

Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

OCT 21 2019

Ms. Ericka Baxter  
Asst. Director of Environmental  
Christian County Concrete  
PO Box 550685  
Springfield, MO 65805

RE: New Source Review - Permit Number: 102019-008  
Project Number: 2019-07-014; Installation Number: 043-0022

Dear Ms. Baxter:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions and your new source review permit application are necessary for continued compliance. In addition, please note that Christian County Concrete cannot operate with any other plants that have ambient impact limits based on the Air Pollution Control Program's nomographs. Please refer to the permits of any plant that you are operating with to see if their respective permits contain an ambient impact limit. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission,



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Ms. Ericka Baxter  
Page Two

whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc).

If you have any questions, please do not hesitate to contact Kathy Kolb, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



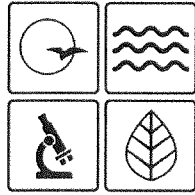
Susan Heckenkamp  
New Source Review Unit Chief

SH:sha

Enclosures

c: Southwest Regional Office  
PAMS File: 2019-07-014

Permit Number: **102019-008**



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

**MISSOURI AIR CONSERVATION COMMISSION**

**PERMIT TO CONSTRUCT**

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **102019-008**

Project Number: 2019-07-014  
Installation ID: 043-0022

Parent Company: Conco Companies

Parent Company Address: PO Box 550685, Springfield, MO 65805

Installation Name: Christian County Concrete

Installation Address: 432 Tracker Road, Nixa, MO 65714

Location Information: Christian County, S11 T27N R22W

Application for Authority to Construct was made for:

Paving haul roads and increasing moisture content of aggregate to 1.5% by weight in order to achieve a higher daily production limit. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

*Kendall B. Hale for*

Director or Designee  
Department of Natural Resources

**OCT 21 2019**

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Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:  
Missouri Department of Natural Resources  
Air Pollution Control Program  
P.O. Box 176  
Jefferson City, MO 65102-0176  
(573) 751-4817

The regional office information can be found at the following website:  
<http://dnr.mo.gov/regions/>

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (3)(E). "Conditions required by permitting authority."*

1. Superseding Condition

The conditions of this permit supersede all special conditions found in the previously issued construction permit 072005-029 and 072005-029A from the Air Pollution Control Program.

2. Best Management Practices Requirement

Christian County Concrete shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing BMPs as defined in Attachment AA.

3. Daily Production Limit

Christian County Concrete shall limit its daily production based on the table below using Attachment A, or another equivalent form, that has been approved by the Air Pollution Control Program, including electronic forms.

Table 1: Summary of Daily Production Limits

Type of Operation	Daily Production Limit
<sup>a</sup> Solitary	3,271

<sup>a</sup> No other plants are allowed to operate concurrently with Christian County Concrete at this site

4. Annual Emission Limit

A. Christian County Concrete shall emit less than 15.0 in any 12-month period from the entire installation. The SSM emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section in accordance with the requirements of 10 CSR 10-6.050 *Start-Up, Shutdown, and Malfunction Conditions* shall be included in the limit.

B. Christian County Concrete shall demonstrate compliance with Special Condition 4.A using Attachment B or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.

5. Moisture Content Testing Requirement

A. Christian County Concrete shall verify that the moisture content of the processed rock is greater than or equal to 1.5 percent by weight.

B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

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- C. The initial test shall be conducted no later than 45 days after the start of operation. A second test shall be performed the calendar year following the initial test during the months of July or August.
  - D. The test samples shall be taken from rock that has been processed by the plant or from each source of aggregate (e.g. quarry).
  - E. The written analytical report shall include the raw data and moisture content of each sample, the test date and the original signature of the individual performing the test. The report shall be filed on-site or at the Christian County Concrete main office within 30 days of completion of the required test.
  - F. If the moisture content of either of the two tests is less than the moisture content in Special Condition 5.A, another test may be performed within 15 days of the noncompliant test. If the results of that test is less than the moisture content in Special Condition 5.A, Christian County Concrete shall either:
    - 1) Apply for a new permit to account for the revised information, or
    - 2) Submit a plan for the installation of wet spray devices to the Compliance/Enforcement Section of the Air Pollution Control Program within 10 days of the second noncompliant test. Plans may be sent by mail to P.O. Box 176, Jefferson City, MO 65102 or by email at [aircompliancereporting@dnr.mo.gov](mailto:aircompliancereporting@dnr.mo.gov). The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.
  - G. In lieu of testing, Christian County Concrete may obtain test results that demonstrate compliance with the moisture content in Special Condition 5.A from the supplier of the aggregate.
6. Control Device Requirement-Baghouse
- A. Christian County Concrete shall control emissions from the equipment listed below using a baghouse as specified in the permit application.
    - 1) Weigh Hopper (EP-5)
    - 2) Truck Mix Loadout (shroud vented to baghouse) (EP-6)
  - B. Christian County Concrete shall install instruments to monitor the operating pressure drop across the baghouse. All instruments and control equipment shall be calibrated, maintained and operated according to the manufacturer's preventive maintenance recommendations. The operator(s) shall check and record the pressure drop across the baghouse filter once per operating day. The baghouse operating pressure drop shall be maintained according to manufacturer's specification.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

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- C. The operator(s) shall conduct and document a quarterly inspection and maintenance of the baghouse for structural component failures, for leaks and wear, and for the cleaning sequence of the baghouse. Replacement bags shall be kept on hand at all times to replace defective bags (The bags shall be made of fibers appropriate for the operating conditions expected to occur). All inspections, corrective actions, and instrument calibrations shall be recorded.
7. Dust Collector Control System Requirements
- A. Christian County Concrete shall install and operate the baghouse on each silo to restrict the emission of particulate matter. The baghouses must be used whenever these units are in operation. The baghouses shall be installed on the following units: Cement Unloading (EU 3), and Cement Supplement Unloading (EU 4).
  - B. The operator(s) shall conduct and document a quarterly inspection and maintenance of the baghouse for structural component failures, for leaks and wear, and for the cleaning sequence of the baghouse. Replacement filters/bags shall be kept on hand at all times to replace defective filters/bags (The filters/bags shall be made of fibers appropriate for the operating conditions expected to occur). All inspections, corrective actions, and instrument calibrations shall be recorded.
  - C. Christian County Concrete shall maintain a copy of the baghouse manufacturer's performance warranty on site.
  - D. Christian County Concrete shall maintain an operating and maintenance log for the baghouse which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
8. Minimum Distance to Property Boundary Requirement  
The primary emission point shall be located at least 150 feet from the nearest property boundary.
9. Concurrent Operation Restriction  
Christian County Concrete is prohibited from operating whenever other plants are located at the site.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

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10. **Fuel Requirement-Natural Gas Water Heater**
  - A. Christian County Concrete shall exclusively burn natural gas in their hot water heater (EU-10) during concrete production.
  - B. Christian County Concrete shall keep the natural gas fuel records onsite and make them available for Department of Natural Resources' employees upon request.
11. **Record Keeping Requirement**

Christian County Concrete shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources' personnel upon request.
12. **Reporting Requirement**

Christian County Concrete shall report to the Air Pollution Control Program, Compliance / Enforcement Section by mail to P.O. Box 176, Jefferson City, MO 65102 or by email at [AirComplianceReporting@dnr.mo.gov](mailto:AirComplianceReporting@dnr.mo.gov), no later than 10 days after any exceedances of the limitations imposed by this permit.



REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2019-07-014

Installation ID Number: 043-0022

Permit Number: 102019-008

Christian County Concrete:  
432 Tracker Road  
Nixa, MO 65714

Complete: July 13, 2019

Parent Company:  
Conco Companies  
PO Box 550685  
Springfield, MO 65805

Christian County, S11 T27N R22W

### PROJECT DESCRIPTION

Christian County Concrete are making environmental upgrades to their installation in order to achieve a higher amount of production per day at this installation. Christian County Concrete are paving their haul roads and vehicular activity. A Special Condition was also added to ensure a 1.5% or greater moisture content by weight for the aggregate used in the concrete mix. The plant will continue to have a MHDR of 300 tons per hour. There is a 3.0 MMBTU/hr natural gas fired hot water associated with this plant. No new equipment is being added. There is a baghouse located on each of the silos (cement and supplement) which are integral to the process. There is another baghouse that controls the weigh hopper and truck loading emissions.

A NAAQS limit was required in the previous Permit #072005-029, limiting the installation to 150  $\mu\text{m}^3$  of  $\text{PM}_{10}$ . As a part of this project, the ambient impact is being converted to a daily production requirement. This change reflects the Air Pollution Control Program's updated construction industry policy "Ceasing the Use of Nomographs" dated May 1, 2016.

Previously, the NAAQS limit was equivalent to a daily production of 1,211 tons. However, with the addition of the moisture requirement and updates to emission factors for vehicular activity and truck loading, emissions are lower for the same amount of production. Therefore, Christian County Concrete can increase their daily production to 3,271 tons per day and still maintain the same amount of daily emissions.

The applicant is using one of the methods described in Attachment AA, "Best Management Practices," to control emissions from haul roads and vehicular activity areas.

This installation is located in Christian County, an attainment/unclassifiable area for all criteria pollutants.

This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

## TABLES

The following permits have been issued to Christian County Concrete from the Air Pollution Control Program.

**Table 2: Permit History**

Permit Number	Description
0992-026	Concrete Batch Plant
052001-008	Portable Weigh System
072005-029	Modification of the existing stationary concrete plant
072005-029A	Modify baghouse special condition

The table below summarizes the emissions of this project. The potential emissions of the process equipment exclude emissions from haul roads and wind erosion. The existing actual emissions were taken from the previous year's EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual emission limit.

**Table 3: Emissions Summary (tons per year)**

Air Pollutant	De Minimis Level/SMAL	<sup>a</sup> Potential Emissions of Process Equipment (tons/yr)	Existing Actual Emissions (2018 EIQ)	<sup>b</sup> Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	10.11	N/D	50.68	46.76
PM <sub>10</sub>	15.0	4.80	5.76	16.26	<15.0
PM <sub>2.5</sub>	10.0	2.06	1.14	4.34	4.01
SO <sub>x</sub>	40.0	0.01	0.0003	0.01	0.01
NO <sub>x</sub>	40.0	1.28	0.052	1.28	1.18
VOC	40.0	0.07	0.004	0.07	0.06
CO	100.0	1.07	0	1.07	0.99
Total HAPs	25.0	0.02	N/D	0.02	0.02

N/D = Not Determined

<sup>a</sup>Process Equipment excluding haul roads and storage pile emissions.

<sup>b</sup>Includes haul road and storage pile emissions

## EMISSIONS CALCULATIONS

Emissions for the project were calculated as described below and using emission factors found in the United States EPA document AP-42 *Compilation of Air Pollutant*

*Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition (AP-42).*

Emissions from the concrete batch plant:

- Calculated using emission factors from AP-42 Section 11.12 "Concrete Batching," June 2006.
- This section cites Equation (1) in Section 13.2.4 "Aggregate Handling and Storage Piles," November 2006 for calculating the emissions from aggregate and sand transfer.
- The cement and supplement silos are controlled with baghouses, so the controlled emission factors were used.

Emissions from the aggregate weigh hopper:

- Calculated using AP-42 Section 13.2.4, "Aggregate Handling and Storage Piles," November 2006, Equation (1).
- These emissions are controlled by a baghouse so a 99% control factor was applied to the calculation.
- Emissions from mix truck loading are controlled by a shroud vented to a baghouse, so the controlled emission factor was used.

Emissions from aggregate handling:

- Calculated using emission factors from AP-42 Section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing," August 2004.
- The controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5% by weight.

Emissions from haul roads and vehicular activity areas:

- Calculated using the predictive equation from AP-42 Section 13.2.1 "Paved Roads," January, 2011.
- A 90% control efficiency for PM and PM<sub>10</sub> and a 74% control efficiency for PM<sub>2.5</sub> were applied to the emission calculations for the use of BMPs.

Emissions from storage piles:

- Load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4 "Aggregate Handling and Storage Piles," November 2006.
- The moisture content of the aggregate is 1.5% by weight.
- Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8 "Storage Pile Worksheet."

Emissions from the Combustion of Natural Gas Hot Water Heater

- Calculated using AP-42 Section 1.4 "Natural Gas Combustion", July 1998.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are conditioned to de minimis levels. Potential emissions of PM are above de minimis levels, but below major levels.

## APPLICABLE REQUIREMENTS

Christian County Concrete shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110.
- No operating permit is required because the conditioned PTE is below de minimis.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

### SPECIFIC REQUIREMENTS

- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) apply to the proposed equipment.
- *Control of Sulfur Dioxide Emissions*, 10 CSR 10-6.261

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 9, 2019, received July 13, 2019, designating Conco Companies as the owner and operator of the installation.

**Attachment A - Daily Production Compliance Worksheet**

PORT ID Number: 043-0022  
Site ID Number: 043-0022  
Site Name: Christian County Concrete  
Site Address: 432 Tracker Road, Nixa, MO 65714  
Site County: Christian County S11 T27N R22W  
Permit Number **102019-008**

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_.  
(month, year) (month, year)

Date	Operating Scenario	Actual Daily Production <sup>2</sup> (tons)	Daily Production Limit <sup>3</sup> (tons)
<i>Example</i>	<i>Solitary</i>	<i>2,100</i>	<i>3,271</i>
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<sup>1</sup> Solitary = the concrete plant operating without other plants at this site.  
<sup>2</sup> Input of actual production for the corresponding date. For compliance this value must be below the daily production limit.  
<sup>3</sup> The concrete plant's production is limited to 3,271 tons of rock per day.

# Attachment B: PM<sub>10</sub> Tracking Sheet

Christian County Concrete 043-0022

Project Number: 2019-07-014

Permit Number: 102019-008

Site Name: Christian County Concrete  
 Site Address: 432 Tracker Road, Nixa, MO 65714  
 Site County: Christian County

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_ (Copy as needed)  
 (Month, Day Year) (Month, Day Year)

Month	Production (tons)	PM <sub>10</sub> Composite Emission Factor (lb/ton)	Monthly PM <sub>10</sub> Emissions <sup>1</sup> (lbs)	Startup, Shutdown and Malfunction PM <sub>10</sub> Emissions <sup>2</sup> (lbs)	Monthly PM <sub>10</sub> Emissions <sup>3</sup> (tons)	12-Month Rolling Total Emissions <sup>4</sup> (tons)
<i>Example</i>	<i>20,000</i>	<i>0.0124</i>	<i>248</i>	<i>0.0</i>	<i>0.12</i>	<i>0.12 + 11 previous months</i>
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<sup>1</sup>Multiply the monthly production by the PM<sub>10</sub> composite emission factor.  
<sup>2</sup>As reported to the Air Pollution Control Program’s Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050 for the month.  
<sup>3</sup>Add the monthly PM<sub>10</sub> emissions plus the SSM emissions from the same time period and divide by 2000 and  
<sup>4</sup>Add the monthly emissions (tons) to the sum of the monthly emissions from the previous eleven months. A total of less than 15.0 tons of PM<sub>10</sub> per consecutive 12 months is necessary for compliance.

## Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the plant is operating.

1. Pavement
  - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions while the plant is operating.
  - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
  
2. Application of Chemical Dust Suppressants
  - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
  - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacturer's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources' personnel upon request.
  
3. Application of Water-Documented Daily
  - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
  - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
  - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
  - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
  - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources' personnel upon request.



## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>MMBtu</b> ....Million British thermal units
<b>°F</b> .....degrees Fahrenheit	<b>MMCF</b> ....million cubic feet
<b>acfm</b> .....actual cubic feet per minute	<b>MSDS</b> .....Material Safety Data Sheet
<b>BACT</b> .....Best Available Control Technology	<b>NAAQS</b> ....National Ambient Air Quality Standards
<b>BMPs</b> .....Best Management Practices	<b>NESHAPs</b> ..National Emissions Standards for Hazardous Air Pollutants
<b>Btu</b> .....British thermal unit	<b>NO<sub>x</sub></b> .....nitrogen oxides
<b>CAM</b> .....Compliance Assurance Monitoring	<b>NSPS</b> .....New Source Performance Standards
<b>CAS</b> .....Chemical Abstracts Service	<b>NSR</b> .....New Source Review
<b>CEMS</b> .....Continuous Emission Monitor System	<b>PM</b> .....particulate matter
<b>CFR</b> .....Code of Federal Regulations	<b>PM<sub>2.5</sub></b> .....particulate matter less than 2.5 microns in aerodynamic diameter
<b>CO</b> .....carbon monoxide	<b>PM<sub>10</sub></b> .....particulate matter less than 10 microns in aerodynamic diameter
<b>CO<sub>2</sub></b> .....carbon dioxide	<b>ppm</b> .....parts per million
<b>CO<sub>2e</sub></b> .....carbon dioxide equivalent	<b>PSD</b> Prevention of Significant Deterioration
<b>COMS</b> .....Continuous Opacity Monitoring System	<b>PTE</b> .....potential to emit
<b>CSR</b> .....Code of State Regulations	<b>RACT</b> .....Reasonable Available Control Technology
<b>dscf</b> .....dry standard cubic feet	<b>RAL</b> .....Risk Assessment Level
<b>EQ</b> .....Emission Inventory Questionnaire	<b>SCC</b> .....Source Classification Code
<b>EP</b> .....Emission Point	<b>scfm</b> .....standard cubic feet per minute
<b>EPA</b> .....Environmental Protection Agency	<b>SDS</b> .....Safety Data Sheet
<b>EU</b> .....Emission Unit	<b>SIC</b> .....Standard Industrial Classification
<b>fps</b> .....feet per second	<b>SIP</b> .....State Implementation Plan
<b>ft</b> .....feet	<b>SMAL</b> .....Screening Model Action Levels
<b>GACT</b> .....Generally Available Control Technology	<b>SO<sub>x</sub></b> .....sulfur oxides
<b>GHG</b> .....Greenhouse Gas	<b>SO<sub>2</sub></b> .....sulfur dioxide
<b>gpm</b> .....gallons per minute	<b>SSM</b> .....startup, shutdown, & malfunction
<b>gr</b> .....grains	<b>tph</b> .....tons per hour
<b>GWP</b> .....Global Warming Potential	<b>tpy</b> .....tons per year
<b>HAP</b> .....Hazardous Air Pollutant	<b>VMT</b> .....vehicle miles traveled
<b>hr</b> .....hour	<b>VOC</b> .....Volatile Organic Compound
<b>hp</b> .....horsepower	
<b>lb</b> .....pound	
<b>lbs/hr</b> .....pounds per hour	
<b>MACT</b> .....Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	
<b>m/s</b> .....meters per second	
<b>Mgal</b> .....1,000 gallons	
<b>MW</b> .....megawatt	
<b>MHDR</b> .....maximum hourly design rate	

NOTICE: This spreadsheet is for your use only and should be used with caution. MoDNR does not guarantee the accuracy of the information it contains. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current, accurate and complete information available. MoDNR is not responsible for errors or omissions in this spreadsheet. Submittal of the information contained in this spreadsheet (workbook) does not relieve the responsible official of the certification statement signed on the first page of the application.

		<b>Pollutant</b>	<b>Justification for Limit</b>	<b>Limit Hours per Year</b>
Hours per day	24.0	PM10	NAAQS	
Days per year	336.8	N/A	N/A	<b>Limit Hours per Year w/ 24 hr day</b>
Hours per year	8082.2	PM10	De Minimis	

Pollutant	Potential Emissions of Process Equipment (tons/yr)	Potential Emissions including fugitives (tons/yr)	Allowable Emissions for 8082 hours per year (tons/yr)	DeMinimis Thresholds	Plant-wide Composite Emission Factor (lb/ton)
PM	10.11	50.68	46.76	25	0.0386
PM <sub>10</sub>	4.60	16.26	15.00	15	0.0124
PM <sub>2.5</sub>	2.06	4.34	4.01	10	0.0033
SO <sub>2</sub>	0.01	0.01	0.01	40	0.0000
NO <sub>2</sub>	1.28	1.28	1.18	40	0.0010
VOC	0.07	0.07	0.06	40	0.0001
CO	1.07	1.07	0.99	100	0.0008
CH <sub>2</sub> O	0.00	0.00	0.00	2	0.0000
C <sub>11</sub> H <sub>10</sub>	0.00	0.00	0.00	-	0.0000
Pb	0.00	0.00	0.00	0.01	0.0000
HAPs	0.02	0.02	0.02	10	0.0000
CO <sub>2</sub>	1.49	1.49	1.38	100	0.0011
N <sub>2</sub> O	0.00	0.00	0.00	100	0.0000
CH <sub>4</sub>	0.00	0.00	0.00	100	0.0000
GHG <sub>mass</sub>	1.49	1.49	1.38	100	0.0011
CO <sub>2</sub> eq	1.50	1.50	1.38	100,000	0.0011
<b>Maximum hourly design rate (tons/hr)</b>			<b>300</b>		

Tons of product per day	7,200.0
Tons of product per year	2,424,650.2

Total PM <sub>10</sub> lb/hr of Process Equipment fro Permit 072005-029 (2005-04-054)	2.825	lb/hr (PM10)
According to the NAAQS limit in that permit, the plant was limited to operate	4.05	hours /day
Total lbs per day the plant would emit from process equipment is	11.44	lbs/day
This permit calculates PM10 emissions from process equipment to be	4.60	tons/year
4.60 tons/year / 8760 days /yr *24 hr/day =	0.012589735	tons PM10/day
0.0126 tons PM10/day * 2000 lb/ton	25.17946999	lb PM10/day
25.18 lb PM10/day / 7200 tons of product per day	0.003497149	lb/ton PM10
Total production per day 11.44lbs/day / 0.0035	3271.593884	tons of product per day