

STATE OF 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: 072013 - 003

Project Number: 2013-04-060
Installation ID: 113-0055

Parent Company: Warren County Concrete

Parent Company Address: P.O. Box 2029, Washington, MO 63090

Installation Name: Warren County Concrete, Troy Plant 2

Installation Address: 131 Manda Court, Troy, MO 63379

Location Information: Lincoln County, S27 T49N R1W

Application for Authority to Construct was made for:
Increase MHDR, addition of dust collection for truck loading, and notification of change of owners. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

JUL 11 2013

EFFECTIVE DATE

Kyra L Moore

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

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 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 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 of Natural Resources 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 this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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| Permit No. | |
| Project No. | 2013-04-060 |

SITE SPECIFIC 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 (12)(A)10. "Conditions required by permitting authority."

1. **Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued construction permit 072001-004 from the Air Pollution Control Program.
2. **Best Management Practices Requirement**
Warren County Concrete, Troy Plant 2 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. **Ambient Air Impact Limitation**
 - A. Warren County Concrete, Troy Plant 2 shall not cause an exceedance of the NAAQS for PM₁₀ of 150.0 µg/m³ 24-hour average in ambient air.
 - B. Warren County Concrete, Troy Plant 2 shall demonstrate compliance with Special Condition 3.A using Attachment A or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms.
4. **Moisture Content Testing Requirement**
 - A. Warren County Concrete, Troy Plant 2 shall verify that the moisture content of the processed rock is greater than or equal to 2.0 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.
 - C. The initial test shall be conducted no later than 45 days after the start of operation. An annual test shall be performed each 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 Warren County Concrete, Troy Plant 2 main office within 30 days of completion of the required test.

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SITE SPECIFIC SPECIAL CONDITIONS:

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

- F. If the moisture content of any tests is less than the moisture content in Special Condition 4.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Warren County Concrete, Troy Plant 2 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. The wet spray devices shall be installed and operational within 40 days of the second noncompliant test.

- G. In lieu of testing, Warren County Concrete, Troy Plant 2 may obtain test results that demonstrate compliance with the moisture content in Special Condition 4.A from the supplier of the aggregate.

- 5. Control Device Requirement-Baghouse
 - A. Warren County Concrete, Troy Plant 2 shall control emissions from the equipment listed below using a baghouse as specified in the permit application.
 - 1) Cement Silo
 - 2) Supplement Silo
 - 3) Truck Mix Loadout (shroud vented to baghouse)

 - B. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources employees may easily observe them.

 - C. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

 - D. Warren County Concrete, Troy Plant 2 shall monitor and record the operating pressure drop across the baghouse at least once every 24 hours when the silos are being loaded or when concrete trucks are being loaded. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

 - E. Warren County Concrete, Troy Plant 2 shall maintain a copy of the baghouse manufacturer's performance warranty on site.

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SITE SPECIFIC SPECIAL CONDITIONS:

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

- F. Warren County Concrete, Troy Plant 2 shall maintain an operating and maintenance log for the baghouses 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.

- 6. Minimum Distance to Property Boundary Requirement
The primary emission point, EP-06, (Truck Loading) shall be located at least 100 feet from the nearest property boundary.

- 7. Concurrent Operation Restriction
Warren County Concrete, Troy Plant 2 is prohibited from operating whenever other plants are located at the site.

- 8. Record Keeping Requirement
Warren County Concrete, Troy Plant 2 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.

- 9. Reporting Requirement
Warren County Concrete, Troy Plant 2 shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, 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: 2013-04-060
Installation ID Number: 113-0055
Permit Number:

Warren County Concrete, Troy Plant 2
131 Manda Court
Troy, MO 63379

Complete: April 16, 2013

Parent Company:
Warren County Concrete
P.O. Box 2029
Washington, MO 63090

Lincoln County, S27 T49N R1W

PROJECT DESCRIPTION

Warren County Concrete purchased the concrete plant at Troy, Missouri from Champion Ready Mix and requests to modify Construction Permit # 072001-004/Project # 2001-04-076. Warren County Concrete plans to increase the MHDR from 74 tph to 240 tph and to add a dust collection for the truck load out. The current production for the plant is 240 tph (120 cubic yards per hour) and it is unclear why the original permit indicated 74 tph. The existing plant is an Erie Strayer, 10 cubic yard plant, with dust collection on the cement, supplement silos, and the truck load out (new). The weigh hopper has no dust collection. The aggregate and sand bins are located within a building as well as the weigh hopper. The concrete plant is powered off the grid, therefore no emissions from an engine/generator were included in the calculations. There is no water heater at this plant. There are two separate haul roads: receiving aggregate/sand (250 feet) and shipping finished product (250 feet).

A casting plant is located adjacent to the site and is currently out of operation.

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 Lincoln County, an attainment area for all criteria pollutants.

This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

TABLES

The following construction permit in Table 1 was issued to One Stop Ready Mix from the Air Pollution Control Program. According to the program's records, Champion Ready Mix purchased the plant from One Stop Ready Mix in August, 2004. Champion Ready Mix went out of business August, 2011 and declared bankruptcy.

Table 1: Permit History

| Permit Number | Description |
|---------------|--------------------|
| 072001-004 | One Stop Ready Mix |

The table below summarizes the emissions of this project. The existing actual emissions were taken from the 2010 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 ambient air limit to show compliance with NAAQS.

Table 2: Emissions Summary (tons per year)

| Air Pollutant | De Minimis Level/SMAL | ^a Existing PTE (tons/yr) | ^b Existing Actual Emissions (2011 EIQ) | ^c Potential Emissions of the Application | ^d Conditioned Potential Emissions |
|-------------------------|-----------------------|-------------------------------------|---|---|--|
| PM | 25.0 | N/D | N/A | 94.52 | 20.56 |
| PM ₁₀ | 15.0 | 11.42 | 8.23 | 23.95 | 5.21 |
| PM _{2.5} | 10.0 | N/D | N/A | 7.57 | 1.65 |
| SO _x | 40.0 | N/A | N/A | N/A | N/A |
| NO _x | 40.0 | N/A | N/A | N/A | N/A |
| VOC | 40.0 | N/A | N/A | N/A | N/A |
| CO | 100.0 | N/A | N/A | N/A | N/A |
| GHG (CO ₂ e) | 75,000 / 100,000 | N/A | N/A | N/A | N/A |
| GHG (mass) | 0.0 / 100.0 / 250.0 | N/A | N/A | N/A | N/A |
| Total HAPs | 25.0 | N/A | N/A | N/A | N/A |

N/A = Not Applicable; N/D = Not Determined

^aAs stated in permit #072001-004 with a MHDR of 74 tph

^bThis data was pulled forward from 2010 EIQ; Champion Ready Mix submitted insignificant emissions for 2011 and declared Out of Business status.

^cIncludes haul roads and storage pile emissions

^dConditioned Potential Emissions are based on ambient air limit to show compliance with NAAQS.

Table 3 summarizes the ambient air quality impact analysis. The maximum modeled impact is the impact of each pollutant when the plant is operating continuously. The 24-hour limited impacts and daily limit are based on compliance with the NAAQS for PM₁₀, which will indirectly limit the annual limit of PM₁₀ to below the de minimis level.

Table 3: Ambient Air Quality Impact Analysis

| Pollutant | NAAQS/RAL ($\mu\text{g}/\text{m}^3$) | Averaging Time | ^a Maximum Modeled Impact ($\mu\text{g}/\text{m}^3$) | Limited Impact ($\mu\text{g}/\text{m}^3$) | Background ($\mu\text{g}/\text{m}^3$) | ^b Daily Limit (tons/day) |
|---|---|-------------------|---|---|--|--|
| ^c PM ₁₀ (solitary) | 150.0 | 24-hour | 676.79 | 130.0 | 20.0 | 1,253 |

^aModeled impact at maximum capacity with controls

^bIndirect limit based on compliance with NAAQS.

^cSolitary operation

EMISSIONS CALCULATIONS

Emissions for the project were calculated 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 were 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 were calculated using AP-42 Section 13.2.4, Equation (1). These emissions were calculated using a 3.7% capture efficiency and a 100% control efficiency for building enclosure. Emissions from mixer loading/mix truck loading are controlled by a shroud vented to a baghouse, so the controlled emission factor was used.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.1 "Paved Roads," January, 2011. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The minimum moisture content of the aggregate is 2.0% 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."

AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3. The Air Pollution Control Program requires an AAQIA of PM₁₀ for all asphalt, concrete and rock-crushing plants regardless of the level of PM₁₀ emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level (SMAL). The AAQIA was performed using the Air Pollution Control Program's generic nomographs and when appropriate the EPA modeling software AERSCREEN. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the NAAQS or RAL for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

This plant uses BMPs to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of 20 µg/m³ of PM₁₀ in accordance with the Air Pollution Control Program's BMPs interim policy.

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 PM₁₀ are indirectly conditioned below the de minimis level.

APPLICABLE REQUIREMENTS

Warren County Concrete, Troy Plant 2 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 for this installation.
- *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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400. The aggregate weigh hopper's potential emission rate of 0.796 pounds per hour of PM complies with this regulation.
- 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.

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*, I recommend this permit be granted with special conditions.

Kathy Kolb
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 16, 2013, received April 16, 2013, designating Warren County Concrete as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

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 portable 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 emissions¹ 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

| | | | |
|-------------------------------|--|-------------------------------|--|
| % | percent | MMBtu | Million British thermal units |
| °F | degrees Fahrenheit | MMCF | million cubic feet |
| acfm | actual cubic feet per minute | MSDS | Material Safety Data Sheet |
| BACT | Best Available Control Technology | NAAQS ... | National Ambient Air Quality Standards |
| BMPs | Best Management Practices | NESHAPs .. | National Emissions Standards for Hazardous Air Pollutants |
| Btu | British thermal unit | NO_x | nitrogen oxides |
| CAM | Compliance Assurance Monitoring | NSPS | New Source Performance Standards |
| CAS | Chemical Abstracts Service | NSR | New Source Review |
| CEMS | Continuous Emission Monitor System | PM | particulate matter |
| CFR | Code of Federal Regulations | PM_{2.5} | particulate matter less than 2.5 microns in aerodynamic diameter |
| CO | carbon monoxide | PM₁₀ | particulate matter less than 10 microns in aerodynamic diameter |
| CO₂ | carbon dioxide | ppm | parts per million |
| CO_{2e} | carbon dioxide equivalent | PSD | Prevention of Significant Deterioration |
| COMS | Continuous Opacity Monitoring System | PTE | potential to emit |
| CSR | Code of State Regulations | RACT | Reasonable Available Control Technology |
| dscf | dry standard cubic feet | RAL | Risk Assessment Level |
| EQ | Emission Inventory Questionnaire | SCC | Source Classification Code |
| EP | Emission Point | scfm | standard cubic feet per minute |
| EPA | Environmental Protection Agency | SIC | Standard Industrial Classification |
| EU | Emission Unit | SIP | State Implementation Plan |
| fps | feet per second | SMAL | Screening Model Action Levels |
| ft | feet | SO_x | sulfur oxides |
| GACT | Generally Available Control Technology | SO₂ | sulfur dioxide |
| GHG | Greenhouse Gas | tph | tons per hour |
| gpm | gallons per minute | tpy | tons per year |
| gr | grains | VMT | vehicle miles traveled |
| GWP | Global Warming Potential | VOC | Volatile Organic Compound |
| HAP | Hazardous Air Pollutant | | |
| hr | hour | | |
| hp | horsepower | | |
| lb | pound | | |
| lbs/hr | pounds per hour | | |
| MACT | Maximum Achievable Control Technology | | |
| µg/m³ | micrograms per cubic meter | | |
| m/s | meters per second | | |
| Mgal | 1,000 gallons | | |
| MW | megawatt | | |
| MHDR | maximum hourly design rate | | |

Mr. Mitch Parrish
President
Warren County Concrete, Troy Plant 2
P.O. Box 2029
Washington, MO 63090

RE: New Source Review Permit - Project Number: 2013-04-060

Dear Mr. Parrish:

Enclosed with this letter is your permit to construct. Please study it carefully. 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, your new source review permit application is necessary for continued compliance. 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.

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:kk1

Enclosures

c: St. Louis Regional Office
PAMS File: 2013-04-060

Permit Number: