



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: May 4, 2009

RE: ESM Group, Inc. / 091-27332-00086

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

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

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

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

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

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

Enclosures
FNPER.dot12/03/07



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Minor Source Operating Permit Renewal OFFICE OF AIR QUALITY

ESM Group Inc
Kingsbury Industrial Park, 5th Road, Building 3
Kingsbury, Indiana 46345

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

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Indiana statutes from IC 13 and rules from 326 IAC, quoted 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 MSOP under 326 IAC 2-6.1.

Operation Permit No.: M091-27332-00086	
Issued by:  Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: May 4, 2009 Expiration Date: May 4, 2019

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SECTION A SOURCE SUMMARY

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

A.1 General Information [326 IAC 2-5.1-3(c)][326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary grinding and blending process for specialty alloy powders.

Source Address:	Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
Mailing Address:	Box 78, Kingsbury, IN 46345
General Source Phone Number:	(219) 393-5502
SIC Code:	3299
County Location:	LaPorte
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Minor Source Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary

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

- (a) Primary magnesium grinding operations (P001), constructed in 1996, located in Building #1 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-1) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (b) Primary magnesium grinding operations (P002), constructed in 1996, located in Building #2 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-2) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (c) Secondary grinding operations (P003), constructed in 1996, located in Building #3 processing a maximum of 1,300 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-3) with material conveyed to a portable bin;
- (d) Lime grinding operation, identified as (P007), approved for construction in 2009, controlled by a baghouse S-7 to control particulates, with a maximum capacity of five (5) tons per hour, exhausting to stack S-7 with material conveyed to two (2) silos with storage capacity of 15 tons (storage silo) and 150 tons (pig silo) respectively, venting into the baghouses S-5 and S-7;

NOTE: The storage silo is an existing silo. It was used for the storage of magnesium materials and for safety reasons was not ducted to a baghouse. This silo is now used for the lime process and ducted to a new baghouse (S-7). The storage pig is new and it vents to an existing baghouse, S-5.

- (e) Cone blender operations (P004), constructed in 1996, processing a maximum of 20,000 lbs of alloy material per hour, controlled by one (1) baghouse, and exhausting at stack (S-4);

- (f) Nauta mixer operation (P006), constructed in 1996, processing a maximum of 20,000 lbs of material per hour, controlled by one (1) dust collector exhausting to stack (S-6);
- (g) Two (2) 4,100 cubic foot lime storage tankers (P005), constructed in 1996, for use in the Cone blender (P004) or Nauta Mixer (P006), handling a maximum of 48,000 lbs of lime per hour each, with a maximum storage capacity of 250,000 lbs, controlled by one (1) dust collector exhausting to stack (S-6);

NOTE: Only one tanker can be emptied at 48,000 lb/hr at a time.

- (h) One (1) material dumping station processing, constructed in 1996, a maximum of 1,517 lbs of alloy material per hour, controlled by one (1) baghouse exhausting to stack (S-5);
- (i) Four (4) silos, constructed in 1996, loading/unloading a total maximum of 4,000 lbs of alloy material per hour combined, each with a maximum storage capacity of 30,000 lbs per silo.

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-1.1-1]

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 2-1.1-1) shall prevail.

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

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

B.3 Permit Term [326 IAC 2-6.1-7(a)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

- (a) This permit, M091-27332-00086, is issued for a fixed term of ten (10) 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, until the renewal permit has been issued or denied.

B.4 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.5 Enforceability

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.6 Severability

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.7 Property Rights or Exclusive Privilege

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

B.8 Duty to Provide Information

- (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. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). 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.9 Certification

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.10 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251
- (c) The notification 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.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) 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.
- (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 or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (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.12 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to M091-27332-00086 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,
 - (2) revised, or
 - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

B.13 Termination of Right to Operate [326 IAC 2-6.1-7(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 one hundred twenty (120) days prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-6.1-7.

B.14 Permit Renewal [326 IAC 2-6.1-7]

- (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 2-6.1-7. Such information shall be included in the application for each emission unit at this source. The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

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

- (b) A timely renewal application is one that is:
 - (1) Submitted at least one hundred twenty (120) days 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 2-6.1 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 in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.15 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)][326 IAC 2-6.1-6]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-6.1-6 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 shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

B.16 Source Modification Requirement

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

B.17 Inspection and Entry

[326 IAC 2-5.1-3(e)(4)(B)][326 IAC 2-6.1-5(a)(4)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

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 permitted 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, at reasonable times, 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, at reasonable times, 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, at reasonable times, 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.18 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]

(a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 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

The application which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement notice-only changes addressed in the request for a notice-only change immediately upon submittal of the request. [326 IAC 2-6.1-6(d)(3)]

B.19 Annual Fee Payment [326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees due within thirty (30) calendar days of receipt of a bill from IDEM, OAQ,.
- (b) 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.20 Credible Evidence [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 2-6.1-5(a)(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 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

C.3 Opacity [326 IAC 5-1]

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

- (a) Opacity shall not exceed an average of 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.4 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.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

C.6 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).

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
- (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
- (2) If there is a change in the following:
- (A) Asbestos removal or demolition start date;
- (B) Removal or demolition contractor; or
- (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

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

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (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 2-6.1-5(a)(2)]

C.8 Performance Testing [326 IAC 3-6]

- (a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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 certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (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 certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.9 Compliance Requirements [326 IAC 2-1.1-11]

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

Compliance Monitoring Requirements [326 IAC 2-6.1-5(a)(2)]

C.10 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60, Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

C.12 Instrument Specifications [326 IAC 2-1.1-11]

- (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

C.13 Response to Excursions or Exceedances

- (a) Upon detecting an excursion or exceedance, the Permittee shall 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 emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned 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 within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (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 maintain the following records:
 - (1) monitoring data;
 - (2) monitor performance data, if applicable; and
 - (3) corrective actions taken.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test

- (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 take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred twenty (120) 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 the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

C.15 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.16 General Record Keeping Requirements [326 IAC 2-6.1-5]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later.

C.17 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of 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
- (b) 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.
- (c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) Primary magnesium grinding operations (P001), constructed in 1996, located in Building #1 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) cyclone exhausting to stack (S-1) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (b) Primary magnesium grinding operations (P002), constructed in 1996, located in Building #2 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) cyclone exhausting to stack (S-2) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (c) Secondary grinding operations (P003), constructed in 1996, located in Building #3 processing a maximum of 1,300 lbs of alloy material per hour, processed through one (1) cyclone exhausting to stack (S-3) with material conveyed to a portable bin;
- (d) Lime grinding operation, identified as (P007), approved for construction in 2009, controlled by a baghouse S-7 to control particulates, with a maximum capacity of five (5) tons per hour, exhausting to stack S-7 with material conveyed to two (2) silos with storage capacity of 15 tons (storage silo) and 150 tons (pig silo) respectively, venting into the baghouses S-5 and S-7;

NOTE: The storage silo is an existing silo. It was used for the storage of magnesium materials and for safety reasons was not ducted to a baghouse. This silo is now used for the lime process and ducted to a new baghouse (S-7). The storage pig is new and it vents to an existing baghouse, S-5.

- (e) Cone blender operations (P004), constructed in 1996, processing a maximum of 20,000 lbs of alloy material per hour, controlled by one (1) baghouse, and exhausting at stack (S-4);
- (f) Nauta mixer operation (P006), constructed in 1996, processing a maximum of 20,000 lbs of material per hour, controlled by one (1) dust collector exhausting to stack (S-6);
- (g) Two (2) 4,100 cubic foot lime storage tankers (P005), constructed in 1996, for use in the Cone blender (P004) or Nauta Mixer (P006), handling a maximum of 48,000 lbs of lime per hour each, with a maximum storage capacity of 250,000 lbs, controlled by one (1) dust collector exhausting to stack (S-6);

NOTE: Only one tanker can be emptied at 48,000 lb/hr at a time.

- (h) One (1) material dumping station processing, constructed in 1996, a maximum of 1,517 lbs of alloy material per hour, controlled by one (1) baghouse exhausting to stack (S-5);
- (i) Four (4) silos, constructed in 1996, loading/unloading a total maximum of 4,000 lbs of alloy material per hour combined, each with a maximum storage capacity of 30,000 lbs per silo.

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

Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

D.1.1 Particulate Matter [326 IAC 6-3-2]

- (a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), allowable particulate emission rate from the primary magnesium grinding operations (P001), shall be limited to 2.99 lbs/hour, when operating at a process weight rate of 1246 lbs/hr.
- (b) Pursuant to 326 IAC 6-3-2, the particulate emissions from the primary magnesium grinding operations (P002), shall be limited to 2.99 lbs/hour, when operating at a process weight rate of 1246 lbs/hr.
- (c) Pursuant to 326 IAC 6-3-2, the particulate emissions from the secondary grinding operations (P003), shall be limited to 2.34 lbs/hour, when operating at a process weight rate of 867 lbs/hr.
- (d) Pursuant to 326 IAC 6-3-2, the particulate emissions from the Lime grinding operation (P007), shall be limited to 12.05 lbs/hour, when operating at a process weight rate of 10,000 lbs/hr.
- (e) Pursuant to 326 IAC 6-3-2, the particulate emissions from the cone blending system (P004), shall be limited to 15.46 lbs/hour, when operating at a process weight rate of 14,500 lbs/hr.
- (f) Pursuant to 326 IAC 6-3-2, the particulate emissions from the Nauta mixer (P006), shall be limited to 15.46 lbs/hour, when operating at a process weight rate of 14,500 lbs/hr.
- (g) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the material dumping station shall be limited to 3.41 lbs/hour, when operating at a process weight rate of 1,517 lbs/hr.
- (h) Pursuant to 326 IAC 6-3-2, the particulate emissions from the two (2) lime storage tankers (P005), shall be limited to 17.54 lbs/hour combined, when operating at a process weight rate of 17,500 lbs/hr.

These pounds per hour limitations in sections (a) through (h) were calculated using the equation below.

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:

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

D.1.2 Particulate Control [326 IAC 6-3-2] [326 IAC 2-6.1-5]

In order to comply with Conditions D.1.1(a) through D.1.1(c) the integral cyclones for particulate control shall be in operation at all times that the primary and secondary grinding processes are in operations.

D.1.3 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and their control devices.

Compliance Determination Requirements

D.1.4 Particulate Control

- (a) In order to comply with conditions D.1.1(d) through D.1.1(h), the dust collectors for particulate control, shall be in operation at all times when the material mixing, blending, loading and unloading processes are in operation.
- (b) In the event that dust cartridge failure is observed in a multi-compartment dust collector, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.5 Manufacturer's Specifications [326 IAC 2-6-1.5]

The two primary magnesium grinding operations, identified as P001 and P002, and one secondary grinding operation, identified as P003, and their respective cyclones integral to the system shall each operate per manufacturer's specifications.

D.1.6 Testing Requirements [326 IAC 2-6.1-5]

In order to demonstrate Compliance status with 326 IAC 2-6.1-5, the Permittee shall perform PM, PM₁₀ and PM_{2.5} testing of stacks S-1, S-2 and S-3 associated with the grinding operation, within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM_{2.5}), signed on May 8th, 2008 or once every five (5) years of the valid compliant stack test, which ever is later. This testing shall be conducted utilizing methods as approved by the Commissioner.

These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-6.1-5(a)(2)]

D.1.7 Visible Emissions Notations

- (a) Visible emission notations of the stack exhaust for the integral cyclones exhausts S-1, S-2 and S-3, and the baghouse stack exhausts S-4, S-5, S-6 and S-7 controlling the grinding and blending operations 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 steps in accordance with Section C- Response to Excursions or Exceedences. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedences shall be considered a deviation from this permit.

D.1.8 Baghouse Parametric Monitoring

The Permittee shall record the total pressure drop across the baghouses S-4, S-5, S-6 and S-7 used in conjunction with the grinding and blending operations, at least once per day when either of the grinding or either of the blending systems are in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedences. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedences shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instruments Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.9 Broken or Failed Bag Detection

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

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

D.1.10 Cyclone Failure Detection

In the event that cyclone failure has been observed:

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

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

D.1.11 Record Keeping Requirements

- (a) To document compliance with Condition D.1.7, the Permittee shall maintain daily records of visible emission notations of the stack exhausts (S-1, S-2, S-3, S-4, S-5, S-6 and S-7). The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation, (e.g. the process did not operate that day).
- (c) To document compliance with Condition D.1.8, the Permittee shall maintain daily records of the pressure drop during normal operation. The Permittee shall include in its daily

records when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

**MINOR SOURCE OPERATING PERMIT (MSOP)
CERTIFICATION**

Source Name: ESM Group Inc
Source Address: Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
Mailing Address: Box 78, Kingsbury, IN 46345
MSOP No.: M091-27332-00086

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

Please check what document is being certified:

- Annual Compliance Certification Letter
- Test Result (specify)_____
- Report (specify)_____
- Notification (specify)_____
- Affidavit (specify)_____
- Other (specify)_____

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

Signature:

Printed Name:

Title/Position:

Date:

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

**MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	ESM Group Inc
Address:	Kingsbury Industrial Park, 5th Road, Building 3
City:	Kingsbury, Indiana 46345
Phone #:	(219) 393-5502
MSOP #:	M091-27332-00086

I hereby certify that ESM Group Inc is :

still in operation.

no longer in operation.

I hereby certify that ESM Group Inc is :

in compliance with the requirements of MSOP M091-27332-00086.

not in compliance with the requirements of MSOP M091-27332-00086.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY FAX NUMBER: (317) 233-6865

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?____, 25 TONS/YEAR SULFUR DIOXIDE ?____, 25 TONS/YEAR NITROGEN OXIDES?____, 25 TONS/YEAR VOC ?____, 25 TONS/YEAR HYDROGEN SULFIDE ?____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?____, 25 TONS/YEAR FLUORIDES ?____, 100 TONS/YEAR CARBON MONOXIDE ?____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF "MALFUNCTION" AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: _____ PHONE NO. () _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____
INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Minor Source Operating Permit (MSOP) Renewal

Source Description and Location

Source Name:	ESM Group Inc.
Source Location:	Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
County:	LaPorte
SIC Code:	3299
MSOP Permit Renewal No.:	M091-27332-00086
Permit Reviewer:	Swarna Prabha

On January 5, 2009, the Office of Air Quality (OAQ) has received the operating permit renewal application from ESM Group Inc. relating to the operation of an existing stationary grinding and blending of steel making specialty alloy manufacturing plant.

Existing Approvals

The source was issued MSOP No. 091-18964-00086 on August 19, 2004. The source has not received any other approval since the issuance of the MSOP.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Air Pollution Control Justification as an Integral Part of the Process

The three cyclones P001, P002, and P003 are still considered as an integral part of the process based on the justification submitted in 2004. Therefore, the permitting level is still determined using the potential to emit after the cyclones. Operating conditions in the proposed permit will specify that the cyclones shall operate at all times when the process is in operation.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) Primary magnesium grinding operations (P001), constructed in 1996, located in Building #1 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-1) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (b) Primary magnesium grinding operations (P002), constructed in 1996, located in Building #2 processing a maximum of 1,246 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-2) with material conveyed to four (4) storage silos with vents (V-1,V-2,V-3,V-4); maximum loading rate of 1000 lbs/hr each.
- (c) Secondary grinding operations (P003), constructed in 1996, located in Building #3 processing a maximum of 1,300 lbs of alloy material per hour, processed through one (1) integral cyclone exhausting to stack (S-3) with material conveyed to a portable bin;
- (d) Lime grinding operation, identified as (P007), approved for construction in 2009, controlled by a baghouse S-7 to control particulates, with a maximum capacity of five (5) tons per hour, exhausting to stack S-7 with material conveyed to two (2) silos with storage capacity of 15 tons (storage silo) and 150 tons (pig silo) respectively, venting into the baghouses S-5 and S-7;

NOTE: The storage silo is an existing silo. It was used for the storage of magnesium materials and for safety reasons was not ducted to a baghouse. This silo is now used for the lime process and ducted to a new baghouse (S-7). The storage pig is new and it vents to an existing baghouse, S-5.

- (e) Cone blender operations (P004), constructed in 1996, processing a maximum of 20,000 lbs of alloy material per hour, controlled by one (1) baghouse, and exhausting at stack (S-4);
- (f) Nauta mixer operation (P006), constructed in 1996, processing a maximum of 20,000 lbs of material per hour, controlled by one (1) dust collector exhausting to stack (S-6);
- (g) Two (2) 4,100 cubic foot lime storage tankers (P005), constructed in 1996, for use in the Cone blender (P004) or Nauta Mixer (P006), handling a maximum of 48,000 lbs of lime per hour each, with a maximum storage capacity of 250,000 lbs, controlled by one (1) dust collector exhausting to stack (S-6);

NOTE: Only one tanker can be emptied at 48,000 lb/hr at a time.

- (h) One (1) material dumping station, constructed in 1996, processing a maximum of 1,517 lbs of alloy material per hour, controlled by one (1) baghouse exhausting to stack (S-5);
- (i) Four (4) silos, constructed in 1996, loading/unloading a total maximum of 4,000 lbs of alloy material per hour combined, each with a maximum storage capacity of 30,000 lbs per silo.

Emission Units and Pollution Control Equipment

The following exempt unit has been added during this renewal. This change is already incorporated in the emission units and pollution control devices above.

Lime grinding operation, identified as P007, approved for construction in 2009, controlled by a baghouse S-7 to control particulates, with a maximum capacity of five (5) tons per hour, exhausting to stack S-7 with material conveyed to two (2) storage silos with storage capacity of 15 tons (storage silo and 150 tons (pig silo) respectively, venting into the baghouses S-5 and S-7.

Emission Units and Control Stack:

Following is the summary table for the control stack/s and the related emission units:

Control - Stack	Operations
Integral Cyclone- stack S-1	Primary magnesium grinding (P001)
Integral Cyclone- stack S-2	Primary magnesium grinding (P002)
Integral Cyclone- stack S-3	Secondary magnesium grinding (P003)
Baghouses- stack S-7, S-5	Lime grinding System (P007)
Baghouse- stack S-4	Cone Blender (P004)
Baghouse- stack S-6	Nauta Mixer (P006)
Baghouse- stack S-6	Two(2) Lime storage tanks
Baghouse- stack S-5	Material Dumping station

Enforcement Issues

There are no enforcement actions pending.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in LaPorte County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Attainment effective July 19, 2007, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.

¹Unclassifiable or attainment effective November 15, 1990, for the 1-hour standard which was revoked effective June 15, 2005.
Unclassifiable or attainment effective April 5, 2005, for PM2.5.

- (a) **Ozone Standards**
Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. LaPorte County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM2.5**
LaPorte County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15th, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.
- (c) **Other Criteria Pollutants**
LaPorte County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, and there is no applicable New Source Performance Standard that was in effect on August 7, 1980, fugitive emissions are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Unrestricted Potential Emissions

The following table reflects the unrestricted emissions of the entire source before controls as listed in Appendix A.

Process/ Emission Unit	Potential To Emit (tons/year)								
	**PM	*PM ₁₀	PM _{2.5}	SO ₂	VOC	CO	NO _x	Total HAPs	Worst Single HAP
***Primary magnesium grinding (P001)	4.07	4.07	4.07	0.0	0.0	0.0	0.0	0.0	0.0
***Primary magnesium grinding (P002)	5.89	5.89	5.89	0.0	0.0	0.0	0.0	0.0	0.0
***Secondary magnesium grinding (P003)	10.42	10.42	10.42	0.0	0.0	0.0	0.0	0.0	0.0
Lime grinding System (P007)	13.58	13.58	13.58	0.0	0.0	0.0	0.0	0.0	0.0
Cone Blender (P004)	3.81	1.91	1.91	0.0	0.0	0.0	0.0	0.0	0.0
Nauta Mixer (P006)	3.81	1.91	1.91	0.0	0.0	0.0	0.0	0.0	0.0
Material Dumping station (silos)	0.40	0.20	0.20	0.0	0.0	0.0	0.0	0.0	0.0
(2) Lime Storage Tankers	23.79	23.79	23.79	0.0	0.0	0.0	0.0	0.0	0.0
V1, V2, V3, V4-Silo Loading/Unloading-(4 Silos)	1.05	0.53	0.53	0.0	0.0	0.0	0.0	0.0	0.0
Two (2) Storage Pigs-Silos	2.63	1.31	1.31	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Vehicle-traffic	3.46	3.46	3.46	0.0	0.0	0.0	0.0	0.0	0.0
Total PTE of Entire Source	72.91	64.44	64.44	0.0	0.0	0.0	0.0	0.0	0.0
Title V Major Source Thresholds	NA	100	100	100	100	100	100	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	NA	NA
negl. = negligible * Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions. ** The PTE of PM is less than 250 tons/yr, therefore there is no need to specify the limits. There are no emission factors for PM2.5 in AP42. PM10 = PM2.5 *** Use of Cyclone as an Integral Control Device									

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants is still less than 100 tons per year but PM, PM10 and PM2.5 are greater than 25 tons per year. The source is not subject to the provisions of 326 IAC 2-7. Therefore, the source will be issued an MSOP Renewal.

- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is still less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source will be issued an MSOP Renewal.
- (c) Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-7, fugitive emissions are not counted toward the determination of Part 70 applicability.
- (d) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) This source is not subject to the requirements of the New Source Performance Standards (NSPS), 40 CFR 60, Subpart HH (Lime Manufacturing Plants), (40 CFR Part 60.340-60.344), because this source does not manufacture Lime.
- (b) This source is not subject to the requirements of the New Source Performance Standards (NSPS), 40 CFR 60, Subpart LL (Standards of Performance for Metallic Mineral Processing Plants), (40 CFR Part 60.380-60-386). This rule applies to affected facilities in metallic mineral processing plants, constructed after August 24, 1982, where metallic mineral processing plants are defined as any combination of equipment that produces metallic mineral concentrates from ore. The rule further defines metallic mineral concentrates as material containing metallic compounds in concentrations higher than naturally occurring in ore but requiring additional processing to isolate pure metal, and also containing at least one of the following metals (aluminum, copper, gold, iron, lead, molybdenum, silver, titanium, tungsten, uranium, zinc and zirconium) in any of its oxidation states and at a concentration that contributes to the concentrate's commercial value. The metallic mineral concentrates processed by this plant are primarily composed of magnesium, with some calcium, but no significant levels of any of the above listed metals. This plant does not meet the definition of a metallic mineral processing plant per 40 CFR 60.380, and therefore is not subject to this rule.
- (c) This source is not subject to the requirements of the New Source Performance Standards (NSPS), 40 CFR 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants), (40 CFR Part 60.670-60-676). This rule applies to affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, and bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

This plant does not meet the definition of a Non-metallic Mineral Processing plant per 40 CFR 60.670, and therefore is not subject to this rule.
- (d) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included for this renewal.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, Subpart AAAAA (Lime Manufacturing Plants), (40 CFR Part 63.7080 - 63.7143), because this source is not a major source of HAPs as defined in 40 CFR 63.2.
- (b) There are no other new National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included for this proposed revision.

Compliance Assurance Monitoring (CAM)

- (c) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the potential to emit of the source is limited to less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

326 IAC 2-2 (Prevention of Significant Deterioration)

The total source potential emissions of PM, PM-10, SO₂, VOC, NO_x, and CO, are less than 250 tons per year and of Lead is less than 25 tons per year. The source is not one of the 28 listed source categories. There are no applicable New Source Performance Standards that were in effect on August 7, 1980. The source has not conducted any modifications to trigger PSD and is currently considered a minor PSD source. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) do not apply.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The potential to emit each individual hazardous air pollutant (HAP) is less than 10 tons per year and the potential to emit any combination of HAPs is less than 25 tons per year. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6.1 (Minor Source Operating Permit)

MSOP applicability is discussed under the Permit Level Determination – MSOP section above.

326 IAC 5-1 (Opacity Limitations)

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

326 IAC 2-6 (Emission Reporting)

This source is located in Laporte County and the potential to emit of each criteria pollutant is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

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

Pursuant to 326 IAC 6-3-2 (Particulate emission limitations) this source shall operate the grinding and blending process so as not to produce, cause, suffer or allow particulate matter to be emitted in excess of the following limits for each process.

- (a) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the primary magnesium grinding operations (P001), shall be limited to 2.99 lbs/hour, when operating at a process weight rate of 1246 lbs/hr.
- (b) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the primary magnesium grinding operations (P002), shall be limited to 2.99 lbs/hour, when operating at a process weight rate of 1246 lbs/hr.
- (c) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the secondary grinding operations (P003), shall be limited to 3.07 lbs/hour, when operating at a process weight rate of 1,300 lbs/hr.
- (d) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the Lime grinding operation

- (P007), shall be limited to 12.05 lbs/hour, when operating at a process weight rate of 10,000 lbs/hr.
- (e) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the cone blending system (P004), shall be limited to 15.46 lbs/hour, when operating at a process weight rate of 14,500 lbs/hr.
 - (f) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the Nauta mixer (P006), shall be limited to 15.46 lbs/hour, when operating at a process weight rate of 14,500 lbs/hr.
 - (g) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the material dumping station shall be limited to 3.41 lbs/hour, when operating at a process weight rate of 1,517 lbs/hr.
 - (h) Pursuant to 326 IAC 6-3-2, the particulate (PM) emissions from the lime storage tankers (P005), shall be limited to 17.55 lbs/hour, when operating at a process weight rate of 17,500 lbs/hr.

These pounds per hour limitations in sections (a) through (h) were calculated using the equation below.

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:

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

The respective integral cyclones used in the primary magnesium grinding operations (P001, P002) and secondary grinding operation (P003) must be in operation at all times in order to comply with this limit. The Permittee shall operate the control device in accordance with manufacturer's specifications. The PM emissions are less than allowable for each facility, therefore the source complies with 326 IAC 6-3-2.

The summary table for allowable emissions for each facility operating at its maximum process weight rates is as follows:

Emission unit ID/ Stack	Process Weight rate (lbs/hr)	Allowable Particulate emission rate (lbs/hr)
Primary magnesium grinding-P001/Stack S-1	1,246	2.99
Primary magnesium grinding-P002/ Stack S-2	1,246	2.99
Secondary magnesium grinding -P003/ Stack S-3	1,300	3.07
Lime Grinding-P007/ Stack S-7	10,000	12.05
Cone Blender-P004/ Stack S-4	14,500	15.46
Nauta Mixer-P006/ S-6	14,500	15.46
Two (2) Lime Storage Tankers-P005 / Stack S-6	17,500	17.55
Material Dumping station/ stack S-5	1,517	3.41

Compliance Determination, Monitoring and Testing Requirements

The Compliance Determination Requirements applicable to primary, secondary and the lime grinding operation facilities are as follows:

- (a) **Testing Requirements [326 IAC 2-1.1-11]**
 This permit will only require the Permittee to perform PM, PM₁₀ and PM_{2.5} testing of stacks S-1, S-2, and S-3 associated with the grinding operation, within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM_{2.5}), signed on May 8th, 2008 or once every five (5) years of the last valid compliant stack test, which ever is later. This testing shall be conducted utilizing methods as approved by the Commissioner.

These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM₁₀ includes filterable and condensable PM.

NOTE: The existing permit required PM and PM₁₀ testing for stacks S-1, S-2, S-3, S-4, S-5, and S-6, however only testing for stacks S-1, S-2 and S-3 were conducted because the primary and the secondary grinding operations have control devices which are integral to the process, and to maintain the status of the source under Minor Source Operating Program 326 IAC 2-6.1-5.

The pounds per hour emission rates listed below are based on the stack test performed on Oct. 22-23, 1996.

Operation/ Stack	PM	PM ₁₀
Primary Magnesium grinding/Stack S-1	0.93 lbs/hr	0.93 lbs/hr
Primary Magnesium grinding/ Stack S-2	1.35 lbs/hr	1.35 lbs/hr
Secondary grinding/ Stack S-3	2.38 lbs/hr	2.38 lbs/hr

NOTE 1: *The last stack test occurred on July 31 and August 1, 2007 for PM / PM₁₀. The source was in compliance at that time.*

During the 2007 testing, tests were performed on S-1, S-2, S-4, S-5 and S-6. S-3 was not tested because it was not operating at the time and has not operated since.

NOTE 2. *The next scheduled PM/PM₁₀ test will be in 2012. However, due to the new federal rule regarding the PM_{2.5}, the test shall be performed per schedule above. US EPA has directed states to regulate PM₁₀ emissions as surrogate for PM_{2.5} emissions.*

- (b) The compliance monitoring requirements applicable to this source are as follows:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Baghouses (S-4, S-5, S-6 and S-7)	Water Pressure Drop	Daily	1.0 to 6 inches	Response Steps
	Visible Emissions		Normal-Abnormal	

- (c) **Broken or Failed Bag Detection**
The Permittee shall maintain the baghouse and replace broken or failed bags as needed.
- (d) Testing is not required on baghouses S-4, S-5, S-6 and S-7 because compliance will be demonstrated through proper operation and parametric monitoring of the baghouses.
- (e) **Cyclone Failure Detection**
Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

These monitoring conditions are necessary because the baghouses for the Lime grinding, cone blending, lime storage tankers, and material dumping station facilities must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) and 326 2-6.1 (MSOP).

Conclusion and Recommendation

The staff recommends to the Commissioner that the MSOP Renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on January 9, 2009. Additional information was received on January 9, 2009, January 16, and March 5, 2009.

The operation of this manufacturing plant shall be subject to the conditions of the attached MSOP Renewal No. 091-27332-00086.

**Appendix A: Emission Calculations
Metallic Mineral Processing Operations**

Company Name: **ESM Group Inc.**
Address City IN Zip: **Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345**
Pit ID: **091-27332-00086**
Reviewer: **Swarna Prabha**

State Potential Emissions (uncontrolled):							
Process	Maximum Raw Material Rate (lbs/hr)	Emission Factor per ton material processed (lbs PM/ton)	Emission Factor Reference	Emission Factor per ton material processed (lbs PM10/ton)	PTE Uncontrolled PM Emissions (tons/yr)	PTE Uncontrolled PM10 / PM2.5 Emissions (tons/yr)	326 IAC 6-3-2 Allowables (lbs/hr)
Primary Mg Grinding- P001 (Bldg. 1)	1,246	1.49	(1)*	1.49	4.07	4.07	
Primary Mg Grinding-P002 (Bldg. 2)	1,246	2.16	(1)*	2.16	5.89	5.89	4.75
Secondary Mg Grinding-P003 (Bldg. 3)	1,300	3.66	(1)*	3.66	10.42	10.42	3.07
Lime Grinding P007	10,000	0.62		0.62	13.58	13.58	12.05
Cone Blender -P004	14,500	0.12	(2)	0.06	3.81	1.91	15.46
Nauta mixer -P006	14,500	0.12	(2)	0.06	3.81	1.91	15.46
Material Dumping Station	1,517	0.12	(2)	0.06	0.40	0.20	3.41
*** (2) Lime Storage Tankers- P005	17,520	0.62	(3)	0.62	23.79	23.79	17.55
V1, V2, V3, V4 - Silo Loading/Unloading (4 silos- 1,000lb/hr each)**	4,000	0.12	(2)	0.06	1.05	0.53	6.52
Two (2)silos- Storage-silo and Pig-silo	10,000	0.12	(2)	0.06	2.63	1.31	
Fugitive Vehicle-traffic (Delivery and Ship)			(4)		3.46	0.84	
Total					72.91	64.44	

Potential Emissions (controlled):						
Process	PTE Uncontrolled PM Emissions	PTE Uncontrolled PM10 / PM2.5 Emissions	Control Device	Control Efficiency	PTE Controlled PM Emissions	PTE Controlled PM10/PM2.5 Emissions
	(tons/yr)	(tons/yr)			(tons/yr)	(tons/yr)
Primary Magnesium Grinding (Bldg. 1)	4.07	4.07	*Cyclone (S-1) -Integral	N/A	4.07	4.07
Primary Magnesium Grinding (Bldg. 2)	5.89	5.89	*Cyclone (S-2) -Integral	N/A	5.89	5.89
Secondary Magnesium Grinding (Bldg. 3)	10.42	10.42	*Cyclone (S-3) - Integra	N/A	10.42	10.42
Lime Grinding P007	13.58	13.58	Baghouse (S-7)	99.80%	0.03	0.03
Cone Blender -P004	3.81	1.91	Baghouse (S-4)	99.00%	0.04	0.02
Nauta mixer -P006	3.81	1.91	Baghouse (S-6)	99.90%	0.00	0.00
Material Dumping Station	0.40	0.20	Baghouse (S-5)	99.00%	0.00	0.00
*** (2) Lime Storage Tankers- P005	23.79	23.79	Baghouse (S-6)	99.00%	0.24	0.24
V1, V2, V3, V4 - Silo Loading/Unloading (4 silos- 1,000lb/hr each)**	1.05	0.53	N/A	0.00%	1.05	0.53
Two (2)silos- Storage-silo and Pig-silo	2.63	1.31	Baghouses (S-5, S-7)	99.80%	0.01	0.003
Fugitive Vehicle-traffic (Delivery and Ship)	3.46	0.84	N/A	0.00%	3.46	0.84
Total					25.21	22.04

There is no emission factor for PM2.5 in AP 42, PM10 = PM2.5

Methodology:

Potential Uncontrolled Emissions = Max. Material Rate (lbs/hr) * (1 ton/2,000 lbs) * Emission Factor (lbs PM/ton) * (1 ton/2,000 lbs) * (8,760 hr/yr)

Potential Controlled Emissions = Potential Uncontrolled Emissions * (1 - Control Efficiency)

Control efficiency is based on the Permit No. 091-18964-00086 for the existing operations.

(1) Emission Factors are from stack test performed on October 22-23, 1996 and based on permit # 091-18964-00086

*Note: The cyclones are considered integral to the process (because they collect all of the product), thus potential emissions include cyclone control.

(2) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.24-2, for low-moisture ore material handling and transfer (non-bauxite)

In this process there are two (2) transfer point- transfer to the blender and to product storage at a rate of 7,250 lb/hr (each) except material dumping station is 1,517 lbs/hr.

(3) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.17-4, for product loading - enclosed truck

Material handling and transfer--all minerals except bauxite (SCC 3-03-024-08)

Based on weight of material transferred; applies to each loading or unloading operation and to each conveyer belt transfer point.

*** Lime Storage Tankers- Typical maximum Lime use from each tanker 7,520 lbs/hr

(4) Emissions based on Sections 13.2.1 & 13.2.2

Air Emission Calculations
ESM II - Kingsbury

POTENTIAL EMISSION ESTIMATES

Fugitive Vehicular Traffic Emissions

Maximum Throughput

An estimated 82 million pounds of raw material will be delivered to the site annually.
Deliveries occur on paved surfaces.
The round trip distance travelled during deliveries is 0.152 miles.

An estimated 82 million pounds of product will be shipped from the site annually.
Shipping occurs on both paved and unpaved (gravel) surfaces.
The round trip distance travelled during shipping is 0.047 miles/trip paved and 0.095 miles/trip unpaved.

Emission Control System

No emission control measures other than vehicle speed limits are employed.

Emission Calculations

Emission estimates are based on AP-42 Section 13.2.1 (Paved Roads) and 13.2.2 (Unpaved).

Tanker truck capacity:	15 tons (assumed truck weight empty is 23 tons, full is 38 tons)
Material handled:	41,000 tons per year
Truck trips:	2,377 trips per year (both delivery and shipping) this is an average of 7.5 trips/day or 0.31 trips/hr (year round)

Air Emission Calculations
ESM II - Kingsbury

POTENTIAL EMISSION ESTIMATES

Deliveries - Paved Surfaces

$$\text{Emission rate (lb/VMT)} = k [(sL/2)^{0.65}] \times [(W/3)^{1.5}] - C$$

Where:

$$k = 0.016 \text{ lb PM}_{10}/\text{vehicle mile travelled (VMT)}$$

$$k = 0.082 \text{ lb PM}/\text{vehicle mile travelled (VMT)}$$

$$sL = 12 \text{ g/m}^2 \text{ (concrete batching)}$$

$$W = \text{average vehicle weight} = 30.5 \text{ tons}$$

$$C = 0.00047 \text{ lb/VMT (PM}_{10} \text{ and PM)}$$

$$E = 1.662 \text{ lb PM}_{10}/\text{VMT}$$

$$E = 8.518 \text{ lb PM}/\text{VMT}$$

The maximum hourly emission rate would be:

$$0.31 \text{ trips/hr} \times 0.152 \text{ miles/trip} \times 1.662 \text{ lb PM}_{10}/\text{mile} = 0.078 \text{ lb PM}_{10}/\text{hr}$$

$$0.31 \text{ trips/hr} \times 0.152 \text{ miles/trip} \times 8.518 \text{ lb PM}/\text{mile} = 0.401 \text{ lb PM}/\text{hr}$$

Annual emissions are corrected for the emission reduction provided by precipitation. A reduction factor of 0.918 is indicated by the region's 120 wet days per year according to the formula $(1 - [120/ 4 * 365])$.

$$0.078 \text{ lb PM}_{10}/\text{hr} \times 8,760 \text{ hr/yr} \times 0.918 \times \text{ton}/2,000 \text{ lb} = 0.32 \text{ tons PM}_{10}/\text{yr}$$

$$0.401 \text{ lb PM}/\text{hr} \times 8,760 \text{ hr/yr} \times 0.918 \times \text{ton}/2,000 \text{ lb} = 1.64 \text{ tons PM}/\text{yr}$$

Shipping - Paved

The maximum hourly emission rate would be:

$$0.31 \text{ trips/hr} \times 0.047 \text{ miles/trip} \times 1.662 \text{ lb PM}_{10}/\text{mile} = 0.024 \text{ lb PM}_{10}/\text{hr}$$

$$0.31 \text{ trips/hr} \times 0.047 \text{ miles/trip} \times 8.518 \text{ lb PM}/\text{mile} = 0.124 \text{ lb PM}/\text{hr}$$

Annual emissions from paved road shipping are:

$$0.024 \text{ lb PM}_{10}/\text{hr} \times 8,760 \text{ hr/yr} \times 0.918 \times \text{ton}/2,000 \text{ lb} = 0.096 \text{ tons PM}_{10}/\text{yr}$$

$$0.124 \text{ lb PM}/\text{hr} \times 8,760 \text{ hr/yr} \times 0.918 \times \text{ton}/2,000 \text{ lb} = 0.50 \text{ tons PM}/\text{yr}$$