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

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

NOTICE OF 30-DAY PERIOD
FOR PUBLIC COMMENT

Preliminary Findings Regarding a
Significant Source and Significant Permit Modification
to a Part 70 Operating Permit

for
Metal Services, LLC dba Phoenix Services, LLC -
a contractor of ArcelorMittal Burns Harbor, LLC in Porter County

Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026

The Indiana Department of Environmental Management (IDEM) has received an application from Metal Services, LLC dba Phoenix Services, LLC - a contractor of ArceloMittal Burns Harbor, LLC (Metal Services, LLC) located at 250 U.S. Highway 12, Burns Harbor, Indiana 46304 for a significant modification of its Part 70 Operating Permit issued on July 1, 2011. If approved by IDEM's Office of Air Quality (OAQ), this proposed modification would allow Metal Services, LLC to make certain changes at its existing source. Metal Services, LLC has applied to add a wet screening operation to process material at an existing chip plant.

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

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

Westchester Public Library
200 West Indiana Avenue
Chesterton, IN 46304-3122

and

IDEM Northwest Regional Office
330 W. US Highway 30, Suites E & F
Valparaiso, IN 46385

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

How can you participate in this process?

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

You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the **air pollution impact** of this draft permit are received, with a request for a public hearing,

IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM's mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit application, please contact IDEM at the address below. Please refer to permit number 127-34120-00026 and 127-34181-00026 in all correspondence.

Comments should be sent to:

Madhurima Moulik
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension 3-0868
Or dial directly: (317) 233-0868
Fax: (317) 232-6749 attn: Madhurima Moulik
E-mail: mmoulik@idem.in.gov

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

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

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251 and IDEM Northwest Regional Office, 330 W. Highway 30, Suites E & F, Valparaiso, IN 46385.

If you have any questions please contact Madhurima Moulik of my staff at the above address.

Chrystal A. Wagner, Section Chief
Permits Branch
Office of Air Quality

MDM

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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

DRAFT

Clint McGinty, Manager - Health, Safety & Environment
Metal Services, LLC dba Phoenix Services, LLC
– a contractor of ArcelorMittal Burns Harbor, LLC
148 West State Street, Suite 301
Kennett Square, PA 19348

Re: 127-34120-00026
Significant Source Modification to
an Administrative Part 70 Permit No. 127-34120-00026

Dear Mr. McGinty:

Metal Services, LLC dba Phoenix Services, LLC – a contractor of ArcelorMittal Burns Harbor, LLC (Metal Services, LLC) was issued an Administrative Part 70 Operating Permit (Renewal) No. 127-29719-00026 on July 1, 2011 for a stationary blast furnace and basic oxygen furnace slag finishing operation and separation plant located at 250 U.S. Highway 12, Burns Harbor, Indiana 46304. An application to modify the source was received on January 28, 2014. Pursuant to the provisions of 326 IAC 2-7-10.5, a Significant Source Modification is hereby approved as described in the attached Technical Support Document.

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

(a) One (1) portable wet screening plant, permitted in 2014, including the following:

(1) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
(2) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
(3) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
(4) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

The following construction conditions are applicable to the proposed modification:

General Construction Conditions

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

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

Effective Date of the Permit

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

Commenced Construction

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

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

Approval to Construct

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

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

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

   The source must comply with the requirements of 326 IAC 2-7-10.5(m)(2) and 326 IAC 2-7-12 before operation of any of the proposed emission units can begin.

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

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.

If you have any questions on this matter, please contact Madhurima Moulik of my staff, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for Madhurima Moulik or extension your 3-0868 or dial (317) 233-0868.

Sincerely,

Chrystal A. Wagner, Section Chief
Permits Branch
Office of Air Quality

Attachments: Significant Source Modification and Technical Support Document

cc: File - Porter County
Porter County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
IDEM Northwest Regional Office

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Mitchell E. Daniels Jr.
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Thomas W. Easterly
Commissioner

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Part 70 Significant Source Modification
OFFICE OF AIR QUALITY

DRAFT
Metal Services, LLC dba Phoenix Services, LLC - a contractor of ArcelorMittal Burns Harbor, LLC
U.S. Highway 12
Burns Harbor, Indiana 46304

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

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

Significant Source Modification No.: 127-34120-00026	
Issued by: Chrystal Wagner, Section Chief Permits Branch Office of Air Quality	Issuance Date:

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SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.4 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 approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

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

The Permittee owns and operates a blast furnace and basic oxygen furnace slag finishing operation and separation plant.

Source Address:	250 U.S. Highway 12, Burns Harbor, Indiana 46304
General Source Phone Number:	(219) 787-8666
SIC Code:	3295
County Location:	Porter
Source Location Status:	Nonattainment for Ozone Attainment for all other criteria pollutants
Source Status:	Part 70 Permit Program Major Source under PSD and Emission Offset Major Source, Section 112 of the Clean Air Act 1 of 28 Listed Source Categories

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

This integrated steel works operation consists of a primary source, ArcelorMittal Burns Harbor, LLC (Plant ID 127-00001), located at 250 West U.S. Highway 12, Burns Harbor, Indiana, with the following onsite contractors. The contractors listed below were issued separate Part 70 operating permits solely for administrative purposes:

(a) Indiana Flame (T127-00098);
(b) Metal Services LLC dba Phoenix Services LLC (T127-00026);
(c) Mid-Continent Coal and Coke (T127-00108);
(d) Oil Technology (T127-00074);
(e) SMS Mill Services, LLC (T127-00076);
(f) Beemsterboer Slag Corp (127-00116);
(g) Mid-Continent Coal and Coke (127-00117);
(h) PSC Metals Inc. (127-00118); and
(i) Calumite Company (127-00024).

Separate Part 70 Administrative permits were issued to ArcelorMittal Burns Harbor, LLC (Source ID 127-00001) and each of the onsite contractors, solely for administrative purposes. The companies may maintain separate reporting and compliance certification.

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

Metal Services LLC dba Phoenix Services LLC operates the following emission units and pollution control devices:

Burns Harbor Site

(a) An open air Slag Pot Dumping operation constructed in 1969 which receives slag pots by pot carrier from the BOF, identified as EU001-01, with collective fugitive emissions EP001-9011.

(b) An open air Slag Pot Preparation operation constructed in 1969, identified as EU001-04, consisting of relining and conditioning of empty pots, with pot material additive, with collective fugitive emissions EP001-9001.

(c) Stock piles and product storage piles located at Port of Indiana storage yard, Portage.

(d) Main Plant, with a maximum material throughput capacity of 1,500 tons per hour (tph), approved in 2012 for construction, using wet suppressant for fugitive emissions control, consisting of the following equipment:

(A) One (1) step deck feeder (F1), with a capacity of 1500 tph

(B) Crushing

(1) One (1) pan feeder (F2), with a capacity of 500 tons per hour
(2) One (1) conveyor (C5), with a capacity of 500 tph
(3) One (1) mag/pendulum head pulley (C5)
(4) One (1) dual finger gate splitter at C5
(5) One (1) dual finger gate splitter at Crusher/Impactor
(6) One (1) pan feeder (F3), with a capacity of 510 tph
(7) One (1) pan feeder (F4), with a capacity of 500 tph
(8) One (1) jaw crusher, with a capacity of 500 tph
(9) One (1) impactor, with a capacity of 500 tph
(10) One (1) conveyor (C6A), with a capacity of 500 tph
(11) One (1) conveyor (C6B), with a capacity of 500 tph

(C) Screening

(1) One (1) conveyor (C1), with a capacity of 1500 tph
(2) One (1) 150-ton bin, with a capacity of 1500 tph
(3) One (1) feeder (MF400) (F5), with a capacity of 1500 tph
(4) One (1) conveyor (C2), with a capacity of 1500 tph
(5) One (1) mag head pulley (C2)
(6) One (1) dual finger gate splitter at C2
(7) One (1) dual finger gate splitter at F6/F7
(8) One (1) feeder (F6), with a capacity of 750 tph
(9) One (1) feeder (F7), with a capacity of 750 tph
(10) One (1) conveyor (C3A), with a capacity of 750 tph
(11) One (1) conveyor (C3B), with a capacity of 750 tph
(12) One (1) triple chute gate splitter at S1/S2/S3
(13) One (1) screen (S1), with a capacity of 750 tph
(14) One (1) dual finger gate splitter at S1
(15) One (1) conveyor (C7A), with a capacity of 500 tph
(16) One (1) screen (S2), with a capacity of 750 tph
(17) One (1) dual finger gate splitter at S2
(18) One (1) conveyor (C7B), with a capacity of 500 tph
(19) One (1) screen (S3), with a capacity of 750 tph
(20) One (1) dual finger gate splitter at S3
(21) One (1) conveyor (C7C), with a capacity of 500 tph
(22) One (1) conveyor (C11A), with a capacity of 1000 tph
(23) One (1) stack conveyor (C15), with a capacity of 1000 tph
(24) One (1) conveyor (C9), with a capacity of 700 tph
(25) One (1) stack conveyor (C14), with a capacity of 700 tph
(26) One (1) conveyor (C8), with a capacity of 400 tph
(27) One (1) stack conveyor (C13), with a capacity of 178.2 tph
(28) One (1) mag head pulley (C13), with a capacity of 400 tph
(29) One (1) dual finger gate splitter at C13

(D) Scrap Processing

(1) One (1) 50-ton scrap bin (F1), with a capacity of 700 tph
(2) One (1) feeder (F8), with a capacity of 700 tph
(3) One (1) conveyor (C4), with a capacity of 700 tph

(4) One (1) dual finger gate splitter at C4
(5) One (1) screen (S4), with a capacity of 350 tph
(6) One (1) dual finger gate splitter at S4
(7) One (1) conveyor (C10A), with a capacity of 200 tph
(8) One (1) screen (S5), with a capacity of 350 tph
(9) One (1) dual finger gate splitter at S5
(10) One (1) conveyor (C10B), with a capacity of 200 tph
(11) One (1) conveyor (C11B), with a capacity of 400 tph
(12) One (1) stack conveyor (C17), with a capacity of 400 tph
(13) One (1) conveyor (C12), with a capacity of 400 tph
(14) One (1) stack conveyor (C16), with a capacity of 400 tph
(15) One (1) conveyor (C18), with a capacity of 200 tph
(16) One (1) stack conveyor (C19), with a capacity of 200 tph

(e) Chip Plant, with a maximum material throughput capacity of 500 tons per hour (tph), approved in 2012 for construction (unless noted otherwise), using wet suppressant for fugitive emissions control, consisting of the following equipment:

(1) One (1) feed hopper (B1), with a capacity of 500 tph
(2) One (1) feeder (F9), with a capacity of 500 tph
(3) One (1) conveyor (C1), with a capacity of 500 tph
(4) One (1) conveyor (C2), with a capacity of 800 tph
(5) One (1) crusher, with a capacity of 500 tph
(6) One (1) conveyor (C5), with a capacity of 500 tph
(7) One (1) screen (S1), with a capacity of 400 tph
(8) One (1) conveyor (C3), with a capacity of 150 tph
(9) One (1) screen (S2), with a capacity of 400 tph
(10) One (1) conveyor (C4), with a capacity of 150 tph
(11) One (1) conveyor (C10), with a capacity of 300 tph
(12) One (1) stack conveyor (C11), with a capacity of 55 tph
(13) One (1) conveyor (C8), with a capacity of 250 tph
(14) One (1) mag cross belt (M2)
(15) One (1) stack conveyor (C9), with a capacity of 78.375 tph
(16) One (1) conveyor (C6), with a capacity of 250 tph
(17) One (1) mag cross belt (M1)
(18) One (1) stack conveyor (C7), with a capacity of 250 tph
(19) One (1) conveyor (C12), approved in 2013 for construction, with a capacity of 300 tph
(20) One (1) conveyor (C13), approved in 2013 for construction, with a capacity of 300 tph
(21) One (1) crusher (crusher 2), approved in 2013 for construction, with a capacity of 400 tph
(22) One (1) screen (S3), approved in 2013 for construction, with a maximum capacity of 75 tph.
(23) One (1) conveyor (C14), approved in 2013 for construction, with a maximum capacity of 50 tph.
(24) One (1) conveyor (C15), approved in 2013 for construction, with a maximum capacity of 50 tph.
(25) One (1) portable wet screening plant, approved in 2014 for construction, with a maximum capacity of 450 tons per hour, including the following:
  (A) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
  (B) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
  (C) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
  (D) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

(f) Portable/Auxiliary Equipment, with a maximum material throughput capacity of 600 tons per hour (tph), approved in 2012 for construction, using wet suppressant for fugitive emissions control, consisting of the following equipment:

(A) Portable Plant 1

(1) One (1) conveyor, with a capacity of 600 tph
(2) One (1) portable crusher, with a capacity of 600 tph
(3) One (1) conveyor, with a capacity of 600 tph
(4) One (1) portable screen, with a capacity of 600 tph
(5) Three (3) portable input conveyors (33%), with a capacity of 600 tph
(6) Three (3) portable output stacker/conveyors (33% ea), with a capacity of 600 tph

(B) Portable boat loader

(1) One (1) feed hopper, with a capacity of 1500 tph
(2) One (1) conveyor/stacker, with a capacity of 1500 tph

(C) Portable stacker

(1) One (1) feed hopper, with a capacity of 250 tph
(2) One (1) conveyor/stacker, with a capacity of 250 tph

(D) Portable screener

(1) One (1) screen, with a capacity of 250 tph
(2) Three (3) conveyor/stackers (33% each), with a capacity of 250 tph

(E) Portable screener

(1) One (1) feed hopper, with a capacity of 250 tph
(2) One (1) screen, with a capacity of 250 tph
(3) One (1) conveyor/stacker, with a capacity of 250 tph

(F) Portable Plant 2

(1) One (1) grizzly, with a capacity of 500 tph
(2) One (1) feeder, with a capacity of 500 tph
(3) One (1) screen, with a capacity of 500 tph
(4) Four (4) output conveyors (25% ea), with a capacity of 500 tph
(5) One (1) crusher or impactor, with a capacity of 500 tph
(6) One (1) magnet

(g) Four (4) portable diesel generator/engines, approved in 2012 for installation, each with a capacity of 559 Hp or less.

(h) One (1) portable diesel generator/engine, approved in 2012 for installation, with a capacity between 600 Hp and 1500 Hp.

(i) Three (3) portable diesel generator/engines, approved in 2012 for installation, each with a capacity of 100 Hp or less.

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

Metal Services, LLC dba Phoenix Services, LLC, also consists of the following insignificant activities that are specifically regulated, as defined in 326 IAC 2-7-1(21):

(a) Degreasing operations that do not exceed 145 gallons per 12 month, except if subject to 326 IAC 20-6. [326 IAC 8-3-2][326 IAC 8-3-8]

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment. [326 IAC 6-3-2]

(c) Activities with emissions equal to or less than insignificant thresholds [326 IAC 2-7-1(21)]:

(1) 10,000 gallon diesel AST identified as EE001-9011 [326 IAC 8-9];
(2) 2,500 gallon diesel AST identified as EE001-9012 [326 IAC 8-9];
(3) Iron breakup processing identified as EE001-9014.

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, 127-29719-00026, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

and

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

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

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

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

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

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

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

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

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
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The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

The Permittee shall implement the PMPs.

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

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

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

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

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

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

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality,
Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality,

Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 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
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within two (2) working days of the time when emission limitations were exceeded due to the emergency.

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

(A) A description of the emergency;

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

(C) Corrective actions taken.

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

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

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

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

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

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

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

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

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

law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

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

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

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

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

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

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

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

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

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

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

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

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

(a) All terms and conditions of permits established prior to 127-29719-00026 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

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

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

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

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

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

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

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

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

(1) That this permit contains a material mistake.

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

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

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

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

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

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(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(35).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
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(b) A timely renewal application is one that is:

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

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted

by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

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

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

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(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(35).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) The Permittee shall pay annual fees to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. 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 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Opacity [326 IAC 5-1]

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

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

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

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

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

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

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

C.5 Fugitive Dust Emissions [326 IAC 6-4]

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

C.6 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the attached plan as in Attachment A. The provisions of 326 IAC 6-5 are not federally enforceable.

C.7 Stack Height [326 IAC 1-7]

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

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all

facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

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

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

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

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

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

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

C.9 Performance Testing [326 IAC 3-6]

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

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

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

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

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

Compliance Requirements [326 IAC 2-1.1-11]

C.10 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.11 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(35).

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

(b) These ERPs shall be submitted for approval to:

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

no later than ninety (90) days after the date of issuance of this permit.

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

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

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

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

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

C.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(35).

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]

Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit by July 1 of each year an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

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

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

The statement must be submitted to:

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

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

C.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. Support information includes the following:

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

Records of required monitoring information include the following:

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

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

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

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

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

(A) A description of the project.

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

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

(i) Baseline actual emissions;

(ii) Projected actual emissions;

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

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

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

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

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

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

(b) The address for report submittal is:

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

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

(d) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

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

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

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

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

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

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

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

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

Reports required in this part shall be submitted to:

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

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

Stratospheric Ozone Protection

C.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 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: Burns Harbor Site

(a) An open air Slag Pot Dumping operation constructed in 1969 which receives slag pots by pot carrier from the BOF, identified as EU001-01, with collective fugitive emissions EP001-9011.

(b) An open air Slag Pot Preparation operation constructed in 1969, identified as EU001-04, consisting of relining and conditioning of empty pots, with pot material additive, with collective fugitive emissions EP001-9001.

(c) Stock piles and product storage piles located at Port of Indiana storage yard, Portage.

(d) Main Plant, with a maximum material throughput capacity of 1,500 tons per hour (tph), approved in 2012 for construction, using wet suppressant for fugitive emissions control, consisting of the following equipment:

(A) One (1) step deck feeder (F1), with a capacity of 1500 tph

(B) Crushing

(1) One (1) pan feeder (F2), with a capacity of 500 tons per hour
(2) One (1) conveyor (C5), with a capacity of 500 tph
(3) One (1) mag/pendulum head pulley (C5)
(4) One (1) dual finger gate splitter at C5
(5) One (1) dual finger gate splitter at Crusher/Impactor
(6) One (1) pan feeder (F3), with a capacity of 510 tph
(7) One (1) pan feeder (F4), with a capacity of 500 tph
(8) One (1) jaw crusher, with a capacity of 500 tph
(9) One (1) impactor, with a capacity of 500 tph
(10) One (1) conveyor (C6A), with a capacity of 500 tph
(11) One (1) conveyor (C6B), with a capacity of 500 tph

(C) Screening

(1) One (1) conveyor (C1), with a capacity of 1500 tph
(2) One (1) 150-ton bin, with a capacity of 1500 tph
(3) One (1) feeder (MF400) (F5), with a capacity of 1500 tph
(4) One (1) conveyor (C2), with a capacity of 1500 tph
(5) One (1) mag head pulley (C2)
(6) One (1) dual finger gate splitter at C2
(7) One (1) dual finger gate splitter at F6/F7
(8) One (1) feeder (F6), with a capacity of 750 tph
(9) One (1) feeder (F7), with a capacity of 750 tph
(10) One (1) conveyor (C3A), with a capacity of 750 tph
(11) One (1) conveyor (C3B), with a capacity of 750 tph
(12) One (1) triple chute gate splitter at S1/S2/S3
(13) One (1) screen (S1), with a capacity of 750 tph
(14) One (1) dual finger gate splitter at S1
(15) One (1) conveyor (C7A), with a capacity of 500 tph
(16) One (1) screen (S2), with a capacity of 750 tph
(17) One (1) dual finger gate splitter at S2
(18) One (1) conveyor (C7B), with a capacity of 500 tph
(19) One (1) screen (S3), with a capacity of 750 tph
(20) One (1) dual finger gate splitter at S3
(21) One (1) conveyor (C7C), with a capacity of 500 tph
(22) One (1) conveyor (C11A), with a capacity of 1000 tph
(23) One (1) stack conveyor (C15), with a capacity of 1000 tph

(24) One (1) conveyor (C9), with a capacity of 700 tph
(25) One (1) stack conveyor (C14), with a capacity of 700 tph
(26) One (1) conveyor (C8), with a capacity of 400 tph
(27) One (1) stack conveyor (C13), with a capacity of 178.2 tph
(28) One (1) mag head pulley (C13), with a capacity of 400 tph
(29) One (1) dual finger gate splitter at C13

(D) Scrap Processing

(1) One (1) 50-ton scrap bin (F1), with a capacity of 700 tph
(2) One (1) feeder (F8), with a capacity of 700 tph
(3) One (1) conveyor (C4), with a capacity of 700 tph
(4) One (1) dual finger gate splitter at C4
(5) One (1) screen (S4), with a capacity of 350 tph
(6) One (1) dual finger gate splitter at S4
(7) One (1) conveyor (C10A), with a capacity of 200 tph
(8) One (1) screen (S5), with a capacity of 350 tph
(9) One (1) dual finger gate splitter at S5
(10) One (1) conveyor (C10B), with a capacity of 200 tph
(11) One (1) conveyor (C11B), with a capacity of 400 tph
(12) One (1) stack conveyor (C17), with a capacity of 400 tph
(13) One (1) conveyor (C12), with a capacity of 400 tph
(14) One (1) stack conveyor (C16), with a capacity of 400 tph
(15) One (1) conveyor (C18), with a capacity of 200 tph
(16) One (1) stack conveyor (C19), with a capacity of 200 tph

(e) Chip Plant, with a maximum material throughput capacity of 500 tons per hour (tph), approved in 2012 for construction (unless noted otherwise), using wet suppressant for fugitive emissions control, consisting of the following equipment:

(1) One (1) feed hopper (B1), with a capacity of 500 tph
(2) One (1) feeder (F9), with a capacity of 500 tph
(3) One (1) conveyor (C1), with a capacity of 500 tph
(4) One (1) conveyor (C2), with a capacity of 800 tph
(5) One (1) crusher, with a capacity of 500 tph
(6) One (1) conveyor (C5), with a capacity of 500 tph
(7) One (1) screen (S1), with a capacity of 400 tph
(8) One (1) conveyor (C3), with a capacity of 150 tph
(9) One (1) screen (S2), with a capacity of 400 tph
(10) One (1) conveyor (C4), with a capacity of 150 tph
(11) One (1) conveyor (C10), with a capacity of 300 tph
(12) One (1) stack conveyor (C11), with a capacity of 55 tph
(13) One (1) conveyor (C8), with a capacity of 250 tph
(14) One (1) mag cross belt (M2)
(15) One (1) stack conveyor (C9), with a capacity of 78.375 tph
(16) One (1) conveyor (C6), with a capacity of 250 tph
(17) One (1) mag cross belt (M1)
(18) One (1) stack conveyor (C7), with a capacity of 250 tph
(19) One (1) conveyor (C12), approved in 2013 for construction, with a capacity of 300 tph
(20) One (1) conveyor (C13), approved in 2013 for construction, with a capacity of 300 tph
(21) One (1) crusher (crusher 2), approved in 2013 for construction, with a capacity of 400 tph
(22) One (1) screen (S3), approved in 2013 for construction, with a maximum capacity of 75 tph.

(23) One (1) conveyor (C14), approved in 2013 for construction, with a maximum capacity of 50 tph.
(24) One (1) conveyor (C15), approved in 2013 for construction, with a maximum capacity of 50 tph.
(25) One (1) portable wet screening plant, approved in 2014 for construction, with a maximum capacity of 450 tons per hour, including the following:
(A) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
(B) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
(C) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
(D) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

(f) Portable/Auxiliary Equipment, with a maximum material throughput capacity of 600 tons per hour (tph), approved in 2012 for construction, using wet suppressant for fugitive emissions control, consisting of the following equipment:

(A) Portable Plant 1

(1) One (1) conveyor, with a capacity of 600 tph
(2) One (1) portable crusher, with a capacity of 600 tph
(3) One (1) conveyor, with a capacity of 600 tph
(4) One (1) portable screen, with a capacity of 600 tph
(5) Three (3) portable input conveyors (33%), with a capacity of 600 tph
(6) Three (3) portable output stacker/conveyors (33% ea), with a capacity of 600 tph

(B) Portable boat loader
(1) One (1) feed hopper, with a capacity of 1500 tph
(2) One (1) conveyor/stacker, with a capacity of 1500 tph

(C) Portable stacker
(1) One (1) feed hopper, with a capacity of 250 tph
(2) One (1) conveyor/stacker, with a capacity of 250 tph

(D) Portable screener
(1) One (1) screen, with a capacity of 250 tph
(2) Three (3) conveyor/stackers (33% each), with a capacity of 250 tph

(E) Portable screener
(1) One (1) feed hopper, with a capacity of 250 tph
(2) One (1) screen, with a capacity of 250 tph
(3) One (1) conveyor/stacker, with a capacity of 250 tph

(F) Portable Plant 2
(1) One (1) grizzly, with a capacity of 500 tph
(2) One (1) feeder, with a capacity of 500 tph
(3) One (1) screen, with a capacity of 500 tph
(4) Four (4) output conveyors (25% ea), with a capacity of 500 tph
(5) One (1) crusher or impactor, with a capacity of 500 tph
(6) One (1) magnet

(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 PSD Minor Limit

(a) Only slag and metallic material shall be processed at Main Plant.

(b) The total input of slag and metallic material at Main Plant shall not exceed 2,377,419 tons per twelve consecutive month period with compliance determined at the end of each month.

(c) The total input of material at the Chip Plant shall not exceed 1,300,000 tons per twelve consecutive month period with compliance determined at the end of each month.

(d) The Chip Plant shall process only those materials that have been previously processed at the Main Plant.

(e) The Portable/Auxiliary Equipment (except for the Wet Screen permitted in 2014), including the portable wet screening unit permitted in 2014, shall not be operated at Metal Services LLC dba Phoenix Services LLC site.

(f) The total input of material at the Portable/Auxiliary Equipment, including the portable wet screening unit permitted in 2014, shall not exceed 800,000 tons per twelve consecutive month period with compliance determined at the end of each month.

(g) The Wet Screening Unit (permitted in 2014) shall process only those materials that have been previously processed at the Chip Plant.

(h) The moisture content of slag material processed at the Main Plant, Chip Plant and Portable/Auxiliary Equipment, including the portable wet screening unit permitted in 2014, shall not be less than 1.5%.

Compliance with the above limits, in conjunction with Condition D.2.1, shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-32132-00026 to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the SSM No. 127-32132-00026.

Compliance with the above limits shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-33544-00026 in conjunction with the emissions from equipment processed under SSM No. 127-32132-00026 to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the associated emission units.

Compliance with the above limits shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-34120-00026, in conjunction with the emissions from equipment processed under SSM No. 127-32132-00026 and SSM No. 127-33544-00026 to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the associated emission units.

D.1.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 the particulate emissions from the following listed units shall be limited as follows when operating at the listed process weight rate:

Emission Unit	Process weight rate (tons/hr)	326 IAC 6-3 limit lb/hr
Main Plant		
One (1) step deck feeder (F1)	1500	82.95
Crushing		
One (1) pan feeder (F2)	500	68.96
One (1) conveyor (C5)	500	68.96
One (1) mag/pendulum head pulley (C5)	184	57.61
One (1) dual finger gate splitter at C5	217	59.40
One (1) splitter (scrap) (C5)	184	57.61
One (1) dual finger gate splitter at C5	217	59.40
One (1) dual finger gate splitter at Crusher/Impactor	184	57.61
One (1) pan feeder (F3)	510	69.19
One (1) pan feeder (F4)	500	68.96
One (1) jaw crusher	500	68.96
One (1) impactor,	500	68.96
One (1) conveyor (C6A)	500	68.96
One (1) conveyor (C6B)	500	68.96
Screening		
One (1) conveyor (C1)	1500	82.95
One (1) 150-ton bin,	1500	82.95
One (1) feeder (MF400) (F5)	1500	82.95
One (1) conveyor (C2)	1500	82.95
One (1) mag head pulley (C2)	300	63.00
One (1) dual finger gate splitter at C2	271	61.86
One (1) dual finger gate splitter at F6/F7	217	59.40
One (1) feeder (F6)	750	73.93
One (1) feeder (F7)	750	73.93
One (1) conveyor (C3A)	750	73.93
One (1) conveyor (C3B)	750	73.93
One (1) triple chute gate splitter at S1/S2/S3	72	48.04
One (1) screen (S1)	750	73.93
One (1) dual finger gate splitter at S1	750	73.93
One (1) conveyor (C7A)	500	68.96
One (1) screen (S2)	750	73.93
One (1) dual finger gate splitter at S2	750	73.93
One (1) conveyor (C7B)	396	66.20
One (1) screen (S3)	750	73.93
One (1) dual finger gate splitter at S3	750	73.93
One (1) conveyor (C7C)	500	68.96
One (1) conveyor (C11A)	1000	77.59
One (1) stack conveyor (C15)	1000	77.59
One (1) conveyor (C9)	700	73.06
One (1) stack conveyor (C14)	700	73.06
One (1) conveyor (C8)	400	66.31
One (1) stack conveyor (C13)	178.20	57.27
One (1) mag head pulley (C13)	400	66.31
One (1) dual finger gate splitter at C13	178.2	57.27

Emission Unit	Process weight rate (tons/hr)	326 IAC 6-3 limit lb/hr
Scrap		
One (1) 50-ton scrap bin (F1)	700	73.06
One (1) feeder (F8) 700	700	73.06
One (1) conveyor (C4) 700	700	73.06
One (1) dual finger gate splitter at C4	56	45.64
One (1) screen (S4)	350	64.76
One (1) dual finger gate splitter at S4	350	64.76
One (1) conveyor (C10A)	200	58.51
One (1) screen (S5) 350	350	64.76
One (1) dual finger gate splitter at S5	350	67.76
One (1) conveyor (C10B)	200	58.51
One (1) conveyor (C11B)	400	66.31
One (1) stack conveyor (C17)	400	66.31
One (1) conveyor (C12)	400	66.31
One (1) stack conveyor (C16)	400	66.31
One (1) conveyor (C18)	200	58.51
One (1) stack conveyor (C19)	200	58.51
Chip Plant		
One (1) feed hopper (B1)	500	68.96
One (1) feeder (F9)	500	68.96
One (1) conveyor (C1)	500	68.96
One (1) conveyor (C2)	800	74.74
One (1) crusher, 500	500	68.96
One (1) conveyor (C5)	500	68.96
One (1) screen (S1)	400	66.31
One (1) conveyor (C3)	150	55.44
One (1) screen (S2)	400	66.31
One (1) conveyor (C4)	150	55.44
One (1) conveyor (C10)	300	63.00
One (1) stack conveyor (C11)	55	45.47
One (1) conveyor (C8)	250	60.96
One (1) mag cross belt (M2)	4.125	10.60
One (1) stack conveyor (C9)	78.375	48.86
One (1) conveyor (C6) 20	250	60.96
One (1) mag cross belt (M1)	18	28.43
One (1) stack conveyor (C7)	250	60.96
One (1) conveyor (C12)	300	63.0
One (1) conveyor (C13)	300	63.0
One (1) crusher (crusher 2)	400	66.3
One (1) screen (S3)	75	48.4
One (1) conveyor (C14)	50	44.6
One (1) conveyor (C15)	50	44.6
Portable Wet Screening Plant		
Feed Chute	450	67.7
Wet Screen	450	67.7
Output Chutes 1, 2, 3	135 (each)	54.3 (each)
Oversize Chute	45	43.6

Emission Unit	Process weight rate (tons/hr)	326 IAC 6-3 limit lb/hr
Portable/Auxiliary Equipment		
Portable Plant 1		
One (1) conveyor	600	71.16
One (1) portable crusher	600	71.16
One (1) conveyor	600	71.16
One (1) portable screen	600	71.16
Three (3) portable input conveyors (33%)	600	71.16
Three (3) portable output stacker/conveyors (33% ea)	600	71.16
Portable boat loader		
One (1) feed hopper	1500	82.95
One (1) conveyor/stacker	1500	82.95
Portable stacker		
One (1) feed hopper	250	60.96
One (1) conveyor/stacker	250	60.96
Portable screener		
One (1) screen	250	60.96
Three (3) conveyor/stackers (33% each)	250	60.96
Portable screener		
One (1) feed hopper	250	60.96
One (1) screen	250	60.96
One (1) conveyor/stacker	250	60.96
Portable Plant 2		
One (1) grizzly	500	68.96
One (1) feeder	500	68.96
One (1) screen	500	68.96
Four (4) output conveyors (25% ea)	500	68.96
One (1) crusher or impactor	500	68.96
One (1) magnet	15	25.16

The pound per hour limitations above were calculated using the following equation:

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

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

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

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

D.1.3 Preventative Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.1.4 Particulate Matter [326 IAC 2-7-6(6)]

In order to comply with Condition D.1.1(g):

(a) The Permittee shall use wet suppression to control particulate emissions from Main Plant, Chip Plant and Portable/Auxiliary Equipment, except for the following time periods:

(i) During precipitation

(ii) When ambient air temperature is at or below freezing temperature

(b) The Permittee shall perform weekly moisture content analysis prior to feeding material to the Chip Plant, on the slag material processed at the Main Plant, Chip Plant and Portable/Auxiliary Equipment to ensure slag moisture content is not less than 1.5%.

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

D.1.5 Visible Emissions Notations

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

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

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

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

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

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

D.1.6 Record Keeping Requirements

(a) To document the compliance status with Condition D.1.1(b), (c) and (f), the Permittee shall maintain monthly records of the input of material at Main Plant, Chip Plant and Portable/Auxiliary Equipment.

(b) To document the compliance status with condition D.1.4(b), the Permittee shall maintain weekly records of the moisture content analysis.

(c) To document the compliance status with condition D.1.5, the Permittee shall maintain a daily record of visible emission notations of the process emission points. 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.1.7 Reporting Requirements

A quarterly report of the input of the material at Main Plant, Chip Plant, and Portable/Auxiliary Equipment to document the compliance status with D.1.1(b), (c) and (f) shall be submitted not 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 report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official," as defined by 326 IAC 2-7-1(35).

SECTION 2.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: Burns Harbor Site

(g) Four (4) portable diesel generator/engines, approved in 2012 for installation, each with a capacity of 559 Hp or less.

(h) One (1) portable diesel generator/engine, approved in 2012 for installation, with a capacity between 600 Hp and 1500 Hp.

(i) Three (3) portable diesel generator/engines, approved in 2012 for installation, each with a capacity of 100 Hp or less.

(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.2.1 PSD and Emission Offset Minor Limit [326 IAC 2-2] [326 IAC 2-3]

The total diesel fuel usage at the generator/engines shall not exceed 60,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with the above limit, in conjunction with the Condition D.1.1, shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-32132-00026 to less 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the SSM No. 127-32132-00026.

Compliance with this limit will limit the SO2, NOx and CO emissions from the modification approved under SSM No. 127-32132-00026 to less than 40, 40 and 100 tons per twelve (12) consecutive month period, respectively, and render the requirements of 326 IAC 2-2 not applicable to the SSM No. 127-32132-00026.

Compliance with this limit will limit the NOx emissions from the modification approved under SSM No. 127-32132-00026 to less than 40 tons per twelve (12) consecutive month period, and render the requirements of 326 IAC 2-3 for ozone not applicable to the SSM No. 127-32132-00026.

D.2.2 Nonroad Engines [326 IAC 20-82] [40 CFR 63, Subpart ZZZZ] [40 CFR 60, Subpart IIII]

The diesel generators/engines shall remain at a location (defined under 40 CFR 1068.30(2)(iii), Nonroad Engine definition) for a period not to exceed twelve (12) consecutive months.

Compliance with this requirement will render the diesel generators/engines as Nonroad Engine under this 40 CFR 63, Subpart ZZZZ and 40 CFR 60, Subpart IIII. Therefore, the requirements of 40 CFR 63, Subpart ZZZZ and 40 CFR 60, Subpart IIII do not apply to these diesel generators/engines.

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

The Preventative Maintenance Plan is required for these diesel generators/engines. 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.2.4 Record Keeping Requirements

(a) To document the compliance status with Condition D.2.1, the Permittee shall maintain monthly records of the total diesel fuel usage for the diesel generator/engines.

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

D.2.5 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.2.1 shall be submitted 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 report submitted by the Permittee does require the certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: **Insignificant Activities**

(a) Degreasing operations that do not exceed 145 gallons per 12 month, except if subject to 326 IAC 20-6. [326 IAC 8-3-2][326 IAC 8-3-8]

(b) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment. [326 IAC 6-3-2]

(c) Activities with emissions equal to or less than insignificant thresholds [326 IAC 2-7-1(21)]:

(1) 10,000 gallon diesel AST identified as EE001-9011 [326 IAC 8-9];
(2) 2,500 gallon diesel AST identified as EE001-9012 [326 IAC 8-9]; and
(3) Iron breakup processing identified as EE001-9014.

(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.3.1 Insignificant Activities [326 IAC 2-7-1(21)]

The emissions from activities EE001-9011, EE001-9012, and EE001-9014 shall remain below the thresholds listed below to be considered as insignificant:

Lead (Pb)= 0.6 ton/year or 3.29 lbs/day Carbon Monoxide (CO)= 25lbs/day
Sulfur Dioxide (SO2)= 5 lbs/hr or 25 lbs/day Particulate Matter (PM)= 5 lbs/hr or 25 lbs/day
Nitrogen Oxides (NOx)= 5 lbs/hr or 25 lbs/day Volatile Organic Compounds (VOC)= 3 lbs/hr or 15 lbs/day

D.3.2 Volatile Organic Liquid Storage Vessels [326 IAC 8-9]

Pursuant to 326 IAC 8-9-1(b), stationary vessels with a capacity of less than thirty-nine thousand (39,000) gallons (EE001-9011 and 9012) are subject to the reporting and record keeping provisions of section 6(a) and 6(b) of this rule and are exempt from all other provisions of this rule.

D.3.3 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Degreaser Control Equipment and Operating Requirements):

(a) The Permittee shall ensure the following control equipment and operating requirements are met:

(1) Equip the degreaser with a cover.

(2) Equip the degreaser with a device for draining cleaned parts.

(3) Close the degreaser cover whenever parts are not being handled in the degreaser.

(4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases.

(5) Provide a permanent, conspicuous label that lists the operating requirements in (a)(3), (a)(4), (a)(6), and (a)(7) of this condition.

(6) Store waste solvent only in closed containers.

(7) Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.

(b) The Permittee shall ensure the following additional control equipment and operating requirements are met:

(1) Equip the degreaser with one (1) of the following control devices if the solvent is heated to a temperature of greater than forty-eight and nine-tenths (48.9) degrees Celsius (one hundred twenty (120) degrees Fahrenheit):

(A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(B) A water cover when solvent used is insoluble in, and heavier than, water.

(C) A refrigerated chiller.

(D) Carbon adsorption.

(E) An alternative system of demonstrated equivalent or better control as those outlined in (b)(1)(A) through (D) of this condition that is approved by the department. An alternative system shall be submitted to the U.S. EPA as a SIP revision.

(2) Ensure the degreaser cover is designed so that it can be easily operated with one (1) hand if the solvent is agitated or heated.

(3) If used, solvent spray:

(A) must be a solid, fluid stream; and

(B) shall be applied at a pressure that does not cause excessive splashing.

D.3.4 Volatile Organic Compounds (VOC) [326 IAC 8-3-8]

Pursuant to 326 IAC 8-3-8 (Material requirements for cold cleaner degreasers):

(a) Material requirements specified in this section for use in cold cleaner degreasers apply as follows:

(1) Before January 1, 2015, in Clark, Floyd, Lake, and Porter Counties.

(2) On and after January 1, 2015, anywhere in the state.

(b) Material requirements are as follows:

(1) Close the cover whenever articles are not being handled in the degreaser.

(2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

(c) Pursuant to 326 IAC 8-3-8(c)(1), the following records shall be maintained for each sale of cold cleaner degreaser solvent:

(1) The name and address of the solvent supplier.

(2) The date of purchase (or invoice/bill dates of contract servicer indicating service date).

(3) The type of solvent purchased.

(4) The volume of each unit of solvent sold.

(5) The total volume of the solvent purchased.

(6) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

(d) Pursuant to 326 IAC 8-3-8(c)(2), the following records shall be maintained for each purchase of cold cleaner degreaser solvent:

(1) The name and address of the solvent supplier.

(2) The date of purchase (or invoice/bill dates of contract servicer indicating service date).

(3) The type of solvent purchased.

(4) The total volume of the solvent purchased.

(5) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

Record Keeping and Reporting Requirements [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.3.2, and pursuant to 326 IAC 8-9, the Permittee must keep records of the following:

(1) The vessel identification number;

(2) The vessel dimensions; and

(3) The vessel capacity.

Records shall be maintained for the life of the vessel.

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

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

PART 70 OPERATING PERMIT CERTIFICATION

Source Name: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, Indiana 46304
Part 70 Permit No.: T127-29719-00026

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

Please check what document is being certified:

☐ 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:

Date:

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

Part 70 Quarterly Report

Source Name: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, IN 46304
Part 70 Permit No.: T127-29719-00026
Facilities: Main Plant
Parameter: Total input of slag and metallic material at the Main Plant
Limit: 2,377,419 tons per twelve (12) consecutive month period with compliance determined at the end of each month

QUARTER:_____ YEAR:_____

Month	Column 1 slag and metallic material input this Month	Column 2 slag and metallic material input 11 Months	Column 1+2 slag and metallic material input 12 Months 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: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, IN 46304
Part 70 Permit No.: T127-29719-00026
Facility: Portable/Auxiliary Equipment
Parameter: The total input of material at the Portable/Auxiliary Equipment
Limit: 800,000 tons per twelve consecutive month period with compliance at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1 material input this month	Column 2 material input previous 11 months	Column 1+2 material input 12 months 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: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Hwy 12, Burns Harbor, IN 46304
Part 70 Permit No.: T127-29719-00026
Facility: Chip Plant
Parameter: Total input of slag and metallic material at the Chip Plant
Limit: 1,300,000 tons 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
	Column 1 slag and metallic material input this month	Column 2 slag and metallic material input previous11 months	Column 1+2 slag and metallic material input 12 months 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: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, IN 46304
Part 70 Permit No.: T127-29719-00026
Facility: diesel generators/engines listed in Section D.2 of this permit
Parameter: total diesel fuel usage
Limit: 60,000 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
	total diesel fuel usage This Month	total diesel fuel usage Previous 11 Months	total 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
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: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, Indiana 46304
Part 70 Permit No.: T127-29719-00026

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), no later than 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 no later than two (**2**) 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 Describe: Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

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

PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Metal Services LLC dba Phoenix Services LLC
Source Address: 250 U.S. Highway 12, Burns Harbor, Indiana 46304
Part 70 Permit No.: T127-29719-00026

Months: _____ **to** _____ **Year:** _____

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

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

Page 2 of 2

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

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Phoenix Services LLC

World Class Service. World Class Experience.

Metal Services LLC, dba, Phoenix Services LLC Burns Harbor Facility

Fugitive Dust Control Plan (FDCP)

326 IAC 6-5-5

October 4, 2013
Revision 5

Prepared by:
ST Environmental LLC
PO Box 2557
Chesterton, IN 46304
(219) 728-6312

TABLE OF CONTENTS

Appendices

Introduction and Facility Description [326 IAC 6-5-5 (a)(1)&(2)]

This Fugitive Dust Control Plan is written in accordance with 326 IAC 6-5-5. This source is located in Porter County, Indiana. Metal Services LLC, dba, Phoenix Services LLC (Phoenix) owns and operates material processing operations located within the ArcelorMittal Burns Harbor Works facility in Burns Harbor, Indiana. ArcelorMittal Burns Harbor Works is a fully integrated steelmaking and finishing facility. Phoenix also has a storage pile location that is part of the Burns Harbor source but is physically separated from the Burns Harbor operation by approximately 2.7 miles. This pile storage location is in the Port of Indiana. ArcelorMittal Burns Harbor Works and Phoenix are considered to be one source due to contractual control; therefore, Phoenix operates under an Administrative Part 70 Operating Permit.

Roadways and Parking Lots [326 IAC 6-5-5 (a)(3)&(5)]

All roadways at the Burns Harbor site which are under control of the Phoenix facility are up to 30 feet wide with varying lengths. Phoenix only has control for the roadways within the boundaries of their immediate stationary operations. ArcelorMittal is responsible for all other roadways in the steel mill. Figure 1 in Appendix A shows the general property layout and approximate designation of the main roadways. Road paths within the processing area change frequently because of the nature of the operation with pile stacking. Trucks and front-end loaders are utilized for transportation of materials throughout the facility. Employee passenger vehicles and passenger trucks are parked in makeshift unpaved parking areas. AP-42 13.2.2 provides the method of the potential PM_{10} emission calculations and can be found in the permit renewal technical support document. There are no designated roadways within the Port of Indiana pile storage location which runs adjacent to a paved public roadway.

Storage Piles [326 IAC 6-5-5 (a)(3)&(7)]

The bulk of the feed material is generated at the blast furnaces or the BOF shop which are owned and operated by ArcelorMittal. Feed materials are brought to the Phoenix site as needed and are stored in various locations onsite and will move within a general area throughout the year. Product materials

are stored in various locations on the facility site and product pile locations will move within a general area throughout the year at Burns Harbor. Phoenix also loads trucks directly from stackers and transports them to their offsite storage pile facility located in the Port of Indiana. Front-end loaders and stacking conveyors are used to load onto and load out of the storage piles. The average moisture content of all materials stored on site must be maintained at 1.5% moisture or higher and can be further impacted by atmospheric precipitation throughout the year. The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance.

Material Process Flow [326 IAC 6-5-5 (a)(3)&(6)]

Materials are moved through a series of crushers and screens via conveyor system in various configurations depending upon the type of product desired. Materials are size-reduced into final products for sale to outside customers. Water application is utilized in the plant which provides up to 90% control efficiency. Water application is used to cool slag before entering the processing plant which provides primary moisture content. Additional water sprays may be used in the process facility as needed. The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance.

Control Measures and Practices [326 IAC 6-5-5 (a)(8), (9) & (10)]

Moisture content and water application to raw materials is the primary control measure for processing materials through plant equipment at this facility. Various water spray nozzle applications may be suspended based on weather events as follows:

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

If chemical application is utilized at some future date, the same weather restrictions may apply. The phrase “weather permitting” used in the following paragraphs herein designates the suspension of control application during the weather events listed above. Additionally, daily visible emission

notations will be conducted to monitor fugitive emissions. The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance.

I. Site Roadways / Plant Yard

Dust on unpaved roads will be controlled by applications of water (an acceptable chemical compound may be used in the future) during operating hours, weather permitting. There are no paved roadways in the immediate stationary operating facility. Applications of dust control material will be done as often as necessary to meet applicable limits.

II. Process Operations

The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance. To help minimize dust emissions, the drop distance at each conveyor transfer point in the plant will be set at the minimum distance in which the equipment can operate effectively. Water spray application can be utilized, if needed and weather permitting, at strategic locations throughout the plant to control dust emissions. During water spray application, caution must be taken to avoid saturating the material which results in blinding the process equipment.

III. Storage Piles

The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance. 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.

IV. Loading and Transfer; Trucks and Front-End Loaders

The average slag moisture target range at this facility is greater than 2%. Phoenix tracks average moisture values at a minimum of 1.5% to maintain continuous compliance. Trucks will be loaded in a

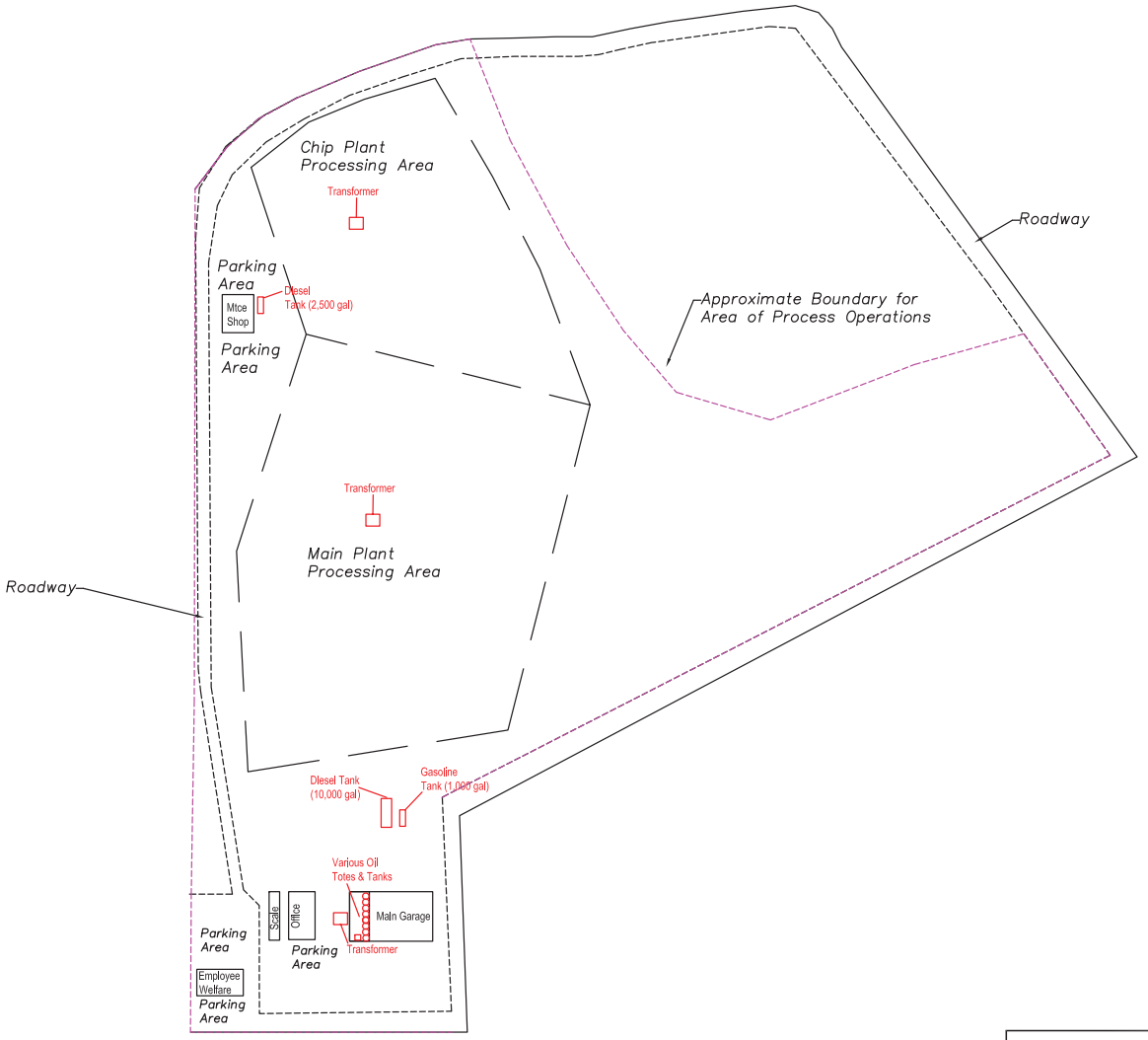
manner to reduce or prevent materials from blowing or otherwise escaping. This may be accomplished by loading the vehicle with the center of gravity for the load at a safe distance below the top of the sideboard. Drop heights for front-end loader buckets will be held within a few feet above the sideboard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

Schedule of Compliance [326 IAC 6-5-5 (a)(11)]

Phoenix implemented the provisions of this control plan upon startup of the operation. This plan will be revised when significant changes occur to the facility. Any revision to this plan requires an administrative amendment to the Part 70 Permit.

Documentation and Record Keeping [326 IAC 6-5-5 (b)]

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



LEGEND

SPCC Containers

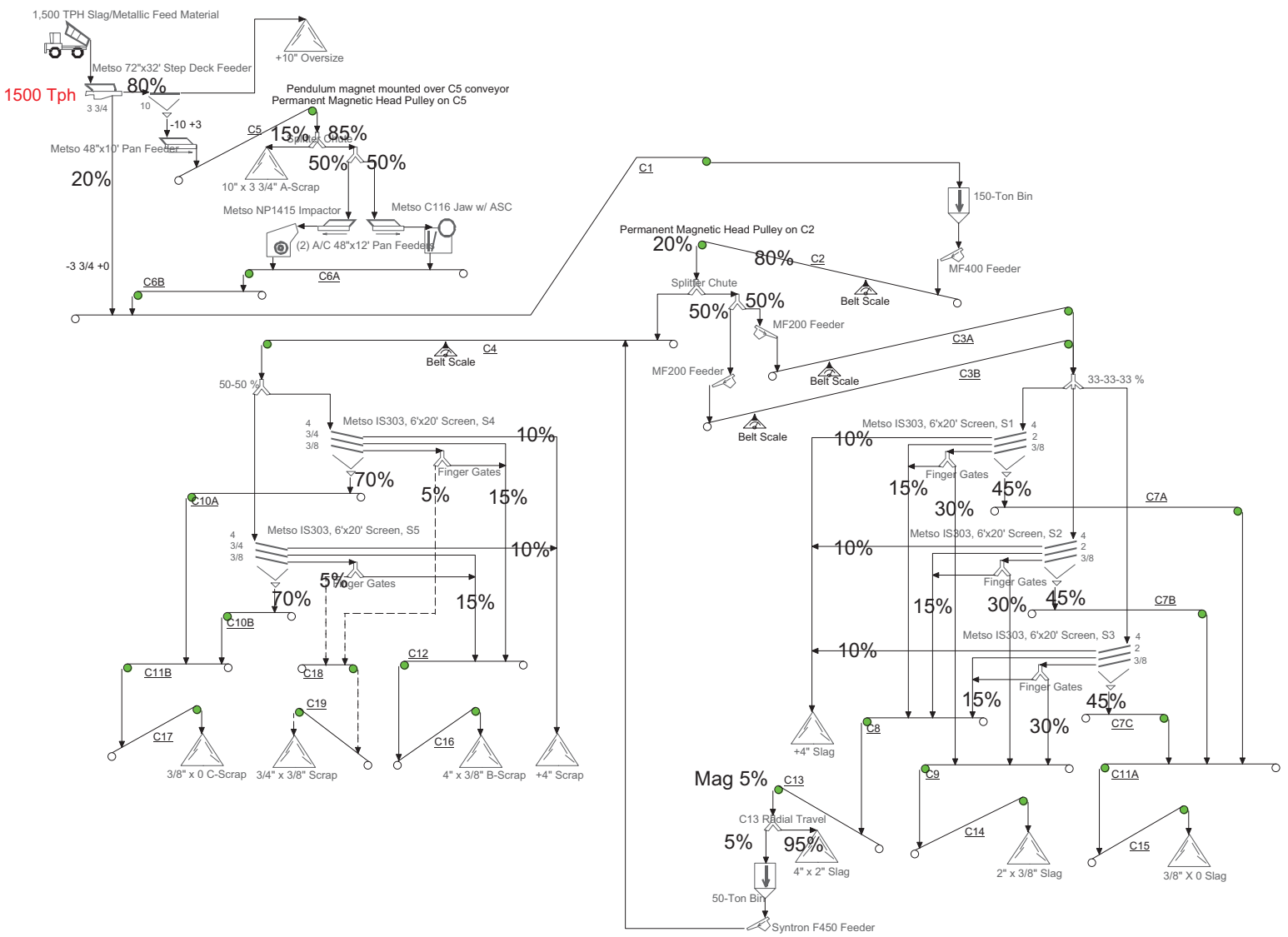
SITE MAP

Phoenix Services, LLC - Burns Harbor
Spill Prevention, Control, and Countermeasure (SPCC) Plan

SCALE:	NOT TO SCALE	REVIEW DATE:	09/23/2013
DRAWN BY:	BD	REVISION DATE:	09/23/2013
REVIEWED BY:	SG/DW	FILE PATH:	Phoenix-Burns Harbor/SPCC
		FILE NAME:	Site Map.DWG

ST Environmental LLC
PO Box 2557
Chesterton, IN 46304
Phone: (219) 728 - 6312
Fax: (855) 728 - 6312

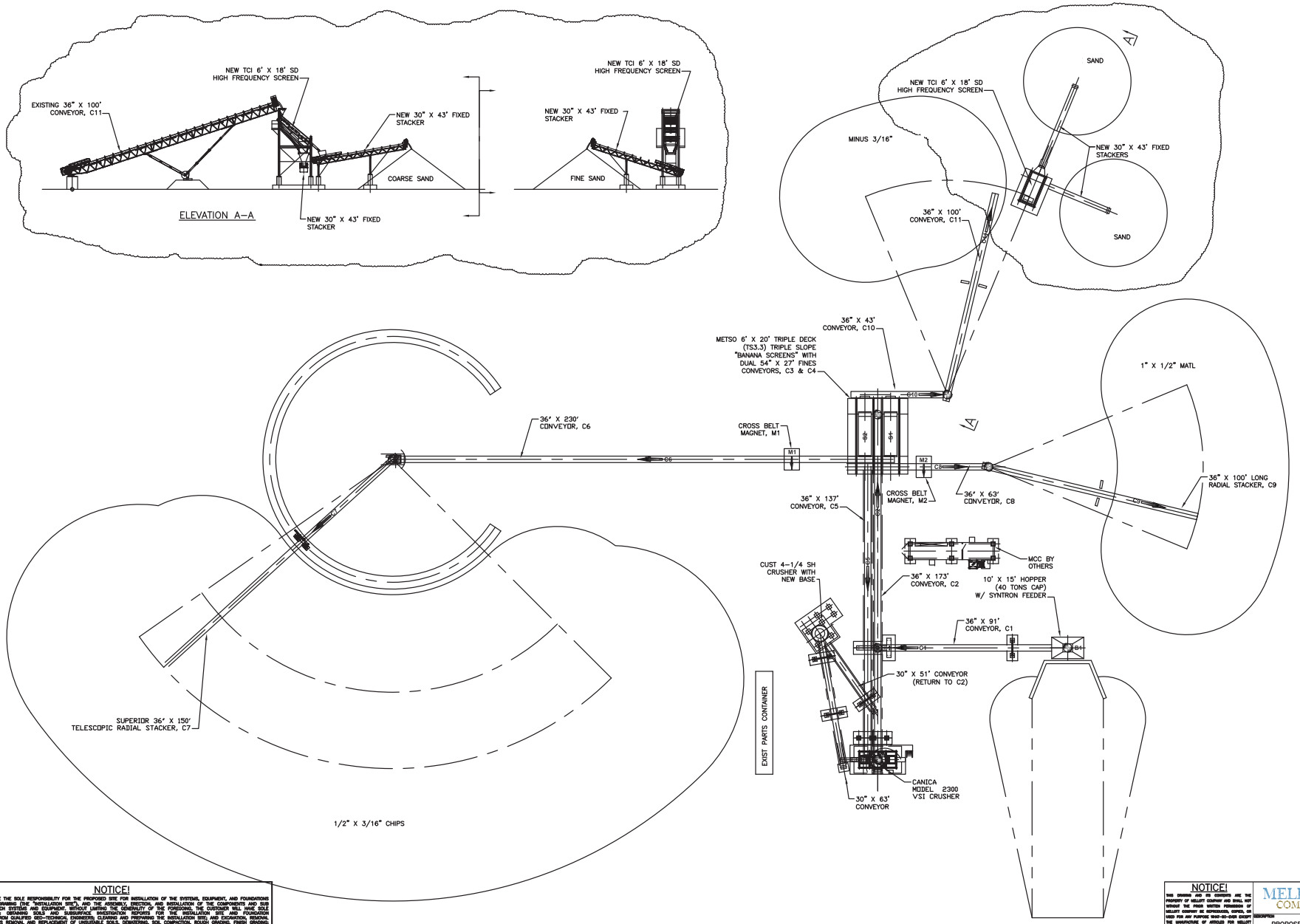
Phoenix flow diagram for separation operation



Run: 5/4/12 11:38:14

Mellott Company
Phoenix Services,LLC, Burns Harbor Plant
Larry A. Weaverling
Flow Diagram

Date: May/4/2012



NOTICE!

CUSTOMER WILL HAVE THE SOLE RESPONSIBILITY FOR THE PROPOSED SITE FOR INSTALLATION OF THE SYSTEMS, EQUIPMENT, AND FOUNDATIONS DEPICTED ON THIS DRAWING (THE "INSTALLATION SITE"), AND THE ASSEMBLY, ERECTION, AND INSTALLATION OF THE COMPONENTS AND SUB COMPONENTS OF SUCH SYSTEMS AND EQUIPMENT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE CUSTOMER WILL HAVE SOLE RESPONSIBILITY FOR: OBTAINING SOILS AND SUBSURFACE INVESTIGATION REPORTS FOR THE INSTALLATION SITE AND FOUNDATION RECOMMENDATIONS FROM QUALIFIED GEO–TECHNICAL ENGINEERS; CLEARING AND PREPARING THE INSTALLATION SITE; AND EXCAVATION, REMOVAL OF ROCK AND DEBRIS REMOVAL AND REPLACEMENT OF UNSUITABLE SOILS, DEWATERING, SOIL COMPACTION, ROUGH GRADING, FINISH GRADING, FINAL ENGINEERING, DESIGN AND INSTALLATION / CONSTRUCTION OF FOUNDATIONS AND REMEDYING OF ANY SUBSURFACE OR OTHERWISE CONCEALED, UNUSUAL CONDITIONS AT OR NEAR THE INSTALLATION SITE SO THAT THE COMPONENTS OF THE PROJECT MAY BE PROPERLY INSTALLED, USED, AND OPERATED.

FOUNDATIONS DEPICTED ON THIS DRAWING ARE FOR GENERAL INFORMATION ONLY. FINAL DESIGN AND ENGINEERING OF FOUNDATIONS WILL BE THE RESPONSIBILITY OF THE CUSTOMER AND WILL BE BASED UPON SOILS AND SUBSURFACE INVESTIGATION REPORTS TO BE OBTAINED BY CUSTOMER AND ACTUAL SITE CONDITIONS.

MELLOTT COMPANY SHALL HAVE NO RESPONSIBILITY WHATSOEVER FOR THE INSTALLATION SITE, THE PREPARATION OF THE SURFACE AND SUBSURFACE THEREOF, THE ENGINEERING, DESIGN AND INSTALLATION / CONSTRUCTION OF THE FOUNDATIONS OR THE COMPONENTS AND SUB COMPONENTS OF THE SYSTEM AND EQUIPMENT DEPICTED ON THIS DRAWING.

MELLOTT COMPANY
100 MELLOTT DR, WARRENSBURG, PA 17897
841 FARMVIEW LANE, MOUNTJOY, PA 17552
570-574-4004
www.mellott.com

DESCRIPTION: PROPOSED TCI SCREEN ADDITION TO CHIP PLANT
CUSTOMER: PHOENIX SERVICES – BURNS HARBOR, IN
DRAWN BY/DATE: RDC 08/06/13
CHECKED BY/DATE:
APPROVED BY/DATE:
SCALE: 1" = 20'-0"
PROJECT-SUB PROJECT #:
SIZE: D
DRAWING #: P2226–001
SHEET # OF #: 0F
REV #: 0

REV #	DATE	REV BY	CHK BY	DESCRIPTION

FUGITIVE DUST CONTROL PLAN
APPENDIX A
ROADWAY CALCULATIONS

Company Name: The Levy Company - Burns Harbor Facility
a contractor of ArcelorMittal Burns Harbor, LLC
Address, City IN Zip: US Highway 12, Burns Harbor, IN 46304

SSM No.: 127-30302
Part 70 Operating Permit Renewal No.: 127-29719
Plt ID: 127-00026
Reviewer: Aida De Guzman
Date Part 70 Operating Permit Renewal Application Received: Sept. 23, 2010
Date SSM Application Received: March 3, 2011

Potential to Emit - FROM UNPAVED ROADWAYS

ArcelorMittal Iron Production (tons): 5,460,000 Slag production is limited by ArcelorMittal Blast Furnace operations which has a permit limit of 5,460,000 tons molten iron.
PTE slag throughput (tons): 1,638,000 Slag production can be up to 30% of molten iron production. (*USGS Minerals Yearbook 2002, Slag-Iron and Steel Section*)

Vehicle	Production (tons/yr)	Product Weight (tons/RT)	Round Trips/yr	Avg miles per round trip	VMT/yr
Pot Haulers	1,638,000	55	29,782	0.8	23,825
Trucks and haulers	1,638,000	50	32,760	0.50	16,380
Front-end loaders	1,638,000	15	109,200	0.10	10,920

Vehicle	Mean Weight (W) (tons)	PM Emission Factor[2] (lb/VMT)	PM2.5 Emission Factor[2] (lb/VMT)	PM10 Emission Factor[2] (lb/VMT)	VMT/yr	UNCONTROLLED PTE			CONTROLLED PTE		
						PM Emissions (TPY)	PM10 Emissions (TPY)	PM2.5 Emissions (TPY)	PM Emissions (TPY)	PM10 Emissions (TPY)	PM2.5 Emissions (TPY)
Pot Haulers	180	19.04	0.51	5.07	23,825	226.81	60.44	0.05754	34.0209	9.0664	0.00863
Trucks and haulers	64	11.96	0.32	3.19	16,380	97.91	26.09	0.01560	14.6868	3.9140	0.00234
Front-end loaders	31	8.63	0.23	2.30	10,920	47.11	12.55	0.00542	7.0659	1.8830	0.00081
						371.82	**99.09**	**0.08**	**55.77**	**14.86**	**0.01**

85% control efficiency

*Based on a control efficiency in the AP-42 from the periodic application of water and/or other dust suppressants.

Reference AP-42, 13.2.2, 11/2006
E = k(s/12)^a x (W/3)^b)

Variable	PM10 Value	Units
k (lb/VMT)	1.5	Table 13.2.2-2
a	0.9	Table 13.2.2-2
b	0.45	Table 13.2.2-2
W	see above	tons
M	-	% (default)
s	6	% (Table 13.2.2-1)(iron/steel mills)

Variable	PM Value	Units
k (lb/VMT)	4.9	Table 13.2.2-2
a	0.7	Table 13.2.2-2
b	0.45	Table 13.2.2-2
W	see above	tons
M	-	% (default)
s	6	% (Table 13.2.2-1)(iron/steel mills)

Variable	PM2.5 Value	Units
k (lb/VMT)	0.15	Table 13.2.2-2
a	0.9	Table 13.2.2-2
b	0.45	Table 13.2.2-2
W	see above	tons
M	-	% (default)
s	6	% (Table 13.2.2-1)(iron/steel mills)

Phoenix Services LLC - Fugitive Dust Control Plan
Road Watering Documentation Log

Fill in data for each road dust control application event (as multiple application events may occur in a day).

Date: _____

Weather Conditions (check all that apply): ☐ Temperature ≥ 32°F ☐ Rainfall ≥ 0.1 inches ☐ Ice and/or Snow Cover Present

Application may be suspended if any of these weather events are present. However, this documentation must be retained.

List the roadways that were treated:	
Application Rate(s):	
Time(s) of each application:	
Width(s) of each application:	
Type of application(s):	☐ Water Spray ☐ Chemical
Quantity(s) of each application:	
If chemical used, conc of each application:	

APPENDIX C - EQUIPMENT LIST

Main Plant	Capacity (tph)	% Process Flow	
F1 step deck feeder	1500	100%	of baseline
CRUSHING			
F2 pan feeder	feed control	80%	of F1 feeder
C5 conveyor	feed control	100%	of F2 feeder
C5 mag/pendulum head pulley	feed control	15%	of C5 conv
C5 splitter (scrap)	feed control	100%	of C5 mag
C5 splitter (slag)	feed control	85%	of C5 conv
crush splitter (impactor)	feed control	50%	of C5 splitter (slag)
crush splitter (jaw)	feed control	50%	of C5 splitter (slag)
F3 pan feeder	feed control	100%	of crush splitter (jaw)
F4 pan feeder	feed control	100%	of crush splitter (impactor)
jaw crusher	feed control	100%	of crush splitter (jaw)
impactor	feed control	100%	of crush splitter (impactor)
C6A conveyor	feed control	100%	of jaw+impact crushers
C6B conveyor	feed control	100%	of C6A conv
SCREENING			
C1 conveyor	feed control	100%	of F1 step feeder
150-ton bin	feed control	100%	of C1 conveyor
F5 feeder (MF400)	feed control	100%	of 150-ton bin
C2 conveyor	feed control	100%	of F5 feeder
C2 mag head pulley	feed control	20%	of C2 conv
C2 splitter (slag)	feed control	80%	of C2 conv
C2 splitter (scrap)	feed control	20%	of C2 conv
F6/F7 splitter (count all in one 50/50)	feed control	100%	of C2 splitter (slag)
F6 feeder	feed control	50%	of F6/F7 splitter
F7 feeder	feed control	50%	of F6/F7 splitter
C3A conveyor	feed control	100%	of F7 feeder
C3B conveyor	feed control	100%	of F6 feeder
triple split chute	feed control	100%	of C3A+C3B conv
S1 screen	feed control	33%	triple split chute
C7A conveyor	feed control	45%	of S1 screen
S2 screen	feed control	33%	triple split chute
C7B conveyor	feed control	45%	of S2 screen
S3 screen	feed control	33%	triple split chute
C7C conveyor	feed control	45%	of S3 screen
C11A conveyor	feed control	100%	of C7A+C7B+C7C conv
C15 stk conveyor	feed control	100%	of C11A conv
C9 conveyor	feed control	30%	of S1+S2+S3 screens
C14 stk conveyor	feed control	100%	of C9 conv
C8 conveyor	feed control	15%	of S1+S2+S3 screens
C13 stk conveyor	feed control	100%	of C8 conv
C13 mag head pulley	feed control	5%	of C13 conv
C13 splitter (slag)	feed control	95%	of C13 conv
C13 splitter (scrap)	feed control	100%	of C13 mag

APPENDIX C - EQUIPMENT LIST

Main Plant	Capacity (tph)	% Process Flow	
SCRAP			
50-ton scrap bin	feed control	100%	of C13 mag
F8 feeder	feed control	100%	of 50-ton scrap bin
C4 conveyor	feed control	100%	of C2 split(scrap)+F8 feeder
C4 splitter (S4)	feed control	50%	of C4 conv
C4 splitter (S5)	feed control	50%	of C4 conv
S4 screen	feed control	100%	of C4 splitter (S4)
C10A conveyor	feed control	70%	of S4 screen
S5 screen	feed control	100%	of C4 splitter (S5)
C10B conveyor	feed control	70%	of S5 screen
C11B conveyor	feed control	100%	of C10A+C10B conv
C17 stk conveyor	feed control	100%	of C11B conv
C12 conveyor	feed control	15%	of S4+S5 screens
C16 stk conveyor	feed control	100%	of C12 conv
C18 conveyor	feed control	5%	of S4+S5 screens
C19 stk conveyor	feed control	100%	of C18 conv

Chip Plant	Capacity (tph)	% Process Flow	
40-ton feed hopper (B1)	500	100%	of feed
F9 feeder	500	100%	of 40-ton feed hopper
C1 conveyor	800	100%	of F9 feeder
C2 conveyor	500	100%	of crusher+C1 conv
crusher	500	10%	of F9 feeder
C5 conveyor	500	100%	of crusher
S1 screen	400	50%	of C2 conv
C3 conveyor	150	10%	of S1 screen
S2 screen	400	50%	of C2 conv
C4 conveyor	150	10%	of S2 screen
C10 conveyor	300	100%	of C3+C4 conv
C11 stk conveyor	55	100%	of C10 conv
C8 conveyor	250	15%	of S1+S2
M2 mag cross belt		5%	of C8 conv
C9 stk conveyor	78.375	95%	of C8 conv
C6 conveyor	250	65%	of S1+S2
M1 mag cross belt		5%	of C6 conv
C7 stk conveyor	250	95%	of C6 conv
C12 conveyor	300	100%	of C5 conv
C13 conveyor	300	100%	of C5 conv
CR2 crusher	400	100%	of C5 conv
S3 screen	75	100%	of C11 conv
C14 conveyor	50	50%	of S3 screen
C15 conveyor	50	50%	of S3 screen

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source and Significant Permit Modification

Source Description and Location

Source Name:	Metal Services, LLC dba Phoenix Services, LLC – a contractor of ArcelorMittal Burns Harbor, LLC
Source Location:	U.S. Highway 12, Burns Harbor, Indiana 46304
County:	Porter
SIC Code:	3295
Operation Permit No.:	T 127-29719-00026
Operation Permit Issuance Date:	July 1, 2011
Significant Source Modification No.:	127-34120-00026
Significant Permit Modification No.:	127-34181-00026
Permit Reviewer:	Madhurima Moulik

Source Definition

This integrated steel works operation consists of a primary source, ArcelorMittal Burns Harbor, LLC (Plant ID 127-00001), located at 250 West U.S. Highway 12, Burns Harbor, Indiana, with the following onsite contractors. The contractors listed below were issued separate Part 70 operating permits solely for administrative purposes:

(a) Indiana Flame (T127-00098);
(b) Metal Services LLC dba Phoenix Services LLC (T127-00026);
(c) Mid-Continent Coal and Coke (T127-00108);
(d) Oil Technology (T127-00074);
(e) SMS Mill Services, LLC (T127-00076);
(f) Beemsterboer Slag Corp (127-00116);
(g) Mid-Continent Coal and Coke (127-00117);
(h) PSC Metals Inc. (127-00118); and
(i) Calumite Company (127-00024).

Separate Part 70 Administrative permits were issued to ArcelorMittal Burns Harbor, LLC (Source ID 127-00001) and each of the onsite contractors, solely for administrative purposes. The companies may maintain separate reporting and compliance certification.

Existing Approvals

The source was issued Administrative Part 70 Operating Permit (Renewal) No. 127-29719-00026 on July 1, 2011. The source has since received the following approvals:

(a) Administrative Amendment No. 127-31251-00026, issued on December 27, 2011;
(b) Minor Permit Modification No. 127-31268-00026, issued on April 16, 2012;
(c) Significant Permit Modification No. 127-32224-00026, issued on December 28, 2012;
(d) Administrative Amendment No. 127-33192-00026, issued June 21, 2013;
(e) Significant Source Modification No. 127-34120-00026, issued November 15, 2013; and
(f) Significant Permit Modification No. 127-33602-00026, issued December 2, 2013.

County Attainment Status

The source is located in Porter County.

Pollutant	Designation
SO_2	Cannot be classified for the area bounded on the north by Lake Michigan; on the west by the Lake County and Porter County line; on the south by I-80 and I-90; and on the east by the LaPorte County and Porter County line. The remainder of Porter County is better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	On June 11, 2012, the U.S. EPA designated Porter County nonattainment, for the 8-hour ozone standard.
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.
Unclassifiable or attainment effective February 6, 2012, for PM2.5.	

(a) Ozone Standards
U.S. EPA, in the Federal Register Notice 77 FR 112 dated June 11, 2012, has designated Porter County as nonattainment for ozone. On August 1, 2012 the air pollution control board issued an emergency rule adopting the U.S. EPA's designation. This rule became effective, August 9, 2012. IDEM does not agree with U.S. EPA's designation of nonattainment. IDEM filed a suit against US EPA in the US Court of Appeals for the DC Circuit on July 19, 2012. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's designation. Volatile organic compounds (VOC) and nitrogen oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Therefore, VOC and NO_x emissions were evaluated pursuant to the requirements of Emission Offset, 326 IAC 2-3. See the State Rule Applicability – Entire Source section.

(b) $PM_{2.5}$
Porter County has been classified as attainment for $PM_{2.5}$. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for $PM_{2.5}$ emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct $PM_{2.5}$ significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct $PM_{2.5,}$ $SO_{2,}$ and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants
Porter County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this source is classified as an integrated iron and steel plant, it is considered one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7. Therefore, fugitive emissions are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Source Status

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

Pollutant	**Emissions** (ton/yr)
PM	>100
PM_{10}	>100
$PM_{2.5}$	>100
SO_2	>100
VOC	>25
CO	>100
NO_X	>100
GHGs as CO_2e	>100,000
Single HAP	>10
Total HAPs	>25

(a) This existing source is a major stationary source, under PSD (326 IAC 2-2), because a regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) This existing source is a major stationary source, under Emission Offset (326 IAC 2-3), because NOx (a precursor of ozone, a nonattainment regulated pollutant), is emitted at a rate of 100 tons per year or more.

(c) These emissions are based on the Technical Support Document for T 127-6301-00001.

(d) This existing source is a major source of HAPs, as defined in 40 CFR 63.2, because HAP emissions are greater than ten (10) tons per year for a single HAP and greater than twenty-five (25) tons per year for a combination of HAPs. Therefore, this source is a major source under Section 112 of the Clean Air Act (CAA).

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed a modification application, submitted by Metal Services, LLC dba Phoenix Services, LLC - a contractor of ArcelorMittal Burns Harbor, LLC on January 28, 2014 relating to the installation of a portable wet screening unit. The following is a list of the proposed emission units:

(a) One (1) portable wet screening plant, permitted in 2014, including the following:

(1) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
(2) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
(3) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
(4) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

"Integral Part of the Process" Determination

The Permittee has submitted the following information to justify why the pre-wetting mechanism should be considered an integral part of the screening operation:

(a) The wet screening unit has an integral water system that pre-soaks all of the material as it enters the unit, creating a slurry that is processed through the unit. The water will be fed and made up through a plant service water connection. The used water will be recycled back through the unit via two small water storage tanks.

IDEM, OAQ has evaluated the information submitted and has determined that the pre-wetting mechanism should not be considered an integral part of the screening process. This determination is based on the fact that it does not meet all of the following three requirements that qualify a control device as integral.

(a) The process cannot operate without the control equipment.

(b) The control equipment serves a primary purpose other than pollution control.

(c) The control equipment has an overwhelming positive net economic effect.

IDEM, OAQ has evaluated the justification and determined that the prewetting mechanism is not integral to the processing of a product. This determination was based on the following:

(a) Prewetting of the material does reduce particulate matter emissions from the screening operation. However, this alone does not guarantee that the system is properly operated and a minimum material moisture content of 1.5% is met.

(b) The Permittee had not provided information that there is any financial motivation for prewetting the material to maintain the required moisture content.

Therefore, the permitting level will be determined using the potential to emit before control.

Enforcement Issues

There are no pending enforcement actions related to this modification.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – Part 70

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency."

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Increase in PTE Before Controls of the Modification	
Pollutant	**Potential To Emit** (ton/yr)
PM	61.10
PM_{10}	21.48
$PM_{2.5}$	21.48
SO_2	---
VOC	---
CO	---
NO_X	---
Single HAPs	---
Total HAPs	---

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

This source modification is subject to significant source modification rules under 326 IAC 2-7-10.5(g)(4) because the uncontrolled potential to emit of PM is greater than twenty-five (25) tons per year. Additionally, the modification will be incorporated into the Part 70 Operating Permit through a significant permit modification issued pursuant to 326 IAC 2-7-12(d) because, pursuant to 326 IAC 2-7-12(b)(1)(C), a minor permit modification cannot be issued if a change involves a case-by-case determination of an emission limitation or standard. The proposed modification involves emission limitations under 326 IAC 2-2 and 326 IAC 6-3-2.

Permit Level Determination – PSD or Emission Offset or Nonattainment NSR

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this Part 70 permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

(Note: The Permittee was issued the following permits that included new equipment: Significant Source Modification No. 127-30302-00026 on June 14, 2011, a Significant Source Modification No. 127-31132-00026 on December 28, 2012, an Administrative Amendment No. 127-33192-00026 on June 21, 2013, and a Significant Source Modification No. 127-33544-00026 on November 15, 2013. Portable/Auxiliary units were included in the source modifications. The updated limited emissions have been included in the table below for evaluation under PSD rules. The controlled and limited emissions for PSD evaluation are based on limited throughputs of 2,377,419 tons per year at the Main Plant and 1.300.000 tons per year the Chip Plant. The detailed emissions calculations have been included in Appendix A.)

	Potential to Emit (ton/yr)							
Process / Emission Unit	**PM**	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**VOC**	**CO**	**NO_X**	**GHGs**
Feed Chute	0.16	0.06	0.06	---	---	---	---	---
Screen	0.67	0.23	0.23	---	---	---	---	---
Output Chute 1	0.02	0.01	0.01	---	---	---	---	---
Output Chute 2	0.02	0.01	0.01	---	---	---	---	---
Output Chute 3	0.02	0.01	0.01	---	---	---	---	---
Output Chute - Oversize	0.01	0.002	0.002	---	---	---	---	---

	Potential to Emit (ton/yr)							
Process / Emission Unit	**PM**	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**VOC**	**CO**	**NO_X**	**GHGs**
Total for Proposed Modification (2014)	0.91	0.32	0.32	0	0	0	0	0
Related equipment permitted from years 2011 through 2013 (a)	20.6	8.6	8.6	6.2	18.1	1.5	3.9	680.7
Total	21.5	8.6	8.6	6.2	18.1	1.5	3.9	680.7
Significant Level	25	15	10	40	40	100	40	75,000 CO_2e

*$PM_{2.5}$ listed is direct $PM_{2.5}$

(a) The detailed updated emissions calculations from source modification No. 127-33544-00026 are included in Appendix A.

(Note: The other equipment listed under Portable/Auxiliary Equipment in Section D.1 shall not be operated at Metal Services LLC dba Phoenix Services LLC site. The source wants flexibility at the Portable/Auxiliary Equipment to process slag and metallic material as well as other material supplied by ArcelorMittal Burns Harbor, LLC (plant ID 127-00001). The Actual to Potential test included in SSM No. 127-32132-00026 for the storage piles and unpaved road emissions reflects that only 2,377,419 tons of slag and metallic material will be processed at Metal Services LLC dba Phoenix Services LLC site. The Main Plant will process all of the 2,377,419 tons of slag and metallic material at Metal Services LLC dba Phoenix Services LLC site; as such, no slag and metallic material processing throughput limit is available for the Portable/Auxiliary Equipment, if the Portable/Auxiliary Equipment is operated at Metal Services LLC dba Phoenix Services LLC site. Therefore, the Portable/Auxiliary Equipment is not approved for operation at Metal Services LLC dba Phoenix Services LLC site. ***However, according to information submitted by the Permittee, the portable wet screen will be used to process material that has been previously processed at the chip plant. No additional fugitive emissions from storage piles and unpaved roads are expected from this step****).*

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

This modification to an existing major stationary source is not major because the emissions increase is less than the Emission Offset significant levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

Federal Rule Applicability Determination

NSPS:

(a) 326 IAC 12 and 40 CFR Part 60, Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants. This source (Metal Services/Phoenix Services) is not subject to the requirements of this NSPS because this subpart is not applicable to slag processing operations because the original ore is expanded and vitrified in a furnace which alters the physical and chemical makeup of the ore producing a slag by-product that does not meet the definition of a nonmetallic mineral in 40 CFR 60.671.

(b) 326 IAC 12 and 40 CFR Part 60, Subpart LL – Standards of Performance for Metallic Mineral Processing Plants – This source (Metal Services/Phoenix Services) is not subject to this NSPS, Subpart LL because this source does not produce metallic mineral concentrates from ore nor it does mine ore. Additionally, the slag crushing and/or screening operations are not performed in a mine or pit.

NESHAP:

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) applicable to this proposed modification.

(d) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to new or modified emission units that involve a pollutant-specific emission unit and meet the following criteria:

(1) has a potential to emit before controls equal to or greater than the Part 70 major source threshold for the pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant; and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The wet screen does not use a control device as defined in 40 CFR 64. Therefore, the requirements of 40 CFR Part 64, CAM, are not applicable to any of the emission units at the plant.

State Rule Applicability Determination

326 IAC 2-2 and 2-3 (PSD and Emission Offset)
PSD and Emission Offset applicability is discussed under the Permit Level Determination – PSD and Emission Offset section.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The operation of the new units each will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

(a) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the proposed wet screen and the feed chute shall not exceed 67.7 pounds per hour each when operating at a process weight rate of 450 tons per hour. The pound per hour limitation was calculated with the following equation:

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

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

P = 450 tons per hour = 900,000 lb/hr

$E = 55 \times (450)^{0.11} - 40 = 67.7$ lb/hr

The uncontrolled potential to emit of the feed chute and the screen are less than the limitation under 326 IAC 6-3-2.

(b) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the proposed output chutes 1, 2 and 3 shall not exceed 54.3 pounds per hour each when operating at a process weight rate of 135 tons per hour. The pound per hour limitation was calculated with the following equation:

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

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

The three (3) output chutes 1, 2, and 3 each has a processing capacity of 135 tons per hr (270,000 lb/hr).

E = 54.3 lb/hr (each)

The uncontrolled potential to emit of the output chutes 1, 2 and 3 are less than the limitation under 326 IAC 6-3-2.

(c) Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the proposed oversize output chute shall not exceed 43.6 pounds per hour each when operating at a process weight rate of 45 tons per hour. The pound per hour limitation was calculated with the following equation:

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

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

The oversize output chute has a processing capacity of 45 tons per hour (90,000 lb/hr).

E = 43.6 lb/hr

The uncontrolled potential to emit of the oversize output chute is less than the limitation under 326 IAC 6-3-2.

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 modification are as follows:

The proposed emission units are subject to PSD minor limitations under 326 IAC 2-2 for particulate matter. In order to comply with these limitations, the following requirements are applicable:

(a) The Permittee shall use wet suppression to control particulate emissions from the wet screening equipment, the feed chutes, output chutes 1, 2 and 3 and the oversize output chute except for the following time periods:

(i) During precipitation

(ii) When ambient air temperature is at or below freezing temperature

(b) The Permittee shall perform weekly moisture content analysis prior to feeding material to the feed chute and screen to ensure the material moisture content is not less than 1.5%.

The compliance monitoring requirements applicable to this modification are as follows:

The proposed emission units are subject to limitations under 326 IAC 2-2, 326 IAC 6-3-2 and fugitive dust control rules. In order to demonstrate compliance with these limitations, the following visible emissions notations are required:

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

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

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

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

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

Proposed Changes

The changes listed below have been made to Administrative Part 70 Operating Permit No. T127-29719-00026. Deleted language appears as ~~strikethroughs~~ and new language appears in **bold**:

(a) Sections A.3 and D.1 have been modified to include the proposed wet screening unit.
(b) Condition D.1.1 - PSD Minor Limit has been modified to include the proposed wet screening and other units, and to clarify that the updated total emissions increases after the modifications included in SSM No. 127-32132-00026 and SSM No. 127-33544-00026 were below the PSD triggers (Note: The Permittee has submitted information that only material processed in the chip plant shall be used in the wet screening operation. No additional fugitive dust emissions are expected from this modification).
(c) Condition D.1.2 - Particulate has been modified to include the particulate matter limitation under 326 IAC 6-3-2 for the proposed units.

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

Metal Services LLC dba Phoenix Services LLC operates the following emission units and pollution control devices:

....

(e) Chip Plant, with a maximum material throughput capacity of 500 tons per hour (tph), approved in 2012 for construction (unless noted otherwise), using wet suppressant for fugitive emissions control, consisting of the following equipment:

(1) One (1) feed hopper (B1), with a capacity of 500 tph
(2) One (1) feeder (F9), with a capacity of 500 tph
(3) One (1) conveyor (C1), with a capacity of 500 tph
(4) One (1) conveyor (C2), with a capacity of 800 tph
(5) One (1) crusher, with a capacity of 500 tph
(6) One (1) conveyor (C5), with a capacity of 500 tph
(7) One (1) screen (S1), with a capacity of 400 tph
(8) One (1) conveyor (C3), with a capacity of 150 tph
(9) One (1) screen (S2), with a capacity of 400 tph
(10) One (1) conveyor (C4), with a capacity of 150 tph
(11) One (1) conveyor (C10), with a capacity of 300 tph
(12) One (1) stack conveyor (C11), with a capacity of 55 tph
(13) One (1) conveyor (C8), with a capacity of 250 tph
(14) One (1) mag cross belt (M2)
(15) One (1) stack conveyor (C9), with a capacity of 78.375 tph
(16) One (1) conveyor (C6), with a capacity of 250 tph
(17) One (1) mag cross belt (M1)
(18) One (1) stack conveyor (C7), with a capacity of 250 tph
(19) One (1) conveyor (C12), approved in 2013 for construction, with a capacity of 300 tph
(20) One (1) conveyor (C13), approved in 2013 for construction, with a capacity of 300 tph
(21) One (1) crusher (crusher 2), approved in 2013 for construction, with a capacity of 400 tph
(22) One (1) screen (S3), approved in 2013 for construction, with a maximum capacity of 75 tph.
(23) One (1) conveyor (C14), approved in 2013 for construction, with a maximum capacity of 50 tph.
(24) One (1) conveyor (C15), approved in 2013 for construction, with a maximum capacity of 50 tph.
(25) One (1) portable wet screening plant, approved in 2014 for construction, with a maximum capacity of 450 tons per hour, including the following:
(A) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
(B) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
(C) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
(D) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: Burns Harbor Site

(a) An open air Slag Pot Dumping operation constructed in 1969 which receives slag pots by pot carrier from the BOF, identified as EU001-01, with collective fugitive emissions EP001-9011.

....

(e) Chip Plant, with a maximum material throughput capacity of 500 tons per hour (tph), approved in 2012 for construction (unless noted otherwise), using wet suppressant for fugitive emissions control, consisting of the following equipment:

(1) One (1) feed hopper (B1), with a capacity of 500 tph
(2) One (1) feeder (F9), with a capacity of 500 tph
(3) One (1) conveyor (C1), with a capacity of 500 tph
(4) One (1) conveyor (C2), with a capacity of 800 tph
(5) One (1) crusher, with a capacity of 500 tph
(6) One (1) conveyor (C5), with a capacity of 500 tph
(7) One (1) screen (S1), with a capacity of 400 tph
(8) One (1) conveyor (C3), with a capacity of 150 tph
(9) One (1) screen (S2), with a capacity of 400 tph
(10) One (1) conveyor (C4), with a capacity of 150 tph
(11) One (1) conveyor (C10), with a capacity of 300 tph
(12) One (1) stack conveyor (C11), with a capacity of 55 tph
(13) One (1) conveyor (C8), with a capacity of 250 tph
(14) One (1) mag cross belt (M2)
(15) One (1) stack conveyor (C9), with a capacity of 78.375 tph
(16) One (1) conveyor (C6), with a capacity of 250 tph
(17) One (1) mag cross belt (M1)
(18) One (1) stack conveyor (C7), with a capacity of 250 tph
(19) One (1) conveyor (C12), approved in 2013 for construction, with a capacity of 300 tph
(20) One (1) conveyor (C13), approved in 2013 for construction, with a capacity of 300 tph
(21) One (1) crusher (crusher 2), approved in 2013 for construction, with a capacity of 400 tph
(22) One (1) screen (S3), approved in 2013 for construction, with a maximum capacity of 75 tph.
(23) One (1) conveyor (C14), approved in 2013 for construction, with a maximum capacity of 50 tph.
(24) One (1) conveyor (C15), approved in 2013 for construction, with a maximum capacity of 50 tph.
(25) One (1) portable wet screening plant, approved in 2014 for construction, with a maximum capacity of 450 tons per hour, including the following:
(A) One (1) feeding chute, identified as Feed Chute, with a maximum throughput capacity of 450 tons per hour;
(B) One (1) screen, identified as Wet Screen, with a maximum throughput capacity of 450 tons per hour;
(C) Three (3) output chutes, identified as Output Chutes 1, 2, and 3, each with a maximum throughput capacity of 135 tons per hour;
(D) One (1) oversize chute, identified as Oversize Chute, with a maximum throughput capacity of 45 tons per hour.

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

D.1.1 PSD Minor Limit ~~[326 IAC 2-2]~~

(a) Only slag and metallic material shall be processed at Main Plant.

(b) The total input of slag and metallic material at Main Plant shall not exceed 2,377,419 tons per twelve consecutive month period with compliance determined at the end of each month.

(c) The total input of material at the Chip Plant shall not exceed 1,300,000 tons per twelve consecutive month period with compliance determined at the end of each month.

(d) The Chip Plant shall process only those materials that have been previously processed at the Main Plant.

(e) The Portable/Auxiliary Equipment **(except for the Wet Screen permitted in 2014)**, shall not be operated at Metal Services LLC dba Phoenix Services LLC site.

(f) The total input of material at the Portable/Auxiliary Equipment, shall not exceed 800,000 tons per twelve consecutive month period with compliance determined at the end of each month.

(g) The Wet Screening Unit (permitted in 2014) shall process only those materials that have been previously processed at the Chip Plant.

(~~g~~ **h**) The moisture content of slag material processed at the Main Plant, Chip Plant and Portable/Auxiliary Equipment, shall not be less than 1.5%.

Compliance with the above limits, in conjunction with Condition D.2.1, shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-32132-00026 to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the SSM No. 127-32132-00026.

Compliance with the above limits shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-33544-00026, **in conjunction with the emissions from equipment processed under SSM No. 127-32132-00026** to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the **associated emission units** ~~SSM No. 127-33544-00026~~.

Compliance with the above limits shall limit the PM, PM10 and PM2.5 emissions from the modification approved under SSM No. 127-34120-00026, in conjunction with the emissions from equipment processed under SSM No. 127-32132-00026 and SSM No. 127-33544-00026 to less than 25, 15 and 10 tons per year, respectively, and render the requirements of 326 IAC 2-2 not applicable to the associated emission units.

D.1.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 the particulate emissions from the following listed units shall be limited as follows when operating at the listed process weight rate:

Emission Unit	Process weight rate (tons/hr)	326 IAC 6-3 limit lb/hr
Main Plant		
One (1) step deck feeder (F1)	1500	82.95
.....		
Chip Plant		
One (1) feed hopper (B1)	500	68.96
One (1) feeder (F9)	500	68.96
One (1) conveyor (C1)	500	68.96

Emission Unit	Process weight rate (tons/hr)	326 IAC 6-3 limit lb/hr
One (1) conveyor (C2)	800	74.74
One (1) crusher, 500	500	68.96
One (1) conveyor (C5)	500	68.96
One (1) screen (S1)	400	66.31
One (1) conveyor (C3)	150	55.44
One (1) screen (S2)	400	66.31
One (1) conveyor (C4)	150	55.44
One (1) conveyor (C10)	300	63.00
One (1) stack conveyor (C11)	55	45.47
One (1) conveyor (C8)	250	60.96
One (1) mag cross belt (M2)	4.125	10.60
One (1) stack conveyor (C9)	78.375	48.86
One (1) conveyor (C6) 20	250	60.96
One (1) mag cross belt (M1)	18	28.43
One (1) stack conveyor (C7)	250	60.96
One (1) conveyor (C12)	300	63.0
One (1) conveyor (C13)	300	63.0
One (1) crusher (crusher 2)	400	66.3
One (1) screen (S3)	75	48.4
One (1) conveyor (C14)	50	44.6
One (1) conveyor (C15)	50	44.6
Portable Wet Screening Plant		
Feed Chute	**450**	**67.7**
Wet Screen	**450**	**67.7**
Output Chutes 1, 2, 3	**135 (each)**	**54.3 (each)**
Oversize Chute	**45**	**43.6**
....		

Conclusion and Recommendation

The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 127-34120-00026 and Significant Permit Modification No. 127-34181-00026. The staff recommends to the Commissioner that this Part 70 Significant Source and Significant Permit Modification be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Madhurima Moulik at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 233-0868 or toll free at 1-800-451-6027 extension 3-0868.

(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

TSD Appendix A - Emission Summary

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

LIMITED THROUGHPUT EMISSIONS								
Process/Equip	**PM (tpy)**	**PM10 (tpy)**	**PM2.5 (tpy)**	**SO2 (tpy)**	**NOx (tpy)**	**VOC (tpy)**	**CO (tpy)**	**CO2e**
Main Plant (separation)	9.78	3.56	3.56	---	---	---	---	---
Chip Plant (finishing)	3.18	1.13	1.13	---	---	---	---	---
Portable/Aux Equip	6.32	2.31	2.31	---	---	---	---	---
Generators	1.27	1.27	1.27	6.23	18.13	1.48	3.91	680.7
Subtotals - Prior to SSM 34120	20.6	8.3	8.3	6.2	18.1	1.5	3.9	680.7
Portable Wet Screening	0.9	0.3	0.3	0	0.0	0.0	0.0	0.0
Total Limited PTE (tons per year)	**21.5**	**8.6**	**8.6**	**6.2**	**18.1**	**1.5**	**3.9**	**680.7**

Inline material processing equipment change only. No change to plant throughput, generators, piles or roadways.

Equipment and Throughput List

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

****

Slag Main Plant (separation) Capacity: 1,500 tons per hour
Slag Main Plant Throughput Maximum: 13,140,000 tons per year
Slag Main Plant Throughput Limited: 2,377,419 tons per year

****

Main Plant (replaced the Separation Plant)	Capacity (tph)	% Process Flow		Maximum Throughput (tpy)	Limited Throughput (tpy)
F1 step deck feeder	1500	100%	of baseline	13,140,000	2,377,419
CRUSHING					
F2 pan feeder	feed control	80%	of F1 feeder	10,512,000	1,901,935
C5 conveyor	feed control	100%	of F2 feeder	10,512,000	1,901,935
C5 mag/pendulum head pulley	feed control	15%	of C5 conv	1,576,800	285,290
C5 splitter (scrap)	feed control	100%	of C5 mag	1,576,800	285,290
C5 splitter (slag)	feed control	85%	of C5 conv	8,935,200	1,616,645
crush splitter (impactor)	feed control	50%	of C5 splitter (slag)	4,467,600	808,322
crush splitter (jaw)	feed control	50%	of C5 splitter (slag)	4,467,600	808,322
F3 pan feeder	feed control	100%	of crush splitter (jaw)	4,467,600	808,322
F4 pan feeder	feed control	100%	of crush splitter (impactor)	4,467,600	808,322
jaw crusher	feed control	100%	of crush splitter (jaw)	4,467,600	808,322
impactor	feed control	100%	of crush splitter (impactor)	4,467,600	808,322
C6A conveyor	feed control	100%	of jaw+impact crushers	8,935,200	1,616,645
C6B conveyor	feed control	100%	of C6A conv	8,935,200	1,616,645
SCREENING					
C1 conveyor	feed control	100%	of F1 step feeder	13,140,000	2,377,419
150-ton bin	feed control	100%	of C1 conveyor	13,140,000	2,377,419
F5 feeder (MF400)	feed control	100%	of 150-ton bin	13,140,000	2,377,419
C2 conveyor	feed control	100%	of F5 feeder	13,140,000	2,377,419
C2 mag head pulley	feed control	20%	of C2 conv	2,628,000	475,484
C2 splitter (slag)	feed control	80%	of C2 conv	10,512,000	1,901,935
C2 splitter (scrap)	feed control	20%	of C2 conv	2,628,000	475,484
F6/F7 splitter (count all in one 50/50)	feed control	100%	of C2 splitter (slag)	10,512,000	1,901,935
F6 feeder	feed control	50%	of F6/F7 splitter	5,256,000	950,968
F7 feeder	feed control	50%	of F6/F7 splitter	5,256,000	950,968
C3A conveyor	feed control	100%	of F7 feeder	5,256,000	950,968
C3B conveyor	feed control	100%	of F6 feeder	5,256,000	950,968
triple split chute	feed control	100%	of C3A+C3B conv	10,512,000	1,901,935
S1 screen	feed control	33%	triple split chute	3,468,960	627,639
S1 splitter C8 side	feed control	15%	of S1 screen	520,344	94,146
S1 splitter C9 side	feed control	30%	of S1 screen	1,040,688	188,292
C7A conveyor	feed control	45%	of S1 screen	1,561,032	282,437
S2 screen	feed control	33%	triple split chute	3,468,960	627,639
S2 splitter C8 side	feed control	15%	of S2 screen	520,344	94,146
S2 splitter C9 side	feed control	30%	of S2 screen	1,040,688	188,292
C7B conveyor	feed control	45%	of S2 screen	1,561,032	282,437
S3 screen	feed control	33%	triple split chute	3,468,960	627,639
S3 splitter C8 side	feed control	15%	of S3 screen	520,344	94,146
S3 splitter C9 side	feed control	30%	of S3 screen	1,040,688	188,292
C7C conveyor	feed control	45%	of S3 screen	1,561,032	282,437
C11A conveyor	feed control	100%	of C7A+C7B+C7C conv	4,683,096	847,312
C15 stk conveyor	feed control	100%	of C11A conv	4,683,096	847,312
C9 conveyor	feed control	30%	of S1+S2+S3 screens	3,122,064	564,875
C14 stk conveyor	feed control	100%	of C9 conv	3,122,064	564,875
C8 conveyor	feed control	15%	of S1+S2+S3 screens	1,561,032	282,437
C13 stk conveyor	feed control	100%	of C8 conv	1,561,032	282,437
C13 mag head pulley	feed control	5%	of C13 conv	78,052	14,122
C13 splitter (slag)	feed control	95%	of C13 conv	1,482,980	268,316
C13 splitter (scrap)	feed control	100%	of C13 mag	78,052	14,122
SCRAP					
50-ton scrap bin	feed control	100%	of C13 mag	78,052	14,122
F8 feeder	feed control	100%	of 50-ton scrap bin	78,052	14,122
C4 conveyor	feed control	100%	of C2 split(scrap)+F8 feeder	2,706,052	489,606
C4 splitter to (S4)	feed control	50%	of C4 conv	1,353,026	244,803
C4 splitter to (S5)	feed control	50%	of C4 conv	1,353,026	244,803
S4 screen	feed control	100%	of C4 splitter (S4)	1,353,026	244,803
S4 splitter C18 side	feed control	5%	of S4 screen	67,651	12,240
S4 splitter C12 side	feed control	15%	of S4 screen	202,954	36,720
C10A conveyor	feed control	70%	of S4 screen	947,118	171,362
S5 screen	feed control	100%	of C4 splitter (S5)	1,353,026	244,803
S5 splitter C18 side	feed control	5%	of S5 screen	67,651	12,240
S5 splitter C12 side	feed control	15%	of S5 screen	202,954	36,720
C10B conveyor	feed control	70%	of S5 screen	947,118	171,362
C11B conveyor	feed control	100%	of C10A+C10B conv	1,894,236	342,724
C17 stk conveyor	feed control	100%	of C11B conv	1,894,236	342,724
C12 conveyor	feed control	15%	of S4+S5 screens	405,908	73,441
C16 stk conveyor	feed control	100%	of C12 conv	405,908	73,441
C18 conveyor	feed control	5%	of S4+S5 screens	135,303	24,480
C19 stk conveyor	feed control	100%	of C18 conv	135,303	24,480

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Chip Plant (finishing) Capacity: 500 tons per hour
Throughput Maximum: 4,380,000 tons per year
Throughput Limited: 1,300,000 tons per year

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Chip Plant (replaced the Finishing Plant)	Capacity (tph)	% Process Flow		Maximum Throughput (tpy)	Limited Throughput (tpy)
40-ton feed hopper (B1)	500	100%	of feed	4,380,000	1,300,000
F9 feeder	feed control	100%	of 40-ton feed hopper	4,380,000	1,300,000
C1 conveyor	feed control	100%	of F9 feeder	4,380,000	1,300,000
C2 conveyor	feed control	100%	of crusher+C1 conv	4,818,000	1,430,000
crusher	feed control	10%	of F9 feeder	438,000	130,000
C5 conveyor	feed control	100%	of crusher	438,000	130,000
C12 conveyor	feed control	100%	of conveyor C5	438,000	130,000
Crusher 2 (alternate)	feed control	100%	of conveyor C5	438,000	130,000
C13 conveyor	feed control	100%	of conveyor C5	438,000	130,000
S1 screen	feed control	50%	of C2 conv	2,409,000	715,000
C3 conveyor	feed control	10%	of S1 screen	240,900	71,500
S2 screen	feed control	50%	of C2 conv	2,409,000	715,000
C4 conveyor	feed control	10%	of S2 screen	240,900	71,500
C10 conveyor	feed control	100%	of C3+C4 conv	481,800	143,000
C11 stk conveyor	feed control	100%	of C10 conv	481,800	143,000
S3 screen	feed control	100%	of C11 conv	481,800	143,000
C14 conveyor	feed control	50%	of S3	240,900	71,500
C15 conveyor	feed control	50%	of S3	240,900	71,500
C8 conveyor	feed control	15%	of S1+S2	722,700	214,500
M2 mag cross belt	feed control	5%	of C8 conv	36,135	10,725
C9 stk conveyor	feed control	95%	of C8 conv	686,565	203,775
C6 conveyor	feed control	65%	of S1+S2	3,131,700	929,500
M1 mag cross belt	feed control	5%	of C6 conv	156,585	46,475
C7 stk conveyor	feed control	95%	of C6 conv	2,975,115	883,025

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Portable/Aux Equip Capacity: -Varies- tons per hour (see below)
Throughput Maximum: -Varies- tons per hour (see below)
Combined Throughput Limited: 800,000 tons per year

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Portable/Aux Equipment	Capacity (tph)	Maximum Throughput (tpy)	Limited Throughput (tpy)
Portable Plant 1:			
1 conveyor	600	5,256,000	800,000
1 portable crusher	600	5,256,000	800,000
1 conveyor	600	5,256,000	800,000
1 portable screen	600	5,256,000	800,000
3 portable input conveyors (33%)	600	5,256,000	800,000
3 portable output stacker/conveyors (33% ea)	600	5,256,000	800,000
Portable boat loader:			
1 feed hopper	1500	13,140,000	800,000
1 conveyor/stacker	1500	13,140,000	800,000
Portable stacker:			
1 feed hopper	250	2,190,000	800,000
1 conveyor/stacker	250	2,190,000	800,000
Portable screener:			
1 screen	250	2,190,000	800,000
3 conveyor/stackers (33% each)	250	2,190,000	800,000
Portable screener:			
1 feed hopper	250	2,190,000	800,000
1 screen	250	2,190,000	800,000
1 conveyor/stacker	250	2,190,000	800,000
Portable Plant 2:			
1 grizzly	500	4,380,000	800,000
1 feeder	500	4,380,000	800,000
1 screen	500	4,380,000	800,000
4 output conveyors (25% ea)	500	4,380,000	800,000
1 crusher or impactor	500	4,380,000	800,000
1 magnet	15	131,400	131,400

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

POTENTIAL TO EMIT -- MAIN PLANT (SEPARATION) OPERATIONS

PTE Main Plant (separation)	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control Efficiency	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$		PM	PM_{10}	$PM_{2.5}$
F1 step deck feeder	13,140,000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
CRUSHING											
F2 pan feeder	10,512,000	0.003	0.0011	0.0011	15.7680	5.7816	5.7816	90.0%	1.5768	0.5782	0.5782
C5 conveyor	10,512,000	0.003	0.0011	0.0011	15.7680	5.7816	5.7816	90.0%	1.5768	0.5782	0.5782
C5 mag/pendulum head pulley	1,576,800	0.003	0.0011	0.0011	2.3652	0.8672	0.8672	90.0%	0.2365	0.0867	0.0867
C5 splitter (scrap)	1,576,800	0.003	0.0011	0.0011	2.3652	0.8672	0.8672	90.0%	0.2365	0.0867	0.0867
C5 splitter (slag)	8,935,200	0.003	0.0011	0.0011	13.4028	4.9144	4.9144	90.0%	1.3403	0.4914	0.4914
crush splitter (impactor)	4,467,600	0.003	0.0011	0.0011	6.7014	2.4572	2.4572	90.0%	0.6701	0.2457	0.2457
crush splitter (jaw)	4,467,600	0.003	0.0011	0.0011	6.7014	2.4572	2.4572	90.0%	0.6701	0.2457	0.2457
F3 pan feeder	4,467,600	0.003	0.0011	0.0011	6.7014	2.4572	2.4572	90.0%	0.6701	0.2457	0.2457
F4 pan feeder	4,467,600	0.003	0.0011	0.0011	6.7014	2.4572	2.4572	90.0%	0.6701	0.2457	0.2457
jaw crusher	4,467,600	0.0054	0.0024	0.0024	12.0625	5.3611	5.3611	90.0%	1.2063	0.5361	0.5361
impactor	4,467,600	0.0054	0.0024	0.0024	12.0625	5.3611	5.3611	90.0%	1.2063	0.5361	0.5361
C6A conveyor	8,935,200	0.003	0.0011	0.0011	13.4028	4.9144	4.9144	90.0%	1.3403	0.4914	0.4914
C6B conveyor	8,935,200	0.003	0.0011	0.0011	13.4028	4.9144	4.9144	90.0%	1.3403	0.4914	0.4914
SCREENING											
C1 conveyor	13,140,000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
150-ton bin	13,140,000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
F5 feeder (MF400)	13,140,000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
C2 conveyor	13,140,000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
C2 mag head pulley	2,628,000	0.003	0.0011	0.0011	3.9420	1.4454	1.4454	90.0%	0.3942	0.1445	0.1445
C2 splitter (slag)	10,512,000	0.003	0.0011	0.0011	15.7680	5.7816	5.7816	90.0%	1.5768	0.5782	0.5782
C2 splitter (scrap)	2,628,000	0.003	0.0011	0.0011	3.9420	1.4454	1.4454	90.0%	0.3942	0.1445	0.1445
F6/F7 splitter (count all in one 50/50)	10,512,000	0.003	0.0011	0.0011	15.7680	5.7816	5.7816	90.0%	1.5768	0.5782	0.5782
F6 feeder	5,256,000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
F7 feeder	5,256,000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
C3A conveyor	5,256,000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
C3B conveyor	5,256,000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
triple split chute	10,512,000	0.003	0.0011	0.0011	15.7680	5.7816	5.7816	90.0%	1.5768	0.5782	0.5782
S1 screen	3,468,960	0.025	0.0087	0.0087	43.3620	15.0900	15.0900	90.0%	4.3362	1.5090	1.5090
S1 splitter C8 side	520,344	0.003	0.0011	0.0011	0.7805	0.2862	0.2862	90.0%	0.0781	0.0286	0.0286
S1 splitter C9 side	1,040,688	0.003	0.0011	0.0011	1.5610	0.5724	0.5724	90.0%	0.1561	0.0572	0.0572
C7A conveyor	1,561,032	0.003	0.0011	0.0011	2.3415	0.8586	0.8586	90.0%	0.2342	0.0859	0.0859
S2 screen	3,468,960	0.025	0.0087	0.0087	43.3620	15.0900	15.0900	90.0%	4.3362	1.5090	1.5090
S2 splitter C8 side	520,344	0.003	0.0011	0.0011	0.7805	0.2862	0.2862	90.0%	0.0781	0.0286	0.0286
S2 splitter C9 side	1,040,688	0.003	0.0011	0.0011	1.5610	0.5724	0.5724	90.0%	0.1561	0.0572	0.0572
C7B conveyor	1,561,032	0.003	0.0011	0.0011	2.3415	0.8586	0.8586	90.0%	0.2342	0.0859	0.0859
S3 screen	3,468,960	0.025	0.0087	0.0087	43.3620	15.0900	15.0900	90.0%	4.3362	1.5090	1.5090
S3 splitter C8 side	520,344	0.003	0.0011	0.0011	0.7805	0.2862	0.2862	90.0%	0.0781	0.0286	0.0286
S3 splitter C9 side	1,040,688	0.003	0.0011	0.0011	1.5610	0.5724	0.5724	90.0%	0.1561	0.0572	0.0572
C7C conveyor	1,561,032	0.003	0.0011	0.0011	2.3415	0.8586	0.8586	90.0%	0.2342	0.0859	0.0859
C11A conveyor	4,683,096	0.003	0.0011	0.0011	7.0246	2.5757	2.5757	90.0%	0.7025	0.2576	0.2576
C15 stk conveyor	4,683,096	0.003	0.0011	0.0011	7.0246	2.5757	2.5757	90.0%	0.7025	0.2576	0.2576
C9 conveyor	3,122,064	0.003	0.0011	0.0011	4.6831	1.7171	1.7171	90.0%	0.4683	0.1717	0.1717
C14 stk conveyor	3,122,064	0.003	0.0011	0.0011	4.6831	1.7171	1.7171	90.0%	0.4683	0.1717	0.1717
C8 conveyor	1,561,032	0.003	0.0011	0.0011	2.3415	0.8586	0.8586	90.0%	0.2342	0.0859	0.0859
C13 stk conveyor	1,561,032	0.003	0.0011	0.0011	2.3415	0.8586	0.8586	90.0%	0.2342	0.0859	0.0859
C13 mag head pulley	78,052	0.003	0.0011	0.0011	0.1171	0.0429	0.0429	90.0%	0.0117	0.0043	0.0043
C13 splitter (slag)	1,482,980	0.003	0.0011	0.0011	2.2245	0.8156	0.8156	90.0%	0.2224	0.0816	0.0816
C13 splitter (scrap)	78,052	0.003	0.0011	0.0011	0.1171	0.0429	0.0429	90.0%	0.0117	0.0043	0.0043
SCRAP											
50-ton scrap bin	78,052	0.003	0.0011	0.0011	0.1171	0.0429	0.0429	90.0%	0.0117	0.0043	0.0043
F8 feeder	78,052	0.003	0.0011	0.0011	0.1171	0.0429	0.0429	90.0%	0.0117	0.0043	0.0043
C4 conveyor	2,706,052	0.003	0.0011	0.0011	4.0591	1.4883	1.4883	90.0%	0.4059	0.1488	0.1488
C4 splitter to (S4)	1,353,026	0.003	0.0011	0.0011	2.0295	0.7442	0.7442	90.0%	0.2030	0.0744	0.0744
C4 splitter to (S5)	1,353,026	0.003	0.0011	0.0011	2.0295	0.7442	0.7442	90.0%	0.2030	0.0744	0.0744
S4 screen	1,353,026	0.025	0.0087	0.0087	16.9128	5.8857	5.8857	90.0%	1.6913	0.5886	0.5886
S4 splitter C18 side	67,651	0.003	0.0011	0.0011	0.1015	0.0372	0.0372	90.0%	0.0101	0.0037	0.0037
S4 splitter C12 side	202,954	0.003	0.0011	0.0011	0.3044	0.1116	0.1116	90.0%	0.0304	0.0112	0.0112
C10A conveyor	947,118	0.003	0.0011	0.0011	1.4207	0.5209	0.5209	90.0%	0.1421	0.0521	0.0521
S5 screen	1,353,026	0.025	0.0087	0.0087	16.9128	5.8857	5.8857	90.0%	1.6913	0.5886	0.5886
S5 splitter C18 side	67,651	0.003	0.0011	0.0011	0.1015	0.0372	0.0372	90.0%	0.0101	0.0037	0.0037
S5 splitter C12 side	202,954	0.003	0.0011	0.0011	0.3044	0.1116	0.1116	90.0%	0.0304	0.0112	0.0112
C10B conveyor	947,118	0.003	0.0011	0.0011	1.4207	0.5209	0.5209	90.0%	0.1421	0.0521	0.0521
C11B conveyor	1,894,236	0.003	0.0011	0.0011	2.8414	1.0418	1.0418	90.0%	0.2841	0.1042	0.1042
C17 stk conveyor	1,894,236	0.003	0.0011	0.0011	2.8414	1.0418	1.0418	90.0%	0.2841	0.1042	0.1042
C12 conveyor	405,908	0.003	0.0011	0.0011	0.6089	0.2232	0.2232	90.0%	0.0609	0.0223	0.0223
C16 stk conveyor	405,908	0.003	0.0011	0.0011	0.6089	0.2232	0.2232	90.0%	0.0609	0.0223	0.0223
C18 conveyor	135,303	0.003	0.0011	0.0011	0.2030	0.0744	0.0744	90.0%	0.0203	0.0074	0.0074
C19 stk conveyor	135,303	0.003	0.0011	0.0011	0.2030	0.0744	0.0744	90.0%	0.0203	0.0074	0.0074
Control Efficiency (wet suppression/moisture):	varies, see below			PTE Totals:	540.5	197.0	197.0	Totals:	54.1	19.7	19.7

LIMITED THROUGHPUT EMISSIONS -- MAIN PLANT (SEPARATION) OPERATIONS

Limted Throughput Emissions Main Plant (separation)	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control Efficiency	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$		PM	PM_{10}	$PM_{2.5}$
F1 step deck feeder	2,377,419	0.003	0.0011	0.0011	3.5661	1.3076	1.3076	90.0%	0.3566	0.1308	0.1308
CRUSHING											
F2 pan feeder	1,901,935	0.003	0.0011	0.0011	2.8529	1.0461	1.0461	90.0%	0.2853	0.1046	0.1046
C5 conveyor	1,901,935	0.003	0.0011	0.0011	2.8529	1.0461	1.0461	90.0%	0.2853	0.1046	0.1046
C5 mag/pendulum head pulley	285,290	0.003	0.0011	0.0011	0.4279	0.1569	0.1569	90.0%	0.0428	0.0157	0.0157
C5 splitter (scrap)	285,290	0.003	0.0011	0.0011	0.4279	0.1569	0.1569	90.0%	0.0428	0.0157	0.0157
C5 splitter (slag)	1,616,645	0.003	0.0011	0.0011	2.4250	0.8892	0.8892	90.0%	0.2425	0.0889	0.0889
crush splitter (impactor)	808,322	0.003	0.0011	0.0011	1.2125	0.4446	0.4446	90.0%	0.1212	0.0445	0.0445
crush splitter (jaw)	808,322	0.003	0.0011	0.0011	1.2125	0.4446	0.4446	90.0%	0.1212	0.0445	0.0445
F3 pan feeder	808,322	0.003	0.0011	0.0011	1.2125	0.4446	0.4446	90.0%	0.1212	0.0445	0.0445
F4 pan feeder	808,322	0.003	0.0011	0.0011	1.2125	0.4446	0.4446	90.0%	0.1212	0.0445	0.0445
jaw crusher	808,322	0.0054	0.0024	0.0024	2.1825	0.9700	0.9700	90.0%	0.2182	0.0970	0.0970
impactor	808,322	0.0054	0.0024	0.0024	2.1825	0.9700	0.9700	90.0%	0.2182	0.0970	0.0970
C6A conveyor	1,616,645	0.003	0.0011	0.0011	2.4250	0.8892	0.8892	90.0%	0.2425	0.0889	0.0889
C6B conveyor	1,616,645	0.003	0.0011	0.0011	2.4250	0.8892	0.8892	90.0%	0.2425	0.0889	0.0889
SCREENING											
C1 conveyor	2,377,419	0.003	0.0011	0.0011	3.5661	1.3076	1.3076	90.0%	0.3566	0.1308	0.1308
150-ton bin	2,377,419	0.003	0.0011	0.0011	3.5661	1.3076	1.3076	90.0%	0.3566	0.1308	0.1308
F5 feeder (MF400)	2,377,419	0.003	0.0011	0.0011	3.5661	1.3076	1.3076	90.0%	0.3566	0.1308	0.1308
C2 conveyor	2,377,419	0.003	0.0011	0.0011	3.5661	1.3076	1.3076	90.0%	0.3566	0.1308	0.1308
C2 mag head pulley	475,484	0.003	0.0011	0.0011	0.7132	0.2615	0.2615	90.0%	0.0713	0.0262	0.0262
C2 splitter (slag)	1,901,935	0.003	0.0011	0.0011	2.8529	1.0461	1.0461	90.0%	0.2853	0.1046	0.1046
C2 splitter (scrap)	475,484	0.003	0.0011	0.0011	0.7132	0.2615	0.2615	90.0%	0.0713	0.0262	0.0262
F6/F7 splitter (count all in one 50/50)	1,901,935	0.003	0.0011	0.0011	2.8529	1.0461	1.0461	90.0%	0.2853	0.1046	0.1046
F6 feeder	950,968	0.003	0.0011	0.0011	1.4265	0.5230	0.5230	90.0%	0.1426	0.0523	0.0523
F7 feeder	950,968	0.003	0.0011	0.0011	1.4265	0.5230	0.5230	90.0%	0.1426	0.0523	0.0523
C3A conveyor	950,968	0.003	0.0011	0.0011	1.4265	0.5230	0.5230	90.0%	0.1426	0.0523	0.0523
C3B conveyor	950,968	0.003	0.0011	0.0011	1.4265	0.5230	0.5230	90.0%	0.1426	0.0523	0.0523
triple split chute	1,901,935	0.003	0.0011	0.0011	2.8529	1.0461	1.0461	90.0%	0.2853	0.1046	0.1046
S1 screen	627,639	0.025	0.0087	0.0087	7.8455	2.7302	2.7302	90.0%	0.7845	0.2730	0.2730
S1 splitter C8 side	94,146	0.003	0.0011	0.0011	0.1412	0.0518	0.0518	90.0%	0.0141	0.0052	0.0052
S1 splitter C9 side	188,292	0.003	0.0011	0.0011	0.2824	0.1036	0.1036	90.0%	0.0282	0.0104	0.0104
C7A conveyor	282,437	0.003	0.0011	0.0011	0.4237	0.1553	0.1553	90.0%	0.0424	0.0155	0.0155
S2 screen	627,639	0.025	0.0087	0.0087	7.8455	2.7302	2.7302	90.0%	0.7845	0.2730	0.2730
S2 splitter C8 side	94,146	0.003	0.0011	0.0011	0.1412	0.0518	0.0518	90.0%	0.0141	0.0052	0.0052
S2 splitter C9 side	188,292	0.003	0.0011	0.0011	0.2824	0.1036	0.1036	90.0%	0.0282	0.0104	0.0104
C7B conveyor	282,437	0.003	0.0011	0.0011	0.4237	0.1553	0.1553	90.0%	0.0424	0.0155	0.0155
S3 screen	627,639	0.025	0.0087	0.0087	7.8455	2.7302	2.7302	90.0%	0.7845	0.2730	0.2730
S3 splitter C8 side	94,146	0.003	0.0011	0.0011	0.1412	0.0518	0.0518	90.0%	0.0141	0.0052	0.0052
S3 splitter C9 side	188,292	0.003	0.0011	0.0011	0.2824	0.1036	0.1036	90.0%	0.0282	0.0104	0.0104
C7C conveyor	282,437	0.003	0.0011	0.0011	0.4237	0.1553	0.1553	90.0%	0.0424	0.0155	0.0155
C11A conveyor	847,312	0.003	0.0011	0.0011	1.2710	0.4660	0.4660	90.0%	0.1271	0.0466	0.0466
C15 stk conveyor	847,312	0.003	0.0011	0.0011	1.2710	0.4660	0.4660	90.0%	0.1271	0.0466	0.0466
C9 conveyor	564,875	0.003	0.0011	0.0011	0.8473	0.3107	0.3107	90.0%	0.0847	0.0311	0.0311
C14 stk conveyor	564,875	0.003	0.0011	0.0011	0.8473	0.3107	0.3107	90.0%	0.0847	0.0311	0.0311
C8 conveyor	282,437	0.003	0.0011	0.0011	0.4237	0.1553	0.1553	90.0%	0.0424	0.0155	0.0155
C13 stk conveyor	282,437	0.003	0.0011	0.0011	0.4237	0.1553	0.1553	90.0%	0.0424	0.0155	0.0155
C13 mag head pulley	14,122	0.003	0.0011	0.0011	0.0212	0.0078	0.0078	90.0%	0.0021	0.0008	0.0008
C13 splitter (slag)	268,316	0.003	0.0011	0.0011	0.4025	0.1476	0.1476	90.0%	0.0402	0.0148	0.0148
C13 splitter (scrap)	14,122	0.003	0.0011	0.0011	0.0212	0.0078	0.0078	90.0%	0.0021	0.0008	0.0008
SCRAP											
50-ton scrap bin	14,122	0.003	0.0011	0.0011	0.0212	0.0078	0.0078	90.0%	0.0021	0.0008	0.0008
F8 feeder	14,122	0.003	0.0011	0.0011	0.0212	0.0078	0.0078	90.0%	0.0021	0.0008	0.0008
C4 conveyor	489,606	0.003	0.0011	0.0011	0.7344	0.2693	0.2693	90.0%	0.0734	0.0269	0.0269
C4 splitter to (S4)	244,803	0.003	0.0011	0.0011	0.3672	0.1346	0.1346	90.0%	0.0367	0.0135	0.0135
C4 splitter to (S5)	244,803	0.003	0.0011	0.0011	0.3672	0.1346	0.1346	90.0%	0.0367	0.0135	0.0135
S4 screen	244,803	0.025	0.0087	0.0087	3.0600	1.0649	1.0649	90.0%	0.3060	0.1065	0.1065
S4 splitter C18 side	12,240	0.003	0.0011	0.0011	0.0184	0.0067	0.0067	90.0%	0.0018	0.0007	0.0007
S4 splitter C12 side	36,720	0.003	0.0011	0.0011	0.0551	0.0202	0.0202	90.0%	0.0055	0.0020	0.0020
C10A conveyor	171,362	0.003	0.0011	0.0011	0.2570	0.0942	0.0942	90.0%	0.0257	0.0094	0.0094
S5 screen	244,803	0.025	0.0087	0.0087	3.0600	1.0649	1.0649	90.0%	0.3060	0.1065	0.1065
S5 splitter C18 side	12,240	0.003	0.0011	0.0011	0.0184	0.0067	0.0067	90.0%	0.0018	0.0007	0.0007
S5 splitter C12 side	36,720	0.003	0.0011	0.0011	0.0551	0.0202	0.0202	90.0%	0.0055	0.0020	0.0020
C10B conveyor	171,362	0.003	0.0011	0.0011	0.2570	0.0942	0.0942	90.0%	0.0257	0.0094	0.0094
C11B conveyor	342,724	0.003	0.0011	0.0011	0.5141	0.1885	0.1885	90.0%	0.0514	0.0188	0.0188
C17 stk conveyor	342,724	0.003	0.0011	0.0011	0.5141	0.1885	0.1885	90.0%	0.0514	0.0188	0.0188
C12 conveyor	73,441	0.003	0.0011	0.0011	0.1102	0.0404	0.0404	90.0%	0.0110	0.0040	0.0040
C16 stk conveyor	73,441	0.003	0.0011	0.0011	0.1102	0.0404	0.0404	90.0%	0.0110	0.0040	0.0040
C18 conveyor	24,480	0.003	0.0011	0.0011	0.0367	0.0135	0.0135	90.0%	0.0037	0.0013	0.0013
C19 stk conveyor	24,480	0.003	0.0011	0.0011	0.0367	0.0135	0.0135	90.0%	0.0037	0.0013	0.0013
Control Efficiency (wet suppression/moisture): varies, see below								Totals:	9.8	3.6	3.6

POTENTIAL TO EMIT -- CHIP PLANT (FINISHING) OPERATIONS

PTE Chip Plant (finishing)	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	Efficiency	PM	PM_{10}	$PM_{2.5}$
40-ton feed hopper (B1)	4,380,000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409
F9 feeder	4,380,000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409
C1 conveyor	4,380,000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409
C2 conveyor	4,818,000	0.003	0.0011	0.0011	7.2270	2.6499	2.6499	90.0%	0.7227	0.2650	0.2650
crusher	438,000	0.0054	0.0024	0.0024	1.1826	0.5256	0.5256	90.0%	0.1183	0.0526	0.0526
C5 conveyor	438,000	0.003	0.0011	0.0011	0.6570	0.2409	0.2409	90.0%	0.0657	0.0241	0.0241
C12 conveyor	438,000	0.003	0.0011	0.0011	0.6570	0.2409	0.2409	90.0%	0.0657	0.0241	0.0241
Crusher 2 (alternate)	438,000	0.003	0.0011	0.0011	0.6570	0.2409	0.2409	90.0%	0.0657	0.0241	0.0241
C13 conveyor	438,000	0.003	0.0011	0.0011	0.6570	0.2409	0.2409	90.0%	0.0657	0.0241	0.0241
S1 screen	2,409,000	0.025	0.0087	0.0087	30.1125	10.4792	10.4792	90.0%	3.0113	1.0479	1.0479
C3 conveyor	240,900	0.003	0.0011	0.0011	0.3614	0.1325	0.1325	90.0%	0.0361	0.0132	0.0132
S2 screen	2,409,000	0.025	0.0087	0.0087	30.1125	10.4792	10.4792	90.0%	3.0113	1.0479	1.0479
C4 conveyor	240,900	0.003	0.0011	0.0011	0.3614	0.1325	0.1325	90.0%	0.0361	0.0132	0.0132
C10 conveyor	481,800	0.003	0.0011	0.0011	0.7227	0.2650	0.2650	90.0%	0.0723	0.0265	0.0265
C11 stk conveyor	481,800	0.003	0.0011	0.0011	0.7227	0.2650	0.2650	90.0%	0.0723	0.0265	0.0265
S3 screen	481,800	0.025	0.0087	0.0087	6.0225	2.0958	2.0958	90.0%	0.6023	0.2096	0.2096
C14 conveyor	240,900	0.003	0.0011	0.0011	0.3614	0.1325	0.1325	90.0%	0.0361	0.0132	0.0132
C15 conveyor	240,900	0.003	0.0011	0.0011	0.3614	0.1325	0.1325	90.0%	0.0361	0.0132	0.0132
C8 conveyor	722,700	0.003	0.0011	0.0011	1.0841	0.3975	0.3975	90.0%	0.1084	0.0397	0.0397
M2 mag cross belt	36,135	0.003	0.0011	0.0011	0.0542	0.0199	0.0199	90.0%	0.0054	0.0020	0.0020
C9 stk conveyor	686,565	0.003	0.0011	0.0011	1.0298	0.3776	0.3776	90.0%	0.1030	0.0378	0.0378
C6 conveyor	3,131,700	0.003	0.0011	0.0011	4.6976	1.7224	1.7224	90.0%	0.4698	0.1722	0.1722
M1 mag cross belt	156,585	0.003	0.0011	0.0011	0.2349	0.0861	0.0861	90.0%	0.0235	0.0086	0.0086
C7 stk conveyor	2,975,115	0.003	0.0011	0.0011	4.4627	1.6363	1.6363	90.0%	0.4463	0.1636	0.1636
Control Efficiency (wet suppression/moisture): varies, see below				PTE Totals:	111.4	39.7	39.7	Totals:	11.1	4.0	4.0

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LIMTED THROUGHPUT EMISSIONS -- CHIP PLANT (FINISHING) OPERATIONS

Limted Throughput Emissions Chip Plant (finishing)	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	Efficiency	PM	PM_{10}	$PM_{2.5}$
40-ton feed hopper (B1)	1,300,000	0.003	0.0011	0.0011	1.9500	0.7150	0.7150	90.0%	0.1950	0.0715	0.0715
F9 feeder	1,300,000	0.003	0.0011	0.0011	1.9500	0.7150	0.7150	90.0%	0.1950	0.0715	0.0715
C1 conveyor	1,300,000	0.003	0.0011	0.0011	1.9500	0.7150	0.7150	90.0%	0.1950	0.0715	0.0715
C2 conveyor	1,430,000	0.003	0.0011	0.0011	2.1450	0.7865	0.7865	90.0%	0.2145	0.0787	0.0787
crusher	130,000	0.0054	0.0024	0.0024	0.3510	0.1560	0.1560	90.0%	0.0351	0.0156	0.0156
C5 conveyor	130,000	0.003	0.0011	0.0011	0.1950	0.0715	0.0715	90.0%	0.0195	0.0072	0.0072
C12 conveyor	130,000	0.003	0.0011	0.0011	0.1950	0.0715	0.0715	90.0%	0.0195	0.0072	0.0072
Crusher 2 (alternate)	130,000	0.003	0.0011	0.0011	0.1950	0.0715	0.0715	90.0%	0.0195	0.0072	0.0072
C13 conveyor	130,000	0.003	0.0011	0.0011	0.1950	0.0715	0.0715	90.0%	0.0195	0.0072	0.0072
S1 screen	715,000	0.025	0.0087	0.0087	8.9375	3.1103	3.1103	90.0%	0.8938	0.3110	0.3110
C3 conveyor	71,500	0.003	0.0011	0.0011	0.1073	0.0393	0.0393	90.0%	0.0107	0.0039	0.0039
S2 screen	715,000	0.025	0.0087	0.0087	8.9375	3.1103	3.1103	90.0%	0.8938	0.3110	0.3110
C4 conveyor	71,500	0.003	0.0011	0.0011	0.1073	0.0393	0.0393	90.0%	0.0107	0.0039	0.0039
C10 conveyor	143,000	0.003	0.0011	0.0011	0.2145	0.0787	0.0787	90.0%	0.0215	0.0079	0.0079
C11 stk conveyor	143,000	0.003	0.0011	0.0011	0.2145	0.0787	0.0787	90.0%	0.0215	0.0079	0.0079
S3 screen	143,000	0.025	0.0087	0.0087	1.7875	0.6221	0.6221	90.0%	0.1788	0.0622	0.0622
C14 conveyor	71,500	0.003	0.0011	0.0011	0.1073	0.0393	0.0393	90.0%	0.0107	0.0039	0.0039
C15 conveyor	71,500	0.003	0.0011	0.0011	0.1073	0.0393	0.0393	90.0%	0.0107	0.0039	0.0039
C8 conveyor	214,500	0.003	0.0011	0.0011	0.3218	0.1180	0.1180	90.0%	0.0322	0.0118	0.0118
M2 mag cross belt	10,725	0.003	0.0011	0.0011	0.0161	0.0059	0.0059	90.0%	0.0016	0.0006	0.0006
C9 stk conveyor	203,775	0.003	0.0011	0.0011	0.3057	0.1121	0.1121	90.0%	0.0306	0.0112	0.0112
C6 conveyor	929,500	0.003	0.0011	0.0011	1.3943	0.5112	0.5112	90.0%	0.1394	0.0511	0.0511
M1 mag cross belt	46,475	0.003	0.0011	0.0011	0.0697	0.0256	0.0256	90.0%	0.0070	0.0026	0.0026
C7 stk conveyor	883,025	0.003	0.0011	0.0011	1.3245	0.4857	0.4857	90.0%	0.1325	0.0486	0.0486
Control Efficiency (wet suppression/moisture): varies, see below								Totals:	3.2	1.1	1.1

POTENTIAL TO EMIT -- PORTABLE/AUX EQUIPMENT

PTE Portable/Aux Equipment	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	Efficiency	PM	PM_{10}	$PM_{2.5}$
Portable Plant 1:											
1 conveyor	5256000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
1 portable crusher	5256000	0.0054	0.0024	0.0024	14.1912	6.3072	6.3072	90.0%	1.4191	0.6307	0.6307
1 conveyor	5256000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
1 portable screen	5256000	0.025	0.0087	0.0087	65.7000	22.8636	22.8636	90.0%	6.5700	2.2864	2.2864
3 portable input conveyors (33%)	5256000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
3 portable output stacker/conveyors (33% ea)	5256000	0.003	0.0011	0.0011	7.8840	2.8908	2.8908	90.0%	0.7884	0.2891	0.2891
Portable boat loader:											
1 feed hopper	13140000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
1 conveyor/stacker	13140000	0.003	0.0011	0.0011	19.7100	7.2270	7.2270	90.0%	1.9710	0.7227	0.7227
Portable stacker:											
1 feed hopper	2190000	0.003	0.0011	0.0011	3.2850	1.2045	1.2045	90.0%	0.3285	0.1205	0.1205
1 conveyor/stacker	2190000	0.003	0.0011	0.0011	3.2850	1.2045	1.2045	90.0%	0.3285	0.1205	0.1205
Portable screener:											
1 screen	2190000	0.025	0.0087	0.0087	27.3750	9.5265	9.5265	90.0%	2.7375	0.9527	0.9527
3 conveyor/stackers (33% each)	2190000	0.003	0.0011	0.0011	3.2850	1.2045	1.2045	90.0%	0.3285	0.1205	0.1205
Portable screener:											
1 feed hopper	2190000	0.003	0.0011	0.0011	3.2850	1.2045	1.2045	90.0%	0.3285	0.1205	0.1205
1 screen	2190000	0.025	0.0087	0.0087	27.3750	9.5265	9.5265	90.0%	2.7375	0.9527	0.9527
1 conveyor/stacker	2190000	0.003	0.0011	0.0011	3.2850	1.2045	1.2045	90.0%	0.3285	0.1205	0.1205
Portable Plant 2:											
1 grizzly	4380000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409
1 feeder	4380000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409
1 screen	4380000	0.025	0.0087	0.0087	54.7500	19.0530	19.0530	90.0%	5.4750	1.9053	1.9053
4 output conveyors (25% ea)	4380000	0.003	0.0011	0.0011	6.5700	2.4090	2.4090	90.0%	0.6570	0.2409	0.2409

1 crusher or impactor	4380000	0.0054	0.0024	0.0024	11.8260	5.2560	5.2560	90.0%	1.1826	0.5256	0.5256
1 magnet	131400	0.003	0.0011	0.0011	0.1971	0.0723	0.0723	90.0%	0.0197	0.0072	0.0072
Control Efficiency (wet suppression/moisture): varies, see below				PTE Totals:	308.5	111.9	111.9	Totals:	30.9	11.2	11.2

LIMITED THROUGHPUT EMISSIONS -- PORTABLE/AUX EQUIPMENT

Limted Throughput Emissions Portable/Aux Equipment	Throughput (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control Efficiency	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$		PM	PM_{10}	$PM_{2.5}$
Portable Plant 1:											
1 conveyor	800000	0.0054	0.0024	0.0024	2.1600	0.9600	0.9600	90.0%	0.2160	0.0960	0.0960
1 portable crusher	800000	0.0054	0.0024	0.0024	2.1600	0.9600	0.9600	90.0%	0.2160	0.0960	0.0960
1 conveyor	800000	0.0054	0.0024	0.0024	2.1600	0.9600	0.9600	90.0%	0.2160	0.0960	0.0960
1 portable screen	800000	0.025	0.0087	0.0087	10.0000	3.4800	3.4800	90.0%	1.0000	0.3480	0.3480
3 portable input conveyors (33%)	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
3 portable output stacker/conveyors (33% ea)	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
Portable boat loader:											
1 feed hopper	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 conveyor/stacker	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
Portable stacker:											
1 feed hopper	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 conveyor/stacker	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
Portable screener:											
1 screen	800000	0.025	0.0087	0.0087	10.0000	3.4800	3.4800	90.0%	1.0000	0.3480	0.3480
3 conveyor/stackers (33% each)	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
Portable screener:											
1 feed hopper	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 screen	800000	0.025	0.0087	0.0087	10.0000	3.4800	3.4800	90.0%	1.0000	0.3480	0.3480
1 conveyor/stacker	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
Portable Plant 2:											
1 grizzly	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 feeder	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 screen	800000	0.025	0.0087	0.0087	10.0000	3.4800	3.4800	90.0%	1.0000	0.3480	0.3480
4 output conveyors (25% ea)	800000	0.003	0.0011	0.0011	1.2000	0.4400	0.4400	90.0%	0.1200	0.0440	0.0440
1 crusher or impactor	800000	0.0054	0.0024	0.0024	2.1600	0.9600	0.9600	90.0%	0.2160	0.0960	0.0960
1 magnet	131400	0.003	0.0011	0.0011	0.1971	0.0723	0.0723	90.0%	0.0197	0.0072	0.0072
Control Efficiency (wet suppression/moisture): varies, see below								Totals:	6.3	2.3	2.3

Methodology

Emission Factors are from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton).

Source	PM	PM-10
Tertiary Crushing (SCC 3-050030-03)	0.0054	0.0024
Screening (SCC 3-05-020-02, 03)	0.025	0.0087
Conveyor Transfer Point (SCC 3-05-020-06)	0.003	0.0011

Uncontrolled Emissions (tpy) = Capacity (tpy) * Uncontrolled Emission Factor (lb/ton) * 8760 (day/yr) / 2000 (lb/ton)

Controlled Emissions (tpy) = Throughput (tpy) * Controlled Emission Factor (lb/ton) * 8760 (day/yr) / 2000 (lb/ton)

TSD Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

Emissions calculated based on output rating (hp)
Four (4) portable diesel generator/engines, each with a capacity of 559 Hp
Three (3) portable diesel generator/engines, each with a capacity of 100 Hp

Total Output Horsepower Rating (hp)	2536.0
Maximum Hours Operated per Year	8760
Potential Throughput (hp-hr/yr)	22,215,360

	Pollutant						
	PM*	PM10*	direct 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	24.44	24.44	24.44	22.77	344.34	27.93	74.20

*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.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/hp-hr****	6.53E-06	2.86E-06	2.00E-06	2.74E-07	8.26E-06	5.37E-06	6.48E-07	1.18E-06
Potential Emission in tons/yr	7.25E-02	3.18E-02	2.22E-02	3.04E-03	9.17E-02	5.96E-02	7.19E-03	1.31E-02

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)
****Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	**3.01E-01**

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/hp-hr	1.15E+00	4.63E-05	9.26E-06
Potential Emission in tons/yr	1.28E+04	5.14E-01	1.03E-01

Summed Potential Emissions in tons/yr	**1.28E+04**
CO2e Total in tons/yr	**12816.51**

Methodology
Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2
CH4 and N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

TSD Appendix A: Emission Calculations
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

B. Emissions calculated based on output rating (hp)

One (1) portable diesel generator/engine, approved in 2012 for installation, with a capacity of 1500 Hp

Output Horsepower Rating (hp)	1500.0
Maximum Hours Operated per Year	8760
Potential Throughput (hp-hr/yr)	13,140,000
Sulfur Content (S) of Fuel (% by weight)	1.500

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.00070	0.00040	0.00040	0.01214 *(.00809S)*	0.02400 **see below	0.00071	0.00550
Potential Emission in tons/yr	4.60	2.64	2.64	79.73	157.68	4.63	36.14

*PM10 emission factor in lb/hp-hr was calculated using the emission factor in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).
**NOx emission factor: uncontrolled = 0.024 lb/hp-hr, controlled by ignition timing retard = 0.013 lb/hp-hr

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/hp-hr****	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07	5.52E-08	1.48E-06
Potential Emission in tons/yr	3.57E-02	1.29E-02	8.88E-03	3.63E-03	1.16E-03	3.62E-04	9.75E-03

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)
****Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	**0.07**

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/hp-hr	1.16E+00	6.35E-05	9.30E-06
Potential Emission in tons/yr	7.62E+03	4.17E-01	6.11E-02

Summed Potential Emissions in tons/yr	**7.62E+03**
CO2e Total in tons/yr	**7648.89**

Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
CH4 and N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

TSD Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

Emissions calculated based on Diesel fuel usage

Limited Diesel fuel usage gallons/yr	60,000
Btu/gallon	137,030
Potential Throughput (MMBtu/yr)	8,222

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.36	0.95
Potential Emission in tons/yr	1.27	1.27	1.27	1.19	18.13	1.48	3.91

*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.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Potential Emission in tons/yr	3.84E-03	1.68E-03	1.17E-03	1.61E-04	4.85E-03	3.15E-03	3.80E-04	6.91E-04

Potential Emission of Total HAPs (tons/yr)	**1.59E-02**

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/MMBtu	1.64E+02	6.61E-03	1.32E-03
Potential Emission in tons/yr	6.74E+02	2.72E-02	5.44E-03

Summed Potential Emissions in tons/yr	**6.74E+02**
CO2e Total in tons/yr	**6.76E+02**

Methodology
Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2
CH4 and N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

TSD Appendix A: Emission Calculations
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: Metal Services LLC dba Phoenix Services LLC
Address City IN Zip: 250 W. US Hwy 12, Burns Harbor, IN 46304
Significant Source Modification No.: 127-34120-00026
Significant Permit Modification No.: 127-34181-00026
Reviewer: Madhurima Moulik
Date: February 20,2014

Emissions calculated based on Diesel fuel usage

Limited Diesel fuel usage gallons/yr	60,000
Btu/gallon	137,030
Potential Throughput (MMBtu/yr)	8,222
Sulfur Content (S) of Fuel (% by weight)	1.5

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0573	1.515 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	0.41	0.24	0.24	6.23	13.15	0.37	3.49

*No information was given regarding which method was used to determine the PM emission factor or whether condensable PM is included. The PM10 emission factor is filterable and condensable PM10 combined. The PM2.5 emissions were assumed to be equal to PM10.
**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	3.19E-03	1.16E-03	7.93E-04	3.24E-04	1.04E-04	3.24E-05	8.72E-04

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**6.47E-03**

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/MMBtu	1.65E+02	8.10E-03	1.32E-03
Potential Emission in tons/yr	6.78E+02	3.33E-02	5.44E-03

Summed Potential Emissions in tons/yr	**6.78E+02**
CO2e Total in tons/yr	**6.81E+02**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
CH4 and N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

TSD Appendix A

Source Name: **Metal Services LLC, d/b/a Phoenix Services**
Source Address: **US Highway 12, Burns Harbor, IN 46304**
SSM/SPM No. **127-34120-00026/127-34181-00026**
Permit Reviewer: **Madhurima Moulik**
Date: **20-Feb-14**

POTENTIAL TO EMIT -- WET SCREENING PLANT

PTE Wet screening operation	Throughput* (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	Efficiency	PM	PM_{10}	$PM_{2.5}$
Feed Chute (100% of feed)	3,942,000	0.003	0.0011	0.0011	5.9130	2.1681	2.1681	91.6%	0.4967	0.1821	0.1821
Screen (100% of feed)	3,942,000	0.025	0.0087	0.0087	49.2750	17.1477	17.1477	95.9%	2.0203	0.7031	0.7031
Output Chute 1 (30% of feed)	1,182,600	0.003	0.0011	0.0011	1.7739	0.6504	0.6504	95.9%	0.0727	0.0267	0.0267
Output Chute 2 (30% of feed)	1,182,600	0.003	0.0011	0.0011	1.7739	0.6504	0.6504	95.9%	0.0727	0.0267	0.0267
Output Chute 3 (30% of feed)	1,182,600	0.003	0.0011	0.0011	1.7739	0.6504	0.6504	95.9%	0.0727	0.0267	0.0267
Output Chute - Oversize (10% of feed)	394,200	0.003	0.0011	0.0011	0.5913	0.2168	0.2168	95.9%	0.0242	0.0089	0.0089
	Project Totals (tons/yr) =				**61.10**	**21.48**	**21.48**		**2.76**	**0.97**	**0.97**

POTENTIAL TO EMIT -- LIMITED WET SCREENING PLANT

PTE Wet screening operation	Throughput* (tons/yr)	Emission Factors (lb/tn)			Uncontrolled Emissions (tpy)			Control	Controlled Emissions (tpy)		
		PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	Efficiency	PM	PM_{10}	$PM_{2.5}$
Feed Chute (100% of feed)	1,300,000	0.003	0.0011	0.0011	1.9500	0.7150	0.7150	91.6%	0.1638	0.0601	0.0601
Screen (100% of feed)	1,300,000	0.025	0.0087	0.0087	16.2500	5.6550	5.6550	95.9%	0.6663	0.2319	0.2319
Output Chute 1 (30% of feed)	390,000	0.003	0.0011	0.0011	0.5850	0.2145	0.2145	95.9%	0.0240	0.0088	0.0088
Output Chute 2 (30% of feed)	390,000	0.003	0.0011	0.0011	0.5850	0.2145	0.2145	95.9%	0.0240	0.0088	0.0088
Output Chute 3 (30% of feed)	390,000	0.003	0.0011	0.0011	0.5850	0.2145	0.2145	95.9%	0.0240	0.0088	0.0088
Output Chute - Oversize (10% of feed)	130,000	0.003	0.0011	0.0011	0.1950	0.0715	0.0715	95.9%	0.0080	0.0029	0.0029
	Project Totals (tons/yr) =				**20.15**	**7.09**	**7.09**		**0.91**	**0.32**	**0.32**

*Throughput (unlimited) = design capacity (tons/hr) x 8760 hr/yr
Screen capacity = 450 tons/hr
Limited Capacity = 1,300,000 tons per year (only material processed at chip plant will be processed)

Methodology

Emission Factors are from AP-42 Table 11.19.2-2, 8/2004 version (all units in lb/ton).

Source	PM	PM-10
Screening (SCC 3-05-020-02, 03)	0.025	0.0087
Conveyor Transfer Point (SCC 3-05-020-06)	0.003	0.0011

Control Efficiencies for screen and conveying transfer points are taken from AP-42 11.19.2 Background Document
Uncontrolled Emissions (tpy) = Capacity (tpy) * Uncontrolled Emission Factor (lb/ton) * 8760 (day/yr) / 2000 (lb/ton)
Controlled Emissions (tpy) = Throughput (tpy) * Controlled Emission Factor (lb/ton) * 8760 (day/yr) / 2000 (lb/ton)

From AP-42 13.2.4, Aggregate Handling and Storage Piles, January 1995

Emissions from slag storage piles can be described by the following empirical equation:

$$E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where:
E = emission factor (lb/tn)
k = particle size multiplier (dimensionless)
U = mean wind speed, miles per hour
M = material moisture content (%)

k =		
	PM	0.74
	PM10	0.35
	PM2.5	0.11

U = 13.4 mean wind speed, (mph) [source=rredc.nrel.gov/wind/pubs/atlas/maps/chap1/2-06m.html]
The mean moisture content was estimated as the average moisture content based on onsite test data.
M = 0.92 % uncontrolled moisture, worst case is slag

E = Emission Factors (lb/tn)

PM	PM10	PM2.5
0.025	0.012	0.004

****

BASELINE PAST ACTUAL EMISSIONS

Production: 2,998,069 tons
Control Eff: 90%

37.92 Uncontrolled PM (tons)
17.94 Uncontrolled PM10 (tons)
5.64 Uncontrolled PM2.5 (tons)
3.79 Controlled PM (tons)
1.79 Controlled PM10 (tons)
0.56 Controlled PM2.5 (tons)

****

PHOENIX SERVICES LLC -- MAXIMUM POTENTIAL TO EMIT

Production: 13,140,000 tons
Control Eff: 90%

166.21 Uncontrolled PM (tons)
78.61 Uncontrolled PM10 (tons)
24.71 Uncontrolled PM2.5 (tons)
16.62 Controlled PM (tons)
7.86 Controlled PM10 (tons)
2.47 Controlled PM2.5 (tons)

****

PHOENIX SERVICES LLC -- LIMITED THROUGHPUT EMISSIONS

Production: 3,677,419 tons, total limited plant input througput for Main and Chip Plants
Control Eff: 90%

46.52 Uncontrolled PM (tons)
22.00 Uncontrolled PM10 (tons)
6.91 Uncontrolled PM2.5 (tons)
4.65 Controlled PM (tons)
2.20 Controlled PM10 (tons)
0.69 Controlled PM2.5 (tons)

****

Past Actual Throughput Data

	input slag	Highest 24-mo		finishing slag	
year	**total**	**Period**		**data**	
2003	2,591,331			578,231	
2004	2,163,507	4,754,838		607,847	1,186,078
2005	1,222,362	3,385,869		171,591	779,438
2006	1,477,162	2,699,524		-	171,591
2007	1,846,008	3,323,170		-	-
2008	1,590,667	3,436,675		626,608	626,608
2009	1,580,603	3,171,270		614,692	1,241,300
2010	1,333,604	2,914,207		507,923	1,122,615
2011	928,069	2,261,673			
		highest 2003-2004			highest 2008-2009
	2,377,419	**annualized**		**620,650**	**finishing ops annualized**
		no other data available			no other data available

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

The small area at the base of each pile where daily activity can occur is negligible and does not need to be calculated.
(see sample calculation, AP-42 12.2.5-9, Step 2)
Disturbance via topping off of piles by stackers creates the fresh surface by which these calculations represent.
N = 365, assuming pile disturbances are once per day, conservative (plant does not operate daily)
The following equations are used to calculate wind erosion emission factors and velocity friction:

Eqn 2: $EF = \sum_{}(=1)^{}$

EF = emission factor (g/m^2)
k = particle size multiplier
N = number of disturbances
P_i = erosion potential corresponding to obs or prob fastest mile of wind for the ith period between disturbances, g/m^2

k = 1 particle size multiplier for PM
k = 0.5 particle size multiplier for PM10
k = 0.075 particle size multiplier for PM2.5

Eqn 3: $=58(^{*} - {}_{}^{*}t)$

$=0 \quad ^{*} \leq ^{*}$

u* = friction velocity (m/s)
u*t = threshold friction velocity (m/s)
u*t = 1.33 m/s, using AP-42 value, Table 13.2.5-2 for Scoria (roadbed material)

Eqn 5: ${}_{}^{}+10= ^{}+ \ln[(10/0.005)]/\ln[(/0.005)]$

u^+10 = fastest mile of reference anemometer ht, 10, for period between disturbances (m/s)
u^+ = fastest mile of reference anemometer ht, z, for period between disturbances (m/s)
0.005 = assumed roughnes height (m)
(Note: anemometer height not available for O'Hare weather station, assume 7 meters)
$u^+10 = 1.05\ u^+$

Eqn 6: $^{}+ = {}_{} / {}_{}[ ]^{}+10$

u^+s = surface wind speed distribution (m/s)
u^+10 = fastest mile of reference anemometer ht, 10, for period between disturbances (m/s)
u_s = surface wind speed (m/s)
u_r = approach wind speed (m/s)

Eqn 7: $^{*}=0.10 \ ^{}+$

u* = friction velocity (m/s)

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

CALCULATE AREAS OF A TYPICAL PILE, BROKEN INTO SUBAREAS

Calculate estimated average area of each storage pile:
oblong piles, not conical, see B2, AP-42 Figure 13.2.5-2
calculate as a rectangular box shape for surface area, conservatively
4 sides and 1 top

Area top = length x width
Area each side = length x height

Area top =	648	m^2
Area four sides =	720	m^2
Total Surface Area of Each Pile =	1368	m^2

length (m):	36	typical size of piles at slag plant, based on pile inventories at Levy ECL 2006.
width (m):	18	typical size of piles at slag plant, based on pile inventories at Levy ECL 2006.
height (m):	5	typical size of piles at slag plant, based on pile inventories at Levy ECL 2006.

Using B2 Type Pile, see Figure 13.2.5-2, AP-42

Pile Subarea	u_s/u_r	% of Surface Area	Area (m_2)
1	0.2	3%	41
2	0.2	28%	383
3	0.6	29%	397
4	0.6	22%	301
5	0.9	15%	205
6	1.1	3%	41
		Total Area:	1368

(see integrated wind erosion calculation spreadsheet)

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PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

BASELINE PAST ACTUAL EMISSIONS
CALCULATE ESTIMATED NUMBER OF PILES BASED ON MAXIMUM CAPACITY OF FEED END OF THE SEPARATION PLANT
Maximum throughput is equal to maximum amount of slag in storage piles, whether raw material or product material.

Maximum throughput =	2,998,069	tpy	
Bulk Density of Slag =	1,762	kg/m3	
Volume of the calculated pile above =	12,960	m^3	
Weight of slag per pile =	22,835,520	kg of slag per pile	
	25,172	tons of slag per pile	
Estimated number of piles =	119	piles based on max plant equipment capacity	

CALCULATE TOTAL PTE

Total emissions from one pile:	0.09	tons PM	(see integrated wind erosion calculation spreadsheet)
	0.05	tons PM_{10}	
	0.01	tons $PM_{2.5}$	
Emissions for all potential piles:	10.87	tons PM	uncontrolled
	5.44	tons PM_{10}	uncontrolled
	0.82	tons $PM_{2.5}$	uncontrolled
	90%	estimated control efficiency, wet suppression	
	1.09	tons PM	controlled
	0.54	tons PM_{10}	controlled
	0.08	tons $PM_{2.5}$	controlled

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PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

PHOENIX SERVICES LLC -- MAXIMUM POTENTIAL TO EMIT
CALCULATE ESTIMATED NUMBER OF PILES BASED ON MAXIMUM CAPACITY OF FEED END OF THE SEPARATION PLANT
Maximum throughput is equal to maximum amount of slag in storage piles, whether raw material or product material.

Maximum throughput =	17,520,000	tpy	(piles only include separation and portable as that is the material stockpiled, no barge)
Bulk Density of Slag =	1,762	kg/m3	
Volume of the calculated pile above =	12,960	m^3	
Weight of slag per pile =	22,835,520	kg of slag per pile	
	25172	tons of slag per pile	
Estimated number of piles =	696	piles based on max plant equipment capacity	

CALCULATE TOTAL PTE

Total emissions from one pile:	0.09	tons PM	(see integrated wind erosion calculation spreadsheet)
	0.05	tons PM_{10}	
	0.01	tons $PM_{2.5}$	
Emissions for all potential piles:	63.54	tons PM	uncontrolled
	31.77	tons PM_{10}	uncontrolled
	4.77	tons $PM_{2.5}$	uncontrolled
	90%	estimated control efficiency, wet suppression	
	6.35	tons PM	controlled
	3.18	tons PM_{10}	controlled
	0.48	tons $PM_{2.5}$	controlled

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PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

PHOENIX SERVICES LLC -- LIMITED THROUGHPUT EMISSIONS
CALCULATE ESTIMATED NUMBER OF PILES BASED ON MAXIMUM CAPACITY OF FEED END OF THE SEPARATION PLANT
Maximum throughput is equal to maximum amount of slag in storage piles, whether raw material or product material.

Maximum throughput =	3,677,419	tpy	(piles only include separation and portable as that is the material stockpiled, no barge)
Bulk Density of Slag =	1,762	kg/m3	
Volume of the calculated pile above =	12,960	m^3	
Weight of slag per pile =	22,835,520	kg of slag per pile	
	25172	tons of slag per pile	
Estimated number of piles =	146	piles based on max plant equipment capacity	

CALCULATE TOTAL PTE

Total emissions from one pile:	0.09	tons PM	(see integrated wind erosion calculation spreadsheet)
	0.05	tons PM_{10}	
	0.01	tons $PM_{2.5}$	
Emissions for all potential piles:	13.34	tons PM	uncontrolled
	6.67	tons PM_{10}	uncontrolled
	1.00	tons $PM_{2.5}$	uncontrolled
	90%	estimated control efficiency, wet suppression	
	1.33	tons PM	controlled
	0.67	tons PM_{10}	controlled
	0.10	tons $PM_{2.5}$	controlled

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PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_0 u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
1/1/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/2/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/3/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/4/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/5/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/6/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/7/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/8/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/9/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/10/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/11/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/12/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/13/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/14/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/15/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/16/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/17/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/18/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/19/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/20/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/21/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/22/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/23/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/24/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/25/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
1/26/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/27/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/28/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/29/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/30/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
1/31/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/1/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/2/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/3/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/4/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/5/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
2/6/2010	28	12.517	13.143	2.629	7.886	11.829	14.457	0.263	0.789	1.183	1.446	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	6.7	6.712	3.356	0.503	0.0003	0.0002	2E-05
2/7/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/8/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/9/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/10/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/11/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/12/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/13/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/14/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/15/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/16/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/17/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/18/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/19/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/20/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/21/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/22/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/23/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/24/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/25/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/26/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/27/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
2/28/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/1/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/2/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_t u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
3/3/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/4/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/5/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/6/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/7/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/8/2010	8	3.576	3.755	0.751	2.253	3.380	4.131	0.075	0.225	0.338	0.413	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/9/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/10/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/11/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/12/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/13/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/14/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
3/15/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/16/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/17/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/18/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/19/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/20/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/21/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/22/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/23/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/24/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/25/2010	36	16.093	16.898	3.380	10.139	15.208	18.588	0.338	1.014	1.521	1.859	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	11.1	11.1	5.5	0.8	0.0025	0.0013	0.0002	30.7	30.670	15.335	2.300	0.0014	0.0007	0.0001
3/26/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/27/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/28/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
3/29/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/30/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
3/31/2010	28	12.517	13.143	2.629	7.886	11.829	14.457	0.263	0.789	1.183	1.446	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	6.7	6.712	3.356	0.503	0.0003	0.0002	2E-05
4/1/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
4/2/2010	36	16.093	16.898	3.380	10.139	15.208	18.588	0.338	1.014	1.521	1.859	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	11.1	11.1	5.5	0.8	0.0025	0.0013	0.0002	30.7	30.670	15.335	2.300	0.0014	0.0007	0.0001
4/3/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/4/2010	35	15.646	16.429	3.286	9.857	14.786	18.072	0.329	0.986	1.479	1.807	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	8.6	8.6	4.3	0.6	0.0019	0.001	0.0001	27.7	27.675	13.838	2.076	0.0013	0.0006	9E-05
4/5/2010	47	21.011	22.061	4.412	13.237	19.855	24.268	0.441	1.324	1.986	2.427	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	38.0	38.0	19.0	2.9	0.0086	0.0043	0.0006	63.6	63.612	31.806	4.771	0.0029	0.0014	0.0002
4/6/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/7/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/8/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/9/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/10/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
4/11/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/12/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/13/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/14/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/15/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/16/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/17/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/18/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/19/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/20/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/21/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/22/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/23/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/24/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
4/25/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/26/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/27/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/28/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
4/29/2010	37	16.540	17.368	3.474	10.421	15.631	19.104	0.347	1.042	1.563	1.910	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	13.5	13.5	6.8	1.0	0.0031	0.0015	0.0002	33.7	33.665	16.832	2.525	0.0015	0.0008	0.0001
4/30/2010	31	13.858	14.551	2.910	8.731	13.096	16.006	0.291	0.873	1.310	1.601	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	15.7	15.696	7.848	1.177	0.0007	0.0004	5E-05
5/1/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/2/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_r u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
5/3/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/4/2010	28	12.517	13.143	2.629	7.886	11.829	14.457	0.263	0.789	1.183	1.446	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	6.7	6.712	3.356	0.503	0.0003	0.0002	2E-05
5/5/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/6/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/7/2010	32	14.305	15.021	3.004	9.012	13.518	16.523	0.300	0.901	1.352	1.652	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	1.3	1.3	0.6	0.1	0.0003	0.0001	2E-05	18.7	18.691	9.346	1.402	0.0008	0.0004	6E-05
5/8/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
5/9/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/10/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
5/11/2010	29	12.964	13.612	2.722	8.167	12.251	14.974	0.272	0.817	1.225	1.497	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	9.7	9.707	4.853	0.728	0.0004	0.0002	3E-05
5/12/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/13/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
5/14/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/15/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/16/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/17/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/18/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
5/19/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/20/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/21/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/22/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/23/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/24/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/25/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/26/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/27/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/28/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/29/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/30/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
5/31/2010	31	13.858	14.551	2.910	8.731	13.096	16.006	0.291	0.873	1.310	1.601	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	15.7	15.696	7.848	1.177	0.0007	0.0004	5E-05
6/1/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/2/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/3/2010	11	4.917	5.163	1.033	3.098	4.647	5.680	0.103	0.310	0.465	0.568	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/4/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/5/2010	31	13.858	14.551	2.910	8.731	13.096	16.006	0.291	0.873	1.310	1.601	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	15.7	15.696	7.848	1.177	0.0007	0.0004	5E-05
6/6/2010	29	12.964	13.612	2.722	8.167	12.251	14.974	0.272	0.817	1.225	1.497	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	9.7	9.707	4.853	0.728	0.0004	0.0002	3E-05
6/7/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/8/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/9/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/10/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/11/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
6/12/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/13/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/14/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/15/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/16/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/17/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/18/2010	46	20.564	21.592	4.318	12.955	19.433	23.751	0.432	1.296	1.943	2.375	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	35.6	35.6	17.8	2.7	0.008	0.004	0.0006	60.6	60.617	30.309	4.546	0.0027	0.0014	0.0002
6/19/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/20/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/21/2010	36	16.093	16.898	3.380	10.139	15.208	18.588	0.338	1.014	1.521	1.859	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	11.1	11.1	5.5	0.8	0.0025	0.0013	0.0002	30.7	30.670	15.335	2.300	0.0014	0.0007	0.0001
6/22/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/23/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
6/24/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/25/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/26/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/27/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/28/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/29/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
6/30/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/1/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/2/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_0 u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
7/3/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/4/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/5/2010	28	12.517	13.143	2.629	7.886	11.829	14.457	0.263	0.789	1.183	1.446	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	6.7	6.712	3.356	0.503	0.0003	0.0002	2E-05
7/6/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
7/7/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/8/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/9/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/10/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/11/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/12/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/13/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/14/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/15/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/16/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/17/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/18/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/19/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/20/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/21/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/22/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
7/23/2010	29	12.964	13.612	2.722	8.167	12.251	14.974	0.272	0.817	1.225	1.497	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	9.7	9.707	4.853	0.728	0.0004	0.0002	3E-05
7/24/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/25/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/26/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/27/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/28/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/29/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/30/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
7/31/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/1/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/2/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/3/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/4/2010	38	16.988	17.837	3.567	10.702	16.053	19.621	0.357	1.070	1.605	1.962	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	16.0	16.0	8.0	1.2	0.0036	0.0018	0.0003	36.7	36.659	18.330	2.749	0.0017	0.0008	0.0001
8/5/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/6/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/7/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/8/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
8/9/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/10/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/11/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/12/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/13/2010	31	13.858	14.551	2.910	8.731	13.096	16.006	0.291	0.873	1.310	1.601	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	15.7	15.696	7.848	1.177	0.0007	0.0004	5E-05
8/14/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/15/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/16/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/17/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/18/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/19/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/20/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/21/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/22/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/23/2010	11	4.917	5.163	1.033	3.098	4.647	5.680	0.103	0.310	0.465	0.568	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/24/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/25/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/26/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/27/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/28/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/29/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/30/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
8/31/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/1/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_0 u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
9/2/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
9/3/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
9/4/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/5/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/6/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/7/2010	37	16.540	17.368	3.474	10.421	15.631	19.104	0.347	1.042	1.563	1.910	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	13.5	13.5	6.8	1.0	0.0031	0.0015	0.0002	33.7	33.665	16.832	2.525	0.0015	0.0008	0.0001
9/8/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/9/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/10/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/11/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/12/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/13/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/14/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/15/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/16/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/17/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/18/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/19/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/20/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/21/2010	32	14.305	15.021	3.004	9.012	13.518	16.523	0.300	0.901	1.352	1.652	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	1.3	1.3	0.6	0.1	0.0003	0.0001	2E-05	18.7	18.691	9.346	1.402	0.0008	0.0004	6E-05
9/22/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/23/2010	33	14.752	15.490	3.098	9.294	13.941	17.039	0.310	0.929	1.394	1.704	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	3.7	3.7	1.9	0.3	0.0008	0.0004	6E-05	21.7	21.686	10.843	1.626	0.001	0.0005	7E-05
9/24/2010	37	16.540	17.368	3.474	10.421	15.631	19.104	0.347	1.042	1.563	1.910	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	13.5	13.5	6.8	1.0	0.0031	0.0015	0.0002	33.7	33.665	16.832	2.525	0.0015	0.0008	0.0001
9/25/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/26/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/27/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/28/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/29/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
9/30/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/1/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/2/2010	29	12.964	13.612	2.722	8.167	12.251	14.974	0.272	0.817	1.225	1.497	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	9.7	9.707	4.853	0.728	0.0004	0.0002	3E-05
10/3/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/4/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/5/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/6/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/7/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/8/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/9/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/10/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/11/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/12/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/13/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/14/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/15/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/16/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/17/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/18/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/19/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/20/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/21/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/22/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/23/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
10/24/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/25/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
10/26/2010	38	16.988	17.837	3.567	10.702	16.053	19.621	0.357	1.070	1.605	1.962	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	16.0	16.0	8.0	1.2	0.0036	0.0018	0.0003	36.7	36.659	18.330	2.749	0.0017	0.0008	0.0001
10/27/2010	41	18.329	19.245	3.849	11.547	17.321	21.170	0.385	1.155	1.732	2.117	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	23.3	23.3	11.7	1.7	0.0053	0.0026	0.0004	45.6	45.644	22.822	3.423	0.0021	0.001	0.0002
10/28/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/29/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/30/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
10/31/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/1/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0

PHOENIX SERVICES LLC - BURNS HARBOR
AP-42, 13.2.5, Date 11/2006
Wind Erosion Industrial Piles

INTEGRATED WIND EROSION CALCULATION OF ONE PILE

Wind data, u^+, purchased from NOAA local climatic data website, ORD weather station 2010 monthly charts, maximum speed 2-min.

$EF_{PM}/EF_{PM10}/EF_{PM2.5}$ = emission factor (g/m^2)

$PM/PM_{10}/PM_{2.5}$ = particulate matter emissions (tpy), uncontrolled

$P_{1\text{-}6}$ = erosion potential (g/m^2)

	u^+		u^+10	u^+s (m/s) = (u_s/u_0 u^+10				u* (m/s) = 0.10 u^+s				Pile Subarea 1			Pile Subarea 2			Pile Subarea 3			Pile Subarea 4			Pile Subarea 5							Pile Subarea 6						
Period	mph	m/s	m/s	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	u_s/u_r: 0.2	u_s/u_r: 0.6	u_s/u_r: 0.9	u_s/u_r: 1.1	P_1		EF_{ALL}	P_2		EF_{ALL}	P_3		EF_{ALL}	P_4		EF_{ALL}	P_5	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$	P_6	EF_{PM}	EF_{PM10}	$EF_{PM2.5}$	PM	PM_{10}	$PM_{2.5}$
11/2/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/3/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/4/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/5/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/6/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/7/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/8/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/9/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/10/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/11/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/12/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/13/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/14/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/15/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/16/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/17/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/18/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/19/2010	28	12.517	13.143	2.629	7.886	11.829	14.457	0.263	0.789	1.183	1.446	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	6.7	6.712	3.356	0.503	0.0003	0.0002	2E-05
11/20/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/21/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
11/22/2010	26	11.623	12.204	2.441	7.323	10.984	13.425	0.244	0.732	1.098	1.342	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.7	0.723	0.361	0.054	3E-05	2E-05	2E-06
11/23/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/24/2010	29	12.964	13.612	2.722	8.167	12.251	14.974	0.272	0.817	1.225	1.497	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	9.7	9.707	4.853	0.728	0.0004	0.0002	3E-05
11/25/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/26/2010	24	10.729	11.265	2.253	6.759	10.139	12.392	0.225	0.676	1.014	1.239	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/27/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/28/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/29/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
11/30/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/1/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/2/2010	15	6.706	7.041	1.408	4.225	6.337	7.745	0.141	0.422	0.634	0.774	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/3/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/4/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/5/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/6/2010	20	8.941	9.388	1.878	5.633	8.449	10.327	0.188	0.563	0.845	1.033	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/7/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/8/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/9/2010	23	10.282	10.796	2.159	6.478	9.716	11.876	0.216	0.648	0.972	1.188	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/10/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/11/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/12/2010	41	18.329	19.245	3.849	11.547	17.321	21.170	0.385	1.155	1.732	2.117	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	23.3	23.3	11.7	1.7	0.0053	0.0026	0.0004	45.6	45.644	22.822	3.423	0.0021	0.001	0.0002
12/13/2010	30	13.411	14.082	2.816	8.449	12.674	15.490	0.282	0.845	1.267	1.549	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	12.7	12.702	6.351	0.953	0.0006	0.0003	4E-05
12/14/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/15/2010	9	4.023	4.225	0.845	2.535	3.802	4.647	0.084	0.253	0.380	0.465	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/16/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/17/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/18/2010	18	8.047	8.449	1.690	5.069	7.604	9.294	0.169	0.507	0.760	0.929	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/19/2010	13	5.812	6.102	1.220	3.661	5.492	6.712	0.122	0.366	0.549	0.671	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/20/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/21/2010	17	7.600	7.980	1.596	4.788	7.182	8.778	0.160	0.479	0.718	0.878	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/22/2010	21	9.388	9.857	1.971	5.914	8.872	10.843	0.197	0.591	0.887	1.084	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/23/2010	12	5.364	5.633	1.127	3.380	5.069	6.196	0.113	0.338	0.507	0.620	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/24/2010	10	4.470	4.694	0.939	2.816	4.225	5.163	0.094	0.282	0.422	0.516	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/25/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/26/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/27/2010	14	6.259	6.571	1.314	3.943	5.914	7.229	0.131	0.394	0.591	0.723	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/28/2010	16	7.153	7.510	1.502	4.506	6.759	8.261	0.150	0.451	0.676	0.826	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/29/2010	22	9.835	10.327	2.065	6.196	9.294	11.359	0.207	0.620	0.929	1.136	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/30/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
12/31/2010	25	11.176	11.735	2.347	7.041	10.561	12.908	0.235	0.704	1.056	1.291	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	=>	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.000	0.000	0.000	0	0	0
								Subarea Emission Totals:						**0.0**			**0.0**			**0.0**			**0.0**					**5E-02**	**3E-02**	**4E-03**					**4E-02**	**2E-02**	**3E-03**

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

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

March 12, 2014

Clint McGinty
Metal Services, LLC dba Phoenix Services, LLC
148 West State Street, Suite 301
Kennett Square, PA 19348

Re: Public Notice
Metal Services LLC dba Phoenix Services, LLC
Permit Level: Title V – Significant Source Modification / Significant Permit Modification
Permit Number: 127-34120/34181-00026

Dear Mr. McGinty:

Enclosed is a copy of your draft Title V – Significant Source Modification / Significant Permit Modification, Technical Support Document, emission calculations, and the Public Notice which will be printed in your local newspaper.

The Office of Air Quality (OAQ) has submitted the draft permit package to the Westchester Public Library, 200 West Indiana Avenue in Chesterton, Indiana. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper. The OAQ has requested that the Vidette Times in Munster, Indiana publish this notice no later than March 17, 2014.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Madhurima Moulik, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-0868 or dial (317) 233-0868.

Sincerely,
Angela R Wells

Angela R Wells
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover letter. dot 3/27/08

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Commissioner

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

March 12, 2014

Vidette Times
Nicole Muscari
601 West 45th Street
Munster, Indiana 46321

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for Metal Services, LLC dba Phoenix Services, LLC, Porter County, Indiana.

Since our agency must comply with requirements which call for a Notice of Public Comment, we request that you print this notice one time, no later than March 17, 2014.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1003, 100 North Senate Avenue, Indianapolis, Indiana, 46204.

To ensure proper payment, please reference account # 100174737.

We are required by the Auditor's Office to request that you place the Federal ID Number on all claims. If you have any conflicts, questions, or problems with the publishing of this notice or if you do not receive complete public notice information for this notice, please call Angie Wells at 800-451-6027 and ask for extension 3-9488 or dial 317-233-9488.

Sincerely,
Angela R Wells

Angela R Wells
Permit Branch
Office of Air Quality

Permit Level: Title V – Significant Source Modification / Significant Permit Modification
Permit Number: 127-34120/34181-00026

Enclosure
PN Newspaper.dot 6/13/2013

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

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

March 12, 2014

To: Westchester Public Library

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

Subject: **Important Information to Display Regarding a Public Notice for an Air Permit**

Applicant Name: Metal Services, LLC dba Phoenix Services, LLC
Permit Number: 127-34120/34181-00026

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Request to publish the Notice of 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. **Please make this information readily available until you receive a copy of the final package.**

If you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library.dot 6/13/2013

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Governor

Thomas W. Easterly
Commissioner

Notice of Public Comment

March 12, 2014
Metal Services, LLC dba Phoenix Services, LLC
127-34120/34181-00026

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has been placed in the Legal Advertising section of your local newspaper. The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: *If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
PN AAA Cover.dot 6/13/13

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

AFFECTED STATE NOTIFICATION OF PUBLIC COMMENT PERIOD
DRAFT INDIANA AIR PERMIT

March 12, 2014

A 30-day public comment period has been initiated for:

Permit Number: **127-34120/34181-00026**
Applicant Name: **Metal Services, LLC dba Phoenix Services, LLC**
Location: **Burns Harbor, Porter County, Indiana**

The public notice, draft permit and technical support documents can be accessed via the **IDEM Air Permits Online** site at:
http://www.in.gov/ai/appfiles/idem-caats/

Questions or comments on this draft permit should be directed to the person identified in the public notice by telephone or in writing to:

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

Questions or comments regarding this email notification or access to this information from the EPA Internet site can be directed to Chris Hammack at chammack@idem.IN.gov or (317) 233-2414.

Mail Code 61-53

IDEM Staff	AWELLS 3/12/2014 Metal Services LLC dba Phoenix Services LLC 127-34120/34181-00026 Draft		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Clint McGinty Metal Services LLC dba Phoenix Services LLC -contr 148 W State St, Ste 301 Kennett Square PA 19348 (Source CAATS)									
2		Keith Flynn General Manager Metal Services LLC dba Phoenix Services LLC -contr PO Box 619 Chesterton IN 46304-0619 *(RO CAATS)*									
3		Westchester Public Library 200 W Indiana Ave Chesterton IN 46304-3122 *(Library)*									
4		Porter County Board of Commissioners 155 Indiana Ave, Ste 205 Valparaiso IN 46383 *(Local Official)*									
5		Porter County Health Department 155 Indiana Ave, Suite 104 Valparaiso IN 46383-5502 *(Health Department)*									
6		Shawn Sobocinski 3229 E. Atlanta Court Portage IN 46368 *(Affected Party)*									
7		Mr. Ed Dybel 2440 Schrage Avenue Whiting IN 46394 *(Affected Party)*									
8		Mr. Joseph Virgil 128 Kinsale Avenue Valparaiso IN 46385 *(Affected Party)*									
9		Mark Coleman 107 Diana Road Portage IN 46368 *(Affected Party)*									
10		Mr. Chris Hernandez Pipefitters Association, Local Union 597 8762 Louisiana St., Suite G Merrillville IN 46410 *(Affected Party)*									
11		Ms. Kathy Luther Northern Regional Planning Commission 6100 Southport Rd Portage IN 46368 *(Affected Party)*									
12		Burns Harbor Town Council 1240 N. Boo Rd Burns Harbor IN 46304 *(Local Official)*									
13		Eric & Sharon Haussman 57 Shore Drive Ogden Dunes IN 46368 (Affected Party)									
14		Vice President and General Manager ISG Burns Harbor 260 W US Hwy 12 Burns Harbor IN 46304 *(Source ? addl contact)*									
15		Susan Grenzebach ST Environmental, LLC PO Box 2557 Chesterton IN 46034-2557 *(Consultant)*									

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
15			

FACSIMILIE OF PS Form 3877

Mail Code 61-53

IDEM Staff	AWELLS 3/12/2014 Metal Services LLC dba Phoenix Services LLC 127-34120/34181-00026 Draft		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Joseph Hero 11723 S Oakridge Drive St. John IN 46373 (Affected Party)									
2		Matt Mikus 1710 Vale Park Rd Apt 302 Valparaiso IN 46383 *(Affected Party)*									
3		Arcelor Mittal 250 W. Highway 12 Burns Harbor IN 46304 *(Source – addl contact)*									
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