



# 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](http://www.idem.IN.gov)

TO: Interested Parties / Applicant

DATE: November 25, 2008

RE: North American Refractories Company / 089-26821-00163

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



**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

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**Minor Source Operating Permit Renewal  
OFFICE OF AIR QUALITY  
AND GARY DEPARTMENT OF ENVIRONMENTAL  
AFFAIRS**

**North American Refractories Company (NARCO)  
76 North Bridge Street  
Gary, Indiana 46406**

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

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 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.: MSOP 089-26821-00163	
Issued by: Original Signed By:  Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: November 25, 2008  Expiration Date: November 25, 2018

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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) and Gary Department of Environmental Affairs (GDEA). 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)]

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The Permittee owns and operates a stationary refractory material installation, manufacturing, and repair source.

Source Address:	76 North Bridge Street, Gary, Indiana 46406
Mailing Address:	76 North Bridge Street, Gary, IN 46404
General Source Phone Number:	(219) 883-3335
SIC Code:	3297
County Location:	Lake
Source Location Status:	Nonattainment for 1-hour and 8-hour ozone standards Nonattainment for PM2.5 standard Attainment for all other 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

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

- (a) One (1) mixing operation, identified as #19, used to make castable refractory material for use in lining of steel ladles, consisting of four (4) mixers, capacity: 4,000 pounds per batch, each, and with a total maximum annual castable throughput of 20,000 tons per year and no add-on controls and exhausting outside.
- (b) One (1) refractory brick wet sawing operation, identified as #20, with a maximum annual throughput of 65 tons of brick per year, with no add-on control and exhausting outside.
- (c) Three (3) mixers, used to mix refractory castables, mortars and ramming mixes, with no add-on controls and exhausting outside, consisting of:
  - (1) One (1) large mixer, capacity: 2000 pounds per batch and 42 tons per year.
  - (2) One (1) small paddle mixer, capacity: 165 pounds per batch and 21 tons per year.
  - (3) One (1) small paddle mixer, capacity: 110 pounds per batch and 21 tons per year.
- (d) One (1) refractory brick grinder, equipped with a cartridge dust collector for particulate control, exhausting to stack S05, capacity: 1,200 pounds of brick per hour.
- (e) One (1) natural gas-fired dry out assembly, known as two (2) degasser units, rated at 0.957 million British thermal units per hour, total.

- (f) Steel fabrication and repair operations, consisting of stick welding, capacity: 7.21 pounds of welding rods/wire per hour.
- (g) One (1) Safety Kleen cold cleaner degreaser, identified as Parts Washer, capacity: 20 gallons.
- (h) One (1) storage tank, storing diesel fuel, capacity: 550 gallons.
- (i) Three (3) natural gas-fired combustion units, identified as Dryout Units #1, #2 and #3, rated at 10, 10 and 3 million British thermal units per hour, respectively.
- (j) One (1) natural gas-fired combustion unit, identified as Dryout Unit #5, rated at 6.0 million British thermal units per hour.
- (k) Three (3) natural gas-fired space heaters, identified as Spaceheaters #8, #9 and #10, rated at 2.5 million British thermal units per hour, each.

## **SECTION B GENERAL CONDITIONS**

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

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

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- (a) This permit, MSOP 089-26821-00163, 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 and GDEA, 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.3 Term of Conditions [326 IAC 2-1.1-9.5]**

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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**

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

### **B.5 Severability**

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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**

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

### **B.7 Duty to Provide Information**

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- (a) The Permittee shall furnish to IDEM, OAQ and GDEA, within a reasonable time, any information that IDEM, OAQ and GDEA 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 and GDEA 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**

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- (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.9 Annual Notification [326 IAC 2-6.1-5(a)(5)]**

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- (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 Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, IN 46204-2251

and

Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402

- (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 and GDEA on or before the date it is due.

**B.10 Preventive Maintenance Plan [326 IAC 1-6-3]**

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- (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 and GDEA upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ and GDEA. IDEM, OAQ and GDEA 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.11 Prior Permits Superseded [326 IAC 2-1.1-9.5]**

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- (a) All terms and conditions of permits established prior to MSOP 089-26821-00163 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.12 Termination of Right to Operate [326 IAC 2-6.1-7(a)]**

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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.13 Permit Renewal [326 IAC 2-6.1-7]**

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- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and GDEA 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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

and

Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402

- (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 and GDEA 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 and GDEA 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 and GDEA any additional information identified as being needed to process the application.

**B.14 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)][326 IAC 2-6.1-6]**

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- (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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251  
  
and  
  
Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402  
  
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.15 Source Modification Requirement**

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

**B.16 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]

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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, and GDEA 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.17 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]**

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- (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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

and

Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402

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.18 Annual Fee Payment [326 IAC 2-1.1-7]**

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- (a) The Permittee shall pay annual fees due within thirty (30) calendar days of receipt of a bill from IDEM, OAQ, or GDEA.
- (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), or GDEA to determine the appropriate permit fee.

**B.19 Credible Evidence [326 IAC 1-1-6]**

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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 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 and GDEA, 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 twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**C.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]

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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]

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- (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  
Asbestos Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-52 IGCN 1003  
Indianapolis, Indiana 46204-2251

and

Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402

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]**

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- (a) 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 Data Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

and

Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402

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 and GDEA not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ and GDEA if the Permittee submits to IDEM, OAQ and GDEA 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]**

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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]**

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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]**

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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]**

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- (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**

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- (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**

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- (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 and GDEA, 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]**

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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 and GDEA, 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 or GDEA makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner or GDEA 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 startup, 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 Data Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251  
  
and  
  
Gary Department of Environmental Affairs  
839 Broadway, 2nd Floor NE  
Gary, Indiana 46402
- (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 and GDEA 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) One (1) mixing operation, identified as #19, used to make castable refractory material for use in lining of steel ladles, consisting of three (3) mixers, capacity: 4,000 pounds per batch, each, and with a total maximum annual castable throughput of 20,000 tons per year and no add-on controls and exhausting outside.
- (b) One (1) refractory brick wet sawing operation, identified as #20, with a maximum annual throughput of 65 tons of brick per year, with no add-on control and exhausting outside.
- (c) Three (3) mixers, used to mix refractory castables, mortars and ramming mixes, with no add-on controls and exhausting outside, consisting of:
  - (1) One (1) large mixer, capacity: 2000 pounds per batch and 42 tons per year.
  - (2) One (1) small paddle mixer, capacity: 165 pounds per batch and 21 tons per year.
  - (3) One (1) small paddle mixer, capacity: 110 pounds per batch and 21 tons per year.
- (d) One (1) refractory brick grinder, equipped with a cartridge dust collector for particulate control, exhausting to stack S05, capacity: 1,200 pounds of brick per hour.

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

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

#### D.1.1 Particulate [326 IAC 6-3-2(d)]

- (a) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the three (3) mixers (EU #19) shall be limited to 25.2 pounds per hour, each, when operating at a process weight rate of 15.0 tons per hour, each.
- (b) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the three (3) mixers, used to mix refractory castables, mortars and ramming mixes shall be limited to the following:
  - (1) The one (1) large mixer shall be limited to 13.6 pounds per hour when operating at a process weight rate of 6.0 tons per hour.
  - (2) The one (1) small paddle mixer, with a capacity of 165 pounds per batch, shall be limited to 4.07 pounds per hour when operating at a process weight rate of 0.99 tons per hour
  - (3) The one (1) small paddle mixer, with a capacity of 110 pounds per batch, shall be limited to 1.95 pounds per hour when operating at a process weight rate of 0.33 tons per hour.
- (c) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the refractory brick grinder shall be limited to 2.91 pounds per hour when operating at a process weight rate of 1,200 pounds per hour.

The above pound per hour particulate limitations were calculated by use of 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

#### D.1.2 Preventive Maintenance Plan [326 IAC 1-6-3]

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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.1.3 Particulate Control

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In order to comply with Condition D.1.1(c), the cartridge dust collector for particulate control shall be in operation and control emissions from the refractory brick grinder at all times that the refractory brick grinder is in operation.

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

#### D.1.4 Visible Emissions Notations

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- (a) Visible emission notations of the refractory brick grinder cartridge dust collector stack exhaust (S05) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. 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 Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

#### D.1.5 Parametric Monitoring

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The Permittee shall record the total static pressure drop across refractory brick grinder cartridge dust collector, at least once per day when the refractory brick grinder is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the cartridge dust collector is outside the normal range of 2.0 and 8.0 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 Exceedances. 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 Exceedances, shall be considered a deviation from this permit.

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

#### D.1.6 Broken or Failed Cartridge Detection

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In the event that bag failure has been observed:

- (a) For a single compartment cartridge dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced.
- (b) For a single compartment cartridge dust collector 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.

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

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

#### D.1.7 Record Keeping Requirements

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- (a) To document compliance with Condition D.1.4, the Permittee shall maintain records of visible emission notations of the refractory brick grinder cartridge dust collector stack exhaust (S05) shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) To document compliance with Condition D.1.5, the Permittee shall maintain records of the pressure drop across the cartridge dust collector. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (i.e. the process did not operate that day).
- (c) 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  
and GDEA**

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

Source Name: North American Refractories Company (NARCO)  
Source Address: 76 North Bridge Street, Gary, Indiana 46406  
Mailing Address: 76 North Bridge Street, Gary, IN 46404  
MSOP No.: MSOP 089-26821-00163

**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 BRANCH  
and GDEA**

**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).

<b>Company Name:</b>	North American Refractories Company (NARCO)
<b>Address:</b>	76 North Bridge Street
<b>City:</b>	Gary, Indiana 46406
<b>Phone #:</b>	(219) 883-3335
<b>MSOP #:</b>	MSOP 089-26821-00163

I hereby certify that North American Refractories Company  still in operation.  
(NARCO) is :

no longer in operation.

I hereby certify that North American Refractories Company  in compliance with the requirements of  
(NARCO) is : MSOP MSOP 089-26821-00163.

not in compliance with the requirements of  
MSOP MSOP 089-26821-00163.

<b>Authorized Individual (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>

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.

<b>Noncompliance:</b>

### MALFUNCTION REPORT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
FAX NUMBER - (317) 233-6865  
and GDEA  
Fax Number - (219) 882-3012**

**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:

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**Indiana Department of Environmental Management  
Office of Air Quality and the  
Gary Department of Environmental Affairs**

Addendum to the Technical Support Document (ATSD) for a  
Minor Source Operating Permit (MSOP) Renewal

<b>Source Description and Location</b>
--

Source Name:	North American Refractories Company (NARCO)
Source Location:	76 North Bridge Street, Gary, Indiana 46406
County:	Lake
SIC Code:	3297
Operation Permit No.:	M089-26821-00163
Permit Reviewer:	Mehul Sura

<b>Public Notice Information</b>
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On October 22, 2008, the Office of Air Quality (OAQ) had a notice published in the *Gary Post Tribune*, Merrillville, Indiana and *The Times*, Munster, Indiana stating that IDEM had received an application from North American Refractories Company (NARCO) located at 76 North Bridge Street, Gary, Indiana for a renewal to their MSOP (089-12579-00163) issued on November 5, 2003. The notice also stated that OAQ proposed to issue this renewal and provided information on how the public could review the proposed renewal and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this renewal should be issued as proposed.

Upon further review IDEM, OAQ has made the following changes to the MSOP Renewal No. M089-26821-00163. Deleted language appears as ~~strike throughs~~ and new language appears in **bold**.

- (a) There was a typographical error in Condition A.1. This error has been corrected.
- (b) The Gary Department of Environmental Affairs (GDEA) has been included in the Condition C.15 - Malfunctions Report. The Permittee shall submit malfunction report to IDEM and GDEA.
- (c) There are only nine pages in the Technical Support Document (TSD). However, the total pages were listed as eleven. This error has been corrected in TSD.

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

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The Permittee owns and operates a stationary ~~a~~-refractory material installation, manufacturing, and repair source.

...

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

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...

- (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 and GDEA, 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.

...

**Indiana Department of Environmental Management  
Office of Air Quality and the Gary Department of Environmental Affairs**

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

**Source Background and Description**

<b>Source Name:</b>	<b>North American Refractories Company (NARCO)</b>
<b>Source Location:</b>	<b>76 North Bridge Street, Gary, Indiana 46406</b>
<b>County:</b>	<b>Lake</b>
<b>SIC Code:</b>	<b>3297</b>
<b>Operation Permit No.:</b>	<b>M089-26821-00163</b>
<b>Permit Reviewer:</b>	<b>Mehul Sura</b>

The Office of Air Quality (OAQ) has reviewed a permit application from North American Refractories Company (NARCO) relating to an operation of a refractory material installation, manufacturing, and repair source.

**History**

On August 4, 2008, North American Refractories Company (NARCO) submitted the application to the OAQ requesting to renew its MSOP operating permit. NARCO was issued a MSOP (089-12579-00163) on November 5, 2003. NARCO has since received the following approvals:

- (a) Review Request No. 089-16367-00163, issued on September 20, 2004
- (b) First Notice-Only Change No. 089-19518-00163, issued on February 22, 2005

**Permitted Emission Units and Pollution Control Equipment**

The source consists of the following Emission Units and Pollution Control Equipment:

- (a) One (1) mixing operation, identified as #19, used to make castable refractory material for use in lining of steel ladles, consisting of four (4) mixers, capacity: 4,000 pounds per batch, each, and with a total maximum annual castable throughput of 20,000 tons per year and no add-on controls and exhausting outside.
- (b) One (1) refractory brick wet sawing operation, identified as #20, with a maximum annual throughput of 65 tons of brick per year, with no add-on control and exhausting outside.
- (c) Three (3) mixers, used to mix refractory castables, mortars and ramming mixes, with no add-on controls and exhausting outside, consisting of:
  - (1) One (1) large mixer, capacity: 2000 pounds per batch and 42 tons per year.
  - (2) One (1) small paddle mixer, capacity: 165 pounds per batch and 21 tons per year.
  - (3) One (1) small paddle mixer, capacity: 110 pounds per batch and 21 tons per year.
- (d) One (1) refractory brick grinder, equipped with a cartridge dust collector for particulate control, exhausting to stack S05, capacity: 1,200 pounds of brick per hour.
- (e) One (1) natural gas-fired dry out assembly, known as two (2) degasser units, rated at 0.957 million British thermal units per hour, total.

- (f) Steel fabrication and repair operations, consisting of stick welding, capacity: 7.21 pounds of welding rods/wire per hour.
- (g) One (1) Safety Kleen cold cleaner degreaser, identified as Parts Washer, capacity: 20 gallons.
- (h) One (1) storage tank, storing diesel fuel, capacity: 550 gallons.
- (i) Three (3) natural gas-fired combustion units, identified as Dryout Units #1, #2 and #3, rated at 10, 10 and 3 million British thermal units per hour, respectively.

Note: The heat input capacity of each of the Dryout Units #1, #2 and #3 was originally specified as 12 million British thermal units per hour in MSOP No. 089-12579-00163. When the source submitted the comments on this draft renewal (M089-26821-00163) on October 14, 2008, it informed IDEM that the heat input capacity of the Dryout Units #1, #2 and #3 are 10, 10 and 3 million British thermal units per hour, respectively.

- (j) One (1) natural gas-fired combustion unit, identified as Dryout Unit #5, rated at 6.0 million British thermal units per hour.
- (k) Three (3) natural gas-fired space heaters, identified as Spaceheaters #8, #9 and #10, rated at 2.5 million British thermal units per hour, each.

#### **Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit**

There are no emission units and pollution control equipment constructed and operated without a Permit at the source.

#### **Emission Units and Pollution Control Equipment Removed from the Source**

Following emission units or pollution control equipment have been removed from the source since MSOP No. 089-12579-00163 issued on November 5, 2003.

- (a) One (1) mixer, identified as #22, used to make castable refractory material for casting of custom shapes, capacity: 4,000 pounds per batch, and a maximum annual castable throughput of 6,240 tons per year and no add-on controls and exhausting outside.
- (b) One (1) natural gas-fired furnace, identified as Stress Relief Furnace #6, rated at 12.0 million British thermal units per hour.

#### **Existing Approvals**

Since the issuance of the MSOP (089-12579-00163) on November 5, 2003, the source has constructed or has been operating under the following approvals as well:

- (a) Review Request No. 089-16367-00163, issued on September 20, 2004
- (b) First Notice-Only Change No. 089-19518-00163, issued on February 22, 2005

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.

The following terms and conditions from previous approvals have been revised in this MSOP Renewal:

1. IDEM has revised the MSOP annual fee Condition to address confusion on whom the Permittee should pay.
2. IDEM has added the Local Agency fax number to the malfunction report. The Local Agency needs to receive this report.
3. IDEM has added the Local Agency initials to all Reports. The Local Agency needs to receive these reports.

**Enforcement Issue**

There are no enforcement actions pending.

**Emission Calculations**

See Appendix A of this document for detailed emission calculations.

**County Attainment Status**

The source is located in Lake County.

Pollutant	Designation
SO <sub>2</sub>	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of East Chicago bounded by Columbus Drive on the north; the Indiana Harbor Canal on the west; 148 <sup>th</sup> Street, if extended, on the south; and Euclid Avenue on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of East Chicago and Lake County.
O <sub>3</sub>	Nonattainment Subpart 2 Moderate effective June 15, 2004, for the 8-hour ozone standard. <sup>1</sup>
PM10	Attainment effective March 11, 2003, for the cities of East Chicago, Hammond, Whiting, and Gary. Unclassifiable effective November 15, 1990, for the remainder of Lake County.
NO <sub>2</sub>	Cannot be classified or better than national standards.
Pb	Not designated.
<sup>1</sup> Nonattainment Severe 17 effective November 15, 1990, for the Chicago-Gary-Lake County area for the 1-hour ozone standard which was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM2.5.	

(a) Ozone Standards

- (1) 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.
  - (i) 1-hour ozone standard  
 On December 22, 2006 the United States Court of Appeals, District of Columbia issued a decision which served to partially vacate and remand the U.S. EPA's final rule for implementation of the eight-hour National Ambient Air quality Standard for ozone. *South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882 (D.C. Cir., December 22, 2006), *rehearing denied* 2007 U.S. App. LEXIS 13748 (D.C. Cir., June 8, 2007). The U.S. EPA has instructed IDEM to issue permits in accordance with its

interpretation of the *South Coast* decision as follows: Gary-Lake-Porter County was previously designated as a severe non-attainment area prior to revocation of the one-hour ozone standard, therefore, pursuant to the anti-backsliding provisions of the Clean Air Act, any new or existing source must be subject to the major source applicability cut-offs and offset ratios under the area's previous one-hour standard designation. This means that a source must achieve the Lowest Achievable Emission Rate (LAER) if it exceeds 25 tons per year of VOC emissions and must offset any increase in VOC emissions by a decrease of 1.3 times that amount.

On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NO<sub>x</sub> threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.

(ii) 8-hour ozone standard

VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Lake County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability – Entire Source section.

(b) PM<sub>2.5</sub>

Lake County has been classified as nonattainment for PM<sub>2.5</sub> in 70 FR 943 dated January 5, 2005. On May 8<sup>th</sup>, 2008, U.S. EPA promulgated specific New Source Review rules for PM<sub>2.5</sub> emissions, and the effective date of these rules was July 15<sup>th</sup>, 2008. Therefore, direct PM<sub>2.5</sub> and SO<sub>2</sub> emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants

Lake County has been classified as attainment or unclassifiable in Indiana for SO<sub>2</sub>, CO, PM<sub>10</sub>, and NO<sub>x</sub>. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(d) Fugitive Emissions

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

### Unrestricted Potential Emissions

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

- (a) The uncontrolled potential emissions of VOC is still less than 25 tons per year (the threshold level specified in 326 IAC 2-7-1(22)(C)(i)(CC) for the one-hour ozone severely nonattainment area). The uncontrolled potential emissions of each of other criteria pollutants is also still less than 100 tons per year. As a result, 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 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.

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.

### Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2003 OAQ emission data.

Pollutant	Actual Emissions (tons/year)
PM	data not available
PM10	data not available
PM2.5	data not available
SO <sub>2</sub>	data not available
VOC	data not available
CO	1
NO <sub>x</sub>	1
HAP (specify)	data not available

### Federal Rule Applicability

#### New Source Performance Standards (NSPS)

- (a) **Subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984**  
The requirements of this NSPS for the one (1) tank, with a capacity of 550 gallons are not included in this renewal because this tank has a capacity less than 75 cubic meters (the applicability threshold for this NSPS).
- (b) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.

#### National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) **Subpart T—National Emission Standards for Halogenated Solvent Cleaning**  
The requirements of this NESHAP for the one cold cleaner degreaser, identified as Parts Washer, is not included in this renewal because the source does not use any of the halogenated solvents listed in 40 CFR 63.460.
- (b) **Subpart SSSSS—National Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing**  
The requirements of this NESHAP are not included for any of the facilities at this source because this source is not a major source of HAPs.
- (c) There are no NESHAP (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this permit renewal.

### Compliance Assurance Monitoring (CAM)

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 - Entire Source**

##### 326 IAC 1-5-2 (Emergency Reduction Plans)

The source is not subject to the requirements of 326 IAC 1-5-2, because the potential to emit of each pollutant is less than one hundred (100) tons per year.

##### 326 IAC 1-6-3 (Preventive Maintenance Plan)

The source is subject to the requirements of 326 IAC 1-6-3, because the source is required have a permit under 326 IAC-2-6.1 (Minor Source Operating Permit (MSOP)).

##### 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

The source is not subject to the requirements of 326 IAC 2-2 because the potential emissions of each of the criteria pollutants from this source is less than 250 tons per year and it is not one of the 28 listed source categories under 326 IAC 2-2.

##### 326 IAC 2-3 (Emissions Offset)

The source is not subject to the requirements of 326 IAC 2-3 because the potential emissions of VOC from this source is less than 25 tons per year.

##### 326 IAC 2-6 (Emission Reporting)

The source is located in Lake County, however the source-wide potential emissions of VOC and NO<sub>x</sub>, each, is less than 25 tons per year, and the source is not required to have an operating permit under 326 IAC 2-7. Therefore, the source is not subject to the requirements of 326 IAC 2-6.

##### 326 IAC 5-1 (Opacity Limitations)

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

- (a) Opacity shall not exceed an average of twenty percent (20%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

##### 326 IAC 6.8 (Particulate Emission Limitations)

This source or facilities at this source:

- (a) is not subject to the emission limits specified in 326 IAC 6.8-1-2 because the source or each of the facilities at the source has actual PM emissions less than 10 tons per year (the refractory brick grinder is equipped with add-on PM control device (the cartridge dust collector) and the Permittee is required to operate this dust collector all the times when the refractory brick grinder is in operation, to comply with 326 IAC 6-3 limit (for details, please refer the paragraph (c) under 326 IAC 6-3 rule applicability below). Compliance with the cartridge dust collector operation requirement (in conjunction with the compliance monitoring requirements (Visible emissions, Parametric, and Broken or Failed Cartridge Detection Monitoring) for the dust collector will ensures that the actual PM emissions from the entire source is less than 10 tons per year);
- (b) is not subject to any of the requirements from 326 IAC 6.8-2 through 326 IAC 6.8-9, because this source or none of the facilities at the source is listed in 326 IAC 6.8-2 through 326 IAC 6.8-9;
- (c) not subject to the requirements of 326 IAC 6.8-10 because each of the facilities or operations at the source has PM PTE less than 5 tons per year; and
- (d) not subject to the requirements of 326 IAC 6.8-11 because potential PM10 emissions of the entire source is less than 10 tons per year.

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

- (a) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the four (4) mixers (EU #19) shall be limited to 25.2 pounds per hour, each, when operating at a process weight rate of 15.0 tons per hour, each.

The potential particulate emissions before control from each of the four (4) mixers:

$(2.0 \text{ tons of material throughput per batch}) \times (1 \text{ batch} / 8 \text{ min}) \times (60 \text{ min/hr}) \times (0.3 \text{ pounds PM emissions per ton of material throughput}) = 4.5 \text{ pounds of PM per hour}$ . This is less than the allowable emission rate of 25.2 pounds per hour, therefore, each of the four (4) mixers can comply with this rule.

- (b) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the three (3) mixers, used to mix refractory castables, mortars and ramming mixes shall be limited to the following:

- (1) The one (1) large mixer shall be limited to 13.6 pounds per hour when operating at a process weight rate of 6.0 tons per hour.

The potential particulate emissions before control from this mixer is:

$(1.0 \text{ tons of material throughput per batch}) \times (1 \text{ batch} / 10 \text{ min}) \times (60 \text{ min/hr}) \times (0.3 \text{ pounds PM emissions per ton of material throughput}) = 1.8 \text{ pounds of PM per hour}$ . This is less than the allowable emission rate of 13.6 pounds per hour, therefore, this mixer can comply with this rule.

- (2) The one (1) small paddle mixer shall be limited to 4.07 pounds per hour when operating at a process weight rate of 0.99 tons per hour

The potential particulate emissions before control from this mixer is:

$(0.0825 \text{ tons of material throughput per batch}) \times (1 \text{ batch} / 5 \text{ min}) \times (60 \text{ min/hr}) \times (0.3 \text{ pounds PM emissions per ton of material throughput}) = 0.297 \text{ pounds of PM per hour}$ . This is less than the allowable emission rate of 4.07 pounds per hour, therefore, this mixer can comply with this rule.

- (3) The one (1) small paddle mixer shall be limited to 1.95 pounds per hour when operating at a process weight rate of 0.33 tons per hour.

The potential particulate emissions before control from this mixer is:

(0.055 tons of material throughput per batch) x (1 batch / 10 min) x (60 min/hr) x (0.3 pounds PM emissions per ton of material throughput) = 0.099 pounds of PM per hour.  
This is less than the allowable emission rate of 1.95 pounds per hour, therefore, this mixer can comply with this rule.

- (c) Pursuant to 326 IAC 6-3-2(e), the particulate emissions from the refractory brick grinder shall be limited to 2.91 pounds per hour when operating at a process weight rate of 1,200 pounds per hour.

The potential to emit particulate matter after control by the cartridge dust collector is 0.005 pounds per hour, therefore the refractory brick grinder can comply with this rule. The cartridge dust collector shall be in operation at all times the refractory brick grinder is in operation, in order to comply with this limit.

The above pound per hour particulate limitations were calculated by use of 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:

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

- (d) Pursuant to 326 IAC 6-3-1(b)(9), the welding operations are not subject to the requirements of 326 IAC 6-3-2 because the welding operations consume less than 625 pounds of welding rods per day.
- (e) Pursuant to 326 IAC 6-3-1(b)(14), the brick sawing operations are not subject to the requirements of 326 IAC 6-3-2 because the potential particulate emissions are less than 0.551 pounds per hour.

#### 326 IAC 8 (Volatile Organic Compound Rules)

Upon re-evaluation of the 326 IAC 8 applicability to the source, it has been determined by IDEM that none of the facilities or operations at the source is subject to the requirements of 326 IAC 8 because each of the facilities at the source has potential VOC emissions less than 15 pound per day. Since the Safety Kleen cold cleaner degreaser, identified as Parts Washer, is no longer subject to any of the requirements in 326 IAC 8, the work practice standards specified in conditions D.1.2, D.1.3 and D.1.4 (and associated record keeping and reporting requirements in Condition D.1.11) of the MSOP No. 089-12579-00163 have been removed.

#### Local Agency Requirements

This source is located in the city of Gary, which has its own local pollution control agency. IDEM, OAQ recommends that the Permittee contact the Gary Department of Environmental Affairs to determine if there are any additional local requirements that apply to this source:

Gary Department of Environmental Affairs  
839 Broadway – N206  
Gary, IN 46402  
Phone: (219) 882-3000

Fax: (219) 882-3012

### **Conclusion**

The operation of this refractory manufacturing, repair and installation source shall be subject to the conditions of the attached proposed MSOP 089-26821-00163.

### **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 February 28, 2008. Additional information was received on October 14, 2008.

### **Conclusion**

The operation of this recreational vehicles manufacturing plants shall be subject to the conditions of the attached MSOP Renewal No. 039-26183-00471.

### **IDEM Contact**

- (a) Questions regarding this proposed MSOP Renewal can be directed to Mehul Sura at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5377 or toll free at 1-800-451-6027 extension 4-5377.
- (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](http://www.idem.in.gov).

## Appendix A: Potential Emissions Summary

Company Name: North American Refractories Company (NARCO)  
 Address City IN Zip: 76 North Bridge Street, Gary, Indiana 46406  
 MSOP Renewal No.: 089-26821-00163  
 Reviewer: Mehul Sura  
 Date: 10/3/2008

## Uncontrolled Potential Emissions (tons/yr)

Emission Units/Process	PM	PM10	PM2.5*	SO2	NOx	VOC	CO	Maximum Single HAP Chromium	Total HAP
Castable Mixing for Ladle Casting #19	6.00	3.000	3.000	0	0	0	0	0	0
Brick Sawing #20	0.276	0.017	0.017	0	0	0	0	0.068	0.07
Three (3) small mixers, used to mix refractory castables, mortars and ramming mixes	0.025	0.013	0.013	0	0	0	0	0	0
Brick grinder	22.4	1.399	1.399	0	0	0	0	5.53	5.53
Natural Gas Combustion	0.3	1.247	1.247	0.10	16.41	0.90	13.78	0	0.31
Welding	0.58	0.58	0.58	0	0	0	0	0	0
Degreasing	0	0	0	0	0	0.10	0	0	0
<b>Total</b>	<b>29.6</b>	<b>6.3</b>	<b>6.3</b>	<b>0.1</b>	<b>16.4</b>	<b>1.0</b>	<b>13.8</b>	<b>5.6</b>	<b>5.9</b>

## Controlled Emissions (tons/yr)

Emission Units/Process	PM	PM10	PM2.5*	SO2	NOx	VOC	CO	Maximum Single HAP Chromium	Total HAP
Castable Mixing for Ladle Casting #19	1.200	0.600	0.600	0	0	0	0	0	0
Brick Sawing #20	0.055	0.003	0.003	0	0	0	0	0.014	0.014
Three (3) small mixers, used to mix refractory castables, mortars and ramming mixes	0.005	0.003	0.003	0	0	0	0	0	0
Brick grinder	0.022	0.001	0.00	0	0	0	0	0.006	0.006
Natural Gas Combustion	0.312	1.247	1.247	0.098	16.406	0.902	13.781	0	0.310
Welding	0.581	0.581	0	0	0	0	0	0	0
Degreasing	0	0	0	0	0	0.103	0	0	0
<b>Total</b>	<b>2.2</b>	<b>2.4</b>	<b>1.9</b>	<b>0.1</b>	<b>16.4</b>	<b>1.0</b>	<b>13.8</b>	<b>0.0191</b>	<b>0.3</b>

\* PM2.5 emissions assumed to be equal to PM10 emissions.

## Appendix A: Potential Emission Calculations

Company Name: North American Refractories Company (NARCO)  
 Address City IN Zip: 76 North Bridge Street, Gary, Indiana 46406  
 MSOP Renewal No.: 089-26821-00163  
 Reviewer: Mehul Sura  
 Date: 10/3/2008

Reference for  
 Emission Factor SCC# 3-05-012-23  
 Unit Castable Mixing for Ladle Casting #19

Pollutant	Maximum Castable Throughput (tons/yr)	Emission Factor (lbs/ton)	Uncontrolled Emission Rate (tons/yr)	Control Efficiency (%)	Controlled Emission Rate (tons/yr)
PM	20,000	0.600	6.000	80.00%	1.200
PM10	20,000	0.300	3.000	80.00%	0.600

Reference for  
 Emission Factor SCC# 3-05-003-02  
 Unit Brick Sawing #20

Pollutant	Maximum Castable Throughput (tons/yr)	Emission Factor (lbs/ton)	Uncontrolled Emission Rate (tons/yr)	Control Efficiency (%)	Controlled Emission Rate (tons/yr)
PM	65.0	8.500	0.276	80.00%	0.055
PM10	65.0	0.530	0.017	80.00%	0.003
Chromium	65.0	2.090	0.068	80.00%	0.014

Reference for  
 Emission Factor SCC# 3-05-012-23  
 Unit Three (3) small mixers, used to mix refractory castables, mortars and ramming mixes

Pollutant	Maximum Castable Throughput (tons/yr)	Emission Factor (lbs/ton)	Uncontrolled Emission Rate (tons/yr)	Control Efficiency (%)	Controlled Emission Rate (tons/yr)
PM	84.0	0.600	0.025	80.00%	0.005
PM10	84.0	0.300	0.013	80.00%	0.003

Reference for  
 Emission Factor SCC# 3-05-003-02  
 Unit Brick grinder

Pollutant	Maximum Throughput (tons/hr)	Emission Factor (lbs/ton)	Uncontrolled Emission Rate (lbs/hr)	Uncontrolled Emission Rate (tons/yr)	Control Efficiency (%)	Controlled Emission Rate (lbs/hr)	Controlled Emission Rate (tons/yr)
PM	0.603	8.500	5.124	22.444	99.9%	0.005	0.022
PM10	0.603	0.530	0.320	1.399	99.9%	0.000	0.001
Chromium	0.603	2.093	1.262	5.527	99.9%	0.001	0.006

**METHODOLOGY**

Uncontrolled Emission Rate (lbs/hr) = Throughput (tons/hr) x EF (lbs/ton)

Uncontrolled Emission Rate (tons/yr) = Throughput (tons/yr) x EF (lbs/ton) / 2000 (lbs/ton)

Controlled Emission Rate (lbs/hr) = Throughput (tons/hr) x EF (lbs/ton) x (1-Control Eff)

Controlled Emission Rate (tons/yr) = Throughput (tons/yr) x EF (lbs/ton) x (1-Control Eff) / 2000 (lbs/ton)

All emission factors taken from FIRES Version 6.23 unless otherwise noted.

Control Efficiencies for the mixers are based on an estimated 80% control due to the supersacks that act as hoods over the mixers.

80% control is assumed for the brick sawing, since the process is a wet saw process.

Brick grinder is controlled by cartridge dust collector.

Chromium EF = Particulate EF x [36% Chromic Oxide (Cr2O3)] x [68.4% by weight of Chromic Oxide is Chromium]

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100**

**Company Name: North American Refractories Company (NARCO)**  
**Address City IN Zip: 76 North Bridge Street, Gary, Indiana 46406**  
**MSOP Renewal No.: 089-26821-00163**  
**Reviewer: Mehul Sura**  
**Date: 10/3/2008**

Unit ID	Rating (mmBtu/hr)
#1	10.0
#2	10.0
#3	3.0
#5	6.0
#8, #9 and #10	7.5
dry out	1.0
<b>Total</b>	<b>37.5</b>

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
37.457	328.12

	Pollutant					
	PM*	PM10*	SO2	Nox**	VOC	CO
Emission Factor in lb/MMCF	1.90	7.60	0.600	100	5.50	84.0
Potential Emission in tons/yr	0.312	1.247	0.098	16.406	0.902	13.781

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100

**HAPs Emissions**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	0.002	0.001	0.075	1.80	0.003
Potential Emission in tons/yr	0.00034	0.000197	0.0123	0.295	0.00056

	HAPs - Metals					Total HAPs
	Lead	Cadmium	Chromium	Manganese	Nickel	
Emission Factor in lb/MMcf	0.0005	0.001	0.001	0.0004	0.002	
Potential Emission in tons/yr	0.000082	0.000180	0.000230	0.000062	0.00034	0.310

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**Appendix A: Welding**

**Company Name: North American Refractories Company (NARCO)**  
**Address City IN Zip: 76 North Bridge Street, Gary, Indiana 46406**  
**MSOP Renewal No.: 089-26821-00163**  
**Reviewer: Mehul Sura**  
**Date: 10/3/2008**

WELDING PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	EMISSION FACTORS * (lb pollutant / lb electrode)				EMISSIONS (lb/hr)				TOTAL HAPs (lb/hr)
			PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
Submerged Arc	0	0	0.036	0	0	0	0	0	0	0	0
Metal Inert Gas (MIG)(ER5154)	0	0	0.0241	0.000034		0.00001	0	0	0	0	0
Stick (E7018 electrode)	1	7.21	0.0184	0	0	0	0.133	0	0	0	0
Tungsten Inert Gas (TIG)(carbon steel)	0	0	0.0055	0	0	0	0	0	0	0	0
Oxyacetylene(carbon steel)	0	0	0.0055	0	0	0	0	0	0.000	0	0
Total Potential Emissions lbs/hr							0.13	0	0	0	0
Total Potential Emissions lbs/day							3.18	0	0	0	0
<b>Total Potential Emissions tons/year</b>							<b>0.581</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**METHODOLOGY**

Emissions (lb/hr) = (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions (lbs/day) = emissions (lbs/hr) x 24 (hrs/day)

Emissions (tons/yr) = emissions (lb/hr) x 8,760 (hrs/day) x 1 ton/2,000 lbs.

Emission factors are either from the MSOP No. 089-12579-00163, issued on November 5, 2003, or provided by the source.

**Appendix A: State Potential Emissions Calculations**

**Degreasing**

**Company Name: North American Refractories Company (NARCO)**  
**Address City IN Zip: 76 North Bridge Street, Gary, Indiana 46406**  
**MSOP Renewal No.: 089-26821-00163**  
**Reviewer: Mehul Sura**  
**Date: 10/3/2008**

**Degreasing**

Material	Density (lb/gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Gal of Mat (gal/day)	Potential VOC (lb/day)	Potential VOC (ton/yr)
Safety-Kleen	6.8	100.00%	0.0%	100.0%	0.082	0.562	0.103
<b>State Potential Emissions</b>						<b>0.562</b>	<b>0.103</b>

**METHODOLOGY**

Potential VOC Pounds per Day = Solvent Density (lbs/gallon) \* weight % volatiles \* solvent consumption (gallons/day)

Potential VOC Tons per Year = Potential VOC Pounds per Day \* (365 days/yr) \* (1 ton/2000 lbs)