



Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

June 7, 2004

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

TO: Interested Parties / Applicant
RE: Shells, Inc. / 099-14049-00090
FROM: Paul Dubenetzky
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, Room 1049, 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.dot 9/16/03



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MINOR SOURCE OPERATING PERMIT OFFICE OF AIR QUALITY

Shells, Inc.
502 Old U.S. Hwy. 30 East,
Bourbon, Indiana 46504

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the emission units 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.

Operation Permit No.: MSOP 099-14049-00090	
Issued by: Original signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: June 7, 2004 Expiration Date: June 7, 2009

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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 coremaking source.

Authorized individual:	President
Source Address:	502 Old uS Hwy. 30 East, Bourbon, IN 46504
Mailing Address:	P.O. Box 78, Bourbon, IN 46504
General Source Phone:	(219) 342 2673
SIC Code:	3543
County Location:	Marshall
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Minor Source Operating Permit Minor Source, under PSD; Minor Source, Section 112 of the Clean Air Act

A.2 Emissions Units and Pollution Control Equipment Summary

This stationary source is approved to operate the following emissions units and pollution control devices:

- (a) One (1) Core sand system, with a maximum capacity of 3.725 tons per hour, controlled by two (2) Bin Filters, BF-1 and BF-2, and exhausting to stacks S-1 and S-2, and feeding into the following mixers:
 - (1) One (1) Sand Mixer, identified as South line mixer 1, with a maximum capacity of 3.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). South line mixer 1 feeds sand in to the South Cold box core line.
 - (2) One (1) Sand Mixer, identified as North line mixer 1, with a maximum capacity of 6.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). North line mixer 1 feeds sand in to the North Cold box core line. The maximum capacity of this mixer is limited to 0.725 tons per hour because of the maximum production capacity of the cold box machines on the north line, which is also 0.725 tons per hour (bottleneck).
- (b) Two (2) core making operations, identified as Cold box core lines and consisting of the following:
 - (1) One (1) cold box core line, identified as South Cold box core line, consisting of the following units with combined capacities of 4.0 tons per hour.
 - (i) Unit S-1 with a maximum capacity of 2.5 tons per hour;
 - (ii) Units S-2 and S-3 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Units S-4 and S-5 each with a maximum capacity of 0.5 tons per hour.

While the sum of the individual capacities of the core machines is 4.0 tons per hour, the line is limited by the maximum mixing capacity of 3.0 tons per hour as the South line mixer 1 can only mix a maximum of 3.0 tons of Part I/II resin per hour.

- (2) One (1) cold box core line, identified as North Cold box core line, consisting of the following units with a combined capacity of 0.725 tons per hour:
 - (i) Unit N-2 with a maximum capacity of 0.075 tons per hour;
 - (ii) Units N-3 and N-4 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Unit N-5 with a maximum capacity of 0.15 tons per hour;

- (c) One (1) Shell core line, consisting of the following units, with a total combined capacity of 2.155 tons per hour:
 - (1) Units 101, 102, 103, 104, 201, 202, 203, 204, 205, and 501 each with a maximum capacity of 0.125 tons per hour;
 - (2) Units 301-304 each with a maximum combined capacity of 0.24 tons per hour;
 - (3) Units 401-404 with a maximum combined capacity of 0.24 tons per hour;
 - (4) Units 502 and 504 each with a maximum capacity of 0.06 tons per hour;
 - (5) Unit 503 with a maximum capacity of 0.025 tons per hour;
 - (6) Units 505-508 with a maximum combined capacity of 0.2 tons per hour;
 - (7) Units 509-510 with a maximum combined capacity of 0.08 tons per hour.

- (d) One (1) core drying oven rated at 3.0 MmBtu/hr.

- (e) One (1) air make-up unit rated at 5.0 MMBtu/hr.

SECTION B GENERAL CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

B.1 Permit No Defense [IC 13]

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

B.2 Definitions

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.3 Effective Date of the Permit [IC13-15-5-3]

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

B.4 Permit Term and Renewal [326 IAC 2-6.1-7(a)][326 IAC 2-1.1-9.5]

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

The Permittee shall apply for an operation permit renewal at least ninety (90) days prior to the expiration date. If a timely and sufficient permit application for a renewal has been made, this permit shall not expire and all terms and conditions shall continue in effect until the renewal permit has been issued or denied.

B.5 Modification to Permit [326 IAC 2]

All requirements and conditions of this operating permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

B.6 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) Annual notification shall be submitted 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) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.
- (c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in the format attached no later than March 1 of each year to:

Compliance Branch, Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, IN 46206-6015

- (d) 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.7 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days (this time frame is determined on a case by case basis but no more than ninety (90) days) after issuance of this permit, including the following information on each emissions unit:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The PMP extension notification does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.
- (c) A copy of the PMP's 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 PMP whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.8 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

- (a) Permit revisions are governed by the requirements of 326 IAC 2-6.1-6.
- (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, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1.

- (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)]
- (d) No permit amendment or modification is required for the addition, operation or removal of a non-road engine, as defined in 40 CFR 89.2.

B.9 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] [IC13-17-3-2][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 this title or the conditions of this permit or any operating permit revisions;
- (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 processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (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.10 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)]:

- (a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAQ, Permits Branch, within thirty (30) days of the change.
- (b) The written notification shall be sufficient to transfer the permit to the new owner by an notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).
- (c) IDEM, OAQ, shall issue a revised permit.

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

B.11 Annual Fee Payment [326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing.

- (b) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, I/M & Billing Section), to determine the appropriate permit fee.

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

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, 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 non-overlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

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

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

C.5 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
Asbestos Section, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

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 2-7-1(34).

- (e) **Procedures for Asbestos Emission Control**
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and renovation**
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Accredited 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 Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

Testing Requirements

C.6 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 Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date.

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual date.
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ (and local agency) not later than forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, (and local agency), 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.7 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

C.8 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.9 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.

Record Keeping and Reporting Requirements

C.10 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.11 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 when operation begins.

C.12 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, P. O. Box 6015
Indianapolis, Indiana 46206-6015

- (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, any quarterly report required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (d) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

SECTION D.1

EMMISSIONS UNITS OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) Core sand system, with a maximum capacity of 3.725 tons per hour, controlled by two (2) Bin Filters, BF-1 and BF-2, and exhausting to stacks S-1 and S-2, and feeding into the following mixers:
- (1) One (1) Sand Mixer, identified as South line mixer 1, with a maximum capacity of 3.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). South line mixer 1 feeds sand in to the South Cold box core line.
- (2) One (1) Sand Mixer, identified as North line mixer 1, with a maximum capacity of 6.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). North line mixer 1 feeds sand in to the North Cold box core line. The maximum capacity of this mixer is limited to 0.725 tons per hour because of the maximum production capacity of the cold box machines on the north line, which is also 0.725 tons per hour (bottleneck).

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

Emission Limitations and Standards

D.1.1 Production Capacity Limitation

Any change or modification which may increase the maximum production capacity of the Core sand system (South line mixer 1 or North line mixer 1) must be approved by the Office of Air Quality (OAQ) before such change may occur.

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

- (a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable PM emission rate from the Core sand system (North line mixer 1) shall not exceed 3.30 pounds per hour when operating at a process weight rate of 0.725 tons per hour. The pounds per hour limitation was calculated using the following equation:

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

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

- (b) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable PM emission rate from the Core sand system (South line mixer 1) shall not exceed 8.56 pounds per hour when operating at a process weight rate of 3.0 tons per hour. The pounds per hour limitation was calculated using the following equation:

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

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

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 device.

Compliance Determination Requirements

D.1.4 Particulate Control

In order to comply with D.1.2, the bin filters BF-1 and BF-2 for PM control shall be in operation and control emissions from the Sand core system and mixers (North and South lines) at all times that the Sand core system and mixers (North and South lines) are in operation.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

There are no Compliance Monitoring Requirements applicable to these emission units.

Record Keeping and Reporting Requirement

There are no Record Keeping and Reporting Requirements applicable to these emission units.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (b) Two (2) core making operations, identified as Cold box core lines and consisting of the following:
- (1) One (1) cold box core line, identified as South Cold box core line, consisting of the following units with combined capacities of 4.0 tons per hour.
 - (i) Unit S-1 with a maximum capacity of 2.5 tons per hour;
 - (ii) Units S-2 and S-3 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Units S-4 and S-5 each with a maximum capacity of 0.5 tons per hour.

While the sum of the individual capacities of the core machines is 4.0 tons per hour, the line is limited by the maximum mixing capacity of 3.0 tons per hour as the South line mixer 1 can only mix a maximum of 3.0 tons of Part I/II resin per hour.
 - (2) One (1) cold box core line, identified as North Cold box core line, consisting of the following units with a combined capacity of 0.725 tons per hour:
 - (i) Unit N-2 with a maximum capacity of 0.075 tons per hour;
 - (ii) Units N-3 and N-4 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Unit N-5 with a maximum capacity of 0.15 tons per hour;
- (c) One (1) Shell core line, consisting of the following units, with a total combined capacity of 2.155 tons per hour:
- (1) Units 101, 102, 103, 104, 201, 202, 203, 204, 205, and 501 each with a maximum capacity of 0.125 tons per hour;
 - (2) Units 301-304 each with a maximum combined capacity of 0.24 tons per hour;
 - (3) Units 401-404 with a maximum combined capacity of 0.24 tons per hour;
 - (4) Units 502 and 504 each with a maximum capacity of 0.06 tons per hour;
 - (5) Unit 503 with a maximum capacity of 0.025 tons per hour;
 - (6) Units 505-508 with a maximum combined capacity of 0.2 tons per hour;
 - (7) Units 509-510 with a maximum combined capacity of 0.08 tons per hour.

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

Emission Limitations and Standards

D.2.1 Production Capacity Limitation

Any change or modification which may increase the maximum production capacity of South Cold box core line, North Cold box core line or Shell core line must be approved by the Office of Air Quality (OAQ) before such change may occur.

D.2.2 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6]

Any change or modification which may increase the potential VOC emissions to 25 tons per year or more from the Shell Core line covered in this permit must be approved by the Office of Air Quality (OAQ) and be subject to 326 IAC 8-1-6 (General Reduction Requirements) before such change may occur.

D.2.3 Preventive Maintenance Plan [326 IAC1-6-3]

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

Compliance Determination Requirements

D.2.4 Volatile Organic Compounds (VOC) [326 IAC 8-1-2][326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.2.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

There are no Compliance Monitoring Requirements applicable to these emission units.

Record Keeping and Reporting Requirements

D.2.5 Record Keeping Requirements

- (a) To document compliance with Condition D.2.2, the Permittee shall maintain records of VOC emissions from the coremaking operation (North and South cold box core lines).
- (b) 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
COMPLIANCE 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:	Shells, Inc.
Address:	502 Old U.S. Hwy. 30 East, Bourbon, IN 46504
City:	Bourbon, IN
Phone #:	(219) 342 2673
MSOP #:	099-14049-00090

I hereby certify that Shells, inc. is still in operation.
 no longer in operation.

I hereby certify that Shells, Inc. is in compliance with the requirements of MSOP 099-14049-00090.
 not in compliance with the requirements of MSOP 099-14049-00090.

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 - 317 233-5967**

**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 ?_____, 100TONS/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 PERM 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: ____/____/19____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/19____ _____ 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 MSOP

Source Background and Description

Source Name: Shells, Inc.
Source Location: 502 Old U.S. Hwy. 30 East, Bourbon, IN 46504
County: Marshall
SIC Code: 3543
Operation Permit No.: 099-14049-00090
Permit Reviewer: Adeel Yousuf / EVP

The Office of Air Quality (OAQ) has reviewed a permit application from Shells, Inc. relating to core making operations.

Source History

This source was originally constructed in 1997 without any construction or operation permit. The source applied for FESOP permit on May 9, 2001. The FESOP permit came off of public notice on November 5, 2001, but was never issued due to the pending enforcement action. Since then the source has conducted a stack test on the core making lines and IDEM, OAQ has decided not to take any further action regarding the violations raised in the Notice of Violation signed on February 22, 2002.

Originally, this permit was reviewed as FESOP due to potential HAP emissions being greater than 10 and 25 tons per year for single HAP and total HAPs, respectively. However, the stack test was performed in October 2003, where the TEA emission factor was measured from the core making operation. Based on this updated emission factor, the source's single HAP and total HAPs potential to emit are less than 10 and 25 tons per year, respectively. Therefore, this source will be issued a MSOP based on the revised potential emissions for single HAP and total HAPs.

Unpermitted Emission Units and Pollution Control Equipment

The source consists of the following unpermitted facilities/units:

- (a) One (1) Core sand system, with a maximum capacity of 3.725 tons per hour, controlled by two (2) Bin Filters, BF-1 and BF-2, and exhausting to stacks S-1 and S-2, and feeding into the following mixers:
 - (1) One (1) Sand Mixer, identified as South line mixer 1, with a maximum capacity of 3.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). South line mixer 1 feeds sand in to the South Cold box core line.
 - (2) One (1) Sand Mixer, identified as North line mixer 1, with a maximum capacity of 6.0 tons per hour and controlled by one (1) bin filter (BF-1) for particulate control which exhausts through one (1) stack (S-1). North line mixer 1 feeds sand in to the North Cold box core line. The maximum capacity of this mixer is limited to 0.725 tons per hour because of the maximum production capacity of the cold box machines on the north line, which is also 0.725 tons per hour (bottleneck).

- (b) Two (2) core making operations, identified as Cold box core lines and consisting of the following:
- (1) One (1) cold box core line, identified as South Cold box core line, consisting of the following units with combined capacities of 4.0 tons per hour.
 - (i) Unit S-1 with a maximum capacity of 2.5 tons per hour;
 - (ii) Units S-2 and S-3 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Units S-4 and S-5 each with a maximum capacity of 0.5 tons per hour.

While the sum of the individual capacities of the core machines is 4.0 tons per hour, the line is limited by the maximum mixing capacity of 3.0 tons per hour as the South line mixer 1 can only mix a maximum of 3.0 tons of Part I/II resin per hour.
 - (2) One (1) cold box core line, identified as North Cold box core line, consisting of the following units with a combined capacity of 0.725 tons per hour:
 - (i) Unit N-2 with a maximum capacity of 0.075 tons per hour;
 - (ii) Units N-3 and N-4 each with a maximum capacity of 0.25 tons per hour;
 - (iii) Unit N-5 with a maximum capacity of 0.15 tons per hour;
- (c) One (1) Shell core line, consisting of the following units, with a total combined capacity of 2.155 tons per hour:
- (1) Units 101, 102, 103, 104, 201, 202, 203, 204, 205, and 501 each with a maximum capacity of 0.125 tons per hour;
 - (2) Units 301-304 each with a maximum combined capacity of 0.24 tons per hour;
 - (3) Units 401-404 with a maximum combined capacity of 0.24 tons per hour;
 - (4) Units 502 and 504 each with a maximum capacity of 0.06 tons per hour;
 - (5) Unit 503 with a maximum capacity of 0.025 tons per hour;
 - (6) Units 505-508 with a maximum combined capacity of 0.2 tons per hour;
 - (7) Units 509-510 with a maximum combined capacity of 0.08 tons per hour.
- (d) One (1) core drying oven rated at 3.0 MmBtu/hr.
- (e) One (1) air make-up unit rated at 5.0 MMBtu/hr.

New Emission Units and Pollution Control Equipment

There are no new emission units during this review process.

Existing Approvals

There is no permit issued to the source.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (oF)
S-1	Core Sand System	60	12	1000	Ambient
S-2	Core Sand System	15	7	1200	Ambient

Recommendation

The staff recommends to the Commissioner that the operation 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 March 7, 2001. Additional information was received on May 21, 2001, and March 4, 2004.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (six (6) pages).

Potential to Emit of the Source Before Controls

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

Pollutant	Potential to Emit (tons/yr)
PM	59.04
PM-10	9.11
SO ₂	0.02
VOC	13.50
CO	2.90
NO _x	3.50

HAPs	Potential to Emit (tons/yr)
Specify the HAP	
Triethylamine	6.69
Others	2.736
Total	9.426

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-6.1. An MSOP will be issued.
- (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. Therefore, the source is subject to the provisions of 326 IAC 2-5.1-2.

County Attainment Status

The source is located in Marshall County.

Pollutant	Status
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Marshall County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Marshall County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	1.47
PM-10	0.48
SO ₂	0.02
VOC	13.50
CO	2.90
NO _x	3.50
Single HAP	6.69
Combination HAPs	9.43

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories.

- (b) These emissions were based on emission calculations derived from information provided in the application submitted by the Shells, Inc. received on March 7, 2001 and additional information received on May 21, 2001 and March 4, 2004.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from this permit 099-14049-00090, is still not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons per year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability – Entire Source

326 IAC 2-6 (Emission Reporting)

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

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

Pursuant to 326 IAC 2-2, this source constructed in 1997 is not considered a major source because the potential to emit of all regulated pollutants are less than 100 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) do not apply.

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 Alternating Opacity Exemptions), 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.

State Rule Applicability – Individual Facilities

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

The operation of this source will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 8-1-6 (General Reduction Requirements)

Pursuant to 326 IAC 8-1-6, new facilities located anywhere in the state that were constructed on or after January 1, 1980, which have a potential to emit (PTE) VOC at 25 tons or more per year, and which are not otherwise regulated by another provision of Article 8, are subject to the rule requirements. Potential VOC emissions from this source are less than 25 tons per year. Therefore the Best Available Control Technology (BACT) requirements under 326 IAC 8-1-6 (General Reduction Requirements) are not applicable to the source.

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

- (a) The particulate from the Core sand system (North line mixer 1) shall be limited by the following:

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour} = 0.725$$

$$E = 4.10 (0.725)^{0.67} = 3.30 \text{ lbs PM/hr}$$

Based on the above equation, particulate matter emissions from the Core sand system (North line mixer 1) shall be limited to 3.30 pounds per hour.

Compliance calculation:

Uncontrolled PM emissions =
(11.43 tons PM/yr) * (yr/8,760 hrs) * (2,000 lbs/ton) = 2.60 lbs PM/hr

Controlled Compliance calculation:

(0.23 tons PM/yr) * (yr/8,760 hrs) * (2,000 lbs/ton) = 0.0525 lbs PM/hr

The Core sand system (North line mixer 1) will comply with the requirements of 326 IAC 6-3-2 by using Bin filters to control PM emissions.

- (b) The particulate from the Core sand system (South line mixer 1) shall be limited by the following:

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour} = 3.0$$

$$E = 4.10 (3.0)^{0.67} = 8.56 \text{ lbs PM/hr}$$

Based on the above equation, particulate matter emissions from the Core sand system (South line mixer 1) shall be limited to 8.56 pounds per hour.

Compliance calculation:

Uncontrolled PM emissions =
(47.30 tons PM/yr) * (yr/8,760 hrs) * (2,000 lbs/ton) = 10.80 lbs PM/hr

Controlled Compliance calculation:

(0.95 tons PM/yr) * (yr/8,760 hrs) * (2,000 lbs/ton) = 0.21 lbs PM/hr

The Core sand system (South line mixer 1) will comply with the requirements of 326 IAC 6-3-2 by using Bin filters to control PM emissions.

The Bin filters shall be in operation at all times the Core Sand System (North line mixer 1 and south line mixer 1) is in operation, in order to comply with this limit.

Conclusion

The operation of this core making facility shall be subject to the conditions of the attached proposed Minor Source Operating Permit 099-14049-00090.

Appendix A: Emission Calculations

Company Name: Shells, Inc.
Address City IN Zip: 502 Old US Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Plt ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

Uncontrolled Potential Emissions (tons/year)					
Emissions Generating Activity					
Pollutant	Coldbox Coremaking	Shell Coremaking	Sand Core System	Natural Gas Combustion	TOTAL
PM	0.0	0.0	58.74	0.30	59.04
PM10	0.0	0.0	8.81	0.30	9.11
SO2	0.0	0.0	0.00	0.02	0.02
NOx	0.0	0.0	0.00	3.50	3.50
VOC	10.63	2.67	0.00	0.20	13.50
CO	0	0	0.00	2.90	2.90
total HAPs	6.69	2.67	0.00	0.066	9.43
worst case single HAP	TEA 6.69	Phenol 1.59	0.00	Hexane 0.0063	TEA 6.69
Total emissions based on rated capacity at 8,760 hours/year.					
Controlled and Limited Emissions (tons/year)					
Emissions Generating Activity					
Pollutant	Coldbox Coremaking	Shell Coremaking	Sand Core System	Natural Gas Combustion	TOTAL
PM	0.0	0.0	1.17	0.30	1.47
PM10	0.0	0.0	0.18	0.30	0.48
SO2	0.0	0.0	0.00	0.02	0.02
NOx	0.0	0.0	0.00	3.50	3.50
VOC	10.63	2.67	0.00	0.20	13.50
CO	0	0	0.00	2.90	2.90
total HAPs	6.69	2.67	0.00	0.066	9.43
worst case single HAP	TEA 6.69	Phenol 1.59	0.00	Hexane 0.0063	TEA 6.69
Total emissions based on rated capacity at 8,760 hours/year, after control.					

Shells Cores VOC and HAP Emission Calculations

Company Name: Shells, Inc.
Address City IN Zip: 502 Old US Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Plt ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

Shell Cores Emission Calculation

Maximum Process Rate (tons/hr)

1.91

Resin Coated Sand: Faskure 206FT

	Pollutant			
Emission Factor in lb/ton	Phenol (HAP) 0.19	Formaldehyde (HAP) 0.13	VOC 0.32	
Potential Emission in tons/yr	1.59	1.08	2.67	

Notes:

Emission factors for constituents released during the core making process are provided by the source, based on the suppliers data.

Coldbox Coremaking VOC and HAP Emission Calculations

Company Name: Shells, Inc.
 Address City IN Zip: 502 Old US Hwy. 30 East, Bourbon, IN 46504
 CP: 099-14049
 Pit ID: 099-00090
 Reviewer: Adeel Yousuf / EVP
 Date: March 19, 2004

Coldbox Coremaking (South and North Cold Box Core Line) VOC and HAP Emission Calculations

Maximum Core Capacity = **3.725** tons per hour

Source	Pounds of Component per Ton of Core (lb/ton)	Weight % VOC	% Evaporated VOC	Weight % Phenol	% Evaporated Phenol	Weight % Diphenylmethane 4,4 - Diisocyanate	% Evaporated Diphenylmethane 4,4 - Diisocyanate	Weight % Polymeric Diphenylmethane	% Evaporated Polymeric Diphenylmethane	Weight % Triethylamine	% Evaporated Triethylamine	
Part I Resin (Sigma Cure 7121)	13.05	45.30%	3.25%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Part II Resin (Sigma Cure 7516)	10.67	14.30%	3.25%	0.00%	0.00%	42.90%	0.00%	42.90%	0.00%	0.00%	0.00%	
Catalyst (TEA) *	0.41	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	
Source		Potential VOC Emissions (tons/yr)		Phenol Emissions (tons/yr)		Diphenylmethane 4,4 - Diisocyanate (tons/yr)		Polymeric Diphenylmethane (tons/yr)		Triethylamine Emissions (tons/yr)		TOTAL HAPs
Part I Resin (Sigma Cure 7121)		3.13		0.00		0.00		0.00		0.00		0.0
Part II Resin (Sigma Cure 7516)		0.81		0.00		0.00		0.00		0.00		0.0
Catalyst (TEA)		6.69		0.00		0.00		0.00		6.69		6.7
Total Uncontrolled VOC emissions (tons/yr)		10.63										
Total Controlled VOC emissions (tons/yr) *		10.6										
Total Uncontrolled HAP emissions (tons/yr)				0.0		0.0		0.0		6.69		6.69
Total Controlled HAP emissions (tons/yr) *				0.0		0.0		0.0		6.69		6.69

Methodology

* Catalyst (TEA) emission factor is based on the stack test conducted on xxxxx

VOC/HAPs Emissions (tons/yr) = Material usage (lb/ton core) * Max. Core production (ton core/ hr) * VOC Content (%) * % Evaporated (%) * (1 ton/ 2000 lbs) * 8760 (hrs/yr)

Sand Core System Emission Calculations

Company Name: Shells, Inc.
Address City IN Zip: 502 Old U.S. Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Plt ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

Core Sand System

Maximum Process Rate (tons/hr)

3.00

South box core line

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/ton	3.60	0.54	0.00	0.00	0.00	0.00
Potential Emission in tons/yr	47.30	7.10	0.00	0.00	0.00	0.00

Total Emissions	PM	PM10
Potential Emission in tons/yr	47.30	7.10
Controlled Emissions in tons/yr	0.95	0.14

Notes:

Emission factors are from FIRE, Version 5.0 for Sand Grinding/Handling operations (SCC 30400350)
 Controlled emissions are based on the bin filter control efficiency of 98.0%

Sand Core System Emission Calculations

Company Name: Shells, Inc.
Address City IN Zip: 502 Old U.S. Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Plt ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

Core Sand System

Maximum Process Rate (tons/hr)

0.73

North Cold box core line

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/ton	3.60	0.54	0.00	0.00	0.00	0.00
Potential Emission in tons/yr	11.43	1.71	0.00	0.00	0.00	0.00

Total Emissions	PM	PM10
Potential Emission in tons/yr	11.43	1.71
Controlled Emissions in tons/yr	0.23	0.03

Notes:

Emission factors are from FIRE, Version 5.0 for Sand Grinding/Handling operations (SCC 30400350)
 Controlled emissions are based on the bin filter control efficiency of 98.0%

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM Btu/hr 0.3 - < 100

Company Name: Shells, Inc.
Address City IN Zip: 502 Old US Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Plt ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

Heat Input Capacity	Potential Throughput
MMBtu/hr	MMCF/yr
8.0	70.1

Heat Input Capacity includes:
 One (1) core drying over rated at 3.0 MMBtu/hr
 One (1) air make up unit rated at 5.0 MMBtu/hr

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	7.6	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.3	0.3	0.02	3.5	0.2	2.9

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

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

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

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM Btu/hr 0.3 - < 100

HAPs Emissions

Company Name: Shells, Inc.
Address City IN Zip: 502 Old US Hwy. 30 East, Bourbon, IN 46504
CP: 099-14049
Pit ID: 099-00090
Reviewer: Adeel Yousuf / EVP
Date: March 19, 2004

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	7.358E-05	4.205E-05	2.628E-03	6.307E-02	1.191E-04

6.593E-02

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	1.752E-05	3.854E-05	4.906E-05	1.332E-05	7.358E-05

1.920E-04

Methodology is the same as page 1.

6.613E-02

The five highest organic and metal HAPs emission factors are provided above.
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.