

217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE

PERMITTEE

ASF - Keystone, Inc.
c/o Infinity Granite City, LLC
Attn: Mike Zatkoff, President
195 South 10th Street
Noblesville, Indiana 46060

Application No.: 06050080

I.D. No.: 119040AAC

Applicant's Designation:

Date Received: May 19, 2006

Subject: IGC Sand Regeneration Process

Date Issued: July 24, 2006

Location: 1700 Walnut Street, Granite City, Madison County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of new IGC Sand Regeneration Process, including sand preparation, sand storage, transfer and conveying, sand reclamation, and sand finishing, and associated particulate matter control systems, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This Permit authorizes construction of a Sand Regeneration Process that includes the following operations:
 - i. Sand Preparation, including a rotary crusher/dryer, sand loading and conveying, and associated baghouse (FF-03);
 - ii. Sand Transfer, including various conveyors, surge hoppers, screens, separators, and storage silo, and associated baghouse (FF-02);
 - iii. Thermal Sand Reclamation, including a fluidized bed calciner, recuperator and primary cooler, conveyors, and surge hoppers, and associated cyclone and baghouse (FF-01); and
 - iv. Sand Finishing, including various conveyors, surge hoppers, and storage silo, and associated baghouse (FF-02).
- b. For the purpose of this permit, the affected units are the individual emission units in the Sand Regeneration Process, as generally addressed above.
- 2a. This permit is issued based on the new Sand Regeneration Process not increasing sand throughput in the molding and casting operations at the source.

- b. This permit does not relax any requirements and conditions that apply to the sand handling and processing operations at the Sand Molding System and existing Sand Regeneration System at this steel foundry plant, including applicable testing, monitoring, recordkeeping, and reporting requirements of the current CAAPP permit issued for this source.
- 3a. This permit is issued based on this project not being subject to federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, because the increases in emissions are not significant. In particular, the total PM/PM₁₀ emissions allowed from the affected units authorized under this permit is approximately 11.5 tons/year, which is less than 15 tons/year. The limits in Condition 6 are intended to ensure that this project does not constitute a major modification pursuant to the PSD rules.
- b.
 - i. This permit is issued based on the affected units not being subject to National emission Standards for Hazardous Air Pollution (NESHAP) at 40 CFR Part 63, because the plant is not a major source of HAP emissions.
 - ii. For this purpose, the emissions of hazardous air pollutants (HAPs) from the plant, including the new Sand Reclamation Process, shall not exceed 8.0 tons/year for each individual HAP and 20.0 tons/year for all HAPs combined.
 - iii. The Permittee shall keep appropriate record of the operation and emission of the various emission units at the plant to verify whether the plant is a major source for HAPs.
 - c. This permit is issued based on the Sand Regeneration Process not being subject to the New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants, 40 CFR 60, Subpart 000, Pursuant to 40 CFR 60.670(c)(1). This is because the capacity, as defined in 40 CFR 60.671, of the Sand Regeneration Process is no more than 136 megagrams per hour (25 tons per hour).

Note: If the capacity of the Sand Regeneration Process were to exceed this applicability threshold, the process would be subject to the NSPS.

- 4a.
 - i. The affected Fluidized Bed Calciner unit in the Sand Regeneration Process is an affected facility subject to the NSPS for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU and related provisions in 40 CFR 60, Subpart A
 - ii. Pursuant to NSPS, stack emissions of PM from the calciner shall not exceed 0.092 gram/dscm (0.04 grain/dscf) and 10 percent opacity. [40 CFR 60.732(a) and (b)]
 - iii. For the calciner, the Permittee shall have a certified visible emissions observer measure and record three 6-minute averages of the opacity of visible emissions to the atmosphere each day of operation of in accordance with Method 9 of appendix A of 40 CFR 60. [40 CFR 60.734(b)]

- b. At all times, the Permittee shall also maintain and operate the affected facilities that are subject to the NSPS, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).
- 5a. The affected units are subject to 35 IAC 212.123, 212.301 and 212.321, which generally limit emissions of PM, opacity and visible emissions from process emission units in Illinois
- b. The affected units are also subject to the following requirements for stack emissions of PM pursuant to 35 IAC 212.324:
 - The emissions of PM from each affected unit, other than fugitive emissions, shall not exceed 0.03 gr/scf or there shall be no visible emissions from a unit.
- c. The affected units are also subject to the following requirements for fugitive emissions of PM pursuant to 35 IAC 212.316:
 - i. Fugitive particulate matter from affected units shall not exceed an opacity of 20 percent.
 - ii. The affected units shall be operated under the provisions of an operating program prepared by the Permittee and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions and facilitate compliance with 35 IAC 212.304 through 212.308 and 212.310. [35 IAC 212.309(a)]
- d. All normal traffic pattern roads and parking facilities associated with the Sand Regenerative Process shall be paved or treated with water, oils, or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils, or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required pursuant to 35 IAC 212.309, 212.310, and 212.312.
 - i. Fugitive particulate matter emissions from any roadway or parking area shall not exceed an opacity of 10 percent. [35 IAC 212.316(c)]
- 6a.
 - i. The total amount of sand (used sands and any new sands, including chromite sand) introduced into the Sand Regeneration Process shall not exceed 10,000 tons per month and 99,000 tons/year.
 - ii. The amount of sand that undergoes thermal reclamation in the calciner unit shall not exceed 2,200 tons/month and 21,900 tons/year.
- b.
 - i. Emissions of PM/PM₁₀ from the Sand Regeneration Process shall not exceed the following limits. These limits are based on the information provided in the application, including maximum

materials throughput, minimum control efficiency, maximum throughput of the, and standard emission factors from USEPA AP-42 for Crushed Stone Processing, Table 11.19.2-1 and Industrial Sand and Gravel Processing, Table 11.19.1-1.

Operations	PM Control Efficiency* (Percent)	Controlled Emission Factor (Lbs/Ton)	Emissions (Tons/Year)
Sand Preparation	94	0.122	6.24**
Sand Transfer/Finishing	94	0.00080	0.69
Sand Reclamation	99.5	0.336	3.81**
		Total:	10.74

* PM control efficiency applied to uncontrolled emission factors, provided for informational purposes only.

** PM emissions from the combustion of natural gas are also included in the total emissions from these operations.

- ii. This permit is issued based on minimal emissions of volatile organic material, sulfur dioxide, nitrogen oxides and carbon monoxides (pollutants other than PM/PM₁₀) from the process units in the Sand Regeneration Process. For this purpose, emissions of each pollutant shall not exceed 1.0 tons per year.
- c. i. Natural gas usage in the Sand Regeneration Process shall not exceed 9 million scf per month and 89 million scf per year.
- ii. Affected units shall be indirectly heater, with a separate stack for combustion products.
- iii. Emissions of NO_x and CO from the combustion of natural gas in the Sand Regeneration Process shall not exceed the following limits:

Pollutant	Emissions (Tons/Year)
NO _x	4.45
CO	3.75

- d. Emissions of PM from vehicle traffic associated with the Sand Regeneration Process shall not exceed 0.64 tons/year.
- e. Compliance with the annual limits in this permit shall be determined from a running total of 12 months of data.

Note: It is expected that the emissions being allowed for the new Sand Regeneration Process can be accommodated within the source-wide limits established by the CAAPP Permit (Condition 5.5.1 of Permit 96030102) and the Permittee will not be pursuing a revision to these limits.

- 7a. i. Within 60 days after the affected units subject to NSPS achieve maximum production, but not later than 180 days after initial startup, pursuant to 40 CFR 60.8 and 60.736, the Permittee shall have measurements conducted for the opacity and PM emissions from the new unit subject to NSPS 40 CFR 60 Subpart UUU during conditions which are representative of the maximum emissions.
- ii. In conjunction with testing of PM emissions from the affected calciner, the Permittee shall also determine the emissions of chromium and other metals from the calciner. Unless testing for metals is specifically conducted using USEPA Method 29, the metals content of the emissions shall be determined by representative sampling and appropriate analysis of the material collected by the baghouse, with the results applied to the measured PM emissions from the calciner.
- b. i. The following methods and procedures shall be used for these measurements.
- USEPA Method 5 for PM
- USEPA Method 9 for opacity
- ii. Opacity measurements shall be performed by a certified observer.
- iii. Opacity measurements for the calciner shall be made during the period when PM emissions are measured.
- c. At least 60 days prior to the actual date of PM emission testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including as a minimum:
- i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
- ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.
- iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
- iv. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods.
- v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
- vi. The format and content of the Source Test Report.

- d. The Illinois EPA shall be notified prior to the PM emission tests to enable the Illinois EPA to observe these measurements. Notification of the expected date of the measurements shall be submitted to a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of measurement shall be submitted a minimum of five working days prior to the actual date of the measurement. The Illinois EPA may, at its discretion, accept notification with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe the measurements.
- e. i. Copies of the Final Report(s) for the PM emission tests shall be submitted to the Illinois EPA within 30 days after the test results are compiled and finalized. The Final Report shall include as a minimum:
 - A. A summary of results.
 - B. General information.
 - C. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
 - D. Detailed description of test conditions, including: (1) Process information, i.e., mode(s) of operation, process rate, e.g. fuel and raw material consumption; and (2) Control equipment information, i.e., equipment condition and operating parameters during testing.
 - E. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
 - F. Opacity data collected during the period of PM testing.
- ii. Copies of the Final Reports for the opacity observations shall be submitted to the Illinois EPA within 15 days after the date of observation. These reports shall include the information specified in the source's CAAPP Permit.
- 8a. The Permittee shall install, operate and maintain instrumentation on the baghouses in the Sand Regeneration Process to measure pressure drop across the filters.
- b. The Permittee shall install, operate and maintain instrumentation on the baghouse for the calciner to measure temperature of the gas entering the baghouse.
- 9a. i. If the affected units are in routine service, the Permittee shall conduct inspections of the affected units, including the associated control equipment, on at least once a month when in operation to verify compliance with the requirements of this permit.

- ii. The Permittee shall perform maintenance and repair of the affected units, including associated control equipment, to assure that the units are properly controlling emissions.
 - iii. The Permittee shall maintain records of the above inspections and maintenance/repair activity in inspection/maintenance logs or other records. These records shall contain, at a minimum, the time description of the inspections and maintenance/repair activities.
- 10a. The Permittee shall maintain records of the following items for the Sand Regeneration Process:
- i. Total amount of sand processed (tons/month and tons/year).
 - ii. Amount of sand thermally processed through the calciner (tons/month and tons/year).
 - iii. Total usage of natural gas (million scf/month and million scf/year)
- b. The Permittee shall maintain records of the following for each incident when an affected unit operated without the customary control measures:
- i. The date of the incident, identification of the affected unit that was involved, and the time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.
 - ii. A description of the incident, including the customary control measures that were not present or implemented; the customary control measures that were present, if any; other control measures or mitigation measures that were implemented, if any; and the magnitude of the PM emissions during the incident.
 - iii. The length of time after the incident was identified that the affected unit continued to operate before customary control measures were in place or the units were shutdown (to resume operation only after customary control measures were in place).
 - iv. The estimated total duration of the incident, i.e., the total length of time that the affected units ran without customary control measures and the estimated amount of material handled during the incident.
 - v. A discussion of the probable cause of the incident and any preventative measures taken.
 - vi. A discussion whether an applicable standard, as listed in Conditions 3, 4 and 5 or a PM emission limitation in Condition 6(b) may have been violated during the incident, with an estimate of the amount of any additional or excess PM emissions (pounds) from the incident, with supporting explanation.

c. The Permittee shall maintain the following records related to emissions for the affected units:

- i. A file that contains the emission factors currently being used by the Permittee to determine PM/PM₁₀ emissions from affected units during normal operation, with supporting documentation and engineering calculations, as appropriate.
- ii. The PM/PM₁₀ emissions of each operation, as limited by Condition 6(b), (tons/month and tons/year), with supporting calculations.
- iii. The PM emissions from vehicle traffic associated with the Sand Regeneration Process (tons/month and tons/year), with supporting calculations.
- iv. The NO_x and CO emissions (tons/month and tons/year), with supporting calculations.

Note: This permit does not address recordkeeping related to implementation of the operating program for fugitive particulate matter, which is addressed by conditions in the CAAPP Permit for the source.

11. For the affected units and associated vehicle traffic in roadways, the Permittee shall comply with the recordkeeping and reporting requirements of 35 IAC 212.316 and 212.324.
12. All records required by this permit shall be retained at the source and be made available for inspection and copying as provided in the CAAPP permit for the source.
13. If there is a deviation of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA within 30 days after the deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the deviation and efforts to reduce emissions and future occurrences.
14. Two copies of all reports, notifications, etc. required by this permit shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one copy shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control - Regional Office
2009 Mall Street
Collinsville, Illinois 62234

15. The Permittee is allowed to operate the new Sand Regeneration Process under this construction permit until the CAAPP permit for the source is revised to address this new process.

If you have any questions on this permit, please call Kunj Patel at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:CPR:KMP:psj

cc: Region 3