



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant
DATE: August 30, 2005
RE: Praxair, Inc. / 089-21039-00435
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 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, 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 4-21.5-3-7 and IC 13-15-7-3 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 Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) 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.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impracticable to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
401 M Street
Washington, D.C. 20406

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.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

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Mr. Murray Covello
Praxair, Inc.
P. O. Box 712
Whiting, IN 46394

August 30, 2005

Re: 089-21039-00435
Second Significant Permit Modification to
Part 70 Permit No.: 089-11102-00435

Dear Mr. Covello:

Praxair, Inc. was issued a Part 70 permit on April 15, 2002, for the operation of a industrial gas manufacturing source. An application to modify the permit was received by the Office of Air Quality (OAQ) on March 9, 2005. Pursuant to the provisions of 326 IAC 2-7-12 a significant permit modification to this permit is hereby approved as described in the attached Technical Support Document.

All other conditions of the permit shall remain unchanged and in effect

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, Indianapolis, Indiana, 46204, or at 973-575-2555, extension 3252, or dial 1-800-451-6027, extension 3-6878.

Sincerely,

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

Attachments
AY / EVP

cc: File – Lake County
U.S. EPA, Region V
Lake County Health Department
Air Compliance Section Inspector – Ramesh Tejuja
Compliance Data Section
Administrative and Development
Technical Support and Modeling
IDEM Northwest Regional Office





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Indianapolis, Indiana 46204
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PART 70 OPERATING PERMIT OFFICE OF AIR QUALITY

**Praxair, Inc.
2551 Dickey Road
East Chicago, Indiana 46312**

(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.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

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

Operation Permit No.: T089-11102-00435	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Quality	Issuance Date: April 15, 2002 Expiration Date: April 15, 2007
First Administrative Amendment No.: 089-16195-00435, issued on August 9, 2002 First Significant Permit Modification No.: 089-17479-00435, issued on July 11, 22003 Second Administrative Amendment No.: 089-18694-00435, issued on April 23, 2004	
Significant Permit Modification: SPM 089-21039-00435	Pages Affected: 2, 5-7, 9, 20, 23, 25, 27-28, 30-37, and 44-46
Issued by: Original signed by Paul Dubenetzkyy, Branch Chief Office of Air Quality	Issuance Date: August 30, 2005

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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 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary industrial gas manufacturing source.

Responsible Official:	Dennis Maxwell
Source Address:	2551 Dickey Road, East Chicago, Indiana 46312
Mailing Address:	P.O. Box 712, Whiting, Indiana 46394
General Source Phone Number:	(219) 398-3777
SIC Code:	2813
County Location:	Lake
Source Location Status:	Nonattainment for ozone under the 1-hour and 8 hour standard Primary Nonattainment for SO ₂ Attainment for all other criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules Major Source, under Emission Offset Rules Minor Source, Section 112 of the Clean Air Act

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

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

- (a) One (1) steam methane Reformer No. 1, identified as A3 and installed in 1991, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 45 million British thermal units (MMBtu) per hour, exhausting at one (1) stack identified as SV003. During Reformer No. 1 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 006.
- (b) One (1) steam methane Reformer No. 2, identified as A8 and installed in 1998, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 37.1 MMBtu per hour, exhausting at one (1) stack identified as S/V 008. During Reformer No. 2 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 010.
- (c) One (1) steam methane Reformer No. 3, identified as A11 and installed in 1999, equipped with a low NOx burner and selective catalytic reduction (SCR) for NOx pollution control, using a mixture of process tail gas and natural gas as fuel and rated at 83.8 MMBtu per hour, exhausting at one (1) stack identified as S/V 011. During Reformer No. 3 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 012;

- (d) One (1) carbon dioxide (CO₂) purification system, identified as A9 and installed in 1998, recovering and purifying CO₂ generated by reformers A3, A8 and A11, with a process design rate of 154,000 standard cubic feet per hour (SCFH) of feed gas. The by-product stream from the system continuously exhausts through one (1) stack identified as S/V 014, with a maximum design flow rate of 5,065 SCFH and containing no more than 1.52 percent (%) by volume of carbon monoxide (CO). When the carbon dioxide purification system is not operating, the feed gas generated from reformers A3, A8 and A11 will exhaust through one (1) stack identified as S/V 009, at maximum design flow rate of 154,000 SCFH and containing no more than 0.052% by volume of CO.
- (e) One (1) natural gas fired Boiler No. 3, identified as A7 and installed in 1998, rated at 38.8 MMBtu per hour, and exhausting at one (1) stack identified as S/V 007.
- (f) One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NO_x burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as S/V 017. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 016.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

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

- (a) Emergency generators as follows: diesel generators not exceeding 1600 horsepower, including:
 - (1) One (1) 100 kilowatt emergency generator, identified as A13 and installed in 1999, driven by a 154 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 013. [326 IAC 2-3]
 - (2) One (1) 320 kilowatt emergency generator, identified as A15 and installed in 1999, driven by a 519 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 015. [326 IAC 2-3]
- (b) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour, including:
 - (1) One (1) natural gas fired No. Boiler 1, identified as A1 and installed in 1978, rated at 5.3 MMBtu per hour, and exhausting at one (1) stack identified as SV001. [326 IAC 6-2-2]
 - (2) One (1) natural gas fired No. Boiler 2, identified as A2 and installed in 1978, rated at 5.3 MMBtu per hour, and exhausting at one (1) stack identified as SV002. [326 IAC 6-2-2]
- (c) The following volatile organic compound (VOC) and hazardous air pollutant (HAP) storage containers:

Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons, including three (3) diesel fuel oil storage tanks, identified as T001, T002 and T004, with storage capacities of 250 gallons, 55 gallons, and 200 gallons, respectively. [326 IAC 8-9]

- (d) Other categories with emissions below insignificant thresholds:

Diesel fuel oil storage tank T005 with storage capacity of 2,000 gallons and annual throughput less than 12,000 gallons. [326 IAC 8-9]

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

- (b) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ, may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). Upon request, the Permittee shall also furnish to IDEM, OAQ, copies of records required to be kept by this permit or, for information claimed to be confidential, the Permittee may furnish such records directly to the U. S. EPA along with a claim of confidentiality. [326 IAC 2-7-5(6)(E)]
- (c) The Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Compliance with Permit Conditions [326 IAC 2-7-5(6)(A)] [326 IAC 2-7-5(6)(B)]

- (a) The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for:
 - (1) Enforcement action;
 - (2) Permit termination, revocation and reissuance, or modification; or
 - (3) Denial of a permit renewal application.
- (b) Noncompliance with any provisions of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act.
- (c) It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (d) An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

B.9 Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

- (e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.23 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

- (a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

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

The application which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

B.24 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ, the applicable fee is due April 1 of each year.
- (b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-0425 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.25 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

- (f) **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 that the inspector be accredited, pursuant to the provisions of 40 CFR 61, Subpart M, is federally enforceable.

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

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

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

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

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ, not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

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

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements. 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.

C.13 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

- (a) Whenever a condition in this permit requires the measurement of a gas flow rate or content (as constituent percentage), or temperature, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (± 2%) of full scale reading.
- (b) The Permittee may request the IDEM, OAQ approve the use of another instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of specified parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.14 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on September 5, 2000.
- (b) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.
- (c) Upon direct notification by IDEM, OAQ, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level.
[326 IAC 1-5-3]

C.15 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68.215]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

- (3) An automatic measurement was taken when the process was not operating.
- (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (e) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.17 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]
[326 IAC 2-7-6]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

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

C.18 Emission Statement [326 IAC 2-7-5(3)(C)(iii)] [326 IAC 2-7-5(7)] [326 IAC 2-7-19(c)]
[326 IAC 2-6]

- (a) In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), the Permittee shall submit by July 1 an emission statement covering the previous calendar year as follows:

- (1) starting in 2007 and every three (3) years thereafter, and
 - (2) any year not already required under (1) if the source emits volatile organic compounds or oxides of nitrogen into the ambient air at levels equal to or greater than twenty-five (25) tons during the previous calendar year.
- (b) The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

The emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue,
Indianapolis, Indiana 46204

The emission statement does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) The emission statement 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.19 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

- (a) Records of all required data, reports and support information 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 kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.20 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

- (a) The source shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.1

FACILITY OPERATION CONDITIONS

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

- (a) One (1) steam methane Reformer No. 1, identified as A3 and installed in 1991, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 45 million British thermal units (MMBtu) per hour, exhausting at one (1) stack identified as SV003. During Reformer No. 1 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 006.
- (b) One (1) steam methane Reformer No. 2, identified as A8 and installed in 1998, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 37.1 MMBtu per hour, exhausting at one (1) stack identified as S/V 008. During Reformer No. 2 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 010.
- (c) One (1) steam methane Reformer No. 3, identified as A11 and installed in 1999, equipped with a low NOx burner and selective catalytic reduction (SCR) for NOx pollution control, using a mixture of process tail gas and natural gas as fuel and rated at 83.8 MMBtu per hour, exhausting at one (1) stack identified as S/V 011. During Reformer No. 3 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 012;
- (d) One (1) carbon dioxide (CO₂) purification system, identified as A9 and installed in 1998, recovering and purifying CO₂ generated by reformers A3, A8 and A11, with a process design rate of 154,000 standard cubic feet per hour (SCFH) of feed gas. The by-product stream from the system continuously exhausts through one (1) stack identified as S/V 014, with a maximum design flow rate of 5,065 SCFH and containing no more than 1.52 percent (%) by volume of carbon monoxide (CO). When the carbon dioxide purification system is not operating, the feed gas generated from reformers A3, A8 and A11 will exhaust through one (1) stack identified as S/V 009, at maximum design flow rate of 154,000 SCFH and containing no more than 0.052% by volume of CO.
- (e) One (1) natural gas fired Boiler No. 3, identified as A7 and installed in 1998, rated at 38.8 MMBtu per hour, and exhausting at one (1) stack identified as S/V 007;
- (f) One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as S/V 017. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 016.

The following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Emergency generators as follows: diesel generators not exceeding 1600 horsepower, including:
 - (1) One (1) 100 kilowatt emergency generator, identified as A13 and installed in 1999, driven by a 154 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 013. [326 IAC 2-3]
 - (2) One (1) 320 kilowatt emergency generator, identified as A15 and installed in 1999, driven by a 519 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 015. [326 IAC 2-3]

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

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

Pursuant to 326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating: Emission Limitations for Facilities Specified in 326 IAC 6-2-1 (d)), the PM emissions from the 38.8 MMBtu per hour heat input Boiler No. 3, identified as A7, shall be limited to 0.395 pounds per MMBtu heat input.

This limitation is based on the following equation:

$$Pt = 1.09 / Q^{0.26} \quad \text{where: } Pt = \text{pounds of PM emitted per MMBtu heat input (lb/MMBtu)} \\ Q = \text{total source operating capacity (MMBtu/hr)}$$

D.1.2 PSD Minor Limit [326 IAC 2-2]

The source shall comply as follows:

- (a) The total carbon monoxide (CO) production rate from process vent stacks of Reformer Nos. 1, 2, 3, and 4 (S/V 006, 010, 012, and 016, respectively) shall be limited to 5.1361 million standard cubic feet (MMscf) per twelve (12) consecutive month period, based on:
 - (1) CO density of 0.072 pounds per cubic foot of gas produced at standard conditions (i.e., 1 atmosphere of pressure and 70 degrees Fahrenheit temperature).
 - (2) CO concentrations established through performance testing pursuant to Condition D.1.6(b) for each process vent connected to, and exhausting at, stacks S/V 006, 010, 012, and 016 during startup of Reformers 1, 2, 3, and 4, respectively. Process vent CO concentrations shall be adjusted as necessary based on the results of the most recently approved performance test.
- (b) Instrumentation that continuously computes the amount of CO vented at each process vent connected to stacks S/V 006, 010, 012, and 016 as a function of the duration of vent valve opening, shall be permanently installed on Reformer Nos. 1, 2, 3, and 4 and shall be tested in accordance with Condition D.1.6(b).
- (c) This production limit is equivalent to limiting total CO emissions from the process vent stacks of Reformer Nos. 1, 2, 3, and 4 (S/V 006, 010, 012, and 016, respectively) to 184.9 tons per 12 consecutive month period. Compliance with this condition shall limit the source-wide potential to emit CO to less than 250 tons per 12 consecutive month period, including the potential to emit CO for other existing facilities. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2, do not apply.

D.1.3 Emission Offset Minor Limit [326 IAC 2-3]

The source shall comply as follows:

- (a) The total amount of NO_x emitted from Reformer Nos. 1, 2, 3, and Boiler No. 3, shall be limited to thirty-one and thirty-nine one-hundredths (31.95) tons per twelve (12) consecutive month period, derived from Equation (1) below. Compliance with this limit shall be determined through an equivalent fuel usage limit of 1972 million standard cubic feet (MMscf) per 12 consecutive month period using Equation (2). The algebraic formulae follow:

Equation (1):

32.4 AA + 9.42 BB + 25 NN # 63,900 pounds NO_x per 12 consecutive month period

where: AA = Reformer Nos1 & 2 annual fuel consumption (MMscf/12-months)
BB = Reformer No.3 annual fuel consumption (MMscf/12-months)
NN = Boiler No.3 annual fuel consumption (MMscf/12-months)
32.4 = Reformer Nos. 1 and 2 emission factor in pounds NO_x per million standard cubic feet (MMscf) of fuel consumed (lb NO_x / MMscf)
9.42 = Reformer No. 3 emission factor (lb NO_x / MMscf)
25 = Boiler No. 3 emission factor (lb NO_x / MMscf)

Equation (2):

AA + 0.291 BB + 0.772 NN # 1,972 equivalent MMscf per 12 consecutive months

The fuel usage limit of Equation (2) is an equivalent reduced form of Equation (1), derived using a common divisor of 32.4 pounds of NO_x per MMscf. Therefore, compliance with the fuel usage limit established in Equation (2) shall satisfy the NO_x limit of 31.95 tons per 12 consecutive month period.

- (b) The annual fuel consumption at Reformer Nos. 1, 2, and 3, as natural gas plus tail gas, input to Equation (2) shall be determined using Equations (3) and (4) as follows:

Equation (3):

AA = 1.073 * Fd1 + 1.147 * Fd2

Equation (4):

BB = 1.273 * Fd3

where: Fd1 = natural gas feedstock flow to Reformer No. 1 in MMscf/12-months
Fd2 = natural gas feedstock flow to Reformer No. 2 in MMscf/12-months
Fd3 = natural gas feedstock flow to Reformer No. 3 in MMscf/12-months

- (c) The coefficients in Equations (1), (2), (3), and (4) shall be adjusted as necessary, based on the results of the most recent performance test. If other coefficients are relied upon after issuance of this permit, the Permittee shall submit a request to IDEM, OAQ to amend this permit before utilization of the coefficients.
- (d) The two (2) emergency generators A13 and A15 will limit combined NO_x emissions to 1.56 tons per year by limiting the operating hours of the respective 100 kW and 320 kW emergency generators to 150 hours per 12 consecutive month period each.

These limitations are equivalent to a NO_x emissions increase of less than 40 tons per twelve (12) consecutive month period due to the source modification, based on 7.96 tons per year of actual NO_x emissions prior to the modification. Therefore, the Emission Offset rules, 326 IAC 2-3, do not apply.

D.1.4 Ammonia Limitation

Pursuant to 326 IAC 2-1.1-5 (Air Quality Requirements), the concentration of ammonia at the Reformer No. 3 exhaust stack (S/V 011) shall not exceed twenty (20) parts per million by volume, dry (ppmvd) at three percent (3%) oxygen.

D.1.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

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

Compliance Determination Requirements

D.1.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

- (a) During the period within 90 days after issuance of this permit, and utilizing applicable methods as approved by the Commissioner, the Permittee shall establish:
- (1) the maximum ammonia injection rate for compliance with Condition D.1.4; and
 - (2) the coefficients and constant of Equation (6) of Condition D.1.7(b).
- (b) The Permittee shall perform testing which shall be conducted in accordance with Section C - Performance Testing and, except for the schedule stated at (b)(3)(B) of this condition, such testing shall be performed during the period between 36 and 42 months after issuance of this permit as follows:
- (1) **Carbon monoxide (CO):**
In order to demonstrate compliance with Condition D.1.2, the Permittee shall perform carbon monoxide (CO) testing utilizing methods as approved by the Commissioner, to determine the CO composition in the gas upstream of the PSA units of Plant Nos. 1, 2, 3, and 4; and in the feed stream to the carbon dioxide liquefier, which is the same stream as that venting through S/V 009 when the carbon dioxide liquefier is not operating.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.
 - (2) **Nitrogen Oxides (NO_x):**
In order to demonstrate compliance with Condition D.1.3, the Permittee shall:
 - (A) Perform nitrogen oxides (NO_x) testing at Reformer Nos. 1, 2 and 3 and Boiler No. 3 exhaust stacks (S/V 003, 008, 011 and 007, respectively) utilizing methods as approved by the Commissioner.
 - (B) Determine the ratios of natural gas plus tail gas usage to the natural gas feedstock flow for each of Reformer Nos. 1, 2 & 3.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.
 - (3) **Selective Catalytic Reduction (SCR) Unit:**
In order to demonstrate compliance with Conditions D.1.3 and D.1.4, the Permittee shall:
 - (A) Test for the following using applicable methods as approved by the Commissioner:
 - (i) ammonia injection rate at the Reformer No. 3 SCR NO_x control system;
 - (ii) ammonia concentration at stack S/V011;
 - (iii) Reformer No. 3 operating rate fraction, as a fraction of the reformer design firing rate;

- (iv) SCR system downstream temperature (EF); and
- (v) average percent (%) oxygen (O₂) in the flue gas of the two (2) Reformer No. 3 cans, on a wet basis.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.

- (B) During the period between 18 to 24 months after issuance of this permit, the Permittee shall test the SCR catalyst for degradation to confirm the efficiency of the control device. As recommended by the SCR vendor, this test shall be repeated at least once every two (2) years from the date of this valid compliance demonstration.
- (c) Within 180 days after initial start-up of the Hydrogen Plant No. 4, the Permittee shall perform CO and NO_x testing on Reformer No. 4 utilizing methods as approved by the commissioner. This test shall be repeated at least once every five years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

D.1.7 Selective Catalytic Reduction (SCR) System

The Permittee shall operate the Reformer No. 3 SCR control system as follows:

- (a) In order to comply with Condition D.1.3, the minimum SCR control system downstream temperature shall not be less than 550 degrees Fahrenheit (EF), and the rate of ammonia (NH₃) injected to the SCR unit shall not be less than that determined by performance testing and shall be continuously computed using Equation (5) as follows:

Equation (5):

$$\text{NH}_3 \text{ injection rate (pounds per hour)} = (0.328 + 1.258 \cdot \text{O}_2) \cdot \text{ORF}$$

where: O₂ = average percent (%) oxygen (O₂) in the flue gas of the two (2) Reformer No. 3 cans, on a wet basis, and

ORF = Reformer No. 3 operating rate fraction (ORF), expressed as a fraction of the reformer design firing rate.

- (b) In order to comply with Condition D.1.4, the rate of ammonia (NH₃) injected to the SCR unit shall be maintained at a level that does not exceed that determined by performance testing and shall be continuously computed using Equation (6):

Equation (6):

$$\text{NH}_3 \text{ injection rate (pounds per hour)} = (0.668 + 1.258 \cdot \text{O}_2) \cdot \text{ORF}$$

where: O₂ = average percent (%) oxygen (O₂) in the flue gas of the two (2) Reformer No. 3 cans, on a wet basis

ORF = Reformer No. 3 operating rate fraction (ORF), expressed as a fraction of the reformer design firing rate

- (c) The coefficients in Equations (5) and (6) shall be adjusted as necessary, based on the results of the most recent performance test approved by IDEM, OAQ. If other coefficients are relied upon after issuance of this permit, the Permittee shall submit a request to IDEM, OAQ, to modify this permit before utilization of the coefficients.
- (d) Reformer No. 3 SCR system shall operate at all times that the process is in operation. When operating, the SCR system shall maintain ammonia injection rates within the range determined from the most recent compliance stack test, as approved by IDEM. The minimum ammonia injection rate correlates to a NO_x reduction efficiency (percent, %)

determined from the latest performance test.

D.1.8 CO and NO_x Emissions

Compliance with Conditions D.1.2 and D.1.3 shall be demonstrated within 30 days of the end of each month, respectively based on the total carbon monoxide (CO) produced and the total fuel usage for the most recent twelve (12) month period.

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

D.1.9 Parametric Monitoring

- (a) A continuous monitoring system shall be calibrated, maintained, and operated on each process vent connected to, and exhausting at, stacks S/V 006, 010, 012, and 016 during startup of Reformers 1, 2, 3, and 4, respectively, for measuring duration of vent valve openings. The output of this system shall be recorded to continuously compute the amount of carbon monoxide vented to demonstrate compliance with Condition D.1.2.
- (b) A continuous monitoring system shall be calibrated, maintained, and operated on Reformer No. 3 for measuring:
 - (1) the oxygen content (percent, %) in the flue gas of the two reformer cans, on a wet basis;
 - (2) the capacity of the facility as a fraction of the design firing rate;
 - (3) the SCR system downstream temperature (EF); and
 - (4) the amount of ammonia injected to the facility's selective catalytic reduction (SCR) system.

The output of this system shall be recorded, and the minimum downstream temperature and ammonia injection rate shall not be less than the minimum temperature and injection rate established at D.1.7(a), nor greater than the maximum injection rate established at D.1.7(b), based on the most recent compliance stack test.

- (c) The Permittee shall take all reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for these units when the temperature or ammonia injection rate is outside the above mentioned range for any one reading. A temperature or ammonia injection rate reading that is outside of the above mentioned range is not a deviation from the permit. 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.
- (d) The instruments used for determining parameter measurements shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months. Calibration of the reformer process vent valve monitoring system shall include a procedure that verifies functionality of open/closed valve operations.
- (e) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.10 Record Keeping Requirements

- (a) Pursuant to 40 CFR Part 60.48c (Reporting and Record Keeping Requirements):
- (1) Records shall be maintained of the amount of natural gas combusted during each month by Boiler No. 3, rated at 38.8 million Btu per hour. [40 CFR Part 60.48c(g)]
 - (2) These records shall be maintained for a period of at least the past 24 months and be made available upon request to the Office of Air Quality (OAQ). [40 CFR Part 60.48c(i)]
- (b) To document compliance with Conditions D.1.2, D.1.3, and D.1.4, the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (5) shall be taken continuously, except where otherwise indicated. Including paragraph (a)(1) of this condition, the records shall be complete and sufficient to establish compliance with the CO and NO_x emission limits respectively established in Conditions D.1.2 and D.1.3, and the ammonia emission limit of D.1.4.
- (1) The continuous records for Reformer Nos. 1, 2, 3, and 4 as follows:
 - (A) vent valve opening duration for each process vent connected to, and exhausting at, stacks S/V 006, 010, 012, and 016 during startup of Reformers 1, 2, 3, and 4 respectively; and
 - (B) carbon monoxide production at Reformer Nos. 1, 2, 3, and 4 process vent stacks (S/V006, 010, 012, and 016, respectively) and the continuously computed amount of carbon monoxide emitted.
 - (2) The continuous records for Reformer No. 3 as follows:
 - (A) average flue gas oxygen content of the reformer cans (percent, %, wet);
 - (B) capacity as a fraction of design firing rate;
 - (C) continuous records of the SCR system downstream temperature (EF); and
 - (D) ammonia injection rate (pounds per hour) to the SCR system and the minimum and maximum ammonia injection rate used to demonstrate compliance during the most recent compliance stack test.
 - (3) The continuous records for Reformer Nos. 1, 2, 3, and 4 as follows:
 - (A) feedstock flow rate (standard cubic feet per hour); and
 - (B) continuously computed fuel (as natural gas plus tail gas) consumption rate and facility ratios of natural gas plus tail gas to feedstock flow rate used to demonstrate compliance during the most recent compliance stack test.
 - (4) The amount of carbon monoxide (CO) emitted for each compliance period (tons per month).

- (5) The amount of nitrogen oxides (NO_x) emitted for each compliance period (tons per month).
- (c) To document compliance with Conditions D.1.5 and D.1.9, the Permittee shall maintain a log of those inspections prescribed by the Preventive Maintenance Plan.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.11 Reporting Requirements

The Permittee shall submit the following:

- (a) A quarterly summary of the information to document compliance with Conditions D.1.2 and D.1.3.
- (b) Certify semi-annually on the form provided that natural gas was fired in Boiler 3 at all times during the reporting period.

The reports shall be submitted to the addresses 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 period being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.2

FACILITY OPERATION CONDITIONS

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

The following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (b) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour, including:
 - (1) One (1) natural gas fired Boiler No. 1, identified as A1 and installed in 1978, rated at 5.3 MMBtu per hour, and exhausting at one (1) stack identified as SV001.
 - (2) One (1) natural gas fired Boiler No. 2, identified as A2 and installed in 1978, rated at 5.3 MMBtu per hour, and exhausting at one (1) stack identified as SV002.
- (c) The following volatile organic compound (VOC) and hazardous air pollutant (HAP) storage containers:

Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons, including three (3) diesel fuel oil storage tanks, identified as T001, T002, and T004, with storage capacities of 250 gallons, 55 gallons, and 200 gallons, respectively. [326 IAC 8-9]
- (d) Other categories with emissions below insignificant thresholds:

Diesel fuel oil storage tank T005 with storage capacity of 2,000 gallons and annual throughput less than 12,000 gallons. [326 IAC 8-9]

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

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Particulate Matter (PM) [326 IAC 6-2-2]

Pursuant to 326 IAC 6-2-2 (Particulate Matter Emission Limitations for Sources of Indirect Heating: Emission Limitations for Facilities Specified in 326 IAC 6-2-1(a)), the PM emissions from each of 5.3 MMBtu per hour heat input Boiler Nos. 1 and 2, respectfully identified as A1 and A2, shall be limited to 0.596 pounds per MMBtu heat input.

This limitation is based on the following equation:

$$P_t = 0.87 / Q^{0.16} \quad \text{where: } P_t = \text{pounds of PM emitted per MMBtu heat input (lb/MMBtu)}$$

$Q = \text{total source maximum operating capacity rating (MMBtu/hr)}$

Compliance Determination Requirement

There are no applicable compliance determination conditions, including compliance testing, for these facilities.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION
 100 North Senate Avenue / Indianapolis, Indiana 46204**

Part 70 Quarterly Report

Source Name: Praxair, Inc.
 Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
 Permit No.: T089-11102-00435
 Facility: Boiler #3, Reformer #1, Reformer #2, and Reformer #3
 Parameter: Nitrogen Oxides (NO_x), as equivalent fuel usage
 Limit: Total fuel usage at Reformer Nos.1, 2, 3, and Boiler No.3 shall be limited to 1,972 equivalent million standard cubic feet (MMscf) per twelve (12) consecutive month period, determined from Equation (2) of Condition D.1.3 as follows:

Equation (2):

$AA + 0.291 BB + 0.772 NN \# 1,972$ equivalent MMscf per 12 consecutive months

where: AA = Reformer Nos.1 and 2 annual fuel (as natural gas plus tail gas) consumption in MMscf
 = $1.073 * Fd1 + 1.147 * Fd2$
 BB = Reformer No.3 annual fuel (as natural gas plus tail gas) consumption in MMscf
 = $1.273 * Fd3$
 NN = Boiler No.3 annual fuel (as natural gas) consumption in MMscf
 ;Fd1 = natural gas feedstock flow to Reformer No. 1 in MMscf
 ;Fd2 = natural gas feedstock flow to Reformer No. 2 in MMscf
 ;Fd3 = natural gas feedstock flow to Reformer No. 3 in MMscf

Year: _____

Month	Fuel Usage This Month (MMscf)						Total Fuel Usage (AA+0.291BB+0.772NN)		
	Reformer Nos. 1 & 2			Reformer No. 3		Boiler No. 3 (NN)	Total Fuel This Month (AA+0.291BB+0.772NN)	Previous 11 Months (MMscf)	Total 12 Months (MMscf)
	Fd1	Fd2	AA	Fd3	BB				
Month 1									
Month 2									
Month 3									

- 9 No deviation occurred in this month.
- 9 Deviation(s) occurred in this month.
 Deviation has been reported on: _____

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

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION
 100 North Senate Avenue / Indianapolis, Indiana 46204**

Part 70 Quarterly Report

Source Name: Praxair, Inc.
 Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
 Permit No.: T089-11102-00435
 Facility: Reformer Nos. 1, 2, 3, and 4 process vent stacks (S/V 006, 010, 012, and 016, respectively)
 Parameter: Carbon Monoxide (CO)
 Limit: Total CO production rate shall be limited to 5.1361 million standard cubic feet (MMscf) per twelve (12) consecutive month period, based on:
 (1) CO density of 0.072 pounds per cubic foot of gas produced at standard conditions (i.e., 1 atmosphere of pressure and 70 degrees Fahrenheit temperature).
 (2) CO concentrations established through performance testing pursuant to Condition D.1.6 (a) for each process vent connected to, and exhausting at, stacks S/V 006, 010, 012, and 016 during startup of Reformers 1, 2, 3, and 4, respectively. Process vent CO concentrations shall be adjusted as necessary based on the results of the most recently approved performance test.
 (3) Instrumentation that continuously computes the amount of CO vented at each process vent connected to stacks S/V 006, 010, 012, and 016 as a function of the duration and amount of vent valve opening, shall be permanently installed on Reformer Nos. 1, 2, 3, & 4, and shall be periodically tested.

Year:

Month	Carbon Monoxide This Month								Total Carbon Monoxide (S/V006, 010 & 012)					
	Reformer 1 Vent (S/V006)		Reformer 2 Vent (S/V010)		Reformer 3 Vent (S/V012)		Reformer 4 Vent (S/V016)		Total (S/V006, 010, 012, & 016)		Previous 11 Months		Total 12 Months	
	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)
Month 1														
Month 2														
Month 3														

- 9 No deviation occurred in this month.
- 9 Deviation(s) occurred in this month.
 Deviation has been reported on: _____

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

Praxair, Inc.
44 of 48
East Chicago, Indiana
11102-00435
Permit Reviewer: MH/EVP

Second Significant Permit Modification: 089-21039

Modified By: AY/EVP

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T089-

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION
100 North Senate Avenue
Indianapolis, Indiana 46204**

Part 70 Quarterly Report

Source Name: Praxair, Inc.
Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
Mailing Address: P.O. Box 712, Whiting, Indiana 46394
Part 70 Permit No.: T089-11102-00435
Facility: Emergency Generators A13 and A15
Parameter: Operating hours
Limit: The two (2) emergency generators A13 and A15 will limit the operating hours of the respective 100 kW and 320 kW units to 150 hours per 12 consecutive month period each.

Year: _____

Month	Operating Hours This Month		Operating Hours Previous 11 Months		Total Operating Hours 12 Months	
	A13	A15	A13	A15	A13	A15

- 9 No deviation occurred in this month.
- 9 Deviation(s) occurred in this month.
Deviation has been reported on:

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

Attach a signed certification to complete this report.

Indiana Department of Environmental Management Office of Air Quality

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

Source Background and Description

Source Name:	Praxair, Inc.
Source Location:	2551 Dickey Road, East Chicago, Indiana 46312
County:	Lake
SIC Code:	2813
Operation Permit No.:	T089-11102-00435
Operation Permit Issuance Date:	April 15, 2002
Source Modification No.:	089-20918-00435
Permit Modification No.:	089-21039-00435
Permit Reviewer:	Adeel Yousuf/EVP

The Office of Air Quality (OAQ) has reviewed a modification application from Praxair, Inc. relating to the operation of this existing industrial gas manufacturing source.

History

On March 9, 2005, Praxair, Inc. submitted an application to the OAQ requesting a permit modification to construct and operate Hydrogen Plant No. 4. Praxair, Inc. was issued Part 70 Operating Permit No. T089-11102-00435 on April 15, 2002.

Permitted Emission Units and Pollution Control Equipment

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

- (a) One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NO_x burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as A17. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as A16.

Insignificant Activities for the Modification

The modification also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Activities or categories not previously identified with emissions less than or equal to insignificant thresholds:

Deaerator unit for Hydrogen Plants No. 1, 2, 3 and 4, identified as A19, A20, A21, and A18, respectively.

Existing Approvals

The source was issued a Part 70 Operating Permit T089-11102-00435 on April 15, 2002. The source has since received the following:

- (a) First Administrative Amendment No.: 089-16195-00435, issued on August 9, 2002.
- (b) First Significant Permit Modification No.: 089-17479-00435, issued on July 11, 2003.
- (c) Second Administrative Amendment No.: 089-18694-00435, issued on April 23, 2004.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
A17	Reformer (ng and tail gas combustion)	100	5	44,500	325
A16	Reformer (startup Vent)	100	1	11,167	72

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification and Significant Permit Modification 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 9, 2005. Additional information was received on March 25, 2005 and April 1, 2005.

Emission Calculations

See Appendix A of this document for detailed emission calculations (four (4) pages).

Potential To Emit Before Controls For This Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source 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."

Pollutant	Potential To Emit (tons/year)
PM	1.80
PM-10	7.21
SO ₂	0.57
VOC	19.76
CO	108.64
NO _x	84.32

HAP's	Potential To Emit (tons/year)
Hexane	1.70
Formaldehyde	0.071
Methanol	0.60
Others	0.019
TOTAL	3.09

Justification for Modification

The Part 70 operating permit is being modified through both a Part 70 Significant Source Modification and Significant Permit Modification. These modifications are being performed based on the following justification:

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of NO_x is equal to or greater than 25 tons per year. Therefore, this modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4).
- (b) The proposed operating conditions shall be incorporated into the Part 70 Operating Permit as a Significant Permit Modification (No. 089-21039-00435) in accordance with 326 IAC 2-7-12(d). The Significant Permit Modification will give the source approval to operate the proposed emission units.

County Attainment Status

The source is located in Lake County.

Pollutant	Status
PM-10	Attainment
SO ₂	Primary Non-attainment
NO ₂	Attainment
1-hour Ozone	Severe Non-attainment
8-hour Ozone	Moderate Non-attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.

- (1) On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NOx threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Lake County has been designated as nonattainment in Indiana for the 1-hour ozone standard. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
 - (2) VOC and NOx emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Lake County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.
- (b) Lake County has been classified as attainment in Indiana for PM10, CO and Pb. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
 - (c) Lake County has been classified as primary nonattainment in Indiana for SO₂. Therefore, SO₂ emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.
 - (d) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

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

Pollutant	Emissions (tons/year)
PM	Not reported
PM-10	4.0
SO ₂	0.0
VOC	3.0
CO	41.0
NO ₂	25.0

- (a) This existing source is not an Emission Offset major stationary source because the potential to emit VOC is less than 25 tons/yr and the potential to emit of NOx is less than 100 tons/yr.
- (b) This existing source is not a PSD major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

(c) These emissions are based upon Indiana Air Emissions Summary Data for 2001.

Potential to Emit After Controls for the Modification

The table below summarizes the potential to emit, reflecting all limits, of the modified emission units after controls.

Process/facility	Potential to Emit (tons/year) of Modification After Issuance							
	PM	PM10	SO ₂	VOC	CO	NO _x	Single HAP	Total HAPs
Emergency Generators (A13 & A15) ^{(1), (2)}	0.04	0.04	0.03	0.52	0.11	0.52	0.00	0.00
Reformer No. 4 (Natural Gas and Process Gas Combustion)	1.80	7.21	0.57	18.46	9.84	84.32	1.70	1.79
Reformer No. 4 (Startup Emissions)	0.00	0.00	0.00	0.00	97.40	0.00	0.00	0.00
Deaerator Vents (A18, A19, A20, and A21) ⁽¹⁾	0.00	0.00	0.00	1.30	1.40	0.00	1.30	1.30
Total Emissions	1.84	7.25	0.60	20.28	108.75	84.84	1.70	3.09
PSD and Emission Offset Threshold Levels	250	250	40	25	250	100	N/A	N/A
Notes:								
(1) Insignificant Activity								
(2) Reflects the emission increase due to change in hours of operation from 100 to 150 hours per year for each generator. NO _x emissions from both generators were limited to less than 1.0 ton per year (based on 100 hours per year of operation) in CP 089-10413-00435, issued on June 2, 1999.								

- (a) This modification to an existing Emission Offset minor stationary source is not major because the emissions increase of VOC, CO, NO_x and SO₂ is less than the Emission Offset significant levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.
- (b) This modification to an existing PSD minor stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Potential to Emit After Controls for the Entire Source after Modification

The table below summarizes the total limited potential to emit of the significant and insignificant emission units for the entire source.

Process/facility	Potential to Emit (tons/year) of Modification After Issuance							
	PM	PM10	SO ₂	VOC	CO	NO _x	Single HAP	Total HAPs
Emergency Generators (A13 & A15) ⁽¹⁾	0.10 0.11	0.10 0.11	0.10	0.10 0.13	0.20 0.34	1.00 1.56 ⁽²⁾	0.00	0.00
Natural Gas Combustion in Boiler No. 3 & Process Gas Combustion in Reformer Nos. 1, 2 & 3	5.70	6.70	0.50	7.80	16.20	31.95	0.30	0.30
Reformer Nos. 1, 2, 3 & 4 Process Vent Stacks S/V 006, 010, 012 & 016	0.00	0.00	0.00	0.00	196.1 184.9 ⁽³⁾	0.00	0.00	0.00
CO2 Plant Vent Stack	0.00	0.00	0.00	0.00	32.2	0.00	0.00	0.00
Boiler NOs. 1 & 2, Emergency Generator A4 & Emergency Firewater Pump ⁽¹⁾	0.20	0.50	0.20	0.40	4.30	6.60	0.10	0.10
Reformer No. 4 (Natural and Process Gas combustion)	1.80	7.21	0.57	18.46	9.84	84.32	1.70	1.79
Deaerator Vents (A18, A19, A20, A21) ⁽¹⁾	0.00	0.00	0.00	1.30	1.40	0.00	1.30	1.30
Total Emissions	7.81	14.52	1.17	28.09 ⁽⁴⁾	249.18	124.43 ⁽⁴⁾	2.00	3.49
PSD and Emission Offset Threshold Levels	250	250	40	25	250	100	N/A	N/A
Notes:								
(1) Insignificant Activities.								
(2) Original NOx emission limit for the emergency generators (A13 and A15) is based on an annual operation time of 100 hours, in CP 089-10413-00435, issued on June 2, 1999. Total NOx emissions in CP 089-10413-00435 were limited to less than 25 tons per year (1.0 tons per year from generators + 23.9 tons per year from other units) to avoid the requirements of 326 IAC 2-3 (Emission Offset). However, IDEM, OAQ has determined that the source could have limited up to 40 tons per year due to the fact that the NOx waiver was in effect in 1999 before CP 089-10413-00435 was issued. Therefore, the operating hours for each generator can be relaxed from 100 to 150 hours per year without violating the Emissions Offset Rule (326 IAC 2-3).								
(3) CO emission limit for Reformer Nos. 1, 2, 3 & 4 is based on CP 089-10413-00435, issued on June 2, 1999. However, with the addition of one (1) new Reformer No. 4, Praxair, Inc. has proposed to accept a limit of 184.9 tons per year for all four (4) reformers No. 1, 2, 3, and 4. Therefore, the CO emission limit for startup vents has been adjusted from 196.1 to 184.9 tons per year.								
(4) With this modification the source's VOC and NOx emissions will exceed the 326 IAC 2-3 (Emission Offset) threshold for a major source. Therefore, after the issuance of this permit, this source will become major for 326 IAC 2-3 (Emission Offset).								

This existing minor stationary source will become major under 326 IAC 2-3 (Emission Offset) after this modification since the source wide VOC emissions are greater than 25 tons per year and the sourcewide NOx emissions are greater than 100 tons per year.

Federal Rule Applicability

- (a) The requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this modification. Such requirements apply to a pollutant-specific emissions unit (PSEU), as defined in 40 CFR 64.1, at a major source that is required to obtain a Part 70 or 71 permit if the PSEU meets the following criteria:
- (1) the unit is subject to an emission limitation or standard for an applicable regulated air pollutant,

- (2) the unit uses a control device as defined in 40 CFR 64.1 to comply with that emission limitation or standard, and
- (3) the unit has a potential to emit (PTE) before controls equal to or greater than 100 percent of the amount (tons per year) of the pollutant required for a source to be classified as a Part 70 major source.

This source was issued Part 70 Permit No. T089-11102-00435 on April 15, 2002. For this modification, no unit has potential pre-control emissions of a regulated air pollutant that are equal to or greater than 100 tons per year. Therefore, the requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this modification.

- (b) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) included in the modification to this source.
- (c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 61, and 326 IAC 20 and 40 CFR Part 63) included in the modification to this source.

State Rule Applicability - Entire Source

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

326 IAC 2-4.1-1 applies to new or reconstructed facilities with potential emissions of any single HAP equal to or greater than ten (10) tons per twelve (12) month period and potential emissions of a combination of HAPs greater than or equal to twenty-five (25) tons per twelve (12) month period. This modification is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because the potential to emit of single HAP and total HAPs is less than 10 and 25 tons per year, respectively.

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

This source was constructed in 1991, after the August 7, 1977 rule applicability date and modified in 1997 and 1999. The potential to emit of all attainment regulated pollutants from the existing emission units, after application of all federally enforceable emission limits, is less than 250 tons per year and this source is not one of the 28 listed source categories under this rule. Therefore, this source was an existing minor PSD source prior to commencing this modification. Under the CP 089-10413-00435, issued on June 2, 1999, the source accepted a limit of 196.1 tons per year on the total carbon monoxide (CO) emission rate from process vent stacks of Reformer Nos. 1, 2, and 3 (S/V 006, 010, and 012, respectively). However, with the addition of Reformer No. 4, the source has requested to adjust the CO emission limit from 196.1 to 184.9 tons per year. This CO emission limit which applies to Reformer No. 1, 2, 3, and 4 (S/V 006, 010, 012, and 016, respectively), is required to limit the source-wide potential to emit CO to less than 250 tons per 12 consecutive month period, including the potential to emit of CO for all other existing facilities. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable.

326 IAC 2-3 (Emission Offset)

This source is located in Lake County, which is a severe nonattainment area for the 1 hour ozone standard and a moderate nonattainment area for the 8-hour ozone standard. The potential to emit VOC from this source before this modification is less than 25 tons/yr and the potential to emit NOx from this source is less than 100 tons/yr. Therefore, the existing source is an Emission Offset minor source. However, after this modification this source will become a major source since the VOC emissions will exceed 25 tons per year and NOx emissions will exceed 100 tons per year.

In CP 089-10413-00435, issued on June 2, 1999, the total NOx emissions from the modification were limited to less than 25.0 tons per year (23.9 tons per year from natural gas combustion in boiler No. 3 and process gas combustion in Reformer Nos. 1, 2, and 3, + 1.0 tons per year from the emergency generators (A13 and A15)), to render the requirements of 326 IAC 2-3 not applicable. However, during this modification IDEM, OAQ has determined that the source could have limited the NOx emissions upto 40 tons per year because the NOx waiver was in effect for the Lake County in 1999 before the CP 089-10413-00435 was issued. Therefore, the source can add additional NOx emissions upto 15.1 tons per year (40 – 24.9 tons per year). Due to this modification, the source has requested to increase the annual operating hours for each emergency generator (A13 and A15) from 100 to 150 hours. As a result, the total NOx emissions from both generators will have additional NOx emissions of 0.52 tons per year, making the total NOx emissions increase in CP 089-10413-00435 to 25.42 tons per year without violating the Emission Offset Rule. Hence, this modification in operating hours of emergency generators (A13 and A15) makes 326 IAC 2-3 (Emission Offset) not applicable.

326 IAC 2-6 (Emission Reporting)

Since this source is required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, this source is subject to 326 IAC 2-6 (Emission Reporting). In accordance with the compliance schedule in 326 IAC 2-6-3, an emission statement must be submitted triennially by July 1 beginning in 2007 and every 3 years after. This source which is located in Lake County also has potential to emit greater than or equal to 25 tons of NOx and VOC; therefore, an emission statement covering the previous calendar year must be submitted by July 1 of any year that the source is not already required to submit a statement if the source emits NOx or VOC into the ambient air at levels equal to or greater than 25 tpy. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)

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

- (a) Opacity shall not exceed an average of twenty percent (20%) 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 8-1-6 (New Facilities, General Reduction Requirements)

326 IAC 8-1-6 applies to new facilities (as of January 1, 1980) which have potential emissions of 25 tons or more per year of volatile organic compounds (VOC). The potential VOC emissions from this modification are below the twenty-five (25) tons per year applicability threshold and therefore, none of the new units are subject to the requirements of 326 IAC 8-1-6.

326 IAC 8-6 (Organic Solvent Emission Limitations)

The source is located in Lake County and the potential to emit VOC from the entire source is less than one hundred (100) tons per year. Therefore, pursuant to 326 IAC 8-6-1 (1), the requirements of this rule do not apply.

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark and Floyd Counties)

The requirements of this rule apply to stationary sources located in Lake, Porter, Clark and Floyd Counties that emit or have the potential to emit VOCs at levels equal to or greater than 25 tons per year in Lake and Porter Counties; 100 tons per year in Clark and Floyd Counties; and to any coating facility that emits or has the potential to emit 10 tons per year or greater in Lake, Porter, Clark or Floyd County. The source is located in Lake County with PTE of VOC greater than 25 tons per year. However, this rule is not applicable to this source since this source is comprised of fuel combustion facilities emitting VOCs. The fuel combustion facilities are exempt pursuant to 326 IAC 8-7-2(a)(2).

326 IAC 9-1-2 (Carbon Monoxide Emission Limits)

The process vents are not subject to 326 IAC 9-1-2 (Carbon Monoxide Emission Limits). The process vents are not petroleum refining, ferrous metal smelters or refuse incinerator and burning equipment.

Testing Requirements

CO and NOx emissions from the natural gas and process gas combustion in Reformer No. 4 are calculated to be 9.8 and 84.3 tons per year, respectively. These emissions are based on the emission factors provided by the manufacturer of the Reformer No. 4. A stack test for Reformer No. 4 is required to verify the CO and NOx emission factors provided by the source. The results of required testing shall be used to confirm the CO and NOx emission factors used in this permit. If testing indicates an emission factor greater than the one used in emission calculations then the natural and process gas usage shall be adjusted to maintain the potential CO and NOx emissions as allowed in this permit.

Compliance Requirements

Permits issued under 326 IAC 2-7 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 2-7-5. 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 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 modification are as follows:

1. The Reformer No. 4 process vent stack has applicable compliance monitoring conditions as specified below:

Parametric Monitoring

- (a) A continuous monitoring system shall be calibrated, maintained, and operated on each process vent connected to, and exhausting at, stack S/V 016 during startup of Reformer No. 4, for measuring duration of vent valve openings. The output of this system shall be recorded to continuously compute the amount of carbon monoxide vented to demonstrate compliance with Condition D.1.2.
- (b) The instruments used for determining parameter measurements shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months. Calibration of the reformer process vent valve monitoring system shall include a procedure that verifies functionality of open/closed valve operations.
- (c) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

These monitoring conditions are necessary because Reformer No. 4, must operate properly to ensure compliance with 326 IAC 2-1.1-5 (Air Quality Requirements), 326 IAC 2-2 (PSD Minor Limit), 326 IAC 2-3 (Emission Offset Minor Limit) and 326 IAC 2-7 (Part 70).

Air Quality Impacts from Minor Sources

Modeling Overview

Pursuant to 326 IAC 2-1.1-5, IDEM, OAQ, has conducted a modeling analysis of the Limited Potential to Emit (PTE) criteria pollutants from this proposed modification to estimate whether the Limited PTE criteria pollutants will cause or contribute to a violation of any National Ambient Air Quality Standard (NAAQS).

Modeling Results – Criteria Pollutants

The modeling results indicate that the Limited PTE criteria pollutants from this modification will not exceed the National Ambient Air Quality Standards (NAAQS).

Changes Proposed

The changes listed below have been made to the Part 70 Operating Permit (T089-11102-00435).

1. The letterhead for the Title V permit has been revised to reflect the name of the new Governor of Indiana and the new Commissioner of IDEM. The P.O. box and the zip code on the cover page have been revised as well.
2. On April 15, 2004, the United States Environmental Protection Agency (U.S. EPA) named 23 Indiana counties and one partial county nonattainment for the new 8-hour ozone standard. The designations became effective on June 15, 2004. Lake County has been designated as nonattainment for the 8-hour ozone standard. The following has been added to A.1 General Information. In addition, the source status has been revised in regards to PSD, Emission Offset, and Section 112 of Clean Air Act.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary industrial gas manufacturing source.

Responsible Official:	Dennis Maxwell
Source Address:	2551 Dickey Road, East Chicago, Indiana 46312
Mailing Address:	P.O. Box 712, Whiting, Indiana 46394
General Source Phone Number:	(219) 398-3777
SIC Code:	2813
County Location:	Lake
Source Location Status:	Nonattainment for ozone, SO₂ and PM₁₀ under the 1-hour and 8-hour standard Primary Nonattainment for SO₂ Attainment for all other criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules and Major Source, under Emission Offset Rules Minor Source, Section 112 of the Clean Air Act

3. The equipment description in section A.2 has been revised as shown below. Section A.3 has been revised to remove one storage tank.

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

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

- (e) One (1) natural gas fired Boiler No. 3, identified as A7 and installed in 1999~~8~~, rated at 38.8 MMBtu per hour, and exhausting at one (1) stack identified as S/V 007.
- (f) **One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as A17. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as A16.**

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

- (c) The following volatile organic compound (VOC) and hazardous air pollutant (HAP) storage containers:

Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons, including four (4) diesel fuel oil storage tanks, identified as T001, T002, ~~T003~~ and T004, with storage capacities of 250 gallons, 55 gallons, ~~55 gallons~~ and 200 gallons, respectively. [326 IAC 8-9]

4. A statement was added to condition B.9, Certification, in order to clarify that the certification form may cover more than one document that is submitted.

B.9 Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. **One (1) certification may cover multiple forms in one (1) submittal.**
- (c) A responsible official is defined at 326 IAC 2-7-1(34).
5. Condition B.24, Annual Fee Payment, has been revised to show the correct name of the section that collects operating fees as follows:

B.24 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ, the applicable fee is due April 1 of each year.
- (b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, ~~Technical Support and Modeling~~ **Billing, Licensing, and Training Section**), to determine the appropriate permit fee.
6. In accordance with the credible evidence rule (62 Fed. Reg. 8314, Feb 24, 1997); Section 113(a) of the Clean Air Act, 42 U.S. C. § 7413 (a); and a letter from the United States Environmental Protection Agency (USEPA) to IDEM, OAQ dated May 18, 2004, all permits must address the use of credible evidence; otherwise, USEPA will object to the permits. The following language will be incorporated into the permit to address credible evidence:

B.25 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

7. Paragraph (c) of condition C.8, Performance Testing, has been revised as follows:

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

- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the ~~source~~ **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.

8. Condition C.15, Risk Management Plan, has been revised as follows:

C.15 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, ~~40 CFR 68 is an applicable requirement and the Permittee shall submit the Permittee~~ **must comply with the applicable requirements of 40 CFR 68.**

~~(a) A compliance schedule for meeting the requirements of 40 CFR 68; or~~

~~(b) As a part of the annual compliance certification submitted under 326 IAC 2-7-6(5), a certification statement that the source is in compliance with all the requirements of 40 CFR 68, including the registration and submission of a Risk Management Plan (RMP); and~~

~~(c) A Risk Management Plan was prepared as required by 40 CFR 68 and submitted to IDEM, OAQ on June 18, 1999.~~

~~All documents submitted pursuant to this condition shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).~~

9. The following revisions were made to Condition C.18, Emission Statement, to incorporate the revisions to 326 IAC 2-6 that became effective March 27, 2004. The revised rule was published in the April 1, 2004 Indiana Register.

C.18 Emission Statement [326 IAC 2-7-5(3)(C)(iii)] [326 IAC 2-7-5(7)] [326 IAC 2-7-19(c)] [326 IAC 2-6]

~~(a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual emission statement shall meet the following requirements: In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), the Permittee shall submit by July 1 an emission statement covering the previous calendar year as follows:~~

~~(1) Indicate estimated actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting); starting in 2007 and every three (3) years thereafter, and~~

~~(2) Indicate estimated actual emissions of other regulated pollutants (as defined by 326 IAC 2-7-1) from the source, for purposes of Part 70 fee assessment. any year not already required under (1) if the source emits volatile organic compounds or oxides of nitrogen into the ambient air at levels equal to or greater than twenty-five (25) tons during the previous calendar year.~~

~~(b) The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30. shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:~~

The ~~annual~~ emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6045
Indianapolis, Indiana 46204 ~~6-6045~~

and

The emission statement does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) The ~~annual~~ emission statement 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.
10. Section D.1 and associated quarterly report forms have been revised to include Reformer No. 4.

SECTION D.1

FACILITY OPERATION CONDITIONS

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

- (a) One (1) steam methane Reformer No. 1, identified as A3 and installed in 1991, equipped with a low NO_x burner, using a mixture of process tail gas and natural gas as fuel and rated at 45 million British thermal units (MMBtu) per hour, exhausting at one (1) stack identified as SV003. During Reformer No. 1 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 006.
- (b) One (1) steam methane Reformer No. 2, identified as A8 and installed in 1998, equipped with a low NO_x burner, using a mixture of process tail gas and natural gas as fuel and rated at 37.1 MMBtu per hour, exhausting at one (1) stack identified as S/V 008. During Reformer No. 2 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 010.
- (c) One (1) steam methane Reformer No. 3, identified as A11 and installed in 1999, equipped with a low NO_x burner and selective catalytic reduction (SCR) for NO_x pollution control, using a mixture of process tail gas and natural gas as fuel and rated at 83.8 MMBtu per hour, exhausting at one (1) stack identified as S/V 011. During Reformer No. 3 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as S/V 012;
- (d) One (1) carbon dioxide (CO₂) purification system, identified as A9 and installed in 1998, recovering and purifying CO₂ generated by reformers A3, A8 and A11, with a process design rate of 154,000 standard cubic feet per hour (SCFH) of feed gas. The by-product stream from the system continuously exhausts through one (1) stack identified as S/V 014, with a maximum design flow rate of 5,065 SCFH and containing no more than 1.52 percent (%) by volume of carbon monoxide (CO). When the carbon dioxide purification system is not operating, the feed gas generated from reformers A3, A8 and A11 will exhaust through one (1) stack identified as S/V 009, at maximum design flow rate of 154,000 SCFH and containing no more than 0.052% by volume of CO.
- (e) One (1) natural gas fired Boiler No. 3, identified as A7 and installed in 1999, rated at 38.8 MMBtu per hour, and exhausting at one (1) stack identified as S/V 007;
- (f) **One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NO_x burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as A17. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as A16.**

The following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Emergency generators as follows: diesel generators not exceeding 1600 horsepower, including:
 - (1) One (1) 100 kilowatt emergency generator, identified as A13 and installed in 1999, driven by a 154 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 013. [326 IAC 2-3]
 - (2) One (1) 320 kilowatt emergency generator, identified as A15 and installed in 1999, driven by a 519 horsepower diesel engine, combusting No. 2 diesel fuel oil, exhausting at one (1) stack identified as S/V 015. [326 IAC 2-3]

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

D.1.2 PSD Minor Limit [326 IAC 2-2]

~~Pursuant to CP 089-10413-00435, issued June 2, 1999, the~~ The source shall comply as follows:

- (a) The total carbon monoxide (CO) production rate from process vent stacks of Reformer Nos. 1, 2, ~~and 3, and 4~~ (S/V 006, 010, ~~and 012, and 016~~, respectively) shall be limited to ~~5.45~~ **5.1361** million standard cubic feet (MMscf) per twelve (12) consecutive month period, based on:
 - (1) CO density of 0.072 pounds per cubic foot of gas produced at standard conditions (i.e., 1 atmosphere of pressure and 70 degrees Fahrenheit temperature).
 - (2) CO concentrations established through performance testing pursuant to Condition D.1.6(b) for each process vent connected to, and exhausting at, stacks S/V 006, 010, ~~and 012, and 016~~ during startup of Reformers 1, 2 ~~and 3, and 4~~, respectively. Process vent CO concentrations shall be adjusted as necessary based on the results of the most recently approved performance test.
- (b) Instrumentation that continuously computes the amount of CO vented at each process vent connected to stacks S/V 006, 010, ~~and 012, and 016~~ as a function of the duration of vent valve opening, shall be permanently installed on Reformer Nos. 1, 2, ~~and 3, and 4~~ and shall be tested in accordance with Condition D.1.6(b).
- (c) This production limit is equivalent to limiting total CO emissions from the process vent stacks of Reformer Nos. 1, 2, ~~and 3, and 4~~ (S/V 006, 010, ~~and 012, and 016~~, respectively) to ~~496.4~~ **184.9** tons per 12 consecutive month period. Compliance with this condition shall limit the source-wide potential to emit CO to less than 250 tons per 12 consecutive month period, including the potential to emit CO for other existing facilities. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2, do not apply.

D.1.3 Emission Offset Minor Limit [326 IAC 2-3]

- (d) The two (2) emergency generators A13 and A15 will limit combined NO_x emissions to ~~4.0~~ **1.56** tons per year by limiting the operating hours of the respective 100 kW and 320 kW emergency generators to ~~400~~ **150** hours per 12 consecutive month period each.

These limitations are equivalent to a NO_x emissions increase of less than ~~25~~ **40** tons per twelve (12) consecutive month period due to the source modification, based on 7.96 tons per year of actual NO_x emissions prior to the modification. Therefore, the Emission Offset rules, 326 IAC 2-3, do not apply.

Compliance Determination Requirements

D.1.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

- (a) During the period within 90 days after issuance of this permit, and utilizing applicable methods as approved by the Commissioner, the Permittee shall establish:
 - (1) the maximum ammonia injection rate for compliance with Condition D.1.4; and
 - (2) the coefficients and constant of Equation (6) of Condition D.1.7(b).

(b) The Permittee shall perform testing which shall be conducted in accordance with Section C - Performance Testing and, except for the schedule stated at (b)(3)(B) of this condition, such testing shall be performed during the period between 36 and 42 months after issuance of this permit as follows:

(1) Carbon monoxide (CO):

In order to demonstrate compliance with Condition D.1.2, the Permittee shall perform carbon monoxide (CO) testing utilizing methods as approved by the Commissioner, to determine the CO composition in the gas upstream of the PSA units of Plant Nos. 1, 2, ~~and 3,~~ **and 4**; and in the feed stream to the carbon dioxide liquefier, which is the same stream as that venting through S/V 009 when the carbon dioxide liquefier is not operating.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.

(2) Nitrogen Oxides (NO_x):

In order to demonstrate compliance with Condition D.1.3, the Permittee shall:

(A) Perform nitrogen oxides (NO_x) testing at Reformer Nos. 1, 2 and 3 and Boiler No. 3 exhaust stacks (S/V 003, 008, 011 and 007, respectively) utilizing methods as approved by the Commissioner.

(B) Determine the ratios of natural gas plus tail gas usage to the natural gas feedstock flow for each of Reformer Nos. 1, 2 & 3.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.

(3) Selective Catalytic Reduction (SCR) Unit:

In order to demonstrate compliance with Conditions D.1.3 and D.1.4, the Permittee shall:

(A) Test for the following using applicable methods as approved by the Commissioner:

(i) ammonia injection rate at the Reformer No. 3 SCR NO_x control system;

(ii) ammonia concentration at stack S/V011;

(iii) Reformer No. 3 operating rate fraction, as a fraction of the reformer design firing rate;

(iv) SCR system downstream temperature (EF); and

(v) average percent (%) oxygen (O₂) in the flue gas of the two (2) Reformer No. 3 cans, on a wet basis.

Testing shall be repeated at least once every five years from the date of this valid compliance demonstration.

- (B) During the period between 18 to 24 months after issuance of this permit, the Permittee shall test the SCR catalyst for degradation to confirm the efficiency of the control device. As recommended by the SCR vendor, this test shall be repeated at least once every two (2) years from the date of this valid compliance demonstration.
- (c) **Within 180 days after initial start-up of the Hydrogen Plant No. 4, the Permittee shall perform CO and NOx testing on Reformer No. 4 utilizing methods as approved by the commissioner. This test shall be repeated at least once every five years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.**

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

D.1.9 Parametric Monitoring

- (a) A continuous monitoring system shall be calibrated, maintained, and operated on each process vent connected to, and exhausting at, stacks S/V 006, 010 and 012, **and 016** during startup of Reformers 1, 2 and 3, **and 4**, respectively, for measuring duration of vent valve openings. The output of this system shall be recorded to continuously compute the amount of carbon monoxide vented to demonstrate compliance with Condition D.1.2.
- (b) A continuous monitoring system shall be calibrated, maintained, and operated on Reformer No. 3 for measuring:
- (1) the oxygen content (percent, %) in the flue gas of the two reformer cans, on a wet basis;
 - (2) the capacity of the facility as a fraction of the design firing rate;
 - (3) the SCR system downstream temperature (EF); and
 - (4) the amount of ammonia injected to the facility's selective catalytic reduction (SCR) system.

The output of this system shall be recorded, and the minimum downstream temperature and ammonia injection rate shall not be less than the minimum temperature and injection rate established at D.1.7(a), nor greater than the maximum injection rate established at D.1.7(b), based on the most recent compliance stack test.

- (c) The Permittee shall take all reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for these units when the temperature or ammonia injection rate is outside the above mentioned range for any one reading. A temperature or ammonia injection rate reading that is outside of the above mentioned range is not a deviation from the permit. 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.
- (d) The instruments used for determining parameter measurements shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months. Calibration of the reformer process vent valve monitoring system shall include a procedure that verifies functionality of open/closed valve operations.

- (e) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.10 Record Keeping Requirements

- (a) Pursuant to 40 CFR Part 60.48c (Reporting and Record Keeping Requirements):
- (1) Records shall be maintained of the amount of natural gas combusted during each month by Boiler No. 3, rated at 38.8 million Btu per hour. [40 CFR Part 60.48c(g)]
 - (2) These records shall be maintained for a period of at least the past 24 months and be made available upon request to the Office of Air Quality (OAQ). [40 CFR Part 60.48c(i)]
- (b) To document compliance with Conditions D.1.2, D.1.3, and D.1.4, the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (5) shall be taken continuously, except where otherwise indicated. Including paragraph (a)(1) of this condition, the records shall be complete and sufficient to establish compliance with the CO and NO_x emission limits respectively established in Conditions D.1.2 and D.1.3, and the ammonia emission limit of D.1.4.
- (1) The continuous records for Reformer Nos. 1, 2, ~~and 3~~, **and 4** as follows:
 - (A) vent valve opening duration for each process vent connected to, and exhausting at, stacks S/V 006, 010, ~~and 012~~, **and 016** during startup of Reformers 1, 2, ~~and 3~~, **and 4** respectively; and
 - (B) carbon monoxide production at Reformer Nos. 1, 2, ~~and 3~~, **and 4** process vent stacks (S/V006, 010, ~~and 012~~, **and 016**, respectively) and the continuously computed amount of carbon monoxide emitted.
 - (2) The continuous records for Reformer No. 3 as follows:
 - (A) average flue gas oxygen content of the reformer cans (percent, %, wet);
 - (B) capacity as a fraction of design firing rate;
 - (C) continuous records of the SCR system downstream temperature (EF); and
 - (D) ammonia injection rate (pounds per hour) to the SCR system and the minimum and maximum ammonia injection rate used to demonstrate compliance during the most recent compliance stack test.
 - (3) The continuous records for Reformer Nos. 1, 2, ~~and 3~~, **and 4** as follows:
 - (A) feedstock flow rate (standard cubic feet per hour); and
 - (B) continuously computed fuel (as natural gas plus tail gas) consumption rate and facility ratios of natural gas plus tail gas to feedstock flow rate used to demonstrate compliance during the most recent compliance stack test.

- (4) The amount of carbon monoxide (CO) emitted for each compliance period (tons per month).
- (5) The amount of nitrogen oxides (NO_x) emitted for each compliance period (tons per month).
- (c) To document compliance with Conditions D.1.5 and D.1.9, the Permittee shall maintain a log of those inspections prescribed by the Preventive Maintenance Plan.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION
 100 North Senate Avenue / P.O. Box 6045 / Indianapolis, Indiana 462046-6045**

Part 70 Quarterly Report

Source Name: Praxair, Inc.
 Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
 Permit No.: T089-11102-00435
 Facility: Boiler #3, Reformer #1, Reformer #2, and Reformer #3
 Parameter: Nitrogen Oxides (NO_x), as equivalent fuel usage
 Limit: Total fuel usage at Reformer Nos.1, 2, 3, and Boiler No.3 shall be limited to 1,972 equivalent million standard cubic feet (MMscf) per twelve (12) consecutive month period, determined from Equation (2) of Condition D.1.3 as follows:

Equation (2):

$AA + 0.291 BB + 0.772 NN \# 1,972 \text{ equivalent MMscf per 12 consecutive months}$

where: AA = Reformer Nos.1 and 2 annual fuel (as natural gas plus tail gas) consumption in MMscf
 =1.073 * Fd1 + 1.147 * Fd2 ;Fd1 = natural gas feedstock flow to Reformer No. 1 in MMscf
 ;Fd2 = natural gas feedstock flow to Reformer No. 2 in MMscf
 BB = Reformer No.3 annual fuel (as natural gas plus tail gas) consumption in MMscf
 =1.273 * Fd3 ;Fd3 = natural gas feedstock flow to Reformer No. 3 in MMscf
 NN = Boiler No.3 annual fuel (as natural gas) consumption in MMscf

Year: _____

Month Month 1	Fuel Usage This Month (MMscf)						Total Fuel Usage (AA+0.291BB+0.772NN)		
	Reformer Nos. 1 & 2			Reformer No. 3		Boiler No. 3 (NN)	Total Fuel This Month (AA+0.291BB+0.772NN)	Previous 11 Months (MMscf)	Total 12 Months (MMscf)
	Fd1	Fd2	AA	Fd3	BB				
Month 2									
Month 3									

- 9 No deviation occurred in this month.
- 9 Deviation(s) occurred in this month.
 Deviation has been reported on: _____

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

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE DATA SECTION
 100 North Senate Avenue / P.O. Box 6015 / Indianapolis, Indiana 46204-6015**

Part 70 Quarterly Report

Source Name: Praxair, Inc.
 Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
 Permit No.: T089-11102-00435
 Facility: Reformer Nos. 1, 2, 3, **and 4** process vent stacks (S/V 006, 010, ~~and 012~~, **and 016**, respectively)
 Parameter: Carbon Monoxide (CO)
 Limit: Total CO production rate shall be limited to ~~5.45~~ **5.1361** million standard cubic feet (MMscf) per twelve (12) consecutive month period, based on:

- (1) CO density of 0.072 pounds per cubic foot of gas produced at standard conditions (i.e., 1 atmosphere of pressure and 70 degrees Fahrenheit temperature).
- (2) CO concentrations established through performance testing pursuant to Condition D.1.6 (a) for each process vent connected to, and exhausting at, stacks S/V 006, 010, ~~and 012~~, **and 016** during startup of Reformers 1, 2, ~~and 3~~, **and 4**, respectively. Process vent CO concentrations shall be adjusted as necessary based on the results of the most recently approved performance test.
- (3) Instrumentation that continuously computes the amount of CO vented at each process vent connected to stacks S/V 006, 010, ~~and 012~~, **and 016** as a function of the duration and amount of vent valve opening, shall be permanently installed on Reformer Nos. 1, 2, ~~and 3~~, **& 4**, and shall be periodically tested.

Year:

Month	Carbon Monoxide This Month								Total Carbon Monoxide (S/V006, 010 & 012)					
	Reformer 1 Vent (S/V006)		Reformer 2 Vent (S/V010)		Reformer 3 Vent (S/V012)		Reformer 4 Vent (S/V016)		Total (S/V006, 010, & 012, & 016)		Previous 11 Months		Total 12 Months	
	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)	CO Produced (MMscf)	CO Emitted (tons)
Month 1														
Month 2														
Month 3														

- 9 No deviation occurred in this month.
- 9 Deviation(s) occurred in this month.
 Deviation has been reported on: _____

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

Attach a signed certification to complete this report.

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

100 North Senate Avenue
~~P.O. Box 6015~~
 Indianapolis, Indiana 462046-6015

Part 70 Quarterly Report

Source Name: Praxair, Inc.
 Source Address: 2551 Dickey Road, East Chicago, Indiana 46312
 Mailing Address: P.O. Box 712, Whiting, Indiana 46394
 Part 70 Permit No.: T089-11102-00435
 Facility: Emergency Generators A13 and A15
 Parameter: Operating hours
 Limit: The two (2) emergency generators A13 and A15 will limit the operating hours of the respective 100 kW and 320 kW units to ~~400~~ **150** hours per 12 consecutive month period each.

Year: _____

Month	Operating Hours This Month		Operating Hours Previous 11 Months		Total Operating Hours 12 Months	
	A13	A15	A13	A15	A13	A15

- No deviation occurred in this month.
- Deviation(s) occurred in this month.
 Deviation has been reported on:

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

Attach a signed certification to complete this report.

Conclusion

The construction and operation of Hydrogen Plant No. 4 shall be subject to the conditions of the attached proposed Significant Source Modification No.: 089-20918-00435 and Significant Permit Modification No.: 089-21039-00435.

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document for a Significant Source Modification and Significant Permit Modification to a Part 70 Operating Permit

Source Name:	Praxair, Inc.
Source Location:	2551 Dickey Road, East Chicago, Indiana 46312
County:	Lake
SIC Code:	2813
Operation Permit No.:	T089-11102-00435
Operation Permit Issuance Date:	April 15, 2002
Source Modification No.:	089-20918-00435
Permit Modification No.:	089-21039-00435
Permit Reviewer:	Adeel Yousuf/EVP

On June 5, 2005, the Office of Air Quality (OAQ) had a notice published in the Time in Lake County, Indiana, stating that Praxair, Inc. had applied for a Part 70 permit modification application relating to construction and operation of the Hydrogen Plant No. 4. The notice also stated that OAQ proposed to issue source and permit modifications for this operation and provided information on how the public could review the proposed Part 70 modifications 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 permit modification should be issued as proposed.

No comment has been received from the source or other interested public persons during public notice. However, upon further review, OAQ has determined the following changes (bolded language has been added and the language with a line through it has been deleted) will be made to the permit:

1. Section A.2(f) has been revised to indicate the stack identifications with "S/V" instead of A17 or A16, so that this section will be consistent with the rest of the permit.
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(15)]

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

- (f) One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as **S/V A 017**. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as **S/V A 016**.

Section D.1 (Facility Description Box) has been revised as well.

SECTION D.1 FACILITY OPERATION CONDITIONS

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

- (f) One (1) steam methane Reformer No. 4, identified as A17, to be constructed in 2006, equipped with a low NOx burner, using a mixture of process tail gas and natural gas as fuel and rated at 213.9 MMBtu per hour, exhausting at one (1) stack identified as **S/V A 017**. During Reformer No. 4 startup, carbon monoxide (CO) containing process gas will exhaust through one (1) process vent stack identified as **S/V A 016**.

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

2. Section A.3(c) has been revised to correct a typographical error.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

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

- (c) The following volatile organic compound (VOC) and hazardous air pollutant (HAP) storage containers:

Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons, including ~~four~~ **three (4 3)** diesel fuel oil storage tanks, identified as T001, T002, and T004, with storage capacities of 250 gallons, 55 gallons, and 200 gallons, respectively. [326 IAC 8-9]

Similarly, Section D.2 (Facility Description Box) has been revised as follows.

SECTION D.2 FACILITY OPERATION CONDITIONS

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

The following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (c) The following volatile organic compound (VOC) and hazardous air pollutant (HAP) storage containers:

Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons, including ~~four~~ **three (4 3)** diesel fuel oil storage tanks, identified as T001, T002, ~~T003~~ and T004, with storage capacities of 250 gallons, 55 gallons, ~~55 gallons~~ and 200 gallons, respectively. [326 IAC 8-9]

Appendix A: Emission Calculations

Company Name: Praxair, Inc.
Address City IN Zip: 2551 Dickey Road, East Chicago, Indiana 46312
Title V SPM No.: 089-21039-00435
Reviewer: Adeel Yousuf / EVP

Uncontrolled Potential Emissions (tons/year)				
Emissions Generating Activity				
Pollutant	Natural Gas Combustion Reformer No. 4	Startup Emissions Hydrogen Plant No. 4	Dearator Vents Plants 1, 2, 3, and 4	TOTAL
PM	1.80	0.00	0.00	1.80
PM10	7.21	0.00	0.00	7.21
SO2	0.57	0.00	0.00	0.57
NOx	84.32	0.00	0.00	84.32
VOC	18.46	0.00	1.30	19.76
CO	9.84	97.40	1.40	108.64
total HAPs	1.79	0.00	1.30	3.09
worst case single HAP	1.70 (Hexane)	0.00	1.30 (Methanol)	1.70 (Hexane)
Total emissions based on rated capacity at 8,760 hours/year.				
Controlled Potential Emissions (tons/year)				
Emissions Generating Activity				
Pollutant	Natural Gas Combustion Reformer No. 4	Startup Emissions Hydrogen Plant No. 4	Dearator Vents Plants 1, 2, 3, and 4	TOTAL
PM	1.80	0.00	0.00	1.80
PM10	7.21	0.00	0.00	7.21
SO2	0.57	0.00	0.00	0.57
NOx	84.32	0.00	0.00	84.32
VOC	18.46	0.00	1.30	19.76
CO	9.84	**	1.40	* <250.00
total HAPs	1.79	0.00	1.30	3.09
worst case single HAP	1.70 (Hexane)	0.00	1.30 (Methanol)	1.70 (Hexane)

* Total Sourcewide CO emission are limited to less than 250 tons per year

** Praxair proposes to accept a limit of 184.9 tons per year on the combined CO emissions from the following sources: A6 (Plant 1 Startup Vent), A10 (Plant 2 Startup Vent), A12 (Plant 3 Startup Vent), and A13 (Plant 4 Startup Vent).

Total emissions based on rated capacity at 8,760 hours/year, after control.

**Appendix A: Emission Calculations
Hydrogen Plant No. 4
Natural Gas Combustion Emissions**

**Company Name: Praxair, Inc.
Address City IN Zip: 2551 Dickey Road, East Chicago, Indiana 46312
Title V SPM No...: 089-21039-00435
Reviewer: Adeel Yousuf / EVP**

Emissions from the Combustion of natural gas and tail gas in Reformer No. 4 (A17)

Max heat input :	213.9 MMBtu/hr	Maximum Natural Gas Usage:	41,400 Scf/yr
Hours of Operation:	8,760 hour/year	Maximum Tail Gas Usage:	580,865 Scf/yr
		Heat Content of Natural Gas:	987.9 Btu/Scf
		Heat Content of Tail Gas:	297.7 Btu/Scf
		Weighted Average Heat Content:	343.62 Btu/Scf

Pollutant	Emission Factors		Total Emissions	
	AP-42 Factor lb/10 ⁶ Scf	Mfg's Spec. * lb/MMBtu	lb/hr	ton/yr
PM	1.90	n/a	0.4114	1.80
PM10	7.60	n/a	1.6456	7.21
SO2	0.60	n/a	0.1299	0.57
NOx	n/a	0.09	19.2510	84.32
VOC	n/a	0.0197	4.2138	18.46
CO	n/a	0.0105	2.2460	9.84
HAPs				
	AP-42 Factor lb/10 ⁶ Scf			
Benzene	2.1E-03		0.00045	0.00199
Dichlorobenzene	1.2E-03		0.00026	0.00114
Formaldehyde	7.5E-02		0.01624	0.07113
Hexane	1.8E+00		0.38974	1.70704
Toluene	3.4E-03		0.00074	0.00322
Lead	5.0E-04		0.00011	0.00047
Cadmium	1.1E-03		0.00024	0.00104
Chromium	1.4E-03		0.00030	0.00133
Manganese	3.8E-04		0.00008	0.00036
Nickel	2.1E-03		0.00045	0.00199
		Total		1.79

Notes:

PM, PM10 and SO2 emission factors are from AP-42, Chapter 1.4, Table 1.4-2 (5th Edition, revised 7/98)

HAPs emission factors are from AP-42, Chapter 1.4, Table 1.4-3 (5th Edition, revised 7/98)

* VOC, CO, and NOx emission factors are provided by Praxair based on the manufacturers guaranteed emission factors

Methodology

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Emission (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

Appendix A: Emission Calculations

Startup Vent CO Emissions

Company Name: Praxair, Inc.
Address City IN Zip: 2551 Dickey Road, East Chicago, Indiana 46312
Title V SPM No.: 089-21039-00435
Reviewer: Adeel Yousuf / EVP

CO Emissions from the Hydrogen Plant No. 4 startup vent (A16)

Process gas is vented from the system during each plant startup. This venting is necessary in order to bring the system to an equilibrium operating state. The startup can be a cold startup or a warm startup. The pollutant emitted during startups is carbon monoxide

The equipment can have two types of startup, warm startup and cold startup. Following is the description of each type of startup, the values are calculated by Praxair, Inc. based on material balances and process parameters.

Warm Startup

Step 1 = Feedstock at 15% of design for 1.0 hour. CO shift reactor is assumed to be not yet up to operating temperature for the 1.0 hour, so a higher CO concentration is used for that period. **Total CO emission during Step 1 is 1.09 tons.**

Step 2 = Feedstock at 15% of design for 3.0 hours. CO shift reactor assumed working. **Total CO emissions during Step 2 is 1.04 tons.**

Step 3 = Feedstock at 40% of design for 10.5 hours. **Total CO emissions during Step 3 is 9.70 tons.**

This is conservative, because in the latter portion of the 10.5 hours the tail gas is gradually being fed to the reformer until no more is vented.

Total CO emissions from one Warm Start is 11.83 tons (Sum of Steps 1, 2 and 3)

Cold Startup

Step 0 = The reformer refractory and tubes have to be preheated for a total of about 22.5 hours. **There are No emission of CO during Step 0** because no natural gas feedstock has yet been introduced.

Step 1 = Feedstock at 10% of design for 2.0 hours. CO shift reactor is assumed to be not yet up to operating temperature for the first 1.5 hours, so a higher CO concentration is used for that period. **Total CO emissions during Step 1 is 1.21 tons.**

Step 2 = Feedstock at 10% of design for 3.0 hours. CO shift reactor assumed working. Total CO emissions during Step 2 is 0.69 tons.

Step 3 = Feedstock at 15% design for 2.0 hours. Total CO emission during Step 3 is 0.69 ton.

Step 4 = Feedstock at 40% of design for 10.5 hours. Total CO emissions during Step 4 is 9.70 tons.

This is conservative, because in the latter portion of the 10.5 hours the tail gas is gradually being fed to the reformer until no more is vented.

Total CO emissions from one Cold Start is 12.29 tons (Sum of Steps 1, 2, 3 and 4)

Estimated no. of Warm Startups = 2.0 per year (based on plant anticipated worst case operating schedule)
Estimated no. of Cold Startups = 6.0 per year (based on plant anticipated worst case operating schedule)

Emission Calculations:

Estimated annual emissions:

= 2 Warm Startups x 11.83 tons per Warm Startup = 23.66 tons per year
= 6 Cold Startups x 12.29 tons per Cold Startup = 73.74 tons per year

Total = 97.4 tons per year

Appendix A: Emission Calculations

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Deaerator Vents

Company Name: Praxair, Inc.
Address City IN Zip: 2551 Dickey Road, East Chicago, Indiana 46312
Title V SPM No.: 089-21039-00435
Reviewer: Adeel Yousuf / EVP

VOC Emissions from Deaerator Vents (Hydrogen Plant No. 1, 2, 3 and 4)

I. Hydrogen Plant No. 4 (A18)

The estimated VOC emission are: 0.6 tons per year
The estimated CO emissions are: 0.7 tons per year

Emissions were calculated by Praxair, using process flow information for Plant No. 4. Methanol (VOC) is created by the reforming process's chemical reaction and is emitted continuously.

II. Hydrogen Plants No. 1, 2 and 3 (A19, A20, and A21)

The estimated VOC emissions are: 0.7 tons per year
The estimated CO emissions are: 0.7 tons per year

These minimal quantities are existing emissions from currently permitted sources that have recently been identified at another Praxair plant. Praxair has included these emissions in this source modification application and identified these source as A19, A20, and A21. The CO emissions have been calculated from process flow calculations. The VOC emissions have been estimated based on an emission test at a sister facility.

**Appendix A: Emission Calculations
Combustion Engines - Diesel Fuel
Emergency Generators & Firewater Pump**

Company Name: Praxair, Inc.
Address City IN Zip: 2551 Dickey Road, East Chicago, Indiana 46312
Title V SPM No.: 089-21039-00435
Reviewer: Adeel Yousuf / EVP

Limited Potential to Emit as per CP 089-10413-00435 (100 hours per year of operation for each)

Output Capacity Horsepower (hp)	Facility	Potential Throughput hp-hr/yr
154.0	emergency electrical generator - A13	15,400.0
519.0	emergency electrical generator - A15	51,900.0

Emission Factor in lb/hp-hr	Facility	Pollutant					
		PM 0.0022	PM-10 0.0022	SO2 0.0021	NOx 0.031	VOC 0.0025	CO 0.00668
Potential Emissions in tons/yr	emergency electrical generator - A13	0.02	0.02	0.02	0.24	0.02	0.05
Potential Emissions in tons/yr	emergency electrical generator - A15	0.06	0.06	0.05	0.80	0.06	0.17
<i>Total Uncontrolled Potential to Emit (tons per year):</i>		0.07	0.07	0.07	1.04	0.08	0.225

Limited Potential to Emit due to 150 hours per year of operation for each

Output Capacity Horsepower (hp)	Facility	Limited Throughput hp-hr/yr
154.0	emergency electrical generator - A13	23,100.0
519.0	emergency electrical generator - A15	77,850.0

Emission Factor in lb/hp-hr	Facility	Pollutant					
		PM 0.0022	PM-10 0.0022	SO2 0.0021	NOx 0.031	VOC 0.0025	CO 0.00668
Potential Emissions in tons/yr	emergency electrical generator - A13	0.03	0.03	0.02	0.36	0.03	0.08
Potential Emissions in tons/yr	emergency electrical generator - A15	0.09	0.09	0.08	1.21	0.10	0.26
<i>Total Limited Potential to Emit (tons per year):</i>		0.11	0.11	0.10	1.56	0.13	0.337

Total Increase in Emissions due to increase in hours of operation from 100 to 150 hours per year:	0.04	0.04	0.03	0.52	0.04	0.112
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Methodology

Emission Factors are from AP42 (Fifth edition, Suppl. B, October, 1996), Table 3.3-1

Potential Throughput (hp-hr/yr) = hp * time of operation (hr/yr)

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)