INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

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: December 27, 2005

RE: PSI Gibson / 051-20033-00013

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.

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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 impractible 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.

Enclosures
FNTV-PMOD.doc 1/10/05

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PART 70 OPERATING PERMIT
OFFICE OF AIR QUALITY

PSI Energy, Inc. - Gibson Generating Station
S.R. 64 W & C.R. 975
Owensville, Indiana 47570

(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.: **T051-7175-00013**	
Original Issued and Signed by Janet G. McCabe, Assistant Commissioner Office of Air Quality	Issuance Date: July 7, 2004 Expiration Date: July 7, 2009

First Minor Permit Modification: **051-20033-00013**	Sections Affected: Table of Contents, A.2, D.1, D.2, D.3, D.9, D.10, E, and F
Issued by: Original Signed by: Paul Dubenetzky, Assistant Commissioner Office of Air Quality	Issuance Date: December 27, 2005 Expiration Date: July 7, 2009

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	Emission Limitations and Standards	**[326 IAC 2-7-5(1)]**
D.8.1	Particulate	[326 IAC 6-3-2]

D.9 FACILITY OPERATION CONDITIONS - Limestone Handling

	Emission Limitations and Standards	**[326 IAC 2-7-5(1)]**
D.9.1	General Provisions Relating to NSPS	[326 IAC 12-1] [40 CFR Part 60, Subpart A]
D.9.2	New Source Performance Standard (NSPS): Nonmetallic Mineral Processing Plants	[326 IAC 12] [40 CFR Part 60, Subpart OOO]
D.9.3	Fugitive Dust Emission Limitations	[326 IAC 6-4-2]
D.9.4	Preventive Maintenance Plan (PMP)	[326 IAC 2-7-5(13)]
	Compliance Determination Requirement	
D.9.5	Particulate Control	[326 IAC 2-7-6(6)]
D.9.6	NSPS Test Methods and Procedures	[40 CFR Part 60, Subpart OOO]

	Compliance Monitoring Requirements	**[326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**
D.9.7	Visible Emissions Notations	[326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]
	Record Keeping and Reporting Requirements	**[326 IAC 2-7-5(3)] [326 IAC 2-7-19]**
D.9.8	Record Keeping Requirements	
D.9.9	Reporting Requirements	

D.10 FACILITY OPERATION CONDITIONS - Gypsum Handling

	Emission Limitations and Standards	**[326 IAC 2-7-5(1)]**
D.10.1	Particulate	[326 IAC 6-3-2]
D.10.2	Fugitive Dust Emission Limitations	[326 IAC 6-4-2]
D.10.3	Preventive Maintenance Plan (PMP)	[326 IAC 2-7-5(13)]
	Compliance Determination Requirement	
D.10.4	Particulate Control	[326 IAC 2-7-6(6)]
	Compliance Monitoring Requirements	**[326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**
D.10.5	Visible Emissions Notations	[326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]
	Record Keeping and Reporting Requirements	**[326 IAC 2-7-5(3)] [326 IAC 2-7-19]**
D.10.6	Record Keeping Requirements	

E ACID RAIN PROGRAM CONDITIONS

E.1	Acid Rain Permit	[326 IAC 2-7-5(1)(C)] [326 IAC 21] [40 CFR 72 through 40 CFR 78]
E.2	Title IV Emissions Allowances	[326 IAC 2-7-5(4)] [326 IAC 21]

F SO_3 MITIGATION PLAN

F.1	SO_3 Mitigation System	[326 IAC 2-2.3]
F.2	SO_3 Testing Requirement	
F.3	Minimum Injection Rate	
F.4	Plume Observations	
F.5	Plume Touchdown	
F.6	Onsite Meteorological Monitoring System	
F.7	Boilers Nos. 1, 2, and 3 FGD Systems	

Part 70 Operating Permit Certification
Part 70 Operating Permit Emergency Occurrence Report
Part 70 Quarterly Report For Use When Combusting Coal
Part 70 Operating Permit Quarterly Deviation and Compliance Monitoring Report

Appendix A: Acid Rain Permit

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(21)]

The Permittee owns and operates a stationary electric utility generating station.

Responsible Official:	Station Manager of the Gibson Generating Station
Source Address:	S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address:	c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Source Telephone:	(317) 838-1758
SIC Code:	4911
County Location:	Gibson
Source Location Status:	Nonattainment for PM2.5
	Attainment or unclassifiable for all criteria pollutants
Source Status:	Part 70 Permit Program
	Major Source, under PSD Rules
	Major Source, under Emission Offset Rules
	Major Source, Section 112 of the Clean Air Act
	1 of 28 Listed Source Categories

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) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions anticipated to begin operation 10/21/07, and exhausting to a new stack, identified as Stack 1-2.

This FGD system Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 2 is anticipated to begin operation in June 2007.

Boiler No. 2 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with a flue gas conditioning system and an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 3.

This FGD system for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(f) A coal transfer system, with a nominal throughput of 6,000 tons of coal per hour, consisting of the following equipment:

(1) Two (2) railcar unloading stations, each with a drop point to a hopper identified as DP-5 and DP-25, with the drop point controlled by a partial enclosure, and exhausting to the ambient air.

(2) Two (2) active piles, each with a drop point to a hopper identified as DP-1 and DP-16, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(3) Three (3) storage piles, having an estimated combined storage capacity including the active piles of 4,000,000 tons, with fugitive emissions controlled by watering

trucks.

(4) Four (4) enclosed hoppers, each with a drop point to conveyors identified as DP-2, DP-6, DP-17 and DP-26, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(5) An enclosed conveyor system, with 18 drop points identified as DP-3, DP-4, DP-7 through DP-15, and DP-18 through DP-24, with each drop point enclosed and controlled by a baghouse, excluding the two (2) active pile conveyors which have the drop points (DP-18 and DP-22) controlled by telescopic chutes, and exhausting to the ambient air.

(6) Five (5) enclosed coal bunkers, each with a nominal capacity of 15,000 tons of coal. Bunkers are loaded via a conveyor tripper system with a total capacity of 3,000 tons per hour to the units 1 and 2 bunkers, and 3,000 tons per hour to the units 3, 4 and 5 bunkers. Particulate matter generated from loading bunkers is controlled with a baghouse, and exhausts to the ambient air.

(g) A limestone processing system, consisting of the following equipment:

(1) One (1) unloading station for trucks or railcar, with a drop point to a hopper identified as LSDP-1 with a nominal throughput of 2,500 tons of limestone per hour, with the drop point controlled by a partial enclosure, and exhausting to the ambient air.

(2) Two (2) enclosed hoppers, each with a drop point to conveyors identified as LSDP-2 and LSDP-5 with a nominal throughput of 200 tons of limestone per hour, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(3) One (1) storage pile, with a nominal storage capacity of 50,000 tons, with a drop point to a hopper identified as LSDP-4, with the drop point enclosed and exhausting to the ambient air.

(4) An enclosed conveyor system, with four (4) drop points identified as LSDP-3 and LSDP-8 through LSDP-10, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(5) One (1) enclosed hammermill, with a drop point to a conveyor identified as LSDP-6, with the drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(6) Two (2) day bins for temporary storage of limestone, with a nominal loading capacity of 150 tons per hour, with dust from loading the bins controlled by bin vent filters, and exhausting to the ambient air.

(h) Limestone Handling (TP-1 to TP-5, TP-10 to TP-17, F-6 and F-9), with maximum capacity of 2,500 tons per hour:

(1) Transfer of limestone from railcar or truck to the limestone hopper, with fogging type dust suppression as particulate control.

(2) Enclosed transfer of limestone from unloading hoppers to belt feeders.

(3) Enclosed transfer of limestone from belt feeders to conveyors.

(4) Telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

(5) Enclosed transfer of limestone from the reclaim hoppers to belt feeders, with fogging type dust suppression as particulate control.

(6) Enclosed transfer of limestone from conveyor to conveyor, with fogging type dust suppression as particulate control.

(7) Transfer of limestone from conveyor to day bin, with surge-bin filter as particulate control.

(8) Enclosed transfer of limestone from conveyor fixed hopper to conveyor with fogging type dust suppression as particulate control.

(9) Transfer of limestone from conveyor fixed tripper to day bin, with surge-bin filter as particulate control.

(10) Limestone storage piles, with watering type dust suppression as fugitive dust control.

(i) Gypsum Handling (TP-26 to TP-35, TP-38, and TP-39), with maximum capacity of 300 tons per hour:

(1) Enclosed transfer of gypsum from belt feeders to conveyors.

(2) Transfer of gypsum from conveyors to stockout piles.

(3) Partially enclosed transfer of gypsum from conveyor to radial stacker conveyor.

(4) Transfer of gypsum from radial stacker conveyor to stockout pile.

(5) Stockout piles.

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) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations.[326 IAC 6-3-2]

(b) Conveyors as follows: [326 IAC 6-3]

(1) Covered conveyor for coal or coke conveying of less than or equal to 360 tons per day;

(2) Covered conveyors for limestone conveying of less than or equal to 7,200 tons per day for sources other than mineral processing plants constructed after August 31, 1983;

(3) Underground conveyors.

(c) Coal bunker and coal scale exhausts and associated dust collector vents. [326 IAC 6-3]

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); and

(c) It is an affected source under Title IV (Acid Deposition Control) of the Clean Air Act, as defined in 326 IAC 2-7-1(3).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-7-5(2)] [326 IAC 2-1.1-9.5]

This permit is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit or of permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control).

B.3 Enforceability [326 IAC 2-7-7]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.4 Termination of Right to Operate [326 IAC 2-7-10] [326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) 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.

(b) For information furnished by the Permittee to IDEM, OAQ, 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 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, or its equivalent, with each submittal requiring certification. One (1) certification can cover multiple forms in one (1) submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in letter form no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report 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) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent; and

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3).

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

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

The PMP extension notification does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions.

The submittal of the PMP and the PMP extension notification does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) To the extent the Permittee is required by 40 CFR Part 63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) IDEM, OAQ , may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(9) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ , by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

B.12 Permit Shield [326 IAC 2-7-15] [326 IAC 2-7-20] [326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield.

The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable.

The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ, shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the

time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either

(1) incorporated as originally stated,

(2) revised, or

(3) deleted

by this permit.

(b) All previous registrations and permits are superseded by this permit, except for permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control).

B.14 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

(a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(b) A deviation is an exceedance of a permit limitation or a failure to comply with a

requirement of the permit.

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)] [326 IAC 2-7-8(a)] [326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ, determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ, to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ, may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3] [326 IAC 2-7-4]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ, and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

(b) Timely Submittal of Permit Renewal [326 IAC 2-7-4(a)(1)(D)]

(1) A timely renewal application is one that is:

(A) Submitted at least nine (9) months prior to the date of the expiration of

this permit; and

(B) 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.

(2) If IDEM, OAQ, upon receiving a timely and complete permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

(c) Right to Operate After Application for Renewal [326 IAC 2-7-3] [326 IAC 2-7-4]
If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ, takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by a reasonable deadline specified in writing by IDEM, OAQ, any additional information identified as being needed to process the application. [326 IAC 2-7-4(a)(2)(D) and (E)]

(d) United States Environmental Protection Agency Authority [326 IAC 2-7-8(e)]
If IDEM, OAQ, fails to act in a timely way on a Part 70 permit renewal, the U.S. EPA may invoke its authority under Section 505(e) of the Clean Air Act to terminate or revoke and reissue a Part 70 permit.

B.17 Source Modification [326 IAC 1-2-42] [326 IAC 2-7-10.5]

(a) The Permittee shall obtain approval as required by 326 IAC 2-7-10.5 from the IDEM, OAQ prior to making any modification to the source. Pursuant to 326 IAC 1-2-42, "Modification" means one (1) or more of the following activities at an existing source:

(1) A physical change or change in the method of operation of any existing emissions unit that increases the potential to emit any regulated pollutant that could be emitted from the emissions unit, or that results in emissions of any regulated pollutant not previously emitted.

(2) Construction of one (1) or more new emissions units that have the potential to emit regulated air pollutants.

(3) Reconstruction of one (1) or more existing emission units that increases the potential to emit of any regulated air pollutant.

(b) Any application requesting a source modification shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee shall also comply with the applicable provisions of 326 IAC 2-7-11 (Administrative Permit Amendments) or 326 IAC 2-7-12 (Permit Modification) prior to operating the approved modification.

B.18 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12] [40 CFR 72]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Pursuant to 326 IAC 2-7-11(b) and 326 IAC 2-7-12(a), administrative Part 70 permit amendments and permit modifications for purposes of the acid rain portion of a Part 70 permit shall be governed by regulations promulgated under Title IV of the Clean Air Act. [40 CFR 72]

(c) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

Any such application shall be certified by the “responsible official” as defined by 326 IAC 2-7-1(34).

(d) 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)]

(e) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

B.19 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)] [326 IAC 2-7-12 (b)(2)]

(a) No Part 70 permit revision shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.20 Operational Flexibility [326 IAC 2-7-20] [326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b), (c), or (e), without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air

Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the emissions allowable under this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records accessible on-site which document, on a rolling five (5) year basis, all such changes and emissions trading that are subject to 326 IAC 2-7-20(b), (c), or (e) and makes such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ, in the notices specified in 326 IAC 2-7-20(b)(1), (c)(1), and (e)(2).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade increases and decreases in emissions in the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.

(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.21 Inspection and Entry [326 IAC 2-7-6] [IC 13-14-2-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records are physically present or electronically accessible under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.22 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
Indianapolis, Indiana 46204

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.23 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, I/M & Billing Section), to determine the appropriate permit fee.

B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314]

Notwithstanding the conditions of this permit that state specific methods that may be used to demonstrate compliance with, or a violation of, applicable requirements, any person (including the Permittee) may also use other credible evidence to demonstrate compliance with, or a violation of, any term or condition of this permit.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) pounds per hour [40 CFR 52 Subpart P] [326 IAC 6-3-2]

(a) Pursuant to 40 CFR 52 Subpart P, particulate matter emissions from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.

(b) Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour. This condition is not federally enforceable.

C.2 Opacity [326 IAC 5-1]

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

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

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

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

326 IAC 4-1-3 (a)(2)(A) and (B) are not federally enforceable.

C.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

326 IAC 9-1-2 is not federally enforceable.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Motor Vehicle Fugitive Dust Sources [326 IAC 6-4-4]

Pursuant to 326 IAC 6-4-4, no vehicle shall be driven or moved on any public street, road, alley, highway, or other thoroughfare, unless such vehicle is so constructed as to prevent its contents from dripping, sifting, leaking, or otherwise escaping there from so as to create conditions which result in fugitive dust. This section applies only to the cargo any vehicle may be conveying and mud tracked by the vehicle.

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

The Permittee shall comply with the applicable requirements of 326 IAC 14-10, 326 IAC 18, and 40 CFR 61.140.

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

C.9 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
Indianapolis, Indiana 46204

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 source 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. The test report requires certification by the responsible official.

Compliance Requirements [326 IAC 2-1.1-11]

C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

C.11 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

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

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a source modification shall be implemented when operation begins.

C.12 Maintenance of Continuous Opacity Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) The Permittee shall calibrate, maintain, and operate all necessary continuous opacity monitoring systems (COMS) and related equipment. For a boiler, the COM shall be in operation at all times that the induced draft fan is in operation.

(b) All continuous opacity monitoring systems shall meet the performance specifications of 40 CFR 60, Appendix B, Performance Specification No. 1, and are subject to monitor system certification requirements pursuant to 326 IAC 3-5.

(c) In the event that a breakdown of a continuous opacity monitoring system occurs, a record shall be made of the time and reason of the breakdown and efforts made to correct the problem.

(d) Whenever a continuous opacity monitor (COM) is malfunctioning or will be down for calibration, maintenance, or repairs for a period of one (1) hour or more, compliance with the applicable opacity limits shall be demonstrated by the following:

(1) Visible emission (VE) notations shall be performed once per hour during daylight operations following the shutdown or malfunction of the primary COM. A trained employee shall record whether emissions are normal or abnormal for the state of operation of the emission unit at the time of the reading.

(A) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(B) If abnormal emissions are noted during two consecutive emission notations, the Permittee shall begin Method 9 opacity observations within four hours of the second abnormal notation.

(C) VE notations may be discontinued once a COM is online or formal Method 9 readings have been implemented.

(2) If a COM is not online within twenty-four (24) hours of shutdown or malfunction of the primary COM, the Permittee shall provide certified opacity reader(s), who may be employees of the Permittee or independent contractors, to self-monitor the emissions from the emission unit stack.

(A) Visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of five (5) consecutive six (6) minute averaging periods beginning not more than twenty-four (24) hours after the start of the malfunction or down time.

(B) Method 9 opacity readings shall be repeated for a minimum of five (5) consecutive six (6) minute averaging periods at least once every four (4) hours during daylight operations, until such time that a COM is in operation.

(C) Method 9 readings may be discontinued once a COM is online.

(D) Any opacity exceedances determined by Method 9 readings shall be reported with the Quarterly Opacity Exceedances Reports.

(3) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Observation of abnormal emissions that do not violate an applicable opacity limit is not a deviation from this 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.

(e) Nothing in this permit shall excuse the Permittee from complying with the requirements to operate a continuous opacity monitoring system pursuant to 326 IAC 3-5, 40 CFR 60 and Construction Permit PSD (26) 1215.

C.13 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, 40 CFR

75, or other approved methods as specified in this permit.

C.14 Pressure Gauge and Other 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 pressure drop across any part of the unit or its control device, the gauge 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) Whenever a condition in this permit requires the measurement of a voltage, current, temperature, or flow rate, 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.

(c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

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

C.15 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 February 12, 1980. The plans (ERPs) were approved on March 19, 1980.

(b) 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.16 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

(a) If a regulated substance, subject to 40 CFR 68, is present at a source in more than a threshold quantity, 40 CFR 68 is an applicable requirement.

(b) The Permittee shall verify that a Risk Management Plan or a revised plan was prepared as required by 40 CFR 68 and submitted to IDEM, OAQ.

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

C.17 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan under 40 CFR 63, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions.

A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:

(1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.

(2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan to include such response steps taken.

The OMM Plan or Parametric Monitoring and SSM Plan shall be submitted within the time frames specified by the applicable 40 CFR 63 requirement.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

(1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan; or

(2) If none of the reasonable response steps listed in the Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan or Parametric Monitoring Plan and Start-up, Shutdown, and Malfunction (SSM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.

(3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be ten (10) days or more until the unit or device will be shut down, then the Permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down. The notification shall also include the status of the applicable compliance monitoring parameter with respect to normal, and the results of the response actions taken up to the time of notification.

(4) Failure to take reasonable response steps shall be considered a deviation from the permit.

(c) The Permittee is not required to take any further response steps for any of the following reasons:

(1) A false reading occurs due to the malfunction of the monitoring equipment and

prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.

(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 the response steps required in Section D 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.18 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 response action 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.19 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 emission statement certified pursuant to the requirements of 326 IAC 2-6. This statement must be received in accordance with the compliance schedule specified in 326 IAC 2-6-3, and must comply with the minimum requirements specified in 326 IAC 2-6-4. The submittal should cover the period identified in 326 IAC 2-6. The emission statement shall meet the following requirements:

(1) Indicate estimated actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(32) ("Regulated pollutant which is used only for purposes of Section 19 of this rule") from the source, for purposes of Part 70 fee assessment.

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).

(b) 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.20 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.21 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee 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).

(b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(e) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

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

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

(a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

(b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

(c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

(d) Pursuant to 40 CFR 82, Subpart E (The Labeling of Products Using Ozone-Depleting Substances), all containers in which a Class I or Class II substance is stored or transported and all products containing a Class I substance shall be labeled as required under 40 CFR Part 82.

Ambient Monitoring Requirements [326 IAC 7-3]

C.23 Ambient Monitoring [326 IAC 7-3]

(a) The Permittee shall operate continuous ambient sulfur dioxide air quality monitors and a meteorological data acquisition system according to a monitoring plan submitted to the commissioner for approval. The monitoring plan shall include requirements listed in 326 IAC 7-3-2(a)(1), 326 IAC 7-3-2(a)(2) and 326 IAC 7-3-2(a)(3).

(b) The Permittee and other operators subject to the requirements of this rule, located in the same county, may submit a joint monitoring plan to satisfy the requirements of this rule. [326 IAC 7-3-2(c)]

(c) The Permittee may petition the commissioner for an administrative waiver of all or some of the requirements of 326 IAC 7-3 if such owner or operator can demonstrate that

ambient monitoring is unnecessary to determine continued maintenance of the sulfur dioxide ambient air quality standards in the vicinity of the source. [326 IAC 7-3-2(d)]

Part 2 MACT Application Submittal Requirement

C.24 Application Requirements for Section 112(j) of the Clean Air Act [40 CFR 63.52(e)] [40 CFR 63.56(a)] [40 CFR 63.9(b)] [326 IAC 2-7-12]

(a) The Permittee shall submit a Part 2 Maximum Achievable Control Technology (MACT) Application in accordance with 40 CFR 63.52(e)(1). The Part 2 MACT Application shall meet the requirements of 40 CFR 63.53(b).

(b) Notwithstanding paragraph (a), the Permittee is not required to submit a Part 2 MACT Application if the Permittee no longer meets the applicability criteria of 40 CFR 63.50 by the application deadline in 40 CFR 63.52(e)(1). For example, the Permittee would not have to submit a Part 2 MACT Application if, by the application deadline:

(1) The source is no longer a major source of hazardous air pollutants, as defined in 40 CFR 63.2;

(2) The source no longer includes one or more units in an affected source category for which the U.S. EPA failed to promulgate an emission standard by May 15, 2002; or

(3) The MACT standard or standards for the affected source categories included at the source are promulgated.

(c) Notwithstanding paragraph (a), pursuant to 40 CFR 63.56(a), the Permittee shall comply with an applicable promulgated MACT standard in accordance with the schedule provided in the MACT standard if the MACT standard is promulgated prior to the Part 2 MACT Application deadline or prior to the issuance of permit with a case-by-case Section 112(j) MACT determination. The MACT requirements include the applicable General Provisions requirements of 40 CFR 63, Subpart A. Pursuant to 40 CFR 63.9(b), the Permittee shall submit an initial notification not later than 120 days after the effective date of the MACT, unless the MACT specifies otherwise. The initial notification shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

United States Environmental Protection Agency, Region V
Director, Air and Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

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

D.1.1 Particulate Emission Limitations [326 IAC 2-2]

Pursuant to PSD permit PSD (26) 1215, issued March 17, 1978, particulate matter emissions from the Boiler No. 1 stack shall not exceed 0.12 pound per million Btu heat input (lb/MMBtu).

D.1.2 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3(e) (Temporary Alternative Opacity Limitations), the following applies:

(a) When building a new fire in a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods) or until the flue gas temperature reaches two hundred fifty (250) degrees Fahrenheit, whichever occurs first.

Operation of the electrostatic precipitator is not required during these times.

(b) When shutting down a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods).

(c) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2.

However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging period in any sixty (60) minute period.

The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period. [326 IAC 5-1-3(b)]

D.1.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] and Pollution Control Project [326 IAC 2-2.3] [326 IAC 2-3.3]

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 1 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 1 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 1 shall not exceed 1.0 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

D.1.4 Operation Standards [326 IAC 2-1.1-5(a)(4)] [40 CFR 261] [40 CFR 279] [329 IAC 13]

(a) All coal burned, including coal treated with any additive, shall meet the ASTM definition of coal.

(b) The burning of hazardous waste, as defined by 40 CFR 261, is prohibited in this facility. Any boiler tube chemical cleaning waste liquids, binding agent, or used oil combusted shall meet the toxicity characteristic requirements for non-hazardous waste.

(c) Any boiler or condenser tube chemical cleaning waste liquids fired in the boiler shall only contain the cleaning solution and two full volume boiler rinses.

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

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

Compliance Determination Requirements

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

Within the two (2) calendar years following the most recent stack test, compliance with the PM limitation in Condition D.1.1 - Particulate Emissions Limitations, shall be determined by a performance stack test conducted utilizing methods as approved by the Commissioner.

This test shall be repeated at least once every two (2) calendar years following this valid compliance demonstration.

Testing shall be conducted in accordance with Section C- Performance Testing.

For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

D.1.7 Operation of Electrostatic Precipitator and Flue Gas Desulfurization (FGD) [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 1 is in operation and combusting fuel.

(b) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.1.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), continuous emission monitoring systems shall be calibrated, maintained, and operated for measuring opacity, which meet all applicable performance specifications of 326 IAC 3-5-2.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.1.9 Sulfur Dioxide Emissions [326 IAC 7-2] [326 IAC 7-4-12.1] [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:

(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or

(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.

(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]

With the flue gas desulfurization (FGD) system:

(d) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.0 pounds per MMBtu using a thirty (30) day rolling weighted average.

(e) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.1.10 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

The Permittee shall record, report, and quality assure the data from the monitoring systems for the NO_X budget units in accordance with 326 IAC 10-4-12 and 40 CFR 75.

D.1.11 Cleaning Waste Characterization [326 IAC 2-1.1-5(a)(4)] [40 CFR 261]

The Permittee shall use appropriate methodology as identified in 40 CFR Part 261 to characterize all boiler chemical cleaning wastes that will be evaporated, to determine compliance with the Operation Standards condition in this D section.

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

D.1.12 Transformer-Rectifier (T-R) Sets [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The ability of the ESP to control particulate emissions shall be monitored once per shift, when the unit is in operation, by measuring and recording the number of T-R sets in service and the primary and secondary voltages and the currents of the transformer-rectifier (T-R) sets.

(b) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the percentage of T-R sets in service falls below ninety percent (90%).

T-R set failure resulting in less than ninety percent (90%) availability is not a deviation from this 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.1.13 Opacity Readings [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity exceeds twenty-five percent (25%) for three (3) consecutive six (6) minute averaging periods.

In the event of opacity exceeding twenty-five percent (25%), response steps will be taken such that the cause(s) of the excursion are identified and corrected and opacity levels are brought back below twenty-five percent (25%).

Examples of expected response steps include, but are not limited to, boiler loads being reduced and ESP T-R sets being returned to service.

(b) Opacity readings in excess of twenty-five percent (25%) but not exceeding the opacity limit for the unit are not a deviation from this 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.1.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)] [326 IAC 2-7-5(1)]

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

D.1.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all applicable SO_2 emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP).

Defective parts shall be replaced.

A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection.

Discovery of an abnormal or improper condition is not a deviation from this 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.

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

D.1.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.1.1 - Particulate Emission Limitations, D.1.2 - Temporary Alternative Opacity Limitations, D.1.8 - Continuous Emissions Monitoring, D.1.12 - Transformer-Rectifier (T-R) Sets, and D.1.13 - Opacity readings, the Permittee shall maintain records in accordance with (1) through (4) below.

Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.1.1 - Particulate Emission Limitations and D.1.2 - Temporary Alternative Opacity Limitations.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.1.3 - Sulfur Dioxide (SO_2) and Pollution Control Project, D.1.9 - Sulfur Dioxide Emissions, and D.1.14 - Flue Gas Desulfurization (FGD) Operation, the Permittee shall maintain records in accordance with (1) through (3) below.

Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.1.3 - Sulfur Dioxide (SO_2) and Pollution Control Project and D.1.9 - Sulfur Dioxide Emissions.

The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.

(2) All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.1.14 - Flue Gas Desulfurization (FGD) Operation,.

(3) Actual fuel usage during each SO_2 CEMS downtime.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain actual fuel usage since last compliance determination period.

(c) To document compliance with Condition D.1.5 - Preventive Maintenance Plan, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the SO_2 emissions exceedances in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(c) A quarterly report of the thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. [326 IAC 7-2-1(c)(1)]

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(d) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 2 is anticipated to begin operation in June 2007.

Boiler No. 2 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

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

D.2.1 Particulate Emission Limitations [326 IAC 2-2]

Pursuant to PSD permit PSD (26) 1215, issued March 17, 1978, particulate matter emissions from the Boiler No. 2 stack shall not exceed 0.12 pound per million Btu heat input (lb/MMBtu).

D.2.2 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3(e) (Temporary Alternative Opacity Limitations), the following applies:

(a) When building a new fire in a boiler, or shutting down a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods) or until the flue gas temperature reaches two hundred fifty (250) degrees Fahrenheit, whichever occurs first.

Operation of the electrostatic precipitator is not required during these times.

(b) When shutting down a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods).

(c) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2.

However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging period in any sixty (60) minute period.

The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period. [326 IAC 5-1-3(b)]

D.2.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] and Pollution Control Project [326 IAC 2-2.3] [326 IAC 2-3.3]

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 2 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 2 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 2 shall not exceed 1.0 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

D.2.4 Operation Standards [326 IAC 2-1.1-5(a)(4)] [40 CFR 261] [40 CFR 279] [329 IAC 13]

(a) All coal burned, including coal treated with any additive, shall meet the ASTM definition of coal.

(b) The burning of hazardous waste, as defined by 40 CFR 261, is prohibited in this facility. Any boiler tube chemical cleaning waste liquids, binding agent, or used oil combusted shall meet the toxicity characteristic requirements for non-hazardous waste.

(c) Any boiler or condenser tube chemical cleaning waste liquids fired in the boiler shall only contain the cleaning solution and two full volume boiler rinses.

D.2.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

Compliance Determination Requirements

D.2.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within the two (2) calendar years following the most recent stack test, compliance with the PM limitation in Condition D.2.1 - Particulate Emissions Limitations, shall be determined by a performance stack test conducted utilizing methods as approved by the Commissioner.

This test shall be repeated at least once every two (2) calendar years following this valid compliance demonstration.

Testing shall be conducted in accordance with Section C- Performance Testing.

For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

D.2.7 Operation of Electrostatic Precipitator and Flue Gas Desulfurization (FGD) [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 2 is in operation and combusting fuel.

(b) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.2.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), continuous emission monitoring systems shall be calibrated, maintained, and operated for measuring opacity, which meet all applicable performance specifications of 326 IAC 3-5-2.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.2.9 Sulfur Dioxide Emissions [326 IAC 7-2] [326 IAC 7-4-12.1] [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:

(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or

(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.

(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]

With the flue gas desulfurization (FGD) system:

(d) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.0 pounds per MMBtu using a thirty (30) day rolling weighted average.

(e) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.2.10 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

The Permittee shall record, report, and quality assure the data from the monitoring systems for the NO_X budget units in accordance with 326 IAC 10-4-12 and 40 CFR 75.

D.2.11 Cleaning Waste Characterization [326 IAC 2-1.1-5(a)(4)] [40 CFR 261]

The Permittee shall use appropriate methodology as identified in 40 CFR Part 261 to characterize all boiler chemical cleaning wastes that will be evaporated, to determine compliance with the Operation Standards condition in this D section.

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

D.2.12 Transformer-Rectifier (T-R) Sets [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The ability of the ESP to control particulate emissions shall be monitored once per shift, when the unit is in operation, by measuring and recording the number of T-R sets in service and the primary and secondary voltages and the currents of the transformer-rectifier (T-R) sets.

(b) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the percentage of T-R sets in service falls below ninety percent (90%).

T-R set failure resulting in less than ninety percent (90%) availability is not a deviation from this 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.2.13 Opacity Readings [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity exceeds twenty-five percent (25%) for three (3) consecutive six (6) minute averaging periods.

In the event of opacity exceeding twenty-five percent (25%), response steps will be taken such that the cause(s) of the excursion are identified and corrected and opacity levels are brought back below twenty-five percent (25%).

Examples of expected response steps include, but are not limited to, boiler loads being reduced and ESP T-R sets being returned to service.

(b) Opacity readings in excess of twenty-five percent (25%) but not exceeding the opacity limit for the unit are not a deviation from this 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.2.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)]

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per

hour until the primary CEM or a backup CEM is brought online.

D.2.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all applicable SO_2 emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP).

Defective parts shall be replaced.

A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection.

Discovery of an abnormal or improper condition is not a deviation from this 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.

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

D.2.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.2.1 - Particulate Emissions Limitations, D.2.2 -Temporary Alternative Opacity Limitations, D.2.8 - Continuous Emissions Monitoring, D.2.12 - Transformer-Rectifier (T-R) Sets, and D.2.13 - Opacity Readings, the Permittee shall maintain records in accordance with (1) through (4) below.

Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.2.1 - Particulate Emissions Limitations, and D.2.2 - Temporary Alternative Opacity Limitations.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.2.3 - Sulfur Dioxide (SO_2) and Pollution Control Project, D.2.9 - Sulfur Dioxide Emissions, and D.2.14 - Flue Gas Desulfurization (FGD) Operation, the Permittee shall maintain records in accordance with (1) through (3) below.

Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.2.3 - Sulfur Dioxide (SO_2), and D.2.9 - Sulfur Dioxide Emissions,.

The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.

(2) All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.2.14 - Flue Gas Desulfurization (FGD) Operation.

(3) Actual fuel usage during each SO_2 CEMS downtime.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.2.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.2.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain actual fuel usage since last compliance determination period.

(c) To document compliance with Condition D.2.5 - Preventive Maintenance Plan, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the SO_2 emissions exceedances in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(c) A quarterly report of the thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. [326 IAC 7-2-1(c)(1)]

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

(d) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NO_x during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions and exhausting to a new stack, identified as Stack 3.

This FGD system for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

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

D.3.1 Particulate Emission Limitations [326 IAC 2-2]

Pursuant to PSD permit PSD (26) 1215, issued March 17, 1978, particulate matter emissions from the Boiler No. 3 stack shall not exceed 0.12 pound per million Btu heat input (lb/MMBtu).

D.3.2 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3(e) (Temporary Alternative Opacity Limitations), the following applies:

(a) When building a new fire in a boiler, or shutting down a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed five (5) hours (fifty (50) six (6)-minute averaging periods) or until the flue gas temperature reaches two hundred fifty (250) degrees Fahrenheit, whichever occurs first.

Operation of the electrostatic precipitator is not required during these times.

(a) When shutting down a boiler, opacity may exceed the 40% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods).

(c) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2.

However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging period in any sixty (60) minute period.

The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period. [326 IAC 5-1-3(b)]

D.3.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] and Pollution Control Project [326 IAC 2-2.3] [326 IAC 2-3.3]

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 3 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 3 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3 and 326 IAC 2-3.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 3 shall not exceed 1.5 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

D.3.4 Operation Standards [326 IAC 2-1.1-5(a)(4)] [40 CFR 261] [40 CFR 279] [329 IAC 13]

(a) All coal burned, including coal treated with any additive, shall meet the ASTM definition of coal.

(b) The burning of hazardous waste, as defined by 40 CFR 261, is prohibited in this facility. Any boiler tube chemical cleaning waste liquids, binding agent, or used oil combusted shall meet the toxicity characteristic requirements for non-hazardous waste.

(c) Any boiler or condenser tube chemical cleaning waste liquids fired in the boiler shall only contain the cleaning solution and two full volume boiler rinses.

D.3.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

Compliance Determination Requirements

D.3.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within the two (2) calendar years following the most recent stack test, compliance with the PM limitation in Condition D.3.1 - Particulate Emissions Limitation, shall be determined by a performance stack test conducted utilizing methods as approved by the Commissioner.

This test shall be repeated at least once every two (2) calendar years following this valid compliance demonstration.

Testing shall be conducted in accordance with Section C- Performance Testing.

For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

D.3.7 Operation of Electrostatic Precipitator and Flue Gas Desulfurization (FGD) [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 3 is in operation and combusting fuel.

(b) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.3.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of opacity, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.3.9 Sulfur Dioxide Emissions [326 IAC 7-2] [326 IAC 7-4-12.1] [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:

(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or

(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.

(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]

With the flue gas desulfurization (FGD) system:

(d) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed the equivalent of 1.5 pounds per MMBtu using a thirty (30) day rolling weighted average.

(e) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using continuous SO_2 emission monitoring system (CEMS) data.

D.3.10 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

The Permittee shall record, report, and quality assure the data from the monitoring systems for the NO_X budget units in accordance with 326 IAC 10-4-12 and 40 CFR 75.

D.3.11 Cleaning Waste Characterization [326 IAC 2-1.1-5(a)(4)] [40 CFR 261]

The Permittee shall use appropriate methodology as identified in 40 CFR Part 261 to characterize all boiler chemical cleaning wastes that will be evaporated, to determine compliance with the Operation Standards condition in this D section.

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

D.3.12 Transformer-Rectifier (T-R) Sets [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The ability of the ESP to control particulate emissions shall be monitored once per shift, when the unit is in operation, by measuring and recording the number of T-R sets in service and the primary and secondary voltages and the currents of the transformer-rectifier (T-R) sets.

(b) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the percentage of T-R sets in service falls below ninety percent (90%).

T-R set failure resulting in less than ninety percent (90%) availability is not a deviation from this 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.3.13 Opacity Readings [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity exceeds twenty-five percent (25%) for three (3) consecutive six (6) minute averaging periods.

In the event of opacity exceeding twenty-five percent (25%), response steps will be taken such that the cause(s) of the excursion are identified and corrected and opacity levels are brought back below twenty-five percent (25%).

Examples of expected response steps include, but are not limited to, boiler loads being reduced and ESP T-R sets being returned to service.

(b) Opacity readings in excess of twenty-five percent (25%) but not exceeding the opacity limit for the unit are not a deviation from this 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.3.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)] [326 IAC 2-7-5(1)]

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

D.3.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all SO_2 applicable emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP).

Defective parts shall be replaced.

A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection.

Discovery of an abnormal or improper condition is not a deviation from this 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.

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

D.3.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.3.1 - Particulate Emissions Limitation, D.3.2 - Temporary Alternative Opacity Limitations, D.3.8 - Continuous Emissions Monitoring, D.3.12 - Transformer-Rectifier (T-R) Sets , and D.3.13 - Opacity Readings, the Permittee shall maintain records in accordance with (1) through (4) below.

Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.3.1- Particulate Emissions Limitation, and D.3.2 - Temporary Alternative Opacity Limitations.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.3.3 - Sulfur Dioxide (SO_2) and Pollution Control Project, D.3.9 - Sulfur Dioxide Emissions, and D.3.14 - Flue Gas Desulfurization (FGD) Operation, the Permittee shall maintain records in accordance with (1) through (3) below.

Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.3.3 - Sulfur Dioxide (SO_2) and Pollution Control Project and D.3.9 - Sulfur Dioxide Emissions.

The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g).

(2) All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.3.14 - Flue Gas Desulfurization (FGD) Operation.

(3) Actual fuel usage during each SO_2 CEMS downtime.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.3.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.3.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain actual fuel usage since last compliance determination period.

(c) To document compliance with Condition D.3.5 - Preventive Maintenance Plan, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the SO_2 emissions exceedances in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported.

(c) A quarterly report of the thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. [326 IAC 7-2-1(c)(1)]

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

(d) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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.4 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NO_x during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

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

D.4.1 Particulate Emission Limitations [326 IAC 2-2]

Pursuant to PSD permit PSD (26) 1215, issued March 17, 1978, particulate matter emissions from the Boiler No. 4 stack shall not exceed 0.12 pound per million Btu heat input (lb/MMBtu).

D.4.2 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3(e) (Temporary Alternative Opacity Limitations), the following applies:

(a) During boiler startups an exemption from the 40% opacity limit is allowed for up to fifty (50) six (6)-minute averaging periods~~)~~ or until the flue gas temperature entering the electrostatic precipitator reaches two hundred fifty (250) degrees Fahrenheit, whichever occurs first. This exemption period includes the sum total of Stack “B” and Stack “D” non-overlapping exceedance periods.

Operation of the electrostatic precipitator is not required during these times.

(b) During boiler shutdowns, an exemption from the 40% opacity limitation established in 326 IAC 5-1-2 is allowed for a period not to exceed forty (40) six (6)-minute averaging periods~~)~~. This exemption period includes the sum total of Stack “B” and Stack “D” non-overlapping exceedance periods.

(c) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2.

However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging period in any sixty (60) minute period.

The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period. [326 IAC 5-1-3(b)]

D.4.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1]

Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 4 stack shall not exceed 0.60 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average and operate an FGD system.

D.4.4 Operation Standards [326 IAC 2-1.1-5(a)(4)] [40 CFR 261] [40 CFR 279] [329 IAC 13]

(a) All coal burned, including coal treated with any additive, shall meet the ASTM definition of coal.

(b) The burning of hazardous waste, as defined by 40 CFR 261, is prohibited in this facility. Any boiler tube chemical cleaning waste liquids, binding agent, or used oil combusted shall meet the toxicity characteristic requirements for non-hazardous waste.

(c) Any boiler or condenser tube chemical cleaning waste liquids fired in the boiler shall only contain the cleaning solution and two full volume boiler rinses.

D.4.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

(4) Flue gas conditioning system (FGCS) components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months.

Compliance Determination Requirements

D.4.6 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within the two (2) calendar years following the most recent stack test, compliance with the PM limitation in Condition D.4.1 - Particulate Emissions Limitations, shall be determined by a performance stack test conducted utilizing methods as approved by the Commissioner.

This test shall be repeated at least once every two (2) calendar years following this valid compliance demonstration.

Testing shall be conducted in accordance with Section C- Performance Testing.

For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

D.4.7 Operation of Electrostatic Precipitator [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 4 is in operation and combusting fuel.

D.4.8 Flue Gas Desulfurization System [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.4.9 Continuous Emissions Monitoring [326 IAC 3-5]

Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), continuous emission monitoring systems shall be calibrated, maintained, and operated for measuring opacity and SO_2, which meet all applicable performance specifications of 326 IAC 3-5-2.

D.4.10 Sulfur Dioxide Emissions [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6] [326 IAC 3-5]

Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide emissions from Unit 4 does not exceed the equivalents of the limits specified in Condition D.4.3 - Sulfur Dioxide (SO_2), using a thirty (30) day rolling weighted average.

Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using CEMS data.

D.4.11 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

The Permittee shall record, report, and quality assure the data from the monitoring systems for the NO_X budget units in accordance with 326 IAC 10-4-12 and 40 CFR 75.

D.4.12 Cleaning Waste Characterization [326 IAC 2-1.1-5(a)(4)] [40 CFR 261]

The Permittee shall use appropriate methodology as identified in 40 CFR Part 261 to characterize all boiler chemical cleaning wastes that will be evaporated, to determine compliance with the Operation Standards condition in this D section.

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

D.4.13 Transformer-Rectifier (T-R) Sets [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The ability of the ESP to control particulate emissions shall be monitored once per shift, when the unit is in operation, by measuring and recording the number of T-R sets in service and the primary and secondary voltages and the currents of the transformer-rectifier (T-R) sets.

(b) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the percentage of T-R sets in service falls below ninety percent (90%).

T-R set failure resulting in less than ninety percent (90%) availability is not a deviation from this 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.4.14 Opacity Readings [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity exceeds twenty-five percent (25%) for three (3) consecutive six (6) minute averaging periods.

In the event of opacity exceeding twenty-five percent (25%), response steps will be taken such that the cause(s) of the excursion are identified and corrected and opacity levels are brought back below twenty-five percent (25%).

Examples of expected response steps include, but are not limited to, boiler loads being reduced, adjustment of flue gas conditioning rate, and ESP T-R sets being returned to service.

(b) Opacity readings in excess of twenty-five percent (25%) but not exceeding the opacity limit for the unit are not a deviation from this 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.4.15 Scrubber Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the scrubber shall be operated as needed to maintain compliance with all SO_2 emission limits.

(b) An inspection of the scrubber shall be performed at least once every two years, in accordance with the Preventive Maintenance Plan prepared in accordance with Section B - Preventive Maintenance Plan.

Defective parts shall be replaced.

A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three days unless such measurements have been taken within the past twelve months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection.

Discovery of an abnormal or improper condition is not a deviation from this 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.4.16 SO_2 Monitor Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(1)]

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the scrubber continues in a manner typical for the boiler load and sulfur content of the coal fired.

Scrubber parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

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

D.4.17 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.4.1 - Particulate Emissions Limitation, D.4.2 - Temporary Alternative Opacity Limitations, D.4.9 - Continuous Emissions Monitoring, D.4.13 - Transformer-Rectifier (T-R) Sets, and D.4.14 - Opacity Readings, the Permittee shall maintain records in accordance with (1) through (4) below.

Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.4.1 - Particulate Emissions Limitation, and D.4.2 - Temporary Alternative Opacity Limitations.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with SO_2 Conditions D.4.3 - Sulfur Dioxide (SO_2), D.4.9 - Continuous Emissions Monitoring, D.4.10 - Sulfur Dioxide Emissions, D.4.15 - Scrubber Operation, and D.4.16 - SO_2 Monitor Downtime, the Permittee shall maintain records in accordance with (1) through (3) below.

Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.4.3 - Sulfur Dioxide (SO_2), and D.4.10 - Sulfur Dioxide Emissions. The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g),

(2) All scrubber parametric monitoring readings taken during any periods of CEM downtime, in accordance with Condition D.4.16 - SO_2 Monitor Downtime.

(3) Actual fuel usage during each SO_2 CEM downtime.

(c) Whenever the flue gas conditioning agent is in use, the Permittee shall maintain records of the injection rate of the flue gas conditioning agent, in parts per million (ppm), on an hourly basis.

(d) To document compliance with Condition D.4.5 - Preventive Maintenance Plan, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.4.18 Reporting Requirements

(a) A quarterly report of opacity exceedances and a quarterly summary of the information to document compliance with Condition D.4.2 - Temporary Alternative Opacity Limitations shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(b) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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.5 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NO_x during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

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

D.5.1 New Source Performance Standard (NSPS) [326 IAC 12] [40 CFR 60, Subpart D] [326 IAC 2-2]

Pursuant to 326 IAC 12, 40 CFR 60, Subpart D (Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971), and PSD permit PSD (26) 1215, issued March 17, 1978, emissions from Boiler No. 5 shall not exceed the following:

(a) One-tenth (0.10) pound PM per million Btu (MMBtu) heat input. [40 CFR 60.42(a)(1)]

(b) Twenty percent (20%) opacity except for one six-minute period per hour of not more than twenty-seven percent (27%) opacity [40 CFR 60.42(a)(2)]. Pursuant to 40 CFR 60.11(c), this opacity standard is not applicable during periods of startup, shutdown, or malfunction.

(c) One and two-tenths (1.2) pound SO_2 per million Btu (MMBtu) heat input. [40 CFR 60.43(a)(2)]

(d) Seven-tenths (0.70) pound NO_X per million Btu (MMBtu) heat input. [40 CFR 60.44(a)(3)]

D.5.2 Particulate [326 IAC 2-2] [40 CFR 52.21] [Construction Permit PSD (26) 1215]

Pursuant to Construction Permit PSD (26) 1215 issued on March 17, 1978, 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration), the PM emissions from the Boiler No. 5 stack C shall not exceed one-tenth (0.10) pound PM per million Btu (MMBtu) heat input.

D.5.3 Temporary Alternative Opacity Limitations [326 IAC 5-1-3]

Pursuant to 326 IAC 5-1-3(e) (Temporary Alternative Opacity Limitations), the following applies:

(a) When building a new fire in a boiler, or shutting down a boiler, opacity may exceed the 20% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed five (5) hours (fifty (50) six (6)-minute averaging periods) or until the flue gas temperature reaches two hundred fifty (250) degrees Fahrenheit, whichever occurs first.

Operation of the electrostatic precipitator is not required during these times.

(b) When shutting down a boiler, opacity may exceed the 20% opacity limitation established in 326 IAC 5-1-2 for a period not to exceed four (4) hours (forty (40) six (6)-minute averaging periods).

(c) When removing ashes from the fuel bed or furnace in a boiler or blowing tubes, opacity may exceed the applicable limit established in 326 IAC 5-1-2. However, opacity levels shall not exceed sixty percent (60%) for any six (6)-minute averaging period and opacity in excess of the applicable limit shall not continue for more than one (1) six (6)-minute averaging period in any sixty (60) minute period. The averaging periods shall not be permitted for more than three (3) six (6)-minute averaging periods in a twelve (12) hour period. [326 IAC 5-1-3(b)]

D.5.4 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1]

Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 5 stack shall not exceed 1.10 pounds per million Btu (lbs/MMBtu) based on a twenty-four (24) hour average and operation of an FGD system.

D.5.5 Operation Standards [326 IAC 2-1.1-5(a)(4)] [40 CFR 261] [40 CFR 279] [329 IAC 13]

(a) All coal burned, including coal treated with any additive, shall meet the ASTM definition of coal.

(b) The burning of hazardous waste, as defined by 40 CFR 261, is prohibited in this facility. Any boiler tube chemical cleaning waste liquids, binding agent, or used oil combusted shall meet the toxicity characteristic requirements for non-hazardous waste.

(c) Any boiler or condenser tube chemical cleaning waste liquids fired in the boiler shall only contain the cleaning solution and two full volume boiler rinses.

D.5.6 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart D.

D.5.7 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

(4) Flue gas conditioning system (FGCS) components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months.

Compliance Determination Requirements

D.5.8 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Within the two (2) calendar years following the most recent stack test, compliance with the PM limitation in Conditions D.5.1 - New Source Performance Standard (NSPS), and D.5.2 - Particulate, shall be determined by a performance stack test conducted utilizing methods as approved by the Commissioner.

This test shall be repeated at least once every two (2) calendar years following this valid compliance demonstration.

Testing shall be conducted in accordance with Section C- Performance Testing.

For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

D.5.9 Operation of Electrostatic Precipitator [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 5 is in operation and combusting fuel.

D.5.10 Flue Gas Desulfurization System [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.5.11 Continuous Emissions Monitoring [326 IAC 3-5] [40 CFR 60, Subpart D]

Pursuant to 326 IAC 3-5 and 40 CFR 60.40, Subpart D, continuous monitoring systems for Boiler No. 5 shall be calibrated, maintained, and operated for measuring opacity, SO_2, NO_x, and either CO_2 or O_2, which meets the performance specifications of 326 IAC 3-5-2 and 40 CFR 60.45.

D.5.12 Sulfur Dioxide Emissions [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6] [326 IAC 3-5]

Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide emissions from Unit 5 does not exceed the limits specified in Conditions D.5.1(c) and D.5.4 - Sulfur Dioxide (SO_2), using a thirty (30) day rolling weighted average.

Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using CEMS data.

D.5.13 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

The Permittee shall record, report, and quality assure the data from the monitoring systems for the NO_X budget units in accordance with 326 IAC 10-4-12 and 40 CFR 75.

D.5.14 Cleaning Waste Characterization [326 IAC 2-1.1-5(a)(4)] [40 CFR 261]

The Permittee shall use appropriate methodology as identified in 40 CFR Part 261 to characterize all boiler chemical cleaning wastes that will be evaporated, to determine compliance with the Operation Standards condition in this D section.

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

D.5.15 Transformer-Rectifier (T-R) Sets [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The ability of the ESP to control particulate emissions shall be monitored once per shift, when the unit is in operation, by measuring and recording the number of T-R sets in service and the primary and secondary voltages and the currents of the transformer-rectifier (T-R) sets.

(b) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the percentage of T-R sets in service falls below ninety percent (90%). T-R set failure resulting in less than ninety percent (90%) availability is not a deviation from this 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.5.16 Opacity Readings [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Appropriate response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the opacity exceeds twenty-five percent (25%) for three (3) consecutive six (6) minute averaging periods. In the event of opacity exceeding twenty-five percent (25%), response steps will be taken such that the cause(s) of the excursion are identified and corrected and opacity levels are brought back below twenty-five percent (25%). Examples of expected response steps include, but are not limited to, boiler loads being reduced, adjustment of flue gas conditioning rate, and ESP T-R sets being returned to service.

(b) Opacity readings in excess of twenty-five percent (25%) but not exceeding the opacity limit for the unit are not a deviation from this 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.5.17 Scrubber Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the scrubber shall be operated as needed to maintain compliance with all SO_2 emission limits.

(b) An inspection of the scrubber shall be performed at least once every two years, in accordance with the Preventive Maintenance Plan prepared in accordance with Section B - Preventive Maintenance Plan. Defective parts shall be replaced.

A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three days unless such measurements have been taken within the past twelve months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection. Discovery of an abnormal or improper condition is not a deviation from this 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.5.18 SO_2 Monitor Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(1)]

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the scrubber continues in a manner typical for the boiler load and sulfur content of the coal fired.

Scrubber parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

D.5.19 NO_X Monitoring System Downtime [326 IAC 2-2] [326 IAC 2-7-6] [326 IAC 2-7-5(3)]

In instances of NO_X continuous emission monitoring system (CEMS) downtime, the Permittee shall report the NO_X mass emissions in accordance with the procedures regulated by 40 CFR Part 75, Appendix D (Optional SO_2 Emissions Data Protocol) for fuel flow meters requirements, 40 CFR Part 75, Appendix E (Optional NO_X Emissions Estimation Protocol) for emission rate curve establishment, and Appendix G (Determination of CO_2 Emissions).

NO_X mass emissions reported shall be based on the fuel-and-unit-specific NO_X emission rates ("load curve") established during the latest stack test.

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

D.5.20 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.5.1- New Source Performance Standard (NSPS), D.5.2 - Particulate, D.5.3 - Temporary Alternative Opacity Limitations, D.5.11 - Continuous Emissions Monitoring, D.5.14 - Cleaning Waste Characterization, and D.5.15 - Transformer-Rectifier (T-R) Sets, the Permittee shall maintain records in accordance with (1) through (4) below.

Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.5.1 - New Source Performance Standard (NSPS), D.5.2 - Particulate, and D.5.3 - Temporary Alternative Opacity Limitations.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5 and 40 CFR 60.40 (Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971).

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.5.1 - New Source Performance Standard (NSPS), D.5.4 - Sulfur Dioxide (SO_2), D.5.10 - Flue Gas Desulfurization System, D.5.11 - Continuous Emissions Monitoring, D.5.12 - Sulfur Dioxide Emissions, D.5.16 - Opacity Readings, and D.5.17 - Scrubber Operation, the Permittee shall maintain records in accordance with (1) through (3) below. Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.5.4 - Sulfur Dioxide (SO_2), and D.5.10 - Flue Gas Desulfurization System. The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g) and 40 CFR 60.40 (Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971), with calendar dates and beginning and ending times of any CEM downtime.

(2) All scrubber parametric monitoring readings taken during any periods of CEM downtime, in accordance with Condition D.5.18 - SO_2 Monitor Downtime.

(3) Actual fuel usage during each SO_2 CEM downtime.

(c) Whenever the flue gas conditioning agent is in use, the Permittee shall maintain records of the injection rate of the flue gas conditioning agent, in parts per million (ppm), on an hourly basis.

(d) To document compliance with Condition D.5.7 - Preventive Maintenance Plan, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(e) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.5.21 Reporting Requirements

(a) A quarterly report of opacity exceedances and a quarterly summary of the information to document compliance with Conditions D.5.1(c) - New Source Performance Standard (NSPS), and D.5.4 - Sulfur Dioxide (SO_2), shall be submitted to the address listed in Section C - General Reporting Requirements within thirty (30) days after the end of the quarter 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).

(b) To document compliance with Condition D.5.1 - New Source Performance Standard (NSPS), and pursuant to 40 CFR 60.45(g), excess emissions and monitoring system performance (MSP) reports shall be submitted to the administrator semi-annually for each six month period in the calendar year.

All semiannual reports shall be postmarked by the 30th day following the end of each six-month period.

Each excess emission and MSP report shall include the information required in 40 CFR 60.7(c).

These reports shall be submitted to:

U.S. Environmental Protection Agency
Director, Air and Radiation Division
77 West Jackson Boulevard
Chicago, IL 60604-3590

and

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

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

(c) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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.6 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

A coal storage and handling system, with a nominal throughput of 6000 tons of coal per hour, consisting of the following equipment:

(1) Two (2) railcar unloading stations, each with a drop point to a hopper identified as DP-5 and DP-25, with each drop point controlled by a partial enclosure, and exhausting to the ambient air.

(2) Two (2) active piles, each with a drop point to a hopper identified as DP-1 and DP-16, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(3) Three (3) storage piles, having a combined storage capacity including the active piles of 4,000,000 tons, with fugitive emissions controlled by watering trucks.

(4) Four (4) enclosed hoppers, each with a drop point to conveyors identified as DP-2, DP-6, DP-17 and DP-26, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(5) An enclosed conveyor system, with 18 drop points identified as DP-3, DP-4, DP-7 through DP- 15, and DP-18 through DP-24, with each drop point enclosed and controlled by a baghouse excluding the two (2) active pile conveyors which have the drop points (DP-18 and DP-22) controlled by telescopic chutes, and exhausting to the ambient air.

(6) Five (5) enclosed coal bunkers, each with a nominal maximum capacity of 15,000 tons of coal. Bunkers are loaded via a conveyor tripper system with a total capacity of 3,000 tons per hour to the units 1 and 2 bunkers, and 3,000 tons per hour to the units 3, 4 and 5 bunkers. Particulate matter generated from loading bunkers is controlled with a baghouse, and exhausts to the ambient air.

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

D.6.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from the coal storage and handling drop points and coal bunkers shall not exceed 103.2 pounds per hour when operating at a process weight of 6000 tons per hour. This is determined by the following equation:

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

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

When the process weight rate exceeds two hundred (200) tons per hour, the maximum allowable emission may exceed 103.2 pounds per hour, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per one thousand (1,000) pounds of gases.

D.6.2 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 the baghouses, the watering system, and the telescopic chutes.

Compliance Determination Requirements

D.6.3 Particulate Control [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the baghouses for PM control shall be in operation and control emissions at all times the associated coal processing or drop point conveyors are in operation.

(b) Telescoping chutes shall be kept within a few feet of the top of the coal piles at all times drop points DP-18 and DP-22 are in operation.

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

D.6.4 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the transfer points baghouse exhausts shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the coal unloading station(s) doorways and drop points shall be performed once per shift during normal daylight operations. A trained employee shall record whether any emissions are observed.

(c) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(d) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(e) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(f) If any emissions are observed from the coal unloading station doorways and drop points, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Visible emissions that do not violate 326 IAC 6-4 (Fugitive Dust Emissions) or an applicable opacity limit is not a deviation from this 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.

(g) If abnormal emissions are observed at any baghouse exhaust, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Observation of abnormal emissions

that do not violate 326 IAC 6-4 (Fugitive Dust Emissions) or an applicable opacity limit is not a deviation from this 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.6.5 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The Permittee shall record the total static pressure drop across each of the baghouses used in conjunction with the coal transfer drop points at least once per shift when the coal handling is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this 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.

(b) The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, and shall be calibrated in accordance with the manufacturer's specifications. The specifications shall be available on site with the Preventive Maintenance Plan.

D.6.6 Baghouse Inspections [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) An inspection shall be performed each calendar quarter of all bags controlling particulate emissions from the coal processing or conveying. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

(b) If an abnormal or improper condition is found during an inspection, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Discovery of an abnormal or improper condition is not a deviation from this 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.6.7 Broken or Failed Bag Detection [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected baghouse compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. 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. If operations continue after bag failure is observed and it will be ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with

respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.6.8 Record Keeping Requirements

(a) To document compliance with Section C - Opacity, Section C -Fugitive Dust Emissions, and Condition D.6.4 - Visible Emissions Notations, the Permittee shall maintain records of the visible emission notations of the transfer points, baghouse exhausts, railcar unloading stations and all response steps taken and the outcome for each.

(b) To document compliance with Condition D.6.5 - Baghouse Parametric Monitoring, the Permittee shall maintain records of the total static pressure drop across each baghouse.

(c) To document compliance with Condition D.6.6 - Baghouse Inspections, the Permittee shall maintain records of the results of the baghouse inspections.

(d) To document compliance with Condition D.6.2 - Preventive Maintenance Plan, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.7 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

A limestone storage and handling system, consisting of the following equipment:

(1) One (1) unloading station for trucks or railcar, with a drop point to a hopper identified as LSDP-1, with a nominal throughput of 2,500 tons per hour, with the drop point controlled by a partial enclosure, and exhausting to the ambient air.

(2) Two (2) enclosed hoppers, each with a drop point to conveyors identified as LSDP-2 and LSDP-5, with a nominal throughput of 200 tons per hour, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(3) One (1) storage pile, with a nominal storage capacity of 50,000 tons, with a drop point to a hopper identified as LSDP-4, with the drop point enclosed and exhausting to the ambient air.

(4) An enclosed conveyor system, with four (4) drop points identified as LSDP-3 and LSDP-8 through LSDP-10, with each drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(5) One (1) enclosed ball mill, with a drop point to a conveyor identified as LSDP-6, with the drop point enclosed and controlled by a baghouse, and exhausting to the ambient air.

(6) Two (2) day bins for temporary storage of limestone, with a combined storage capacity of 13,000 tons, with dust from loading the bins controlled by bin vent filters, and exhausting to the ambient air.

Insignificant Activities [326 IAC 2-7-1(21)]:

(1) Flyash handling facility and transport systems, wet flyash sluiced and conveyed to five (5) ash ponds, with a combined surface area of 435 acres.

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

D.7.1 New Source Performance Standard (NSPS): Nonmetallic Mineral Processing Plants [326 IAC 12] [40 CFR 60, Subpart OOO]

(a) Pursuant to 326 IAC 12 and 40 CFR 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants), the Permittee shall not cause to be discharged into the atmosphere:

(1) From any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(A) Contain particulate matter that exceeds 0.05 grains per dry standard cubic meter (g/dscm); and

(B) Exhibit greater than a seven percent (7%) opacity. [40 CFR 60.672(a)]

(2) From any transfer point on belt conveyors or from any other affected facility, any fugitive emissions which exhibit greater than ten percent (10%) opacity. [40 CFR 60.672(b)]

(3) From any crusher at which a capture system is not used, fugitive emissions which exhibit greater than fifteen percent (15%) opacity. [40 CFR 60.672(c)]

(4) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in (a) and (b) of this condition, or the Permittee shall not cause to be discharged into the atmosphere:

(A) From any building enclosing any transfer point on a conveyor belt or any other affected facility, any visible fugitive emissions except emissions from a vent as defined in 40 CFR 60.671. [40 CFR 60.672(e)]

(B) From any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility, emissions which exceed the stack emission limits in (a) of this condition.

(5) From any baghouse that controls emissions from only an individual, enclosed storage bin, stack emissions which exhibit greater than seven percent (7%) opacity. Multiple storage bins with combined stack emissions shall comply with the emission limits in (a) of this condition.

(6) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR 60.672.

(b) When an owner or operator replaces an existing facility with a piece of equipment that is of larger size, as defined in 40 CFR 60.671, having the same function as the existing facility, or an owner or operator replaces all existing facilities in a production line with new facilities, than the replacement is subject to 40 CFR 60.672 (Standard for Particulate Matter), 40 CFR 60.674 (Monitoring of Operations), 40 CFR 60.675 (Test Methods and Procedures), and 40 CFR 60.676 (Reporting and Record keeping) of Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants.

D.7.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from the storage and handling drop points and bunkers shall not exceed 61 pounds per hour when operating at a process weight of 250 tons per hour. This is determined by the following equation:

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

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour.

When the process weight rate exceeds two hundred (200) tons per hour, the maximum allowable emission may exceed 61 pounds per hour, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per one thousand (1,000) pounds of gases.

D.7.3 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this section except when otherwise specified in 40 CFR Part 60, Subpart OOO.

D.7.4 Fugitive Dust Emission Limitations [326 IAC 6-4-2]

Pursuant to 326 IAC 6-4-2:

(a) Any ash storage pond area generating fugitive dust shall be in violation of this rule (326 IAC 6-4) if any of the following criteria are violated:

(1) A source or combination of sources which cause to exist fugitive dust concentrations greater than sixty-seven percent (67%) in excess of ambient upwind concentrations as determined by the following formula:

$$P = \frac{100\ (R) - U)}{U}$$

Where
P = Percentage increase
R = Number of particles of fugitive dust measured at downward receptor site
U = Number of particles of fugitive dust measured at upwind or background site

(2) The fugitive dust is comprised of fifty percent (50%) or more respirable dust, then the percent increase of dust concentration in subdivision (1) of this section shall be modified as follows:

$$P_R = (1.5 \pm N)\ P$$

Where
N = Fraction of fugitive dust that is respirable dust;
P_R = allowable percentage increase in dust concentration above background; and
P = no value greater than sixty-seven percent (67%).

(3) The ground level ambient air concentrations exceed fifty (50) micrograms per cubic meter above background concentrations for a sixty (60) minute period.

(4) If fugitive dust is visible crossing the boundary or property line of a source. This subdivision may be refuted by factual data expressed in subdivisions (1), (2) or (3) of this section. 326 IAC 6-4-2(4) is not federally enforceable.

(b) Pursuant to 326 IAC 6-4-6(6) (Exceptions), fugitive dust from a source caused by adverse meteorological conditions will be considered an exception to this rule (326 IAC 6-4) and therefore not in violation.

All flyash ponds shall be covered with water at all times.

D.7.5 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 the emission control devices.

Compliance Determination Requirement

D.7.6 Particulate Control [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit, to demonstrate compliance with 326 IAC 6-3-2:

(a) Pursuant to Construction Permit 051-2422-00013, issued on June 25, 1992, the baghouses and bin vent filters shall be in operation and control PM emissions at all times the associated limestone, lime or flyash handling facilities, including the ball mill and drop point conveyors, are in operation.

(a) The telescopic chute for all conveyors shall be kept within a few feet of the top of the limestone piles at all times the limestone handling system is in operation.

D.7.7 NSPS Compliance Provisions [40 CFR 60, Subpart OOO]

Compliance with the PM and opacity emission limitations in Condition D.7.1 - New Source Performance Standard (NSPS): Nonmetallic Mineral Processing Plants, shall be determined by the methods and procedures specified in 40 CFR 60.675.

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

D.7.8 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the transfer points and ball mill baghouse exhausts shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations of the partially enclosed railcar limestone unloading station exhausts shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(c) If any visible emissions of dust are observed exiting the limestone unloading station doors, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Observation of visible emissions that do not violate 326 IAC 6-4 (Fugitive Dust Emissions) or an applicable opacity limit is not a deviation from this 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) Visible emission notations of the ash storage pond area(s) shall be performed at least once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(e) If visible emissions are observed crossing the property line or boundaries of the property, right-of-way, or easement on which the source is located, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan -

Preparation, Implementation, Records, and Reports. 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.

(f) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(g) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(h) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(i) If abnormal emissions are observed at any baghouse exhaust, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Observation of abnormal emissions that do not violate 326 IAC 6-4 (Fugitive Dust Emissions) or an applicable opacity limit is not a deviation from this permit.

D.7.9 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) The Permittee shall record the total static pressure drop across the baghouses used in conjunction with the limestone transfer drop points at least once per shift when the limestone handling is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this 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.

(b) The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, and shall be calibrated in accordance with the manufacturer's specifications. The specifications shall be available on site with the Preventive Maintenance Plan.

D.7.10 Baghouse Inspections [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) An inspection shall be performed within the last month of each calendar quarter of all bags controlling PM emissions from the limestone processing or conveying. All defective bags shall be replaced.

(b) If an abnormal or improper condition is found during an inspection, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Discovery of an abnormal or improper condition is not a deviation from this 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.7.11 Broken or Failed Bag Detection [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

In the event that bag failure has been observed:

(a) For multi-compartment units, the affected baghouse compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. 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. If operations continue after bag failure is observed and it will be ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

(b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

D.7.12 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Condition D.7.8 - Visible Emissions Notations, the Permittee shall maintain records of the visible emission notations of the transfer points**,** baghouse exhausts, limestone unloading station doors, fly ash storage pond area(s) and all response steps taken and the outcome for each.

(b) To document compliance with Condition D.7.9 - Baghouse Parametric Monitoring, the Permittee shall maintain records of the total static pressure drop across each baghouse.

(c) To document compliance with Condition D.7.10 - Baghouse Inspections, the Permittee shall maintain records of the results of the baghouse inspections.

(d) To document compliance with Condition D.7.5 - Preventive Maintenance Plan, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.8 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

The following insignificant activities:

(1) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations.

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

D.8.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the grinding and machining facilities shall not exceed 0.551 pounds per hour (lbs/hr) based on the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

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

SECTION D.9 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Limestone Handling (TP-1 to TP-5, TP-10 to TP-17, F-6 and F-9), with maximum capacity of 2,500 tons per hour:

(1) Transfer of limestone from railcar or truck to the limestone hopper, with fogging type dust suppression as particulate control.

(2) Enclosed transfer of limestone from unloading hoppers to belt feeders.

(3) Enclosed transfer of limestone from belt feeders to conveyors.

(4) Telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

(5) Enclosed transfer of limestone from the reclaim hoppers to belt feeders, with fogging type dust suppression as particulate control.

(6) Enclosed transfer of limestone from conveyor to conveyor, with fogging type dust suppression as particulate control.

(7) Transfer of limestone from conveyor to day bin, with surge-bin filter as particulate control.

(8) Enclosed transfer of limestone from conveyor fixed hopper to conveyor with fogging type dust suppression as particulate control.

(9) Transfer of limestone from conveyor fixed tripper to day bin, with surge-bin filter as particulate control.

(10) Limestone storage piles, with watering type dust suppression as fugitive dust control.

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

D.9.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this section except when otherwise specified in 40 CFR Part 60, Subpart OOO.

D.9.2 New Source Performance Standard (NSPS): Nonmetallic Mineral Processing Plants [326 IAC 12] [40 CFR Part 60, Subpart OOO]

(a) Pursuant to 326 IAC 12 and 40 CFR Part 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants), the Permittee shall not cause to discharge into the atmosphere:

(1) From any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(A) Contain particulate matter that exceeds 0.05 grains per dry standard cubic meter (g/dscm); and

(B) Exhibit greater than a seven percent (7%) opacity. [40 CFR 60.672(a)]

(2) From any transfer point on belt conveyors or from any other affected facility, any fugitive emissions which exhibit greater than ten percent (10%) opacity. [40 CFR 60.672(b)]

(3) From any crusher at which a capture system is not used, fugitive emissions which exhibit greater than fifteen percent (15%) opacity. [40 CFR 60.672(c)]

(4) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in (a) and (b) of this condition, or the Permittee shall not cause to be discharged into the atmosphere:

(A) From any building enclosing any transfer point on a conveyor belt or any other affected facility, any visible fugitive emissions except emissions from a vent as defined in 40 CFR 60.671. [40 CFR 60.672(e)]

(B) From any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility, emissions which exceed the stack emission limits in (a) of this condition.

(5) From any baghouse that controls emissions from only an individual, enclosed storage bin, stack emissions which exhibit greater than seven percent (7%) opacity. Multiple storage bins with combined stack emissions shall comply with the emission limits in (a) of this condition.

(6) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR 60.672.

(b) When an owner or operator replaces an existing facility with a piece of equipment that is of larger size, as defined in 40 CFR 60.671, having the same function as the existing facility, or an owner or operator replaces all existing facilities in a production line with new facilities, than the replacement is subject to 40 CFR 60.672 (Standard for Particulate Matter), 40 CFR 60.674 (Monitoring of Operations), 40 CFR 60.675 (Test Methods and Procedures), and 40 CFR 60.676 (Reporting and Record keeping) of Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants.

D.9.3 Fugitive Dust Emission Limitations [326 IAC 6-4-2]

(a) Pursuant to 326 IAC 6-4-2, the Permittee shall be in violation of 326 IAC 6-4 if any of the following criteria are violated:

(1) A source or combination of sources which cause to exist fugitive dust concentrations greater than sixty-seven percent (67%) in excess of ambient upwind concentrations as determined by the following formula:

$$P = \frac{100 (R) - U)}{U}$$

Where:

P = Percentage increase
R = Number of particles of fugitive dust measured at downward receptor site
U = Number of particles of fugitive dust measured at upwind or background site

(2) The fugitive dust is comprised of fifty percent (50%) or more respirable dust, then the percent increase of dust concentration in subdivision (1) of this section shall be modified as follows:

$$P_R = (1.5 \pm N) P$$

Where:

N = Fraction of fugitive dust that is respirable dust;
P_R = allowable percentage increase in dust concentration above background; and
P = no value greater than sixty-seven percent (67%).

(3) The ground level ambient air concentrations exceed fifty (50) micrograms per cubic meter above background concentrations for a sixty (60) minute period.

(4) If fugitive dust is visible crossing the boundary or property line of a source. This subdivision may be refuted by factual data expressed in subdivisions (1), (2) or (3) of this section.

326 IAC 6-4-2(4) is not federally enforceable.

(b) Pursuant to 326 IAC 6-4-6(6) (Exceptions), fugitive dust from a source caused by adverse meteorological conditions will be considered an exception to 326 IAC 6-4 and therefore not in violation.

D.9.4 Preventive Maintenance Plan (PMP) [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP), in accordance with Section B - Preventive Maintenance Plan (PMP), of this permit, is required for the emission control devices.

Compliance Determination Requirement

D.9.5 Particulate Control [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit:

(a) The Permittee shall apply fogging type dust suppression when the following are in operation:
- - transfers of limestone from railcar or truck to the limestone hopper,
- - transfers of limestone from conveyor to conveyor, and
- - transfers of limestone from conveyor fixed hopper to conveyor.

(b) The Permittee shall conduct the transfers of limestone in enclosures when the following are in operation:
- - from unloading hoppers to belt feeders,
- - from belt feeders to conveyors,
- - from the reclaim hoppers to belt feeders,
- - from conveyor to conveyor, and
- - from conveyor fixed hopper to conveyor.

(c) The Permittee shall use surge-bin filters when the following are in operation:
- - transfers of limestone from conveyor to day bin .
- - transfers of limestone from conveyor fixed tripper to day bin.

(d) The Permittee shall use telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

D.9.6 NSPS Test Methods and Procedures [40 CFR Part 60, Subpart OOO]

Compliance with the PM and opacity emission limitations in Condition D.9.2 shall be determined by the methods and procedures specified in 40 CFR 60.675.

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

D.9.7 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the limestone transfer points shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If visible emissions are observed crossing the property line or boundaries of the property, right-of-way, or easement on which the source is located, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

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

D.9.8 Record Keeping Requirements

(a) The Permittee shall maintain records of the once per shift visible emission notations of the limestone transfer points, and all response steps taken and the outcome for each and make such records available upon request to IDEM, OAQ, and the US EPA.

(b) The Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make such records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.9.9 Reporting Requirements

The Permittee shall report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date) of the affected units. [40 CFR 60.7a(10]

(b) Actual start-up date (within 15 days after such date) of the affected units. [40 CFR 60.7a(3)]

(c) Date of performance testing (at least 30 days prior to such date).

(d) Anticipated date for conducting opacity observations (no later than 15 days after such date). [40 CFR 60.7a(6)]

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204

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

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.10 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Gypsum Handling (TP-26 to TP-35, TP-38, and TP-39), with maximum capacity of 300 tons per hour:

(1) Enclosed transfer of gypsum from belt feeders to conveyors.

(2) Transfer of gypsum from conveyors to stockout piles.

(3) Partially enclosed transfer of gypsum from conveyor to radial stacker conveyor.

(4) Transfer of gypsum from radial stacker conveyor to stockout pile.

(5) Stockout piles.

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

D.10.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from the gypsum handling operation shall not exceed 63 pounds per hour when operating at a process weight of 300 tons per hour. This is determined by the following equation:

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

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour.
P = process weight rate in tons per hour.

When the process weight rate exceeds two hundred (200) tons per hour, the maximum allowable emission may exceed 63 pounds per hour, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per one thousand (1,000) pounds of gases.

D.10.2 Fugitive Dust Emission Limitations [326 IAC 6-4-2]

(a) Pursuant to 326 IAC 6-4-2, the Permittee shall be in violation of 326 IAC 6-4 if any of the following criteria are violated:

(1) A source or combination of sources which cause to exist fugitive dust concentrations greater than sixty-seven percent (67%) in excess of ambient upwind concentrations as determined by the following formula:

$$P = \frac{100\ (R) - U)}{U}$$

Where:

P = Percentage increase
R = Number of particles of fugitive dust measured at downward receptor site
U = Number of particles of fugitive dust measured at upwind or background site

(2) The fugitive dust is comprised of fifty percent (50%) or more respirable dust, then the percent increase of dust concentration in subdivision (1) of this section shall be modified as follows:

$$P_R = (1.5 \pm N)\ P$$

Where:

N = Fraction of fugitive dust that is respirable dust;
P_R = allowable percentage increase in dust concentration above background; and
P = no value greater than sixty-seven percent (67%).

(3) The ground level ambient air concentrations exceed fifty (50) micrograms per cubic meter above background concentrations for a sixty (60) minute period.

(4) If fugitive dust is visible crossing the boundary or property line of a source. This subdivision may be refuted by factual data expressed in subdivisions (1), (2) or (3) of this section.

326 IAC 6-4-2(4) is not federally enforceable.

(b) Pursuant to 326 IAC 6-4-6(6) (Exceptions), fugitive dust from a source caused by adverse meteorological conditions will be considered an exception to 326 IAC 6-4 and therefore not in violation.

D.10.3 Preventive Maintenance Plan (PMP) [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP), in accordance with Section B - Preventive Maintenance Plan (PMP), of this permit, is required for the emission control devices.

Compliance Determination Requirement

D.10.4 Particulate Control [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit:

(a) The Permittee shall conduct the transfers of gypsum from belt feeders to conveyors in enclosures.

(b) The Permittee shall conduct transfers of gypsum from conveyor to radial stacker conveyor in a partial enclosure.

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

D.10.5 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the gypsum transfer points shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If visible emissions are observed crossing the property line or boundaries of the property, right-of-way, or easement on which the source is located, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

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

D.10.6 Record Keeping Requirements

(a) The Permittee shall maintain records of the once per shift visible emission notations of the gypsum transfer points, and all response steps taken and the outcome for each and make such records available upon request to IDEM, OAQ, and the US EPA.

(b) The Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make such records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION E TITLE IV ACID RAIN PROGRAM CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

(a) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 2 is anticipated to begin operation in June 2007.

Boiler No. 2 has it own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 3.

This FGD system for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

Acid Rain Program

E.1 Acid Rain Permit [326 IAC 2-7-5(1)(C)] [326 IAC 21] [40 CFR 72 through 40 CFR 78]

Pursuant to 326 IAC 21 (Acid Deposition Control), the Permittee shall comply with all provisions of the Acid Rain permit issued for this source, and any other applicable requirements contained in 40 CFR 72 through 40 CFR 78. The Acid Rain permit for this source is attached to this permit as Appendix A, and is incorporated by reference.

E.2 Title IV Emissions Allowances [326 IAC 2-7-5(4)] [326 IAC 21]

Emissions exceeding any allowances that the Permittee lawfully holds under the Title IV Acid Rain Program of the Clean Air Act are prohibited, subject to the following limitations:

(a) No revision of this permit shall be required for increases in emissions that are authorized by allowances acquired under the Title IV Acid Rain Program, provided that such increases do not require a permit revision under any other applicable requirement.

(b) No limit shall be placed on the number of allowances held by the Permittee.

The Permittee may not use allowances as a defense to noncompliance with any other applicable requirement.

(c) Any such allowance shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Clean Air Act.

SECTION F SO_3 MITIGATION PLAN

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

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

(a) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 2 is anticipated to begin operation in June 2007.

Boiler No. 2 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 3.

This FGD system for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

F.1 SO_3 Mitigation System [326 IAC 2-2.3]

(a) Pursuant to 326 IAC 2-2.3, the Permittee shall operate the SO_3 Mitigation System utilizing Sodium Bisulfite (SBS) or other mitigation reagents whenever a Selective Catalytic Reduction System (SCR) is in operation in conjunction with a Flue Gas Desulfurization System (FGD), except:

(1) During SCR startups; or

(2) If the SO_3 mitigation system shuts down due to events beyond the reasonable control of the Permittee or there is need for emergency maintenance repairs.

(b) If events described in Condition F.1(a)(1) and F.1(a)(2) occur, the Permittee can not start or restart the SO_3 mitigation system within one (1) hour.

The station personnel shall notify IDEM in accordance with the emergency notification provisions of 326 IAC 2-7-16(b) and if there is potential for plume touchdown in the opinion of station personnel and/or IDEM, the respective SCR shall be taken out of service.

F.2 SO_3 Testing Requirement

(a) By July 1, 2005, the Permittee shall conduct a SO_3 emissions test in Boilers Nos. 4 and No. 5 stacks (Stack D and Stack C, respectively).

(b) The Permittee shall report the results to IDEM within forty-five (45) days after completion of the SO_3 emissions test.

F.3 Minimum Injection Rate

(a) The Permittee shall operate the SO_3 mitigation system when both the SCR and FGD are in service at a minimum injection rate of 0.9 molar ratio, including during any periods when mitigating a single duct or gas stream if demonstrated to be SCR neutral.

(b) At all times when both the SCR and FGD are in service, except as described in Condition F.1(a)(1) and F.1(a)(2), a minimum of at least one (1) duct shall be treated for SO_3 mitigation.

(c) Any change in the established minimum injection rate, the Permittee shall report such change with supporting information.

F.4 Plume Observations

The Permittee shall conduct and keep records of plume observations on Boilers Nos. 4 and No. 5 at least 3 times per day (morning, noon and late afternoon) beginning May 23, 2005 and continuing throughout and ending after the summer 2005 ozone season while the SCRs for Boilers Nos. 4 and No. 5 are in operation.

These observations will include plume behavior, ground temperature, humidity or dew point temperature, wind speed, and direction.

F.5 Plume Touchdown

In the event that a plume touchdown is observed, IDEM and the appropriate local authorities shall be immediately notified of this event and the respective SCR(s) causing such plume touchdown shall be removed from service.

The SCR shall remain out of service until the conditions or cause resulting in the plume touchdown subside or are resolved.

F.6 Onsite Meteorological Monitoring System

A real time display of the wind speed, wind direction, temperature and dew point from the onsite meteorological monitoring system shall be installed in the Boilers Nos. 4 and 5 control room by May 1, 2006.

F.7 Boilers Nos. 1, 2, and 3 FGD Systems

Within sixty (60) days after the Boiler No. 3 FGD commences operation in conjunction with operation of a SCR, the Permittee shall conduct a SO_3 emissions test in the Boiler No. 3 stack (Stack 3).

Such testing will determine the minimum SO_3 Mitigation System injection rates for Boilers Nos. 1, 2, and 3 when their respective FGD systems commence operation.

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

PART 70 OPERATING PERMIT CERTIFICATION

Source Name: PSI Energy, Inc. - Gibson Generating Station
Source Address: S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address: c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Part 70 Permit No.: T051-7175-00013

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

☐ Annual Compliance Certification Letter _____

☐ Test Result (specify) _____

☐ Report (specify) _____

☐ Notification (specify) _____

☐ Affidavit (specify) _____

☐ Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:
Printed Name:
Title/Position:
Telephone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY, COMPLIANCE BRANCH

100 North Senate Avenue, Indianapolis, Indiana 46204
Phone: 317-233-5674 Fax: 317-233-5967

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: PSI Energy, Inc. - Gibson Generating Station
Source Address: S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address: c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Part 70 Permit No.: T051-7175-00013

This form consists of 2 pages **Page 1 of 2**

☐ This is an emergency as defined in 326 IAC 2-7-1(12)

- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) daytime business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

Page 2 of 2 of Emergency Occurrence Report

If any of the following are not applicable, mark N/A

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe: Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed By: _____

Title/Position: _____

Date: _____

Telephone: _____

A certification is not required for 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 for Use When Combusting Coal

Source Name: PSI Energy, Inc. - Gibson Generating Station
Source Address: S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address: c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Part 70 Permit No.: T051-7175-00013
Facility: Boilers No. 1, 2 and 3.
Parameter: Sulfur Dioxide (SO_2) from coal combustion
Limit: 3.19 pounds per million Btu heat input

FACILITY: _____ YEAR:

Day	Daily Average Coal Sulfur Content (%)	Daily Average Coal Heat Content (MMBtu/lb)	Coal Consumption (Tons)	Equivalent Sulfur Dioxide Emissions (lbs/MMBtu)		
				This day	Previous 29 days	30 Day Total
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Day	Daily Average Coal Sulfur Content (%)	Daily Average Coal Heat Content (MMBtu/lb)	Coal Consumption (Tons)	Equivalent Sulfur Dioxide Emissions (lbs/MMBtu)		
				This day	Previous 29 days	30 Day Total
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

☐ No deviation occurred in this quarter.

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

Submitted by: _____

Title / Position: _____

Signature: _____

Date: _____

Telephone: _____

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 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name:	PSI Energy, Inc. - Gibson Generating Station
Source Address:	S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address:	c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Part 70 Permit No.:	T051-7175-00013

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. For the purpose of this permit, "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Page 2 of 2 of Quarterly Deviation And Compliance Monitoring Report

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By: _____

Title/Position: _____

Date: _____

Telephone: _____

Attach a signed certification to complete this report.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD)
Minor Permit Modification to a Part 70 Operating Permit
and Pollution Control Project (PCP)

Source Background and Description

Source Name:	PSI Energy, Inc. - Gibson Generating Station
Source Address:	S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address:	c/o Steven Pearl, 1000 East Main Street Plainfield, Indiana 46168
Source Telephone:	(317) 838-1758
SIC Code:	4911
County Location:	Gibson
Source Status:	Part 70 Permit Program Major Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories
First Minor Permit Modification No.:	051-20033-00013 of Part 70 Permit 051-7175-00013, issued on July 7, 2004
Permit Writer:	Iryn Calilung 317/233-5692

Description of the Proposed Modification

Boiler No. 3:

On December 22, 2004, the Office of Air Quality (OAQ) received a notification and a permit modification application from PSI Energy, Inc. (PSI) - Gibson Generating Station to construct and operate a flue gas desulfurization (FGD) control system on Boiler No. 3, also identified as Unit No. 3, of the generating station. The installation of a FGD control system for sulfur dioxide (SO_2) emissions to an existing permitted emission unit is considered a pollution control project, pursuant to 326 IAC 2-2.3 (Pollution Control Project Exclusion Procedural Requirements in Attainment Areas). A new stack for Boiler No. 3 will also be installed with a SO_2 continuous emission monitor system.

The FGD for Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler Nos. 1 and 2:

On May 11, 2005, the OAQ received another notification and permit modification application from PSI to construct and operate a FGD control system on Boiler Nos. 1 and 2, also identified as Unit Nos. 1 and 2, of the generating station. This installation of a FGD control system is also considered a pollution control project. Boiler Nos. 1 and 2 will share a common stack with 2 separate internal flues, for each boiler. Each flue will be equipped with a SO_2 continuous emission monitor system.

The FGD for Boiler No. 2 is anticipated to begin operation in June 2007.

The FGD for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler Nos. 1, 2, and 3 are permitted to operate under Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004.

In addition to the flue gas desulfurization (FGD) control systems, PSI also proposed the following operations to support the control systems:

(a) Limestone Handling (TP-1 to TP-5, TP-10 to TP-17, F-6 and F-9), with maximum capacity of 2,500 tons per hour:

(1) Transfer of limestone from railcar or truck to the limestone hopper, with fogging type dust suppression as particulate control.

(2) Enclosed transfer of limestone from unloading hoppers to belt feeders.

(3) Enclosed transfer of limestone from belt feeders to conveyors.

(4) Telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

(5) Enclosed transfer of limestone from the reclaim hoppers to belt feeders, with fogging type dust suppression as particulate control.

(6) Enclosed transfer of limestone from conveyor to conveyor, with fogging type dust suppression as particulate control.

(7) Transfer of limestone from conveyor to day bin, with surge-bin filter as particulate control.

(8) Enclosed transfer of limestone from conveyor fixed hopper to conveyor with fogging type dust suppression as particulate control.

(9) Transfer of limestone from conveyor fixed tripper to day bin, with surge-bin filter as particulate control.

(10) Limestone storage piles, with watering type dust suppression as fugitive dust control.

(b) Gypsum Handling (TP-26 to TP-35, TP-38, and TP-39), with maximum capacity of 300 tons per hour:

(1) Enclosed transfer of gypsum from belt feeders to conveyors.

(2) Transfer of gypsum from conveyors to stockout piles.

(3) Partially enclosed transfer of gypsum from conveyor to radial stacker conveyor.

(4) Transfer of gypsum from radial stacker conveyor to stockout pile.

(5) Stockout piles.

(c) Insignificant and trivial activities:

(1) Electric power distribution buildings.

(2) Distributive control system.

(3) Waste water treatment.

(4) Service water pumps and distribution piping.

(5) Process tanks.

(6) Miscellaneous piping and equipment.

(7) Fire protection system.

(8) Landfill for the storage of synthetic gypsum.

(9) Support equipment such as trucks, and front loaders for transporting the synthetic gypsum to the landfill or offsite for use by other sources.

(10) One 10,000 gallon above ground storage tank for storing fuel oil. This storage tank is considered as an insignificant activity pursuant to 326 IAC 2-7-1(21)(G)(ii)(BB).

(d) Relocation of an existing above ground fuel oil storage tank to a different location within the station.

Pollution Control Project (PCP) Exclusion Procedure

(a) FGD for Boiler Nos. 1, 2, and 3
PSI is proposing to install flue gas desulfurization (FGD) systems for Boiler Nos. 1, 2, and 3 to control the sulfur dioxide (SO_2) emissions. A FGD control system is presumed environmentally beneficial and it is one of the listed pollution control projects in 326 IAC 2-2.3.

(b) SO_2 Emissions Reductions
The SO_2 emissions are expected to be significantly reduced from each boiler (see calculations below). SO_2 emissions reductions were determined using the following 2 methodologies:

SO_2 Emissions = Potential to emit after the pollution control project minus the potential to emit before the pollution control project.

SO_2 Emissions = Projected actual emissions after the pollution control project minus the past actual emissions before the pollution control project.

(c) Air Quality Analysis
PSI conducted an air quality analysis of the impact of the SO_2 emissions, even though there are expected reductions in emissions, to determine if the project will affect the analysis previously conducted in support of the SO_2 State Implementation Plan (SIP) analysis. The air modeling analysis predicted that the change in SO_2 emissions will be below the significant impact levels. This concludes that the proposed pollution control project will not cause or contribute to the violation of the National Ambient Air Quality Standards and Prevention of Significant Deterioration (PSD) increment.

(d) Collateral Emissions Minimization - SO_3 Mitigation Plan
In accordance with 326 IAC 2-2.3-1(d)(4), a SO_3 Mitigation Plan was proposed for Boiler Nos. 4 and 5, which are currently equipped with FGD controls, to assure that the pollution control project will be designed and operated in a manner that is consistent with proper industry and engineering practices, environmentally beneficial and minimize H_2SO_4 collateral emissions. The same SO_3 Mitigation Plan will also apply for Boiler Nos. 1, 2, and 3 upon operation of their FGDs.

(e) Particulate Emissions - Limestone and Gypsum Handling Operations
Particulate emissions are expected to be emitted due to the limestone and gypsum handling operations associated with the pollution control. Under the pollution control exclusion, an air quality analysis is not required for the particulate emissions increase because the particulate emissions, after control, associated with the project are less than the significant level.

Potential to Emit (PTE) of the Modification

Table 1 - - SO_2 Limit

Boiler ID	Nominal Capacity (MMBtu/hour)	Current SO_2 Limit (lbs/MMBtu)	Proposed SO_2 Limit (lbs/MMBtu)
Boiler No. 1	5,875	3.19	1.0
Boiler No. 2	5,875	3.19	1.0
Boiler No. 3	5,897	3.19	1.5

Current SO_2 limits are specified in 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations).

The proposed SO_2 limits are the limits proposed by PSI under the pollution control project.

Table 2 - - SO_2 PTE (tons/year)

Boiler ID	SO_2 PTE (Before FGD)	SO_2 PTE (After FGD)	SO_2 PTE Net Emissions
Boiler No. 1	82,086.68	25,732.50	- 56,354.18
Boiler No. 2	82,086.68	25,732.50	- 56,354.18
Boiler No. 3	82,394.06	38,743.29	- 43,650.77

SO_2 PTE (Before FGD) = (Nominal Capacity MMBtu/hr)*(Current SO_2 Limit lbs/MMBtu)
(8760 hrs/yr)(1 ton/2000 lbs) = tons/year

SO_2 PTE (After FGD) = (Nominal Capacity MMBtu/hr)*(Proposed SO_2 Limit lbs/MMBtu)
(8760 hrs/yr)(1 ton/2000 lbs) = tons/year

These are the SO_2 PTE after the installation of the FGD.
These are also the projected actual SO_2 emissions after the installation of the FGD.

SO_2 PTE Net Emissions = SO_2 PTE (After FGD) - SO_2 PTE (Before FGD) = tons/year
Minus (-) sign indicates reductions in emissions.

Based on this methodology, significant PTE SO_2 emissions reductions are expected due to the pollution control project.

Table 3 - - SO_2 Past Actual Emissions Before FGD (tons/year)			
Boiler ID	2000 Actual Emissions	2001 Actual Emissions	Average Past Actual SO_2 Emissions (Before FGD)
Boiler No. 1	50,588	45,556	48,072
Boiler No. 2	44,100	31,113	37,606
Boiler No. 3	46,430	46,862	46,646

These SO_2 actual emissions were based on the OAQ Emission Inventory Database.

Average Past Actual SO_2 emissions = (2000 + 2001)/2 = tons/year

Table 4 - - SO_2 Projected Actual Emissions After FGD (tons/year)			
Boiler ID	Average Past Actual SO_2 Emissions Before FGD (see Table 3)	Projected Actual SO_2 Emissions After FGD (see Table 2)	SO_2 Actual Net Emissions
Boiler No. 1	48,072	25,732.50	22,339.50
Boiler No. 2	37,606	25,732.50	11,873.50
Boiler No. 3	46,646	38,743.29	7,902.71

SO_2 Actual Net Emissions = Projected Actual SO_2 Emissions $_{(after\ FGD)}$
- Past Actual SO_2 Emissions $_{(before\ FGD)}$

Minus (-) sign indicates reductions in emissions.

Based on this methodology, significant $SO_{2\ actual}$ emissions reductions are expected due to the pollution control project.

Table 5 - - Limestone and Gypsum Handling Operations
See attached calculations, which were submitted by PSI as part of their application for the particulate emissions from the limestone and gypsum handling operations (11 pages).
Particulate emissions after control = 14.8 tons per year

Permit Level Determination

(1) Notification to construct - - 326 IAC 2-2.3(e)
Since the installation of the flue gas desulfurization (FGD) system is one of the listed pollution control projects (PCPs) in 326 IAC 2-2-1(ll), the Permittee may begin actual construction of the FGD immediately after a notice is submitted to the Indiana Department of Environmental Management (IDEM).

The Office of Air Quality (OAQ) received a notification of the PCP from PSI on December 22, 2004. A second notification was received on May 11, 2005.

(2) Approval to Construct - - 326 IAC 10.5(d)(5)
The approval to construct the limestone and gypsum handling operations has been addressed under Minor Source Modification 051-20836-00013.

(3) Application to Modify the Part 70 Permit - - 326 IAC 2-7-12(b)(1)(G)
Pursuant to 326 IAC 2-7-12(b)(1)(G), the installation of the flue gas desulfurization (FGD), limestone and handling operations is processed as a minor permit modification.

(4) PSD Minor Modification to an Existing Major Source - - 326 IAC 2-1(ee)
The proposed project is considered a minor modification to an existing major source, as indicated in 326 IAC 2-2-1(ee)(2)(HH), because it is classified as a pollution control project.

County Attainment Status

The source is located in Gibson County.

Table 1 - - County Attainment Status

Pollutant	Status
PM_{10}	Attainment
SO_2	Attainment
NO_2	Attainment
1-Hour Ozone	Attainment
8-Hour Ozone	Attainment
CO	Attainment

Gibson 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.

Federal Rule Applicability

(1) The limestone handling operation is subject to the New Source Performance Standards (NSPS) 40 CFR 60.670, Subpart OOO. This rule requires that the particulate matter emissions from any transfer points on belt conveyors (except the drop point for the stockpile and unloading hopper) or from any other affected facility (ball mill and day bins) shall not exceed 0.05 grains per dry standard cubic meter (g/dscm) and shall not exhibit greater than seven percent (7%) opacity.

Particulate matter emission requirements also apply to any transfer point on belt conveyors or from any other affected facility, any fugitive emissions from their equipment shall not exhibit greater than ten percent (10%) opacity and from any crusher at which a capture system is not used, fugitive emissions shall not exhibit greater than fifteen percent (15%) opacity.

(2) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 61 or 40 CFR Part 63 included in the permit for this proposed modification.

State Rule Applicability

(1) 326 IAC 2-2 Prevention of Significant Deterioration (PSD)
Pursuant to 326 IAC 2-2-1(ee), the proposed project is considered a minor modification to an existing major source, as indicated in 326 IAC 326 IAC 2-2-1(ee)(2)(HH), because it is classified as a pollution control project.

(2) 326 IAC 6-3-2 (Process Operations)

(1) Limestone Handling
326 IAC 6-3 does not apply to the limestone handling operations, pursuant to 326 IAC 6-3-1(c) because a new source performance standard (NSPS) already applies.

(2) Gypsum Handling
Pursuant to 326 IAC 6-3-2 (Process Operations), the particulate emissions from the gypsum storage and handling drop points and storage bins shall not exceed 63 pounds per hour when operating at a process weight of 300 tons per hour. This is determined by the following equation:

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

$E = 55.0\ P^{0.11} - 40$ where: E = rate of emission in pounds per hour.
P = process weight rate in tons per hour.

$E = 55.0(300)^{0.11} - 40$
E = 63 pounds per hour

When the process weight rate exceeds two hundred (200) tons per hour, the maximum allowable emission may exceed 63 pounds per hour, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per one thousand (1,000) pounds of gases.

(3) 326 IAC 6-4 Fugitive Dust Emissions
The fugitive emissions from the limestone and gypsum handling operations are subject to the requirements of 326 IAC 6-4.

Part 70 Permit Changes

(1) Section A.2 of the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004 has been revised due to the proposed pollution control project (any changes are shown in **bold** or ~~strikeout~~ fonts for emphasis):

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) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season**, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 1-2** ~~stack A~~ .

~~Stack A has~~ **Boiler No. 1 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, **with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 1-2** ~~stack A~~.

~~Stack A has~~ **Boiler No. 2 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with a flue gas conditioning system and an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NO_x during the ozone season, **with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 3** ~~stack B~~ .

~~Stack B has~~ **Boiler No. 3 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to

Stack B during startup, shutdown, or other periods when the FGD is not in operation.

~~Stack D~~ **Boiler No. 4** has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and Boiler 4 has a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

~~Stack C~~ **Boiler No. 5** has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and Boiler 5 has a continuous opacity monitor (COM).

(2) Section D.1 of the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004 has been revised due to the proposed pollution control project (any changes are shown in **bold** or ~~strikeout~~ fonts for emphasis):

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season**, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to ~~stack A~~ **a new stack, identified as Stack 1-2.**

~~Stack A has~~ **Boiler No. 1 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

D.1.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] **and Pollution Control Project [326 IAC 2-2.3]**

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 1 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 1 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 1 shall not exceed 1.0 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

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

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).
(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).
(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).
(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).
(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).
(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).
(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).
(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

D.1.7 Operation of Electrostatic Precipitator **and Flue Gas Desulfurization (FGD)** [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 1 is in operation and combusting fuel.

(b) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.1.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), continuous emission monitoring systems shall be calibrated, maintained, and operated for measuring opacity, which meet all applicable performance specifications of 326 IAC 3-5-2.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.1.9 Sulfur Dioxide Emissions ~~and Sulfur Content~~ [326 IAC 7-2] [326 IAC 7-4-12.1] **[326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]**

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide **(SO_2)** emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

~~(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:~~

~~(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or~~

~~(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]~~

With the flue gas desulfurization (FGD) system:

(b) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.0 pounds per MMBtu using a thirty (30) day rolling weighted average.

(c) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.1.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)] **[326 IAC 2-7-5(1)]**

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

~~Whenever the automatic coal sampling system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(a) Fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b). Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(b) If during the life of this permit the Permittee notifies the IDEM that, pursuant to 326 IAC 7-2-1(g), continuous emission monitoring data will be used instead of fuel sampling and analysis, then whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(1) If the CEM system is down for less than eight (8) hours, the Permittee shall substitute an average of the quality-assured data from the hour immediately before and the hour immediately after the missing data period for each hour of missing data.~~

~~(2) If the CEM system is down for eight (8) hours or more, fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b), except that all samples shall be collected after the bunker. Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

D.1.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all applicable SO_2 emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP). Defective parts shall be replaced. A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection. Discovery of an abnormal or improper condition is not a deviation from this 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.1.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.1.1, D.1.2, D.1.8, D.1.12, and D.1.13, the Permittee shall maintain records in accordance with (1) through (4) below. Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.1.1 and D.1.2.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.1.3, D.1.9 and D.1.14, the Permittee shall maintain records in accordance with (1) through (3) below. Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.1.3 and

D.1.9. The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) **All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.**

~~Whenever using CEMS data to demonstrate compliance with Condition D.1.3, the Permittee shall maintain all SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.~~

(2) **All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.1.14.**

~~Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3, the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.~~

(3) **Actual fuel usage during each SO_2 CEMS downtime.**

~~Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3, the Permittee shall maintain actual fuel usage since last compliance determination period.~~

(c) To document compliance with Condition D.1.5, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the ~~thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate~~ **SO_2 emissions exceedances** in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. ~~[326 IAC 7-2-1(c)(1)]~~

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(3) Section D.2 of the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004 has been revised due to the proposed pollution control project (any changes are shown in **bold** or ~~strikeout~~ fonts for emphasis):

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, **with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to ~~stack A~~ **a new stack, identified as Stack 1-2.**

~~Stack A has~~ **Boiler No. 2 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

D.2.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] **and Pollution Control Project [326 IAC 2-2.3]**

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 2 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 2 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 2 shall not exceed 1.0 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

D.2.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).

(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).

(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).

(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).

(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).

(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).

(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).

(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

D.2.7 Operation of Electrostatic Precipitator **and Flue Gas Desulfurization (FGD)** [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 2 is in operation and combusting fuel.

(b) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.2.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), continuous emission monitoring systems shall be calibrated, maintained, and operated for measuring opacity, which meet all applicable performance specifications of 326 IAC 3-5-2.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.2.9 Sulfur Dioxide Emissions ~~and Sulfur Content~~ [326 IAC 7-2] [326 IAC 7-4-12.1] **[326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]**

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide **(SO_2)** emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

~~(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:~~

~~(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or~~

~~(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]~~

With the flue gas desulfurization (FGD) system:

(b) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.0 pounds per MMBtu using a thirty (30) day rolling weighted average.

(c) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.2.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)] **[326 IAC 2-7-5(1)]**

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

~~Whenever the automatic coal sampling system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(a) Fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b). Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(b) If during the life of this permit the Permittee notifies the IDEM that, pursuant to 326 IAC 7-2-1(g), continuous emission monitoring data will be used instead of fuel sampling and analysis, then whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(1) If the CEM system is down for less than eight (8) hours, the Permittee shall substitute an average of the quality-assured data from the hour immediately before and the hour immediately after the missing data period for each hour of missing data.~~

~~(2) If the CEM system is down for eight (8) hours or more, fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b), except that all samples shall be collected after the bunker. Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

D.2.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all applicable SO_2 emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP). Defective parts shall be replaced. A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection. Discovery of an abnormal or improper condition is not a deviation from this 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.2.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.2.1, D.2.2, D.2.8, D.2.12, and D.2.13, the Permittee shall maintain records in accordance with (1) through (4) below. Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.2.1 and D.2.2.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.2.3, D.2.9 and D.2.14, the Permittee shall maintain records in accordance with (1) through (3) below. Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.2.3 and D.2.9. The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) **All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.**

~~Whenever using CEMS data to demonstrate compliance with Condition D.2.3, the Permittee shall maintain all SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime; and~~

(2) **All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.2.14.**

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.2.3, the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.

(3) **Actual fuel usage during each SO_2 CEMS downtime.**

~~Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.2.3, the Permittee shall maintain actual fuel usage since last compliance determination period.~~

(c) To document compliance with Condition D.2.5, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the ~~thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate~~ **SO_2 emissions exceedances** in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. ~~[326 IAC 7-2-1(c)(1)]~~

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

(c) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

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

(4) Section D.3 of the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004 has been revised due to the proposed pollution control project (any changes are shown in **bold** or ~~strikeout~~ fonts for emphasis):

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, ~~and to be~~ equipped with Selective Catalytic Reduction (SCR) for control of NO_x during the ozone season, **with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions** and exhausting to **a new stack, identified as Stack 3** ~~stack B~~.

~~Stack B has~~ **Boiler No. 3 has its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

D.3.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] **and Pollution Control Project [326 IAC 2-2.3]**

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 3 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 3 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 3 shall not exceed 1.5 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

D.3.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

(a) A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its emission control devices.

(b) The PMP for an electrostatic precipitator shall include the following inspections, performed according to the indicated schedules:

(1) Plate and electrode alignment, every major maintenance outage, but no less than every 2 years;

(2) ESP TR set components, performed whenever there is an outage of any nature lasting more than three days, unless such inspections have been performed within the last six months. At a minimum, the following inspections shall be performed:

(A) Internal inspection of shell for corrosion (including but not limited to doors, hatches, insulator housings, and roof area).

(B) Effectiveness of rapping (including but not limited to buildup of dust on discharge electrodes and plates).

(C) Gas distribution (including but not limited to buildup of dust on distribution plates and turning vanes).
(D) Dust accumulation (including but not limited to buildup of dust on shell and support members that could result in grounds or promote advanced corrosion).
(E) Major misalignment of plates (including but not limited to a visual check of plate alignment).
(F) Rapper, vibrator and TR set control cabinets (including but not limited to motors and lubrication).
(G) Rapper assembly (including but not limited to loose bolts, ground wires, water in air lines, and solenoids).
(H) Vibrator and rapper seals (including but not limited to air in-leakage, wear, and deterioration).
(I) TR set controllers (including but not limited to low voltage trip point, over current trip point, and spark rate).
(J) Vibrator air pressure settings.

(3) Air and water infiltration, once per month. The recommended method for this inspection is for audible checks around ash hoppers/hatches, duct expansion joints, and areas of corrosion.

D.3.7 Operation of Electrostatic Precipitator **and Flue Gas Desulfurization (FGD)** [326 IAC 2-7-6(6)]

(a) Except as otherwise provided by statute or rule or in this permit, the electrostatic precipitator shall be operated at all times that the Boiler No. 3 is in operation and combusting fuel.

(b) ~~Except as otherwise provided by statute or rule or in this permit, the flue gas conditioning system shall be operated as needed to mitigate opacity levels below both the opacity limit pursuant to 326 IAC 5-1 and the opacity limit specified in Condition D.3.13(a) of this permit.~~

Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) system shall be operated as needed to maintain compliance with applicable SO_2 emission limits.

D.3.8 Continuous Emissions Monitoring [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of opacity, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

(b) Pursuant to 326 IAC 3-5 (Continuous Monitoring of Emissions), a continuous monitoring system for the measurement of sulfur dioxide (SO_2) emissions, which meets the performance specifications of 326 IAC 3-5-2, shall be installed, calibrated, operated, and maintained.

D.3.9 Sulfur Dioxide Emissions ~~and Sulfur Content~~ [326 IAC 7-2] [326 IAC 7-4-12.1]
[326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]
Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide **(SO_2)** emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

~~(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:~~

~~(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or~~

~~(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]~~

With the flue gas desulfurization (FGD) system:

(b) Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.5 pounds per MMBtu using a thirty (30) day rolling weighted average.

(c) Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.3.14 SO_2 Monitoring System Downtime [326 IAC 2-7-6] [326 IAC 2-7-5(3)] **[326 IAC 2-7-5(1)]**

Whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the Permittee shall monitor and record boiler load, recirculation pH, slurry feed rate, and number of recirculation pumps in service, to demonstrate that the operation of the flue gas desulfurization (FGD) continues in a manner typical for the boiler load and sulfur content of the coal fired.

Flue gas desulfurization (FGD) parametric monitoring readings shall be recorded at least once per hour until the primary CEM or a backup CEM is brought online.

~~Whenever the automatic coal sampling system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(a) Fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b). Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

~~(b) If during the life of this permit the Permittee notifies the IDEM that, pursuant to 326 IAC 7-2-1(g), continuous emission monitoring data will be used instead of fuel sampling and analysis, then whenever the SO_2 continuous emission monitoring system is malfunctioning or down for repairs or adjustments, the following shall be used to provide information related to SO_2 emissions:~~

~~(1) If the CEM system is down for less than eight (8) hours, the Permittee shall substitute an average of the quality-assured data from the hour immediately~~

~~before and the hour immediately after the missing data period for each hour of missing data.~~

~~(2)~~ ~~If the CEM system is down for eight (8) hours or more, fuel sampling shall be conducted as specified in 326 IAC 3-7-2(a) or (b), except that all samples shall be collected after the bunker. Fuel sample preparation and analysis shall be conducted as specified in 326 IAC 3-7-2(c), 326 IAC 3-7-2(d), and 326 IAC 3-7-2(e). Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.~~

D.3.14.1 Flue Gas Desulfurization (FGD) Operation [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Except as otherwise provided by statute or rule or in this permit, the flue gas desulfurization (FGD) shall be operated as needed to maintain compliance with all applicable SO_2 emission limits.

(b) An inspection of the FGD shall be performed at least once every two (2) years, in accordance with the Preventive Maintenance Plan (PMP) prepared in accordance with Section B - Preventive Maintenance Plan (PMP). Defective parts shall be replaced. A record shall be kept of the results of the inspection and the part(s) replaced.

(c) Inspections shall be made whenever there is an outage of any nature lasting more than three (3) days unless such measurements have been taken within the past twelve (12) months.

(d) Reasonable response steps shall be taken in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports for any improper or abnormal conditions found during an inspection. Discovery of an abnormal or improper condition is not a deviation from this 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.3.15 Record Keeping Requirements

(a) To document compliance with Section C - Opacity and Conditions D.3.1, D.3.2, D.3.8, D.3.12, and D.3.13, the Permittee shall maintain records in accordance with (1) through (4) below. Records shall be complete and sufficient to establish compliance with the limits established in Section C - Opacity and in Conditions D.3.1 and D.3.2.

(1) Data and results from the most recent stack test.

(2) All continuous opacity monitoring data, pursuant to 326 IAC 3-5.

(3) The results of all visible emission (VE) notations and Method 9 visible emission readings taken during any periods of COM downtime.

(4) All ESP parametric monitoring readings.

(b) To document compliance with Conditions D.3.3, D.3.9 and D.3.14, the Permittee shall maintain records in accordance with (1) through (3) below. Records shall be complete and

sufficient to establish compliance with the SO_2 limits as required in Conditions D.3.3 and D.3.9. The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) **All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.**

~~Whenever using CEMS data to demonstrate compliance with Condition D.3.3, the Permittee shall maintain all SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.~~

(2) **All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.3.14.**

~~Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.3.3, the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.~~

(3) **Actual fuel usage during each SO_2 CEMS downtime.**

~~Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.3.3, the Permittee shall maintain actual fuel usage since last compliance determination period.~~

(c) To document compliance with Condition D.3.5, the Permittee shall maintain records of the results of all boiler and emission control equipment inspections, including any additional inspections prescribed by the Preventive Maintenance Plan.

(d) Pursuant to 326 IAC 3-7-5(a), the Permittee shall develop a standard operating procedure (SOP) to be followed for sampling, handling, analysis, quality control, quality assurance, and data reporting of the information collected pursuant to 326 IAC 3-7-2 through 326 IAC 3-7-4. In addition, any revision to the SOP shall be submitted to IDEM, OAQ.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.16 Reporting Requirements

(a) A quarterly report of opacity exceedances shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter 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).

(b) A quarterly report of the ~~thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate~~ **SO_2 emissions exceedances** in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. ~~[326 IAC 7-2-1(c)(1)]~~

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-5-7(5), reporting of continuous monitoring system instrument downtime, except for zero (0) and span checks, which shall be reported separately, shall include the following:

(1) Date of downtime.

(2) Time of commencement.

(3) Duration of each downtime.

(4) Reasons for each downtime.

(5) Nature of system repairs and adjustments.

The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

(5) A new section (Section D.9) has been added to incorporate the applicable requirements of the limestone handling operations in the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004:

SECTION D.9 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Limestone Handling (TP-1 to TP-5, TP-10 to TP-17, F-6 and F-9), with maximum capacity of 2,500 tons per hour:

(1) Transfer of limestone from railcar or truck to the limestone hopper, with fogging type dust suppression as particulate control.

(2) Enclosed transfer of limestone from unloading hoppers to belt feeders.

(3) Enclosed transfer of limestone from belt feeders to conveyors.

(4) Telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

(5) Enclosed transfer of limestone from the reclaim hoppers to belt feeders, with fogging type dust suppression as particulate control.

(6) Enclosed transfer of limestone from conveyor to conveyor, with fogging type dust suppression as particulate control.

(7) Transfer of limestone from conveyor to day bin, with surge-bin filter as particulate control.

(8) Enclosed transfer of limestone from conveyor fixed hopper to conveyor with fogging type dust suppression as particulate control.

(9) Transfer of limestone from conveyor fixed tripper to day bin, with surge-bin filter as particulate control.

(10) Limestone storage piles, with watering type dust suppression as fugitive dust control.

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

D.9.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facilities described in this section except when otherwise specified in 40 CFR Part 60, Subpart OOO.

D.9.2 New Source Performance Standard (NSPS): Nonmetallic Mineral Processing Plants [326 IAC 12] [40 CFR Part 60, Subpart OOO]

(a) Pursuant to 326 IAC 12 and 40 CFR Part 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants), the Permittee shall not cause to discharge into the atmosphere:

(1) From any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(A) Contain particulate matter that exceeds 0.05 grains per dry standard cubic meter (g/dscm); and

(B) Exhibit greater than a seven percent (7%) opacity. [40 CFR 60.672(a)]

(2) From any transfer point on belt conveyors or from any other affected facility, any fugitive emissions which exhibit greater than ten percent (10%) opacity. [40 CFR 60.672(b)]

(3) From any crusher at which a capture system is not used, fugitive emissions which exhibit greater than fifteen percent (15%) opacity. [40 CFR 60.672(c)]

(4) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in (a) and (b) of this condition, or the Permittee shall not cause to be discharged into the atmosphere:

(A) From any building enclosing any transfer point on a conveyor belt or any other affected facility, any visible fugitive emissions except emissions from a vent as defined in 40 CFR 60.671. [40 CFR 60.672(e)]

(B) From any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility, emissions which exceed the stack emission limits in (a) of this condition.

(5) From any baghouse that controls emissions from only an individual, enclosed storage bin, stack emissions which exhibit greater than seven percent (7%) opacity. Multiple storage bins with combined stack emissions shall comply with the emission limits in (a) of this condition.

(6) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR 60.672.

(b) When an owner or operator replaces an existing facility with a piece of equipment that is of larger size, as defined in 40 CFR 60.671, having the same function as the existing facility, or an owner or operator replaces all existing facilities in a production line with new facilities, than the replacement is subject to 40 CFR 60.672 (Standard for Particulate Matter), 40 CFR 60.674 (Monitoring of Operations), 40 CFR 60.675 (Test Methods and Procedures), and 40 CFR 60.676 (Reporting and Record keeping) of Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants.

D.9.3 Fugitive Dust Emission Limitations [326 IAC 6-4-2]

(a) Pursuant to 326 IAC 6-4-2, the Permittee shall be in violation of 326 IAC 6-4 if any of the following criteria are violated:

(1) A source or combination of sources which cause to exist fugitive dust concentrations greater than sixty-seven percent (67%) in excess of ambient upwind concentrations as determined by the following formula:

$$P = \frac{100\,(R) - U)}{U}$$

Where:

P = Percentage increase
R = Number of particles of fugitive dust measured at downward receptor site
U = Number of particles of fugitive dust measured at upwind or background site

(2) The fugitive dust is comprised of fifty percent (50%) or more respirable dust, then the percent increase of dust concentration in subdivision (1) of this section shall be modified as follows:

$$P_R = (1.5 \pm N)\,P$$

Where:

N = Fraction of fugitive dust that is respirable dust;
P_R = allowable percentage increase in dust concentration above background; and
P = no value greater than sixty-seven percent (67%).

(3) The ground level ambient air concentrations exceed fifty (50) micrograms per cubic meter above background concentrations for a sixty (60) minute period.

(4) If fugitive dust is visible crossing the boundary or property line of a source. This subdivision may be refuted by factual data expressed in subdivisions (1), (2) or (3) of this section.

326 IAC 6-4-2(4) is not federally enforceable.

(b) Pursuant to 326 IAC 6-4-6(6) (Exceptions), fugitive dust from a source caused by adverse meteorological conditions will be considered an exception to 326 IAC 6-4 and therefore not in violation.

D.9.4 Preventive Maintenance Plan (PMP) [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP), in accordance with Section B - Preventive Maintenance Plan (PMP), of this permit, is required for the emission control devices.

Compliance Determination Requirement

D.9.5 Particulate Control [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit:

(a) The Permittee shall apply fogging type dust suppression when the following are in operation:
- **transfers of limestone from railcar or truck to the limestone hopper,**
- **transfers of limestone from conveyor to conveyor, and**
- **transfers of limestone from conveyor fixed hopper to conveyor.**

(b) The Permittee shall conduct the transfers of limestone in enclosures when the following are in operation:
- **from unloading hoppers to belt feeders,**
- **from belt feeders to conveyors,**
- **from the reclaim hoppers to belt feeders,**
- **from conveyor to conveyor, and**
- **from conveyor fixed hopper to conveyor.**

(c) The Permittee shall use surge-bin filters when the following are in operation:
- **transfers of limestone from conveyor to day bin .**
- **transfers of limestone from conveyor fixed tripper to day bin.**

(d) The Permittee shall use telescoping chute transfer of limestone from conveyor to lime storage stockout pile.

D.9.6 NSPS Test Methods and Procedures [40 CFR Part 60, Subpart OOO]

Compliance with the PM and opacity emission limitations in Condition D.9.2 shall be determined by the methods and procedures specified in 40 CFR 60.675.

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

D.9.7 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the limestone transfer points shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If visible emissions are observed crossing the property line or boundaries of the property, right-of-way, or easement on which the source is located, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

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

D.9.8 Record Keeping Requirements

(a) The Permittee shall maintain records of the once per shift visible emission notations of the limestone transfer points, and all response steps taken and the outcome for each and make such records available upon request to IDEM, OAQ, and the US EPA.

(b) The Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make such records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.9.9 Reporting Requirements

The Permittee shall report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date) of the affected units. [40 CFR 60.7a(10]

(b) Actual start-up date (within 15 days after such date) of the affected units. [40 CFR 60.7a(3)]

(c) Date of performance testing (at least 30 days prior to such date).

(d) Anticipated date for conducting opacity observations (no later than 15 days after such date). [40 CFR 60.7a(6)]

Reports are to be sent to:
Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204

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

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

(6) A new section (Section D.10) has been added to incorporate the applicable requirements of the gypsum handling operations in the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004:

SECTION D.10 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Gypsum Handling (TP-26 to TP-35, TP-38, and TP-39), with maximum capacity of 300 tons per hour:

(1) Enclosed transfer of gypsum from belt feeders to conveyors.

(2) Transfer of gypsum from conveyors to stockout piles.

(3) Partially enclosed transfer of gypsum from conveyor to radial stacker conveyor.

(4) Transfer of gypsum from radial stacker conveyor to stockout pile.

(5) Stockout piles.

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

D.10.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from the gypsum handling operation shall not exceed 63 pounds per hour when operating at a process weight of 300 tons per hour. This is determined by the following equation:

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

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour.
P = process weight rate in tons per hour.

When the process weight rate exceeds two hundred (200) tons per hour, the maximum allowable emission may exceed 63 pounds per hour, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per one thousand (1,000) pounds of gases.

D.10.2 Fugitive Dust Emission Limitations [326 IAC 6-4-2]

(a) Pursuant to 326 IAC 6-4-2, the Permittee shall be in violation of 326 IAC 6-4 if any of the following criteria are violated:

(1) A source or combination of sources which cause to exist fugitive dust concentrations greater than sixty-seven percent (67%) in excess of ambient upwind concentrations as determined by the following formula:

$$P = \frac{100\ (R) - U)}{U}$$

Where:

P = Percentage increase
R = Number of particles of fugitive dust measured at downward receptor site
U = Number of particles of fugitive dust measured at upwind or background site

(2) The fugitive dust is comprised of fifty percent (50%) or more respirable dust, then the percent increase of dust concentration in subdivision (1) of this section shall be modified as follows:

$$P_R = (1.5 \pm N)\ P$$

Where:

N = Fraction of fugitive dust that is respirable dust;
P_R = allowable percentage increase in dust concentration above background; and
P = no value greater than sixty-seven percent (67%).

(3) The ground level ambient air concentrations exceed fifty (50) micrograms per cubic meter above background concentrations for a sixty (60) minute period.

(4) If fugitive dust is visible crossing the boundary or property line of a source. This subdivision may be refuted by factual data expressed in subdivisions (1), (2) or (3) of this section.

326 IAC 6-4-2(4) is not federally enforceable.

(b) Pursuant to 326 IAC 6-4-6(6) (Exceptions), fugitive dust from a source caused by adverse meteorological conditions will be considered an exception to 326 IAC 6-4 and therefore not in violation.

D.10.3 Preventive Maintenance Plan (PMP) [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan (PMP), in accordance with Section B - Preventive Maintenance Plan (PMP), of this permit, is required for the emission control devices.

Compliance Determination Requirement

D.10.4 Particulate Control [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule or in this permit:

(a) The Permittee shall conduct the transfers of gypsum from belt feeders to conveyors in enclosures.

(b) The Permittee shall conduct transfers of gypsum from conveyor to radial stacker conveyor in a partial enclosure.

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

D.10.5 Visible Emissions Notations [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

(a) Visible emission notations of the gypsum transfer points shall be performed once per shift during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If visible emissions are observed crossing the property line or boundaries of the property, right-of-way, or easement on which the source is located, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

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

D.10.6 Record Keeping Requirements

(a) The Permittee shall maintain records of the once per shift visible emission notations of the gypsum transfer points, and all response steps taken and the outcome for each and make such records available upon request to IDEM, OAQ, and the US EPA.

(b) The Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan (PMP) and make such records available upon request to IDEM, OAQ, and the US EPA.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

(7) The description box in Section E of the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004 has been revised due to the proposed pollution control project (any changes are shown in **bold** or ~~strikeout~~ fonts for emphasis):

SECTION E TITLE IV ACID RAIN PROGRAM CONDITIONS

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

(a) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, **equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 1-2** ~~stack A~~.

Boiler No. 1 has **its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, **equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 1-2** ~~stack A~~.

Boiler No. 2 has **its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, **equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions,** and exhausting to **a new stack, identified as Stack 3** ~~stack B~~.
Boiler No. 3 has **its own** continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, **equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season,** with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack **D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation**.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with

a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, **equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season,** with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(8) A new section (Section F) has been added to incorporate the SO_3 Mitigation Plan in the Part 70 Operating Permit 051-7175-00013, issued on July 7, 2004:

SECTION F SO_3 MITIGATION PLAN

Facility Description [326 IAC 2-7-5(15)] (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

(a) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

Boiler No. 2 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 3.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(d) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 4, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the

ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack D during normal operations, and exhausting to Stack B during startup, shutdown, or other periods when the FGD is not in operation.

Boiler No. 4 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(e) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 5, installed in 1982, with a nominal heat input capacity of 5900 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system for control of sulfur dioxide, and exhausting to stack C.

Boiler No. 5 has continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

F.1 SO_3 Mitigation System [326 IAC 2-2.3]

(a) Pursuant to 326 IAC 2-2.3, the Permittee shall operate the SO_3 Mitigation System utilizing Sodium Bisulfite (SBS) or other mitigation reagents whenever a Selective Catalytic Reduction System (SCR) is in operation in conjunction with a Flue Gas Desulfurization System (FGD), except:

(1) During SCR startups; or

(2) If the SO3 mitigation system shuts down due to events beyond the reasonable control of the Permittee or there is need for emergency maintenance repairs.

(b) If, events described in Condition F.1(a)(1) and F.1(a)(2) occur, the Permittee can not start or restart the SO_3 mitigation system within one (1) hour.

The station personnel shall notify IDEM in accordance with the emergency notification provisions of 326 IAC 2-7-16(b) and if there is potential for plume touchdown in the opinion of station personnel and/or IDEM, the respective SCR shall be taken out of service.

F.2 SO_3 Testing Requirement

(a) By July 1, 2005, the Permittee shall conduct a SO_3 emissions test in Boilers Nos. 4 and No. 5 stacks (Stack D and Stack C).

(b) The Permittee shall report the results to IDEM within forty-five (45) days after completion of the test.

F.3 Minimum Injection Rate

(a) The Permittee shall operate the SO_3 mitigation system when both the SCR and FGD are in service at a minimum injection rate of 0.9 molar ratio, including during any periods when mitigating a single duct or gas stream if demonstrated to be SCR neutral.

(b) At all times when both the SCR and FGD are in service, except as described in Condition F.1(a)(1) and F.1(a)(2), a minimum of at least one (1) duct shall be treated for SO_3 mitigation.

(c) Any change in the established minimum injection rate, the Permittee shall report such change with supporting information.

F.4 Plume Observations

The Permittee shall conduct and keep records of plume observations on Boilers Nos. 4 and No. 5 at least 3 times per day (morning, noon and late afternoon) beginning May 23, 2005 and continuing throughout and ending after the summer 2005 ozone season while the SCRs for Boilers Nos. 4 and No. 5 are in operation.

These observations will include plume behavior, ground temperature, humidity or dew point temperature, wind speed, and direction.

F.5 Plume Touchdown

In the event that a plume touchdown is observed, IDEM and the appropriate local authorities shall be immediately notified of this event and the respective SCR(s) causing such plume touchdown shall be removed from service.

The SCR shall remain out of service until the conditions or cause resulting in the plume touchdown subside or are resolved.

F.6 Onsite Meteorological Monitoring System

A real time display of the wind speed, wind direction, temperature and dew point from the onsite meteorological monitoring system shall be installed in the Boilers Nos. 4 and 5 control room by May 1, 2006.

F.7 Boilers Nos. 1, 2, and 3 FGD Systems

Within sixty (60) days after the Boiler No. 3 FGD commences operation in conjunction with operation of a SCR, the Permittee shall conduct a SO_3 emissions test in the Boiler No. 3 stack (Stack 3).

Such testing will determine the minimum SO_3 Mitigation System injection rates for Boilers Nos. 1, 2, and 3 when their respective FGD systems commence operation.

(9) Since there are no specific requirements applicable to the insignificant and trivial activities, no additional requirements have been added in the Part 70 Operating Permit for these activities.

(10) The Part 70 Operating Permit has been administratively revised to update the mailing address of the Department:

100 North Senate Avenue~~, P. O. Box 6015~~
Indianapolis, Indiana ~~46206-6015~~ **46204**

(11) The Table of Contents has been updated.

Recommendation and Conclusion

(1) Unless otherwise stated, information used in this review was derived from the application and additional information received by the Office of Air Quality (OAQ) on December 22, 2004, May 9, 2005 and May 11, 2005.

(2) Based on the facts, conditions and evaluations made, the OAQ staff recommends to the IDEM's Commissioner that the preliminary findings for the **Minor Permit Modification 051-20033-00013** be approved.

(3) Copies of the application and preliminary findings have been provided to the Princeton Public Library, 124 South Hart Street, Princeton, IN 47670.

IDEM Contact

Questions regarding this minor permit modification can be directed to Ms. Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204 or by telephone at (317) 233-5692 or toll free at 1-800-451-6027 extension 3-5692.

For additional information about air permits and how the public can participate, see IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.IN.gov/idem/guides.

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document (TSD)
Minor Permit Modification to a Part 70 Operating Permit
and Pollution Control Project (PCP)

Source Background and Description

Source Name:	PSI Energy, Inc. - Gibson Generating Station
Source Address:	S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address:	c/o Steven Pearl, 1000 East Main Street Plainfield, Indiana 46168
Source Telephone:	(317) 838-1758
SIC Code:	4911
County Location:	Gibson
Source Status:	Part 70 Permit Program Major Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act 1 of 28 Source Categories
First Minor Permit Modification No.:	051-20033-00013 of Part 70 Permit 051-7175-00013, issued on July 7, 2004
Permit Writer:	Iryn Calilung 317/233-5692

Public Notification

On September 14, 2005, the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) had a notice published in the Princeton Daily Clarion, stating that PSI Energy Inc. submitted an application to construct and operate flue gas desulfurization systems to control the sulfur dioxide emissions from Boiler Nos. 1, 2, and 3 at the Gibson Generating Station, located at S.R. 64 W & C.R. 975, Owensville, Indiana 47570. In addition to the flue gas desulfurization control devices, limestone and gypsum handling operations are also proposed to be constructed and operated.

The public comment period for the draft permit ended on October 14, 2005. The purpose of the 30-day public comment period is to allow anyone the opportunity to review and provide comments regarding the draft permit and its supporting documents. Comments regarding this permit do not demonstrate that the draft permit failed to meet the requirements for a permit. IDEM addressed those concerns, and if necessary, amended the draft permit. In many instances, the IDEM has amended the permit and has satisfied both State and Federal regulations.

Comments Received

On October 11, 2005, the OAQ received comments from PSI Energy, Inc. and Mr. Craig Clapsaddle, MSI/Mechanical Systems, WI. The comments are summarized in the subsequent pages, with IDEM's corresponding responses.

In addition, the OAQ has initiated some minor revisions to the draft permit to correct typographical errors or to provide further clarity.

The IDEM does not amend the Technical Support Document (TSD). The TSD is maintained to document the original review. This addendum to the TSD is used to document responses to comments and changes made from the time the permit was drafted until a final decision is made.

Changes to the draft permit due to these comments are shown in ~~strikeout~~ fonts for deleted languages and **bold** fonts for new languages.

Comments and Responses

PSI Comment 1: Affected Sections

The Cover Page Signature Box should include Sections D.1 and D.2 as affected sections.

IDEM Response 1:

IDEM agrees and made the following changes:

First Minor Permit Modification: 051-20033-00013	Sections Affected: Table of Contents, A.2, **D.1, D.2,** D.3, D.9, D.10, E, and F
Issued by: Paul Dubenetzky Assistant Commissioner Office of Air Quality	**Issuance Date:** **Expiration Date: July 7, 2009**

PSI Comment 2: Source and County Status

(a) Page 9/100 of the draft permit - Condition A.1 Source Location Status incorrectly states the county attainment status. Gibson County is nonattainment for PM2.5 and attainment for all other criteria pollutants.

(b) Page 1/40 of the TSD - the Source Background and Description, Source Status should read "Major Source, under PSD and Nonattainment NSR" because Gibson County is nonattainment for PM2.5.

IDEM Response 2:

IDEM agrees and made the following changes:

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(21)]
The Permittee owns and operates a stationary electric utility generating station.

Responsible Official: Station Manager of the Gibson Generating Station
Source Address: S.R. 64 W & C.R. 975, Owensville, Indiana 47570
Mailing Address: c/o Steven Pearl, 1000 East Main Street, Plainfield, Indiana 46168
Source Telephone: (317) 838-1758
SIC Code: 4911
County Location: Gibson
Source Location Status: **Nonattainment for PM2.5**
Attainment or unclassifiable for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source, under PSD Rules
Major Source, under Emission Offset Rules
Major Source, Section 112 of the Clean Air Act
1 of 28 Listed Source Categories

PSI Comment 3: Formatting:

(a) Page 13/40 in the TSD and Page 40/100 in the Permit – the paragraph formatting of Condition D.1.14.1 is different between these two pages.

(b) Page 15/40 in the TSD and Page 41/100 in the Permit – the paragraph formatting of Condition D.1.15(b) is different between these two pages.

(c) Page 19/40 in the TSD and Page 47/100 in the Permit – the paragraph formatting of Condition D.2.14.1 is different between these two pages.

(d) Page 20/40 in TSD and Page 48/100 in the Permit – the paragraph formatting of Condition D.2.15(b) is different between these two pages.

(e) Page 25/40 in the TSD and Page 54/100 in the Permit – the paragraph formatting of Condition D.3.14.1 is different between these two pages.

(f) Page 26/40 in the TSD and Page 55/100 in the Permit – the paragraph formatting of Condition D.3.15(b) is different between these two pages.

IDEM Response 3:

No changes have been made to the content of the conditions because these comments deal with the differences in paragraph formatting between the technical support document and draft permit and there are no technical differences in the content of the conditions.

PSI Comment 4: SO_3 Stack Testing Date

Page 38/40 in the TSD and Page 93/100 in Permit , Condition F.2(a) - the date for SO_3 test is July 1, 2005 and Condition F.2(b) requires reporting the results to IDEM within 45 days of completion?

IDEM Response 4:

The date specified for the SO_3 test in Condition F.2 is correct. This SO_3 test should have been conducted as part of the SO_3 Mitigation Plan.

There are no changes to the draft permit due to this comment.

PSI Comment 5: Headers

The headers in draft permit modification are not correct.

IDEM Response 5:

There are no changes made to the headers of the proposed modified Part 70 Operating Permit because all of the information is correct.

PSI Comment 6: FGD's Anticipated Operation Date

As written the permit could be interpreted as requiring the FGDs on units 1, 2 and 3 upon issuance of the final permit. Cinergy requests that the description of units 1, 2 and 3 in sections A, D.1, D.2, D.3, E and F be modified to include some additional information which clarifies when the FGD's will be installed. Please revise the unit descriptions as follows:

(a) For unit 1 please insert the phrase "anticipated to be begin operation 10/21/07" after the words sulfur dioxide (SO2) emissions.

(b) For unit 2 please insert the phrase "anticipated to be begin operation 6/03/07" after the words sulfur dioxide (SO2) emissions.

(c) For unit 3 please insert the phrase "anticipated to be begin operation 12/10/06" after the words sulfur dioxide (SO2) emissions.

IDEM Response 6:

IDEM agrees and made the following changes to the descriptions for Boiler Nos. 1, 2, and 3:

(a) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 1, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 1 is anticipated to begin operation in October 2007.

Boiler No. 1 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(b) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 2, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5875 million Btu per hour (MMBtu/hr), with an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 1-2.

This FGD system for Boiler No. 2 is anticipated to begin operation in June 2007.

Boiler No. 2 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

(c) One (1) dry bottom, pulverized coal-fired boiler, identified as Boiler No. 3, construction commenced prior to August 17, 1971, with a nominal heat input capacity of 5897 million Btu per hour (MMBtu/hr), with a flue gas conditioning system and an electrostatic precipitator (ESP) for control of particulate matter, equipped with Selective Catalytic Reduction (SCR) for control of NOx during the ozone season, with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions, and exhausting to a new stack, identified as Stack 3.

This FGD system for Boiler No. 3 is anticipated to begin operation in December 2006.

Boiler No. 3 has its own continuous emissions monitors (CEMs) for nitrogen oxides (NO_X) and sulfur dioxide (SO_2) and a continuous opacity monitor (COM).

PSI Comment 7: FGD Systems In-Service Date

Please revise Conditions D.1.3(c), D.2.3(c) and D.3.3(c) by replacing the words "upon initial startup" with "in-service date". Cinergy will need a shakedown period and time to get the monitors certified.

IDEM Response 7:

IDEM did not make the changes, as recommended because the new limits are effective upon initial start up of the FGD systems.

PSI Comment 8: Fuel Sampling and Analysis

Please add the fuel sampling and analysis provisions back into Conditions D.1.9, D.2.9, and D.3.9. Cinergy will need to use fuel sampling and analysis to demonstrate compliance with the SO_2 limit until the FGD systems are in-service and the SO_2 CEMs are certified.

IDEM Response 8:

IDEM agrees and added the fuel sampling and analysis, record keeping and reporting requirement back in Conditions D.1.9, D.1.15 and D.1.6. Similar changes have also been made in Conditions D.2.9, D.2.15, D.2.16, D.3.9, D.3.15, and D.3.16.

D.1.9 Sulfur Dioxide Emissions [326 IAC 7-2] [326 IAC 7-4-12.1] [326 IAC 2-7-5(3)(A)] [326 IAC 2-7-6]

Without the flue gas desulfurization (FGD) system:

(a) Pursuant to 326 IAC 7-2-1(c), the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 3.19 pounds per MMBtu using a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 7-2-1(e) and 326 IAC 3-7, coal sampling and analysis data shall be collected as follows:

(1) Coal sampling shall be performed using the methods specified in 326 IAC 3-7-2(a), and sample preparation and analysis shall be performed as specified in 326 IAC 3-7-2(c), (d), and (e); or

(2) Pursuant to 326 IAC 3-7-3, manual or other non-ASTM automatic sampling and analysis procedures may be used upon a demonstration, submitted to the department for approval, that such procedures provide sulfur dioxide emission estimates representative either of estimates based on coal sampling and analysis procedures specified in 326 IAC 3-7-2 or of continuous emissions monitoring.

(c) Upon written notification to IDEM by a facility owner or operator, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance with the emission limitations in 326 IAC 7. Upon such

notification, the other requirements of 326 IAC 7-2 shall not apply. [326 IAC 7-2-1(g)]

With the flue gas desulfurization (FGD) system:

~~(b)~~ **(d)** Pursuant to 326 IAC 2-7-5(3)(A) and 326 IAC 2-7-6, the Permittee shall demonstrate that the sulfur dioxide (SO_2) emissions do not exceed the equivalent of 1.0 pounds per MMBtu using a thirty (30) day rolling weighted average.

~~(c)~~ **(e)** Pursuant to 326 IAC 3-5-1(c)(2)(B), compliance shall be demonstrated using SO_2 continuous emission monitoring system (CEMS) data.

D.1.15(b) To document compliance with Conditions D.1.3 - Sulfur Dioxide (SO_2) and Pollution Control Project, D.1.9 - Sulfur Dioxide Emissions, and D.1.14 - Flue Gas Desulfurization (FGD) Operation, the Permittee shall maintain records in accordance with (1) through (3) below.

Records shall be complete and sufficient to establish compliance with the SO_2 limits as required in Conditions D.1.3 - Sulfur Dioxide (SO_2) and Pollution Control Project and D.1.9 - Sulfur Dioxide Emissions.

The Permittee shall maintain records in accordance with (2) and (3) below during SO_2 CEM system downtime if a backup CEM is not used.

(1) All SO_2 continuous emissions monitoring data, pursuant to 326 IAC 7-2-1(g), with calendar dates and beginning and ending times of any CEM downtime.

(2) All flue gas desulfurization (FGD) parametric monitoring readings taken during any periods of SO_2 CEMS downtime, in accordance with Condition D.1.14 - Flue Gas Desulfurization (FGD) Operation,.

(3) Actual fuel usage during each SO_2 CEMS downtime.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain all fuel sampling and analysis data, pursuant to 326 IAC 7-2.

Whenever the Permittee is not using CEMS data to demonstrate compliance with Condition D.1.3 - Sulfur Dioxide (SO_2), the Permittee shall maintain actual fuel usage since last compliance determination period.

D.1.6(c) **A quarterly report of the thirty (30) day rolling weighted average sulfur dioxide emission rate in pounds per million Btus, and records of the daily average coal sulfur content, coal heat content, weighing factor, and daily average sulfur dioxide emission rate in pounds per million Btus shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, within thirty (30) days after the end of the quarter being reported. [326 IAC 7-2-1(c)(1)]**

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

PSI Comment 9: Appealed Conditions

(a) In accordance with the first Amended Joint Stipulation for Stay filed on November 18, 2004 the following conditions have been stayed in entirety: D.1.13, D.2.13, and D.3.13. Cinergy request that these conditions be deleted for the permit in entirety.

(b) In accordance with the first Amended Joint Stipulation for Stay filed on November 18, 2004 the following conditions are in effect as set forth in attachment A of the Stay Agreement: D.1.2, D.1.5, D.1.12, D.1.14, D.1.15, D.2.2, D.2.5, D.2.12, D.2.14, D.2.15, D.3.2, D.3.5, D.3.12, D.3.14, and D.3.15. Cinergy requests that these conditions be modified as set forth in the stay agreement.

(c) Cinergy filed Joint Motion for Continuance and Stipulation for Stay of the Minor Source Modification Permit No. 051-20836-00013 on April 22, 2005. The Judge granted to a continuance and stay hearing April 25, 2005. In accordance with the Stay agreement the following conditions are in affect as set forth in the stay agreement: D.1.7(a), D.1.7(e), D.1.8(a), D.2.5(a), D.2.5(e) and D.2.6(a). These original conditions in the Minor Source Modification were carried through to the Part 70 Minor Permit Modification and were not revised to reflect the stay agreement. Cinergy requests that conditions D.9.7(a) (previously D.1.7(a)), D.9.7(e) (previously D.1.7(e)), D.9.8(a) (previously D.1.8(a)), D.10.5(a) (previously D.2.5(a)), and D.10.5(a) (previously D.2.6(a)) be revised as set forth in the Stay for the Minor Source Modification Permit filed April 22, 2005.

IDEM Response 9:

IDEM did not make the recommended changes because this proposed Minor Permit Modification is not the right vehicle to resolve the appeals filed by PSI Energy, Inc. The supporting documents for this minor permit modification clearly indicate that changes made to the Part 70 Operating permit are based on the installation and proper operation of the FGD systems, and any existing applicable requirements not affected by the proposed modification were not changed. Instead of providing only the pages or conditions that have been revised, IDEM provided the Part 70 Operating Permit in its entirety.

PSI Comment 10: Process Weight Rate

Please revise condition D.10.1 - Particulate, by adding the phrase "at or below" after the word "weight".

IDEM Response 10:

IDEM did not add the phrase "at or below" as suggested because adding the phrase changes the intent of the condition. The particulate emissions specified in the condition is specifically applicable when the process weight rate of the gypsum handling operation is 300 tons per hour. Process weight rates below this maximum process weight rate have different allowable particulate emissions. These allowable particulate emissions are determined by the equation provided in the condition.

There are no changes to the draft permit due to this comment.

PSI Comment 11: NOx Budget Program

Please incorporate the NOx Budget program requirements as Section F of the permit and have the SO_3 Mitigation requirements as Section G.

IDEM Response 11:

IDEM did not incorporate any applicable requirements per the NOx Budget Program because this Minor Permit Modification is limited to the changes due to the installation and proper operation of the FGD systems. This minor permit modification is not the appropriate level of approval to incorporate the NOx Budget Program requirements to this Part 70 Operating Permit. For the status of the NOx Budget Permit for PSI Energy, Inc., please contact Ms. Madhurima Moulik at 317-233-0868.

There are no changes to the draft permit due to this comment.

PSI Comment 12: Sequence of Dates

Page 6 of the TSD item (1) second paragraph - the dates May 11, 2005 and March 11, 2005 need to be switched.

IDEM Response 12:

IDEM agrees with the comment, however, this does not have an impact on the proposed permit.

PSI Comment 13: Correct PCP Rule Cite

Page 1/40 of the TSD – in the Description of the Proposed Modification, Boiler No. 3 should also contain the nonattainment PCP rule cite.

IDEM Response 13:

Since Gibson County is nonattainment for PM2.5, the installation and operation of FGD systems for Boiler Nos. 1, 2 and 3 was evaluated under the 326 IAC 2-3.3 (Pollution Control Project Exclusion Procedural Requirements in Nonattainment Areas). Condition D.1.3 has been revised as follows, and similar changes have been made in Conditions D.2.3 and D.3.3.

D.1.3 Sulfur Dioxide (SO_2) [326 IAC 7-4-12.1] and Pollution Control Project [326 IAC 2-2.3] **[326 IAC 2-3.3]**

(a) Pursuant to 326 IAC 7-4-12.1 (Gibson County Sulfur Dioxide Emission Limitations), the SO_2 emissions from Boiler No. 1 shall not exceed 3.19 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

(b) Pursuant to 326 IAC 2-2.3 **and 326 IAC 2-3.3**, the installation and operation of the flue gas desulfurization (FGD) system for Boiler No. 1 and the associated limestone and gypsum handling equipment is considered a pollution control project.

(c) Pursuant to 326 IAC 2-2.3 **and 326 IAC 2-3.3**, upon initial start up of the flue gas desulfurization (FGD) system, the sulfur dioxide (SO_2) emissions from Boiler No. 1 shall not exceed 1.0 pounds per million Btu (lbs/MMBtu) based on a thirty (30) day rolling weighted average.

PSI Comment 14: County Status Clarification

Page 6/40 of the TSD – the County Attainment Status does not address PM2.5.

IDEM Response 14:

IDEM agrees and made the following changes:

The source is located in Gibson County.

Table 1 - - County Attainment Status	
Pollutant	Status
PM_{10}	Attainment
PM2.5	**Basic Nonattainment**
SO_2	Attainment
NO_2	Attainment
1-Hour Ozone	Attainment
8-Hour Ozone	Attainment
CO	Attainment

Gibson County has been classified as nonattainment for PM2.5. The U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states and permitting agencies to regulate PM10 emissions as a surrogate for PM2.5 emissions.

Gibson County has been classified as attainment or unclassifiable for all **other** criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

MSI/Mechanical Systems Comment: PM CEMS

Continuous emission monitoring for particulate matter (PM) should be required for new stack 1-2, new stack 3, and stacks D and C to monitor PM emissions from Boilers 1, 2, 3, 4, and 5, respectively.

Existing monitoring with COMS as a measure of compliance with the PM standard is inadequate and inaccurate. Opacity readings from a COMS are affected by changes in particle size, shape, and color independent of the PM concentration. Changes in particle characteristics are caused by many factors such as changes in coal, changes in coal fuel mixture, aging of the ball mills, changes in combustion, changes in ESP operation, changes in SCR operation, and soot blowing.

Two particulate stack tests during the five-year term of the permit do not assure compliance with the PM standard and do not capture emissions from all possible unit operating conditions.

Using PM CEMS to measure actual emissions can eliminate the burdensome and ineffective parameter monitoring included in the permit. Parameter monitoring is not

adequate to assure compliance with the PM standard. In EPA's Final Rule for Hazardous Waste Combustors signed by the Administrator of EPA on September 14, 2005, footnote 192 states that for ESPs, "we are not aware of generic APCD parameters that correlate well with PM emissions." Footnote 192 further states that "sources are encouraged to use PM detector systems."

All five units at Gibson will be using SO_3 mitigation technology. The SO_3 mitigation technology will involve injecting large amounts of reagent compound into the boiler or duct. Monitoring PM emissions in the wet scrubber stack will ensure that all the reagent compound is removed by the ESP and/or scrubber and that compliance with the PM standard is maintained. In the future, these units may be injecting other compounds for mercury control. When these compounds are being injected into the boiler and duct, no one can assure compliance with the PM standard during ongoing operations by using the monitoring currently contained in the draft permit. Using a PM CEMS to directly monitor PM emissions is the only means to assure compliance with the PM standard.

Using PM CEMS provides the best and most accurate compliance assurance monitoring possible. The actual PM concentration in the wet stack gas can be combined with the CO_2 CEMS concentration and the fuel F-factor to calculate emissions of PM in units of lb/mmBtu. In this way PM emissions can be reported in the units of the PM standard.

EPA promulgated a performance specification (PS-11) and quality assurance and quality control procedures (Procedure 2) to govern the installation, certification, and operation of PM CEMS on January 12, 2004. The operation and use of PM CEMS is now established, and PM CEMS have been proven in several long-term demonstration projects. When the proper PM CEMS is installed for a specific application, the PM CEMS has shown to be precise and accurate. PM CEMS are feasible, reliable, accurate and ready to be used for compliance monitoring.

MSI's BetaGuard PM is installed and operating on many wet scrubber stacks at plants across the country. Several of these are on wet FGD stacks at coal-fired power plants. All that have been evaluated for PS-11 certification have met the requirements. All have continued to meet the ongoing quality assurance and quality control requirements of Procedure 2. The BetaGuard PM has accumulated over 70,000 operating hours on wet scrubber stacks.

We want to assure IDEM that PM CEMS can achieve greater than 95 percent data availability. In three of our long-term BetaGuard PM installations on wet scrubber stacks, the BetaGuard PM is achieving greater than 95 percent data availability.

Installation, start-up, and certification effort and cost for the BetaGuard PM is no more than the installation, start-up, and certification effort and cost for an ultrasonic stack gas flow rate monitor. Based on the experience of our customers, operation and maintenance effort for the BetaGuard PM is no more than for other types of CEMS.

PM CEMS should be required for the five boilers at PSI Energy's Gibson Generating Station. EPA's final revision to Subpart Da NSPS will likely require PM CEMS. This permit modification and pollution control project gives IDEM the opportunity to specify superior monitoring for particulate.

IDEM Response:

IDEM agrees that continuous emission monitoring systems are the best compliance tools, however, outside of the Part 70 permitting program and 40 CFR Part 64 (Compliance Assurance Monitoring), there are a limited number of State and Federal rules which require a continuous emission monitor. In lieu of a particulate matter continuous emission monitor, the permit establishes compliance monitoring, testing, and reporting requirements that sufficiently enforce and document the PM limits to assure compliance with state and federal regulations. This permit also requires particulate matter stack testing every 2 years, which is a direct measurement of the amount of particulate being emitted from the stack. If and when the USEPA finalizes the New Source Performance Standard (NSPS) amendment, the IDEM will modify the permit to reflect the latest monitoring requirements. At the time of this permit review, there are no applicable requirements that specify that a PM continuous emission monitor is required to be installed.

There are no changes to the draft permit due to these comments.

IDEM Contact

Questions regarding this minor permit modification can be directed to Ms. Iryn Calilung at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana 46204 or by telephone at (317) 233-5692 or toll free at 1-800-451-6027 extension 3-5692.

For additional information about air permits and how the public can participate, see IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.IN.gov/idem/guides.

Conversions from English to Metric

Fill in the yellow areas with the English units to convert to Metric

	tons/yr	=>	**grams/sec**
Emissions per stack			0.00
	pounds/hr	=>	**grams/sec**
Emissions per stack	3.42		0.43
	Feet	=>	**meters**
Stack Height	24		7.32
	Feet	=>	**meters**
Stack Diameter	2.5		0.76
	ACFM	=>	**meters/sec**
Stack Gas Velocity	5985		6.1938
	Fahrenheit	=>	**Kelvin**
Stack Gas Temperature	300		422.0
	Feet	=>	**meters**
Building Height	21.75		6.63
Minimum Horizontal Building Dimension (Width)	45		13.72
Maximum Horizontal Building Dimension (Length)	60		18.29
Minimum Distance of Building to Property Boundary (Fenceline)	120		36.59

M value calculations for merged stacks (if more than one stack in an application)

Fill in the yellow areas with appropriate parameters to determine the worst-case stack.

Stack ID	Equipment Description	Stack Height (m)	Stack Exit Velocity (m/sec)	Stack Diameter (m)	Stack Temp. (K)	Volumetric Flow Rate (m3/sec)	Emission Rate (g/sec)	M Value
stack1	process	10	1	1	293	7.854E-01	1	**2.301E+03**
stack2	process	20	10	2	300	3.142E+01	1	**1.885E+05**
stack3	process	30	20	3	500	1.414E+02	1	**2.121E+06**

The stack with the lowest M value represents the lowest dispersion coefficient and should be modeled.

Results from Maximum 1-hour Concentration Screening Results

Input the 1 hour maximum concentration in the yellow for the other time-averaged concentrations

		Pollutants of Concern - NAAQS limit
1 hour concentration	1018	**CO - 40000 ug/m3**
3 hour concentration	916.2	**SO2 - 1300 ug/m3**
8 hour concentration	712.6	**CO - 10000 ug/m3**
		HAPs - OSHA PEL
24 hour concentration	407.2	**PM10 - 150 ug/m3**
		SO2 - 365 ug/m3
		Pb - 1.5 ug/m3
Annual concentration	81.44	**NOx - 100 ug/m3**
		PM10 - 50 ug/m3
		SO2 - 80 ug/m3

TABLE 1
GIBSON GENERATING STATION
FLUE GAS DESULFURIZATION POLLUTION CONTROL PROJECT
PROPOSED AIR POLLUTANT EMISSION CHANGE ASSOCIATED WITH UNIT #3

Boiler #3 Information		
Maximum Heat Input =	6270	MMBtu/hr
Maximum Annual Hours of Operation =	8760	Hours

	SO_2 Emission Rate		
	(lbs/MMBtu)	lbs/hr(2)	tons/year (3)
Before PCP(1)	3.19	20,001	87,606
After PCP(1)	1.5	9,405	41,194

Notes:
(1) PCP = Pollution Control Project
(2) lbs/hr = lbs/MMBtu * MMBtu/hr
(3) tons/yr = lbs/hr * 8760 hrs/yr / (1 ton/2000 lbs)

* All other criteria air pollutants associated with the Pollution Control Project on Unit #3 will not be affected.
* An SO_2 emission rate of 1.5 lbs/MMBtu was selected by Cinergy to protect the NAAQS established for SO_2 emissions.

Summary of Potential Particulate Emissions
Gibson FGD Project

Material Handling Sources		Controlled Emission Rates	
		lb/hr	ton/yr
Limestone Handling and Preparation			
TP-1	Emissions from transfer of limestone from railcar or truck to limestone hopper.	1.44	0.63
EP-24	Emissions from ventilation louver at conveyor LH-1 tunnel entrance.	0.72	0.32
TP-5	Emissions from transfer of limestone from conveyor LH-1 to Active Limestorage Stockout Pile	1.44	0.63
EP-25	Emissions from ventilation louver at conveyor LH-2 tunnel entrance.	0.14	0.21
EP-21, 22, and 23	Emissions from ventilation exhaust fan - Units 1, 2 & 3 Day Bin building enclosure.	0.149	0.217
Total: Limestone Handling and Preparation		3.90	2.01
Gypsum Handling			
EP-42	Emissions from gypsum dewatering building.	0.033	0.147
TP-38	Emissions from transfer of gypsum from conveyor GH-1B to Conveyor GH-2B (to emergency gypsum stockout pile).	0.042	0.018
TP-34	Emissions from transfer of gypsum from conveyor GH-1A to Radial Stacker Conveyor GH-2A.	0.042	0.183
TP-35	Emissions from transfer of gypsum from Radial Stacker Conveyor GH-2A to Gypsum Stockout Pile.	0.042	0.183
TP-39	Emissions from transfer of gypsum from conveyor GH-2B to Emergency Gypsum Stockout Pile.	0.0042	0.0018
Total: Gypsum Handling		0.163	0.533
Total: Limestone and Gypsum Handling		4.07	2.54

Fugitive Emission Sources (Storage Piles)

ID	Emission Point Description	Potential Uncontrolled Particulate				Emission Controls	Expected Control Efficiency		Projected Controlled Particulate			
		Average Short-Term Emission Rates		Maximum Annual Emissions					Average Short-Term Emission Rates		Maximum Annual Emissions	
		TSP	PM10	TSP	PM10		Average Short-Term	Long-Term	TSP	PM10	TSP	PM10
		lb/day	lb/day	tpy	typ		%	%	lb/day	typ	lb/day	tpy
F-6	Fugitive Particulate Emissions from the Active Limestone Stockout Pile	1.52	0.76	0.28	0.14	Watering	70%	50%	0.46	0.23	0.14	0.07
F-9	Fugitive Particulate Emissions from the Inactive Limestone Stockout Pile	9.66	4.83	1.76	0.88	Watering	70%	50%	2.90	1.45	0.88	0.44
F-36	Fugitive Particulate Emissions from the Gypsum Stockout Pile	3.36	1.68	0.61	0.31	Moisture Content of Gypsum	0%	0%	3.36	1.68	0.61	0.31
F-40	Fugitive Particulate Emissions from the Gypsum Emergency Stockout Pile	0.14	0.07	0.03	0.01	Moisture Content of Gypsum	0%	0%	0.14	0.07	0.03	0.01
	Total	11.18	5.59	2.04	1.02				6.85	3.43	1.66	0.83

LIMESTONE HANDLING AND PREPARATION
GIBSON FGD PROJECT

AP-42 equation for particulate emissions associated with aggregate drop operations: **k (0.0032) (U/5)^1.3 / [(M/2)^1.4]**

where:

k = 0.35 [particles < 10um]
k = 0.74 [particles < 30um]
U = 5.7 [mph, max. speed of enclosed conveyors approx. 500 fpm]
M = Material moisture content, see Table 13.2.4-1
M = 0.700 percent, see, AP-42 Table 13.2.4-1

EMISSION CONTROL SYSTEMS:		
Fogging-Type Dust Suppression System:	**95**	percent
Fogging Dust Suppression at Track/Truck Hopper:	**90**	percent
Telescopic Chute:	**90**	percent
Bin Filter:	**99.9**	percent
Baghouse Controlled Emission Rate:		
Average	**0.01**	gr/scf
Maximum	**0.012**	gr/scf
Enclosure Control Efficiency:		
Maximum Emissions:	**50**	

E (lb PM per ton material handled) = 1.221E-02
E (lb PM_{10} per ton material handled) = 5.774E-03

			Description:																
			Process Rate			**Transfer Points: Potential Uncontrolled PM10 Emissions**			**Emission Control Efficiency or Controlled Emission Rate**				**HOURS OF OPERATION**		**EMISSION CALCULATIONS**				
															Average Emissions		**Maximum Emissions**		
ID	**Description Note: Transfer Points and Fugitives that do not exhaust to the atmosphere are shown in white, Emissions Points and Fugitive emissions that exhaust to the atmosphere are shown in Yellow.**	**Emission Controls and Emission Points**	**Average Rate**	**Maximum Rate**	**Unit**	**Uncontrolled Emissions lb/hr**	**Transfer Point Controls [suppression] [enclosed] [bin filter] [chute] [none]**	**Controlled Emissions lb/hr**	**Emission Point Controls [enclosed] [baghouse] [none]**	**Value that Results in Average Emission Rate**	**Value that Results in Maximum Emission Rate**	**Unit**	**Average Annual Hours of Operation**	**Maximum Annual Hours of Operation**	**(lb/hr)**	**(tpy)**	**(lb/hr)**	**(tpy)**	**Overall Control Efficiency**
LIMESTONE RECEIVING AND UNLOADING																			
TP-1	Emissions from transfer of limestone from railcar or truck to the Limestone Hopper	Controlled with fogging-type dust suppression. 90% control with no wind. Residual particulate matter is emitted to the atmosphere.	2,375	**2,500**	T/hr	14.44	dust suppression at track/truck hopper	1.44	none	0	0	percent	600	876	1.44	0.43	1.44	0.63	90.00%
TP-2	Emissions from transfer of limestone from the Unloading Hopper to Belt Feeder BFLH-1.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-24.	1,188	**1,250**	T/hr	7.22	suppression	0.36											
TP-3	Emissions from transfer of limestone from the Unloading Hopper to Belt Feeder BFLH-2.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-24.	1,188	**1,250**	T/hr	7.22	suppression	0.36											
TP-4	Emissions from transfer of limestone from belt feeders BFLH-1 and BFLH-2 to conveyor LH-1.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-24.	2,375	**2,500**	T/hr	14.44	suppression	0.72											
EP-24	Emissions from ventilation louver at conveyor LH-1 tunnel entrance.	Emission Point, exhausts PM from TP-2, TP-3 and TP-4. Transfer points are enclosed.				28.9		1.44	enclosed	50	50	percent	600	876	0.72	0.22	0.72	0.32	97.50%
LIMESTONE STORAGE																			
TP-5	Emissions from transfer of limestone from conveyor LH-1 to Active Limestorage Stockout Pile	Emissions controlled with telescopic chute.	2,375	**2,500**	T/hr	14.44	chute	1.44	none	0	0	percent	600	876	1.44	0.43	1.44	0.63	90.00%
LIMESTONE STORAGE RECLAIM																			
TP-10	Emissions from transfer of limestone from the Reclaim Hopper to Belt Feeder BFLH-3.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-25.	238	**250**	T/hr	1.44	suppression	0.07											
TP-11	Emissions from transfer of limestone from the Reclaim Hopper to Belt Feeder BFLH-4.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-25.	238	**250**	T/hr	1.44	suppression	0.07											
TP-12	Emissions from transfer of limestone from belt feeders BFLH-3 and BFLH-4 to conveyor LH-2.	Controlled with fogging-type dust suppression, and enclosed. Residual PM is exhausted at emission point EP-25.	475	**500**	T/hr	2.89	suppression	0.14											
EP-25	Emissions from ventilation louver at conveyor LH-2 tunnel entrance.	Emission Point, exhausts PM from TP-10, TP-11, and TP-12. Tranfer points are enclosed.				5.8		0.3	enclosed	50	50	percent	1,800	2,920	0.14	0.13	0.14	0.21	97.50%
LIMESTONE PREPARATION AND DEWATERING BUILDING																			

TP-13	Emissions from transfer of limestone from conveyor LH-2 to conveyor LH-3.	Controlled with fogging-type dust suppression, and enclosed.	475	**500**	T/hr	2.89	suppression	0.14											
TP-15	Emissions from transfer of limestone from convyor LH-2 to Day Bin Unit 3.	Controlled with surge-bin filter.	475	**500**	T/hr	2.89	bin filter	0.003											
EP-21	Ventilation exhaust fan - Units 1, 2 & 3 Day Bin building enclosure.	Can exhaust emissions from TP-13, TP-14, TP-15, TP 16, and TP-17. Transfer points are controlled and enclosed.				5.77		0.147											
TP-14	Emissions from transfer of limestone from conveyor LH-2 fixed hopper to Conveyor LH-2.	Controlled with fogging-type dust suppression, and enclosed.	475	**500**	T/hr	2.89	suppression	0.14											
TP-16	Emissions from transfer of limestone from convyor LH-2 fixed tripper to Day Bini Unit 2.	Controlled with surge-bin filter.	475	**500**	T/hr	2.89	bin filter	0.003											
EP-22	Ventilation exhaust fan - Units 1, 2 & 3 Day Bin building enclosure.	Can exhaust emissions from TP-13, TP-14, TP-15, TP 16, and TP-17. Transfer points are controlled and enclosed.				5.77		0.147											
TP-17	Emissions from transfer of limestone from conveyor LH-3 to Day Bin Unit 1.	Controlled with surge-bin filter.	475	**500**	T/hr	2.89	bin filter	0.003											
EP-23	Ventilation exhaust fan - Units 1, 2 & 3 Day Bin building enclosure.	Can exhaust emissions from TP-13, TP-14, TP-15, TP 16, and TP-17. Transfer points are controlled and enclosed.				2.89		0.003											
EP-21, 22, and 23	Emissions from ventilation exhaust fan - Units 1, 2 & 3 Day Bin building enclosure.	Combined emission points EP-21, 22 and 23. Exhausts emissions from TP-13, 14, 15, 16 and 17.				14.44		0.297	enclosed	50	50	percent	1,800	2,920	0.149	0.134	0.149	0.217	98.97%
TOTALS: LIMESTONE HANDLING AND PREPARATION																	3.90	2.01	

GYPSUM HANDLING SYSTEM
GIBSON FGD PROJECT

	Equation for emissions associated with Gypsum Handling:		**k (0.0032) (U/5)^1.3 / [(M/2)^1.4]**
EMISSION CONTROL SYSTEMS:		**where:**	
		k = 0.35	[particles < 10um]
Fogging-Type Dust Suppression System:	**95** percent	k = 0.74	[particles < 30um]
		U = 5.7	[mph, max. speeeed of enclosed conveyors]
Telescopic Chute:	**90** percent	M = Material moisture content, see Table 13.2.4-1	
		M = 10.00	Gypsum moisture content will be 10% (S&L material handling)
Bin Filter:	**99.9** percent		(Note, equation may not be valid for moisture contents greater than 4.8%)
Baghouse Controlled Emission Rate:		**E (lb PM per ton material handled) = 2.950E-04**	
Average	**0.01** gr/scf	**E (lb PM_{10} per ton material handled) = 1.395E-04**	
Maximum	**0.012** gr/scf		
Enclosure Control Efficiency:			
Maximum Emissions:	**50**		

ID	Description Note: Transfer Points and Fugitives that do not exhaust to the atmosphere are shown in white, Emissions Points and Fugitive emissions that exhaust to the atmosphere are shown in Yellow.	Emission Controls and Emission Points	Process Rate: Average Rate	Process Rate: Maximum Rate	Process Rate: Unit	Transfer Points: Potential Uncontrolled PM10 Emissions: Uncontrolled Emissions lb/hr	Transfer Points: Transfer Point Controls [suppression] [enclosed] [bin filter] [chute] [none]	Transfer Points: Controlled Emissions lb/hr	Emission Control Efficiency or Controlled Emission Rate: Emission Point Controls [enclosed] [baghouse] [none]	Emission Control Efficiency: Value that Results in Average Emission Rate	Emission Control Efficiency: Value that Results in Maximum Emission Rate	Emission Control Efficiency: Unit	Exhaust Point Information: Flow Rate: Average scfm	Flow Rate: Maximum scfm	Exhaust Temperature: Average °F	Exhaust Temperature: Maximum °F	Exit Height: Feet (agl)	Diameter: Inches	Exhaust Point Description: Exhaust Point Description	Greatest Height of Nearby Building (feet)	Shortest Distance to Plant Boundary (feet)	Hours of Operation: Average Annual Hours of Operation	Maximum Annual Hours of Operation	Emission Calculations: Average Emissions (lb/hr)	Average Emissions (tpy)	Maximum Emissions (lb/hr)	Maximum Emissions (tpy)	Overall Control Efficiency
GYPSUM DEWTERING BUILDING																												
TP-26	Emissions from transfer of gypsum from vacuum belt feeder A to conveyor GH-1A.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-27	Emissions from transfer of gypsum from vacuum belt feeder A to conveyor GH-1B.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-28	Emissions from transfer of gypsum from vacuum belt feeder B to conveyor GH-1A.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-29	Emissions from transfer of gypsum from vacuum belt feeder B to conveyor GH-1B.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-30	Emissions from transfer of gypsum from vacuum belt feeder C to conveyor GH-1A.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-31	Emissions from transfer of gypsum from vacuum belt feeder C to conveyor GH-1B.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-32	Emissions from transfer of gypsum from vacuum belt feeder D to conveyor GH-1A.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
TP-33	Emissions from transfer of gypsum from vacuum belt feeder D to conveyor GH-1B.	PM emissions reduced because of high moisture content of gypsum. Residual PM is exhausted at emission point EP-42.	57	**60**	T/hr	0.008	none	0.01																				
EP-42	Emissions from gypsum dewatering building.	Residual particulates from gypsum dewatering building transfer points. All transfer points are enclosed.				0.067		0.07	enclosed	50	50	percent	0		ambient	ambient			approx. 300' (boiler building)			7,884	8,760	0.03	0.13	0.03	0.15	50.00%
TP-38	Emissions from transfer of gypsum from conveyor GH-1B to Conveyor GH-2B (to emergency gypsum stockout pile).	PM emissions reduced because of high moisture content of gypsum. Transfer point is not enclosed.	285	**300**	T/hr	0.04	none	0.04	none	0	0	percent	0		ambient	ambient			approx. 300' (boiler building)			600	876	0.04	0.01	0.04	0.02	0.00%
GYPSUM STACKER TRANSFER HOUSE																												
TP-34	Emissions from transfer of gypsum from conveyor GH-1A to Radial Stacker Conveyor GH-2A.	PM emissions reduced because of high moisture content of gypsum. Transfer house is enclosed on 3-sides.	285	**300**	T/hr	0.04	none	0.04	partial enclosure	0	0	percent	0		ambient	ambient			approx. 300' (boiler building)			7,884	8,760	0.04	0.16	0.04	0.18	0.00%
GYPSUM STORAGE																												
TP-35	Emissions from transfer of gypsum from Radial Stacker Conveyor GH-2A to Gypsum Stockout Pile.	PM emissions reduced because of high moisture content of gypsum.	285	**300**	T/hr	0.04	none	0.04	none	0	0	percent										7,884	8,760	0.042	0.165	0.042	0.183	0.00%
TP-39	Emissions from transfer of gypsum from conveyor GH-2B to Emergency Gypsum Stockout Pile.	PM emissions reduced because of high moisture content of gypsum and with telescopic chute.	285	**300**	T/hr	0.04	chute	0.004	none	0	0	percent										600	876	0.004	0.001	0.004	0.002	90.00%
TOTAL - GYPSUM HANDLING SYSTEM																										0.163	0.533	

Active Limestone Pile Fugitive Emissions

Calculation of wind erosion particulates from the Inactive Limesone Storage Pile - with no emissions controls.
Gibson FGD Project

The erosion potential function for a dry exposed surface (P) is expressed as:

$P = 58 \times (u^* - u_t)^2 + 25 \times (u^* - u_t)$ AP-42 Section 13.2.5, Equation 3

where:

u^* = friction velocity (m/s)

u_t = threshold friction velocity (m/s)

Note: P = 0 for u^* less than or equal to u_t

Peak Daily Wind Speed was obtained from	NOAA Local Climatological Data for Evansville, IN Dress Regional Airport, 2002	
Anemometer height (z) equal to:	10	feet
Assumed Typical Roughness Height (m)	0.005	(Assumed, basedon AP-42, page 13.2.5-5
Threshold Friction Velocity (m/s) =	**0.98**	(Assumed, based on AP-42 Tables 13.2.5-1 and 13.2.5-2, and EPA-450/3-98-008 page 4-12)
Emission Factor Constant (k) =	1.0 for PM	AP-42, page 13.2.3-3
Emission Factor Constant (k) =	0.5 for PM_{10}	AP-42, page 13.2.3-3

Storage Pile Shape:	Conical
AP-42 Pile Number (Figure 13.2.5-2):	A
Total Pile Surface Area:	**13,500** ft^2
Total Pile Surface Area:	1,254 m^2

u_s/u_t	%	m^2
0.2	40%	502
0.6	48%	602
0.9	12%	151
1.1	0%	-
	100%	1,254

Assumptions:
For the active storage pile it will be assumed that the entire pile surface area will be disturbed once every day.
Therefore, the highest 5-second wind speed each day is considered in the calculation.

		Maximum Reported Wind Speed	Maximum Wind Speed Per Disturbance Period	Maximum Reported Wind Speed	Fastest Wind Mile Value	Corresponding Surface Wind (u_t^+) $u_s^+ = (u_s/u_t) \times u_{10}^+$				Equivalent Friction Velocity (u^*) $u^* = 0.1 \times u_t^+$				Erosion Potential $P = 58 \times (u^* - ut)2 + 25 \times (u^* - ut)$				Total PM Emissions	Total PM_{10} Emissions
Month	Day	Uz^+	Uz^+	Uz^+	U_{10}^+	u_s/u_t	u_s/u_t	u_s/u_t	u_s/u_t	u_s/u_t = 0.2	u_s/u_t = 0.6	u_s/u_t = 0.9	u_s/u_t = 1.1	u_s/u_t = 0.2	u_s/u_t = 0.6	u_s/u_t = 0.9	u_s/u_t = 1.1	1.0	0.5
		(mph)	(mph)	(m/s)	(m/s)	0.2	0.6	0.9	1.1	(m/s)	(m/s)	(m/s)	(m/s)	(g/m^2)	(g/m^2)	(g/m^2)	(g/m^2)	(kg)	(kg)
1	1	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	2	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	3	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
1	4	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	5	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
1	6	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
1	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
1	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
1	9	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	10	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
1	11	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
1	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
1	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
1	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
1	16	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
1	17	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	18	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	19	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
1	20	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
1	21	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
1	22	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
1	23	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
1	24	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
1	25	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
1	26	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	27	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
1	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
1	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	30	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
1	31	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	6.39	3.20
2	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	6.39	3.20
2	2	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
2	3	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
2	4	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
2	5	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
2	6	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
2	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
2	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
2	9	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
2	10	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
2	11	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
2	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
2	13	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
2	16	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
2	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
2	18	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	19	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
2	20	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.3	27.7	61.9	4.36	2.18
2	21	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
2	22	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
2	23	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
2	24	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
2	25	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
2	26	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
2	27	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
2	28	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
3	1	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
3	2	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
3	3	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
3	4	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
3	5	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
3	6	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
3	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
3	8	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	2.36	1.18
3	9	47.0	47.0	21.0	21.0	4.2	12.6	18.9	23.1	0.42	1.26	1.89	2.31	0.0	11.6	70.9	136.0	17.64	8.82
3	10	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
3	11	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
3	12	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
3	13	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
3	14	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
3	15	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
3	16	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
3	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
3	18	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
3	19	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
3	20	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
3	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
3	22	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
3	23	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
3	24	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
3	25	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
3	26	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
3	27	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
3	28	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
3	29	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	12.84	6.42
3	30	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
3	31	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
4	1	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00

4	2	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
4	3	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
4	4	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
4	5	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
4	6	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
4	7	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
4	8	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.3	27.7	61.9	4.36	2.18
4	9	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
4	10	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
4	11	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
4	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
4	13	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
4	14	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
4	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
4	16	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
4	17	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
4	18	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
4	19	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
4	20	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
4	21	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	2.8	38.7	81.2	7.52	3.76
4	22	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
4	23	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
4	24	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	11.39	5.70
4	25	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
4	26	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
4	27	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
4	28	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.3	27.7	61.9	4.36	2.18
4	29	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
4	30	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	1	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
5	2	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
5	3	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	4	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	5	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	6	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
5	7	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
5	8	38.0	38.0	17.0	17.0	3.4	10.2	15.3	18.7	0.34	1.02	1.53	1.87	0.0	1.1	31.2	68.0	5.34	2.67
5	9	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	11.39	5.70
5	10	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	11	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
5	12	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
5	13	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
5	14	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
5	15	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
5	16	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
5	17	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	2.36	1.18
5	18	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
5	19	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
5	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	21	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
5	22	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	23	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
5	24	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
5	25	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
5	26	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	27	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
5	28	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
5	29	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
5	30	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	31	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
6	1	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
6	2	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	3	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
6	4	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
6	5	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
6	6	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	7	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	8	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	9	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	10	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
6	11	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	2.8	38.7	81.2	7.52	3.76
6	12	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
6	13	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
6	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
6	15	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
6	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
6	17	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	18	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	19	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	21	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	22	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	23	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	24	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
6	25	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
6	26	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	27	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
6	28	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	29	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	30	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
7	1	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
7	2	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	3	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
7	4	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
7	5	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
7	6	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
7	7	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	8	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	9	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
7	10	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	12.84	6.42
7	11	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	12	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	13	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
7	14	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	15	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
7	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
7	18	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
7	19	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	20	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	21	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
7	23	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
7	24	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	25	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
7	26	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
7	27	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
7	28	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
7	29	36.0	36.0	16.1	16.1	3.2	9.7	14.5	17.7	0.32	0.97	1.45	1.77	0.0	0.0	24.4	56.0	3.68	1.84
7	30	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
7	31	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	1	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
8	2	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
8	3	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
8	4	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
8	5	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
8	6	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
8	7	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00

8	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
8	9	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
8	10	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
8	11	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
8	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
8	13	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	2.36	1.18
8	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
8	15	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
8	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
8	17	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
8	18	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
8	19	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	12.84	6.42
8	20	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	21	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
8	22	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
8	23	38.0	38.0	17.0	17.0	3.4	10.2	15.3	18.7	0.34	1.02	1.53	1.87	0.0	1.1	31.2	68.0	5.34	2.67
8	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
8	25	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
8	26	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
8	27	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
8	28	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
8	29	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
8	30	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	31	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
9	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	6.39	3.20
9	2	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
9	3	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
9	4	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
9	5	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
9	6	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	7	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
9	8	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
9	9	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	10	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
9	11	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
9	12	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
9	13	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	14	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
9	15	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
9	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
9	17	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	18	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
9	19	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	11.39	5.70
9	20	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
9	21	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
9	22	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
9	23	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
9	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
9	25	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	26	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
9	27	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
9	28	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	29	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
9	30	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
10	1	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
10	2	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
10	3	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	4	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
10	5	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
10	6	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
10	7	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
10	8	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	9	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
10	10	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	11	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
10	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
10	13	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
10	14	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
10	15	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
10	17	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	18	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
10	19	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
10	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	21	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
10	22	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	23	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	25	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
10	26	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	27	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	28	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
10	30	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	31	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
11	1	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
11	2	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	3	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
11	4	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
11	5	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	6	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
11	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	8	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
11	9	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	2.36	1.18
11	10	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
11	11	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	12	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
11	13	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	14	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
11	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
11	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
11	17	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
11	18	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
11	19	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
11	20	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
11	21	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
11	22	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
11	23	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
11	24	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
11	25	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	1.5	0.00	0.00
11	26	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
11	27	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
11	28	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
11	29	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	1.63	0.81
11	30	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	6.39	3.20
12	1	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	3.1	0.00	0.00
12	2	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
12	3	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
12	4	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
12	5	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.1	0.00	0.00
12	6	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
12	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	8	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	9	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
12	10	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
12	11	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
12	12	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
12	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00

Active Limestone Pile Fugitive Emissions

12	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
12	15	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	16	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
12	17	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	0.00	0.00
12	18	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
12	19	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	2.36	1.18
12	20	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	1.30	0.65
12	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	1.98	0.99
12	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	3.21	1.61
12	23	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
12	24	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
12	25	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	1.9	12.6	0.29	0.14
12	26	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
12	27	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
12	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	0.74	0.37
12	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	0.00	0.00
12	30	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	1.01	0.50
12	31	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	0.10	0.05
Peak Windspeed:		47.0	47.0	21.0	21.0						Number of Days with Potential Emissions			0	18	101	209	PM	PM_{10}

Total Emissions	(kg/yr)	252.2	126.1
Total Emissions	**(tpy)**	**0.28**	**0.14**
Peak Emissions	(kg/day)	17.6	8.8
Peak Emissions	**(lb/day)**	**38.8**	**19.4**
Average Emissions	(kg/day)	0.69	0.35
Average Emissions	**(lb/day)**	**1.52**	**0.76**

Calculation of wind erosion particulates from the Inactive Limesone Storage Pile - with no emissions controls.
Gibson FGD Project

The erosion potential function for a dry exposed surface (P) is expressed as:

$P = 58 \times (u^* - u_t)^2 + 25 \times (u^* - u_t)$ AP-42 Section 13.2.5, Equation 3

where:

u^* = friction velocity (m/s)

u_t = threshold friction velocity (m/s)

Note: P = 0 for u^* less than or equal to u_t

Peak Daily Wind Speed was obtained from	NOAA Local Climatological Data for Evansville, IN Dress Regional Airport, 2002	
Anemometer height (z) equal to:	10	feet
Assumed Typical Roughness Height (m)	0.005	(Assumed, basedon AP-42, page 13.2.5-5
Threshold Friction Velocity (m/s) =	**0.98**	(Assumed, based on AP-42 Tables 13.2.5-1 and 13.2.5-2, and EPA-450/3-98-008 page 4-12)
Emission Factor Constant (k) =	1.0 for PM	AP-42, page 13.2.3-3
Emission Factor Constant (k) =	0.5 for PM_{10}	AP-42, page 13.2.3-3

Storage Pile Shape:	Two oval shapped piles with 40-degree side angles.
AP-42 Pile Number (Figure 13.2.5-2):	B3
Total Pile Surface Area:	**77,000** ft^2
Total Pile Surface Area:	7,154 m^2

u_t/u_r	%	m^2
0.2	28%	2,003
0.6	54%	3,863
0.9	14%	1,002
1.1	4%	286
	100%	7,154

Assumptions:
For the inactive storage pile it will be assumed that the entire pile surface area will be disturbed once every 10 days.
This is based on 70,000 tons storage in the inactive pile and 7,000 tons in the active pile.
Therefore, only the highest wind speed each 10 days was considered in the calculation, the remaining wind speeds were set to zero.

		Maximum Reported Wind Speed	Maximum Wind Speed Per Disturbance Period	Maximum Reported Wind Speed	Fastest Wind Mile Value	Corresponding Surface Wind (u_t^+) $u_t^+ = (u_t/u_r) \times u_{10}^+$				Equivalent Friction Velocity (u*) $u^* = 0.1 \times u_t^+$				Erosion Potential $P = 58 \times (u^* - ut)2 + 25 \times (u^* - ut)$				Total PM Emissions	Total PM_{10} Emissions
Month	Day	Uz^+	Uz^+	Uz^+	U_{10}^+	u_t/u_r	u_t/u_r	u_t/u_r	u_t/u_r	$u_t/u_r = 0.2$	$u_t/u_r = 0.6$	$u_t/u_r = 0.9$	$u_t/u_r = 1.1$	$u_t/u_r = 0.2$	$u_t/u_r = 0.6$	$u_t/u_r = 0.9$	$u_t/u_r = 1.1$	1.0	0.5
		(mph)	(mph)	(m/s)	(m/s)	0.2	0.6	0.9	1.1	(m/s)	(m/s)	(m/s)	(m/s)	(g/m^2)	(g/m^2)	(g/m^2)	(g/m^2)	(kg)	(kg)
1	1	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	2	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	4	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	5	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	2.10	1.05
1	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	9	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	10	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	11	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	13	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	13.19	6.60
1	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	16	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	17	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	18	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	19	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	20	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	21	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	22	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	23	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	24	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	25	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	26	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	27	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	10.37	5.18
1	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	30	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	31	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	63.57	31.78
2	2	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	3	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	4	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	6	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	9	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	10	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	16.29	8.14
2	11	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	13	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	16	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	18	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	19	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	20	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.3	27.7	61.9	46.69	23.35
2	21	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	22	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	23	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	24	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	25	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	26	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	27	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	28	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	1	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	2	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	3	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	4	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	5	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	6	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	7	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	8	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	9	47.0	47.0	21.0	21.0	4.2	12.6	18.9	23.1	0.42	1.26	1.89	2.31	0.0	11.6	70.9	136.0	154.69	77.34
3	10	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	11	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	12	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	13	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	14	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	15	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	16	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	18	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	19	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	20	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	23.28	11.64
3	22	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	23	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	24	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	25	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	26	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	27	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	28	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	29	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	116.09	58.04
3	30	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00

3	31	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	2	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	3	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	5	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	6	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	7	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	8	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.3	27.7	61.9	46.69	23.35
4	9	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	10	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	11	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	12	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	13	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	14	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	16	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	17	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	18	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	19	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	35.78	17.89
4	20	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	21	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	22	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	23	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	24	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	104.40	52.20
4	25	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	26	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	27	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	28	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	29	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	30	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	1	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	2	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	4	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	5	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	6	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	7	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	8	38.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	9	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	104.40	52.20
5	10	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	11	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	12	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	35.78	17.89
5	13	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	14	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	15	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	16	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	17	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	18	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	19	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	21	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	22	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	23	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	24	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	25	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	26	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	27	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	28	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	16.29	8.14
5	29	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	30	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	31	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	2	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	3	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	4	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	5	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	13.2	35.3	23.28	11.64
6	6	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	7	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	8	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	9	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	10	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	11	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	2.8	38.7	81.2	72.89	36.44
6	12	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	13	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	14	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	15	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	17	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	18	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	19	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	21	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	22	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	23	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	24	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	10.8	30.8	19.65	9.83
6	25	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	26	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	27	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	28	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	29	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	30	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	1	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	2	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	3	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	5	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	6	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	7	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	9	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	13.19	6.60
7	10	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	116.09	58.04
7	11	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	12	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	13	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	14	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	15	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	18	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	19	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	20	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	21	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	22	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	23	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	24	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	25	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	26	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	27	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	28	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	29	36.0	36.0	16.1	16.1	3.2	9.7	14.5	17.7	0.32	0.97	1.45	1.77	0.0	0.0	24.4	56.0	40.49	20.24
7	30	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	31	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	1	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	2	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	3	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	5	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00

8	6	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	2.10	1.05
8	7	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	10	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	11	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	13	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	15.7	40.0	27.18	13.59
8	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	15	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	17	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	18	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	19	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	7.3	56.0	110.8	116.09	58.04
8	20	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	21	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	22	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	23	38.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	25	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	26	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	27	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	28	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	29	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	30	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	31	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	63.57	31.78
9	2	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	3	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	4	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	5	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	6	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	7	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	8	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	9	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	10	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	11	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	12	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	13	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	14	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	15	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	7.3	2.10	1.05
9	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	17	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	18	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	19	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	6.1	51.4	103.0	104.40	52.20
9	20	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	21	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	22	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	23	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	25	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	26	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	27	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	28	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	29	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	30	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	1	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	2	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	3	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	4	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	16.29	8.14
10	5	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	6	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	7	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	9	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	10	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	11	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	4.9	19.1	10.37	5.18
10	13	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	14	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	15	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	17	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	18	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	16.29	8.14
10	19	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	21	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	22	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	23	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	25	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	26	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	27	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	28	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	30	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	31	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	1	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	2	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	5	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	6	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.7	9.8	3.50	1.75
11	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	8	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	9	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	10	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	35.78	17.89
11	11	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	12	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	13	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	14	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	17	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	18	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	19	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	20	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	21	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	8.7	26.6	16.29	8.14
11	22	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	23	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	24	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	25	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	26	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	27	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	28	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	29	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	30	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	1.9	34.9	74.4	63.57	31.78
12	1	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	2	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	3	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	4	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	5	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	6	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	8	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	9	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	10	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	11	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00

Inactive Limestone Pile Fugitive Emissions

12	12	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	5.1	1.46	0.73
12	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	15	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	16	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	17	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	18	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	19	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	20	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	21	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	21.3	50.4	35.78	17.89
12	23	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	24	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	25	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	26	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	27	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	28	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	30	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	6.7	22.7	13.19	6.60
12	31	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
Peak Windspeed:		47.0	47.0	21.0	21.0								Number of Days with Potential Emissions	0	13	33	37	PM	PM_{10}

Total Emissions	(kg/yr)	1603.1	801.6
Total Emissions	**(tpy)**	**1.76**	**0.88**
Peak Emissions	(kg/day)	154.7	77.3
Peak Emissions	**(lb/day)**	**340.3**	**170.2**
Average Emissions	(kg/day)	4.39	2.20
Average Emissions	**(lb/day)**	**9.66**	**4.83**

Gypsum Stockout Pile Fugitive Emissions

Calculation of wind erosion particulates from the Gypsum Stockout Pile - with no emissions controls.
Gibson FGD Project

The erosion potential function for a dry exposed surface (P) is expressed as:

$P = 58 \times (u^* - u_t)^2 + 25 \times (u^* - u_t)$ AP-42 Section 13.2.5, Equation 3

where:

u^* = friction velocity (m/s)

u_t = threshold friction velocity (m/s)

Note: P = 0 for u* less than or equal to u_t

Peak Daily Wind Speed was obtained from:	NOAA Local Climatological Data for Evansville, IN Dress Regional Airport, 2002	
Anemometer height (z) equal to:	10	feet
Assumed Typical Roughness Height (m)	0.005	(Assumed, basedon AP-42, page 13.2.5-5
Threshold Friction Velocity (m/s) =	**1.33**	(Assumed, based on AP-42 Tables 13.2.5-1 and 13.2.5-2, EPA-450/3-98-008 page 4-12, and high moisture content of the gypsum.)
Emission Factor Constant (k) =	1.0 for PM	AP-42, page 13.2.3-3
Emission Factor Constant (k) =	0.5 for PM_{10}	AP-42, page 13.2.3-3

Storage Pile Shape: Oval shapped pile with 40-degree side angles.

AP-42 Pile Number (Figure 13.2.5-2): B3

Total Pile Surface Area: 70,000 ft^2

Total Pile Surface Area: 6,504 m^2

u_s/u_t	%	m^2
0.2	28%	1,821
0.6	54%	3,512
0.9	14%	910
1.1	4%	260
	100%	6,504

Assumptions:
For the gypsum stockout pile it was assumed that the entire pile surface area will be disturbed once every day.
Therefore, the highest 5-second wind speed each day is considered in the calculation.

		Maximum Reported Wind Speed	Maximum Wind Speed Per Disturbance Period	Maximum Reported Wind Speed	Fastest Wind Mile Value	Corresponding Surface Wind (u_s^+) $u_s^+ = (u_s/u_t) \times u_{10}^+$				Equivalent Friction Velocity (u*) $u^* = 0.1 \times u_s^+$				Erosion Potential $P = 58 \times (u^* - ut)2 + 25 \times (u^* - ut)$				Total PM Emissions	Total PM_{10} Emissions
Month	Day	Uz^+	Uz^+	Uz^+	U_{10}^+	u_s/u_t	u_s/u_t	u_s/u_t	u_s/u_t	$u_s/u_t = 0.2$	$u_s/u_t = 0.6$	$u_s/u_t = 0.9$	$u_s/u_t = 1.1$	$u_s/u_t = 0.2$	$u_s/u_t = 0.6$	$u_s/u_t = 0.9$	$u_s/u_t = 1.1$	1.0	0.5
		(mph)	(mph)	(m/s)	(m/s)	0.2	0.6	0.9	1.1	(m/s)	(m/s)	(m/s)	(m/s)	(g/m^2)	(g/m^2)	(g/m^2)	(g/m^2)	(kg)	(kg)
1	1	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	2	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	3	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
1	4	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	5	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
1	6	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
1	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
1	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
1	9	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	10	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
1	11	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
1	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
1	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
1	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
1	16	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92
1	17	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	18	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
1	19	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
1	20	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
1	21	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
1	22	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
1	23	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
1	24	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
1	25	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
1	26	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	27	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
1	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
1	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	30	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
1	31	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	17.49	8.75
2	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	17.49	8.75
2	2	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
2	3	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
2	4	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
2	5	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
2	6	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
2	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
2	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
2	9	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
2	10	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
2	11	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
2	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
2	13	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
2	16	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
2	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
2	18	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
2	19	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
2	20	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.0	5.4	26.1	11.74	5.87
2	21	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
2	22	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
2	23	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
2	24	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
2	25	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
2	26	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
2	27	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
2	28	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
3	1	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
3	2	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
3	3	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
3	4	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
3	5	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
3	6	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
3	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
3	8	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	3.20	1.60
3	9	47.0	47.0	21.0	21.0	4.2	12.6	18.9	23.1	0.42	1.26	1.89	2.31	0.0	0.0	32.3	80.4	50.29	25.14
3	10	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
3	11	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
3	12	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
3	13	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
3	14	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
3	15	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
3	16	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
3	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
3	18	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
3	19	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
3	20	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
3	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
3	22	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
3	23	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
3	24	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
3	25	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92

3	26	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
3	27	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
3	28	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
3	29	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	36.16	18.08
3	30	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
3	31	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
4	1	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
4	2	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
4	3	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
4	4	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
4	5	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
4	6	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
4	7	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
4	8	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.0	5.4	26.1	11.74	5.87
4	9	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
4	10	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
4	11	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
4	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
4	13	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
4	14	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
4	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
4	16	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
4	17	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
4	18	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
4	19	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
4	20	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
4	21	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	0.0	11.5	39.5	20.74	10.37
4	22	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
4	23	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
4	24	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	31.94	15.97
4	25	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
4	26	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
4	27	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
4	28	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.0	5.4	26.1	11.74	5.87
4	29	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
4	30	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	1	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
5	2	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
5	3	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	4	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	5	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	6	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
5	7	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
5	8	38.0	38.0	17.0	17.0	3.4	10.2	15.3	18.7	0.34	1.02	1.53	1.87	0.0	0.0	7.3	30.3	14.49	7.25
5	9	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	31.94	15.97
5	10	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	11	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
5	12	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
5	13	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
5	14	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
5	15	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
5	16	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
5	17	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	3.20	1.60
5	18	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
5	19	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
5	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	21	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
5	22	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
5	23	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
5	24	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
5	25	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
5	26	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
5	27	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
5	28	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
5	29	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
5	30	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
5	31	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
6	1	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
6	2	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	3	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
6	4	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
6	5	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
6	6	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	7	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	8	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	9	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	10	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
6	11	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	0.0	11.5	39.5	20.74	10.37
6	12	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
6	13	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
6	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
6	15	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
6	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
6	17	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	18	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	19	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	21	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	22	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
6	23	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
6	24	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92
6	25	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
6	26	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
6	27	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
6	28	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	29	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
6	30	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
7	1	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
7	2	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	3	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
7	4	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
7	5	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
7	6	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
7	7	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	8	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	9	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
7	10	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	36.16	18.08
7	11	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	12	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	13	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
7	14	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	15	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
7	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
7	17	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
7	18	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92
7	19	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	20	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	21	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
7	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
7	23	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
7	24	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
7	25	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00

7	26	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
7	27	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
7	28	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
7	29	36.0	36.0	16.1	16.1	3.2	9.7	14.5	17.7	0.32	0.97	1.45	1.77	0.0	0.0	3.8	22.2	9.22	4.61
7	30	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
7	31	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	1	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
8	2	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
8	3	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
8	4	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
8	5	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
8	6	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
8	7	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
8	8	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
8	9	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
8	10	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
8	11	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
8	12	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
8	13	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	3.20	1.60
8	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
8	15	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
8	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
8	17	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
8	18	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
8	19	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	36.16	18.08
8	20	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	21	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
8	22	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
8	23	38.0	38.0	17.0	17.0	3.4	10.2	15.3	18.7	0.34	1.02	1.53	1.87	0.0	0.0	7.3	30.3	14.49	7.25
8	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
8	25	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
8	26	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
8	27	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
8	28	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
8	29	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
8	30	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
8	31	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
9	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	17.49	8.75
9	2	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
9	3	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
9	4	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
9	5	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
9	6	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	7	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
9	8	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
9	9	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	10	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
9	11	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
9	12	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
9	13	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	14	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
9	15	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
9	16	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
9	17	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	18	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
9	19	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	31.94	15.97
9	20	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
9	21	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
9	22	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
9	23	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
9	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
9	25	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
9	26	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
9	27	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
9	28	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
9	29	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
9	30	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
10	1	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
10	2	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
10	3	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	4	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
10	5	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
10	6	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
10	7	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
10	8	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	9	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
10	10	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	11	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
10	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
10	13	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
10	14	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
10	15	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
10	17	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	18	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
10	19	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
10	20	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	21	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
10	22	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	23	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	24	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	25	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
10	26	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
10	27	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
10	28	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
10	30	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
10	31	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
11	1	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
11	2	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	3	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
11	4	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
11	5	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	6	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
11	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	8	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92
11	9	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	3.20	1.60
11	10	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
11	11	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	12	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
11	13	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
11	14	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
11	15	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
11	16	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
11	17	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
11	18	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
11	19	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
11	20	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
11	21	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
11	22	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
11	23	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
11	24	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00

Gypsum Stockout Pile Fugitive Emissions

11	25	21.0	21.0	9.4	9.4	1.9	5.6	8.4	10.3	0.19	0.56	0.84	1.03	0.0	0.0	0.0	0.0	0.00	0.00
11	26	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
11	27	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
11	28	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
11	29	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	1.83	0.92
11	30	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	17.49	8.75
12	1	22.0	22.0	9.8	9.8	2.0	5.9	8.9	10.8	0.20	0.59	0.89	1.08	0.0	0.0	0.0	0.0	0.00	0.00
12	2	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
12	3	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
12	4	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
12	5	20.0	20.0	8.9	8.9	1.8	5.4	8.0	9.8	0.18	0.54	0.80	0.98	0.0	0.0	0.0	0.0	0.00	0.00
12	6	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
12	7	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	8	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	9	9.0	9.0	4.0	4.0	0.8	2.4	3.6	4.4	0.08	0.24	0.36	0.44	0.0	0.0	0.0	0.0	0.00	0.00
12	10	14.0	14.0	6.3	6.3	1.3	3.8	5.6	6.9	0.13	0.38	0.56	0.69	0.0	0.0	0.0	0.0	0.00	0.00
12	11	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
12	12	13.0	13.0	5.8	5.8	1.2	3.5	5.2	6.4	0.12	0.35	0.52	0.64	0.0	0.0	0.0	0.0	0.00	0.00
12	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
12	14	17.0	17.0	7.6	7.6	1.5	4.6	6.8	8.4	0.15	0.46	0.68	0.84	0.0	0.0	0.0	0.0	0.00	0.00
12	15	18.0	18.0	8.0	8.0	1.6	4.8	7.2	8.9	0.16	0.48	0.72	0.89	0.0	0.0	0.0	0.0	0.00	0.00
12	16	16.0	16.0	7.2	7.2	1.4	4.3	6.4	7.9	0.14	0.43	0.64	0.79	0.0	0.0	0.0	0.0	0.00	0.00
12	17	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
12	18	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
12	19	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	3.20	1.60
12	20	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	1.26	0.63
12	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	2.48	1.24
12	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	6.95	3.48
12	23	10.0	10.0	4.5	4.5	0.9	2.7	4.0	4.9	0.09	0.27	0.40	0.49	0.0	0.0	0.0	0.0	0.00	0.00
12	24	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
12	25	26.0	26.0	11.6	11.6	2.3	7.0	10.5	12.8	0.23	0.70	1.05	1.28	0.0	0.0	0.0	0.0	0.00	0.00
12	26	15.0	15.0	6.7	6.7	1.3	4.0	6.0	7.4	0.13	0.40	0.60	0.74	0.0	0.0	0.0	0.0	0.00	0.00
12	27	12.0	12.0	5.4	5.4	1.1	3.2	4.8	5.9	0.11	0.32	0.48	0.59	0.0	0.0	0.0	0.0	0.00	0.00
12	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.34	0.17
12	29	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
12	30	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.76	0.38
12	31	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
Peak Windspeed:		47.0	47.0	21.0	21.0								Number of Days with Potential Emissions	0	0	26	73	PM	PM_{10}

Total Emissions	(kg/yr)	557.1	278.5
Total Emissions	**(tpy)**	**0.61**	**0.31**
Peak Emissions	(kg/day)	50.3	25.1
Peak Emissions	**(lb/day)**	**110.6**	**55.3**
Average Emissions	(kg/day)	1.53	0.76
Average Emissions	**(lb/day)**	**3.36**	**1.68**

Emergency Gypsum Stockout Pile

Calculation of wind erosion particulates from Gypsum Emergency Stockout Pile - with no emissions controls.
Gibson FGD Project

The erosion potential function for a dry exposed surface (P) is expressed as:

$P = 58 \times (u^* - u_t)^2 + 25 \times (u^* - u_t)$ AP-42 Section 13.2.5, Equation 3

where:

u^* = friction velocity (m/s)

u_t = threshold friction velocity (m/s)

Note: P = 0 for u^* less than or equal to u_t

Peak Daily Wind Speed was obtained from:	NOAA Local Climatological Data for Evansville, IN Dress Regional Airport, 2002	
Anemometer height (z) equal to:	10	feet
Assumed Typical Roughness Height (m)	0.005	(Assumed, basedon AP-42, page 13.2.5-5
Threshold Friction Velocity (m/s) =	**1.33**	(Assumed, based on AP-42 Tables 13.2.5-1 and 13.2.5-2, EPA-450/3-98-008 page 4-12, and high moisture content of the gypsum.)
Emission Factor Constant (k) =	1.0 for PM	AP-42, page 13.2.3-3
Emission Factor Constant (k) =	0.5 for PM_{10}	AP-42, page 13.2.3-3

Storage Pile Shape: Conical

AP-42 Pile Number (Figure 13.2.5-2): A

Total Pile Surface Area: **9,400** ft^2

Total Pile Surface Area: 873 m^2

u_s/u_t	%	m^2
0.2	40%	349
0.6	48%	419
0.9	12%	105
1.1	0%	-
	100%	873

Assumptions:
For the emergency gypsum stockout pile it was assumed that the entire pile surface area will be disturbed once every 10 days.
This is based on the fact that the emergency stockout pile will only be used in emergency situations, and is considered a conservative assumption.
Therefore, only the highest wind speed each 10 days was considered in the calculation, the remaining wind speeds were set to zero.

		Maximum Reported Wind Speed	Maximum Wind Speed Per Disturbance Period	Maximum Reported Wind Speed	Fastest Wind Mile Value	Corresponding Surface Wind (u_s^+) $u_s^+ = (u_s/u_t) \times u_{10}^+$				Equivalent Friction Velocity (u^*) $u^* = 0.1 \times u_s^+$				Erosion Potential $P = 58 \times (u^* - ut)2 + 25 \times (u^* - ut)$				Total PM Emissions	Total PM_{10} Emissions
Month	Day	Uz^+	Uz^+	Uz^+	U_{10}^+	u_s/u_t	u_s/u_t	u_s/u_t	u_s/u_t	$u_s/u_t = 0.2$	$u_s/u_t = 0.6$	$u_s/u_t = 0.9$	$u_s/u_t = 1.1$	$u_s/u_t = 0.2$	$u_s/u_t = 0.6$	$u_s/u_t = 0.9$	$u_s/u_t = 1.1$	1.0	0.5
		(mph)	(mph)	(m/s)	(m/s)	0.2	0.6	0.9	1.1	(m/s)	(m/s)	(m/s)	(m/s)	(g/m^2)	(g/m^2)	(g/m^2)	(g/m^2)	(kg)	(kg)
1	1	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	2	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	4	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	5	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	7	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
1	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	9	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	10	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	11	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	13	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	14	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.00	0.00
1	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	16	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	17	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	18	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	19	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	20	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	21	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	22	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	23	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	24	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	25	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	26	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	27	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	28	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.00	0.00
1	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	30	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
1	31	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	0.97	0.49
2	2	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	3	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	4	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	6	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	9	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	10	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	0.00	0.00
2	11	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	13	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	16	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	18	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	19	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	20	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.0	5.4	26.1	0.57	0.28
2	21	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	22	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	23	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	24	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	25	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	26	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	27	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
2	28	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	1	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	2	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	3	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	4	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	5	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	6	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	7	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	8	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	9	47.0	47.0	21.0	21.0	4.2	12.6	18.9	23.1	0.42	1.26	1.89	2.31	0.0	0.0	32.3	80.4	3.38	1.69
3	10	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	11	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	12	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	13	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	14	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	15	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	16	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	18	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	19	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	20	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	21	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	0.00	0.00

3	22	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	23	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	24	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	25	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	26	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	27	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	28	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	29	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	2.33	1.17
3	30	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
3	31	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	2	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	3	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	5	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	6	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	7	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	8	37.0	37.0	16.5	16.5	3.3	9.9	14.9	18.2	0.33	0.99	1.49	1.82	0.0	0.0	5.4	26.1	0.57	0.28
4	9	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	10	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	11	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	12	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	13	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	14	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	16	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	17	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	18	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	19	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	0.24	0.12
4	20	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	21	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	22	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	23	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	24	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	2.02	1.01
4	25	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	26	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	27	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	28	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	29	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
4	30	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	1	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	2	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	4	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	5	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	6	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	7	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	8	38.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	9	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	2.02	1.01
5	10	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	11	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	12	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	0.24	0.12
5	13	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	14	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	15	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	16	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	17	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	18	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	19	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	21	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	22	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	23	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	24	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	25	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	26	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	27	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	28	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	0.00	0.00
5	29	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	30	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
5	31	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	2	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	3	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	4	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	5	32.0	32.0	14.3	14.3	2.9	8.6	12.9	15.7	0.29	0.86	1.29	1.57	0.0	0.0	0.0	9.5	0.00	0.00
6	6	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	7	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	8	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	9	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	10	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	11	40.0	40.0	17.9	17.9	3.6	10.7	16.1	19.7	0.36	1.07	1.61	1.97	0.0	0.0	11.5	39.5	1.21	0.60
6	12	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	13	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	14	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	15	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	17	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	18	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	19	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	21	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	22	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	23	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	24	31.0	31.0	13.9	13.9	2.8	8.3	12.5	15.2	0.28	0.83	1.25	1.52	0.0	0.0	0.0	7.1	0.00	0.00
6	25	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	26	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	27	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	28	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	29	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
6	30	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	1	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	2	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	3	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	5	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	6	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	7	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	9	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.00	0.00
7	10	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	2.33	1.17
7	11	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	12	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	13	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	14	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	15	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	17	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	18	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00

7	19	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	20	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	21	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	22	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	23	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	24	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	25	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	26	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	27	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	28	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	29	36.0	36.0	16.1	16.1	3.2	9.7	14.5	17.7	0.32	0.97	1.45	1.77	0.0	0.0	3.8	22.2	0.40	0.20
7	30	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
7	31	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	1	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	2	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	3	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	5	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	6	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
8	7	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	8	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	10	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	11	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	12	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	13	33.0	33.0	14.8	14.8	3.0	8.9	13.3	16.2	0.30	0.89	1.33	1.62	0.0	0.0	0.0	12.3	0.00	0.00
8	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	15	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	17	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	18	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	19	44.0	44.0	19.7	19.7	3.9	11.8	17.7	21.6	0.39	1.18	1.77	2.16	0.0	0.0	22.2	61.1	2.33	1.17
8	20	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	21	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	22	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	23	38.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	25	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	26	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	27	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	28	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	29	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	30	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
8	31	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	1	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	0.97	0.49
9	2	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	3	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	4	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	5	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	6	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	7	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	8	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	9	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	10	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	11	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	12	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	13	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	14	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	15	24.0	24.0	10.7	10.7	2.1	6.4	9.7	11.8	0.21	0.64	0.97	1.18	0.0	0.0	0.0	0.0	0.00	0.00
9	16	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	17	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	18	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	19	43.0	43.0	19.2	19.2	3.8	11.5	17.3	21.1	0.38	1.15	1.73	2.11	0.0	0.0	19.3	55.3	2.02	1.01
9	20	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	21	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	22	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	23	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	25	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	26	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	27	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	28	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	29	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
9	30	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	1	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	2	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	3	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	4	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	0.00	0.00
10	5	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	6	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	7	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	9	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	10	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	11	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	12	28.0	28.0	12.5	12.5	2.5	7.5	11.3	13.8	0.25	0.75	1.13	1.38	0.0	0.0	0.0	1.3	0.00	0.00
10	13	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	14	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	15	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	17	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	18	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	0.00	0.00
10	19	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	20	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	21	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	22	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	23	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	24	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	25	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	26	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	27	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	28	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	30	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
10	31	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	1	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	2	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	5	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	6	25.0	25.0	11.2	11.2	2.2	6.7	10.1	12.3	0.22	0.67	1.01	1.23	0.0	0.0	0.0	0.0	0.00	0.00
11	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	8	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	9	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	10	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	0.24	0.12
11	11	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	12	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	13	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	14	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	15	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00

Emergency Gypsum Stockout Pile

11	16	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	17	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	18	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	19	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	20	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	21	30.0	30.0	13.4	13.4	2.7	8.0	12.1	14.8	0.27	0.80	1.21	1.48	0.0	0.0	0.0	4.9	0.00	0.00
11	22	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	23	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	24	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	25	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	26	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	27	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	28	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	29	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
11	30	39.0	39.0	17.4	17.4	3.5	10.5	15.7	19.2	0.35	1.05	1.57	1.92	0.0	0.0	9.3	34.7	0.97	0.49
12	1	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	2	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	3	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	4	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	5	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	6	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	7	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	8	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	9	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	10	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	11	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	12	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	13	23.0	23.0	10.3	10.3	2.1	6.2	9.3	11.3	0.21	0.62	0.93	1.13	0.0	0.0	0.0	0.0	0.00	0.00
12	14	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	15	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	16	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	17	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	18	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	19	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	20	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	21	32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	22	35.0	35.0	15.6	15.6	3.1	9.4	14.1	17.2	0.31	0.94	1.41	1.72	0.0	0.0	2.3	18.6	0.24	0.12
12	23	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	24	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	25	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	26	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	27	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	28	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	29	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
12	30	29.0	29.0	13.0	13.0	2.6	7.8	11.7	14.3	0.26	0.78	1.17	1.43	0.0	0.0	0.0	2.9	0.00	0.00
12	31	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00
Peak Windspeed:		47.0	47.0	21.0	21.0								Number of Days with Potential Emissions	0	0	18	32	PM	PM_{10}

Total Emissions	(kg/yr)	23.1	11.5
Total Emissions	**(tpy)**	**0.03**	**0.01**
Peak Emissions	(kg/day)	3.4	1.7
Peak Emissions	**(lb/day)**	**7.4**	**3.7**
Average Emissions	(kg/day)	0.06	0.03
Average Emissions	**(lb/day)**	**0.14**	**0.07**

Peak Daily Windspeed Data
NOAA Local Climatological Data
Evansville , IN Dress Regional Airport
2002

Month	Day	Peak 5-Sec Windspeed (mph)	Average Windspeed (mph)	Average Windspeed plus one SD (mph)	Avg+SD> 12 mph? yes=1
1	1	12	2.2	5.28	0
1	2	12	4.2	7.28	0
1	3	15	2.8	5.88	0
1	4	23	8.2	11.28	0
1	5	18	6.4	9.48	0
1	6	20	6.9	9.98	0
1	7	24	8.5	11.58	0
1	8	21	9.8	12.88	1
1	9	23	9.4	12.48	1
1	10	16	5.3	8.38	0
1	11	15	4.9	7.98	0
1	12	24	7.2	10.28	0
1	13	23	6.6	9.68	0
1	14	29	13.5	16.58	1
1	15	25	8.6	11.68	0
1	16	31	7.3	10.38	0
1	17	23	5.8	8.88	0
1	18	12	3.3	6.38	0
1	19	17	5.6	8.68	0
1	20	18	8	11.08	0
1	21	22	8.6	11.68	0
1	22	26	6.7	9.78	0
1	23	22	7.2	10.28	0
1	24	26	8.7	11.78	0
1	25	14	4.6	7.68	0
1	26	23	7.4	10.48	0
1	27	21	6.5	9.58	0
1	28	28	9.4	12.48	1
1	29	23	10.3	13.38	1
1	30	23	7.5	10.58	0
1	31	39	9.8	12.88	1
2	1	39	14.1	17.18	1
2	2	12	1.9	4.98	0
2	3	22	7.4	10.48	0
2	4	26	10.3	13.38	1
2	5	10	2.2	5.28	0
2	6	14	5.5	8.58	0
2	7	18	6	9.08	0
2	8	21	5.3	8.38	0
2	9	24	8	11.08	0
2	10	30	11.9	14.98	1

2	11	21	7.6	10.68	0
2	12	24	10.1	13.18	1
2	13	17	5.2	8.28	0
2	14	17	5.5	8.58	0
2	15	25	9.8	12.88	1
2	16	32	9.8	12.88	1
2	17	22	6.3	9.38	0
2	18	17	6.2	9.28	0
2	19	28	10.9	13.98	1
2	20	37	13.3	16.38	1
2	21	25	11.1	14.18	1
2	22	20	7.1	10.18	0
2	23	13	2.8	5.88	0
2	24	22	7	10.08	0
2	25	24	9.9	12.98	1
2	26	35	17.8	20.88	1
2	27	29	11.5	14.58	1
2	28	29	7.7	10.78	0
3	1	22	7.3	10.38	0
3	2	32	10.2	13.28	1
3	3	28	14.7	17.78	1
3	4	25	11.8	14.88	1
3	5	23	10.2	13.28	1
3	6	29	12	15.08	1
3	7	24	8.1	11.18	0
3	8	33	13	16.08	1
3	9	47	18.4	21.48	1
3	10	24	8.3	11.38	0
3	11	24	6.1	9.18	0
3	12	14	5.4	8.48	0
3	13	16	5.6	8.68	0
3	14	25	10.4	13.48	1
3	15	26	9.6	12.68	1
3	16	23	10.5	13.58	1
3	17	22	6.5	9.58	0
3	18	15	4.3	7.38	0
3	19	17	6	9.08	0
3	20	22	7.8	10.88	0
3	21	32	10.3	13.38	1
3	22	22	8.4	11.48	0
3	23	22	7.4	10.48	0
3	24	30	7.4	10.48	0
3	25	31	9.5	12.58	1
3	26	25	10.4	13.48	1
3	27	12	2.9	5.98	0
3	28	20	5.2	8.28	0
3	29	44	8.2	11.28	0
3	30	12	2.4	5.48	0
3	31	20	6.9	9.98	0
4	1	20	6.4	9.48	0
4	2	30	13.7	16.78	1

4	3	22	9.3	12.38	1
4	4	20	8.1	11.18	0
4	5	16	4.5	7.58	0
4	6	18	6.7	9.78	0
4	7	21	7	10.08	0
4	8	37	12.5	15.58	1
4	9	22	9.1	12.18	1
4	10	15	5.1	8.18	0
4	11	23	6.9	9.98	0
4	12	28	8.4	11.48	0
4	13	13	3.6	6.68	0
4	14	21	7.6	10.68	0
4	15	25	10.6	13.68	1
4	16	26	11.1	14.18	1
4	17	17	8	11.08	0
4	18	26	9.2	12.28	1
4	19	35	7.8	10.88	0
4	20	12	3.4	6.48	0
4	21	40	11.7	14.78	1
4	22	25	9.3	12.38	1
4	23	17	4.9	7.98	0
4	24	43	9.6	12.68	1
4	25	28	6.9	9.98	0
4	26	13	2.9	5.98	0
4	27	26	8.3	11.38	0
4	28	37	16.1	19.18	1
4	29	15	4.2	7.28	0
4	30	17	5.2	8.28	0
5	1	24	7.8	10.88	0
5	2	35	8.4	11.48	0
5	3	15	5.3	8.38	0
5	4	16	4.9	7.98	0
5	5	17	5.3	8.38	0
5	6	30	9.2	12.28	1
5	7	25	6.4	9.48	0
5	8	38	11.3	14.38	1
5	9	43	9.3	12.38	1
5	10	15	5.4	8.48	0
5	11	21	8.1	11.18	0
5	12	35	12.4	15.48	1
5	13	30	9.3	12.38	1
5	14	23	6.8	9.88	0
5	15	23	6.6	9.68	0
5	16	32	11	14.08	1
5	17	33	8.9	11.98	0
5	18	26	8.4	11.48	0
5	19	20	4.2	7.28	0
5	20	16	5.1	8.18	0
5	21	14	4.5	7.58	0
5	22	17	5.8	8.88	0
5	23	24	10.2	13.28	1

5	24	20	6.5	9.58	0
5	25	28	8.4	11.48	0
5	26	16	4.7	7.78	0
5	27	18	4.7	7.78	0
5	28	30	3.5	6.58	0
5	29	24	2.6	5.68	0
5	30	15	3.9	6.98	0
5	31	21	7.5	10.58	0
6	1	20	8.3	11.38	0
6	2	16	5.5	8.58	0
6	3	21	8.8	11.88	0
6	4	28	9.2	12.28	1
6	5	32	8.1	11.18	0
6	6	18	7	10.08	0
6	7	13	5.2	8.28	0
6	8	16	3.7	6.78	0
6	9	18	7.4	10.48	0
6	10	22	8	11.08	0
6	11	40	9.2	12.28	1
6	12	22	6.5	9.58	0
6	13	25	9.5	12.58	1
6	14	29	10.2	13.28	1
6	15	26	8.2	11.28	0
6	16	10	3.3	6.38	0
6	17	13	1.4	4.48	0
6	18	14	3.5	6.58	0
6	19	14	5.4	8.48	0
6	20	16	3.5	6.58	0
6	21	16	3	6.08	0
6	22	18	3.8	6.88	0
6	23	13	4.3	7.38	0
6	24	31	6.2	9.28	0
6	25	17	3.6	6.68	0
6	26	16	6.2	9.28	0
6	27	23	10.8	13.88	1
6	28	14	4.5	7.58	0
6	29	14	2.3	5.38	0
6	30	23	4.4	7.48	0
7	1	12	2.6	5.68	0
7	2	15	3.2	6.28	0
7	3	18	3.9	6.98	0
7	4	10	1.4	4.48	0
7	5	17	3.4	6.48	0
7	6	17	6.3	9.38	0
7	7	16	4.9	7.98	0
7	8	14	1.9	4.98	0
7	9	29	7.6	10.68	0
7	10	44	6.2	9.28	0
7	11	16	8.1	11.18	0
7	12	16	5.1	8.18	0
7	13	18	5.2	8.28	0

7	14	15	3.9	6.98	0
7	15	16	2.3	5.38	0
7	16	10	2.7	5.78	0
7	17	22	6	9.08	0
7	18	31	5.1	8.18	0
7	19	14	4.9	7.98	0
7	20	15	4.6	7.68	0
7	21	14	3.1	6.18	0
7	22	35	7.1	10.18	0
7	23	20	3.5	6.58	0
7	24	15	6.3	9.38	0
7	25	10	3.2	6.28	0
7	26	22	6.7	9.78	0
7	27	22	10.9	13.98	1
7	28	26	10.6	13.68	1
7	29	36	9.5	12.58	1
7	30	12	2.3	5.38	0
7	31	15	2.8	5.88	0
8	1	13	2.2	5.28	0
8	2	13	2.5	5.58	0
8	3	9	2.6	5.68	0
8	4	12	2.3	5.38	0
8	5	23	4.7	7.78	0
8	6	24	10.2	13.28	1
8	7	20	7.7	10.78	0
8	8	21	6.7	9.78	0
8	9	12	3.7	6.78	0
8	10	20	3.7	6.78	0
8	11	18	7.3	10.38	0
8	12	24	5.3	8.38	0
8	13	33	7.5	10.58	0
8	14	17	7	10.08	0
8	15	29	11	14.08	1
8	16	22	9.2	12.28	1
8	17	26	11.5	14.58	1
8	18	23	5.7	8.78	0
8	19	44	7.6	10.68	0
8	20	15	4.2	7.28	0
8	21	16	5	8.08	0
8	22	18	5.3	8.38	0
8	23	38	5.7	8.78	0
8	24	14	5	8.08	0
8	25	20	6.3	9.38	0
8	26	14	3.4	6.48	0
8	27	24	6	9.08	0
8	28	23	8.4	11.48	0
8	29	17	6.5	9.58	0
8	30	15	5.5	8.58	0
8	31	16	3.5	6.58	0
9	1	39	3.3	6.38	0
9	2	20	5	8.08	0

9	3	23	8	11.08	0
9	4	17	6.8	9.88	0
9	5	16	4.8	7.88	0
9	6	15	2.9	5.98	0
9	7	20	3.7	6.78	0
9	8	12	1.5	4.58	0
9	9	13	3.7	6.78	0
9	10	18	5.5	8.58	0
9	11	23	9.9	12.98	1
9	12	23	4.5	7.58	0
9	13	13	3	6.08	0
9	14	20	6.5	9.58	0
9	15	24	3.6	6.68	0
9	16	10	3.4	6.48	0
9	17	15	5.3	8.38	0
9	18	21	6.6	9.68	0
9	19	43	9.8	12.88	1
9	20	32	6.8	9.88	0
9	21	10	2	5.08	0
9	22	28	6.5	9.58	0
9	23	14	2.6	5.68	0
9	24	14	4.5	7.58	0
9	25	15	5.3	8.38	0
9	26	23	8.7	11.78	0
9	27	22	8.3	11.38	0
9	28	13	3.8	6.88	0
9	29	12	2.2	5.28	0
9	30	21	5.3	8.38	0
10	1	18	7.3	10.38	0
10	2	21	6	9.08	0
10	3	16	4.8	7.88	0
10	4	30	10.4	13.48	1
10	5	15	3.8	6.88	0
10	6	22	6	9.08	0
10	7	21	6.9	9.98	0
10	8	14	3.4	6.48	0
10	9	9	2.4	5.48	0
10	10	16	7.3	10.38	0
10	11	13	4.3	7.38	0
10	12	28	3.4	6.48	0
10	13	24	9.7	12.78	1
10	14	15	4.7	7.78	0
10	15	16	3.7	6.78	0
10	16	22	6.8	9.88	0
10	17	16	3.3	6.38	0
10	18	30	8.9	11.98	0
10	19	23	6.8	9.88	0
10	20	16	5.4	8.48	0
10	21	10	1.7	4.78	0
10	22	17	2.3	5.38	0
10	23	17	7.8	10.88	0

10	24	14	6.3	9.38	0
10	25	26	7.8	10.88	0
10	26	14	5.4	8.48	0
10	27	17	7.5	10.58	0
10	28	16	7.7	10.78	0
10	29	23	9.3	12.38	1
10	30	16	5.3	8.38	0
10	31	17	4.6	7.68	0
11	1	23	9.2	12.28	1
11	2	18	6.6	9.68	0
11	3	13	4.1	7.18	0
11	4	12	3.7	6.78	0
11	5	18	6.4	9.48	0
11	6	25	9.3	12.38	1
11	7	18	6.6	9.68	0
11	8	31	14.8	17.88	1
11	9	33	14.7	17.78	1
11	10	35	12	15.08	1
11	11	18	6.2	9.28	0
11	12	14	5.2	8.28	0
11	13	18	8.2	11.28	0
11	14	24	9.3	12.38	1
11	15	25	7	10.08	0
11	16	22	9.8	12.88	1
11	17	20	6.1	9.18	0
11	18	23	8.2	11.28	0
11	19	16	5.1	8.18	0
11	20	14	3.7	6.78	0
11	21	30	9.8	12.88	1
11	22	23	7.8	10.88	0
11	23	26	6.5	9.58	0
11	24	20	3.6	6.68	0
11	25	21	8.4	11.48	0
11	26	20	6.9	9.98	0
11	27	15	5.2	8.28	0
11	28	23	7.4	10.48	0
11	29	31	14.8	17.88	1
11	30	39	14.2	17.28	1
12	1	22	9.4	12.48	1
12	2	25	10.5	13.58	1
12	3	23	12.2	15.28	1
12	4	24	11.6	14.68	1
12	5	20	7.8	10.88	0
12	6	14	4.9	7.98	0
12	7	18	8.9	11.98	0
12	8	18	6	9.08	0
12	9	9	4.1	7.18	0
12	10	14	5.2	8.28	0
12	11	13	4.6	7.68	0
12	12	13	4.1	7.18	0
12	13	23	11.2	14.28	1

12	14	17	6.2	9.28	0
12	15	18	6.2	9.28	0
12	16	16	5.9	8.98	0
12	17	24	7.7	10.78	0
12	18	32	13.6	16.68	1
12	19	33	10.2	13.28	1
12	20	30	14.2	17.28	1
12	21	32	11.4	14.48	1
12	22	35	9.9	12.98	1
12	23	10	3.1	6.18	0
12	24	23	10.2	13.28	1
12	25	26	12.7	15.78	1
12	26	15	3.7	6.78	0
12	27	12	2	5.08	0
12	28	28	9	12.08	1
12	29	23	5.9	8.98	0
12	30	29	12.7	15.78	1
12	31	25	10.8	13.88	1
		Average:	6.92		91
		Standard Deviation:	3.08		24.9%