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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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February 14, 2000

Mr. Kevin Hogan
Plainfield Juvenile Correctional Facility
501 West Main Street
Plainfield, IN 46168

Re: 063-11483
Minor Source Modification to:
Part 70 permit No.: T063-7558-00002

Dear Mr. Hogan.:

Plainfield Juvenile Correctional Facility was issued Part 70 operating permit T063-7558-00002 on December 31, 1998 for boilers. An application to modify the source was received on October 22, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

two (2) natural gas-fired boilers, identified as B-6 and B-7, each with a maximum heat input capacity of 48.542 million British thermal units per hour, with emissions uncontrolled and exhausting to stacks S-B-6 and S-B-7 respectively. Upon startup of these two natural gas-fired boilers, three existing coal-fired boilers shall be removed from operation.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC

- 2.
6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.
7. That pursuant to the New Source Performance Standards (NSPS), Part 60.40c, Subpart Dc, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:
- (a) Commencement of construction date (no later than 30 days after such date);
 - (b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
 - (c) Actual start-up date (within 15 days after such date); and
 - (d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

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

The application and enforcement of these standards have been delegated to the IDEM-OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

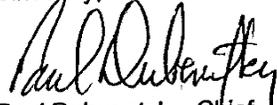
The proposed operating conditions applicable to these emission units are attached to this Source Modification approval for approval to construct. These proposed operating conditions shall be incorporated into the Part 70 operating permit as significant permit modification for approval to operate in accordance with 326 IAC 2-7-12.(b)(1)(E).

Plainfield Juvenile Correctional Facility
Plainfield, Indiana
Permit Reviewer: Nisha Sizemore

Page 3 of 3
First Minor Source Mod #:063-11483-00002

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 call (800) 451-6027, press 0 and ask for Nisha Sizemore or extension 2-8356, or dial (317) 232-8356.

Sincerely,



Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments

nls

cc: File - Hendricks County
U.S. EPA, Region V
Hendricks County Health Department
Air Compliance Section Inspector - Marc Goldman
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

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

**Technical Support Document (TSD) for a
Part 70 Minor Source Modification.**

Source Background and Description

| | |
|---------------------------------|---|
| Source Name: | Plainfield Juvenile Correctional Facility |
| Source Location: | 501 West Main Street, Plainfield, Indiana 46168 |
| County: | Hendricks |
| SIC Code: | 9223 |
| Operation Permit No.: | T063-7558-00002 |
| Operation Permit Issuance Date: | December 31, 1998 |
| Minor Source Modification No.: | 063-11483-00002 |
| Permit Reviewer: | Nisha Sizemore |

The Office of Air Management (OAM) has reviewed a modification application from Plainfield Juvenile Correctional Facility relating to the construction of the following emission units and pollution control devices:

two (2) natural gas-fired boilers, identified as B-6 and B-7, each with a maximum heat input capacity of 48.542 million British thermal units per hour, with emissions uncontrolled and exhausting to stacks S-B-6 and S-B-7 respectively. At the same time, coal-fired boilers B-1, B-2, and B-4 are being decommissioned. These existing coal-fired boilers have maximum heat input capacities of 48 million Btu per hour each.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature (°F) |
|----------|------------|---------------|-----------------|------------------|------------------|
| S-B-6 | boiler B-6 | 60 | 3 | 14,570 | 327 |
| S-B-7 | boiler B-7 | 60 | 3 | 14,570 | 327 |

Recommendation

The staff recommends to the Commissioner that the Part 70 Minor Source 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 October 22, 1999.

Emission Calculations

See Appendix A of this document for detailed emissions calculations. (3 pages)

Potential To Emit of 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."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|-----------------|-------------------------------|
| PM | 3.2 |
| PM-10 | 3.2 |
| SO ₂ | 0.3 |
| VOC | 2.3 |
| CO | 35.7 |
| NO _x | 42.5 |

| HAP's | Potential To Emit (tons/year) |
|-----------------|-------------------------------|
| benzene | less than 10 |
| dichlorobenzene | less than 10 |
| formaldehyde | less than 10 |
| hexane | less than 10 |
| toluene | less than 10 |
| lead | less than 10 |
| cadmium | less than 10 |
| chromium | less than 10 |
| manganese | less than 10 |
| nickel | less than 10 |
| TOTAL | less than 25 |

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Minor Source Modification, which allows for the construction of the boilers. This modification is being performed pursuant to 326 IAC 2-7-10.5(d)(6), which allows the modification to be handled as a Minor Source

Modification, even though the PTE is greater than 25 tons per year, because the most stringent applicable requirement is the New Source Performance Standard (NSPS), 40 CFR Part 60.40c, Subpart Dc. Other existing boilers at the source are subject to this NSPS.

Note: The source modification allows the boilers to be constructed. The permit modification allows the boilers to be operated.

County Attainment Status

The source is located in Hendricks County.

| Pollutant | Status |
|-----------------|------------|
| PM-10 | attainment |
| SO ₂ | attainment |
| NO ₂ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Hendricks County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Hendricks County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD or 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 | 392.71 |
| PM-10 | 150.01 |
| SO ₂ | 1893.56 |
| VOC | 2.1 |
| CO | 156.76 |
| NO _x | 226.85 |

- (a) This existing source (before the removal of the three coal-fired boilers) is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250

tons per year or more, and it is not one of the 28 listed source categories.

- (b) These emissions are based upon the Part 70 permit T063-7558-00002.

New Source Status After Removal and Modification

The old coal-fired boilers B-1, B-2, and B-4, each with a heat input capacity of 48 MMBtu/hr, are being decommissioned. The natural gas-fired boilers B-6 and B-7 will replace the three boilers which are being removed from service.

| Process/facility | Potential to Emit (tons/year) | | | | | | |
|-------------------------|----------------------------------|--------|-----------------|------|--------|-----------------|-----------|
| | PM | PM-10 | SO ₂ | VOC | CO | NO _x | HAPs |
| Existing Emissions | 392.71 | 150.01 | 1893.56 | 2.1 | 156.76 | 226.85 | 2.43 |
| Boilers Removed | 388.20 | 145.01 | 1797.60 | 1.20 | 145.50 | 181.80 | 2.43 |
| New Boilers | 3.2 | 3.2 | 2.3 | 2.3 | 35.7 | 42.5 | 0.76 |
| Total Emissions | 7.71 | 8.2 | 98.26 | 3.2 | 46.96 | 87.55 | 0.76 |
| Major Source Thresholds | 250 | 250 | 250 | 250 | 250 | 250 | 10 and 25 |

Now that the three coal-fired boilers will be removed from service, this source is an existing minor stationary source because the potential to emit of all criteria pollutants is less than 250 tons per year. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Potential to Emit of Modification After Issuance

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

| Process/facility | Potential to Emit (tons/year) | | | | | | |
|-----------------------------|----------------------------------|-------|-----------------|------|-------|-----------------|------|
| | PM | PM-10 | SO ₂ | VOC | CO | NO _x | HAPs |
| new boiler B-6 | 1.6 | 1.6 | 0.15 | 1.15 | 17.85 | 21.25 | 0.38 |
| new boiler B-7 | 1.6 | 1.6 | 0.15 | 1.15 | 17.85 | 21.25 | 0.38 |
| Total for this modification | 3.2 | 3.2 | 2.3 | 2.3 | 35.7 | 42.5 | 0.76 |

This modification to an existing minor stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

- (a) The new boilers B-6 and B-7 are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc). Pursuant to this rule, the Permittee shall record and maintain records of the amounts of each fuel combusted during each day of operation.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability -

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

Pursuant to this rule, the PM emissions from the boilers B-6 and B-7 shall not exceed 0.29 pound per million Btu of heat input. This limitation is based on the following equation:

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

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

Q = Total source maximum operating capacity rating in million Btu per hour of heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's operation permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

Based on calculations made, the boilers are in compliance with this requirement.

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, OAM, 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 boilers have applicable compliance monitoring conditions as specified below:

Records shall be kept of the type and amount of fuel used each day of operation.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Minor Source Modification No. 063-11483-00002.

Appendix A: Emissions Calculations
Bituminous Coal combustion
Traveling Grate

Company Name: Plainfield Juvenile Correctional Facility
City, Indiana: 501 West Main Street, Plainfield, Indiana 46168
Reviewer: Nisha Sizemore
T#: 063-7558
Plt ID: 063-00002

Heat Input Capacity MMBtu/hr S = Weight % Sulfur = 1.95

48

16,172

| | Pollutant | | | | | | |
|-------------------------------|-----------|------|---------------|------|------|------|--------|
| | PM | PM10 | SO2 | NOx | VOC | CO | Lead |
| Emission Factor in lb/ton | 16.0 | 6.00 | 74.1 (38S) | 7.5 | 0.05 | 6.00 | 0.0131 |
| Potential Emission in tons/yr | 129.4 | 48.5 | 599.2 | 60.6 | 0.4 | 48.5 | 0.1059 |

Pursuant to 326 IAC 6-2
 $129.4 \text{ tons PM/yr} \times 2000 \text{ lb/ton} \times 1 \text{ yr}/8760 \text{ hrs} / 48 \text{ MMBtu/hr} * (1 - 0) = 0.62 \text{ lb/MMBtu}$

Pursuant to 326 IAC 7-1
 $599.2 \text{ tons SO}_2/\text{yr} \times 2000 \text{ lb/ton} \times 1 \text{ yr}/8760 \text{ hrs} / 48 \text{ MMBtu/hr} * (1 - 0) = 2.85 \text{ lb/MMBtu} < 6.0 \text{ MMBtu/hr}$

Methodology

Emission Factor Units are lb/ton
 A = weight% ash in fuel, S = weight % sulfur in fuel
 Potential Throughput (tons/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 lb per 0.013 MMBtu x 1 ton per 2000 lbs
 Emission Factors from FIRE Version 5.0, SCC 10100205
 Emission (tons/yr) = Throughput tons per year x Emission Factor (lb/ton)/2,000 lb/ton

Appendix A: Emissions Calculations

Company Name: Plainfield Juvenile Correctional Facility
City, Indiana: 501 West Main Street, Plainfield, Indiana 46168

Reviewer: Nisha Sizemore

T#: 063-7558

Pit ID: 063-00002

**Potential Emissions
(tons/yr)**

| | PM | PM10 | VOC | SO2 | NOx | CO |
|---------------|---------------|---------------|-------------|----------------|---------------|---------------|
| B-1 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| B-2 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| B-3 | 2.44 | 2.44 | 0.50 | 51.98 | 24.40 | 6.10 |
| B-4 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| B-5 | 2.07 | 2.07 | 0.40 | 43.98 | 20.65 | 5.16 |
| Totals | 392.71 | 150.01 | 2.10 | 1893.56 | 226.85 | 156.76 |

| | PM | PM10 | VOC | SO2 | NOx | CO |
|---------------|---------------|---------------|-------------|----------------|---------------|---------------|
| B-1 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| B-2 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| B-4 | 129.40 | 48.50 | 0.40 | 599.20 | 60.60 | 48.50 |
| Totals | 388.20 | 145.50 | 1.20 | 1797.60 | 181.80 | 145.50 |