to the CCP at the source and make the updated CCP available for inspection by the department. The Permittee shall submit the updated CCP, if required to IDEM, OAQ within thirty (30) days of the update.

(c) Pursuant to 326 IAC 6.8-8, failure to submit a CCP, maintain all information required by the CCP at the source, or submit update to a CCP is a violation of 326 IAC 6.8-8.

C.12 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.

(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.13 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

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

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

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

C.14 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.15 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

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

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

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

(1) initial inspection and evaluation;

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

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

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

(1) monitoring results;

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

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

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

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

C.16 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(34).

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

C.17 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

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

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

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

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

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

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

The statement must be submitted to:

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

The emission statement does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(34).

C.18 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. 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 40 CFR 51.165(a)(6)(vi)(A), 40 CFR 51.165(a)(6)(vi)(B), 40 CFR 51.166(r)(6)(vi)(a), and/or 40 CFR 51.166(r)(6)(vi)(b)) that a "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) 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(ee) and/or 326 IAC 2-3-1(z)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), the Permittee shall comply with following:

(1) Before beginning actual construction of the "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) 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(rr)(2)(A)(iii) and/or 326 IAC 2-3-1 (mm)(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 40 CFR 51.165(a)(6)(vi)(A) and/or 40 CFR 51.166(r)(6)(vi)(a)) that a "project" (as defined in 326 IAC 2-2-1(qq) and/or 326 IAC 2-3-1(ll)) 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(ee) and/or 326 IAC 2-3-1(z)) may result in significant emissions increase and the Permittee elects to utilize the "projected actual emissions" (as defined in 326 IAC 2-2-1(rr) and/or 326 IAC 2-3-1(mm)), 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.19 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11][326 IAC 2-2] [326 IAC 2-3]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. 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(34). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

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

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

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

(e) If the Permittee is required to comply with the recordkeeping provisions of (d) in Section C - General Record Keeping Requirements for any "project" (as defined in 326 IAC 2-2-1 (qq) and/or 326 IAC 2-3-1 (ll)) 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 (xx) and/or 326 IAC 2-3-1 (qq), 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.20 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 - Slag Crushing and Sizing

Emissions Unit Description:

(a) Feeder Box, with maximum capacity of 800 tons/hr installed in 1992;

(b) One (1) Jaw Crusher (EU2), with maximum capacity of 495 tons/hr, installed in 1992;

(c) Two (2) Cone Crushers (one used as secondary crusher (EU3) with maximum capacity of 670 tons/hr and one used as tertiary crusher (EU4) with maximum capacity of 260 tons/hr), installed in 1992;

(d) Four (4) Screens (EU5) with maximum capacity of 800 tons/hr, installed in 1992;

(e) Two (2) Magnets;

(f) One (1) Electromagnetic Crane;

(g) Twenty-five (25) conveyors (EU6) with maximum capacity of 800 tons/hr, installed in 1992 and 2003;

(ccccc) One (1) Diesel Generator (EU1/GS043) 1,000 KW (3.43 MMBtu/hr) installed in 2002 and permitted in 2009,;

Under the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ) the generator is considered an affected facility.

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

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

D.1.1 Particulate Matter Limitations for Lake County [326 IAC 6.8-1-2]

Pursuant to 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County), the following emission units shall not exceed 0.03 grains per dry standard cubic foot (gr/dscf) of particulate matter less than ten (10) microns in diameter (PM_{10}):

Particulate Matter Limitations for Lake County	
Unit ID	PM_{10} Limit (gr/dscf)
Diesel Generator (EU1)	0.03

D.1.2 PSD Minor Limit [326 IAC 2-2]

(a) In order to make the requirements of 326 IAC 2-2 (PSD) not applicable:

(1) The input of steel mill slag to the portable crushing, screening and conveying plant consisting of: Feeder Box; one (1) Jaw Crusher (EU2); two (2) Cone Crushers (EU3 and EU4); four (4) Screens (EU5); two (2) Magnets; one (1) Electromagnetic Crane; and fourteen (14) conveyors (EU6) shall be less than 731,308 tons per twelve (12) consecutive month period with compliance demonstrated at the end of each month.

(2) the Permittee shall comply with the following PM and PM0 emissions:

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)
Jaw Crusher (EU2)	0.00120	0.00054
Cone Crushers (EU3 & EU4)	0.00120	0.00054
Screens (EU5)	0.00220	0.00074
Conveyors (EU6)	0.00014	0.00005

Compliance with this limitation will ensure that the potential to emit from these emission units are less than twenty-five (25) tons of PM per year and less than fifteen (15) tons of PM_{10} per year,. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

(b) The diesel fuel input to the diesel generator, installed in 2002, identified as EU1/GS043, shall not exceed 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. This will result in the total amount of nitrogen oxides (NO_x) emitted from combustion of diesel fuel oil by generator (EU1/GS043) to be less than 40 tons per twelve (12) consecutive month period. EU1/GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), shall be permanently shutdown and removed from ArcelorMittal USA, Inc. (Plt ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318) prior to the operation of No. 504 Boiler in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

Emission Unit	NOx Emission Limit (lb/hp-hr)
EU1/GS043	0.0240

(c) The slag input to the eleven (11) conveyors (collectively identified as EU6), installed in 2003, shall be less than 5,848,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)
eleven (11) conveyors (collectively identified as EU6)	0.00014	0.000046

Compliance with this limitation will ensure that the potential to emit from these emission units are less than twenty-five (25) tons of PM per year and less than fifteen (15) tons of PM_{10} per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

D.1.3 PM10, PM2.5, SO2, NO_X and CO PSD and Nonattainment NSR Credit Limits [326 IAC 2-2] [326 IAC 2-1.1-5]

The one (1) diesel-fired generator with a capacity of 1,000 KW (3.43 MMBtu/hr), identified as GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), shall be permanently shutdown and removed from ArcelorMittal USA, Inc. (Plt ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318) prior to the operation of No. 504 Boiler in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

D.1.4 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Process Description	Process Weight Rate (ton/hr)	326 IAC 6-3-2 Allowable (lb/hr)
Feeder Box	800	74.7
Jaw Crusher (EU2)	495	68.8
Secondary Crusher (EU3)	260	61.4
Tertiary Crusher (EU4)	260	61.4
Screens (EU5)	800	74.7
Conveyors (EU6)	800	74.7

D.1.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

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

D.1.6 Visible Emissions Notations

(a) Visible emissions notations of the exhausts from the feeder box, the screens, crushers and the conveyor transfer points shall be performed once per day during normal daylight operations. A trained employee will 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 steps. 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.

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

D.1.7 Record Keeping Requirements

(a) To document the compliance status with Condition D.1.2, the Permittee shall maintain records at the plant of the steel mill slag input.

(b) A log of monthly fuel consumption necessary to document the compliance status with D.1.2 shall be maintained until EU1/GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), has been permanently shutdown and removed from ArcelorMittal USA, LLC (Ptl ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318).

(c) To document the compliance status with Condition D.1.5, the Permittee shall maintain records of visible emission notations of the feeder box, the screens, crushers and the conveyor transfer points stack exhaust once per day. 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) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.1.8 Reporting Requirements

(a) A quarterly summary of the information to document the compliance status with Conditions D.1.2 (a) and D.1.2 (b) shall be submitted using the reporting forms located at the end of this permit, or their equivalent, no later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The reports submitted by the Permittee 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 (34).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS – Slag Crushing and Sizing

Emissions Unit Description:

(h) One conveyor shuttle, installed in 1970 and permitted in 2009, identified as SH035, with a maximum capacity of 425 tons per hour;

(i) One conveyor feeder, installed in 1973 and permitted in 2009, identified as CF017, with a maximum capacity of 350 tons per hour;

(j) One conveyor stacker, installed in 1973 and permitted in 2009, identified as CS003, with a maximum capacity of 380 tons per hour;

(k) One screen, installed in 1973, identified as SP001 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(l) One screen, installed in 1974, identified as SP002 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(n) One conveyor feeder, installed in 1975, identified as CF024 and permitted in 2009, with a maximum capacity of 450 tons per hour;

(o) One screen, installed in 1975, identified as SP005 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(p) One conveyor stacker, installed in 1976 and permitted in 2009, identified as CS035, with a maximum capacity of 350 tons per hour;

(q) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS018, with a maximum capacity of 300 tons per hour;

(r) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS006, with a maximum capacity of 400 tons per hour;

(s) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS012, with a maximum capacity of 600 tons per hour;

(t) One screen, installed in 1977 and permitted in 2009, identified as SP007, with a maximum capacity of 350 tons per hour;

(u) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH010, with a maximum capacity of 300 tons per hour;

(v) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH013, with a maximum capacity of 425 tons per hour;

(w) One conveyor feeder, installed in 1978 and permitted in 2009, identified as CF013, with a maximum capacity of 350 tons per hour;

(x) One conveyor stacker, installed in 1978 and permitted in 2009, identified as CS028, with a maximum capacity of 400 tons per hour;

(y) One conveyor shuttle, installed in 1978 and permitted in 2009 , identified as SH007, with a maximum capacity of 275 tons per hour;

(z) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH008, with a maximum capacity of 280 tons per hour;

(aa) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH016, with a maximum capacity of 400 tons per hour;

(bb) One conveyor stacker, installed in 1979 and permitted in 2009, identified as CS033, with a maximum capacity of 375 tons per hour;

(cc) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS015, with a maximum capacity of 400 tons per hour;

(dd) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS026, with a maximum capacity of 200 tons per hour;

(ee) One conveyor shuttle, installed in 1980 and permitted in 2009, identified as SH001, with a maximum capacity of 600 tons per hour;

(ff) One screen, installed in 1980 and permitted in 2009, identified as SP003, with a maximum capacity of 300 tons per hour;

(gg) One screen, installed in 1980 and permitted in 2009, identified as SP008, with a maximum capacity of 350 tons per hour;

(kk) Two (2) conveyor feeders, installed in 1981 and permitted in 2009, identified as CF008 and CF009, each with a maximum capacity of 450 tons per hour;

(ll) One conveyor stacker, installed in 1981 and permitted in 2009, identified as CS011, with a maximum capacity of 600 tons per hour;

(mm) One conveyor stacker, installed in 1981 , and permitted in 2009 identified as CS032, with a maximum capacity of 340 tons per hour;

(pp) One screen, installed in 1982 and permitted in 2009 identified as SP014, with a maximum capacity of 200 tons per hour;

(qq) One conveyor feeder, installed in 1983 and permitted in 2009, identified as BH004, with a maximum capacity of 350 tons per hour;

(rr) One conveyor feeder, installed in 1983 and permitted in 2009, identified as CF011, with a maximum capacity of 250 tons per hour;

(ss) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH006, with a maximum capacity of 375 tons per hour;

(tt) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH011, with a maximum capacity of 475 tons per hour;

(vv) One conveyor stacker, installed in 1984, identified as CS021, with a maximum capacity of 340 tons per hour;

(yy) One conveyor feeder, installed in 1985, identified as CF012, with a maximum capacity of 250 tons per hour;

(zz) One conveyor feeder, installed in 1985, identified as CF022, with a maximum capacity of 450 tons per hour;

(aaa) One conveyor stacker, installed in 1985, identified as CS030, with a maximum capacity of 340 tons per hour;

(bbb) One conveyor shuttle, installed in 1985, identified as SH012, with a maximum capacity of 425 tons per hour;

(eee) One conveyor feeder, installed in 1987, identified as CF010, with a maximum capacity of 450 tons per hour;

(fff) Two (2) conveyor stackers, installed in 1987, identified as CS023 and CS025, each with a maximum capacity of 340 tons per hour;

(hhh) One crusher, installed in 1988, identified as CP005, with a maximum capacity of 400 tons per hour;

(iii) One conveyor stacker, installed in 1988, identified as CS005, with a maximum capacity of 550 tons per hour;

(jjj) One conveyor shuttle, installed in 1988, identified as SH005, with a maximum capacity of 400 tons per hour;

(kkk) One conveyor shuttle, installed in 1988, identified as SH052, with a maximum capacity of 500 tons per hour;

(nnn) One screen, installed in 1989, identified as SP009, with a maximum capacity of 275 tons per hour;

(ooo) One conveyor feeder, installed in 1990, identified as CF014, with a maximum capacity of 350 tons per hour;

(ppp) One conveyor stacker, installed in 1990, identified as CS029, with a maximum capacity of 350 tons per hour;

(qqq) One conveyor feeder, installed in 1991, identified as CF007, with a maximum capacity of 400 tons per hour;

(rrr) One crusher, installed in 1992, identified as CP007, with a maximum capacity of 400 tons per hour;

(ttt) One conveyor feeder, installed in 1993, identified as CF026, with a maximum capacity of 500 tons per hour;

(vvv) One conveyor feeder, installed in 1995, identified as CF031, with a maximum capacity of 450 tons per hour;

(www) One conveyor feeder, installed in 1995, identified as CF032, with a maximum capacity of 500 tons per hour;

(xxx) One conveyor stacker, installed in 1995, identified as CS036, with a maximum capacity of 250 tons per hour;

(yyy) One conveyor stacker, installed in 1995, identified as CS038, with a maximum capacity of 550 tons per hour;

(zzz) One conveyor stacker, installed in 1995, identified as CS040, with a maximum capacity of 375 tons per hour;

(aaaa) One swing mag, installed in 1995, identified as MG012, with a maximum capacity of 200 tons per hour;

(bbbb) One conveyor shuttle, installed in 1995, identified as SH040, with a maximum capacity of 425 tons per hour;

(cccc) Two (2) conveyor shuttles, installed in 1995, identified as SH041 and SH042, each with a maximum capacity of 450 tons per hour;

(dddd) One conveyor shuttle, installed in 1995, identified as SH043, with a maximum capacity of 600 tons per hour;

(eeee) One screen, installed in 1995, identified as SP004, with a maximum capacity of 300 tons per hour;

(ffff) One screen, installed in 1995, identified as SP006, with a maximum capacity of 350 tons per hour;

(iiii) One conveyor feeder, installed in 1996, identified as CF034, with a maximum capacity of 500 tons per hour;

(jjjj) Two (2) conveyor stackers, installed in 1996, identified as CS039 and CS041, each with a maximum capacity of 600 tons per hour;

(kkkk) Two (2) conveyor stackers, installed in 1996, identified as CS044 and CS045, each with a maximum capacity of 900 tons per hour;

(llll) One conveyor shuttle, installed in 1996, identified as SH049, with a maximum capacity of 800 tons per hour;

(mmmm) One conveyor feeder, installed in 1997, identified as CF036, with a maximum capacity of 500 tons per hour;

(nnnn) One crusher, installed in 1997, identified as CP014, with a maximum capacity of 400 tons per hour;

(oooo) One pugmill, installed in 1997, identified as PG004, with a maximum capacity of 225 tons per hour;

(pppp) Two (2) conveyor shuttles, installed in 1997, identified as SH050 and SH051, each with a maximum capacity of 450 tons per hour;

(qqqq) One conveyor shuttle, installed in 1997, identified as SH054, with a maximum capacity of 500 tons per hour;

(rrrr) One screen, installed in 1997, identified as SP027, with a maximum capacity of 350 tons per hour;

(tttt) One conveyor feeder, installed in 1999, identified as CF025, with a maximum capacity of 500 tons per hour;

(uuuu) One crusher, installed in 1999, identified as CP012, with a maximum capacity of 300 tons per hour;

(vvvv) One conveyor stacker, installed in 1999, identified as CS043, with a maximum capacity of 1000 tons per hour;

(wwww) One screen, installed in 1999, identified as SP033, with a maximum capacity of 400 tons per hour;

(xxxx) One screen, installed in 2000, identified as SP034, with a maximum capacity of 350 tons per hour;

(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 PSD and Nonattainment NSR Minor Limit [326 IAC 2-2] [326 IAC 2-1.1-5]

Pursuant to 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR):

(a) The iron ore pellets or other aggregate material input to the crusher (identified as CP007), installed in 1992 and permitted in 2009, shall not exceed 110,300 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)
Crusher (CP007)	0.00120	0.00054	0.00054

Compliance with this limitation will ensure that the potential to emit from these modifications are less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, and less than ten (10) tons of $PM_{2.5}$ per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

D.2.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)	Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)
Conveyor Shuttle (SH035)	425	67.0	Conveyor Stacker (CS025)	340	64.4
Conveyor Feeder (CF017)	350	64.8	Crusher (CP005)	400	66.3
Conveyor Stacker (CS003)	380	65.7	Conveyor Stacker (CS005)	550	70.1
Screen (SP001)	350	64.8	Conveyor Shuttle (SH005)	400	66.3
Screen (SP002)	350	64.8	Conveyor Shuttle (SH052)	500	69.0
Conveyor Feeder (CF024)	450	67.7	Screen (SP009)	275	62
Screen (SP005)	350	64.8	Conveyor Feeder (CF014)	350	64.8
Conveyor Stacker (CS035)	350	64.8	Conveyor Stacker (CS029)	350	64.8
Conveyor Stacker (CS018)	300	63.0	Conveyor Feeder (CF007)	400	66.3
Conveyor Stacker (CS006)	400	66.3	Crusher (CP007)	500	69.0

Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)	Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)
Conveyor Stacker (CS012)	600	71.2	Conveyor Feeder (CF026)	450	67.7
Screen (SP007)	350	64.8	Conveyor Feeder (CF031)	450	67.7
Conveyor Shuttle (SH010)	300	63.0	Conveyor Feeder (CF032),	500	69.0
Conveyor Shuttle (SH013)	425	67.0	Conveyor Stacker (CS036)	250	61.0
Conveyor Feeder (CF013)	350	64.8	Conveyor Stacker (CS038)	375	65.6
Conveyor Stacker (CS028)	400	66.3	Conveyor Stacker (CS040)	375	65.6
Conveyor Shuttle (SH007)	275	62.0	Swing Mag (MG012)	200	58.5
Conveyor Shuttle (SH008)	280	62.2	Conveyor Shuttle (SH040)	425	67.0
Conveyor Shuttle (SH016)	400	66.3	Conveyor Shuttle (SH041)	450	67.7
Conveyor Stacker (CS033)	370	65.4	Conveyor Shuttle (SH042)	450	67.7
Conveyor Stacker (CS015)	400	66.3	Conveyor Shuttle (SH043)	600	71.2
Conveyor Stacker (CS026)	200	58.5	Screen (SP004)	300	63.0
Conveyor Shuttle (SH001)	600	71.2	Screen (SP006)	350	64.8
Screen (SP003)	300	63.0	Conveyor Feeder (CF034)	500	69.0
Screen (SP008)	350	64.8	Conveyor Stacker (CS039)	600	71.2
Conveyor Feeder (CF008)	450	67.7	Conveyor Stacker (CS041)	600	71.2
Conveyor Feeder (CF009)	450	67.7	Conveyor Stacker (CS044)	900	76.2
Conveyor Stacker (CS011)	600	71.2	Conveyor Stacker (CS045)	900	76.2
Conveyor Stacker (CS032)	340	64.4	Conveyor Shuttle (SH049)	800	74.7
Screen (SP014)	200	58.5	Conveyor Feeder (CF036)	500	69.0
Conveyor Feeder (BH004)	350	64.8	Crusher (CP014)	400	66.3
Conveyor Feeder (CF011)	250	61.0	Pugmill (PG004)	225	
Conveyor Shuttle (SH006)	375	65.6	Conveyor Shuttle (SH050)	450	67.7
Conveyor Shuttle (SH011)	475	68.3	Conveyor Shuttle (SH051)	450	67.7
Conveyor Stacker (CS021)	340	64.4	Conveyor Shuttle (SH054)	500	69.0
Conveyor Feeder (CF012)	250	61.0	Screen (SP027)	350	64.8
Conveyor Feeder (CF022)	450	67.7	Conveyor Feeder (CF025)	500	69.0
Conveyor Stacker (CS030)	340	64.4	Crusher (CP012)	300	63.0
Conveyor Shuttle (SH012)	425	67.0	Conveyor Stacker (CS043)	1000	77.6
Conveyor Feeder (CF010)	450	67.7	Screen (SP033)	400	66.3
Conveyor Stacker (CS023)	340	64.4	Screen (SP034)	350	64.8

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventative Maintenance Plan is required for these facilities and any 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 [**326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.2.4 Particulate Control [326 IAC 2-2]

In order to ensure compliance with Conditions D.2.1 and D.2.2, the Permittee shall apply an initial application of water or a mixture of water and wetting agent to control the PM, PM_{10} and $PM_{2.5}$ emissions from the slag crushing and sizing operations. The suppressant shall be applied in a manner and at a frequency sufficient to ensure compliance with Conditions D.2.1 and D.2.2. If weather conditions preclude the use of wet suppression, the Permittee shall perform chemical analysis on the metallurgical material to ensure it has a moisture content greater than 1.5 percent of the process stream by weight. The Permittee shall submit to IDEM OAQ the method for moisture content analysis for approval.

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

D.2.5 Visible Emissions Notations

(a) Visible emissions notations of the exhausts from the slag crushing and sizing operations listed in Section D.2 shall be performed once per day during normal daylight operations. A trained employee will 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 steps. 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.

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

D.2.6 Record Keeping Requirements

(a) To document the compliance status with Condition D.2.1, the Permittee shall maintain records of the slag input to the crusher (identified as CP007) monthly.

(b) To document the compliance status with Condition D.2.5, the Permittee shall maintain records of visible emission notations of the slag crushing and sizing operations listed in Section D.2 once per day. 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) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.2.7 Reporting Requirements

(a) A quarterly summary of the information to document the compliance status with Condition D.2.1 shall be submitted using the reporting forms located at the end of this permit, or their equivalent, no later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The reports submitted by the Permittee 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 (34).

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS - Generators

Emissions Unit Description:

(m) One diesel generator, installed in 1974, identified as GS004 and permitted in 2009, with a maximum capacity of 200 kW;

(hh) One diesel generator, installed in 1980 and permitted in 2009, identified as GS011, with a maximum capacity of 155 kW;

(ii) One diesel generator, installed in 1980 and permitted in 2009, identified as GS013, with a maximum capacity of 100 kW;

(jj) One diesel generator, installed in 1980 and permitted in 2009, identified as GS015, with a maximum capacity of 105 kW;

(nn) One diesel generator, installed in 1981 and permitted in 2009, identified as GS016, with a maximum capacity of 60 kW;

(oo) One diesel generator, installed in 1981 and permitted in 2009, identified as GS017, with a maximum capacity of 135 kW;

(uu) One diesel generator, installed in 1983 and permitted in 2009, identified as GS019, with a maximum capacity of 25 kW;

(ww) One diesel generator, installed in 1984 and permitted in 2009, identified as GS020, with a maximum capacity of 180 kW;

(xx) One diesel generator, installed in 1984 and permitted in 2009, identified as GS022, with a maximum capacity of 125 kW;

(ccc) One diesel generator, installed in 1985 and permitted in 2009, identified as GS021, with a maximum capacity of 40 kW;

(ddd) One diesel generator, installed in 1986, identified as GS023 and permitted in 2009, with a maximum capacity of 150 kW;

(ggg) One diesel generator, installed in 1987 and permitted in 2009, identified as GS024, with a maximum capacity of 180 kW;

(lll) One diesel generator, installed in 1988 and permitted in 2009, identified as GS025, with a maximum capacity of 175 kW;

(mmm) One diesel generator, installed in 1988 and permitted in 2009, identified as GS026, with a maximum capacity of 90 kW;

(sss) One diesel generator, installed in 1992 and permitted in 2009, identified as GS029, with a maximum capacity of 40 kW;

(uuu) One diesel generator, installed in 1994 and permitted in 2009, identified as GS030, with a maximum capacity of 40 kW;

(gggg) One diesel generator, installed in 1995 and permitted in 2009, identified as GS031, with a maximum capacity of 105 kW;

(hhhh) One diesel generator, installed in 1995 and permitted in 2009, identified as GS032, with a maximum capacity of 125 kW;

(ssss) One diesel generator, installed in 1997 and permitted in 2009, identified as GS035, with a maximum capacity of 40 kW;

(tttt) One diesel generator, installed in 1998 and permitted in 2009, identified as GS038, with a maximum capacity of 600 kW;

(yyyy) One diesel generator, installed in 1999 and permitted in 2009, identified as GS040, with a maximum capacity of 600 kW;

(bbbbb) One diesel generator, installed in 1992 and reinstated in 2002 and permitted in 2009, identified as GS033, with a maximum capacity of 600 kW;

(ddddd) One diesel generator, installed in 2005, identified as GS045, with a maximum capacity of 250 kW;

(eeeee) One diesel generator, installed in 2006, identified as GS046, with a maximum capacity of 200 kW; and

(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 PSD and Nonattainment NSR Minor Limits [326 IAC 2-2] [326 IAC 2-1.1-5]

Pursuant to 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR):

(a) The diesel fuel input to the three (3) diesel generators, installed in 1980, identified as GS011, GS013, and GS015, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS011, GS013, and GS015	0.0022	0.0022	0.0022	0.0310

(b) The diesel fuel input to the two (2) diesel generators, installed in 1984, identified as GS020 and GS022, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS020 and GS022	0.0022	0.0022	0.0022	0.0310

(c) The diesel fuel input to the two (2) diesel generators, installed in 1988, identified as GS025 and GS026, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive period, with compliance determined at the end of each month.month

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS020 and GS022	0.0022	0.0022	0.0022	0.0310

(d) The diesel fuel input to the two (2) diesel generators, installed in 1995, identified as GS031 and GS032, shall not exceed 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS025 and GS026	0.0022	0.0022	0.0022	0.0310

(e) The combined diesel fuel input to generators, identified as GS038 and GS040 installed in 1998 and 1999 respectively, shall be limited to less than 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month until the start up operation of the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS031 and GS032	0.0022	0.0022	0.0022	0.0310

(f) After start up operation of the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc., the combined diesel fuel input to generators, GS038 and GS040 shall be less than 15,811 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS038 and GS040	0.0007	0.0007	0.0007	0.0240

(g) The diesel fuel input to the diesel generator, installed in 2000, identified as GS042, shall be less than 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS042	0.0007	0.0007	0.0007	0.0240

(h) The diesel fuel input to the diesel generator, installed in 1992 and reinstated in 2002, identified as EU1/GS033, shall be less than 138,879 gallons per 12 consecutive month period, with compliance demonstrated at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
EU1/GS033	0.0007	0.0007	0.0007	0.0240

(i) The combined diesel fuel input to the diesel generators, identified as GS045 and GS046, shall be less than 58,113 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS045 and GS046	0.0022	0.0022	0.0022	0.0310

Compliance with the limitations in (a) through (d) and (g) through (i) of this Condition will ensure that the potential to emit from these modifications are less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, less than ten (10) tons of $PM_{2.5}$ per year, and less than forty (40) tons of NO_x per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable for Significant Source Modification No. 089-24137-00356.

Compliance with Condition D.3.1(e) and Condition D.3.1(f) shall likewise render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

D.3.2 Particulate Matter Less Than 10 Microns in Diameter (PM_{10}) [326 IAC 6.8-1-2]

Pursuant to 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County), the following emission units shall not exceed 0.03 gr/dscf of particulate matter less than ten (10) microns in diameter (PM_{10}):

Particulate Matter Limitations for Lake County	
Unit ID	**PM_{10} Limit (gr/dscf)**
200 kW Generator (GS004)	0.03
155 kW Generator (GS011)	0.03
100 kW Generator (GS013)	0.03
105 kW Generator (GS015)	0.03
60 kW Generator (GS016)	0.03
135 kW Generator (GS017)	0.03
25 kW Generator (GS019)	0.03
180 kW Generator (GS020)	0.03
125 kW Generator (GS022)	0.03
40 kW Generator (GS021)	0.03
150 kW Generator (GS023)	0.03
180 kW Generator (GS024)	0.03
175 kW Generator (GS025)	0.03
180 kW Generator (GS026)	0.03
40 kW Generator (GS029)	0.03
40 kW Generator (GS030)	0.03
105 kW Generator (GS031)	0.03
125 kW Generator (GS032)	0.03
40 kW Generator (GS035)	0.03
600 kW Generator (GS038)	0.03
600 kW Generator (GS040)	0.03
320 kW Generator (GS042)	0.03
600 kW Generator (EU1/GS033)	0.03
250 kW Generator (GS045)	0.03
200 kW Generator (GS046)	0.03

D.3.3 Nonroad Engines [326 IAC 20-82] [40 CFR 63, Subpart ZZZZ] [40 CFR 1068.30]

(a) In order to render the requirements of the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ), which are incorporated by reference as 326 IAC 20-82, not applicable and to ensure that all the generators as described in SECTION D.3, description box are nonroad engines, as defined in 40 CFR 1068.30, the Permittee shall comply with the following:

(1) Any of the generators as described in SECTION D.3, description box shall remain at a location for a period not to exceed twelve (12) consecutive months.

(2) For the purposes of this condition and pursuant to 40 CFR 1068.30 *Nonroad Engine* (2)(iii), a location is any single site at a building, structure, facility, or installation.

Compliance with this condition shall render the requirements of 40 CFR 63, Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) not applicable to these generators.

(b) In order to render the requirements of the NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60.4200, Subpart IIII), which are incorporated by reference as 326 IAC 12, not applicable, and to ensure diesel generator (GS046), with a maximum capacity of 200 kW is a nonroad engine, as defined at 40 CFR 1068.30, the Permittee shall comply with the following:

(1) Diesel generator (GS046) shall remain at a location for a period not to exceed twelve (12) consecutive months.

(2) For the purposes of this condition and pursuant to 40 CFR 1068.30 *Nonroad Engine* (2)(iii), a location is any single site at a building, structure, facility, or installation.

Compliance with these limits shall render the requirements of 40 CFR 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines) not applicable.

D.3.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

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

D.3.5 Record Keeping Requirements

(a) To document the compliance status with Condition D.3.1, the Permittee shall maintain records of the diesel fuel input to the diesel generators monthly. The Permittee shall include in its monthly record when diesel fuel input is not taken and the reason (e.g. the generator was removed from this location on (specify date)).

(b) To document the compliance status with Condition D.3.3 (a) and (b), the Permittee shall maintain records of the dates of installation and removal of an engine that is listed in SECTION D.3, description box as these units are installed and removed.

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

D.3.6 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.3.1 shall be submitted using the reporting forms located at the end of this permit, or their equivalent, no later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee’s obligation with regard to the reporting required by this condition. The reports submitted by the Permittee 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 (34).

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS - LaFarge Plant

Emissions Unit Description:

(fffff) One (1) slag crushing plant, approved for construction in 2008, identified as LaFarge Crushing Plant, with PM controlled by wet suppression, and consisting of the following new equipment:

(1) One (1) jaw crusher, identified as jaw crusher CP016, with a maximum capacity of 420 tons per hour;

(2) One (1) feed belt, identified as feed belt CP016, with a maximum capacity of 693.72 tons per hour;

(3) One (1) under belt, identified as under belt CP016, with a maximum capacity of 1,040.58 tons per hour;

(4) One (1) over belt magnet, identified as MG017;

(5) One (1) electrical control room; and

(6) Associated storage piles, loading and unloading of trucks, and road traffic.

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

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

D.4.1 PSD and Nonattainment NSR Minor Limit [326 IAC 2-2] [326 IAC 2-1.1-5]

Pursuant to 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR):

(a) The total amount of slag processed at the LaFarge Plant shall not exceed 850,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)
LaFarge Plant	0.00120	0.00054	0.00054

Compliance with this limitation will ensure that the potential to emit from this modification is less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, and less than ten (10) tons of $PM_{2.5}$ per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

D.4.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Process Description	Process Weight Rate (ton/hr)	326 IAC 6-3-2 Allowable (lb/hr)
Slag Crushing Plant	420	66.9

D.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventative Maintenance Plan is required for these facilities and any 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 [**326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.4.4 Particulate Control [326 IAC 2-2]

In order to ensure compliance with Conditions D.4.1 and D.4.2, the Permittee shall apply an initial application of water or a mixture of water and wetting agent to control the PM, PM_{10} and $PM_{2.5}$ emissions from the crusher and the conveyors. The suppressant shall be applied in a manner and at a frequency sufficient to ensure compliance with Conditions D.4.1 and D.4.2. If weather conditions preclude the use of wet suppression, the Permittee shall perform chemical analysis on the metallurgical material to ensure it has a moisture content greater than 1.5 percent of the process stream by weight. The Permittee shall submit to IDEM OAQ the method for moisture content analysis for approval.

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

D.4.5 Visible Emissions Notations

(a) Visible emissions notations of the exhausts from the crusher and the conveyor transfer points shall be performed once per day during normal daylight operations. A trained employee will 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 steps. 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.

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

D.4.6 Record Keeping Requirements

(a) To document the compliance status with Condition D.4.1, the Permittee shall maintain records at the plant of the LaFarge Plant slag input monthly.

(b) To document the compliance status with Condition D.4.4, the Permittee shall maintain records of the chemical analysis of the metallurgical material, as needed.

(c) To document the compliance status with Condition D.4.5, the Permittee shall maintain records of visible emission notations of the crusher and the conveyor transfer points stack exhaust once per day. 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) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.4.7 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.4.1 shall be submitted using the reporting forms located at the end of this permit, or their equivalent, no later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The reports submitted by the Permittee 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 (34).

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

Fugitive Dust Emissions Unit Description:

(a) Feeder Box, with maximum capacity of 800 tons/hr installed in 1992;

(b) One (1) Jaw Crusher (EU2), with maximum capacity of 495 tons/hr, installed in 1992;

(c) Two (2) Cone Crushers (one used as secondary crusher (EU3) with maximum capacity of 670 tons/hr and one used as tertiary crusher (EU4) with maximum capacity of 260 tons/hr), installed in 1992;

(d) Four (4) Screens (EU5) with maximum capacity of 800 tons/hr, installed in 1992;

(e) Two (2) Magnets;

(f) One (1) Electromagnetic Crane;

(g) Twenty-five (25) conveyors (EU6) with maximum capacity of 800 tons/hr, installed in 1992 and 2003;

(h) One conveyor shuttle, installed in 1970, identified as SH035, with a maximum capacity of 425 tons per hour;

(i) One conveyor feeder, installed in 1973, identified as CF017, with a maximum capacity of 350 tons per hour;

(j) One conveyor stacker, installed in 1973, identified as CS003, with a maximum capacity of 380 tons per hour;

(k) One screen, installed in 1973, identified as SP001, with a maximum capacity of 350 tons per hour;

(l) One screen, installed in 1974, identified as SP002, with a maximum capacity of 350 tons per hour;

(n) One conveyor feeder, installed in 1975, identified as CF024, with a maximum capacity of 450 tons per hour;

(o) One screen, installed in 1975, identified as SP005, with a maximum capacity of 350 tons per hour;

(p) One conveyor stacker, installed in 1976, identified as CS035, with a maximum capacity of 350 tons per hour;

(q) One conveyor stacker, installed in 1977, identified as CS018, with a maximum capacity of 300 tons per hour;

(r) One conveyor stacker, installed in 1977, identified as CS006, with a maximum capacity of 400 tons per hour;

(s) One conveyor stacker, installed in 1977, identified as CS012, with a maximum capacity of 600 tons per hour;

(t) One screen, installed in 1977, identified as SP007, with a maximum capacity of 350 tons per hour;

(u) One conveyor shuttle, installed in 1977, identified as SH010, with a maximum capacity of 300 tons per hour;

(v) One conveyor shuttle, installed in 1977, identified as SH013, with a maximum capacity of 425 tons per hour;

(w) One conveyor feeder, installed in 1978, identified as CF013, with a maximum capacity of 350 tons per hour;

(x) One conveyor stacker, installed in 1978, identified as CS028, with a maximum capacity of 400 tons per hour;

(y) One conveyor shuttle, installed in 1978, identified as SH007, with a maximum capacity of 275 tons per hour;

(z) One conveyor shuttle, installed in 1978, identified as SH008, with a maximum capacity of 280 tons per hour;

(aa) One conveyor shuttle, installed in 1978, identified as SH016, with a maximum capacity of 400 tons per hour;

(bb) One conveyor stacker, installed in 1979, identified as CS033, with a maximum capacity of 375 tons per hour;

(cc) One conveyor stacker, installed in 1980, identified as CS015, with a maximum capacity of 400 tons per hour;

(dd) One conveyor stacker, installed in 1980, identified as CS026, with a maximum capacity of 200 tons per hour;

(ee) One conveyor shuttle, installed in 1980, identified as SH001, with a maximum capacity of 600 tons per hour;

(ff) One screen, installed in 1980, identified as SP003, with a maximum capacity of 300 tons per hour;

(gg) One screen, installed in 1980, identified as SP008, with a maximum capacity of 350 tons per hour;

(kk) Two (2) conveyor feeders, installed in 1981, identified as CF008 and CF009, each with a maximum capacity of 450 tons per hour;

(ll) One conveyor stacker, installed in 1981, identified as CS011, with a maximum capacity of 600 tons per hour;

(mm) One conveyor stacker, installed in 1981, identified as CS032, with a maximum capacity of 340 tons per hour;

(pp) One screen, installed in 1982, identified as SP014, with a maximum capacity of 200 tons per hour;

(qq) One conveyor feeder, installed in 1983, identified as BH004, with a maximum capacity of 350 tons per hour;

(rr) One conveyor feeder, installed in 1983, identified as CF011, with a maximum capacity of 250 tons per hour;

(ss) One conveyor shuttle, installed in 1983, identified as SH006, with a maximum capacity of 375 tons per hour;

(tt) One conveyor shuttle, installed in 1983, identified as SH011, with a maximum capacity of 475 tons per hour;

(vv) One conveyor stacker, installed in 1984, identified as CS021, with a maximum capacity of 340 tons per hour;

(yy) One conveyor feeder, installed in 1985, identified as CF012, with a maximum capacity of 250 tons per hour;

(zz) One conveyor feeder, installed in 1985, identified as CF022, with a maximum capacity of 450 tons per hour;

(aaa) One conveyor stacker, installed in 1985, identified as CS030, with a maximum capacity of 340 tons per hour;

(bbb) One conveyor shuttle, installed in 1985, identified as SH012, with a maximum capacity of 425 tons per hour;

(eee) One conveyor feeder, installed in 1987, identified as CF010, with a maximum capacity of 450 tons per hour;

(fff) Two (2) conveyor stackers, installed in 1987, identified as CS023 and CS025, each with a maximum capacity of 340 tons per hour;

(hhh) One crusher, installed in 1988, identified as CP005, with a maximum capacity of 400 tons per hour;

(iii) One conveyor stacker, installed in 1988, identified as CS005, with a maximum capacity of 550 tons per hour;

(jjj) One conveyor shuttle, installed in 1988, identified as SH005, with a maximum capacity of 400 tons per hour;

(kkk) One conveyor shuttle, installed in 1988, identified as SH052, with a maximum capacity of 500 tons per hour;

(nnn) One screen, installed in 1989, identified as SP009, with a maximum capacity of 275 tons per hour;

(ooo) One conveyor feeder, installed in 1990, identified as CF014, with a maximum capacity of 350 tons per hour;

(ppp) One conveyor stacker, installed in 1990, identified as CS029, with a maximum capacity of 350 tons per hour;

(qqq) One conveyor feeder, installed in 1991, identified as CF007, with a maximum capacity of 400 tons per hour;

(rrr) One crusher, installed in 1992, identified as CP007, with a maximum capacity of 400 tons per hour;

(ttt) One conveyor feeder, installed in 1993, identified as CF026, with a maximum capacity of 500 tons per hour;

(vvv) One conveyor feeder, installed in 1995, identified as CF031, with a maximum capacity of 450 tons per hour;

(www) One conveyor feeder, installed in 1995, identified as CF032, with a maximum capacity of 500 tons per hour;

(xxx) One conveyor stacker, installed in 1995, identified as CS036, with a maximum capacity of 250 tons per hour;

(yyy) One conveyor stacker, installed in 1995, identified as CS038, with a maximum capacity of 550 tons per hour;

(zzz) One conveyor stacker, installed in 1995, identified as CS040, with a maximum capacity of 375 tons per hour;

(aaaa) One swing mag, installed in 1995, identified as MG012, with a maximum capacity of 200 tons per hour;

(bbbb) One conveyor shuttle, installed in 1995, identified as SH040, with a maximum capacity of 425 tons per hour;

(cccc) Two (2) conveyor shuttles, installed in 1995, identified as SH041 and SH042, each with a maximum capacity of 450 tons per hour;

(dddd) One conveyor shuttle, installed in 1995, identified as SH043, with a maximum capacity of 600 tons per hour;

(eeee) One screen, installed in 1995, identified as SP004, with a maximum capacity of 300 tons per hour;

(ffff) One screen, installed in 1995, identified as SP006, with a maximum capacity of 350 tons per hour;

(iiii) One conveyor feeder, installed in 1996, identified as CF034, with a maximum capacity of 500 tons per hour;

(jjjj) Two (2) conveyor stackers, installed in 1996, identified as CS039 and CS041, each with a maximum capacity of 600 tons per hour;

(kkkk) Two (2) conveyor stackers, installed in 1996, identified as CS044 and CS045, each with a maximum capacity of 900 tons per hour;

(llll) One conveyor shuttle, installed in 1996, identified as SH049, with a maximum capacity of 800 tons per hour;

(mmmm) One conveyor feeder, installed in 1997, identified as CF036, with a maximum capacity of 500 tons per hour;

(nnnn) One crusher, installed in 1997, identified as CP014, with a maximum capacity of 400 tons per hour;

(oooo) One pugmill, installed in 1997, identified as PG004, with a maximum capacity of 225 tons per hour;

(pppp) Two (2) conveyor shuttles, installed in 1997, identified as SH050 and SH051, each with a maximum capacity of 450 tons per hour;

(qqqq) One conveyor shuttle, installed in 1997, identified as SH054, with a maximum capacity of 500 tons per hour;

(rrrr) One screen, installed in 1997, identified as SP027, with a maximum capacity of 350 tons per hour;

(tttt) One conveyor feeder, installed in 1999, identified as CF025, with a maximum capacity of 500 tons per hour;

(uuuu) One crusher, installed in 1999, identified as CP012, with a maximum capacity of 300 tons per hour;

(vvvv) One conveyor stacker, installed in 1999, identified as CS043, with a maximum capacity of 1000 tons per hour;

(wwww) One screen, installed in 1999, identified as SP033, with a maximum capacity of 400 tons per hour;

(xxxx) One screen, installed in 2000, identified as SP034, with a maximum capacity of 350 tons per hour;

(ccccc) One (1) slag crushing plant, approved for construction in 2008, identified as LaFarge Crushing Plant, with PM controlled by wet suppression, and consisting of the following new equipment:

(1) One (1) jaw crusher, identified as jaw crusher CP016, with a maximum capacity of 420 tons per hour;

(2) One (1) feed belt, identified as feed belt CP016, with a maximum capacity of 693.72 tons per hour;

(3) One (1) under belt, identified as under belt CP016, with a maximum capacity of 1,040.58 tons per hour;

(4) One (1) over belt magnet, identified as MG017;

(5) One (1) electrical control room; and

(6) Associated storage piles, loading and unloading of trucks, and road traffic.

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

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

E.1.1 Particulate Matter (PM) [326 IAC 6.8-10] [326 IAC 2-2]

Pursuant to 326 IAC 6.8-10 (Lake County Fugitive Particulate Matter), compliance with the opacity limits specified in Condition C.5 shall be achieved by controlling fugitive particulate matter emissions according to the revised Fugitive Dust Control Plan (FDCP). If it is determined that the control procedures specified in the FDCP do not demonstrate compliance with the fugitive emission limitations, IDEM, OAQ may request that the FDCP be revised and submitted for approval.

Opacity from the activities shall be determined as follows:

(a) Paved Roads and Parking Lots
The average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass. The three (3) opacity readings for each vehicle pass shall be taken as follows:

(1) The first will be taken at the time of emission generation.

(2) The second will be taken five (5) seconds later.

(3) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume. Each reading shall be taken approximately four (4) feet above the surface of the roadway or parking area.

(b) Unpaved Roads and Parking
The fugitive particulate emissions from unpaved roads shall be controlled by the implementation of a work program and work practice under the fugitive dust control plan.

(c) Batch Transfer
The average instantaneous opacity shall consist of the average of three (3) opacity readings taken five (5) seconds, ten (10) seconds, and fifteen (15) seconds after the end of one (1) batch loading or unloading operation. The three (3) readings shall be taken at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume.

(d) Continuous Transfer
The opacity shall be determined using 40 CFR 60, Appendix A, Method 9. The opacity readings shall be taken at least four (4) feet from the point of origin.

(e) Wind Erosion from Storage Piles
The opacity shall be determined using 40 CFR 60, Appendix A, Method 9, except that the opacity shall be observed at approximately four (4) feet from the surface at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume. The limitations may not apply during periods when applications of fugitive particulate control measures are either ineffective or unreasonable due to sustained very high wind speeds. During such periods, the company must continue to implement all reasonable fugitive particulate control measures and maintain records documenting the application of measures and the basis for a claim that meeting the opacity limitation was not reasonable given prevailing wind conditions.

(f) Wind Erosion from Exposed Areas
The opacity shall be determined using 40 CFR 60, Appendix A, Method 9.

(g) Material Transported by Truck or Rail
Compliance with this limitation shall be determined by 40 CFR 60, Appendix A, Method 22, except that the observation shall be taken at approximately right angles to the prevailing wind from the leeward side of the truck or railroad car. Material transported by truck or rail that is enclosed and covered shall be considered in compliance with the in plant transportation requirement.

(h) Material Transported by Front End Loader or Skip Hoist
Compliance with this limitation shall be determined by the average of three (3) opacity readings taken at five (5) second intervals. The three (3) opacity readings shall be taken as follows:

(1) The first will be taken at the time of emission generation.

(2) The second will be taken five (5) seconds later.

(3) The third will be taken five (5) seconds later or ten (10) seconds after the first.

The three (3) readings shall be taken at the point of maximum opacity. The observer shall stand at least fifteen (15) feet from the plume approximately and at right angles to the plume. Each reading shall be taken approximately four (4) feet above the surface of the roadway or parking area.

(i) Material Processing Limitations
Compliance with all opacity limitations from material processing equipment shall be determined using 40 CFR 60, Appendix A, Method 9. Compliance with all visible emissions limitations from material processing equipment shall be determined using 40 CFR 60, Appendix A, Method 22. Compliance with all particulate matter limitations from material processing equipments shall be determined using 40 CFR 60, Appendix A, Method 5 or 17.

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

E.1.2 Record Keeping Requirements

(a) Pursuant to 326 IAC 6.8-10 (Lake County Fugitive Particulate Matter):

The source shall keep the following documentation to show the compliance status with each of its control measures and control practices:

(1) A map or diagram showing the location of all emission sources controlled, including the location, identification, length, and width of roadways.

(2) For each application of water or chemical solution to roadways, the following shall be recorded:

(A) The name and location of the roadway controlled;

(B) Application rate;

(C) Time of each application;

(D) Width of each application;

(E) Identification of each method of application;

(F) Total quantity of water or chemical used for each application;

(G) For each application of chemical solution, the concentration and identity of the chemical; and

(H) The material data safety sheets for each chemical.

(3) For application of physical or chemical control agents not covered by 326 IAC 6.8-10-1, the following:

(A) The name of the agent;

(B) Location of application;

(C) Application rate;

(D) Total quantity of agent used;

(E) If diluted, percent of concentration; and

(F) The material data safety sheets for each chemical.

(4) A log recording incidents when control measures were not used and a statement of explanation.

(5) Copies of all records required by this section shall be submitted to the department no later than twenty (20) working days of a written request by the department.

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

E.1.3 Reporting Requirements

(a) Pursuant to 326 IAC 6.8-10 (Lake County Fugitive Particulate Matter), a quarterly report shall be submitted, stating the following:

(1) The dates any required control measures were not implemented.

(2) A listing of those control measures.

(3) The reasons that the control measures were not implemented.

(4) Any corrective action taken.

SECTION F.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(ddddd) One (1) Diesel Generator (EU1/GS043) 1,000 KW (3.43 MMBtu/hr) installed in 2002;

Under the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ) the generator is considered an affected facility.

(c) Emergency generators as follows:

(1) Diesel generators not exceeding 1600 horsepower.

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

F.1.1 General Provisions Relating to NESHAP [326 IAC 20-1] [40 CFR 63, Subpart A]

(a) Pursuant to 40 CFR 63.6665, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, as specified in Table 8 of 40 CFR 63, Subpart ZZZZ in accordance with the schedule in 40 CFR 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

F.1.2 National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines [40 CFR Part 63, Subpart ZZZZ] [326 IAC 20-82]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment C of this permit), which are incorporated by reference as 326 IAC 20-82.

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585(a), (b), and (d)
(3) 40 CFR 63.6590(a)(1)(i)
(4) 40 CFR 63.6590(a)(1)(ii)
(5) 40 CFR 63.6590(a)(1)(iv)
(6) 40 CFR 63.6590(c)
(7) 40 CFR 63.6595(a)(1) and (c)
(8) 40 CFR 63.6600(d)
(9) 40 CFR 63.6602
(10) 40 CFR 63.6604
(11) 40 CFR 63.6605
(12) 40 CFR 63.6610
(13) 40 CFR 63.6612

(14) 40 CFR 63.6615
(15) 40 CFR 63.6620
(16) 40 CFR 63.6625(g)
(17) 40 CFR 63.6630
(18) 40 CFR 63.6635
(19) 40 CFR 63.6640
(20) 40 CFR 63.6645
(21) 40 CFR 63.6645(a)(1) and (d)
(22) 40 CFR 63.6645(a)(3) and (b)
(23) 40 CFR 63.6645(a)(5)
(24) 40 CFR 63.6645(f), (g) and (h)
(25) 40 CFR 63.6650
(26) 40 CFR 63.6655
(27) 40 CFR 63.6655(e)(1)
(28) 40 CFR 63.6655(f)(1)
(29) 40 CFR 63.6660
(30) 40 CFR 63.6665
(31) 40 CFR 63.6670
(32) 40 CFR 63.6675
(33) Table 2a, Table 2b and Table 2c to Supart ZZZZ Part 63
(34) Table 3 to Supart ZZZZ Part 63
(35) Table 4 to Supart ZZZZ Part 63
(36) Table 5 to Supart ZZZZ Part 63
(37) Table 6 to Supart ZZZZ Part 63
(38) Table 7 to Supart ZZZZ Part 63
(39) Table 8 to Supart ZZZZ Part 63

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

Source Name: Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling St., East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356

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: Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling St., East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356

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

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

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

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

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

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

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

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

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

Part 70 Quarterly Report

Source Name: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Diesel generator (EU1/GS033)
Parameter: Diesel fuel consumption
Limit: less than 138,879 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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:	Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.:	T089-29606-00356
Facility:	The portable crushing, screening and conveying plant (installed in 1992) consisting of: Feeder Box, one (1) Jaw Crusher (EU2), two (2) Cone Crushers (EU3 and EU4), four (4) Screens (EU5), two (2) Magnets, one (1) Electromagnetic Crane, and fourteen (14) conveyors (EU6)
Parameter:	slag throughput
Limit:	less than 731,308 tons per 12 consecutive month period with compliance demonstrated at the end of each month

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:	Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.:	T089-29606-00356
Facility:	One slag crushing plant, identified as LaFarge Crushing Plant
Parameter:	slag throughput
Limit:	less than 850,000 tons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Crusher (CP007)
Parameter: iron ore pellets or other aggregate material throughput
Limit: less than 110,300 tons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-6580-00356
Facility: eleven (11) conveyors (EU6) (installed in 2003)
Parameter: slag throughput
Limit: less than 5,848,000 tons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Three Diesel Generators (GS011, GS013, and GS015)
Parameter: diesel fuel input, collectively
Limit: less than 131,528 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Two Diesel Generators (GS020 and GS022)
Parameter: diesel fuel input, collectively
Limit: less than 131,528 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Two Diesel Generators (GS025 and GS026)
Parameter: diesel fuel input, collectively
Limit: less than 131,528 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Two Diesel Generators (GS031 and GS032)
Parameter: diesel fuel input, collectively
Limit: less than 131,528 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Diesel Generator (GS042)
Parameter: diesel fuel input
Limit: less than 169,891 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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: Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356
Facility: Diesel Generators (GS045 and GS046)
Parameter: diesel fuel input
Limit: less than 58,113 gallons per 12 consecutive month period with compliance demonstrated at the end of each month

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:	Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.:	T089-29606-00356
Facility:	Diesel Generator (GS038) and (GS040)
Parameter:	diesel fuel input
Limit:	Until the start up operation of No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc., the combined diesel fuel oil input to generators, GS038 and GS040 shall be limited to less than 169,891 gallons per 12 consecutive month period with compliance demonstrated at the end of each month.

QUARTER:_____YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	Combined Diesel Fuel Usage This Month	Combined Diesel Fuel Usage Previous 11 Months	Combined Diesel Fuel Usage 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:	Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.:	T089-29606-00356
Facility:	Diesel Generator (GS038) and (GS040)
Parameter:	diesel fuel input
Limit:	After start up operation of the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc., the combined diesel fuel input to generators, GS038 and GS040 shall be limited to less than 15,811 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER:_____YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	Combined Diesel Fuel Usage This Month	**Combined Diesel Fuel Usage** Previous 11 Months	**Combined Diesel Fuel Usage** 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:	Beemsterboer Slag Corp, a contractor of ArcelorMittal USA, Inc.
Source Address:	3210 Watling Street, East Chicago, Indiana 46312
Part 70 Permit No.:	T089-29606-00356
Facility:	Diesel Generator (GS043)
Parameter:	diesel fuel input
Limit:	less than 169,891 gallons per 12 consecutive month period with compliance demonstrated at the end of each month. EU1/GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), shall be permanently shutdown and removed from ArcelorMittal USA, Inc. (Plt ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318) prior to the operation of No. 504 Boiler in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

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: Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc.
Source Address: 3210 Watling St., East Chicago, Indiana 46312
Part 70 Permit No.: T089-29606-00356

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".	
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

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

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

BEEMSTERBOER SLAG CORP.
EAST CHICAGO AT ARCELORMITTAL
INDIANA HARBOR EAST

FUGITIVE DUST CONTROL PLAN

REVISION 1
AUGUST 2011

Prepared by:
OCS Environmental, Inc.
130 Lincoln Street, Ste. 1
Porter, IN 46304
(219) 983-1400

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APPENDICES

Appendix A Calculations for Fugitive Emissions [326 IAC 6.8-10-4(3)(D)(i)-(ii)]

Facility Description [326 IAC 6.8-10-4(3)(A)]

Beemsterboer Slag Corp ("Beemsterboer"), a contractor of ArcelorMittal-Indiana Harbor East, operates slag and material processing facilities located within the ArcelorMittal-Indiana Harbor East Works facility in East Chicago, Indiana. The processing facilities include the Main Slag Plant, the LaFarge Plant and various material processing operations. ArcelorMittal is a fully integrated steelmaking and finishing facility. Even though ArcelorMittal and Beemsterboer are considered to be one source due to contractual control, Beemsterboer operates under its own Part 70 permit.

Roadways and Parking Lots [326 IAC 6.8-10-4(3)(B)]

All roadways that are under control of the Beemsterboer facilities are approximately 30 feet wide with varying lengths. Figures 1 (Main Plant) and 2 (La Farge Plant) show the typical locations and designations of roadways in their two main operating facilities. Due to the nature of raw material and stock pile movement, the figures demonstrate typical roadway patterns only and are subject to change periodically. Trucks and front-end loaders are utilized for transportation of materials throughout the facility. Appendix A provides a sample of the potential fugitive PM emission calculations for the facility which was included by IDEM in the facility's Part 70 Permit renewal application.

Storage Piles [326 IAC 6.8-10-4(3)(B)]

Main Plant

Feed materials and product materials are stored in various locations on the facility site and product pile locations will move within a general area throughout the year. Figure 1 shows the general locations of these storage areas and the types of materials stored. Trucks are used to transfer raw slag to the storage piles at the main plant and to transfer slag from the piles to client sites. Front-end loaders and continuous belt conveyors are used to transfer materials throughout various stages of processing. The moisture content of the material is typically 1.5% or higher and can be affected by atmospheric precipitation and humidity throughout the year.

La Farge Plant

Feed materials and product materials are stored in various locations on the facility site and product pile locations will move within a general area throughout the year. Figure 2 shows the general locations of these storage areas and the types of materials stored. Front-end loaders and continuous belt conveyors are used to transfer materials throughout various stages of processing. Trucks are used to transfer processed slag to client sites. The moisture content of the material is typically 1.5% or higher and can be affected by atmospheric precipitation and humidity throughout the year.

Material Handling and Process Flow [326 IAC 6.8-10-4(3)(B)]

Slag and other materials are moved through a series of magnets, crushers, chutes, and screens via conveyor system. Water will also be applied, as needed and weather permitting, at strategic points in the process which can provide up t0 90% control efficiency. Figures 3 and 4 provide sample process flow diagrams which were included in the facility's Part 70 Permit application.

Control Measures and Practices [326 IAC 6.8-10-4(3)(E)&(F)]

Control measures have limited application in fugitive dust sources. This section details measures to be used in the facility at to help control fugitive emissions. Since water application is the main control measure utilized, application is suspended based on weather events as follows:

1. during periods of precipitation
2. when temperatures are at or below freezing
3. when ice or snow cover is present.

If chemical application is utilized at some future date, the same weather restrictions will apply. The phrase "weather permitting" used in the following paragraphs herein designates the suspension of control application during the weather events listed above. Item 2 prohibits the use of wet suppression through the winter season. Additionally, daily visible emission notations are conducted to monitor fugitive emissions.

Site Roadways / Plant Yard

Dust on unpaved roads are controlled by applications of water (an acceptable chemical compound may be used in the future) during operating hours, weather permitting. Applications of dust control material will be done as often as necessary to meet applicable limits. The speed for vehicles operating on plant roads is limited to 15 mph to further reduce road emissions.

Process Operations

To help minimize dust emissions, the drop distance at each conveyor transfer point in the plant are set at the minimum distance in which the equipment can operate effectively. Water application is utilized, when needed and weather permitting, at strategic locations throughout the plant to control dust emissions. During these applications, caution must be taken to avoid saturating the material which results in blinding the screens or crushers.

Storage Piles

To reduce potential dust emissions, stockpiling will be performed at minimum drop distances, to the extent practicable. Product storage piles are watered on an as needed basis during operating hours, weather permitting. Wind erosion from piles is not a particular problem for fugitive dust emissions at this facility because of the density of the stock piled material.

Loading and Transfer; Trucks and Front-End Loaders

Trucks will be loaded in a manner to reduce or prevent materials from blowing or otherwise escaping. This may be accomplished by loading the vehicle with the center of gravity for the load at a safe distance below the top of the sideboard. Drop heights for front-end loader buckets will be held within a few feet above the sideboard of the truck during loading.

Compliance Schedule [326 IAC 6.8-10-4(3)(G)]

This is a pre-existing permitted facility. Any revision to this plan requires an administrative amendment to the Part 70 Permit.

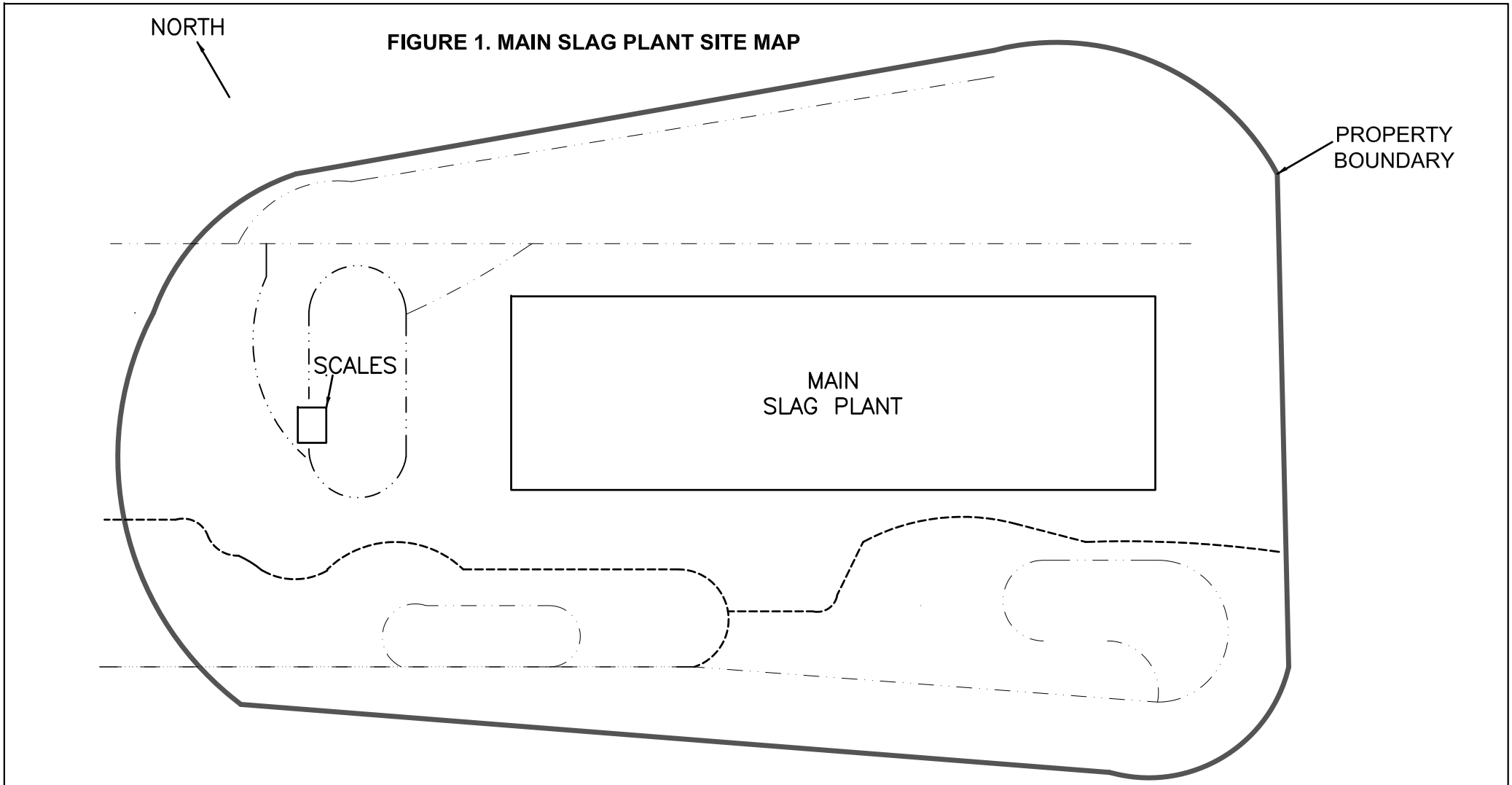
Documentation and Record Keeping [326 IAC 6.8-10-4(4)(A)-(F)]

Records are maintained to document control measures and activities in accordance with this plan. These records may be kept as part of the facility's daily maintenance logs. These records will be available upon the request of the commissioner and shall be retained for a minimum of five (5) years.

Reporting [326 IAC 6.8-10-4(4)(G)]

Quarterly reports are required and submitted in accordance with regulations.

FIGURES



LEGEND:

- - - - - - - PAVED ROAD

— · · — GRAVEL ROAD

NOTES:

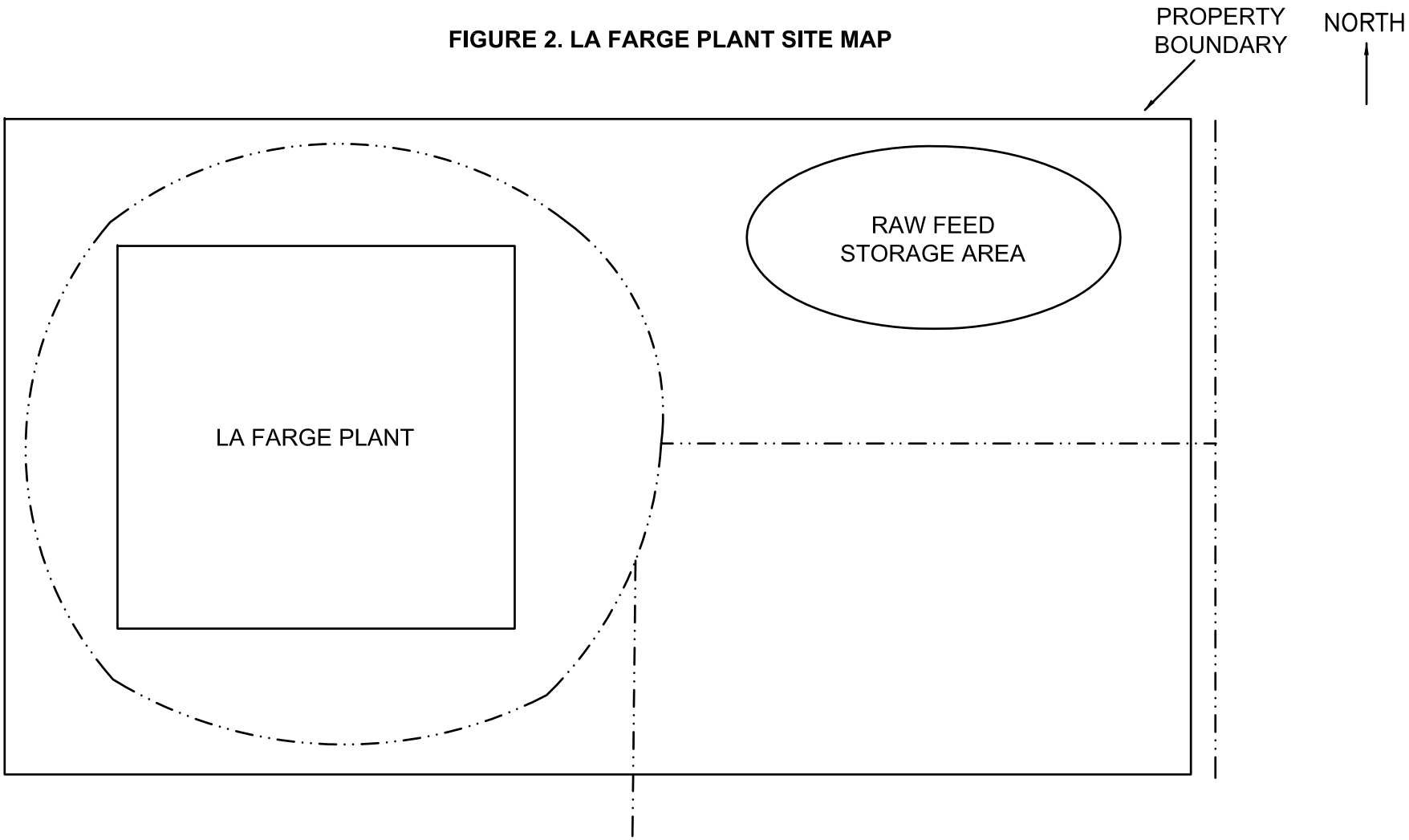
GRAVEL ROADS 30 FT WIDE

OCS Environmental, Inc.
130 LIncoln Street, Suite 1
Porter, Indiana 46304
Phone- (219) 983-1400
Fax - (219) 983-1414

BEEMSTERBOER SLAG CORP.
ARCELORMITTAL INDIANA HARBOR EAST
FUGITIVE DUST CONTROL PLAN
FIGURE 1

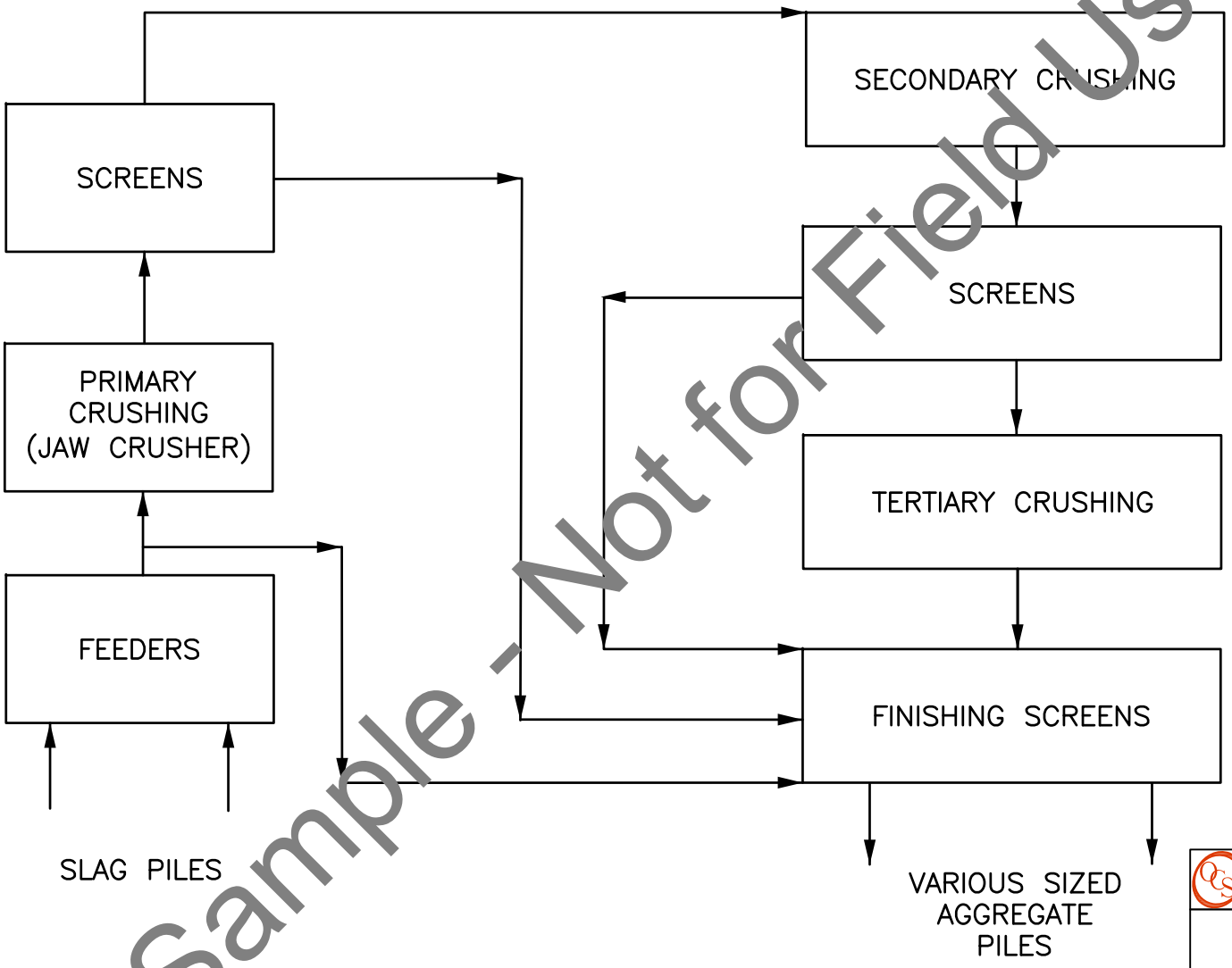
DRAWN:	SCALE: NOT TO SCALE	DATE: 07-08-2011
CHECKED:	FILE: 20110707 FIGURE 1-SITE MAP.dwg	
SO#: BEEM11001		

FIGURE 2. LA FARGE PLANT SITE MAP



LEGEND:	NOTES:	OCS Environmental, Inc. 130 Lincoln Street, Suite 1 Porter, Indiana 46304 Phone- (219) 983-1400 Fax - (219) 983-1414
- - - - - - - PAVED ROAD —— · · —— GRAVEL ROAD	GRAVEL ROADS 30 FT WIDE	BEEMSTERBOER SLAG CORP. ARCELORMITTAL INDIANA HARBOR EAST FUGITIVE DUST CONTROL PLAN FIGURE 2
		DRAWN: / SCALE: NOT TO SCALE / DATE: 07-08-2011
		CHECKED: / FILE: 20110708 FIGURE 2-LA FARGE MAP.dwg
		SO#: BEEM11001

FIGURE 3. MAIN SLAG PLANT PROCESS FLOW DIAGRAM



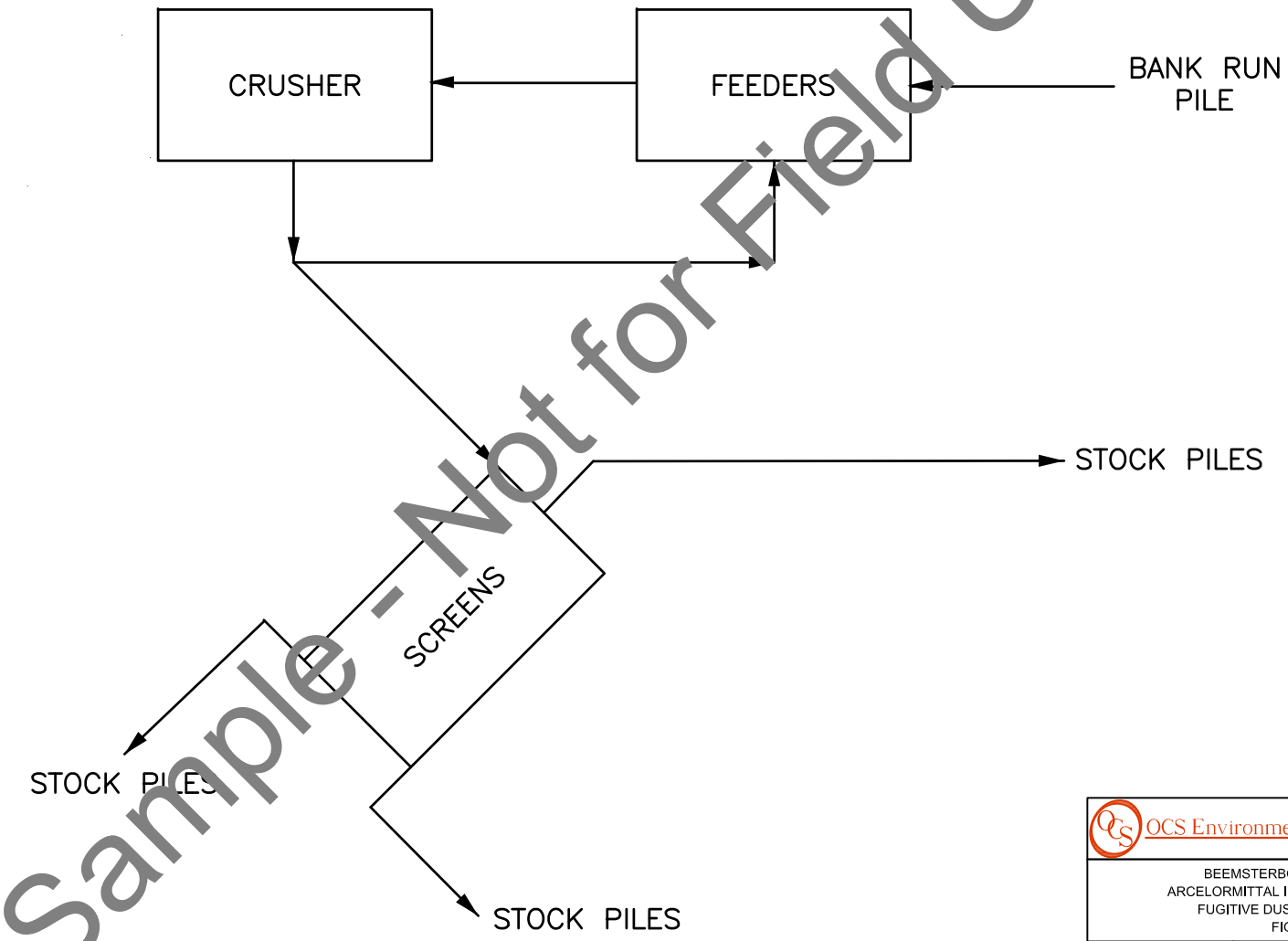
Sample - Not for Field Use

OCS Environmental, Inc.
130 LIncoln Street, Suite 1
Porter, Indiana 46304
Phone- (219) 983-1400
Fax - (219) 983-1414

BEEMSTERBOER SLAG CORP.
ARCELORMITTAL INDIANA HARBOR EAST
FUGITIVE DUST CONTROL PLAN
FIGURE 3

DRAWN:	SCALE: NOT TO SCALE	DATE: 07-08-2011
CHECKED:	FILE: 20110708 FIGURE 3-MAIN FLOW DIAGRAM.dwg	
SO#: BEEM11001		

FIGURE 4. LA FARGE PLANT PROCESS FLOW DIAGRAM



Sample - Not for Field Use

OCS Environmental, Inc.
130 Lincoln Street, Suite 1
Porter, Indiana 46304
Phone- (219) 983-1400
Fax - (219) 983-1414

BEEMSTERBOER SLAG CORP.
ARCELORMITTAL INDIANA HARBOR EAST
FUGITIVE DUST CONTROL PLAN
FIGURE 4

DRAWN:	SCALE: NOT TO SCALE	DATE: 07-13-2011
CHECKED:	FILE: 20110713 FIGURE 4-LA FARGE FLOW DIAGRAM.dwg	
SO#: BEEM11001		

APPENDIX A

FUGITIVE EMISSION CALCULATIONS FROM IDEM PERMIT

Appendix A: Emission Calculations
Fugitive Emissions From Paved and Unpaved Roads

1. Emission Factors: AP-42

According to AP-42, Chapter 13.2.1 - Paved Roads (12/03), the PM/PM10/PM2.5 emission factors for paved roads can be estimated from the following equation:

$$E = (k \times (sL/2)^{a} \times (w/3)^{b} - C) \times (1 - p/(4 \times 365))$$

where:

E =	emission factor (lb/vehicle mile traveled)		
sL (non-Winter) =	road surface silt loading (g/m^2) =	0.6	(g/m^2) (AP-42, Table 13.2.1-3)
sL (Winter) =	sL (non-Winter) x 4 (g/m^2) =	2.4	(g/m^2) (AP-42, Table 13.2.1-3)
w =	mean vehicle weight (tons) =	40.0	tons
k =	empirical constant =	0.082 for PM, 0.016 for PM10 and 0.0024 for PM2.5	
a =	empirical constant =	0.65	
b =	empirical constant =	1.5	
C =	emission factor for exhaust, brake and tire wear	0.00047 for PM and PM10 and 0.00036 for PM2.5	
p =	number of days per year with 0.01 inches precipitation	135	

PM Emission Factor (non-Winter) =	$(0.082 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**1.66**	lbs/mile
PM10 Emission Factor (non-Winter) =	$(0.016 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**0.32**	lbs/mile
PM2.5 Emission Factor (non-Winter) =	$(0.0024 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00036) \times (1 - 135/1460)$ =	**0.05**	lbs/mile
PM Emission Factor (Winter) =	$(0.082 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**4.08**	lbs/mile
PM10 Emission Factor (Winter) =	$(0.016 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**0.80**	lbs/mile
PM2.5 Emission Factor (Winter) =	$(0.0024 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00036) \times (1 - 135/1460)$ =	**0.12**	lbs/mile

PM Emission Factor (Average Annual) = ((PM Emission Factor (non-Winter) x 9) + (PM Emission Factor (Winter) x 3))/12
PM Emission Factor (Average Annual) = **2.26** lbs/mile
PM10 Emission Factor (Average Annual) = ((PM10 Emission Factor (non-Winter) x 9) + (PM10 Emission Factor (Winter) x 3))/12
PM10 Emission Factor (Average Annual) = **0.44** lbs/mile
PM2.5 Emission Factor (Average Annual) = ((PM2.5 Emission Factor (non-Winter) x 9) + (PM2.5 Emission Factor (Winter) x 3))/12
PM2.5 Emission Factor (Average Annual) = **0.07** lbs/mile

Sample Calcs from IDEM, See Latest Permit for Updates

2. Potential to Emit (PTE) of PM/PM10/PM2.5 from Paved Roads:

Vehicle Type	Ave Weight of Vehicles* (tons)	Maximum Round Trip Number* (trips/yr)	Round Trip Distance* (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)	PTE of PM2.5 (tons/yr)
Trucks	40.0	24,000	3.60	86,400	100.0%	40.00	97.7	19.05	2.85
Total				**86,400**	**100%**	**40.0**	**97.7**	**19.1**	**2.8**

* This information is provided by the source.

Methodology

Vehicle Mile Traveled (miles/yr) = Trip Number (trips/yr) x Round Trip Distance (mile/trip)
Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (tons) x Traffic Component (%)
PTE of PM/PM10/PM2.5 before Control (tons/yr) = VMT (miles/yr) x PM/PM10/PM2.5 Emission Factors (Average Annual) x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10/PM2.5 after Control from Paved Roads:

The source will use periodic application of water and high material moistues to control the fugitive dust emissions.
The control efficiency from the application is assumed to be 90%.

PTE of PM after Control =	97.7	tons/yr x (1-90%) =	**9.77 tons/yr**
PTE of PM10 after Control =	19.05	tons/yr x (1-90%) =	**1.91 tons/yr**
PTE of PM2.5 after Control =	2.85E+00	tons/yr x (1-90%) =	**0.28 tons/yr**

4. Unpaved Road Emission Factors: AP-42

According to AP-42, Section 13.2.2 Unpaved Roads, November 2006, the PM/PM10/PM2.5 emission factors for unpaved roads can be estimated from the following equation:

lbs/VMT Equation: $E = k\,(s/12)^{a}\,(W/3)^{b}\,[(365 - P)/365]$

Where:

Particle size multiplier	k	4.9	dimensionless (PM-30 or	1.5	dimensionless PM-10
		0.15	dimensionless PM-2.5		
surface material silt content (%)	s	6	Table 13.2.2-1		
mean vehicle weight	W	42.50	tons		
Equation constants	a	0.7	PM-30 or TSP Table 13.2.	0.9	PM-10 Table 13.2.2-2
		0.9	PM-2.5 Table 13.2.2-3		
	b	0.45	PM-2.5 Table 13.2.2-2	0.45	PM-10 Table 13.2.2-2
		0.45	PM-30 or TSP Table 13.2.2-3		
days with at least 0.01" precipitation	P	135	Figure 13.2.2-1		

PM Emission Factor =	$(4.9) \times (6/12)^{0.7} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**6.27** lbs/mile
PM10 Emission Factor =	$(1.5) \times (6/12)^{0.9} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**1.67** lbs/mile
PM2.5 Emission Factor =	$(0.15) \times (6/12)^{0.9} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**0.17** lbs/mile

Sample Calcs from IDEM, See Latest Permit for Updates

5. Potential to Emit (PTE) of PM/PM10 from unpaved Roads:

Vehicle Type	Ave Weight of Vehicles* (tons)	Maximum Trip Number* (trips/yr)	Round Trip Distance* (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)	PTE of PM2.5 (tons/yr)
Trucks	40.0	24,000	2.00	48,000	69.2%	27.69	150.4	40.08	4.01
Loaders	45.0	53,333	0.40	21,333	30.8%	13.85	66.8	17.81	1.78
Total				**69,333**	**100%**	**41.5**	**217.2**	**57.9**	**5.79**

Methodology

Total Vehicle Emissions (tons/yr) = Unpaved Total VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

6. Potential to Emit (PTE) of PM/PM10/PM2.5 after Control from Unpaved Roads:

The source will use periodic application of water and high material moistues to control the fugitive dust emissions.
The control efficiency from the application is assumed to be 90%.

PTE of PM after Control =	217.2	tons/yr x (1-90%) =	**21.72**	**tons/yr**
PTE of PM10 after Control =	57.89	tons/yr x (1-90%) =	**5.79**	**tons/yr**
PTE of PM2.5 after Control =	5.79E+00	tons/yr x (1-90%) =	**0.58**	**tons/yr**

Sample Calcs from IDEM, See Latest Permit for Updates

Attachment B
to Part 70 Operating Permit No. T089-29606-00356

Beemsterboer Slag Corporation
3210 Watling Street
East Chicago, Indiana 46312

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.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008]

§ 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.

(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(h) 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) A stationary RICE which is an existing spark ignition 4 stroke rich burn (4SRB) stationary RICE located at an area source of HAP emissions; an existing spark ignition 4SRB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions; an existing spark ignition 2 stroke lean burn (2SLB) stationary RICE; an existing spark ignition 4 stroke lean burn (4SLB) stationary RICE; an existing compression ignition emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions; an existing spark ignition emergency or limited use stationary RICE; an existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions; an existing stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; or an existing stationary residential, commercial, or institutional emergency stationary RICE located at an area source of HAP emissions, does not have to meet the requirements of this subpart and of subpart A of this part. No initial notification is necessary.

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that is a new or reconstructed stationary RICE located at an area source, or is a new or reconstructed stationary RICE located at a major source of HAP emissions and is a spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of less than 500 brake HP, a spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of less than 250 brake HP, or a 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP, a stationary RICE with a site rating of less than or equal to 500 brake HP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP, or a compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP, 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.

[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]

§ 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 and operating limitations 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 and operating limitations no later than May 3, 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]

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 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less 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. 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]

§ 63.6602 What emission limitations must I meet if I own or operate an existing stationary CI 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 CI 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 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.

[75 FR 9675, Mar. 3, 2010]

§ 63.6603 What emission limitations and operating limitations must I meet if I own or operate an existing stationary CI 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 CI 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 which apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the Federal Aid Highway System (FAHS) you do not have to meet the numerical CO emission limitations specified in Table 2d to this subpart. Existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the FAHS must meet the management practices that are shown for stationary non-emergency CI RICE less than or equal to 300 HP in Table 2d to this subpart.

[75 FR 9675, Mar. 3, 2010]

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

If you own or operate an existing non-emergency 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. Existing non-emergency CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or at area sources in areas of Alaska not accessible by the FAHS are exempt from the requirements of this section.

[75 FR 9675, Mar. 3, 2010]

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 and operating limitations 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]

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 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]

§ 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 CI 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 CI 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]

§ 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.

(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.

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

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

Where:

C_i= concentration of CO or formaldehyde at the control device inlet,

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

R = percent reduction of CO or formaldehyde emissions.

(2) You must normalize the carbon monoxide (CO) 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_2concentration is measured in lieu of oxygen concentration measurement, a CO_2correction factor is needed. Calculate the CO_2correction 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:

$$F_o = \frac{0.209\, F_d}{F_c} \qquad \text{(Eq. 2)}$$

Where:

F_o= Fuel factor based on the ratio of oxygen volume to the ultimate CO_2volume 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_2produced to the gross calorific value of the fuel from Method 19, dsm^3 /J (dscf/10^6 Btu).

(ii) Calculate the CO_2correction factor for correcting measurement data to 15 percent oxygen, as follows:

$$X_{co_2} = \frac{5.9}{F_o} \qquad \text{(Eq. 3)}$$

Where:

X_{co2}= CO_2correction factor, percent.

5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2correction value, percent.

(iii) Calculate the $NO_X$and SO_2gas concentrations adjusted to 15 percent O_2using CO_2as follows:

$$C_{adj} = C_d \frac{X_{co_2}}{\%CO_2} \qquad \text{(Eq. 4)}$$

Where:

$\%CO_2$= Measured CO_2concentration 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]

§ 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 oxygen or CO_2at both the inlet and the outlet of the control device according to the requirements in paragraphs (a)(1) through (4) of this section.

(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_2concentration.

(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 §63.8.

(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 an existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions, an existing stationary emergency RICE, or an existing stationary RICE located at an area source of HAP emissions not subject to any numerical emission standards shown in Table 2d to this subpart, 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.

(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 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 (g)(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 not accessible by the FAHS do not have to meet the requirements of paragraph (g) in this section.

(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 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 engine that is subject to the work, operation or management practices in items 1, 2, or 4 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 before continuing to use the engine. 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]

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

(a) You must demonstrate initial compliance with each emission and operating limitation 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.

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, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously at all times that the stationary RICE is operating.

(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.

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

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation 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) [Reserved]

(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 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, a new emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed on or after June 12, 2006, or an existing emergency stationary RICE located at an area source of HAP emissions, you must operate the engine according to the conditions described in paragraphs (f)(1) through (4) of this section.

(1) For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

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

(3) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. 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 year.

(4) You may operate your emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving 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; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(4), as long as the power provided by the financial arrangement is limited to emergency power.

[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]

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 CI 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 CI 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 CI RICE less than 100 HP, an existing stationary emergency CI RICE, or an existing stationary CI 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).

[73 FR 3606, Jan. 18, 2008, as amended at 75 FR 9677, Mar. 3, 2010]

§ 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.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9677, Mar. 3, 2010]

§ 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 CI RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency CI RICE.

(3) An existing stationary CI 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) or (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 engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

(1) An existing emergency stationary CI 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 CI 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]

§ 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:

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.

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).

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 internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. 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.* Stationary CI ICE used for peak shaving are not considered emergency stationary ICE. Stationary CI ICE used to supply power to an electric grid or that supply non-emergency power as part of a financial arrangement with another entity are not considered to be emergency engines, except as permitted under §63.6640(f). Emergency stationary RICE with a site-rating of more than 500 brake HP located at a major source of HAP emissions that were installed prior to June 12, 2006, may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. Emergency stationary RICE with a site-rating of more than 500 brake HP located at a major source of HAP emissions that were installed prior to June 12, 2006, may also operate an additional 50 hours per year in non-emergency situations. All other emergency stationary RICE must comply with the requirements specified in §63.6640(f).

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.

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.

Residential/commercial/institutional emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or residences, commercial establishments such as office buildings, hotels, or stores, or institutional establishments such as medical centers, research centers, and institutions of higher education.

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 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]

Table1ato 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 for existing, new and reconstructed 4SRB 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. 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]

Table1bto Subpart ZZZZ of Part 63—Operating 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, 63.6630 and 63.6640, you must comply with the following operating emission 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...**
1. 4SRB stationary RICE 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	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
4SRB stationary RICE 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.	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.
2. 4SRB stationary RICE 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.
4SRB stationary RICE 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.	

[73 FR 3607, Jan. 18, 2008]

Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 2SLB stationary RICE	a. Reduce CO emissions by 58 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2until June 15, 2007	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
2. 4SLB stationary RICE	a. Reduce CO emissions by 93 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2	
3. CI stationary RICE	a. Reduce CO emissions by 70 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9680, Mar. 3, 2010]

Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP Located at a Major Source of HAP Emissions, Existing Non-Emergency Compression Ignition Stationary RICE >500 HP, and New and Reconstructed 4SLB Burn Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600, 63.6601, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed lean burn and existing, new and reconstructed compression ignition stationary RICE:

For each . . .	**You must meet the following operating limitation . . .**
1. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE 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. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and not using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst	Comply with any operating limitations approved by the Administrator.

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(g) for a different temperature range.

[75 FR 9680, Mar. 3, 2010]

Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary Rice Located at Major Sources of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency CI and black start CI.[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; 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 CI < 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;	
	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 RICE 100≤HP≤300 HP	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2.	
4. Non-Emergency, non-black start CI 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 CI>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.	

[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) 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.

[75 FR 9681, Mar. 3, 2010]

Table 2d to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at Area Sources of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission and operating limitations for existing compression ignition stationary RICE:

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 ≤ 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;	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.
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary	
2. Non-Emergency, non-black start CI 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 > 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 CI and black start CI.[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	
	c. Inspect all hoses and belts every 500 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) 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.

[75 FR 9681, Mar. 3, 2010]

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. 2SLB and 4SLB stationary RICE with a brake horsepower >500 located at major sources and new or reconstructed CI stationary RICE with a brake horsepower >500 located at major sources	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE with a brake horsepower ≥5,000 located at major sources	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]
3. Stationary RICE with a brake horsepower >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 with a brake horsepower >500 that are not limited use stationary RICE	Limit or reduce CO or formaldehyde emissions	Conduct subsequent performance tests every 8,760 hrs or 3 years, whichever comes first.
5. Existing non-emergency, non-black start CI stationary RICE with a brake horsepower >500 that are limited use stationary RICE		Conduct subsequent performance tests every 8,760 hrs 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.

[75 FR 9682, Mar. 3, 2010]

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 existing sources:

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) Portable CO and O_2 analyzer.	(a) Using ASTM D6522–00 (2005)[a] (incorporated by reference, see §63.14). 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) Portable CO and O_2 analyzer.	(a) Using ASTM D6522–00 (2005)[a,b] (incorporated by reference, see §63.14) or Method 10 of 40 CFR appendix 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 (2005)	(a) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde 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) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the inlet and the outlet of the control device.	(1) Method 320 of 40 CFR part 63, appendix A; or ASTM D6348–03[c], 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.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
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.
		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 (2005)	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde 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) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 of 40 CFR part 63, appendix A; or ASTM D6348–03[c], 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], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03	(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 longer runs.

[a]You may also use Methods 3A and 10 as options to ASTM–D6522–00 (2005). You may obtain a copy of ASTM–D6522–00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM–D6522–00 (2005) may be used to test both CI and SI stationary RICE.

[b]You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03.

[c]You may obtain a copy of ASTM–D6348–03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[75 FR 9682, Mar. 3, 2010]

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations and Operating Limitations

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. 2SLB and 4SLB stationary RICE >500 HP located at a major source and new or reconstructed CI stationary RICE >500 HP located at a major source	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. 2SLB and 4SLB stationary RICE >500 HP located at a major source and new or reconstructed CI stationary RICE >500 HP located at a major source	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.
3. 2SLB and 4SLB stationary RICE >500 HP located at a major source and new or reconstructed CI stationary RICE >500 HP located at a major source	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2or CO_2at 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

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		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.
4. 4SRB stationary RICE >500 HP located at a major source	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; 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.
5. 4SRB stationary RICE >500 HP located at a major source	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; 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.
6. Stationary RICE >500 HP located at a major source	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.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
7. Stationary RICE >500 HP located at a major source	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.
8. Existing stationary non-emergency RICE ≥100 HP located at a major source, existing non-emergency CI stationary RICE >500 HP, and existing stationary non-emergency RICE ≥100 HP located at an area source	a. Reduce CO or formaldehyde 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.
9. Existing stationary non-emergency RICE ≥100 HP located at a major source, existing non-emergency CI stationary RICE >500 HP, and existing stationary non-emergency RICE ≥100 HP located at an area source	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.

[75 FR 9684, Mar. 3, 2010]

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations and Operating Limitations

As stated in §63.6640, you must continuously comply with the emissions and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. 2SLB and 4SLB stationary RICE >500 HP located at a major source and CI stationary RICE >500 HP located at a major source	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. 2SLB and 4SLB stationary RICE >500 HP located at a major source and CI stationary RICE >500 HP located at a major source	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
3. 2SLB and 4SLB stationary RICE >500 HP located at a major source and CI stationary RICE >500 HP located at a major source	a. Reduce CO emissions 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 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; 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. 4SRB stationary RICE >500 HP located at a major source	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. 4SRB stationary RICE >500 HP located at a major source	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.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
6. 4SRB stationary RICE with a brake HP ≥5,000 located at a major source	Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved.[a]
7. Stationary RICE >500 HP located at a major source	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. Stationary RICE >500 HP located at a major source	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 stationary CI RICE not subject to any numerical emission limitations	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 RICE >500 HP that are not limited use stationary RICE, except 4SRB >500 HP located at major sources	a. Reduce CO or formaldehyde emissions; or b. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	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.
11. Existing limited use stationary RICE >500 HP that are limited use CI stationary RICE	a. Reduce CO or formaldehyde emissions; or b. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	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.

[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.

[75 FR 9685, Mar. 3, 2010]

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:

You must submit a(n) . . .	The report must contain . . .	You must submit the report . . .
1. 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 CI 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 CI RICE subject to numerical emission limitations.
	b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or	i. Semiannually according to the requirements in §63.6650(b).
	c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4).	i. Semiannually according to the requirements in §63.6650(b).
2. 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.

[75 FR 9687, Mar. 3, 2010]

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.1	General applicability of the General Provisions	Yes.	
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes.	
§63.4	Prohibited activities and circumvention	Yes.	
§63.5	Construction and reconstruction	Yes.	
§63.6(a)	Applicability	Yes.	
§63.6(b)(1)–(4)	Compliance dates for new and reconstructed sources	Yes.	
§63.6(b)(5)	Notification	Yes.	
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes.	
§63.6(c)(1)–(2)	Compliance dates for existing sources	Yes.	
§63.6(c)(3)–(4)	[Reserved]		
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes.	
§63.6(d)	[Reserved]		
§63.6(e)	Operation and maintenance	No.	
§63.6(f)(1)	Applicability of standards	No.	
§63.6(f)(2)	Methods for determining compliance	Yes.	
§63.6(f)(3)	Finding of compliance	Yes.	
§63.6(g)(1)–(3)	Use of alternate standard	Yes.	
§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.6(j)	Presidential compliance exemption	Yes.	
§63.7(a)(1)–(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612.
§63.7(a)(3)	CAA section 114 authority	Yes.	
§63.7(b)(1)	Notification of performance test	Yes	Except that §63.7(b)(1) only applies as specified in §63.6645.
§63.7(b)(2)	Notification of rescheduling	Yes	Except that §63.7(b)(2) only applies as specified in §63.6645.
§63.7(c)	Quality assurance/test plan	Yes	Except that §63.7(c) only applies as specified in §63.6645.
§63.7(d)	Testing facilities	Yes.	
§63.7(e)(1)	Conditions for conducting performance tests	No.	Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620.
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes.	
§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes.	
§63.7(f)	Alternative test method provisions	Yes.	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes.	
§63.7(h)	Waiver of tests	Yes.	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.
§63.8(a)(2)	Performance specifications	Yes.	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No.	
§63.8(b)(1)	Monitoring	Yes.	
§63.8(b)(2)–(3)	Multiple effluents and multiple monitoring systems	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.8(c)(1)	Monitoring system operation and maintenance	Yes.	
§63.8(c)(1)(i)	Routine and predictable SSM	Yes.	
§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes.	
§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	Yes.	
§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.	
§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.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes.	
§63.10(b)(3)	Records of applicability determination	Yes.	
§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)–(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes.	
§63.10(d)(2)	Report of performance test results	Yes.	
§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes.	
§63.10(d)(5)	Startup, shutdown, and malfunction reports	No.	
§63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes.	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes.	Except that §63.10(e)(3)(i) (C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/reporting	Yes.	
§63.11	Flares	No.	
§63.12	State authority and delegations	Yes.	
§63.13	Addresses	Yes.	
§63.14	Incorporation by reference	Yes.	
§63.15	Availability of information	Yes.	

[75 FR 9688, Mar. 3, 2010]

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for a Part 70 Operating Permit Renewal

Source Name:	Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc.
Source Location:	3210 Watling Street, East Chicago, Indiana 46312
County:	Lake
SIC Code:	3312 (source) 3295 (support facility)
Operation Permit No.:	T089-29606-00356
Permit Reviewer:	Teresa Freeman

On July 14, 2011, the Office of Air Quality (OAQ) had a notice published in the Gary Post Tribune, Merrillville, Indiana and The Times, Munster, Indiana, stating that Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc had applied for a Part 70 Operating Permit to continue to operate a slag crushing and sizing operation. The notice also stated that OAQ proposed to issue a permit renewal for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On August 12, 2011, Beemsterboer Slag Corporation submitted comments on the proposed Part 70 permit. The summary of the comments (bolded language has been added, the language with a line through it has been deleted) is as follows:

Comment 1:

D.1.1; D.2.2; D.3.2; D.4.2
We believe Lake County limitations in 326 IAC 6.8-1-2 do not apply to this facility. If it was IDEM's intent to apply the regulations based on a "mineral aggregate operation" then the rule also implies that it is for totally enclosed operations in subsection (g). The limitation of 0.03 grains/dscf would require compliance demonstration on a flow basis. There are no enclosures on any of the equipment where flow data could be applied. This is an open-air fugitive emission source operation and demonstration against a mass/flow based limit is not impossible unless an enclosure is constructed for the purpose of testing.

Response 1:

IDEM has re-evaluated the applicability of 326 IAC 6.8-1-2 to these type of processes and has now applied 326 IAC 6-3-2 to the material handling processes. Fugitive emissions will continue to be regulated by 326 IAC 6.8-10-3. The generators will continue to be subject to 326 IAC 6.8-1-2 as shown below. Conditions D.1.1, D.2.2 and D.4.2 of the permit have been changed as follows:

D.1.1 Particulate Matter Limitations for Lake County [326 IAC 6.8-1-2]

Pursuant to 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County), the following emission units shall not exceed 0.03 grains per dry standard cubic foot (gr/dscf) of particulate matter less than ten (10) microns in diameter (PM_{10}):

~~Particulate Matter Limitations for Lake County~~	
~~Unit ID~~	~~PM_{10} Limit (gr/dscf)~~
~~Storage Piles~~	~~0.03~~
~~Truck Loading & Unloading~~	~~0.03~~
~~Transporting (Road Emissions)~~	~~0.03~~
~~Feeder Box~~	~~0.03~~
~~Jaw Crusher (EU2)~~	~~0.03~~
~~Cone Crushers (EU3 and EU4)~~	~~0.03~~
~~Screens (EU5)~~	~~0.03~~
~~Magnets~~	~~0.03~~
~~Electromagnetic Crane~~	~~0.03~~
~~Conveyors (EU6)~~	~~0.03~~
~~Jaw Crusher (CP016)~~	~~0.03~~
Diesel Generator (EU1)	0.03

D.1.4 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Process Description	Process Weight Rate (ton/hr)	326 IAC 6-3-2 Allowable (lb/hr)
Feeder Box	**800**	**74.7**
Jaw Crusher (EU2)	**495**	**68.8**
Secondary Crusher (EU3)	**260**	**61.4**
Tertiary Crusher (EU4)	**260**	**61.4**
Screens (EU5)	**800**	**74.7**
Conveyors (EU6)	**800**	**74.7**

D.1.~~4~~**5** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

D.1.~~5~~**6** Visible Emissions Notations

D.1.~~6~~**7** Record Keeping Requirements

D.1.~~7~~**8** Reporting Requirements

~~D.2.2 Particulate Matter Less Than 10 Microns in Diameter (PM_{10}) [326 IAC 6.8-1-2]~~

~~Pursuant to 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County), the following emission units shall not exceed 0.03 gr/dscf of particulate matter less than ten (10) microns in diameter (PM_{10}):~~

~~Particulate Matter Limitations for Lake County~~		~~Particulate Matter Limitations for Lake County~~	
~~Unit ID~~	~~PM_{10} Limit (gr/dscf)~~	~~Unit ID~~	~~PM_{10} Limit (gr/dscf)~~
~~Conveyor Shuttle (SH035)~~	~~0.03~~	~~Crusher (CP005)~~	~~0.03~~
~~Conveyor Feeder (CF017)~~	~~0.03~~	~~Conveyor Stacker (CS005)~~	~~0.03~~
~~Conveyor Stacker (CS003)~~	~~0.03~~	~~Conveyor Shuttle (SH005)~~	~~0.03~~
~~Screen (SP001)~~	~~0.03~~	~~Conveyor Shuttle (SH052)~~	~~0.03~~
~~Screen (SP002)~~	~~0.03~~	~~Screen (SP009)~~	~~0.03~~
~~Conveyor Feeder (CF024)~~	~~0.03~~	~~Conveyor Feeder (CF014)~~	~~0.03~~
~~Screen (SP005)~~	~~0.03~~	~~Conveyor Stacker (CS029)~~	~~0.03~~
~~Conveyor Stacker (CS035)~~	~~0.03~~	~~Conveyor Feeder (CF007)~~	~~0.03~~
~~Conveyor Stacker (CS018)~~	~~0.03~~	~~Crusher (CP007)~~	~~0.03~~
~~Conveyor Stacker (CS006)~~	~~0.03~~	~~Conveyor Feeder (CF026)~~	~~0.03~~
~~Conveyor Stacker (CS012)~~	~~0.03~~	~~Conveyor Feeder (CF031)~~	~~0.03~~
~~Screen (SP007)~~	~~0.03~~	~~Conveyor Feeder (CF032),~~	~~0.03~~
~~Conveyor Shuttle (SH010)~~	~~0.03~~	~~Conveyor Stacker (CS036)~~	~~0.03~~
~~Conveyor Shuttle (SH013)~~	~~0.03~~	~~Conveyor Stacker (CS038)~~	~~0.03~~
~~Conveyor Feeder (CF013)~~	~~0.03~~	~~Conveyor Stacker (CS040)~~	~~0.03~~
~~Conveyor Stacker (CS028)~~	~~0.03~~	~~Swing Mag (MG012)~~	~~0.03~~
~~Conveyor Shuttle (SH007)~~	~~0.03~~	~~Conveyor Shuttle (SH040)~~	~~0.03~~
~~Conveyor Shuttle (SH008)~~	~~0.03~~	~~Conveyor Shuttle (SH041)~~	~~0.03~~
~~Conveyor Shuttle (SH016)~~	~~0.03~~	~~Conveyor Shuttle (SH042)~~	~~0.03~~
~~Conveyor Stacker (CS033)~~	~~0.03~~	~~Conveyor Shuttle (SH043)~~	~~0.03~~
~~Conveyor Stacker (CS015)~~	~~0.03~~	~~Screen (SP004)~~	~~0.03~~
~~Conveyor Stacker (CS026)~~	~~0.03~~	~~Screen (SP006)~~	~~0.03~~
~~Conveyor Shuttle (SH001)~~	~~0.03~~	~~Conveyor Feeder (CF034)~~	~~0.03~~
~~Screen (SP003)~~	~~0.03~~	~~Conveyor Feeder (CF031)~~	~~0.03~~
~~Screen (SP008)~~	~~0.03~~	~~Conveyor Stacker (CS039)~~	~~0.03~~
~~Conveyor Feeder (CF008)~~	~~0.03~~	~~Conveyor Stacker (CS041)~~	~~0.03~~
~~Conveyor Feeder (CF009)~~	~~0.03~~	~~Conveyor Stacker (CS044)~~	~~0.03~~
~~Conveyor Stacker (CS011)~~	~~0.03~~	~~Conveyor Stacker (CS045)~~	~~0.03~~
~~Conveyor Stacker (CS032)~~	~~0.03~~	~~Conveyor Shuttle (SH049)~~	~~0.03~~
~~Screen (SP014)~~	~~0.03~~	~~Conveyor Feeder (CF036)~~	~~0.03~~
~~Conveyor Feeder (BH004)~~	~~0.03~~	~~Crusher (CP014)~~	~~0.03~~
~~Conveyor Feeder (CF011)~~	~~0.03~~	~~Pugmill (PG004)~~	~~0.03~~
~~Conveyor Shuttle (SH006)~~	~~0.03~~	~~Conveyor Shuttle (SH050)~~	~~0.03~~
~~Conveyor Shuttle (SH011)~~	~~0.03~~	~~Conveyor Shuttle (SH051)~~	~~0.03~~
~~Conveyor Stacker (CS021)~~	~~0.03~~	~~Conveyor Shuttle (SH054)~~	~~0.03~~
~~Conveyor Feeder (CF012)~~	~~0.03~~	~~Screen (SP027)~~	~~0.03~~
~~Conveyor Feeder (CF022)~~	~~0.03~~	~~Conveyor Feeder (CF025)~~	~~0.03~~
~~Conveyor Stacker (CS030)~~	~~0.03~~	~~Conveyor Feeder (CF032),~~	~~0.03~~
~~Conveyor Shuttle (SH012)~~	~~0.03~~	~~Crusher (CP012)~~	~~0.03~~
~~Conveyor Feeder (CF010)~~	~~0.03~~	~~Conveyor Stacker (CS043)~~	~~0.03~~
~~Conveyor Stacker (CS023)~~	~~0.03~~	~~Screen (SP033)~~	~~0.03~~
~~Conveyor Stacker (CS025)~~	~~0.03~~	~~Screen (SP034)~~	~~0.03~~

D.2.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)	Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)
Conveyor Shuttle (SH035)	425	67.0	Conveyor Stacker (CS025)	340	64.4
Conveyor Feeder (CF017)	350	64.8	Crusher (CP005)	400	66.3
Conveyor Stacker (CS003)	380	65.7	Conveyor Stacker (CS005)	550	70.1
Screen (SP001)	350	64.8	Conveyor Shuttle (SH005)	400	66.3
Screen (SP002)	350	64.8	Conveyor Shuttle (SH052)	500	69.0
Conveyor Feeder (CF024)	450	67.7	Screen (SP009)	275	62
Screen (SP005)	350	64.8	Conveyor Feeder (CF014)	350	64.8
Conveyor Stacker (CS035)	350	64.8	Conveyor Stacker (CS029)	350	64.8
Conveyor Stacker (CS018)	300	63.0	Conveyor Feeder (CF007)	400	66.3
Conveyor Stacker (CS006)	400	66.3	Crusher (CP007)	500	69.0
Conveyor Stacker (CS012)	600	71.2	Conveyor Feeder (CF026)	450	67.7
Screen (SP007)	350	64.8	Conveyor Feeder (CF031)	450	67.7
Conveyor Shuttle (SH010)	300	63.0	Conveyor Feeder (CF032),	500	69.0
Conveyor Shuttle (SH013)	425	67.0	Conveyor Stacker (CS036)	250	61.0
Conveyor Feeder (CF013)	350	64.8	Conveyor Stacker (CS038)	375	65.6
Conveyor Stacker (CS028)	400	66.3	Conveyor Stacker (CS040)	375	65.6
Conveyor Shuttle (SH007)	275	62.0	Swing Mag (MG012)	200	58.5
Conveyor Shuttle (SH008)	280	62.2	Conveyor Shuttle (SH040)	425	67.0
Conveyor Shuttle (SH016)	400	66.3	Conveyor Shuttle (SH041)	450	67.7
Conveyor Stacker (CS033)	370	65.4	Conveyor Shuttle (SH042)	450	67.7
Conveyor Stacker (CS015)	400	66.3	Conveyor Shuttle (SH043)	600	71.2
Conveyor Stacker (CS026)	200	58.5	Screen (SP004)	300	63.0
Conveyor Shuttle (SH001)	600	71.2	Screen (SP006)	350	64.8
Screen (SP003)	300	63.0	Conveyor Feeder (CF034)	500	69.0
Screen (SP008)	350	64.8	Conveyor Stacker (CS039)	600	71.2
Conveyor Feeder (CF008)	450	67.7	Conveyor Stacker (CS041)	600	71.2
Conveyor Feeder (CF009)	450	67.7	Conveyor Stacker (CS044)	900	76.2
Conveyor Stacker (CS011)	600	71.2	Conveyor Stacker (CS045)	900	76.2

Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)	Emission Unit	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (326 IAC 6-3-2) (lb/hr)
Conveyor Stacker (CS032)	340	64.4	Conveyor Shuttle (SH049)	800	74.7
Screen (SP014)	200	58.5	Conveyor Feeder (CF036)	500	69.0
Conveyor Feeder (BH004)	350	64.8	Crusher (CP014)	400	66.3
Conveyor Feeder (CF011)	250	61.0	Pugmill (PG004)	225	
Conveyor Shuttle (SH006)	375	65.6	Conveyor Shuttle (SH050)	450	67.7
Conveyor Shuttle (SH011)	475	68.3	Conveyor Shuttle (SH051)	450	67.7
Conveyor Stacker (CS021)	340	64.4	Conveyor Shuttle (SH054)	500	69.0
Conveyor Feeder (CF012)	250	61.0	Screen (SP027)	350	64.8
Conveyor Feeder (CF022)	450	67.7	Conveyor Feeder (CF025)	500	69.0
Conveyor Stacker (CS030)	340	64.4	Crusher (CP012)	300	63.0
Conveyor Shuttle (SH012)	425	67.0	Conveyor Stacker (CS043)	1000	77.6
Conveyor Feeder (CF010)	450	67.7	Screen (SP033)	400	66.3
Conveyor Stacker (CS023)	340	64.4	Screen (SP034)	350	64.8

~~D.4.2 Particulate Matter Less Than 10 Microns in Diameter (PM_{10}) [326 IAC 6.8-1-2]~~

~~Pursuant to 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County), emissions of particulate matter less than ten (10) microns in diameter (PM_{10}) from the following units shall not exceed the following limitations:~~

~~Particulate Matter Limitations for Lake County~~	
~~Unit ID~~	~~PM_{10} Limit (gr/dscf)~~
~~Storage Piles~~	~~0.03~~
~~Truck Loading & Unloading~~	~~0.03~~
~~Transporting (Road Emissions)~~	~~0.03~~
~~Feed Belt (CP016)~~	~~0.03~~
~~Jaw Crusher (CP016)~~	~~0.03~~
~~Under Belt (CP016)~~	~~0.03~~

D.4.2 Particulate Emission Limitations for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e), the manufacturing processes listed in the table below shall be limited by the following:

Interpolation and extrapolation of the data for process weight rates 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

Process Description	Process Weight Rate (ton/hr)	326 IAC 6-3-2 Allowable (lb/hr)
Slag Crushing Plant	**420**	**66.9**

Comment 2:

D.1.2(a)(2), D.1.2(b), D.1.2(c); D.2.1(a); D.3.1(a)-(i); D.4.1(a)
We note IDEM added tables with limits on each type of equipment based on AP-42 emission factors with controls applied in some cases. We do not understand the need to list the modified AP-42 emission factors when PSD avoidance is satisfied with the existing throughput limitations in the permit.

These type of limitations were also called into question by USEPA during the above mentioned inspection. It took a significant amount of time to explain the origin of the limits and why they were placed into the permit when they were simply the basis for the existing throughput limitation to avoid PSD.

Response 2:

Throughput limits by themselves do not adequately limit an emission unit's potential to emit. These requirements must be combined with another requirement (like an emission factor) to effectively limit PTE in a practically enforceable manner. See USEPA's "Guidance on Limiting Potential to Emit in New Source Permitting," June 13,1989 as well as USEPA's memorandum from John Rasnic entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company's Clean Fuels Project," March 13, 1992. No change will be made to the permit as a result of this comment.

Comment 3:

D.3.5 (b)
We believe this record keeping requirement is overly burdensome as the generators are being moved constantly to different locations including offsite locations. Some generators may go to multiple different locations in the course of one day. None of our operations are maintained in one specific location with the exception of the Main Slag Plant and LaFarge. We respectfully request that this requirement be removed.

Response 3:

Condition D.3.5(b) has been changed as follows to allow for movement of generators:

D.3.5 Record Keeping Requirements

(a) To document the compliance status with Condition D.3.1, the Permittee shall maintain records of the diesel fuel input to the diesel generators monthly. **The Permittee shall include in its monthly record when diesel fuel input is not taken and the reason (e.g. the generator was removed from this location on (specify date)).**

Comment 4:

Fugitive Dust Control Plan
We are also attaching an updated version of the facility's Fugitive Dust Control Plan for inclusion into the permit document.

Response 4:

The updated version of Beemsterboer's Fugitive Dust Control Plan has been attached to this permit.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Operating Permit Renewal

Source Background and Description

Source Name:	Beemsterboer Slag Corporation, a contractor of ArcelorMittal USA, Inc.
Source Location:	3210 Watling Street, East Chicago, Indiana 46312
County:	Lake
SIC Code:	3312 (source) 3295 (support facility)
Operation Permit No.:	T089-29606-00356
Permit Reviewer:	Teresa Freeman

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Beemsterboer Slag Corporation relating to the operation of a slag crushing and sizing operation**.** On August 30,2010, Beemsterboer Slag Corporation submitted an application to the OAQ requesting to renew its operating permit. Beemsterboer Slag Corporation was issued a Part 70 Operating Permit (T089-6580-00356) on May 25, 2006.

Source Definition

The source includes ArcelorMittal Indiana Harbor, LLC (Plant ID 089-00318), an integrated steel mill and ArcelorMittal USA, Inc. (Plant ID 089-00316), an integrated iron and steel mill collocated with the following on-site contractor:

(a) Beemsterboer Slag Corporation (Plant ID 089-00537), the on-site contractor (a slag crushing and sizing operation), is located at 3210 Watling Street, East Chicago, Indiana 46312.

Separate Part 70 Operating Permits will be issued to ArcelorMittal Indiana Harbor, LLC, ArcelorMittal USA, Inc. and Beemsterboer Slag Corporation solely for administrative purposes.

Permitted Emission Units and Pollution Control Equipment

Beemsterboer Slag Corporation, consisting of the following emission units and pollution control devices:

(a) Feeder Box, with maximum capacity of 800 tons/hr installed in 1992;

(b) One (1) Jaw Crusher (EU2), with maximum capacity of 495 tons/hr, installed in 1992;

(c) Two (2) Cone Crushers (one used as secondary crusher (EU3) with maximum capacity of 670 tons/hr and one used as tertiary crusher (EU4) with maximum capacity of 260 tons/hr), installed in 1992;

(d) Four (4) Screens (EU5) with maximum capacity of 800 tons/hr, installed in 1992;

(e) Two (2) Magnets;

(f) One (1) Electromagnetic Crane;

(g) Twenty-five (25) conveyors (EU6) with maximum capacity of 800 tons/hr, 14 of these conveyors installed in 1992 and 11 of these conveyors installed in 2003;

(h) One conveyor shuttle, installed in 1970 and permitted in 2009, identified as SH035, with a maximum capacity of 425 tons per hour;

(i) One conveyor feeder, installed in 1973 and permitted in 2009, identified as CF017, with a maximum capacity of 350 tons per hour;

(j) One conveyor stacker, installed in 1973 and permitted in 2009, identified as CS003, with a maximum capacity of 380 tons per hour;

(k) One screen, installed in 1973, identified as SP001 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(l) One screen, installed in 1974, identified as SP002 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(m) One diesel generator, installed in 1974, identified as GS004 and permitted in 2009, with a maximum capacity of 200 kW;

(n) One conveyor feeder, installed in 1975, identified as CF024 and permitted in 2009, with a maximum capacity of 450 tons per hour;

(o) One screen, installed in 1975, identified as SP005 and permitted in 2009, with a maximum capacity of 350 tons per hour;

(p) One conveyor stacker, installed in 1976 and permitted in 2009, identified as CS035, with a maximum capacity of 350 tons per hour;

(q) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS018, with a maximum capacity of 300 tons per hour;

(r) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS006, with a maximum capacity of 400 tons per hour;

(s) One conveyor stacker, installed in 1977 and permitted in 2009, identified as CS012, with a maximum capacity of 600 tons per hour;

(t) One screen, installed in 1977 and permitted in 2009, identified as SP007, with a maximum capacity of 350 tons per hour;

(u) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH010, with a maximum capacity of 300 tons per hour;

(v) One conveyor shuttle, installed in 1977 and permitted in 2009, identified as SH013, with a maximum capacity of 425 tons per hour;

(w) One conveyor feeder, installed in 1978 and permitted in 2009, identified as CF013, with a maximum capacity of 350 tons per hour;

(x) One conveyor stacker, installed in 1978 and permitted in 2009, identified as CS028, with a maximum capacity of 400 tons per hour;

(y) One conveyor shuttle, installed in 1978 and permitted in 2009 , identified as SH007, with a maximum capacity of 275 tons per hour;

(z) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH008, with a maximum capacity of 280 tons per hour;

(aa) One conveyor shuttle, installed in 1978 and permitted in 2009, identified as SH016, with a maximum capacity of 400 tons per hour;

(bb) One conveyor stacker, installed in 1979 and permitted in 2009, identified as CS033, with a maximum capacity of 375 tons per hour;

(cc) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS015, with a maximum capacity of 400 tons per hour;

(dd) One conveyor stacker, installed in 1980 and permitted in 2009, identified as CS026, with a maximum capacity of 200 tons per hour;

(ee) One conveyor shuttle, installed in 1980 and permitted in 2009, identified as SH001, with a maximum capacity of 600 tons per hour;

(ff) One screen, installed in 1980 and permitted in 2009, identified as SP003, with a maximum capacity of 300 tons per hour;

(gg) One screen, installed in 1980 and permitted in 2009, identified as SP008, with a maximum capacity of 350 tons per hour;

(hh) One diesel generator, installed in 1980 and permitted in 2009, identified as GS011, with a maximum capacity of 155 kW;

(ii) One diesel generator, installed in 1980 and permitted in 2009, identified as GS013, with a maximum capacity of 100 kW;

(jj) One diesel generator, installed in 1980 and permitted in 2009, identified as GS015, with a maximum capacity of 105 kW;

(kk) Two (2) conveyor feeders, installed in 1981 and permitted in 2009, identified as CF008 and CF009, each with a maximum capacity of 450 tons per hour;

(ll) One conveyor stacker, installed in 1981 and permitted in 2009, identified as CS011, with a maximum capacity of 600 tons per hour;

(mm) One conveyor stacker, installed in 1981 , and permitted in 2009 identified as CS032, with a maximum capacity of 340 tons per hour;

(nn) One diesel generator, installed in 1981 and permitted in 2009, identified as GS016, with a maximum capacity of 60 kW;

(oo) One diesel generator, installed in 1981 and permitted in 2009, identified as GS017, with a maximum capacity of 135 kW;

(pp) One screen, installed in 1982 and permitted in 2009 identified as SP014, with a maximum capacity of 200 tons per hour;

(qq) One conveyor feeder, installed in 1983 and permitted in 2009, identified as BH004, with a maximum capacity of 350 tons per hour;

(rr) One conveyor feeder, installed in 1983 and permitted in 2009, identified as CF011, with a maximum capacity of 250 tons per hour;

(ss) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH006, with a maximum capacity of 375 tons per hour;

(tt) One conveyor shuttle, installed in 1983 and permitted in 2009, identified as SH011, with a maximum capacity of 475 tons per hour;

(uu) One diesel generator, installed in 1983 and permitted in 2009, identified as GS019, with a maximum capacity of 25 kW;

(vv) One conveyor stacker, installed in 1984 and permitted in 2009, identified as CS021, with a maximum capacity of 340 tons per hour;

(ww) One diesel generator, installed in 1984 and permitted in 2009, identified as GS020, with a maximum capacity of 180 kW;

(xx) One diesel generator, installed in 1984 and permitted in 2009, identified as GS022, with a maximum capacity of 125 kW;

(yy) One conveyor feeder, installed in 1985 and permitted in 2009 , identified as CF012, with a maximum capacity of 250 tons per hour;

(zz) One conveyor feeder, installed in 1985 and permitted in 2009, identified as CF022, with a maximum capacity of 450 tons per hour;

(aaa) One conveyor stacker, installed in 1985 and permitted in 2009, identified as CS030, with a maximum capacity of 340 tons per hour;

(bbb) One conveyor shuttle, installed in 1985 and permitted in 2009, identified as SH012, with a maximum capacity of 425 tons per hour;

(ccc) One diesel generator, installed in 1985 and permitted in 2009, identified as GS021, with a maximum capacity of 40 kW;

(ddd) One diesel generator, installed in 1986, identified as GS023 and permitted in 2009, with a maximum capacity of 150 kW;

(eee) One conveyor feeder, installed in 1987, identified as CF010 and permitted in 2009, with a maximum capacity of 450 tons per hour;

(fff) Two (2) conveyor stackers, installed in 1987, identified as CS023 and CS025 and permitted in 2009, each with a maximum capacity of 340 tons per hour;

(ggg) One diesel generator, installed in 1987 and permitted in 2009, identified as GS024, with a maximum capacity of 180 kW;

(hhh) One crusher, installed in 1988 and permitted in 2009, identified as CP005, with a maximum capacity of 400 tons per hour;

(iii) One conveyor stacker, installed in 1988 and permitted in 2009, identified as CS005, with a maximum capacity of 550 tons per hour;

(jjj) One conveyor shuttle, installed in 1988 and permitted in 2009, identified as SH005, with a maximum capacity of 400 tons per hour;

(kkk) One conveyor shuttle, installed in 1988 and permitted in 2009, identified as SH052, with a maximum capacity of 500 tons per hour;

(lll) One diesel generator, installed in 1988 and permitted in 2009, identified as GS025, with a maximum capacity of 175 kW;

(mmm) One diesel generator, installed in 1988 and permitted in 2009, identified as GS026, with a maximum capacity of 90 kW;

(nnn) One screen, installed in 1989 and permitted in 2009, identified as SP009, with a maximum capacity of 275 tons per hour;

(ooo) One conveyor feeder, installed in 1990 and permitted in 2009, identified as CF014, with a maximum capacity of 350 tons per hour;

(ppp) One conveyor stacker, installed in 1990 and permitted in 2009, identified as CS029, with a maximum capacity of 350 tons per hour;

(qqq) One conveyor feeder, installed in 1991 and permitted in 2009, identified as CF007, with a maximum capacity of 400 tons per hour;

(rrr) One crusher, installed in 1992 and permitted in 2009, identified as CP007, with a maximum capacity of 400 tons per hour;

(sss) One diesel generator, installed in 1992 and permitted in 2009, identified as GS029, with a maximum capacity of 40 kW;

(ttt) One conveyor feeder, installed in 1993 and permitted in 2009, identified as CF026, with a maximum capacity of 500 tons per hour;

(uuu) One diesel generator, installed in 1994 and permitted in 2009, identified as GS030, with a maximum capacity of 40 kW;

(vvv) One conveyor feeder, installed in 1995 and permitted in 2009, identified as CF031, with a maximum capacity of 450 tons per hour;

(www) One conveyor feeder, installed in 1995 and permitted in 2009, identified as CF032, with a maximum capacity of 500 tons per hour;

(xxx) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS036, with a maximum capacity of 250 tons per hour;

(yyy) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS038, with a maximum capacity of 550 tons per hour;

(zzz) One conveyor stacker, installed in 1995 and permitted in 2009, identified as CS040, with a maximum capacity of 375 tons per hour;

(aaaa) One swing mag, installed in 1995 and permitted in 2009, identified as MG012, with a maximum capacity of 200 tons per hour;

(bbbb) One conveyor shuttle, installed in 1995 and permitted in 2009, identified as SH040, with a maximum capacity of 425 tons per hour;

(cccc) Two (2) conveyor shuttles, installed in 1995 and permitted in 2009, identified as SH041 and SH042, each with a maximum capacity of 450 tons per hour;

(dddd) One conveyor shuttle, installed in 1995 and permitted in 2009, identified as SH043, with a maximum capacity of 600 tons per hour;

(eeee) One screen, installed in 1995 and permitted in 2009, identified as SP004, with a maximum capacity of 300 tons per hour;

(ffff) One screen, installed in 1995 and permitted in 2009, identified as SP006, with a maximum capacity of 350 tons per hour;

(gggg) One diesel generator, installed in 1995 and permitted in 2009, identified as GS031, with a maximum capacity of 105 kW;

(hhhh) One diesel generator, installed in 1995 and permitted in 2009, identified as GS032, with a maximum capacity of 125 kW;

(iiii) One conveyor feeder, installed in 1996 and permitted in 2009, identified as CF034, with a maximum capacity of 500 tons per hour;

(jjjj) Two (2) conveyor stackers, installed in 1996 and permitted in 2009, identified as CS039 and CS041, each with a maximum capacity of 600 tons per hour;

(kkkk) Two (2) conveyor stackers, installed in 1996 and permitted in 2009, identified as CS044 and CS045, each with a maximum capacity of 900 tons per hour;

(llll) One conveyor shuttle, installed in 1996 and permitted in 2009, identified as SH049, with a maximum capacity of 800 tons per hour;

(mmmm) One conveyor feeder, installed in 1997 and permitted in 2009, identified as CF036, with a maximum capacity of 500 tons per hour;

(nnnn) One crusher, installed in 1997 and permitted in 2009, identified as CP014, with a maximum capacity of 400 tons per hour;

(oooo) One pugmill, installed in 1997 and permitted in 2009, identified as PG004, with a maximum capacity of 225 tons per hour;

(pppp) Two (2) conveyor shuttles and permitted in 2009, installed in 1997, identified as SH050 and SH051, each with a maximum capacity of 450 tons per hour;

(qqqq) One conveyor shuttle, installed in 1997 and permitted in 2009, identified as SH054, with a maximum capacity of 500 tons per hour;

(rrrr) One screen, installed in 1997 and permitted in 2009, identified as SP027, with a maximum capacity of 350 tons per hour;

(ssss) One diesel generator, installed in 1997 and permitted in 2009, identified as GS035, with a maximum capacity of 40 kW;

(tttt) One diesel generator, installed in 1998 and permitted in 2009, identified as GS038, with a maximum capacity of 600 kW;

(uuuu) One conveyor feeder, installed in 1999 and permitted in 2009, identified as CF025, with a maximum capacity of 500 tons per hour;

(vvvv) One crusher, installed in 1999 and permitted in 2009, identified as CP012, with a maximum capacity of 300 tons per hour;

(wwww) One conveyor stacker, installed in 1999 and permitted in 2009, identified as CS043, with a maximum capacity of 1000 tons per hour;

(xxxx) One screen, installed in 1999 and permitted in 2009, identified as SP033, with a maximum capacity of 400 tons per hour;

(yyyy) One diesel generator, installed in 1999 and permitted in 2009, identified as GS040, with a maximum capacity of 600 kW;

(zzzz) One screen, installed in 2000 and permitted in 2009, identified as SP034, with a maximum capacity of 350 tons per hour;

(aaaaa) One diesel generator, installed in 2000 and permitted in 2009, identified as GS042, with a maximum capacity of 320 kW;

(bbbbb) One diesel generator, installed in 1992 and reinstated in 2002 and permitted in 2009, identified as GS033, with a maximum capacity of 600 kW;

(ccccc) One (1) Diesel Generator (EU1/GS043) 1,000 KW (3.43 MMBtu/hr) installed in 2002 and permitted in 2009,;

Under the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ) the generator is considered an affected facility.

(ddddd) One diesel generator, installed in 2005 and permitted in 2009, identified as GS045, with a maximum capacity of 250 kW;

(eeeee) One diesel generator, installed in 2006, and permitted in 2009, identified as GS046, with a maximum capacity of 200 kW; and

(fffff) One (1) slag crushing plant, approved for construction in 2008, identified as LaFarge Crushing Plant, with PM controlled by wet suppression, and consisting of the following new equipment:

(1) One (1) jaw crusher, identified as jaw crusher CP016, with a maximum capacity of 420 tons per hour;

(2) One (1) feed belt, identified as feed belt CP016, with a maximum capacity of 693.72 tons per hour;

(3) One (1) under belt, identified as under belt CP016, with a maximum capacity of 1,040.58 tons per hour;

(4) One (1) over belt magnet, identified as MG017;

(5) One (1) electrical control room; and

(6) Associated storage piles, loading and unloading of trucks, and road traffic.

Insignificant Activities

The source also consists of the following insignificant activities:

(a) Space heaters, process heaters, or boilers using the following fuels:

(1) Propane or liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than six million (6,000,000) Btu per hour.

(b) A petroleum fuel, other than gasoline, dispensing facility having a storage capacity less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month.

(c) Emergency generators as follows:

(1) Diesel generators not exceeding 1600 horsepower.

Existing Approvals

Since the issuance of the Part 70 Operating Permit No. T089-6580-00356 on May 25, 2006, the source has constructed or has been operating under the following additional approvals:

(a) First Significant Source Modification No. 089-25071-00356, issued on October 28, 2008;

(b) First Significant Permit Modification No. 089-25100-00356, issued on November 12, 2008;

(c) Second Significant Source Modification No. 089-24137-00356, issued on February 16, 2009;

(d) Second Significant Permit Modification No. 089-24225-00356, issued on March 4, 2009;

(e) Third Significant Permit Modification No. 089-29271-00356, issued on September 17, 2010; and

(f) Fourth Significant Permit Modification No. 089-29902-000356, issued on April 19, 2011.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the State Implementation Plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Enforcement Issue

There are no enforcement actions pending.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in Lake County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of East Chicago bounded by Columbus Drive on the north; the Indiana Harbor Canal on the west; 148th Street, if extended, on the south; and Euclid Avenue on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of East Chicago and Lake County.
O_3	Attainment effective June 4, 2010. [1]
PM_{10}	Attainment effective March 11, 2003, for the cities of East Chicago, Hammond, Whiting, and Gary. Unclassifiable effective November 15, 1990, for the remainder of Lake County.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.
[1]The U. S. EPA has acknowledged in both the proposed and final rulemaking for this redesignation that the anti-backsliding provisions for the 1-hour ozone standard no longer apply as a result of the redesignation under the 8-hour ozone standard. Therefore, permits in Lake County are no longer subject to review pursuant to Emission Offset, 326 IAC 2-3. Basic nonattainment designation effective federally April 5, 2005, for PM2.5.	

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) 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 NOx emissions are considered when evaluating the rule applicability relating to ozone. Lake County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Lake County as nonattainment for PM2.5. On March 7, 2005 the Indiana Attorney General's Office, on behalf of IDEM, filed a lawsuit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's New Source Review Rule for PM2.5 promulgated on May 8, 2008, and effective on July 15, 2008. Therefore, direct PM2.5 and SO2 emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants
Lake County has been classified as attainment or unclassifiable in Indiana for all other regulated pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this source is classified as a integrated steel mill, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7. Therefore, fugitive emissions are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Unrestricted Potential Emissions	
Pollutant	Tons/year
PM	3999.1
PM_{10}	1876.5
$PM_{2.5}$	1359
SO_2	100.7
VOC	53.5
CO	203.5
NO_x	911.8

Appendix A of this TSD reflects the unrestricted potential emissions of the source.

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM, PM10, SO2, NOx and CO are equal to or greater than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7 and will be issued a Part 70 Operating Permit Renewal.

(b) This existing source is a major stationary source, under PSD (326 IAC 2-2), because a regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).

(c) This existing source is a major stationary source, under nonattainment new source review rules (326 IAC 2-1.1-5) since direct $PM_{2.5}$ and SO_2 are emitted at a rate of 100 tons per year or more.

(e) This existing source is a major source of HAPs, as defined in 40 CFR 63.41, because HAP emissions are 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).

Part 70 Permit Conditions

This source is subject to the requirements of 326 IAC 2-7, because the source met the following:

(a) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance of Part 70 permits.

(b) Monitoring and related record keeping requirements which assume that all reasonable information is provided to evaluate continuous compliance with the applicable requirements.

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 Part 70 permit renewal, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/ Emission Unit	Pollutant							
	PM	PM10	PM2.5	SO_2	NOx	VOC	CO	GHG*
Misc Equipment	15.69	6.12	6.12	-	-	-	-	greater than 100,000
LaFarge Crushing Plant	65.40	9.55	9.06	-	-	-	-	
Conveyor Shuttles	10.48	3.78	3.78	-	-	-	-	
Conveyor Feeders	14.62	5.2	5.2	-	-	-	-	
Conveyor Stackers	16.37	5.74	5.74	-	-	-	-	
Screens	146.05	50.46	50.46	-	-	-	-	
Crushers	8.15	3.67	3.67	-	-	-	-	
Pugmill	2.17	0.73	0.73					
Conveyors (11)	0.49	0.16	0.16					
Storage	116.13	116.13	116.13	-	-	-	-	
Material Handling	79.31	37.65	5.7	-	-	-	-	
Unpaved Roads	177.16	45.75	4.57	-	-	-	-	
Generators	35.8	35.78	35.78	54.87	553.93	40.28	130.04	
Total PTE of Entire Source	**687.78**	**320.73**	**247.11**	**54.87**	**553.93**	**40.28**	**130.04**	**>100,000**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000
PSD Major Source Thresholds	100	100	100	100	100	100	100	100,000
Emission Offset/ Nonattainment NSR Major Source Thresholds	NA	NA	NA	100	100	NA	100	NA

*as calculated CO2e

(a) This existing stationary source is major for PSD because the emissions of at least one criteria pollutant are greater than one hundred (>100) tons per year, and it is in one of the twenty-eight (28) listed source categories.

(b) This existing stationary source is major for Nonattainment NSR because the emissions of the nonattainment pollutant, PM2.5 and SO2, are greater than one hundred (>100) tons per year.

Federal Rule Applicability

(a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to each existing pollutant-specific emission unit that meets the following criteria:

(1) has a potential to emit before controls equal to or greater than the major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to any of the existing units as part of this Part 70 permit renewal because there are no control devices at the source.

NSPS/NESHAPs

(a) IDEM, OAQ has determined that based on information submitted by Beemsterboer Slag Corporation, diesel generator (GS046) may be considered a nonroad engine for the purposes of 40 CFR 60, Subpart IIII applicability, provided they meet the requirements of paragraph (2)(iii) of the definition of nonroad engine in 40 CFR 1068.30. Therefore, the requirements of 40 CFR 60, Subpart IIII are not applicable to the diesel generator (GS046), provided they meet the following requirements:

(1) Any engine that is part of the diesel generator (GS046) shall remain at a location for a period not to exceed twelve (12) consecutive months.

(2) Any unit that replaces an engine at a location that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

(3) For the purposes of this condition and pursuant to 40 CFR 1068.30 *Nonroad Engine* (2)(iii), a location is any single site at a building, structure, facility, or installation.

(b) The requirements of the New Source Performance Standard for Nonmetallic Mineral Processing Plants, 40 CFR 60.670 through 60.676, Subpart OOO, are not included in the permit because the slag material being crushed is not a nonmetallic mineral pursuant to 40 CFR 60.671.

(c) The requirements of the New Source Performance Standard for Metallic Mineral Processing Plants, Subpart LL are not included in the permit because the operations are not producing metallic mineral concentrates from ore. None of these slag crushing and/or screening operations are performed in a mine or pit.

(d) 40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

It was determined in SPM 089-29271-00356, issued on September 17, 2010 that all generators at the plant, including generators GS038 and GS040 were subject to 40 CFR Part 63,Subpart ZZZZ. However, the Permittee has provided information that all generators at the plant, including generators GS038 and GS040 are “not stationary” and are “nonroad engines” as defined in 40 CFR Part 1068.30, except for Generator, GS043 located at Slag Plant No. 1. Therefore, Generator, GS043 is subject to this NESHAP.

The emergency generators are existing emergency stationary Reciprocating Internal Combustion Engines and therefore is subject to 40 CFR Part 63, Subpart ZZZZ.

NESHAP ZZZZ has been recently updated by EPA. However, the sections of this rule that were determined to be applicable will not change.

An updated version of this NESHAP, Subpart ZZZZ is included as Attachment C of the permit.

The remaining generators at the source are subject to the following portions of Subpart ZZZZ:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585(a), (b), and (d)
(3) 40 CFR 63.6590(a)(1)(i) (For generators with >500 brake horsepower (HP))
(4) 40 CFR 63.6590(a)(1)(ii) (For generators with <500 brake horsepower (HP))
(5) 40 CFR 63.6590(a)(1)(iv)
(6) 40 CFR 63.6590(c) (For generators with <500 brake horsepower (HP))
(7) 40 CFR 63.6595(a)(1) and (c)
(8) 40 CFR 63.6600(d) (For generators with >500 brake horsepower (HP))
(9) 40 CFR 63.6602 (For generators with <500 brake horsepower (HP))
(10) 40 CFR 63.6604 (For generators with >300 brake horsepower (HP))
(11) 40 CFR 63.6605
(12) 40 CFR 63.6610 (For generators with >500 brake horsepower (HP))
(13) 40 CFR 63.6612 (For generators with <500 brake horsepower (HP))
(14) 40 CFR 63.6615
(15) 40 CFR 63.6620
(16) 40 CFR 63.6625(g) (For generators with >300 brake horsepower (HP))
(17) 40 CFR 63.6630
(18) 40 CFR 63.6635
(19) 40 CFR 63.6640
(20) 40 CFR 63.6645
(21) 40 CFR 63.6645(a)(1) and (d) (For generators with <500 brake horsepower (HP))

The provisions of 40 CFR 63 Subpart A – General Provisions, which are incorporated as 326 IAC 20-1, apply to the facility described in this section except when otherwise specified in 40 CFR 63 Subpart ZZZZ.

State Rule Applicability - Entire Source

326 IAC 1-6-3 (Preventive Maintenance Plan)
The source is subject to 326 IAC 1-6-3.

326 IAC 2-6 (Emission Reporting)
This source is subject to 326 IAC 2-6 (Emission Reporting) because it is located in Lake County and its emissions of VOC and NOx are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-6-3(a)(1), annual reporting is required. An emission statement shall be submitted by July 1, 2011 and every year thereafter. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

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

(a) Opacity shall not exceed an average of twenty percent (20%) 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.

State Rule Applicability – Individual Facilities

326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) Minor Limits

Slag Crushing and Sizing

(a) In order to make the requirements of 326 IAC 2-2 (PSD) not applicable:

(1) The input of steel mill slag to the portable crushing, screening and conveying plant consisting of: Feeder Box; one (1) Jaw Crusher (EU2); two (2) Cone Crushers (EU3 and EU4); four (4) Screens (EU5); two (2) Magnets; one (1) Electromagnetic Crane; and fourteen (14) conveyors (EU6) shall be less than 731,308 tons per twelve (12) consecutive month period with compliance demonstrated at the end of each month.

(2) the Permittee shall comply with the following PM and PM0 emissions:

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)
Jaw Crusher (EU2)	0.00120	0.00054
Cone Crushers (EU3 & EU4)	0.00120	0.00054
Screens (EU5)	0.00220	0.00074
Conveyors (EU6)	0.00014	0.00005

Compliance with this limitation will ensure that the potential to emit from these emission units are less than twenty-five (25) tons of PM per year and less than fifteen (15) tons of PM_{10} per year,. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

(b) The diesel fuel input to the diesel generator, installed in 2002, identified as EU1/GS043, shall not exceed 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. This will result in the total amount of nitrogen oxides (NO_x) emitted from combustion of diesel fuel oil by generator (EU1/GS043) to be less than 40 tons per twelve (12) consecutive month period. EU1/GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), shall be permanently shutdown and removed from ArcelorMittal USA, Inc. (Plt ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318) prior to the operation of No. 504 Boiler in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

Emission Unit	NOx Emission Limit (lb/hp-hr)
EU1/GS043	0.0240

(c) The slag input to the eleven (11) conveyors (collectively identified as EU6), installed in 2003, shall be less than 5,848,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)
eleven (11) conveyors (collectively identified as EU6)	0.00014	0.000046

Compliance with this limitation will ensure that the potential to emit from these emission units are less than twenty-five (25) tons of PM per year and less than fifteen (15) tons of PM_{10} per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

(d) The iron ore pellets or other aggregate material input to the crusher (identified as CP007), installed in 1992 and permitted in 2009, shall not exceed 110,300 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)
Crusher (CP007)	0.00120	0.00054	0.00054

Compliance with this limitation will ensure that the potential to emit from these modifications are less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, and less than ten (10) tons of $PM_{2.5}$ per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

Generators
Pursuant to 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR):

(a) The diesel fuel input to the three (3) diesel generators, installed in 1980, identified as GS011, GS013, and GS015, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS011, GS013, and GS015	0.0022	0.0022	0.0022	0.0310

(b) The diesel fuel input to the two (2) diesel generators, installed in 1984, identified as GS020 and GS022, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS020 and GS022	0.0022	0.0022	0.0022	0.0310

(c) The diesel fuel input to the two (2) diesel generators, installed in 1988, identified as GS025 and GS026, shall be less than 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS020 and GS022	0.0022	0.0022	0.0022	0.0310

(d) The diesel fuel input to the two (2) diesel generators, installed in 1995, identified as GS031 and GS032, shall not exceed 131,528 gallons, collectively, per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS025 and GS026	0.0022	0.0022	0.0022	0.0310

(e) The combined diesel fuel input to generators, identified as GS038 and GS040 installed in 1998 and 1999 respectively, shall be limited to less than 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month until the start up operation of the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS031 and GS032	0.0022	0.0022	0.0022	0.0310

(f) After start up operation of the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc., the combined diesel fuel input to generators, GS038 and GS040 shall be less than 15,811 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS038 and GS040	0.0007	0.0007	0.0007	0.0240

(g) The diesel fuel input to the diesel generator, installed in 2000, identified as GS042, shall be less than 169,891 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS042	0.0007	0.0007	0.0007	0.0240

(h) The diesel fuel input to the diesel generator, installed in 1992 and reinstated in 2002, identified as EU1/GS033, shall be less than 138,879 gallons per 12 consecutive month period, with compliance demonstrated at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
EU1/GS033	0.0007	0.0007	0.0007	0.0240

(i) The combined diesel fuel input to the diesel generators, identified as GS045 and GS046, shall be less than 58,113 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)	NOx Emission Limit (lb/hp-hr)
GS045 and GS046	0.0022	0.0022	0.0022	0.0310

Compliance with the limitations in (a) through (d) and (g) through (i) of this Condition will ensure that the potential to emit from these modifications are less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, less than ten (10) tons of $PM_{2.5}$ per year, and less than forty (40) tons of NO_x per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable for Significant Source Modification No. 089-24137-00356.

Compliance with Condition D.3.1(e) and Condition D.3.1(f) shall likewise render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

LaFarge Plant
Pursuant to 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR):

(a) The total amount of slag processed at the LaFarge Plant shall not exceed 850,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Emission Unit	PM Emission Limit (lb/ton)	PM10 Emission Limit (lb/ton)	PM2.5 Emission Limit (lb/ton)
LaFarge Plant	0.00120	0.00054	0.00054

Compliance with this limitation will ensure that the potential to emit from this modification is less than twenty-five (25) tons of PM per year, less than fifteen (15) tons of PM_{10} per year, and less than ten (10) tons of $PM_{2.5}$ per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) are rendered not applicable.

326 IAC 2-2 (PM10, PM2.5, SO2, NO_X and CO PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR Credit Limits)

(a) The one (1) diesel-fired generator with a capacity of 1,000 KW (3.43 MMBtu/hr), identified as GS043, owned and operated by Beemsterboer Slag Corporation (Plt ID 089-00356), shall be permanently shutdown and removed from ArcelorMittal USA, Inc. (Plt ID 089-00316) and from ArcelorMittal Indiana Harbor, LLC (Plt ID 089-00318) prior to the operation of No. 504 Boiler in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR) not applicable to the No. 504 Boiler permitted in SSM No. 089-28917-00316 for ArcelorMittal USA, Inc.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of Beemsterboer Slag Corporation will emit less than 10 tons per year of a single HAP and less than 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
The source is not subject to the requirements of 326 IAC 6-3 because the plant is subject to the requirements of 326 IAC 6.8-1-2 (Lake County: PM10 Emission Requirements). Pursuant to the applicability requirements (326 IAC 6-3-1(b)), if any limitation established by this rule is inconsistent with applicable limitations contained in 326 IAC 6.8-1 (Lake County: PM10 Emission Requirements) or 326 IAC 12 (New Source Performance Standards), then the limitations contained in 326 IAC 6.8-1 or 326 IAC 12 prevail.

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 6.8-1-2 (Lake County: PM_{10} Emission Requirements)
(a) Pursuant to 326 IAC 6.8-1-2(a), the following emission units shall not exceed 0.03 gr/dscf of particulate matter less than ten microns in diameter (PM_{10}):

Particulate Matter Limitations for Lake County		Particulate Matter Limitations for Lake County	
Unit ID	PM_{10} Limit (gr/dscf)	Unit ID	PM_{10} Limit (gr/dscf)
Storage Piles	0.03	Crusher (CP005)	0.03
Truck Loading & Unloading	0.03	Conveyor Stacker (CS005)	0.03
Transporting (Road Emissions)	0.03	Conveyor Shuttle (SH005)	0.03
Feeder Box	0.03	Conveyor Shuttle (SH052)	0.03
Jaw Crusher (EU2)	0.03	Screen (SP009)	0.03
Cone Crushers (EU3 and EU4)	0.03	Conveyor Feeder (CF014)	0.03
Screens (EU5)	0.03	Conveyor Stacker (CS029)	0.03
Magnets	0.03	Conveyor Feeder (CF007)	0.03
Electromagnetic Crane	0.03	Crusher (CP007)	0.03
Conveyors (EU6)	0.03	Conveyor Feeder (CF026)	0.03
Jaw Crusher (CP016)	0.03	Conveyor Feeder (CF031)	0.03
Diesel Generator (EU1)	0.03	Conveyor Feeder (CF032),	0.03
Conveyor Shuttle (SH035)	0.03	Conveyor Stacker (CS036)	0.03
Conveyor Feeder (CF017)	0.03	Conveyor Stacker (CS038)	0.03
Conveyor Stacker (CS003)	0.03	Conveyor Stacker (CS040)	0.03
Screen (SP001)	0.03	Swing Mag (MG012)	0.03
Screen (SP002)	0.03	Conveyor Shuttle (SH040)	0.03
Conveyor Feeder (CF024)	0.03	Conveyor Shuttle (SH041)	0.03
Screen (SP005)	0.03	Conveyor Shuttle (SH042)	0.03
Conveyor Stacker (CS035)	0.03	Conveyor Shuttle (SH043)	0.03
Conveyor Stacker (CS018)	0.03	Screen (SP004)	0.03
Conveyor Stacker (CS006)	0.03	Screen (SP006)	0.03
Conveyor Stacker (CS012)	0.03	Conveyor Feeder (CF034)	0.03
Screen (SP007)	0.03	Conveyor Feeder (CF031)	0.03
Conveyor Shuttle (SH010)	0.03	Conveyor Stacker (CS039)	0.03
Conveyor Shuttle (SH013)	0.03	Conveyor Stacker (CS041)	0.03
Conveyor Feeder (CF013)	0.03	Conveyor Stacker (CS044)	0.03
Conveyor Stacker (CS028)	0.03	Conveyor Stacker (CS045)	0.03
Conveyor Shuttle (SH007)	0.03	Conveyor Shuttle (SH049)	0.03
Conveyor Shuttle (SH008)	0.03	Conveyor Feeder (CF036)	0.03
Conveyor Shuttle (SH016)	0.03	Conveyor Feeder (BH004)	0.03
Conveyor Stacker (CS033)	0.03	Conveyor Feeder (CF011)	0.03
Conveyor Stacker (CS015)	0.03	Conveyor Shuttle (SH006)	0.03

Particulate Matter Limitations for Lake County		Particulate Matter Limitations for Lake County	
Unit ID	PM_{10} Limit (gr/dscf)	Unit ID	PM_{10} Limit (gr/dscf)
Conveyor Stacker (CS026)	0.03	Conveyor Shuttle (SH011)	0.03
Conveyor Shuttle (SH001)	0.03	Conveyor Stacker (CS021)	0.03
Screen (SP003)	0.03	Conveyor Feeder (CF012)	0.03
Screen (SP008)	0.03	Conveyor Feeder (CF022)	0.03
Conveyor Feeder (CF008)	0.03	Conveyor Stacker (CS030)	0.03
Conveyor Feeder (CF009)	0.03	Conveyor Shuttle (SH012)	0.03
Conveyor Stacker (CS011)	0.03	Conveyor Feeder (CF010)	0.03
Conveyor Stacker (CS032)	0.03	Conveyor Stacker (CS023)	0.03
Screen (SP014)	0.03	Conveyor Stacker (CS025)	0.03
Crusher (CP014)	0.03	150 kW Generator (GS023)	0.03
Pugmill (PG004)	0.03	180 kW Generator (GS024)	0.03
Conveyor Shuttle (SH050)	0.03	175 kW Generator (GS025)	0.03
Conveyor Shuttle (SH051)	0.03	180 kW Generator (GS026)	0.03
Conveyor Shuttle (SH054)	0.03	40 kW Generator (GS029)	0.03
Screen (SP027)	0.03	40 kW Generator (GS030)	0.03
Conveyor Feeder (CF025)	0.03	105 kW Generator (GS031)	0.03
Conveyor Feeder (CF032),	0.03	125 kW Generator (GS032)	0.03
Crusher (CP012)	0.03	40 kW Generator (GS035)	0.03
Conveyor Stacker (CS043)	0.03	600 kW Generator (GS038)	0.03
Screen (SP033)	0.03	600 kW Generator (GS040)	0.03
Screen (SP034)	0.03	320 kW Generator (GS042)	0.03
200 kW Generator (GS004)	0.03	600 kW Generator (EU1/GS033)	0.03
155 kW Generator (GS011)	0.03	250 kW Generator (GS045)	0.03
100 kW Generator (GS013)	0.03	200 kW Generator (GS046)	0.03
105 kW Generator (GS015)	0.03	180 kW Generator (GS020)	0.03
60 kW Generator (GS016)	0.03	Storage Piles	0.03
135 kW Generator (GS017)	0.03	Truck Loading & Unloading	0.03
25 kW Generator (GS019)	0.03	Transporting (Road Emissions)	0.03
180 kW Generator (GS020)	0.03	Feed Belt (CP016)	0.03
125 kW Generator (GS022)	0.03	Jaw Crusher (CP016)	0.03
40 kW Generator (GS021)	0.03	Under Belt (CP016)	0.03

326 IAC 6.8-8-1 and 326 IAC 6.8-8-8 (Continuous Compliance Plan)

(a) Pursuant to 326 IAC 326 IAC 6.8-8-1, the Permittee shall submit to IDEM and maintain at source a copy of the Continuous Compliance Plan (CCP). The Permittee shall perform the inspections, monitoring and record keeping in accordance with the information in 326 IAC 6.8-8-5 through 326 IAC 6.8-8-7 or applicable procedures in the CCP.

(b) Pursuant to 326 IAC 6.8-8-8, the Permittee shall update the CCP, as needed, retain a copy of any changes and updates to the CCP at the source and make the updated CCP available for inspection by the department. The Permittee shall submit the updated CCP, if required to IDEM, OAQ within thirty (30) days of the update.

(c) Pursuant to 326 IAC 6.8-8, failure to submit a CCP, maintain all information required by the CCP at the source, or submit update to a CCP is a violation of 326 IAC 6.8-8.

326 IAC 6.8-10-3 (Fugitive Particulate Matter Emissions)

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

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

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

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

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

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

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

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

(h) Material processing facilities shall include the following:

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

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

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

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

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

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

(j) Material transfer limits shall be as follows:

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

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

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

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

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

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

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

326 IAC 6.8-11-1 (Lake County Particulate Matter Contingency Measures)
The source is subject to 326 IAC 6.8-11 because it is subject to the requirements of 326 IAC 6.8-10 and 326 IAC 6.8-2. Pursuant to this rule, the source shall comply with parts (h), (i), (k), (l), (m), (o), (p) and (q) of this rule.

326 IAC 7-1.1 Sulfur Dioxide Emission Limitations
This source is not subject to 326 IAC 326 IAC 7-1.1 because no emission unit has SO_2 PTE (or limited SO_2 PTE) greater than 25 tons/year or 10 pounds/hour.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC *2-7* are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC *2-7-5*. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance determination requirements applicable to this source are as follows:

326 IAC 2-2 (Particulate Control)
(a) In order to ensure compliance with Conditions D.2.1 and D.2.2, the Permittee shall apply an initial application of water or a mixture of water and wetting agent to control the PM, PM_{10} and $PM_{2.5}$ emissions from the slag crushing and sizing operations. The suppressant shall be applied in a manner and at a frequency sufficient to ensure compliance with Conditions D.2.1 and D.2.2. If weather conditions preclude the use of wet suppression, the Permittee shall perform chemical analysis on the metallurgical material to ensure it has moisture content greater than 1.5 percent of the process stream by weight. The Permittee shall submit to IDEM OAQ the method for moisture content analysis for approval.

(b) In order to ensure compliance with Conditions D.4.1 and D.4.2, the Permittee shall apply an initial application of water or a mixture of water and wetting agent to control the PM, PM_{10} and $PM_{2.5}$ emissions from the crusher and the conveyors. The suppressant shall be applied in a manner and at a frequency sufficient to ensure compliance with Conditions D.4.1 and D.4.2. If weather conditions preclude the use of wet suppression, the Permittee shall perform chemical analysis on the metallurgical material to ensure it has a moisture

content greater than 1.5 percent of the process stream by weight. The Permittee shall submit to IDEM OAQ the method for moisture content analysis for approval.

The compliance monitoring requirements applicable to this source are as follows:

Emission Unit	Parameter	Frequency	Range	Excursions and Exceedances
Feeder Box	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Screens	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Crushers	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Conveyor transfer points	Visible Emissions	Daily	Normal-Abnormal	Response Steps

These monitoring conditions are necessary to ensure compliance with avoidance limits for 326 IAC 2-2 (PSD) and 326 IAC 2-1.1-5 (Nonattainment NSR).

Recommendation

The staff recommends to the Commissioner that the Part 70 Operating Permit Renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on August 27, 2010.

Conclusion

The operation of this slag crushing and sizing operation shall be subject to the conditions of the attached Part 70 Operating Permit Renewal No. T089-29606-00356.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Teresa Freeman at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-1243 or toll free at 1-800-451-6027 extension 4-1243.

(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

Uncontrolled Emissions Summary

Company Name: Beemsterboer Slag Corp., a contractor of Mittal Steel USA Inc. - Indiana Harbor East
Address City IN Zip: 101 East 129th Street, East Chicago, Indiana 46312
Permit Number: T089-29606-00356
Reviewer: Teresa Freeman
Date: 1/10/2011

Equipment Name	PM (tpy)	PM2.5 (tpy)	PM10 (tpy)	SO2 (tpy)	NOx (tpy)	VOC (tpy)	CO (tpy)
Misc Equipment*	134.2	49.3	49.3	--	--	--	--
LaFarge Crushing Plant	616.9	37.1	179.8	--	--	--	--
Conveyor Shuttles	118.3	43.4	43.4	--	--	--	--
Conveyor Feeders	98.6	36.1	36.1	--	--	--	--
Conveyor Stackers	144.3	90.0	90.0	--	--	--	--
Screens	468.1	162.9	162.9	--	--	--	--
Crushers	36.7	16.3	16.3	--	--	--	--
Pugmill	24.6	8.6	8.6	--	--	--	--
Conveyors (11)	10.5	3.9	3.9	--	--	--	--
Storage	810.8	810.8	810.8	--	--	--	--
Material Handling	262.7	19.8	118.3	--	--	--	--
Unpaved Roads	1225.1	32.6	308.9	--	--	--	--
Generators	48.2	48.2	48.2	100.7	911.8	53.5	203.5
Total Emissions	**3999.1**	**1359.0**	**1876.5**	**100.7**	**911.8**	**53.5**	**203.5**

*Misc Equipment includes Crusher (EU2), Crusher (EU3), Crusher (EU4), Conveyors (14) (EU6), Screens (4) (EU5), Feeder Box, Magnet (2) and Crane

~~Controlled~~ Limted Emissions Summary

Equipment Name	PM (tpy)	PM2.5 (tpy)	PM10 (tpy)	SO2 (tpy)	NOx (tpy)	VOC (tpy)	CO (tpy)
Misc Equipment*	15.69	6.12	6.12	--	--	--	--
LaFarge Crushing Plant	65.40	9.06	9.55	--	--	--	--
Conveyor Shuttles	10.48	3.78	3.78	--	--	--	--
Conveyor Feeders	14.62	5.20	5.20	--	--	--	--
Conveyor Stackers	16.37	5.74	5.74	--	--	--	--
Screens	146.05	50.46	50.46	--	--	--	--
Crushers	8.15	3.67	3.67	--	--	--	--
Pugmill	2.17	0.73	0.73	--	--	--	--
Conveyors (11)	0.49	0.16	0.16	--	--	--	--
Storage	116.13	116.13	116.13	--	--	--	--
Material Handling	79.31	5.70	37.65	--	--	--	--
Unpaved Roads	177.16	4.57	45.75	--	--	--	--
Generators	35.78	35.78	35.78	54.87	553.93	40.28	130.04
Total Emissions	**687.78**	**247.11**	**320.73**	**54.87**	**553.93**	**40.28**	**130.04**

*Misc Equipment includes Crusher (EU2), Crusher (EU3), Crusher (EU4), Conveyors (14) (EU6), Screens (4) (EU5), Feeder Box, Magnet (2) and Crane

Appendix A: Emission Calculations
Fugitive Emissions From Paved and Unpaved Roads

1. Emission Factors: AP-42

According to AP-42, Chapter 13.2.1 - Paved Roads (12/03), the PM/PM10/PM2.5 emission factors for paved roads can be estimated from the following equation:

$$E = (k \times (sL/2)^{a} \times (w/3)^{b} - C) \times (1 - p/(4 \times 365))$$

where:

E =	emission factor (lb/vehicle mile traveled)		
sL (non-Winter) =	road surface silt loading (g/m^2) =	0.6	(g/m^2) (AP-42, Table 13.2.1-3)
sL (Winter) =	sL (non-Winter) x 4 (g/m^2) =	2.4	(g/m^2) (AP-42, Table 13.2.1-3)
w =	mean vehicle weight (tons) =	40.0	tons
k =	empirical constant =	0.082 for PM, 0.016 for PM10 and 0.0024 for PM2.5	
a =	empirical constant =	0.65	
b =	empirical constant =	1.5	
C =	emission factor for exhaust, brake and tire wear	0.00047 for PM and PM10 and 0.00036 for PM2.5	
p =	number of days per year with 0.01 inches precipitation	135	

PM Emission Factor (non-Winter) =	$(0.082 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**1.66**	lbs/mile
PM10 Emission Factor (non-Winter) =	$(0.016 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**0.32**	lbs/mile
PM2.5 Emission Factor (non-Winter) =	$(0.0024 \times (0.6/2)^{0.65} \times (40/3)^{1.5} - 0.00036) \times (1 - 135/1460)$ =	**0.05**	lbs/mile
PM Emission Factor (Winter) =	$(0.082 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**4.08**	lbs/mile
PM10 Emission Factor (Winter) =	$(0.016 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00047) \times (1 - 135/1460)$ =	**0.80**	lbs/mile
PM2.5 Emission Factor (Winter) =	$(0.0024 \times (2.4/2)^{0.65} \times (40/3)^{1.5} - 0.00036) \times (1 - 135/1460)$ =	**0.12**	lbs/mile

PM Emission Factor (Average Annual) = ((PM Emission Factor (non-Winter) x 9) + (PM Emission Factor (Winter) x 3))/12
PM Emission Factor (Average Annual) = **2.26** lbs/mile
PM10 Emission Factor (Average Annual) = ((PM10 Emission Factor (non-Winter) x 9) + (PM10 Emission Factor (Winter) x 3))/12
PM10 Emission Factor (Average Annual) = **0.44** lbs/mile
PM2.5 Emission Factor (Average Annual) = ((PM2.5 Emission Factor (non-Winter) x 9) + (PM2.5 Emission Factor (Winter) x 3))/12
PM2.5 Emission Factor (Average Annual) = **0.07** lbs/mile

2. Potential to Emit (PTE) of PM/PM10/PM2.5 from Paved Roads:

Vehicle Type	Ave Weight of Vehicles* (tons)	Maximum Round Trip Number* (trips/yr)	Round Trip Distance* (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)	PTE of PM2.5 (tons/yr)
Trucks	40.0	24,000	3.60	86,400	100.0%	40.00	97.7	19.05	2.85
Total				**86,400**	**100%**	**40.0**	**97.7**	**19.1**	**2.8**

* This information is provided by the source.

Methodology

Vehicle Mile Traveled (miles/yr) = Trip Number (trips/yr) x Round Trip Distance (mile/trip)
Traffic Component (%) = VMT / Total VMT
Component Vehicle Weight = Ave. Weight of Vehicles (tons) x Traffic Component (%)
PTE of PM/PM10/PM2.5 before Control (tons/yr) = VMT (miles/yr) x PM/PM10/PM2.5 Emission Factors (Average Annual) x 1 ton/2000 lbs

3. Potential to Emit (PTE) of PM/PM10/PM2.5 after Control from Paved Roads:

The source will use periodic application of water and high material moistues to control the fugitive dust emissions.
The control efficiency from the application is assumed to be 90%.

PTE of PM after Control =	97.7	tons/yr x (1-90%) =	**9.77**	**tons/yr**
PTE of PM10 after Control =	19.05	tons/yr x (1-90%) =	**1.91**	**tons/yr**
PTE of PM2.5 after Control =	2.85E+00	tons/yr x (1-90%) =	**0.28**	**tons/yr**

4. Unpaved Road Emission Factors: AP-42

According to AP-42, Section 13.2.2 Unpaved Roads, November 2006, the PM/PM10/PM2.5 emission factors for unpaved roads can be estimated from the following equation:

lbs/VMT Equation: $E = k\,(s/12)^{a}\,(W/3)^{b}\,[(365 - P)/365]$

Where:

Particle size multiplier	k	4.9	dimensionless (PM-30 or	1.5	dimensionless PM-10
		0.15	dimensionless PM-2.5		
surface material silt content (%)	s	6	Table 13.2.2-1		
mean vehicle weight	W	42.50	tons		
Equation constants	a	0.7	PM-30 or TSP Table 13.2	0.9	PM-10 Table 13.2.2-2
		0.9	PM-2.5 Table 13.2.2-3		
	b	0.45	PM-2.5 Table 13.2.2-2	0.45	PM-10 Table 13.2.2-2
		0.45	PM-30 or TSP Table 13.2.2-3		
days with at least 0.01" precipitation	P	135	Figure 13.2.2-1		

PM Emission Factor =	$(4.9) \times (6/12)^{0.7} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**6.27**	lbs/mile
PM10 Emission Factor =	$(1.5) \times (6/12)^{0.9} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**1.67**	lbs/mile
PM2.5 Emission Factor =	$(0.15) \times (6/12)^{0.9} \times (42.5/3)^{0.45}$	[(365-135)/365] =	**0.17**	lbs/mile

5. Potential to Emit (PTE) of PM/PM10 from unpaved Roads:

Vehicle Type	Ave Weight of Vehicles* (tons)	Maximum Trip Number* (trips/yr)	Round Trip Distance* (mile/trip)	Vehicle Mile Traveled (VMT) (miles/yr)	Traffic Component (%)	Component Vehicle Weight (tons)	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)	PTE of PM2.5 (tons/yr)
Trucks	40.0	24,000	2.00	48,000	69.2%	27.69	150.4	40.08	4.01
Loaders	45.0	53,333	0.40	21,333	30.8%	13.85	66.8	17.81	1.78
Total				**69,333**	**100%**	**41.5**	**217.2**	**57.9**	**5.79**

Methodology

Total Vehicle Emissions (tons/yr) = Unpaved Total VMT (miles/yr) x PM/PM10 Emission Factors x 1 ton/2000 lbs

6. Potential to Emit (PTE) of PM/PM10/PM2.5 after Control from Unpaved Roads:

The source will use periodic application of water and high material moistues to control the fugitive dust emissions.
The control efficiency from the application is assumed to be 90%.

PTE of PM after Control =	217.2	tons/yr x (1-90%) =	**21.72**	**tons/yr**
PTE of PM10 after Control =	57.89	tons/yr x (1-90%) =	**5.79**	**tons/yr**
PTE of PM2.5 after Control =	5.79E+00	tons/yr x (1-90%) =	**0.58**	**tons/yr**

Appendix A: Emission Calculations
LaFarge Crushing Plant

* * emissions before controls * *
(TSP)

Storage				**See Page 7**			5.96	tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting				**See Pages 3-5**			314.92	tons/yr	AP-42 Ch.13.2.2 (12/2003)
Loading & Unloading*	500	ton/hr x		**See Page 7**		8760 hr/yr =	15.25	tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95) calculated
Crushing (tertiary)	420	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton	8760 hr/yr =	9.93	tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Conveyor Transfer	1,734	ton/hr x	0.003	lb/ton	/ 2000 lb/ton	8760 hr/yr =	22.78	tons/yr	AP-42 Ch.11.19.2 (8/2004)
Total emissions before controls:							368.85	tons/yr	

* * emissions after controls * *

Storage	5.96	tons/yr x	0.00241	emitted after controls =		8760 hr/yr =	0.063	tons/yr	
Transporting				**See Pages 3-5**			31.49	tons/yr	
Loading & Unloading	500	tons/yr x		**See Page 7**			1.23	tons/yr	
Crushing (tertiary)	9.93	tons/yr x	0.0012	emitted after controls =		8760 hr/yr =	0.05	tons/yr	
Conveying	1,734	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton	8760 hr/yr =	1.06	tons/yr	AP-42 Ch.11.19.2 (8/2004)
Total emissions after controls:							33.91	tons/yr	

* * emissions before controls * *
PM-10

Storage				**See Page 7**			5.96	tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting				**See Pages 3-5**			76.94	tons/yr	AP-42 Ch.13.2.2 (12/2003)
Loading & Unloading*	500	ton/hr x		**See Page 7**			7.21	tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95) calculated
Crushing (tertiary)	420	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton	8760 hr/yr =	4.42	tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Conveyor Transfer	1,734	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton	8760 hr/yr =	8.35	tons/yr	AP-42 Ch.11.19.2 (8/2004)
Total emissions before controls:							102.88	tons/yr	

* * emissions after controls * *

Storage	5.96	tons/yr x	0.00241	emitted after controls =		8760 hr/yr =	0.063	tons/yr	
Transporting				**See Pages 3-5**			7.69	tons/yr	
Loading & Unloading	500	tons/yr x		**See Page 7**			0.58	tons/yr	
Crushing (tertiary)	4.42	tons/yr x	0.00054	lb/ton	/ 2000 lb/ton	8760 hr/yr =	0.002	tons/yr	AP-42 Ch.11.19.2-2 (8/04)
Conveying	1,734	ton/hr x	0.000046	lb/ton	/ 2000 lb/ton	8760 hr/yr =	0.35	tons/yr	AP-42 Ch.11.19.2 (8/2004)
Total emissions after controls:							8.69	tons/yr	

* * emissions before controls * *
PM-2.5

Storage				**See Page 7**			5.96	tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting				**See Pages 3-5**			8.63	tons/yr	AP-42 Ch.13.2.2 (12/2003)
Loading & Unloading	500	ton/hr x		**See Page 7**		8760 hr/yr =	1.09	tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95) calculated
Crushing (tertiary)	420	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton	8760 hr/yr =	4.42	tons/yr	AP-42 Ch.11.19.2-2 (8/04)
Conveyor Transfer	1,734	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton	8760 hr/yr =	8.35	tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Total emissions before controls:							28.46	tons/yr	

* * emissions after controls * *

Storage	5.96	tons/yr x	0.00241	emitted after controls =		8760 hr/yr =	0.06	tons/yr	
Transporting				**See Pages 3-5*			0.86	tons/yr	
Loading & Unloading	500	tons/yr x		**See Page 7**			0.09	tons/yr	
Crushing (tertiary)	4.42	tons/yr x	0.00010	lb/ton	/ 2000 lb/ton	8760 hr/yr =	0.0004	tons/yr	AP-42 Ch.11.19.2-2 (8/04)
Conveying	1,734	ton/hr x	0.000046	lb/ton	/ 2000 lb/ton	8760 hr/yr =	0.35	tons/yr	AP-42 Ch.11.19.2 (8/2004)
Total emissions after controls:							1.36	tons/yr	

* * storage * *

Storage emissions, which result from wind erosion, are determined by the following calculations:

Ef =	1.7*(s/1.5)*(365-p)/235*(f/15)	
=	1.85	lb of PM/acre/day
where s =	1.6	% silt content of material
p =	125	days of rain greater than or equal to 0.01 inches
f =	15	% of wind greater than or equal to 12 mph
Ep (storage) =	Ef*sc*(40 cuft/ton)/(2000 lb/ton)/(43560 sqft/acre)/(25 ft)*(365 day/yr)	
=	5.96	tons/yr
where sc =	480	,000 tons storage capacity

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1/95).

Emission Factor Ef =	k*(0.0032)* (U/5)^1.3/(M/2)^1.4		=	0.0016	lb PM/ton
where k =	0.74	particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053	=	0.0008	lb PM10/ton
U =	10	mean wind speed, m/s	=	0.0001	lb PM2.5/ton
M =	5	% material moisture content			
Uncontrolled PTE PM =	total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton)		=	15.25	tons/yr
Uncontrolled PTE PM10 =	total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton)		=	7.21	tons/yr
Uncontrolled PTE PM2.5 =	total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton)		=	1.09	tons/yr
Limited PTE PM =	total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)		=	1.23	tons/yr
Limited PTE PM10 =	total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)		=	0.58	tons/yr
Limited PTE PM2.5 =	total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)		=	0.09	tons/yr

Year: Prior to 1977

Potential Emissions (PM)

Conveyor Shuttle	SH035	425	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.58	tons/yr	1.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF017	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS003	380	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.99	tons/yr	1.14	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP001	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP002	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF024	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP005	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS035	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			21.28	tons/yr	4.86	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			56.50	tons/yr	12.90	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:									257.50	tons/yr			

Potential Emissions (PM10)

Conveyor Shuttle	SH035	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF017	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS003	380	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.83	tons/yr	0.42	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP001	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP002	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF024	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP005	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS035	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			10.06	tons/yr	2.30	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			15.06	tons/yr	3.44	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:									113.61	tons/yr			

Potential Emissions (PM2.5)

Conveyor Shuttle	SH035	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF017	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS003	380	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.83	tons/yr	0.42	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP001	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP002	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF024	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP005	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS035	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.52	tons/yr	0.35	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.51	tons/yr	0.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:									91.52	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 350 ton/hr x 8760 hr/yr = 3066000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 21.28 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 10.06 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 1.52 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

3066000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 36070.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 36070.6 deliveries/year = 18035.3 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.167 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 56.50 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 15.06 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.51 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):
Generator: GS004 200 kW TOTAL 200 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 1.88

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	2.55	2.55	2.55	2.38	36.26	2.96	7.81

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 268.2
Potential Throughput (hp-hr/yr) 2349432
Potential Diesel Usage (gal/yr) 120044

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	#####	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	2.58	2.58	2.58	2.41	36.42	2.95	7.85

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year: 1977

Potential Emissions (PM)

Conveyor Stacker	CS018	300	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.94	tons/yr	0.90	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.94	tons/yr	0.90	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.58	tons/yr	1.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			16.82	tons/yr	3.84	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			48.43	tons/yr	11.06	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									161.45	tons/yr			

Potential Emissions (PM10)

Conveyor Stacker	CS018	300	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.45	tons/yr	0.33	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.45	tons/yr	0.33	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			7.95	tons/yr	1.82	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			12.91	tons/yr	2.95	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									75.22	tons/yr			

Potential Emissions (PM2.5)

Conveyor Stacker	CS018	300	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.45	tons/yr	0.33	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.45	tons/yr	0.33	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.20	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.29	tons/yr	0.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									56.85	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 300 ton/hr x 8760 hr/yr = 2628000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 16.82 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 7.95 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 1.20 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2628000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 30917.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 30917.6 deliveries/year = 15458.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 48.43 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 12.91 TPY PM10

Year: 1977

Limited Emissions (PM)

Conveyor Stacker	CS018	300	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.37	tons/yr	0.77	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.26	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.68	tons/yr	0.38	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			4.84	tons/yr	1.11	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									14.27	tons/yr			

Limited Emissions (PM10)

Conveyor Stacker	CS018	300	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.80	tons/yr	0.18	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.29	tons/yr	0.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									6.75	tons/yr			

Limited Emissions (PM2.5)

Conveyor Stacker	CS018	300	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS006	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS012	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP007	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH010	300	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH013	425	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.13	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									4.92	tons/yr			

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 300 ton/hr x 8760 hr/yr = 2628000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.68 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.80 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.12 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2628000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 30917.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 30917.6 deliveries/year = 15458.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 4.84 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.29 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.13 TPY PM2.5

Year: 1978

Potential Emissions (PM)

Conveyor Feeder	CF013	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.61	tons/yr	0.83	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.68	tons/yr	0.84	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			12.07	tons/yr	2.76	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			44.40	tons/yr	10.14	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									107.53	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF013	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.32	tons/yr	0.30	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.35	tons/yr	0.31	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			5.71	tons/yr	1.30	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			11.83	tons/yr	2.70	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									54.42	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF013	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.32	tons/yr	0.30	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.35	tons/yr	0.31	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.18	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									38.92	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 275 ton/hr x 8760 hr/yr = 2409000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 12.07 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 5.71 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.86 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2409000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 28341.2 deliveries/year
0.25 miles/trip * 2 trips/delivery * 28341.2 deliveries/year = 14170.6 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 44.40 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 11.83 TPY PM10

Year: 1978

Limited Emissions (PM)

Conveyor Feeder	CF013	350	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.21	tons/yr	0.28	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			4.44	tons/yr	1.01	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									9.56	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF013	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.57	tons/yr	0.13	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.18	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									4.96	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF013	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS028	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH007	275	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH008	280	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH016	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									3.41	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 275 ton/hr x 8760 hr/yr = 2409000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.87 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.87 TPY PM10
Limited PTE PM2.5= Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.87 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.21 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.57 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.09 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2409000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 28341.2 deliveries/year
0.25 miles/trip * 2 trips/delivery * 28341.2 deliveries/year = 14170.6 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 4.44 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.18 TPY PM10

Year: 1979

Potential Emissions (PM)

Conveyor Stacker	CS033	375	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.93	tons/yr	1.13	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		39.08	tons/yr	8.92	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.66	tons/yr	0.61	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		60.54	tons/yr	13.82	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:								107.20	tons/yr			

Potential Emissions (PM10)

Conveyor Stacker	CS033	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		39.08	tons/yr	8.92	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.26	tons/yr	0.29	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		16.13	tons/yr	3.68	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:								58.28	tons/yr			

Potential Emissions (PM2.5)

Conveyor Stacker	CS033	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		39.08	tons/yr	8.92	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.19	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.61	tons/yr	0.37	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:								42.69	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 375 ton/hr x 8760 hr/yr = 3285000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 39.08 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 39.08 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 39.08 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton = 2.66 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton = 1.26 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton = 0.19 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2

3285000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 38647.1 deliveries/year
0.25 miles/trip * 2 trips/delivery * 38647.1 deliveries/year = 19323.5 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 60.54 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 16.13 TPY PM10

Year: 1979

Limited Emissions (PM)

Conveyor Stacker	CS033	375	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.23	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.91	tons/yr	0.89	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.27	tons/yr	0.06	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			6.05	tons/yr	1.38	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									10.46	tons/yr			

Limited Emissions (PM10)

Conveyor Stacker	CS033	375	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.91	tons/yr	0.89	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.13	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.61	tons/yr	0.37	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									5.72	tons/yr			

Limited Emissions (PM2.5)

Conveyor Stacker	CS033	375	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.91	tons/yr	0.89	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.02	tons/yr	0.00	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.16	tons/yr	1.31	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									4.16	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 375 ton/hr x 8760 hr/yr = 3285000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.91 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.91 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.91 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.27 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.13 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.02 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

3285000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 38647.1 deliveries/year
0.25 miles/trip * 2 trips/delivery * 38647.1 deliveries/year = 19323.5 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 6.05 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.61 TPY PM10

Year: 1980

Potential Emissions (PM)

Conveyor Stacker	CS015	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS026	200	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.63	tons/yr	0.60	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH001	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP003	300	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	32.85	tons/yr	7.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP008	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		13.10	tons/yr	2.99	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		32.29	tons/yr	7.37	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.65	tons/yr	1.06	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								157.83	tons/yr			

Potential Emissions (PM10)

Conveyor Stacker	CS015	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS026	200	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.96	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH001	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP003	300	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.43	tons/yr	2.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP008	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		6.20	tons/yr	1.41	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		8.60	tons/yr	1.96	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.65	tons/yr	1.06	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								70.85	tons/yr			

Potential Emissions (PM2.5)

Conveyor Stacker	CS015	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS026	200	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.96	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH001	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP003	300	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.43	tons/yr	2.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP008	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.94	tons/yr	0.21	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.65	tons/yr	1.06	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								57.84	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 200 ton/hr x 8760 hr/yr = 1752000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 13.10 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 6.20 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.94 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

1752000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 20611.8 deliveries/year
0.25 miles/trip * 2 trips/delivery * 20611.8 deliveries/year = 10305.9 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 32.29 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 8.60 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 0.86 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator:	GS011	155 kW	GS013	100 kW	GS015	105 kW	TOTAL	360 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 3.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	4.59	4.59	4.59	4.29	65.27	5.33	14.06

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	482.8
Potential Throughput (hp-hr/yr)	4228978
Potential Diesel Usage (gal/yr)	216079

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	4.65	4.65	4.65	4.33	65.55	5.32	14.12

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year:	1980														Limited Generator Diesel Usage				131,528 GPY
Limited Emissions (PM)																			
Conveyor Stacker	CS015	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Stacker	CS026	200	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Shuttle	SH001	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP003	300	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP008	350	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.37	tons/yr	0.77	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual							
Aggregate Handling						** see below **		1.31	tons/yr	0.30	lb/hr	AP-42 Ch. 13.2.4 (11/06)							
Unpaved Roads						** see below **		3.23	tons/yr	0.74	lb/hr	AP-42 Ch. 13.2.2 (11/06)							
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)							
Total PM emissions after controls:								16.45	tons/yr										
Limited Emissions (PM10)																			
Conveyor Stacker	CS015	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Stacker	CS026	200	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.04	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Shuttle	SH001	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP003	300	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP008	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual							
Aggregate Handling						** see below **		0.62	tons/yr	0.14	lb/hr	AP-42 Ch. 13.2.4 (11/06)							
Unpaved Roads						** see below **		0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)							
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)							
Total PM10 emissions after controls:								8.74	tons/yr										
Limited Emissions (PM2.5)																			
Conveyor Stacker	CS015	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Stacker	CS026	200	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.04	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Conveyor Shuttle	SH001	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP003	300	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Screen	SP008	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)							
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual							
Aggregate Handling						** see below **		0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)							
Unpaved Roads						** see below **		0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)							
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)							
Total PM2.5 emissions after controls:								7.44	tons/yr										

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 200 ton/hr x 8760 hr/yr = 1752000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.31 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.62 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.09 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

1752000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 20611.8 deliveries/year
0.25 miles/trip * 2 trips/delivery * 20611.8 deliveries/year = 10305.9 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 3.23 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.86 TPY PM10
Limited PTE PM2.5 = Miles per year * emission factor Ef (PM2.5 / 2000 lb/ton * (1-90%) = 0.09 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator:	GS011	155 kW	GS013	100 kW	GS015	105 kW	TOTAL	360 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)

Limited Capacity (hp)	293.9
Limited Throughput (hp-hr/yr)	2574194
Limited Diesel Usage (gal/yr)	131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensabl

Year: 1981

Potential Emissions (PM)

Conveyor Feeder	CF008	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.47	tons/yr	1.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		13.03	tons/yr	2.97	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		54.89	tons/yr	12.53	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								130.05	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF008	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		6.16	tons/yr	1.41	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		14.63	tons/yr	3.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								67.61	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF008	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.93	tons/yr	0.21	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.46	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								49.21	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 13.03 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 6.16 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.93 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 54.89 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 14.63 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.46 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS016 60 kW GS017 135 kW TOTAL 195 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 1.83

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	2.49	2.49	2.49	2.33	35.36	2.89	7.62

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	261.5
Potential Throughput (hp-hr/yr)	2290696
Potential Diesel Usage (gal/yr)	117043

	PM*	PM10*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	2.52	2.52	2.52	2.35	35.51	2.88	7.65

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year: 1981

Limited Emissions (PM)

Conveyor Feeder	CF008	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.30	tons/yr	0.30	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		5.49	tons/yr	1.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:								13.98	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF008	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.62	tons/yr	0.14	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.46	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:								8.51	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF008	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF009	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS011	600	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS032	340	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.15	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.52	tons/yr	0.58	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:								6.67	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.30 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.62 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.09 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 5.49 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.46 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.15 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS016 60 kW GS017 135 kW TOTAL 195 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 1.83

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.49	2.49	2.49	2.33	35.36	2.89	7.62

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 261.5
Potential Throughput (hp-hr/yr) 2290696
Potential Diesel Usage (gal/yr) 117043

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.52	2.52	2.52	2.35	35.51	2.88	7.65

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Year: 1982

Potential Emissions (PM)

Screen	SP014	200	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	21.90	tons/yr	5.00	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.42	tons/yr	0.32	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			32.29	tons/yr	7.37	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									76.45	tons/yr			

Potential Emissions (PM10)

Screen	SP014	200	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	7.62	tons/yr	1.74	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.67	tons/yr	0.15	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			8.60	tons/yr	1.96	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									37.74	tons/yr			

Potential Emissions (PM2.5)

Screen	SP014	200	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	7.62	tons/yr	1.74	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									29.43	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) =	200	ton/hr x	8760	hr/yr =	1752000	tons
Pile density (PD) =	40	cu-ft/ton				
Pile height (PH) =	25	ft				

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton

where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 1.42 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 0.67 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.10 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

1752000	tons/year ÷	42.5	tons/trip ÷	2	trips/delivery	=	20611.8	deliveries/year
0.25	miles/trip *	2	trips/delivery *	20611.8	deliveries/year	=	10305.9	miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile

where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 32.29 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 8.60 TPY PM10

Year: 1982

Limited Emissions (PM)

Screen	SP014	200	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.42	tons/yr	0.32	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			3.23	tons/yr	0.74	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									8.66	tons/yr			

Limited Emissions (PM10)

Screen	SP014	200	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.65	tons/yr	0.15	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.67	tons/yr	0.15	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									4.26	tons/yr			

Limited Emissions (PM2.5)

Screen	SP014	200	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.65	tons/yr	0.15	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									2.92	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 200 ton/hr x 8760 hr/yr = 1752000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton

where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.42 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.67 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.10 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

1752000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 20611.8 deliveries/year
0.25 miles/trip * 2 trips/delivery * 20611.8 deliveries/year = 10305.9 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile

where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 3.23 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.86 TPY PM10

Year: 1983

Potential Emissions (PM)

Conveyor Feeder	BH004	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.29	tons/yr	0.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.93	tons/yr	1.13	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.24	tons/yr	1.43	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		10.27	tons/yr	2.34	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		40.36	tons/yr	9.21	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								96.06	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	BH004	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.29	tons/yr	0.52	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		4.86	tons/yr	1.11	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		10.76	tons/yr	2.46	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								48.97	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	BH004	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.29	tons/yr	0.52	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.74	tons/yr	0.17	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.08	tons/yr	0.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								35.17	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 250 ton/hr x 8760 hr/yr = 2190000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 10.27 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 4.86 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.74 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2190000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 25764.7 deliveries/year
0.25 miles/trip * 2 trips/delivery * 25764.7 deliveries/year = 12882.4 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 40.36 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 10.76 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.08 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS019 25 kW TOTAL 25 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.23

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.32	0.32	0.32	0.30	4.53	0.37	0.98

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 33.5
Potential Throughput (hp-hr/yr) 293679
Potential Diesel Usage (gal/yr) 15005

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.32	0.32	0.32	0.30	4.55	0.37	0.98

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year: 1983

Limited Emissions (PM)

Conveyor Feeder	BH004	350	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.15	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.23	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.29	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.03	tons/yr	0.23	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		4.04	tons/yr	0.92	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:								8.88	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	BH004	350	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.49	tons/yr	0.11	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.08	tons/yr	0.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:								4.78	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	BH004	350	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF011	250	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH006	375	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH011	475	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.11	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.32	tons/yr	0.07	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:								3.40	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 250 ton/hr x 8760 hr/yr = 2190000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.(= 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.03 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.49 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.07 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2190000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 25764.7 deliveries/year
0.25 miles/trip * 2 trips/delivery * 25764.7 deliveries/year = 12882.4 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 4.04 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.08 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.11 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS019 25 kW TOTAL 25 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.23

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	0.32	0.32	0.32	0.30	4.53	0.37	0.98

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 33.5
Potential Throughput (hp-hr/yr) 293679
Potential Diesel Usage (gal/yr) 15005

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	0.32	0.32	0.32	0.30	4.55	0.37	0.98

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conde

Year: 1984

Potential Emissions (PM)

Conveyor Stacker	CS021	340	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.47	tons/yr	1.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		54.89	tons/yr	12.53	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.94	tons/yr	0.90	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								101.14	tons/yr			

Potential Emissions (PM10)

Conveyor Stacker	CS021	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.14	tons/yr	0.26	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		14.63	tons/yr	3.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.94	tons/yr	0.90	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								56.78	tons/yr			

Potential Emissions (PM2.5)

Conveyor Stacker	CS021	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.46	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.94	tons/yr	0.90	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								42.65	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 2.41 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 1.14 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.17 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 54.89 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 14.63 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.46 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS020 180 kW GS022 125 kW TOTAL 305 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 2.86

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	3.89	3.89	3.89	3.64	55.30	4.51	11.91

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 409.0
Potential Throughput (hp-hr/yr) 3582884
Potential Diesel Usage (gal/yr) 183067

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	######	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	3.94	3.94	3.94	3.67	55.53	4.50	11.97

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year:	**1984**			**Limited Generator Diesel Usage**		**131,528 GPY**
Limited Emissions (PM)						
Conveyor Stacker CS021 340 ton/hr x 0.00014 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.21 tons/yr	0.05 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage	** see below **		3.54 tons/yr	0.81 lb/hr	Air Pollution Engineering Manual
Aggregate Handling	** see below **		0.24 tons/yr	0.05 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads	** see below **		5.49 tons/yr	1.25 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)	** see below **		2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:			12.31 tons/yr		
Limited Emissions (PM10)					
Conveyor Stacker CS021 340 ton/hr x ####### lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07 tons/yr	0.02 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage	** see below **		3.54 tons/yr	0.81 lb/hr	Air Pollution Engineering Manual
Aggregate Handling	** see below **		0.11 tons/yr	0.03 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads	** see below **		1.46 tons/yr	0.33 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)	** see below **		2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:			8.02 tons/yr		
Limited Emissions (PM2.5)					
Conveyor Stacker CS021 340 ton/hr x ####### lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07 tons/yr	0.02 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage	** see below **		3.54 tons/yr	0.81 lb/hr	Air Pollution Engineering Manual
Aggregate Handling	** see below **		0.02 tons/yr	0.00 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads	** see below **		0.15 tons/yr	0.03 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)	** see below **		2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:			6.61 tons/yr		

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.24 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.11 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.02 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 5.49 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.46 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.15 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS020 180 kW GS022 125 kW TOTAL 305 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)
Limited Capacity (hp) 293.9
Limited Throughput (hp-hr/yr) 2574194
Limited Diesel Usage (gal/yr) 131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensab

Year: 1985

Potential Emissions (PM)

Conveyor Feeder	CF012	250	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.29	tons/yr	0.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.47	tons/yr	1.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.58	tons/yr	1.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		10.37	tons/yr	2.37	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		40.36	tons/yr	9.21	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								96.55	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF012	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		4.91	tons/yr	1.12	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		10.76	tons/yr	2.46	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								49.29	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF012	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		26.05	tons/yr	5.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.74	tons/yr	0.17	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.08	tons/yr	0.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								35.45	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 250 ton/hr x 8760 hr/yr = 2190000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 26.05 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.(= 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 10.37 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 4.91 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.74 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2190000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 25764.7 deliveries/year
0.25 miles/trip * 2 trips/delivery * 25764.7 deliveries/year = 12882.4 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 40.36 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 10.76 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.08 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS021 40 kW TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conc

Year: 1985

Limited Emissions (PM)

Conveyor Feeder	CF012	250	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.15	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.26	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.04	tons/yr	0.24	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		4.04	tons/yr	0.92	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:								9.09	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF012	250	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.49	tons/yr	0.11	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.08	tons/yr	0.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:								4.98	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF012	250	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF022	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS030	340	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH012	425	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		2.61	tons/yr	0.59	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.11	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:								3.60	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 250 ton/hr x 8760 hr/yr = 2190000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.61 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.04 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.49 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.07 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2190000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 25764.7 deliveries/year
0.25 miles/trip * 2 trips/delivery * 25764.7 deliveries/year = 12882.4 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 4.04 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.08 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.11 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS021 40 kW TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conde

Appendix A: Emission Calculations
1986 PTE

Year:	**1986**					
Potential Emissions (PM)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:		1.94	tons/yr			
Potential Emissions (PM10)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:		1.94	tons/yr			
Potential Emissions (PM2.5)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:		1.94	tons/yr			

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS023 150 kW

TOTAL 150 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 1.41

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	1.91	1.91	1.91	1.79	27.20	2.22	5.86

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	201.2
Potential Throughput (hp-hr/yr)	1762074
Potential Diesel Usage (gal/yr)	90033

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	1.94	1.94	1.94	1.81	27.31	2.22	5.89

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year:	**1986**					
Limited Emissions (PM)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:		1.94	tons/yr			
Limited Emissions (PM10)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:		1.94	tons/yr			
Limited Emissions (PM2.5)						
Generator(s)	** see below **	1.94	tons/yr	0.44	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:		1.94	tons/yr			

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS023 150 kW

TOTAL 150 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 1.41

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	1.91	1.91	1.91	1.79	27.20	2.22	5.86

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp) 201.2
Potential Throughput (hp-hr/yr) 1762074
Potential Diesel Usage (gal/yr) 90033

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	1.94	1.94	1.94	1.81	27.31	2.22	5.89

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conder

Year: 1987

Potential Emissions (PM)

Conveyor Feeder	CF010	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.47	tons/yr	1.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.47	tons/yr	1.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			8.00	tons/yr	1.83	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			54.89	tons/yr	12.53	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:									115.50	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF010	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			3.78	tons/yr	0.86	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			14.63	tons/yr	3.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:									61.62	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF010	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			35.43	tons/yr	8.09	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.57	tons/yr	0.13	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.46	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:									45.24	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 35.43 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 8.00 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 3.78 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.57 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 54.89 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 14.63 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.46 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS024 180 kW TOTAL 180 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 1.69

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	2.29	2.29	2.29	2.15	32.64	2.66	7.03

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 241.4
Potential Throughput (hp-hr/yr) 2114489
Potential Diesel Usage (gal/yr) 108040

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	2.33	2.33	2.33	2.17	32.77	2.66	7.06

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year: 1987

Limited Emissions (PM)

Conveyor Feeder	CF010	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.80	tons/yr	0.18	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			5.49	tons/yr	1.25	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:									12.85	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF010	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.38	tons/yr	0.09	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.46	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:									7.94	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF010	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS023	340	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS025	340	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.54	tons/yr	0.81	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.06	tons/yr	0.01	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.15	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			2.33	tons/yr	0.53	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:									6.30	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 340 ton/hr x 8760 hr/yr = 2978400 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.54 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.80 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.38 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.06 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2978400 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 35040.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 35040.0 deliveries/year = 17520.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 5.49 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.46 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.15 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS024 180 kW TOTAL 180 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 1.69

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.29	2.29	2.29	2.15	32.64	2.66	7.03

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	241.4
Potential Throughput (hp-hr/yr)	2114489
Potential Diesel Usage (gal/yr)	108040

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.33	2.33	2.33	2.17	32.77	2.66	7.06

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable

Year: 1988

Potential Emissions (PM)

Crusher	CP005	400	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	9.46	tons/yr	2.16	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS005	550	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.23	tons/yr	1.65	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH005	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH052	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		13.10	tons/yr	2.99	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		64.58	tons/yr	14.74	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.42	tons/yr	0.78	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								151.30	tons/yr			

Potential Emissions (PM10)

Crusher	CP005	400	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.20	tons/yr	0.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS005	550	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.65	tons/yr	0.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH005	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH052	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		6.20	tons/yr	1.41	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		17.21	tons/yr	3.93	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.42	tons/yr	0.78	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								79.71	tons/yr			

Potential Emissions (PM2.5)

Crusher	CP005	400	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.20	tons/yr	0.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS005	550	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.65	tons/yr	0.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH005	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH052	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.94	tons/yr	0.21	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.72	tons/yr	0.39	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		3.42	tons/yr	0.78	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								58.96	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 400 ton/hr x 8760 hr/yr = 3504000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 41.69 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 41.69 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 41.69 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.(= 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 13.10 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 6.20 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.94 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

3504000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 41223.5 deliveries/year
0.25 miles/trip * 2 trips/delivery * 41223.5 deliveries/year = 20611.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 64.58 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 17.21 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.72 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS025 175 kW GS026 90 kW TOTAL 265 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 2.49

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	3.38	3.38	3.38	3.16	48.05	3.92	10.35

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 355.4
Potential Throughput (hp-hr/yr) 3112997
Potential Diesel Usage (gal/yr) 159058

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	3.42	3.42	3.42	3.19	48.25	3.91	10.40

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conc

Year: 1988														Limited Generator Diesel Usage		131,528 GPY
Limited Emissions (PM)																
Crusher	CP005	400	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.10	tons/yr	0.48	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Stacker	CS005	550	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.34	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH005	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH052	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Storage						** see below **		4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual				
Aggregate Handling						** see below **		1.31	tons/yr	0.30	lb/hr	AP-42 Ch. 13.2.4 (11/06)				
Unpaved Roads						** see below **		6.46	tons/yr	1.47	lb/hr	AP-42 Ch. 13.2.2 (11/06)				
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)				
Total PM emissions after controls:								17.76	tons/yr							
Limited Emissions (PM10)																
Crusher	CP005	400	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Stacker	CS005	550	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.11	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH005	400	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH052	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Storage						** see below **		4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual				
Aggregate Handling						** see below **		0.62	tons/yr	0.14	lb/hr	AP-42 Ch. 13.2.4 (11/06)				
Unpaved Roads						** see below **		1.72	tons/yr	0.39	lb/hr	AP-42 Ch. 13.2.2 (11/06)				
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)				
Total PM10 emissions after controls:								10.58	tons/yr							
Limited Emissions (PM2.5)																
Crusher	CP005	400	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Stacker	CS005	550	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.11	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH005	400	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Conveyor Shuttle	SH052	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)				
Storage						** see below **		4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual				
Aggregate Handling						** see below **		0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)				
Unpaved Roads						** see below **		0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.2 (11/06)				
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)				
Total PM2.5 emissions after controls:								8.50	tons/yr							

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 400 ton/hr x 8760 hr/yr = 3504000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 4.17 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 4.17 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 4.17 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.(= 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.31 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.62 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.09 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

3504000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 41223.5 deliveries/year
0.25 miles/trip * 2 trips/delivery * 41223.5 deliveries/year = 20611.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 6.46 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.72 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.17 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS025 175 kW GS026 90 kW TOTAL 265 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)
Limited Capacity (hp) 293.9
Limited Throughput (hp-hr/yr) 2574194
Limited Diesel Usage (gal/yr) 131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	#####	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conde

Year: 1989

Potential Emissions (PM)

Screen	SP009	275	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	30.11	tons/yr	6.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.95	tons/yr	0.44	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			44.40	tons/yr	10.14	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									105.11	tons/yr			

Potential Emissions (PM10)

Screen	SP009	275	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	10.48	tons/yr	2.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.92	tons/yr	0.21	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			11.83	tons/yr	2.70	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									51.89	tons/yr			

Potential Emissions (PM2.5)

Screen	SP009	275	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	10.48	tons/yr	2.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			28.66	tons/yr	6.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.14	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.18	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									40.46	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 275 ton/hr x 8760 hr/yr = 2409000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 28.66 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 1.95 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 0.92 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.14 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

2409000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 28341.2 deliveries/year
0.25 miles/trip * 2 trips/delivery * 28341.2 deliveries/year = 14170.6 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 44.40 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 11.83 TPY PM10

Year: 1989

Limited Emissions (PM)

Screen	SP009	275	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.65	tons/yr	0.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.19	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			4.44	tons/yr	1.01	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									10.15	tons/yr			

Limited Emissions (PM10)

Screen	SP009	275	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.89	tons/yr	0.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.18	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									5.03	tons/yr			

Limited Emissions (PM2.5)

Screen	SP009	275	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.89	tons/yr	0.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.87	tons/yr	0.65	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.01	tons/yr	0.00	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									3.89	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) =	275	ton/hr x	8760	hr/yr =	2409000 tons
Pile density (PD) =	40	cu-ft/ton			
Pile height (PH) =	25	ft			

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s =	1.6	% silt content of material
p =	135	days of rain greater than or equal to 0.01 inches
f =	15	% of wind greater than or equal to 12 mph

Limited PTE PM =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	2.87 TPY PM
Limited PTE PM10 =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	2.87 TPY PM10
Limited PTE PM2.5 =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	2.87 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton

where k =	0.74	particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05	=	0.0008 lb PM10/ton
U =	10	mean wind speed, m/s	=	0.0001 lb PM10/ton
M =	5	% material moisture content		

Limited PTE PM =	total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.19 tons/yr
Limited PTE PM10 =	total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.09 tons/yr
Limited PTE PM2.5 =	total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.01 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

2409000	tons/year ÷	42.5	tons/trip ÷	2	trips/delivery	=	28341.2	deliveries/year
0.25	miles/trip *	2	trips/delivery *	28341.2	deliveries/year	=	14170.6	miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile

where k =	4.9	particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15	=	1.67 lb PM10/mile
s =	6	mean % silt content of unpaved roads	=	0.17 lb PM2.5/mile
a=	0.7	constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9		
W =	42.5	tons average vehicle weight		
b =	0.45	constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45		
P =	135	days of rain greater than or equal to 0.01 inches		

Limited PTE PM =	Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%)	=	4.44 TPY PM
Limited PTE PM10 =	Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%)	=	1.18 TPY PM10

Year: 1990

Potential Emissions (PM)

Conveyor Feeder	CF014	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.60	tons/yr	1.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			4.96	tons/yr	1.13	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			56.50	tons/yr	12.90	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									107.13	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF014	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			2.34	tons/yr	0.54	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			15.06	tons/yr	3.44	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									57.25	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF014	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.69	tons/yr	0.39	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.35	tons/yr	0.08	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.51	tons/yr	0.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									41.71	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 350 ton/hr x 8760 hr/yr = 3066000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 4.96 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 2.34 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.35 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

3066000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 36070.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 36070.6 deliveries/year = 18035.3 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 56.50 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 15.06 TPY PM10

Year: 1990

Limited Emissions (PM)

Conveyor Feeder	CF014	350	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.21	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.65	tons/yr	0.83	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.50	tons/yr	0.11	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			5.65	tons/yr	1.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									10.22	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF014	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.65	tons/yr	0.83	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.23	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.51	tons/yr	0.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									5.53	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF014	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS029	350	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.07	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			3.65	tons/yr	0.83	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.04	tons/yr	0.01	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.15	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									3.97	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 350 ton/hr x 8760 hr/yr = 3066000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.50 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.23 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.04 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

3066000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 36070.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 36070.6 deliveries/year = 18035.3 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 5.65 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.51 TPY PM10

Year: 1991

Potential Emissions (PM)

Conveyor Feeder	CF007	400	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.26	tons/yr	1.20	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			64.58	tons/yr	14.74	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									114.35	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF007	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.34	tons/yr	0.31	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			17.21	tons/yr	3.93	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									62.16	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF007	400	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.93	tons/yr	0.44	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			41.69	tons/yr	9.52	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.20	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.72	tons/yr	0.39	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									45.54	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) =	400	ton/hr x	8760	hr/yr =	3504000 tons
Pile density (PD) =	40	cu-ft/ton			
Pile height (PH) =	25	ft			

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 41.69 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 41.69 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year = 41.69 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton

where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton = 2.83 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton = 1.34 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton = 0.20 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2

3504000	tons/year ÷	42.5	tons/trip ÷	2	trips/delivery	=	41223.5	deliveries/year
0.25	miles/trip *	2	trips/delivery *	41223.5	deliveries/year	=	20611.8	miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile

where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 64.58 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 17.21 TPY PM10

Year: 1991

Limited Emissions (PM)

Conveyor Feeder	CF007	400	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			6.46	tons/yr	1.47	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									11.15	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF007	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.13	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			1.72	tons/yr	0.39	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									6.10	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF007	400	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			4.17	tons/yr	0.95	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.02	tons/yr	0.00	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									4.44	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) =	400	ton/hr x	8760	hr/yr =	3504000 tons
Pile density (PD) =	40	cu-ft/ton			
Pile height (PH) =	25	ft			

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s =	1.6	% silt content of material
p =	135	days of rain greater than or equal to 0.01 inches
f =	15	% of wind greater than or equal to 12 mph

Limited PTE PM =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	4.17 TPY PM
Limited PTE PM10 =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	4.17 TPY PM10
Limited PTE PM2.5 =	Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%)	=	4.17 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4

where k =	0.74	particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053	=	0.0016 lb PM/ton
U =	10	mean wind speed, m/s	=	0.0008 lb PM10/ton
M =	5	% material moisture content	=	0.0001 lb PM2.5/ton

Limited PTE PM =	total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.28 tons/yr
Limited PTE PM10 =	total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.13 tons/yr
Limited PTE PM2.5 =	total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%)	=	0.02 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

3504000	tons/year ÷	42.5	tons/trip ÷	2	trips/delivery	=	41223.5 deliveries/year
0.25	miles/trip *	2	trips/delivery *	41223.5	deliveries/year	=	20611.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365]

where k =	4.9	particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15	=	6.27 lb PM/mile
s =	6	mean % silt content of unpaved roads	=	1.67 lb PM10/mile
a=	0.7	constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9	=	0.17 lb PM2.5/mile
W =	42.5	tons average vehicle weight		
b =	0.45	constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45		
P =	135	days of rain greater than or equal to 0.01 inches		

Limited PTE PM =	Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%)	=	6.46 TPY PM
Limited PTE PM10 =	Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%)	=	1.72 TPY PM10

Year: 1992

Potential Emissions (PM)

Crusher	CP007	400	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	9.46	tons/yr	2.16	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU2	495	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.71	tons/yr	2.67	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	15.85	tons/yr	3.62	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.15	tons/yr	1.40	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	10.51	tons/yr	2.40	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	87.60	tons/yr	20.00	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		27.10	tons/yr	6.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		37.00	tons/yr	8.45	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		41.97	tons/yr	9.58	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.98	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM emissions before controls								250.33	tons/yr			

Potential Emissions (PM10)

Crusher	CP007	400	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.20	tons/yr	0.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU2	495	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.20	tons/yr	1.19	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.04	tons/yr	1.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.73	tons/yr	0.62	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	30.48	tons/yr	6.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		27.10	tons/yr	6.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		17.50	tons/yr	4.00	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		11.19	tons/yr	2.55	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.98	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM10 emissions before controls								112.29	tons/yr			

Potential Emissions (PM2.5)

Crusher	CP007	400	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.20	tons/yr	0.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU2	495	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.20	tons/yr	1.19	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.04	tons/yr	1.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.73	tons/yr	0.62	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	30.48	tons/yr	6.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		27.10	tons/yr	6.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.65	tons/yr	0.60	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.12	tons/yr	0.26	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.98	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM2.5 emissions before controls								87.37	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 260 ton/hr x 8760 hr/yr = 2277600 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 27.10 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 27.10 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 27.10 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 37.00 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 17.50 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 2.65 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2277600 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 26795.3 deliveries/year
0.25 miles/trip * 2 trips/delivery * 26795.3 deliveries/year = 13397.6 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 41.97 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 11.19 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.12 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):
Generator: GS029 40 kW TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 53.6
Potential Throughput (hp-hr/yr) 469886
Potential Diesel Usage (gal/yr) 24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):
Generator: EU1 / GS033 600 kW TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 5.63

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Potential Emission in tons/yr	2.47	2.47	2.47	12.46	78.94	2.22	20.97

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 804.6
Potential Throughput (hp-hr/yr) 7048296
Potential Diesel Usage (gal/yr) 360132

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	#######	0.0055
Potential Emission in tons/yr	2.47	2.47	2.47	14.26	84.58	2.48	19.38
Total Potential Emission	**2.98**	**2.98**	**2.98**	**14.74**	**91.86**	**3.08**	**22.54**

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conden

Year:	1992	Limited Pile Capacity				731,308	TPY	Limited Generator Diesel Usage				138,879 GPY
Limited Emissions (PM)												
Crusher	EU2	495	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.60	tons/yr	0.59	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.52	tons/yr	0.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.37	tons/yr	0.31	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.49	tons/yr	0.11	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.00220	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.71	tons/yr	1.76	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		1.45	tons/yr	0.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		34.16	tons/yr	7.80	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.35	tons/yr	0.31	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM emissions after controls:								53.60	tons/yr			
Limited Emissions (PM10)												
Crusher	EU2	495	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.17	tons/yr	0.27	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.58	tons/yr	0.36	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.61	tons/yr	0.14	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	0.00005	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.16	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.59	tons/yr	0.59	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		1.45	tons/yr	0.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		16.16	tons/yr	3.69	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.36	tons/yr	0.08	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM10 emissions after controls:								25.04	tons/yr			
Limited Emissions (PM2.5)												
Crusher	EU2	495	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.17	tons/yr	0.27	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU3	670	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.58	tons/yr	0.36	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	EU4	260	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.61	tons/yr	0.14	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyors (14)	EU6	800	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.16	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen (4)	EU5	800	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.59	tons/yr	0.59	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Feeder Box	---	800	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Magnets (2)	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Crane	---	500	ton/hr x	0.0000	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Storage						** see below **		1.45	tons/yr	0.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.45	tons/yr	0.56	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.04	tons/yr	0.01	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)
Total PM2.5 emissions after controls:								11.01	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 731308 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 2.96 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 25 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 1.45 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 1.45 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 1.45 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 34.16 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 16.16 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 2.45 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

731308 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 8603.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 8603.6 deliveries/year = 4301.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 1.35 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.36 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.04 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: EU1 / GS033 600 kW TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.17

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Limited Emission in tons/yr	0.95	0.95	0.95	4.80	30.44	0.86	8.09

B. Emissions calculated based on output rating (hp)

Limited Capacity (hp)	310.3
Limited Throughput (hp-hr/yr)	2718063
Limited Diesel Usage (gal/yr)	138879

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	7.05E-04	0.0055
Limited Emission in tons/yr	0.95	0.95	0.95	5.50	32.62	0.96	7.47

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Year:	**1992**	**Limited Pile Capacity**	**110,300**	**TPY**							
Limited Emissions (PM)											
Crusher	CP007	400 ton/hr x	0.00120 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.10	tons/yr	0.48	lb/hr	AP-42 Ch. 11.19.2 (8/04)	
Storage				** see below **		0.22	tons/yr	0.05	lb/hr	Air Pollution Engineering Manual	
Aggregate Handling				** see below **		0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 13.2.4 (11/06)	
Unpaved Roads				** see below **		0.20	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.2 (11/06)	
Generator(s)				** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)	
Total PM emissions after controls:						3.32	tons/yr				
Limited Emissions (PM10)											
Crusher	CP007	400 ton/hr x	0.00054 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)	
Storage				** see below **		0.22	tons/yr	0.05	lb/hr	Air Pollution Engineering Manual	
Aggregate Handling				** see below **		0.13	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)	
Unpaved Roads				** see below **		0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 13.2.2 (11/06)	
Generator(s)				** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)	
Total PM10 emissions after controls:						1.87	tons/yr				
Limited Emissions (PM2.5)											
Crusher	CP007	400 ton/hr x	0.00054 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.95	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)	
Storage				** see below **		0.22	tons/yr	0.05	lb/hr	Air Pollution Engineering Manual	
Aggregate Handling				** see below **		0.02	tons/yr	0.00	lb/hr	AP-42 Ch. 13.2.4 (11/06)	
Unpaved Roads				** see below **		0.01	tons/yr	0.00	lb/hr	AP-42 Ch. 13.2.2 (11/06)	
Generator(s)				** see below **		0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4, 3.4.4 (10/96)	
Total PM2.5 emissions after controls:						1.71	tons/yr				

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 110300 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 2.96 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 25 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 0.22 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 0.22 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 0.22 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.28 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.13 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.02 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

110300 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 1297.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 1297.6 deliveries/year = 648.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 0.20 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.05 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.01 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS029 40 kW — TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	######	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year: 1993

Potential Emissions (PM)

Conveyor Feeder	CF026	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	11.90	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			3.54	tons/yr	0.81	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			80.72	tons/yr	18.43	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									142.94	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF026	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	11.90	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.67	tons/yr	0.38	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			21.51	tons/yr	4.91	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									77.70	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF026	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	11.90	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			2.15	tons/yr	0.49	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5emissions before controls:									56.92	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 500 ton/hr x 8760 hr/yr = 4380000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day

where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton

where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.053 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 3.54 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 1.67 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.25 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

4380000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 51529.4 deliveries/year
0.25 miles/trip * 2 trips/delivery * 51529.4 deliveries/year = 25764.7 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile

where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 80.72 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 21.51 TPY PM10

Year: 1993

Limited Emissions (PM)

Conveyor Feeder	CF026	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.35	tons/yr	0.08	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			8.07	tons/yr	1.84	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									13.94	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF026	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.17	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			2.15	tons/yr	0.49	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									7.63	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF026	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.03	tons/yr	0.01	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.22	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									5.55	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992)

Pile capacity (PC) = 500 ton/hr x 8760 hr/yr = 4380000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1)

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.35 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.17 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.03 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2)

4380000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 51529.4 deliveries/year
0.25 miles/trip * 2 trips/delivery * 51529.4 deliveries/year = 25764.7 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 8.07 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 2.15 TPY PM10

Year:	**1994**				
Potential Emissions (PM)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:		0.52	tons/yr		
Potential Emissions (PM10)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:		0.52	tons/yr		
Potential Emissions (PM2.5)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5emissions before controls:		0.52	tons/yr		

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS030 40 kW

TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Appendix A: Emission Calculations
1994 Limited

Year:	**1994**				
Limited Emissions (PM)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:		0.52	tons/yr		
Limited Emissions (PM10)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:		0.52	tons/yr		
Limited Emissions (PM2.5)					
Generator(s)	** see below **	0.52	tons/yr	0.12 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:		0.52	tons/yr		

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS030 40 kW

TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Potential Througput (hp-hr/yr) = hp * 8760 hr/yr

Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conder

Year: 1995

Potential Emissions (PM)

Conveyor Feeder	CF031	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF032	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS036	250	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.29	tons/yr	0.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS038	550	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.23	tons/yr	1.65	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS040	375	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.93	tons/yr	1.13	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Conveyor Shuttle	SH040	425	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.58	tons/yr	1.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH041	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH042	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH043	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP004	300	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	32.85	tons/yr	7.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP006	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		34.70	tons/yr	7.92	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		32.29	tons/yr	7.37	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.97	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls								215.19	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF031	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF032	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS036	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS038	550	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.65	tons/yr	0.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS040	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Conveyor Shuttle	SH040	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH041	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH042	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH043	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP004	300	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.43	tons/yr	2.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP006	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		16.41	tons/yr	3.75	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		8.60	tons/yr	1.96	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.97	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls								93.11	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF031	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Feeder	CF032	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS036	250	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.20	tons/yr	0.28	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS038	550	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.65	tons/yr	0.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS040	375	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.81	tons/yr	0.41	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr	
Conveyor Shuttle	SH040	425	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.05	tons/yr	0.47	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH041	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH042	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH043	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP004	300	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.43	tons/yr	2.61	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP006	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		20.84	tons/yr	4.76	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.48	tons/yr	0.57	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.97	tons/yr	0.68	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls								71.44	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992

Pile capacity (PC) = 200 ton/hr x 8760 hr/yr = 1752000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 20.84 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton = 34.70 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton = 16.41 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton = 2.48 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a

1752000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 20611.8 deliveries/year
0.25 miles/trip * 2 trips/delivery * 20611.8 deliveries/year = 10305.9 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 32.29 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 8.60 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 0.86 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96

Generator: GS031 105 kW GS032 125 kW TOTAL 230 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 2.16

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	2.93	2.93	2.93	2.74	41.70	3.40	8.98

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 308.4
Potential Throughput (hp-hr/yr) 2701847
Potential Diesel Usage (gal/yr) 138051

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	2.97	2.97	2.97	2.77	41.88	3.40	9.02

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year:	**1995**																	
												Limited Generator Diesel Usage						**131,528 GPY**
Limited Emissions (PM)																		
Conveyor Feeder	CF031	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Feeder	CF032	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS036	250	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.15	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS038	550	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.34	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS040	375	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.23	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr							
Conveyor Shuttle	SH040	425	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.26	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH041	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH042	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH043	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP004	300	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP006	350	ton/hr x	0.0022	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.37	tons/yr	0.77	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		3.47	tons/yr	0.79	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		3.23	tons/yr	0.74	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)						
Total PM emissions after controls								20.36	tons/yr									
Limited Emissions (PM10)																		
Conveyor Feeder	CF031	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Feeder	CF032	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS036	250	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS038	550	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.11	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS040	375	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr							
Conveyor Shuttle	SH040	425	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH041	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH042	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH043	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP004	300	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP006	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		1.64	tons/yr	0.37	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		0.86	tons/yr	0.20	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)						
Total PM10 emissions after controls								10.34	tons/yr									
Limited Emissions (PM2.5)																		
Conveyor Feeder	CF031	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Feeder	CF032	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS036	250	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.05	tons/yr	0.01	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS038	550	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.11	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS040	375	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.08	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Swing Mag	MG012	200	ton/hr x	0.00	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00	tons/yr	0.00	lb/hr							
Conveyor Shuttle	SH040	425	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH041	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH042	450	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Shuttle	SH043	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP004	300	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP006	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		2.08	tons/yr	0.48	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		0.25	tons/yr	0.06	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		2.83	tons/yr	0.65	lb/hr	AP-42 Ch. 3.3.4 (10/96)						
Total PM2.5emissions after controls								8.17	tons/yr									

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992

Pile capacity (PC) = 200 ton/hr x 8760 hr/yr = 1752000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.08 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90% = 3.47 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90% = 1.64 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90% = 0.25 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2

1752000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 20611.8 deliveries/year
0.25 miles/trip * 2 trips/delivery * 20611.8 deliveries/year = 10305.9 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 3.23 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.86 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.09 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96

Generator: GS031 105 kW GS032 125 kW TOTAL 230 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)
Limited Capacity (hp) 293.9
Limited Throughput (hp-hr/yr) 2574194
Limited Diesel Usage (gal/yr) 131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Year: 1996

Potential Emissions (PM)

Conveyor Feeder	CF034	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	7.88	tons/yr	1.80	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	11.83	tons/yr	2.70	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	11.83	tons/yr	2.70	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	10.51	tons/yr	2.40	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	#####	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			22.66	tons/yr	5.17	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			80.72	tons/yr	#####	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									211.99	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF034	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.34	tons/yr	0.99	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.34	tons/yr	0.99	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	#####	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			10.72	tons/yr	2.45	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			21.51	tons/yr	4.91	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									105.05	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF034	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.89	tons/yr	0.66	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.34	tons/yr	0.99	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.34	tons/yr	0.99	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			52.11	tons/yr	#####	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.62	tons/yr	0.37	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			2.15	tons/yr	0.49	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									76.60	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 500 ton/hr x 8760 hr/yr = 4380000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 52.11 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 22.66 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 10.72 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 1.62 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

4380000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 51529.4 deliveries/year
0.25 miles/trip * 2 trips/delivery * 51529.4 deliveries/year = 25764.7 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 80.72 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 21.51 TPY PM10

Year: 1996

Limited Emissions (PM)

Conveyor Feeder	CF034	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.37	tons/yr	0.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.55	tons/yr	0.13	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.55	tons/yr	0.13	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.49	tons/yr	0.11	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			3.04	tons/yr	0.70	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			8.07	tons/yr	1.84	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									18.96	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF034	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.16	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.44	tons/yr	0.33	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			2.15	tons/yr	0.49	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									9.67	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF034	500	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS039	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS041	600	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.12	tons/yr	0.03	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS044	900	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS045	900	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH049	800	ton/hr x	4.60E-05	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.16	tons/yr	0.04	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			5.21	tons/yr	1.19	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.22	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.22	tons/yr	0.05	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									6.51	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 500 ton/hr x 8760 hr/yr = 4380000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 5.21 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 3.04 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.44 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.22 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

4380000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 51529.4 deliveries/year
0.25 miles/trip * 2 trips/delivery * 51529.4 deliveries/year = 25764.7 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 8.07 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 2.15 TPY PM10

Year: 1997

Potential Emissions (PM)

Conveyor Feeder	CF036	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	10.64	tons/yr	2.43	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	24.64	tons/yr	5.63	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	5.91	tons/yr	1.35	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			23.45	tons/yr	5.35	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			20.71	tons/yr	4.73	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			36.32	tons/yr	8.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:									179.57	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF036	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.73	tons/yr	1.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	8.57	tons/yr	1.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			23.45	tons/yr	5.35	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			9.80	tons/yr	2.24	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			9.68	tons/yr	2.21	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:									79.24	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF036	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	4.73	tons/yr	1.08	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	8.57	tons/yr	1.96	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			23.45	tons/yr	5.35	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			1.48	tons/yr	0.34	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:									62.21	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 225 ton/hr x 8760 hr/yr = 1971000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 23.45 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 23.45 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 23.45 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 20.71 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 9.80 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 1.48 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

1971000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 23188.2 deliveries/year
0.25 miles/trip * 2 trips/delivery * 23188.2 deliveries/year = 11594.1 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 36.32 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 9.68 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 0.97 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS035 40 kW TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	53.6
Potential Throughput (hp-hr/yr)	469886
Potential Diesel Usage (gal/yr)	24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is cond

Year: 1997

Limited Emissions (PM)

Conveyor Feeder	CF036	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.37	tons/yr	0.54	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.00220	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	2.17	tons/yr	0.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.28	tons/yr	0.06	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.00220	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.37	tons/yr	0.77	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.34	tons/yr	0.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			2.07	tons/yr	0.47	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			3.63	tons/yr	0.83	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:									17.64	tons/yr			

Limited Emissions (PM10)

Conveyor Feeder	CF036	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.06	tons/yr	0.24	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.73	tons/yr	0.17	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.34	tons/yr	0.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.98	tons/yr	0.22	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.97	tons/yr	0.22	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:									8.12	tons/yr			

Limited Emissions (PM2.5)

Conveyor Feeder	CF036	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP014	450	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.06	tons/yr	0.24	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Pugmill	PG004	225	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.73	tons/yr	0.17	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH050	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH051	450	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.09	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Shuttle	SH054	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP027	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.13	tons/yr	0.26	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			2.34	tons/yr	0.54	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.15	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **			0.52	tons/yr	0.12	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:									6.42	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 225 ton/hr x 8760 hr/yr = 1971000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.34 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.34 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 2.34 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.05 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 2.07 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.98 tons/yr
Limited PTE PM2.5= total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.15 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

1971000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 23188.2 deliveries/year
0.25 miles/trip * 2 trips/delivery * 23188.2 deliveries/year = 11594.1 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 3.63 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 0.97 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.10 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):
Generator: GS035 40 kW TOTAL 40 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 0.38

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	0.51	0.51	0.51	0.48	7.25	0.59	1.56

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 53.6
Potential Throughput (hp-hr/yr) 469886
Potential Diesel Usage (gal/yr) 24009

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	0.52	0.52	0.52	0.48	7.28	0.59	1.57

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensal

Year:	**1998**					
Potential Emissions (PM)						
Generator(s)	** see below **	2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM emissions before controls:		2.47	tons/yr			
Potential Emissions (PM10)						
Generator(s)	** see below **	2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM10 emissions before controls:		2.47	tons/yr			
Potential Emissions (PM2.5)						
Generator(s)	** see below **	2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM2.5 emissions before controls:		2.47	tons/yr			

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS038 600 kW

TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 5.63

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Potential Emission in tons/yr	2.47	2.47	2.47	12.46	78.94	2.22	20.97

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	804.6
Potential Throughput (hp-hr/yr)	7048296
Potential Diesel Usage (gal/yr)	360132

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	7.05E-04	0.0055
Potential Emission in tons/yr	2.47	2.47	2.47	14.26	84.58	2.48	19.38

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year:	**1998**		**Limited Generator Diesel Usage**		**169,891 GPY**
Limited Emissions (PM)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM emissions after controls:		1.16 tons/yr			
Limited Emissions (PM10)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM10 emissions after controls:		1.16 tons/yr			
Limited Emissions (PM2.5)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM2.5 emissions after controls:		1.16 tons/yr			

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS038 600 kW

TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Limited Capacity (MMBtu/hr) 2.66

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Limited Emissions in tons/yr	1.16	1.16	1.16	5.88	37.24	1.05	9.89

B. Emissions calculated based on output rating (hp)

Limited Capacity (hp)	379.6
Limited Throughput (hp-hr/yr)	3325000
Limited Diesel Usage (gal/yr)	169891

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	#######	0.0055
Limited Emissions in tons/yr	1.16	1.16	1.16	6.72	39.90	1.17	9.14

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensa

Year: 1999

Potential Emissions (PM)

Conveyor Feeder	CF025	500	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.57	tons/yr	1.50	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP012	300	ton/hr x	0.0054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.10	tons/yr	1.62	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS043	1,000	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.14	tons/yr	3.00	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP033	400	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	43.80	tons/yr	10.00	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		15.58	tons/yr	3.56	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		48.43	tons/yr	11.06	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM emissions before controls:								168.35	tons/yr			

Potential Emissions (PM10)

Conveyor Feeder	CF025	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP012	300	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.15	tons/yr	0.72	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS043	1,000	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	38.11	tons/yr	8.70	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP033	400	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	15.24	tons/yr	3.48	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		7.37	tons/yr	1.68	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		12.91	tons/yr	2.95	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM10 emissions before controls:								112.92	tons/yr			

Potential Emissions (PM2.5)

Conveyor Feeder	CF025	500	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.41	tons/yr	0.55	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Crusher	CP012	300	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.15	tons/yr	0.72	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Conveyor Stacker	CS043	1,000	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	38.11	tons/yr	8.70	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Screen	SP033	400	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	15.24	tons/yr	3.48	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		31.26	tons/yr	7.14	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.12	tons/yr	0.25	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.29	tons/yr	0.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.47	tons/yr	0.56	lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM2.5 emissions before controls:								95.05	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 300 ton/hr x 8760 hr/yr = 2628000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 31.26 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.0 = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 15.58 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 7.37 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 1.12 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

2628000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 30917.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 30917.6 deliveries/year = 15458.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 48.43 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 12.91 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.29 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS040 600 kW TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 5.63

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Potential Emission in tons/yr	2.47	2.47	2.47	12.46	78.94	2.22	20.97

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 804.6
Potential Throughput (hp-hr/yr) 7048296
Potential Diesel Usage (gal/yr) 360132

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	#######	0.0055
Potential Emission in tons/yr	2.47	2.47	2.47	14.26	84.58	2.48	19.38

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensal

Year:	1999													Limited Generator Diesel Usage				169,891 GPY
Limited Emissions (PM)																		
Conveyor Feeder	CF025	500	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.31	tons/yr	0.07	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Crusher	CP012	300	ton/hr x	0.00120	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.58	tons/yr	0.36	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS043	1,000	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.61	tons/yr	0.14	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP033	400	ton/hr x	0.00220	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		1.56	tons/yr	0.36	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		4.84	tons/yr	1.11	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		1.16	tons/yr	0.27	lb/hr	AP-42 Ch. 3.4.4 (10/96)						
Total PM emissions after controls:								17.04	tons/yr									
Limited Emissions (PM10)																		
Conveyor Feeder	CF025	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Crusher	CP012	300	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.71	tons/yr	0.16	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS043	1,000	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.20	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP033	400	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.30	tons/yr	0.30	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		0.74	tons/yr	0.17	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		1.29	tons/yr	0.29	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		1.16	tons/yr	0.27	lb/hr	AP-42 Ch. 3.4.4 (10/96)						
Total PM10 emissions after controls:								8.63	tons/yr									
Limited Emissions (PM2.5)																		
Conveyor Feeder	CF025	500	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.10	tons/yr	0.02	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Crusher	CP012	300	ton/hr x	0.00054	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.71	tons/yr	0.16	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Conveyor Stacker	CS043	1,000	ton/hr x	#######	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.20	tons/yr	0.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Screen	SP033	400	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.30	tons/yr	0.30	lb/hr	AP-42 Ch. 11.19.2 (8/04)						
Storage						** see below **		3.13	tons/yr	0.71	lb/hr	Air Pollution Engineering Manual						
Aggregate Handling						** see below **		0.11	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.4 (11/06)						
Unpaved Roads						** see below **		0.13	tons/yr	0.03	lb/hr	AP-42 Ch. 13.2.2 (11/06)						
Generator(s)						** see below **		1.16	tons/yr	0.27	lb/hr	AP-42 Ch. 3.4.4 (10/96)						
Total PM2.5 emissions after controls:								6.84	tons/yr									

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 300 ton/hr x 8760 hr/yr = 2628000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.13 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5=0.(= 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 1.56 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.74 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.11 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

2628000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 30917.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 30917.6 deliveries/year = 15458.8 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 4.84 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.29 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.13 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS040 600 kW TOTAL 600 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.66

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Limited Emissions in tons/yr	1.16	1.16	1.16	5.88	37.24	1.05	9.89

B. Emissions calculated based on output rating (hp)
Limited Capacity (hp) 379.6
Limited Throughput (hp-hr/yr) 3325000
Limited Diesel Usage (gal/yr) 169891

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	#######	0.0055
Limited Emissions in tons/yr	1.16	1.16	1.16	6.72	39.90	1.17	9.14

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensal

Year: 2000

Potential Emissions (PM)												
Screen	SP034	350	ton/hr x	0.0250	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	38.33	tons/yr	8.75	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		2.48	tons/yr	0.57	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		56.50	tons/yr	12.90	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.14	tons/yr	0.94	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:								137.92	tons/yr			
Potential Emissions (PM10)												
Screen	SP034	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		1.17	tons/yr	0.27	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		15.06	tons/yr	3.44	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.14	tons/yr	0.94	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:								70.18	tons/yr			
Potential Emissions (PM2.5)												
Screen	SP034	350	ton/hr x	0.0087	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	13.34	tons/yr	3.05	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		36.48	tons/yr	8.33	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.18	tons/yr	0.04	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.51	tons/yr	0.34	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		4.14	tons/yr	0.94	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:								55.63	tons/yr			

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 350 ton/hr x 8760 hr/yr = 3066000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 36.48 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 2.48 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 1.17 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.18 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

3066000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 36070.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 36070.6 deliveries/year = 18035.3 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 56.50 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 15.06 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 1.51 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS042 320 kW TOTAL 320 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Potential Capacity (MMBtu/hr) 3.00

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	4.08	4.08	4.08	3.82	58.02	4.74	12.50

B. Emissions calculated based on output rating (hp)
Potential Capacity (hp) 429.1
Potential Throughput (hp-hr/yr) 3759091
Potential Diesel Usage (gal/yr) 192070

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	4.14	4.14	4.14	3.85	58.27	4.73	12.56

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)
Potential Througput (hp-hr/yr) = hp * 8760 hr/yr
Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conde

Year:	**2000**						**Limited Generator Diesel Usage**				**131,528 GPY**
Limited Emissions (PM)											
Screen	SP034	350	ton/hr x	0.00220	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.37	tons/yr	0.77 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.65	tons/yr	0.83 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.25	tons/yr	0.06 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		5.65	tons/yr	1.29 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.83	tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:								15.75	tons/yr		
Limited Emissions (PM10)											
Screen	SP034	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.65	tons/yr	0.83 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.12	tons/yr	0.03 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		1.51	tons/yr	0.34 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.83	tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:								9.24	tons/yr		
Limited Emissions (PM2.5)											
Screen	SP034	350	ton/hr x	0.00074	lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.13	tons/yr	0.26 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **		3.65	tons/yr	0.83 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **		0.02	tons/yr	0.00 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **		0.15	tons/yr	0.03 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Generator(s)						** see below **		2.83	tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:								7.78	tons/yr		

Storage
Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 350 ton/hr x 8760 hr/yr = 3066000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 3.65 TPY PM2.5

Aggregate Handling
The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.25 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.12 tons/yr
Limited PTE PM2.5 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.02 tons/yr

Unpaved Roads
The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

3066000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 36070.6 deliveries/year
0.25 miles/trip * 2 trips/delivery * 36070.6 deliveries/year = 18035.3 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 5.65 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 1.51 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.15 TPY PM2.5

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):
Generator: GS042 320 kW TOTAL 320 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)
Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)
Limited Capacity (hp) 293.9
Limited Throughput (hp-hr/yr) 2574194
Limited Diesel Usage (gal/yr) 131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is conder

Year: 2002

Potential Emissions (PM)					
Generator(s)	** see below **	4.11	tons/yr	0.94 lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM emissions before controls:		4.11	tons/yr		
Potential Emissions (PM10)					
Generator(s)	** see below **	4.11	tons/yr	0.94 lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM10 emissions before controls:		4.11	tons/yr		
Potential Emissions (PM2.5)					
Generator(s)	** see below **	4.11	tons/yr	0.94 lb/hr	AP-42 Ch. 3.4.4 (10/96)
Total PM2.5 emissions before controls:		4.11	tons/yr		

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS043 1000 kW

TOTAL 1000 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 9.39

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Potential Emission in tons/yr	4.11	4.11	4.11	20.76	131.57	3.70	34.95

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp) 1341.0

Potential Throughput (hp-hr/yr) ########

Potential Diesel Usage (gal/yr) 600220

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	######	0.0055
Potential Emission in tons/yr	4.11	4.11	4.11	23.76	140.97	4.14	32.30

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Potential Througput (hp-hr/yr) = hp * 8760 hr/yr

Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condens

Appendix A: Emission Calculations
2002 Limited

Year:	**2002**		**Limited Generator Diesel Usage**		**169,891 GPY**
Limited Emissions (PM)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM emissions after controls:		1.16 tons/yr			
Limited Emissions (PM10)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM10 emissions after controls:		1.16 tons/yr			
Limited Emissions (PM2.5)					
Generator(s)	** see below **	1.16 tons/yr	0.27 lb/hr	AP-42 Ch. 3.4.4 (10/96)	
Total PM2.5 emissions after controls:		1.16 tons/yr			

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.4-1, 10/96):

Generator: GS043 1000 kW

TOTAL 1000 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Limited Capacity (MMBtu/hr) 2.66

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.1	0.1	0.505	3.2	0.09	0.85
Limited Emissions in tons/yr	1.16	1.16	1.16	5.88	37.24	1.05	9.89

B. Emissions calculated based on output rating (hp)

Limited Capacity (hp)	379.6
Limited Throughput (hp-hr/yr)	3325000
Limited Diesel Usage (gal/yr)	169891

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0007	0.0007	0.0007	4.05E-03	0.0240	7.05E-04	0.0055
Limited Emissions in tons/yr	1.16	1.16	1.16	6.72	39.90	1.17	9.14

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensat

Year: 2003

Potential Emissions (PM)													
Conveyors (11)	EU6	800	ton/hr x	0.0030	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	10.51	tons/yr	2.40	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			83.37	tons/yr	19.03	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			5.66	tons/yr	1.29	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			129.15	tons/yr	29.49	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions before controls:									228.70	tons/yr			
Potential Emissions (PM10)													
Conveyors (11)	EU6	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			83.37	tons/yr	19.03	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			2.68	tons/yr	0.61	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			34.42	tons/yr	7.86	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions before controls:									124.32	tons/yr			
Potential Emissions (PM2.5)													
Conveyors (11)	EU6	800	ton/hr x	0.0011	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.85	tons/yr	0.88	lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			83.37	tons/yr	19.03	lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.41	tons/yr	0.09	lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			3.44	tons/yr	0.79	lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions before controls:									91.08	tons/yr			

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 800 ton/hr x 8760 hr/yr = 7008000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 1.77 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Uncontrolled PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 83.37 TPY PM
Uncontrolled PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 83.37 TPY PM10
Uncontrolled PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) = 83.37 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM2.5/ton
M = 5 % material moisture content

Uncontrolled PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) = 5.66 tons/yr
Uncontrolled PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) = 2.68 tons/yr
Uncontrolled PTE PM2.5 = total processing throughput * Emission Factor Ef (PM2.5) * (8760 hrs/yr) / (2000 lbs/ton) = 0.41 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a):

7008000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 82447.1 deliveries/year
0.25 miles/trip * 2 trips/delivery * 82447.1 deliveries/year = 41223.5 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Uncontrolled PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton = 129.15 TPY PM
Uncontrolled PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton = 34.42 TPY PM10
Uncontrolled PTE PM2.5 = Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton = 3.44 TPY PM2.5

Year:	**2003**	**Limited Pile Capacity**	**5,848,000**	**TPY**								
Limited Emissions (PM)												
Conveyors (11)	EU6	800	ton/hr x	0.00014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.49	tons/yr	0.11 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			11.60	tons/yr	2.65 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.57	tons/yr	0.13 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			10.78	tons/yr	2.46 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM emissions after controls:									23.43	tons/yr		
Limited Emissions (PM10)												
Conveyors (11)	EU6	800	ton/hr x	0.000046	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.16	tons/yr	0.04 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			11.60	tons/yr	2.65 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.27	tons/yr	0.06 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			2.87	tons/yr	0.66 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM10 emissions after controls:									14.90	tons/yr		
Limited Emissions (PM2.5)												
Conveyors (11)	EU6	800	ton/hr x	0.000046	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.16	tons/yr	0.04 lb/hr	AP-42 Ch. 11.19.2 (8/04)
Storage						** see below **			11.60	tons/yr	2.65 lb/hr	Air Pollution Engineering Manual
Aggregate Handling						** see below **			0.04	tons/yr	0.01 lb/hr	AP-42 Ch. 13.2.4 (11/06)
Unpaved Roads						** see below **			0.29	tons/yr	0.07 lb/hr	AP-42 Ch. 13.2.2 (11/06)
Total PM2.5 emissions after controls:									12.08	tons/yr		

Storage

Storage emissions, which result from wind erosion (Air Pollution Engineering Manual; p 136; Eqn. 5; AWMA; 1992):

Pile capacity (PC) = 5848000 tons
Pile density (PD) = 40 cu-ft/ton
Pile height (PH) = 25 ft

Emission Factor Ef = 1.7*(s/1.5)*(365-p)/235*(f/15) = 2.96 lb/acre/day
where s = 1.6 % silt content of material
p = 135 days of rain greater than or equal to 0.01 inches
f = 25 % of wind greater than or equal to 12 mph

Limited PTE PM = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 11.60 TPY PM
Limited PTE PM10 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 11.60 TPY PM10
Limited PTE PM2.5 = Emission Factor Ef * PC * PD / (2000 lbs/ton) / (43560 sqft/acre) / PH * (365 days/year) * (1-90%) = 11.60 TPY PM2.5

Aggregate Handling

The following calculations determine the amount of emissions created by dropping of material (AP-42, Sec. 13.2.4, eq. 1):

Emission Factor Ef = k*(0.0032)* (U/5)^1.3/(M/2)^1.4 = 0.0016 lb PM/ton
where k = 0.74 particle size multiplier for PM30(PM)=0.74, PM10=0.35, PM2.5= = 0.0008 lb PM10/ton
U = 10 mean wind speed, m/s = 0.0001 lb PM10/ton
M = 5 % material moisture content

Limited PTE PM = total processing throughput * Emission Factor Ef (PM) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.57 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.27 tons/yr
Limited PTE PM10 = total processing throughput * Emission Factor Ef (PM10) * (8760 hrs/yr) / (2000 lbs/ton) * (1-90%) = 0.04 tons/yr

Unpaved Roads

The following calculations determine the amount of emissions created by loose dry surface dust on unpaved roads (AP-42, Sec. 13.2.2, eq. 1a and eq. 2):

5848000 tons/year ÷ 42.5 tons/trip ÷ 2 trips/delivery = 68800.0 deliveries/year
0.25 miles/trip * 2 trips/delivery * 68800.0 deliveries/year = 34400.0 miles per year

Emission Factor Ef = k*[(s/12)^a]*[(W/3)^b]*[(365-P)/365] = 6.27 lb PM/mile
where k = 4.9 particle size multiplier: TSP(PM)=4.9, PM10=1.5, PM2.5=0.15 = 1.67 lb PM10/mile
s = 6 mean % silt content of unpaved roads = 0.17 lb PM2.5/mile
a= 0.7 constant: TSP(PM)=0.7, PM10=0.9, PM2,5=0.9
W = 42.5 tons average vehicle weight
b = 0.45 constant: TSP(PM)=0.45, PM10=0.45, PM2.5=0.45
P = 135 days of rain greater than or equal to 0.01 inches

Limited PTE PM = Miles per year * emission factor Ef (PM) / 2000 lb/ton * (1-90%) = 10.78 TPY PM
Limited PTE PM10 = Miles per year * emission factor Ef (PM10) / 2000 lb/ton * (1-90%) = 2.87 TPY PM10
Limited PTE PM2.5= Miles per year * emission factor Ef (PM2.5) / 2000 lb/ton * (1-90%) = 0.29 TPY PM2.5

Year: 2005

Potential Emissions (PM)					
Generator(s)	** see below **	3.23	tons/yr	0.74 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:		3.23	tons/yr		
Potential Emissions (PM10)					
Generator(s)	** see below **	3.23	tons/yr	0.74 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:		3.23	tons/yr		
Potential Emissions (PM2.5)					
Generator(s)	** see below **	3.23	tons/yr	0.74 lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:		3.23	tons/yr		

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS045 250 kW

TOTAL 250 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 2.35

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	3.19	3.19	3.19	2.98	45.33	3.70	9.76

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	335.3
Potential Throughput (hp-hr/yr)	2936790
Potential Diesel Usage (gal/yr)	150055

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	3.23	3.23	3.23	3.01	45.52	3.69	9.81

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Potential Througput (hp-hr/yr) = hp * 8760 hr/yr

Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensabl

Appendix A: Emission Calculations
2005 Limited

Year:	**2005**		**Limited Generator Diesel Usage**		**131,528 GPY**
Limited Emissions (PM)					
Generator(s)	** see below **	2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)	
Total PM emissions after controls:		2.83 tons/yr			
Limited Emissions (PM10)					
Generator(s)	** see below **	2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)	
Total PM10 emissions after controls:		2.83 tons/yr			
Limited Emissions (PM2.5)					
Generator(s)	** see below **	2.83 tons/yr	0.65 lb/hr	AP-42 Ch. 3.3.4 (10/96)	
Total PM2.5 emissions after controls:		2.83 tons/yr			

Generator(s)
The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS045 250 kW

TOTAL 250 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Limited Capacity (MMBtu/hr) 2.06

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.79	2.79	2.79	2.61	39.73	3.24	8.56

B. Emissions calculated based on output rating (hp)

Limited Capacity (hp)	293.9
Limited Throughput (hp-hr/yr)	2574194
Limited Diesel Usage (gal/yr)	131528

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.83	2.83	2.83	2.64	39.90	3.24	8.60

Methodology
Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)
Througput (hp-hr/yr) = hp * 8760 hr/yr
Limited Capacity (hp) = Potential Capacity (hp) * (Limited NOx Emissions [39.9 tons]) / (Maximum Potential NOx Emissions)
Limited Emissions (tons/yr) = Limited Capacity (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / (2,000 lb/ton)
Limited Emissions (tons/yr) = Limited Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr) / (2,000 lb/ton)
*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Year:	**2006**					
Potential Emissions (PM)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions before controls:		2.58	tons/yr			
Potential Emissions (PM10)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions before controls:		2.58	tons/yr			
Potential Emissions (PM2.5)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions before controls:		2.58	tons/yr			

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS046 200 kW

TOTAL 200 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 1.88

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Potential Emission in tons/yr	2.55	2.55	2.55	2.38	36.26	2.96	7.81

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	268.2
Potential Throughput (hp-hr/yr)	2349432
Potential Diesel Usage (gal/yr)	120044

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	2.58	2.58	2.58	2.41	36.42	2.95	7.85

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Potential Througput (hp-hr/yr) = hp * 8760 hr/yr

Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensabl

Year:	**2006**					
Limited Emissions (PM)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM emissions after controls:		2.58	tons/yr			
Limited Emissions (PM10)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM10 emissions after controls:		2.58	tons/yr			
Limited Emissions (PM2.5)						
Generator(s)	** see below **	2.58	tons/yr	0.59	lb/hr	AP-42 Ch. 3.3.4 (10/96)
Total PM2.5 emissions after controls:		2.58	tons/yr			

Generator(s)

The following calculations determine the amount of emissions created by generator usage (AP-42, Table 3.3-1, 10/96):

Generator: GS046 200 kW

TOTAL 200 kW

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Potential Capacity (MMBtu/hr) 1.88

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.4	0.95
Limited Emissions in tons/yr	2.55	2.55	2.55	2.38	36.26	2.96	7.81

B. Emissions calculated based on output rating (hp)

Potential Capacity (hp)	268.2
Potential Throughput (hp-hr/yr)	2349432
Potential Diesel Usage (gal/yr)	120044

	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Limited Emissions in tons/yr	2.58	2.58	2.58	2.41	36.42	2.95	7.85

Methodology

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emissions (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Potential Througput (hp-hr/yr) = hp * 8760 hr/yr

Emissions (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Michael Beemsterboer
Beemsterboer Slag Corp- contractor of ArcelorMitta
3411 Sheffield Ave
Hammond, IN 46327

DATE: November 22, 2011

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Title V
089-29606-00356

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Sysan Grenzebach (OCS Environmental)
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

November 22, 2011

TO: East Chicago Public Library

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: Beemsterboer Slag Corporation, a contractor of ARcelorMittal USA, Inc.
Permit Number: 089-29606-00356

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 11/30/07

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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: November 22, 2011

RE: Beemsterboer Slag Corporation / 089-29606-00356

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

In order to conserve paper and reduce postage costs, IDEM's Office of Air Quality is now sending many permit decisions on CDs in Adobe PDF format. The enclosed CD contains information regarding the company named above.

This permit is also available on the IDEM website at:
http://www.in.gov/ai/appfiles/idem-caats/

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

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

Please Note: *If you feel you have received this information 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.*

Enclosures
CD Memo.dot 11/14/08

Mail Code 61-53

IDEM Staff	CDENNY 11/22/2011 Beemsterboer Slag Corp- contractor of ArcelorMittal USA, Inc 089-29606-00356(final)			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
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2		East Chicago City Council 4525 Indianapolis Blvd East Chicago IN 46312 *(Local Official)*									
3		Indiana State Representative 2nd District 4114 Butternut St East Chicago IN 46312 *(Legislator)*									
4		East Chicago Public Library 2401 E Columbus Dr East Chicago IN 46312-2998 *(Library)*									
5		Gary - Hobart Water Corp 650 Madison St, P.O. Box M486 Gary IN 46401-0486 *(Affected Party)*									
6		Lake County Health Department-Gary 1145 W. 5th Ave Gary IN 46402-1795 *(Health Department)*									
7		WJOB / WZVN Radio 6405 Olcott Ave Hammond IN 46320 *(Affected Party)*									
8		Laurence A. McHugh Barnes & Thornburg 100 North Michigan South Bend IN 46601-1632 *(Affected Party)*									
9		Shawn Sobocinski 3229 E. Atlanta Court Portage IN 46368 *(Affected Party)*									
10		Ms. Carolyn Marsh Lake Michigan Calumet Advisory Council 1804 Oliver St Whiting IN 46394-1725 *(Affected Party)*									
11		Mark Coleman 9 Locust Place Ogden Dunes IN 46368 *(Affected Party)*									
12		Mr. Chris Hernandez Pipefitters Association, Local Union 597 8762 Louisiana St., Suite G Merrillville IN 46410 *(Affected Party)*									
13		Craig Hogarth 7901 West Morris Street Indianapolis IN 46231 (Affected Party)									
14		Responsible Official Mittal Steel 3210 Watling St. East Chicago IN 46312-1610 *(source - addl contact)*									
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2		Barbara G. Perez 506 Lilac Street East Chicago IN 46312 *(Affected Party)*									
3		Mr. Robert Garcia 3733 Parrish Avenue East Chicago IN 46312 *(Affected Party)*									
4		Susan Grenzebach OCS Environmental 130 Lincoln St. Porter IN 46304 *(Consultant)*									
5		Ms. Karen Kroczek 8212 Madison Ave Munster IN 46321-1627 *(Affected Party)*									
6		Calumet Township Trustee 31 E 5th Avenue Gary IN 46402 *(Affected Party)*									
7		Joseph Hero 11723 S Oakridge Drive St. John IN 46373 *(Affected Party)*									
8		Gary City Council 401 Broadway # 209 Gary IN 46402 *(Local Official)*									
9		Mr. Larry Davis 268 South, 600 West Hebron IN 46341 *(Affected Party)*									
10		Gitte Laasby Post Tribune 1433 E. 83rd Ave Merrillville IN 46410 *(Affected Party)*									
11		Susan Severtson City of Gary Law Dept. 401 Broadway 4th Floor Gary IN 46402 *(Local Official)*									
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