



Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

April 28, 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: Mead Johnson & Company / SPR 129-18476-00021

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



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

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Governor

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Commissioner

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Mr. John Walker
Mead Johnson & Company
2400 West Lloyd Expressway
Evansville, Indiana 47721

Re: 129-18476
First Significant Revision to
FESOP 129-13970-00021

Dear Mr. Walker:

Mead Johnson & Company was issued a permit on February 20, 2002 for a stationary pharmaceutical packaging and research and development operation. A letter requesting changes to this permit was received on February 3, 2004. Pursuant to the provisions of 326 IAC 2-8-11.1 a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document.

The modification consists of adding one (1) 60.8 MMBtu per hour natural gas fired boiler using No. 2 fuel oil as backup. The source will limit annual SO₂ emissions from the three (3) boilers to 90.10 tons per year by limiting the annual No. 2 fuel oil usage to 4,320,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Adeel Yousuf, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call at (973) 575-2555, ext. 3252 or dial (800) 451-6027, and ask for extension 3-6878.

Sincerely,

Original signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
AY/EVP

cc: File - Posey County
U.S. EPA, Region V
Posey County Health Department
Southwest Regional Office
Air Compliance Section Inspector - Scott Anslinger
Compliance Data Section
Administrative and Development
Technical Support and Modeling - Michele Boner



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FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) OFFICE OF AIR QUALITY

**Mead Johnson & Company
State Highway 62 East
Mt. Vernon, Indiana 47620**

(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 in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: F129-13970-00021	
Issued by: Paul Dubenetzky, Branch Chief, Office of Air Quality	Issuance Date: February 20, 2002 Expiration Date: February 20, 2007
First Administrative Amendment No.: 129-16205-00021 Second Administrative Amendment No.: 129-16765-00021 Third Administrative Amendment No.: 129-17788-00021 First Minor Permit Revision No.: 129-18395-00021	Date Issued: November 4, 2002 Date Issued: December 13, 2002 Date Issued: August 6, 2003 Date Issued: December 13, 2002
First Significant Permit Revision No.: 129-18476-00021	Pages Affected: 3, 5, 25, 26, and 27 Pages Added: 27a and 37a Page Removed: 32a
Issued by: Original signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	April 28, 2004

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

- C.11 Compliance Monitoring [326 IAC 2-8-4(3)] [326 IAC 2-8-5(a)(1)]
- C.12 Monitoring Methods [326 IAC 3][40 CFR 60][40 CFR 63]
- C.13 Pressure Gauge Specifications

Corrective Actions and Response Steps [326 IAC 2-8-4] [326 IAC 2-8-5]

- C.14 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68.215]
- C.15 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-8-4]
- C.16 Actions Related to Noncompliance Demonstrated by a Stack Test

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

- C.17 General Record Keeping Requirements [326 IAC 2-8-4(3)][326 IAC 2-8-5]
- C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

Stratospheric Ozone Protection

- C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

SECTION D.1 FACILITY OPERATION CONDITIONS

Natural gas fired boilers 25

Emission Limitations and Standards [326 IAC 2-8-4(1)]

- D.1.1 Particulate Matter Limitation (PM) [326 IAC 6-2-3] [326 IAC 6-2-4]
- D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]
- D.1.3 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 7-2-1]
- D.1.4 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 12-1] [40 CFR 60, Subpart Dc]
- D.1.5 Fuel Usage Limitation [326 IAC 2-8-4]
- D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements

- D.1.7 Sulfur Dioxide Emissions and Sulfur Content

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

- D.1.8 Visible Emissions Notations

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

- D.1.9 Record Keeping Requirements
- D.1.10 Reporting Requirements

SECTION D.2 FACILITY OPERATION CONDITIONS

Incinerator 28

Emission Limitations and Standards [326 IAC 2-8-4(1)]

- D.2.1 FESOP HAP Limit [326 IAC 2-8] [326 IAC 2-4.1-1]
- D.2.2 Solid Waste Incinerator [326 IAC 4-2-2]

Compliance Determination Requirements

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

- D.2.3 Record Keeping Requirements
- D.2.4 Reporting Requirements

SECTION D.3 FACILITY OPERATION CONDITIONS

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Emission Limitations and Standards [326 IAC 2-8-4(1)]	
D.3.1 Particulate Matter (PM) [326 IAC 6-3-2]	
Compliance Determination Requirements	
D.3.2 Particulate Matter (PM)	
Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]	
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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary pharmaceutical packaging and research and development source.

Authorized Individual:	Vice President, Global Integrated Supply Chain
Source Address:	State Highway 62 East, Mt. Vernon, Indiana, 47620
Mailing Address:	2400 West Lloyd Expressway, Evansville, Indiana 47721
SIC Code:	2834
Source Location Status:	Posey
County Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD Rules; Minor Source, Section 112 of the Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

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

- (a) Two (2) natural gas fired boilers installed in 1970, identified as S-1 and S-2, each with a maximum heat input rate of 30.64 million (MM) British thermal units (Btu) per hour, and exhausting through stacks S-1 and S-2, respectively. Boilers S-1 and S-2 use No. 2 fuel oil as back-up fuel.
- (b) One (1) natural gas fired boiler, identified as S-27, with a maximum heat input rate of 60.8 MMBtu per hour, and exhausting through stack S-27. Boiler S-27 uses No. 2 fuel oil as back-up fuel. (Installed in 2004)
- (c) One (1) natural gas fired incinerator, installed in 1979, and identified as S-4, with maximum heat input capacity of 1.5 MMBtu/hr and a maximum process capacity of 250 lbs/hr, and exhausting through stack S-4.

A.3 Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (1) The following VOC storage containers:
 - (a) One (1) 1,130 gallon aboveground storage tank containing gasoline.
 - (b) One (1) 1,130 gallon aboveground storage tank containing diesel fuel.
 - (c) One (1) 300 gallon aboveground storage tank containing diesel fuel.
 - (d) One (1) 250 gallon aboveground storage tank containing diesel fuel.

SECTION D.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

- (a) Two (2) natural gas fired boilers installed in 1970, identified as S-1 and S-2, each with a maximum heat input rate of 30.64 million (MM) British thermal units (Btu) per hour, and exhausting through stacks S-1 and S-2, respectively. Boilers S-1 and S-2 use No. 2 fuel oil as back-up fuel.
- (b) One (1) natural gas fired boiler, identified as S-27, with a maximum heat input rate of 60.8 MMBtu per hour, and exhausting through stack S-27. Boiler S-27 uses No. 2 fuel oil as back-up fuel. (Installed in 2004)

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 Particulate Matter Limitation (PM) [326 IAC 6-2-3] [326 IAC 6-2-4]

- (a) Pursuant to 326 IAC 6-2-3 (a) (Particulate emission limitations for sources of indirect heating: emission limitations for facilities specified in 326 IAC 6-2-1 (b)), particulate emissions from Boilers S-1 and S-2, which were existing and in operation on or before June 8, 1972, shall be limited to 0.6 pounds of particulate matter per million British thermal units heat input.
- (b) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating) the PM emissions from the 60.8 MMBtu per hour heat input boiler shall be limited to 0.312 pounds per MMBtu heat input.

This limitation is based on the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where: Pt = pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input
Q = Total source maximum operating capacity rating in MMBtu/hr heat input.

D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the 60.8 MMBtu per hour heat input boiler described in this section except when otherwise specified in 40 CFR Part 60, Subpart Dc.

D.1.3 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1 (SO₂ Emissions Limitations) the SO₂ emissions from the boilers S-1 and S-2, each rated at 30.64 MMBtu/hr, shall not exceed five tenths (0.5) pounds per MMBtu heat input. Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a thirty (30) day rolling weighted average.

D.1.4 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 12-1] [40 CFR 60, Subpart Dc]

Pursuant to 326 IAC 7-1.1 (SO₂ Emissions Limitations) and 40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units):

- (a) The SO₂ emissions from the 60.8 MMBtu per hour oil-fired boiler shall not exceed five tenths (0.5) pounds per million Btu heat input; or
- (b) The sulfur content of the fuel oil shall not exceed five-tenths percent (0.5%) by weight. [40 CFR 60.42c(d)]

Pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur content limit applies at all times, including periods of startup, shutdown, and malfunction.

D.1.5 Fuel Usage Limitation [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4(1), the following limits shall apply:

- (a) The total input of No. 2 fuel oil and No. 2 fuel oil equivalents to the two (2) 30.64 MMBtu/hr boilers (S-1 and S-2), and one (1) 60.8 MMBtu/hr boiler (S-27), shall be limited to less than 4,230,000 U.S. gallons per twelve (12) consecutive month period with compliance determined at the end of each month. This usage limit is required to limit the potential to emit sulfur dioxide (SO₂) from the source to less than 100 tons per 12 consecutive month period, with compliance determined at the end of each month.
- (b) Sulfur content of No. 2 distillate fuel oil shall not exceed 0.3% by weight.
- (c) For purposes of determining compliance with paragraph (a) of this condition, the following shall apply:

Every 1,000 gallons of No. 2 distillate fuel oil burned shall be equivalent to 0.014 MMCF of natural gas based on SO₂ emissions, such that the total usage of No. 2 distillate fuel oil with a maximum sulfur content of 0.3% and No. 2 oil equivalent input does not exceed the limit specified.

Compliance with this condition makes the requirements of 326 IAC 2-7 (Part 70) not applicable to the source.

D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.1.7 Sulfur Dioxide Emissions and Sulfur Content

- (a) Compliance shall be determined utilizing one of the following options.
 - (1) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed five-tenths (0.5) pounds per million Btu heat input by:
 - (A) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or
 - (B) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

- (i) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (ii) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the boilers S-1, S-2, and S-27 using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to any of the methods specified in (a) or (b) above shall not be refuted by evidence of compliance pursuant to the other method.

- (b) Pursuant to 40 CFR 60, Subpart Dc, the Permittee shall demonstrate compliance utilizing one of the following options:
- (1) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or
 - (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

D.1.8 Visible Emissions Notations

- (a) Visible emission notations of the boilers S-1, S-2, and S-27 stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere and while combusting fuel oil. 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) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports shall be considered a deviation from this permit.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.9 Record Keeping Requirements

- (a) To document compliance with Conditions D.1.3, and D.1.4 the Permittee shall maintain records in accordance with (1) through (6) below. Note that pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur limit for the 60.8 MMBtu/hr boiler applies at all times including periods of startup, shutdown, and malfunction.
- (1) Calendar dates covered in the compliance determination period;
 - (2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions;
 - (3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period, the natural gas fired boiler certification does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1); and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

- (4) Fuel supplier certifications.
 - (5) The name of the fuel supplier; and
 - (6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.
- (b) To document compliance with Condition D.1.5, the Permittee shall maintain records of visible emission notations of the boiler S-1, boiler S-2, and boiler S-27 stack exhausts while combusting fuel oil.
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.10 Reporting Requirements

- (a) The natural gas fired boiler certification shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) A semi-annual summary of the information to document compliance with Condition D.1.5 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY COMPLIANCE DATA SECTION

FESOP Quarterly Report

Source Name: Mead Johnson & Company
 Source Address: State Highway 62 East, Mt. Vernon, Indiana 47620
 Mailing Address: 2400 West Lloyd Expressway, Evansville, Indiana 47721
 FESOP No.: F129-13970-00021
 Facility: Two (2) 30.64 MMBtu per hour boilers (S-1 and S-2), and one (1) 60.8 MMBtu per hour boiler (S-27)
 Parameter: No. 2 fuel oil and No. 2 fuel oil equivalent usage limit to limit SO₂ emissions
 Limit: Total input of No. 2 distillate fuel oil with a maximum sulfur content of 0.3% and No. 2 distillate fuel oil equivalents to boilers (S-1, S-2, and S-27) shall be limited to 4,230,000 U.S. gallons per twelve (12) consecutive month period, with compliance determined at the end of each month, so that SO₂ emissions are limited below 100 tons per year.

YEAR:

Month		Column 1	Column 2	Column 1 + Column 2
	Fuel Type	No. 2 Distillate Fuel Oil and Equivalent Usage This Month	No. 2 Distillate Fuel Oil and Equivalent Usage Previous 11 Months	12 Month Total No. 2 Distillate Fuel Oil and Equivalent Usage
Month 1				
Month 2				
Month 3				

- ☛ No deviation occurred in this quarter.
- ☛ Deviation/s occurred in this quarter.
 Deviation has been reported on:

Submitted by:
 Title / Position:
 Signature:
 Date:
 Phone:

Attach a signed certification to complete this report.

**Indiana Department of Environmental Management
Office of Air Quality**

Technical Support Document (TSD) for a Significant Permit Revision to a Federally
Enforceable State Operating Permit

Source Background and Description

Source Name:	Mead Johnson & Company
Source Location:	State Highway 62 East, Mt. Vernon, IN 47721
County:	Posey
SIC Code:	2834
Operation Permit No.:	129-13970-00021
Operation Permit Issuance Date:	February 20, 2002
Permit Revision No.:	129-18476
Permit Reviewer:	Adeel Yousuf / EVP

The Office of Air Quality (OAQ) has reviewed a revision application from Mead Johnson & Company relating to the addition of one boiler capable of burning both natural gas and No. 2 fuel oil.

History

On February 3, 2004, Mead Johnson & Company submitted an application to the OAQ requesting to add an additional boiler to their existing plant. Mead Johnson Company was issued a FESOP on February 20, 2002.

New Emission Units and Pollution Control Equipment

One (1) natural gas fired boiler, identified as S-27, with a maximum heat input rate of 60.8 MMBtu per hour, and exhausting through stack S-27. Boiler S-27 uses No. 2 fuel oil as back-up fuel. (Installed in 2004)

Existing Approvals

The source was issued a FESOP F129-13970-00021 on February 20, 2002. The source has since received the following:

- (a) First Administrative Amendment No.: 129-16205-00021, issued on November 4, 2002.
- (b) Second Administrative Amendment No.: 129-16765-00021, issued on December 13, 2002.
- (c) Third Administrative Amendment No.: 129-17788-00021, issued on August 6, 2003.
- (d) First Minor Permit Revision No.: 129-18395-00021, issued on December 3, 2003.

Note: First Minor Permit Revision No.: 129-18395, issued on December 3, 2003 permitted the source to operate the temporary natural gas fired boiler which was brought in at the facility while the existing boiler was being repaired. This temporary boiler is no longer in use and has been removed from the source, therefore, this permit revision will not take into account the emissions from the temporary boiler.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Significant Permit Revision 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.

A complete application for the purposes of this review was received on February 3, 2004.

Emission Calculations

See Appendix A (pages 1 through 8) of this document for detailed emission calculations.

Potential to Emit of the Revision 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	3.8
PM-10	3.8
SO ₂	81.0
VOC	1.46
CO	42.6
NO _x	32.0

HAPs	Potential to Emit (tons/yr)
Hexane	0.48
Others	0.023
Total	.503

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of SO₂ and NO_x from this modification are equal to or greater than 25 tons per year. Therefore, the FESOP is being revised through a Significant Permit Revision pursuant to 326 IAC 2-8-11.1. This FESOP Significant Permit Revision will give the source approval to construct and operate the new emission unit.

The source has agreed to limit SO₂ emissions. Therefore, the source will remain in compliance with 326 IAC 2-8.

Limited Potential to Emit of Entire Source

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units. Emission limits have been revised as follows:

Process/emission unit	Potential to Emit After Issuance (tons/year)						
	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
Boilers S-1, S-2, and S-27 ⁽¹⁾	4.23	4.23	90.10	2.94	44.92	53.74	1.02 (total) 0.96 (single)
Incinerator (S-4)	1.90	1.90	0.70	0.80	2.70	0.80	9.1 (total) 9.0 (single)
Mixing, Weighing, Pressing and Coating Facilities (S-9 thru S-25)	59.38 ⁽¹⁾	59.38 ⁽¹⁾	--	--	--	--	--
Emergency Generators (S-3, S-7, and S-26) ⁽²⁾	0.55	0.50	0.75	0.60	2.29	9.80	Negl.
Insignificant Activities	Negl.	Negl.	--	Negl.	--	--	--
Total PTE After Issuance	66.06	66.01	91.55	4.34	49.91	64.34	10.12 (total) 9.0 (single)

Notes:

1) Boilers S-1, S-2, and S-27 use natural gas as the primary fuel and No. 2 fuel oil as a back up fuel. The total represents worst case emissions for each pollutant. Total emissions are based on the annual No. 2 fuel oil usage limit of 4,230 kgals per year.

2) Emissions from the emergency generators reflect the revised emissions due to addition of an additional emergency generator (S-26), permitted under the First Administrative Amendment No.: 129-16205-00021, issued on November 4, 2002, as an insignificant activity.

County Attainment Status

The source is located in Posey County.

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

- (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. Posey 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) Posey County has been classified as attainment or unclassifiable for all other 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.

Federal Rule Applicability

- (a) The one (1) 60.8 MMBtu per hour boiler, identified as S-27 is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc) (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units) because the boiler is being constructed after the rule applicability date of June 9, 1989 and the boiler is rated at less than one hundred (100) MMBtu, but greater than ten (10) MMBtu per hour. As such, the following shall apply:

- (1) The SO₂ emissions from the 60.8 MMBtu per hour boiler shall not exceed five tenths (0.5) pounds per million Btu heat input when burning fuel oil; or
- (2) The sulfur content of the fuel oil shall not exceed five-tenths percent (0.5%) by weight. [40 CFR 60.42c(d)]

The Permittee shall demonstrate compliance utilizing one of the following options:

- (1) Providing vendor analysis of fuel delivered, if accompanied by a certification; or
 - (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (i) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (ii) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (b) This one (1) 60.8 MMBtu per hour is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 326 IAC 20, (40 CFR Part 63, Subpart DDDDD), because the source is not a major source of HAP. The source has potential emissions of any combination of HAPs and any single HAP of less than 25 and 10 tons per twelve (12) consecutive month period, respectively.
- (c) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) applicable to this source.

State Rule Applicability – Entire Source

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

This modification to an existing minor stationary source is not major because the source, which is not one of the 28 listed source categories, does not have the potential to emit of 250 tons per year or more of any criteria pollutant after enforceable controls and limitations. The source will continue to be a minor stationary source after the modification and no attainment regulated pollutant shall be emitted at a rate of 250 tons per year or more. Therefore, the PSD requirements remain not applicable.

326 IAC 2-6 (Emission Reporting)

This source is located in Posey County, which is not one of the specifically listed counties, and the potential to emit of CO, VOC, NO_x, PM-10 (including fugitive emissions), or SO₂ is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 2-4.1-1 (New Source Toxics Control)

This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because no new or reconstructed facilities with a PTE of any single HAP at 10 tons per year or 25 tons per year of a combination of HAPs have been installed since July 27, 1997. Therefore, 326 IAC 2-4.1-1 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

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

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

326 IAC 2-8-4 (FESOP)

This source is subject to 326 IAC 2-8-4 (FESOP). Pursuant to this rule:

- (a) The usage of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalents shall be limited to 4,230,000 U.S. gallons per twelve (12) consecutive month period, so that SO₂ emissions are limited below 100 tons per year (see Appendix A for emission calculations). Therefore, the requirements of 326 IAC 2-7 do not apply.
- (b) Sulfur content of No. 2 distillate fuel oil shall not exceed 0.3% by weight.

State Rule Applicability – Individual Facilities

326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating), indirect heating units constructed after September 21, 1983 shall be limited using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where: Pt = pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input
Q = Total source maximum operating capacity rating in MMBtu/hr heat input.
Q = 30.64 + 30.64 + 60.8 = 122.08

$$Pt = (1.09/122.08^{0.26}) = 0.312 \text{ lbs PM/MMBtu}$$

Therefore, PM emissions from the 60.8 MMBtu/hr boiler shall not exceed 0.312 lb/MMBtu.

Based on Appendix A, the potential to emit of PM from the boiler (S-27) is 3.80 tons per year.

3.80 tons/yr H (2000 lbs/ton / 8760 hrs/yr) = 0.868 lbs/hr, each
(0.868 lbs/hr / 60.8 MMBtu/hr) = 0.014 lbs PM per MMBtu

Therefore, the boiler will comply with this rule.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The three (3) natural gas-fired boilers (S-1, S-2, and S-27) using No. 2 fuel oil as back-up fuel are subject to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations). Pursuant to 326 IAC 7-1.1-2, sulfur dioxide emissions from the three (3) boilers using No. 2 fuel oil shall be limited to 0.5 pounds per million BTU heat input when using No. 2 fuel oil. This equates to a fuel oil sulfur content limit of 0.50%. The facility will comply with this rule by limiting distillate oil sulfur content to 0.3% or less.

326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)

Pursuant to this rule, the source shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate (pounds SO₂ per MMBtu), to the OAQ upon request.

Compliance Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

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

1. The one (1) boiler (S-27) has applicable compliance monitoring conditions as specified below:

Visible emission notations of the boiler (S-27) stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal. 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. 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. 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. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan – Preparation, Implementation, Records and Reports shall be considered a deviation from this permit.

These monitoring conditions are necessary because the boiler (S-27) must operate properly to ensure compliance with 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating) and 326 IAC 2-8 (FESOP).

Changes to the Permit

Bolded language has been added and the language with a line through it has been deleted:

1. Table of contents has been revised to update Section D.1 and remove Section D.4 (temporary boiler).

SECTION D.1 FACILITY OPERATION CONDITIONS

Natural gas fired boilers 25

Emission Limitations and Standards [326 IAC 2-8-4(1)]

- D.1.1 Particulate Matter Limitation (PM) [326 IAC 6-2-3] ~~[326 IAC 6-2-4]~~
- D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]**
- D.1.23 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 7-2-1]
- D.1.4 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 12-1] [40 CFR 60, Subpart Dc]**
- D.1.5 Fuel Usage Limitation [326 IAC 2-8-4]**
- D.1.36 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements

- D.1.47 Sulfur Dioxide Emissions and Sulfur Content

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

- D.1.58 Visible Emissions Notations

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

- D.1.69 Record Keeping Requirements
- D.1.710 Reporting Requirements

* * *

~~SECTION D.4 FACILITY OPERATION CONDITIONS~~

~~Emission Limitations and Standards [326 IAC 2-8-4(1)]~~

- ~~D.4.1 Particulate Matter (PM) [326 IAC 6-2-4]~~

~~Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]~~

- ~~D.4.2 Record Keeping Requirements [326 IAC 12][40 CFR 60.48c]~~

2. Section A.2 has been updated to include the new 60.8 MMBtu per hour boiler.

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

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

- (a) Two (2) natural gas fired boilers installed in 1970, identified as S-1 and S-2, each with a maximum heat input rate of 30.64 million (MM) British thermal units (Btu) per hour, and exhausting through stacks S-1 and S-2, respectively. Boilers S-1 and S-2 use No. 2 fuel oil as back-up fuel.
- (b) One (1) natural gas fired boiler, identified as S-27, with a maximum heat input rate of 60.8 MMBtu per hour, and exhausting through stack S-27. Boiler S-27 uses No. 2 fuel oil as back-up fuel. (Installed in 2004)**
- (bc) One (1) natural gas fired incinerator, installed in 1979, and identified as S-4, with maximum heat input capacity of 1.5 MMBtu/hr and a maximum process capacity of 250 lbs/hr, and exhausting through stack S-4.

~~(c) One (1) natural gas fired boiler with a maximum capacity of 32.6 MMBTU/hr. This boiler will be used temporarily while another boiler is repaired~~

3. Section D.1 has been revised to include the new 60.8 MMBtu per hour boiler and associated requirements. All the conditions have been re-numbered accordingly.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

- (a) Two (2) natural gas fired boilers installed in 1970, identified as S-1 and S-2, each with a maximum heat input rate of 30.64 million (MM) British thermal units (Btu) per hour, and exhausting through stacks S-1 and S-2, respectively. Boilers S-1 and S-2 use No. 2 fuel oil as back-up fuel.
- (b) One (1) natural gas fired boiler, identified as S-27, with a maximum heat input rate of 60.8 MMBtu per hour, and exhausting through stack S-27. Boiler S-27 uses No. 2 fuel oil as back-up fuel. (Installed in 2004)**

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 Particulate Matter Limitation (PM) [326 IAC 6-2-3] [326 IAC 6-2-4]

- (a) Pursuant to 326 IAC 6-2-3 (a) (Particulate emission limitations for sources of indirect heating: emission limitations for facilities specified in 326 IAC 6-2-1 (b)), particulate emissions from Boilers S-1 and S-2, which were existing and in operation on or before June 8, 1972, shall be limited to 0.6 pounds of particulate matter per million British thermal units heat input.
- (b) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating) the PM emissions from the 60.8 MMBtu per hour heat input boiler shall be limited to 0.312 pounds per MMBtu heat input.**

This limitation is based on the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where: Pt = pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in MMBtu/hr heat input.

D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the 60.8 MMBtu per hour heat input boiler described in this section except when otherwise specified in 40 CFR Part 60, Subpart Dc.

D.1.23 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1][326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1 (SO₂ Emissions Limitations) the SO₂ emissions from the boilers S-1 and S-2, each rated at 30.64 MMBtu/hr, shall not exceed five tenths (0.5) pounds per MMBtu heat input. Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a thirty (30) day rolling weighted average.

D.1.4 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 12-1-1] [40 CFR 60, Subpart Dc]
Pursuant to 326 IAC 7-1.1 (SO₂ Emissions Limitations) and 40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units):

- (a) The SO₂ emissions from the 60.8 MMBtu per hour oil-fired boiler shall not exceed five tenths (0.5) pounds per million Btu heat input; or
- (b) The sulfur content of the fuel oil shall not exceed five-tenths percent (0.5%) by weight. [40 CFR 60.42c(d)]

Pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur content limit applies at all times, including periods of startup, shutdown, and malfunction.

D.1.5 Fuel Usage Limitation [326 IAC 2-8-4]
Pursuant to 326 IAC 2-8-4(1), the following limits shall apply:

- (a) The total input of No. 2 fuel oil and No. 2 fuel oil equivalents to the two (2) 30.64 MMBtu/hr boilers (S-1 and S-2), and one (1) 60.8 MMBtu/hr boiler (S-27), shall be limited to less than 4,230,000 U.S. gallons per twelve (12) consecutive month period with compliance determined at the end of each month. This usage limit is required to limit the potential to emit sulfur dioxide (SO₂) from the source to less than 100 tons per 12 consecutive month period, with compliance determined at the end of each month.
- (b) Sulfur content of No. 2 distillate fuel oil shall not exceed 0.3% by weight.
- (c) For purposes of determining compliance with paragraph (a) of this condition, the following shall apply:

Every 1,000 gallons of No. 2 distillate fuel oil burned shall be equivalent to 0.014 MMCF of natural gas based on SO₂ emissions, such that the total usage of No. 2 distillate fuel oil with a maximum sulfur content of 0.3% and No. 2 oil equivalent input does not exceed the limit specified.

Compliance with this condition makes the requirements of 326 IAC 2-7 (Part 70) not applicable to the source.

D.1.36 Preventive Maintenance Plan [326 IAC 2-8-4(9)]
A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities.

Compliance Determination Requirements

D.1.47 Sulfur Dioxide Emissions and Sulfur Content

- (a) Compliance shall be determined utilizing one of the following options.
 - (a1) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed five-tenths (0.5) pounds per million Btu heat input by:
 - (4A) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or

- (2B) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (Ai) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (Bii) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (b2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the boilers S-1, and S-2, and S-27 using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to any of the methods specified in (a) or (b) above shall not be refuted by evidence of compliance pursuant to the other method.

- (b) Pursuant to 40 CFR 60, Subpart Dc, the Permittee shall demonstrate compliance utilizing one of the following options:
 - (1) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or
 - (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

D.1.58 Visible Emissions Notations

- (a) Visible emission notations of the boilers S-1, and S-2, and S-27 stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere and while combusting fuel oil. 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) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a violation of deviation from this permit.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.69 Record Keeping Requirements

- (a) To document compliance with Conditions D.1.23, and D.1.4 the Permittee shall maintain records in accordance with (1) through (6) below. **Note that pursuant to 40 CFR 60 Subpart Dc, the fuel oil sulfur limit for the 60.8 MMBtu/hr boiler applies at all times including periods of startup, shutdown, and malfunction.**

- (1) Calendar dates covered in the compliance determination period;
- (2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions;
- (3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period, the natural gas fired boiler certification does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1); and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

- (4) Fuel supplier certifications.
 - (5) The name of the fuel supplier; and
 - (6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.
- (b) To document compliance with Condition D.1.5, the Permittee shall maintain records of visible emission notations of the boiler S-1, and boiler S-2, and boiler S-27 stack exhausts while combusting fuel oil.
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.710 Reporting Requirements

- (a) The natural gas fired boiler certification shall be submitted to the address listed in Section C - General Reporting Requirements, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) **A semi-annual summary of the information to document compliance with Condition D.1.5 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1.**

4. Section D.4 has been deleted due to the removal of one 32.6 MMBtu per hour temporary boiler from the source.

SECTION D.4 FACILITY CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

~~(c) One (1) natural gas fired boiler with a maximum capacity of 32.6 MMBTU/hr. This boiler will be used temporarily while another boiler is being repaired.~~

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

Emission Limitations and Standards [326 IAC 2-8-4(1)]

~~D.4.1 Particulate Matter (PM) [326 IAC 6-2-4]~~

~~Pursuant to 326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating), the PM emissions from the 32.6 MMBTU/hr boiler shall be limited to 0.33 pounds per MMBTU heat input.~~

~~D.4.2 Record Keeping Requirements [326 IAC 12][40 CFR 60.48c(g) & (i)]~~

~~(a) Pursuant to 40 CFR 60.48c(g), the owner or operator shall record and maintain records of the amounts of each fuel combusted during each day.~~

~~(b) Pursuant to 40 CFR 60.48c(i), the owner or operator shall maintain these records for a period of two years following the date of such record.~~

5. The following reporting form has been inserted at the end of the permit to show compliance with the annual No.2 fuel oil usage limit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

FESOP Quarterly Report

Source Name: Mead Johnson & Company
Source Address: State Highway 62 East, Mt. Vernon, Indiana 47620
Mailing Address: 2400 West Lloyd Expressway, Evansville, Indiana 47721
FESOP No.: F129-13970-00021
Facility: Two (2) 30.64 MMBtu per hour boilers (S-1 and S-2), and one (1) 60.8 MMBtu per hour boiler (S-27)
Parameter: No. 2 fuel oil and No. 2 fuel oil equivalent usage limit to limit SO₂ emissions
Limit: Total input of No. 2 distillate fuel oil with a maximum sulfur content of 0.3% and No. 2 distillate fuel oil equivalents to boilers (S-1, S-2, and S-27) shall be limited to 4,230,000 U.S. gallons per twelve (12) consecutive month period, with compliance determined at the end of each month, so that SO₂ emissions are limited below 100 tons per year.

YEAR:

Month		Column 1	Column 2	Column 1 + Column 2
	Fuel Type	No. 2 Distillate Fuel Oil and Equivalent Usage This Month	No. 2 Distillate Fuel Oil and Equivalent Usage Previous 11 Months	12 Month Total No. 2 Distillate Fuel Oil and Equivalent Usage
Month 1				
Month 2				
Month 3				

☛ No deviation occurred in this quarter.

☛ Deviation/s occurred in this quarter.
 Deviation has been reported on:

Submitted by:
 Title / Position:
 Signature:
 Date:
 Phone:

Attach a signed certification to complete this report.

Conclusion

The operation of this 60.8 MMBtu per hour boiler shall be subject to the conditions of the attached proposed Significant Permit Revision for a Federally Enforceable State Operating Permit No.: 129-18476-00021.

**Indiana Department of Environmental Management
Office of Air Quality**

**Addendum to the
Technical Support Document (TSD) Significant Permit Revision to a Federally
Enforceable State Operating Permit**

Source Background and Description

Source Name:	Mead Johnson & Company
Source Location:	State Highway 62 East, Mt. Vernon, IN 47721
County:	Posey
SIC Code:	2834
Operation Permit No.:	129-13970-00021
Operation Permit Issuance Date:	February 20, 2002
Permit Revision No.:	129-18476
Permit Reviewer:	Adeel Yousuf / EVP

On March 24, 2004, the Office of Air Quality (OAQ) had a notice published in the Mount Vernon Democrat in Mount Vernon, Indiana, stating that Mead Johnson & Company had applied for a Significant Permit Revision to a Federally Enforceable State Operating Permit (FESOP) relating to the addition of one boiler capable of burning both natural gas and No. 2 fuel oil. The notice also stated that OAQ proposed to issue a Significant Permit Revision to a Federally Enforceable State Operating Permit for this operation and provided information on how the public could review the proposed Significant Permit Revision 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 Significant Permit Revision should be issued as proposed.

On April 2, 2004, John H. Walker of Mead Johnson & Company, submitted comments on the proposed Significant Permit Revision. The summary of the comments and corresponding responses is as follows (bolded language has been added and the language with a line through it has been deleted).

Comment 1

Cover Page
Under Pages Affected, delete 4 and add 5 instead.

Response 1

Pages Affected on the cover page has been revised as follows.

First Significant Permit Revision No.: 129-18476-00021	Pages Affected: 3, -4 5 , 25, 26, and 27 Pages Added: 27a and 37a Page Removed: 32a
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	

Comment 2

Section A.1 General Information

Change the name of the authorized individual from Thomas R. Ward to Wayne J. Quigley.

Response 2

IDEM, OAQ prefers to have the authorized individual's title listed instead of the name. Therefore, following change has been in Section A.1 General Information.

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary pharmaceutical packaging and research and development source.

Authorized Individual:	Thomas R. Ward Vice President, Global Integrated Supply Chain
Source Address:	State Highway 62 East, Mt. Vernon, Indiana, 47620
Mailing Address:	2400 West Lloyd Expressway, Evansville, Indiana 47721
SIC Code:	2834
Source Location Status:	Posey
County Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit (FESOP) Minor Source, under PSD Rules; Minor Source, Section 112 of the Clean Air Act

**Appendix A: Emissions Calculations
Industrial Boilers (> 100 mmBtu/hr)
#2 Fuel Oil**

**Company Name: Mead Johnson & Company
Address City IN Zip: State Highway 62 East, Mt. Vernon, Indiana 47721
FESOP No.: F129-13970-00021
Sig. Permit Rev. No.: SPR129-18476-00021
Reviewer: Adeel Yousuf / EVP
Date: 03/08/04**

Heat Input Capacity
MMBtu/hr

One (1) 60.8 MMBtu boiler (S-27)

60.8

Potential Throughput
kgals/year

3804.342857

S = Weight % Sulfur

0.3

Emission Factor in lb/kgal (except in lb/MMBtu for NOx and CO)	Pollutant				
	PM*	SO2	NOx	VOC	CO
	2.0	42.6 (142.0S)	0.12 **See below	0.20	0.16 **See below
Potential Emission in tons/yr	3.8	81.0	32.0	0.4	42.6

** Emission factors for NOx and CO are based on Manufacturer's specifications including Low-NOx burners.

Methodology

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-02-005-01/02/03) Supplement E 9/98

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.

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

Appendix A: Emissions Calculations

Industrial Boilers (> 100 mmBtu/hr)

#1 and #2 Fuel Oil

HAPs Emissions

Company Name: Mead Johnson & Company
Address City IN Zip: State Highway 62 East, Mt. Vernon, Indiana 47721
FESOP No.: F129-13970-00021
Sig. Permit Rev. No.: SPR129-18476-00021
Reviewer: Adeel Yousuf / EVP
Date: 03/08/04

HAPs - Metals

Emission Factor in lb/mmBtu	Arsenic 4.0E-06	Beryllium 3.0E-06	Cadmium 3.0E-06	Chromium 3.0E-06	Lead 9.0E-06
Potential Emission in tons/yr	1.07E-03	7.99E-04	7.99E-04	7.99E-04	2.40E-03

HAPs - Metals (continued)

Emission Factor in lb/mmBtu	Mercury 3.0E-06	Manganese 6.0E-06	Nickel 3.0E-06	Selenium 1.5E-05
Potential Emission in tons/yr	7.99E-04	1.60E-03	7.99E-04	3.99E-03

Methodology

No data was available in AP-42 for organic HAPs.

Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: Mead Johnson & Company
Address City IN Zip: State Highway 62 East, Mt. Vernon, Indiana 47721
FESOP No.: F129-13970-00021
Sig. Permit Rev. No.: SPR129-18476-00021
Reviewer: Adeel Yousuf / EVP
Date: 03/08/04

Unit	Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
One (1) 60.8 mmBtu/hr boiler (S-27), which can burn both natural gas and No. 2 fuel oil.	60.8	
	60.8	532.6

Emission Factor in lb/MMCF (except in lb/MMBtu for NOx and CO)	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	0.1	5.5	0.15
				**see below		**see below
Potential Emission in tons/yr	0.51	2.02	0.16	26.63	1.46	39.95

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

**Emission factors for Nox and CO based on Manufacturer's specifications including Low-NOx burners.

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: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

HAPs Emissions

Company Name: Mead Johnson & Company
Address City IN Zip: State Highway 62 East, Mt. Vernon, Indiana 47721
FESOP No.: F129-13970-00021
Sig. Permit Rev. No.: SPR129-18476-00021
Reviewer: Adeel Yousuf / EVP
Date: 03/08/04

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	5.592E-04	3.196E-04	1.997E-02	4.793E-01	9.054E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.332E-04	2.929E-04	3.728E-04	1.012E-04	5.592E-04

Methodology is the same as page 4.

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

Company Name:	Mead Johnson & Company
Plant Location:	State Highway 62 East, Mt. Vernon, Indiana 47721
County:	Posey
Date:	03/09/04
Permit Reviewer:	Adeel Yousuf / EVP
Permit Revision No.:	129-18476

**** general facility information ****

This source has two existing boilers, identified as S-1 and S-2, with each rated at 30.64 MMBtu/hr, capable of burning both natural gas and No. 2 fuel oil. One more boiler is being added, identified as S-27 and rated at 60.8 MMBtu/hr and capable of burning both natural gas and No. 2 fuel oil.

**** Existing Boilers S-1 and S-2 burning natural gas****

The following calculations determine the amount of emissions created by natural gas combustion, from the boilers (S-1 and S-2), based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1, and 1.4-2.

Criteria Pollutant:	$\frac{61.28 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{1000 \text{ MMBtu/MMcf} * 2,000 \text{ lb/ton}}$	* Ef (lb/MMcf) = (ton/yr)
P M:	1.9 lb/MMcf =	0.51 ton/yr
P M-10:	7.6 lb/MMcf =	2.04 ton/yr
S O 2:	0.6 lb/MMcf =	0.16 ton/yr
N O x:	100.0 lb/MMcf =	26.84 ton/yr
V O C:	5.5 lb/MMcf =	1.48 ton/yr
C O:	84.0 lb/MMcf =	22.55 ton/yr

**** New Boiler S-27 burning natural gas****

The following calculations determine the amount of emissions created by natural gas combustion, from the boiler (S-27), based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1, and 1.4-2.

Criteria Pollutant:	$\frac{60.8 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{1000 \text{ MMBtu/MMcf} * 2,000 \text{ lb/ton}}$	* Ef (lb/MMcf) = (ton/yr)
P M:	1.9 lb/MMcf =	0.51 ton/yr
P M-10:	7.6 lb/MMcf =	2.02 ton/yr
S O 2:	0.6 lb/MMcf =	0.16 ton/yr
N O x:	0.1 lb/MMBtu =	26.63 ton/yr
V O C:	5.5 lb/MMcf =	1.46 ton/yr
C O:	0.15 lb/MMBtu =	39.95 ton/yr

Total natural gas potential emissions

P M:	1.02
P M-10:	4.06
S O 2:	0.32
N O x:	53.47
V O C:	2.94
C O:	62.49

**** Existing Boilers S-1 and S-2 burning No. 2 Fuel Oil****

The following calculations determine the amount of 0.3 % sulfur, from the boilers (S-1 and S-2), based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-3, and 1.3-7. emissions created by the combustion of #2 distillate fuel oil @

Criteria Pollutant:	$\frac{61.28 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{140,000 \text{ Btu/gal} * 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	2.0 lb/1000 gal =	3.83 ton/yr
P M-10:	2.0 lb/1000 gal =	3.83 ton/yr
S O 2:	42.6 lb/1000 gal =	81.67 ton/yr
N O x:	20.0 lb/1000 gal =	38.34 ton/yr
V O C:	0.20 lb/1000 gal =	0.38 ton/yr
C O:	5.0 lb/1000 gal =	9.59 ton/yr

**** New Boiler S-27 burning No. 2 Fuel Oil****

The following calculations determine the amount of 0.3 % sulfur, from the boiler (S27), based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-3, and 1.3-7. emissions created by the combustion of #2 distillate fuel oil @

Criteria Pollutant:	<u>60.8 MMBtu/hr * 8,760 hr/yr</u>	* Ef (lb/1,000 gal) = (ton/yr)
	140,000 Btu/gal * 2,000 lb/ton	
P M:	2.0 lb/1000 gal =	3.80 ton/yr
P M-10:	2.0 lb/1000 gal =	3.80 ton/yr
S O 2:	42.6 lb/1000 gal =	81.03 ton/yr
N O x:	0.12 lb/MMBtu =	31.96 ton/yr
V O C:	1.04 lb/1000 gal =	1.98 ton/yr
C O:	0.16 lb/MMBtu =	42.61 ton/yr

Total No. 2 fuel oil potential emissions

P M:	7.64
P M-10:	7.64
S O 2:	162.70
N O x:	70.30
V O C:	2.36
C O:	52.19

Worst Case Potential Emissions

Criteria Pollutant:		Worst Case Fuel
P M:	7.64 ton/yr	No. 2 Residual Fuel Oil
P M-10:	7.64 ton/yr	No. 2 Residual Fuel Oil
S O 2:	162.70 ton/yr	No. 2 Residual Fuel Oil
N O x:	70.30 ton/yr	No. 2 Residual Fuel Oil
V O C:	2.94 ton/yr	Natural Gas
C O:	62.49 ton/yr	Natural Gas

**** Source emissions after limitations and controls ****

In order to qualify for the FESOP program, this source must limit SO2 emissions to less than 100 tons per year. Consequently, SO2 emissions from the boilers must be limited to 97.55 tons per year (99.0 tons per year - 1.45 tons per year from the incinerator and emergency generators) .

**** source usage limitations ****

The following calculations determine the amount of emissions created by natural gas combustion 1.07E+03 MMcf based on a fuel usage limitation of

Natural Gas:	<u>1,069.421 MMcf/yr</u>	* Ef (lb/MMcf) = (ton/yr)
	2,000 lb/ton	
P M:	1.9 lb/MMcf =	1.02 ton/yr *
P M-10:	7.6 lb/MMcf =	4.06 ton/yr *
S O 2:	0.6 lb/MMcf =	0.32 ton/yr
N O x:	100.0 lb/MMcf =	53.47 ton/yr
V O C:	5.5 lb/MMcf =	2.94 ton/yr
C O:	84.0 lb/MMcf =	44.92 ton/yr

The following calculations determine the amount of emissions created by No.2 distillate fuel oil @ 0.3 % sulfur based on a fuel usage limitation of 4,230,000 gal/yr:

No. 2 Distillate Oil:	<u>4,230,000 gal/yr</u>	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	2.0 lb/1000 gal =	4.23 ton/yr *
P M-10:	2.0 lb/1000 gal =	4.23 ton/yr *
S O 2:	42.6 lb/1000 gal =	90.10 ton/yr
N O x:	20.0 lb/1000 gal =	42.30 ton/yr
V O C:	0.20 lb/1000 gal =	0.42 ton/yr
C O:	5.0 lb/1000 gal =	10.58 ton/yr

Worst Case Emissions

Criteria Pollutant:	P M:	4.23 ton/yr	Worst Case Fuel
	P M-10:	4.23 ton/yr	No. 2 Residual Fuel Oil
	S O 2:	90.10 ton/yr	No. 2 Residual Fuel Oil
	N O x:	53.47 ton/yr	Natural Gas
	V O C:	2.94 ton/yr	Natural Gas
	C O:	44.92 ton/yr	Natural Gas

**** source emissions after controls ****

Secondary Fuel: #2 distillate oil

$$97.55 \frac{\text{tons SO}_2/\text{year limited}}{162.70 \text{ tons SO}_2/\text{year potential}} \times 7,639 \frac{\text{Kgals}}{\text{year potential}} = 4,580 \frac{\text{Kgals}}{\text{year limited}}$$

however, the source has requested to limit the annual No.2 fuel oil usage to less than 4230 kgals/yr.

Fuel equivalence limit for natural gas based on SO2 emissions from #2 distillate fuel oil:

$$\frac{0.32 \text{ n.g. potential emissions (ton/yr)}}{1069.42 \text{ n.g. potential usage (MMCF/yr)}} \div \frac{162.70 \text{ \#2 fuel oil potential emissions (ton/yr)}}{7638.72 \text{ \#2 fuel oil potential usage (kgal/yr)}} = 1.408\text{E-}02 \frac{\text{MMCF n.g. burned}}{\text{No. 2 distillate fuel oil (kgals)}}$$

326 IAC 7 Compliance Calculations:

The following calculations determine the maximum sulfur content of distillate fuel oil (No. 2 Oil) allowable by 326 IAC 7:

$$0.5 \text{ lb/MMBtu} \times 140,000 \text{ Btu/gal} = 70 \text{ lb/1000gal}$$

$$70 \text{ lb/1000gal} \div 144 \text{ lb/1000 gal} = 0.5 \%$$

Sulfur content must be less than or equal to 0.5% to comply with 326 IAC 7.

Hazardous Air Pollutants (HAPs)

**** All boilers burning #2 fuel oil****

The following calculations determine the amount of HAP emissions created by the combustion of distillate fuel oil before & after controls @ 0.5% sulfur, from the aggregate dryer burner, based on 8760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Table 1.3-11.

	Potential (kgal/yr)	Limited (kgal/yr)		
No. 2 fuel oil usage	7,639	4,580		
			Potential To Emit	Limited Emissions
Arsenic	4.00E-06 lb/MMBtu =		2.14E-03 ton/yr	1.28E-03 ton/yr
Beryllium:	3.00E-06 lb/MMBtu =		1.60E-03 ton/yr	9.62E-04 ton/yr
Cadmium:	3.00E-06 lb/MMBtu =		1.60E-03 ton/yr	9.62E-04 ton/yr
Chromium:	3.00E-06 lb/MMBtu =		1.60E-03 ton/yr	9.62E-04 ton/yr
Lead:	9.00E-06 lb/MMBtu =		4.81E-03 ton/yr	2.89E-03 ton/yr
Manganese:	6.00E-06 lb/MMBtu =		3.21E-03 ton/yr	1.92E-03 ton/yr
Mercury:	3.00E-06 lb/MMBtu =		1.60E-03 ton/yr	9.62E-04 ton/yr
Nickel:	3.00E-06 lb/MMBtu =		1.60E-03 ton/yr	9.62E-04 ton/yr
Selenium:	1.50E-05 lb/MMBtu =		8.02E-03 ton/yr	4.81E-03 ton/yr
	Total HAPs =		2.62E-02 ton/yr	1.57E-02 ton/yr

**** All boilers burning natural gas ****

The following calculations determine the amount of emissions created by natural gas combustion, from all boilers, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1, and 1.4-2.

	Potential (MMcf/yr)	
Natural gas usage	1.07E+03	
	Potential Emissions	
Benzene:	2.1E-03 lb/MMcf =	1.12E-03 ton/yr
Dichlorobenzene:	1.2E-03 lb/MMcf =	6.42E-04 ton/yr
Formaldehyde:	7.5E-02 lb/MMcf =	4.01E-02 ton/yr
Hexane:	1.8E+00 lb/MMcf =	9.62E-01 ton/yr
Toluene:	3.4E-03 lb/MMcf =	1.82E-03 ton/yr
Lead:	5.0E-04 lb/MMcf =	2.67E-04 ton/yr
Cadmium:	1.1E-03 lb/MMcf =	5.88E-04 ton/yr
Chromium:	1.4E-03 lb/MMcf =	7.49E-04 ton/yr
Manganese:	3.8E-04 lb/MMcf =	2.03E-04 ton/yr
Nickel:	2.1E-03 lb/MMcf =	1.12E-03 ton/yr
	1.89E+00 Total HAPs =	1.01E+00 ton/yr

**** summary of source HAP emissions potential to emit ****

Arsenic	2.14E-03 ton/yr
Beryllium:	1.60E-03 ton/yr
Cadmium:	2.19E-03 ton/yr
Chromium:	2.35E-03 ton/yr
Lead:	5.08E-03 ton/yr
Manganese:	3.41E-03 ton/yr
Mercury:	1.60E-03 ton/yr
Nickel:	2.73E-03 ton/yr
Selenium:	8.02E-03 ton/yr
Benzene:	1.12E-03 ton/yr
Dichlorobenzene:	6.42E-04 ton/yr
Formaldehyde:	4.01E-02 ton/yr
Hexane:	9.62E-01 ton/yr
Toluene:	1.82E-03 ton/yr
Total:	1.04E+00 ton/yr

**** summary of source HAP limited emissions ****

Arsenic	1.28E-03 ton/yr
Beryllium:	9.62E-04 ton/yr
Cadmium:	1.55E-03 ton/yr
Chromium:	1.71E-03 ton/yr
Lead:	3.15E-03 ton/yr
Manganese:	2.13E-03 ton/yr
Mercury:	9.62E-04 ton/yr
Nickel:	2.08E-03 ton/yr
Selenium:	4.81E-03 ton/yr
Benzene:	1.12E-03 ton/yr
Dichlorobenzene:	6.42E-04 ton/yr
Formaldehyde:	4.01E-02 ton/yr
Hexane:	9.62E-01 ton/yr
Toluene:	1.82E-03 ton/yr
Total:	1.02E+00 ton/yr