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: 012011-004
Project Number: 2010-07-039
Installation ID: 101-0031

Parent Company: Hilty Quarries, Inc.
Parent Company Address: P.O. Box 407, Clinton, MO 64735
Installation Name: Hilty Quarries, Inc.
Installation Address: NE of Highway 13 and SE 500 Road, Warrensburg, MO 64093
Location Information: Johnson County, S18, T45N, R25W

Application for Authority to Construct was made for:
Change PORT-0020 to a stationary asphalt plant and allow concurrent operation. 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.

JAN 04 2011
EFFECTIVE DATE

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 Departments’ Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant sources(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 sources(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.
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 052005-018 from the Air Pollution Control Program.

2. Best Management Practices Requirement
   Hilty Quarries, Inc. shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.

3. Ambient Air Impact Limitation
   A. Hilty Quarries, Inc. shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter (PM\textsubscript{10}) of 150.0 µg/m\textsuperscript{3} 24-hour average in ambient air.
   B. Hilty Quarries, Inc. shall demonstrate compliance with special condition 3.A using Attachment A and B or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form. Hilty Quarries, Inc. shall account for the impacts from other sources of PM\textsubscript{10} as instructed in Attachment A and B.
   C. Hilty Quarries, Inc. is exempt from the requirements of special condition 3.B when no other plants or other plants that are not owned by Hilty Quarries, Inc. are operating at this site.

4. Annual Emission Limit
   A. Hilty Quarries, Inc. shall emit less than 40.0 tons of (Nitrogen Oxides) NO\textsubscript{X} in any 12-month period from the entire installation.
   B. Hilty Quarries, Inc. shall demonstrate compliance with special condition 4.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.

5. Wet Scrubber Control System Requirements
   A. Hilty Quarries, Inc. shall install and operate a wet scrubber to restrict the emission of sulfur dioxide and particulate matter. The wet scrubber must be used whenever
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

these units are in operation. The wet scrubber shall be installed on the following units: Drum Dryer.

B. Hilty Quarries, Inc. shall install instruments to monitor the liquid flow rate and pressure drop of the wet scrubber. All instruments and control equipment shall be calibrated, maintained, and operated according to the manufacturer’s preventive maintenance recommendations. The operator(s) shall check the appropriate instrument(s) and/or control equipment once per operating day during silo loading.

C. The operator(s) shall conduct and document a quarterly inspection and maintenance of the wet scrubber for structural component failures, for leaks and wear, and for the regeneration sequence of the wet scrubber. All inspections, corrective actions, and instrument calibrations shall be recorded.

6. Moisture Content Testing Requirement
A. Hilty Quarries, Inc. shall verify that the moisture content of the processes rock is greater than or equal to 1.5% 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 not 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 Hilty Quarries, Inc. 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 6.A, another test may be performed within 15 days of the noncompliant test. If the results of that test also exceed the limit, Hilty Quarries, Inc. 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 Air Pollution Control Program Compliance Assistance section 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.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

G. In lieu of testing, Hilty Quarries, Inc. may obtain test results that demonstrate compliance with the moisture content in special condition 6.A from the supplier of the aggregate

7. Minimum Distance to Property Boundary Requirement
   The primary emission point shall be located at least 1200 feet from the nearest property boundary.

8. Record Keeping Requirement
   Hilty Quarries, Inc. 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
   Hilty Quarries, Inc. shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.
Hilty Quarries, Inc. has had their portable asphalt plant (PORT-0020) at the same site for more than 24 consecutive months. Permit 052005-018 requires them to submit a basic operating permit if they remain at the same site for more than 24 consecutive months. Hilty Quarries, Inc. has requested to change PORT-0020 designation to a stationary source (101-0031) and will submit a basic operating application upon issuance of this permit. The stationary asphalt plant (101-0031) is designated as a drum mix asphalt plant rated at 200 tons per hour. The drum mixer dryer has a burner rating of 70.4 Million British Thermal units per hour (MBTU/hr) and control emissions using a wet scrubber. The plants asphalt heater has a burner rating of 0.99 MBTU/hr. The asphalt plant is powered by diesel generator.

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 Johnson County, an attainment area for all criteria pollutants.

This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250.0 tons per year and fugitive emissions are counted toward major source applicability.

**TABLES**

The following permits have been issued to Hilty Quarries, Inc. from the Air Pollution Control Program.

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1087-011</td>
<td>New Portable Asphalt Plant (PORT-0020)</td>
</tr>
<tr>
<td>0194-006</td>
<td>New Portable Asphalt Plant Permit (PORT-0020)</td>
</tr>
<tr>
<td>052005-018</td>
<td>Add BMPs</td>
</tr>
<tr>
<td>052005-018A</td>
<td>Change Moisture Content</td>
</tr>
</tbody>
</table>
The table below summarizes the emissions of this project. The existing portable plant is converting to a stationary plant therefore the existing potential emissions of the plant are the same as the potential emissions of the project. The existing actual emissions were taken from the previous years 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 are based on a voluntary limit of 40.0 tons per year of NO\(_X\) to avoid refined modeling.

Table 2: Emissions Summary (tons per year)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PM(_{10})</td>
<td>15.0</td>
<td>54.08</td>
<td>1.05</td>
<td>54.08</td>
</tr>
<tr>
<td>SO(_X)</td>
<td>40.0</td>
<td>10.08</td>
<td>0.71</td>
<td>10.08</td>
</tr>
<tr>
<td>NO(_X)</td>
<td>40.0</td>
<td>167.82</td>
<td>0.23</td>
<td>167.82</td>
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<tr>
<td>VOC</td>
<td>40.0</td>
<td>45.18</td>
<td>0.09</td>
<td>45.18</td>
</tr>
<tr>
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<td>0.01</td>
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<tr>
<td>Formaldehyde</td>
<td>2.0</td>
<td>2.79</td>
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<td>2.79</td>
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<tr>
<td>Total HAPs</td>
<td>25.0</td>
<td>0.81</td>
<td>0.00</td>
<td>0.81</td>
</tr>
</tbody>
</table>

N/D = Not Determined

1This plant was originally a portable asphalt plant. No new equipment is being added. The portable plant is simply converting to a stationary plant therefore the existing potential emissions are the same as the potential emissions of the application.

2Conditioned Potential Emission based on a voluntary 40.0 ton NO\(_X\) limit. All other pollutants were reduced proportionally.

3Screening Model Action Level (SMAL)

Table 3: Ambient Air Quality Impact Analysis

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>(^1\text{NAAQS/ RAL} (\mu g/m}^3)</th>
<th>(^2\text{Averaging Time} )</th>
<th>(^2\text{Maximum Modeled Impact} (\mu g/m}^3)</th>
<th>(^2\text{Limited Impact} (\mu g/m}^3)</th>
<th>(^2\text{Background} (\mu g/m}^3)</th>
<th>(^3\text{Maximum Daily Production} (\text{tons/day}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>(^4\text{PM}_{10}) (same)</td>
<td>150.0</td>
<td>24-hour</td>
<td>38.8</td>
<td>N/A</td>
<td>20.0</td>
<td>4,800</td>
</tr>
<tr>
<td>(^4\text{PM}_{10}) (separate)</td>
<td>150.0</td>
<td>24-hour</td>
<td>N/A</td>
<td>N/A</td>
<td>82.96</td>
<td>4,800</td>
</tr>
</tbody>
</table>

1National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

2Modeled impact at maximum capacity with controls

3Maximum Daily Production the asphalt plant can achieve in 24 hours.

4Solitary operation or operation with other plants that are owned by Hilty Quarries, Inc.

5Operation with other plants that are not owned by Hilty Quarries, Inc.

The plant’s Drum Dryer was modeled using the SCREEN3 screen modeling software. The stack characteristic entered into the modeled are listed in Table 3.

Table 4: SCREEN3 Input Parameters

<table>
<thead>
<tr>
<th>Equipment Description</th>
<th>Stack Height (m)</th>
<th>Stack Inside Diameter (m)</th>
<th>Stack Gas Exit Velocity (m/s)</th>
<th>Stack Gas Exit Temperature (K)</th>
<th>Dispersion Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer</td>
<td>3.96</td>
<td>0.74</td>
<td>20.96</td>
<td>424.82</td>
<td>Rural</td>
</tr>
</tbody>
</table>
EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document AP-42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition (AP-42).

Emissions from the drum mix asphalt plant were calculated using emission factors from AP-42 Section 11.1 “Hot Mix Asphalt Plants,” April 2004. Sulfur oxide (SOx) emissions were calculated using the SO\textsubscript{2} and SO\textsubscript{3} emission factors from AP-42 Section 1.3 “Fuel Oil Combustion,” September 1998 and assuming half of the sulfur up to 0.1 pound per ton of product is absorbed into the product. The asphalt plant is controlled by a wet scrubber. There is no wet scrubber controlled emission factor for total PM\textsubscript{10} so the wet scrubber controlled emission factor for total PM was used to calculate PM\textsubscript{10} emissions. Emissions from plant load-out were calculated using predictive equations found in AP-42 Table 11.1-14. Default values were used for asphalt volatility and mix temperature. Emissions from the asphalt heater were calculated using emission factors from AP-42 Section 1.3. Emissions from aggregate handling were 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% weight.

Emissions from the diesel engines/generators were calculated using emission factors from AP-42 Section 3.4 “Large Stationary Diesel and All Stationary Dual-fuel Engines,” October 1996.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 “Unpaved Roads,” November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The moisture content of the aggregate is 1.5% 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 PM\textsubscript{10} for all asphalt, concrete and rock-crushing plants regardless of the level of PM\textsubscript{10} 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 SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS) or Risk Assessment Level (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.

OPERATING SCENARIOS

The plant is permitted to operate with other plants located at the site as long as the NAAQS is not exceeded. The following scenarios explain how Hilty Quarries, Inc. shall demonstrate compliance with the NAAQS.

- When there are no other plants located at site, Hilty Quarries, Inc. is exempt for record keeping.

- When plants that are owned by Hilty Quarries, Inc., which are referred to as same owner plants, are located at the site, Hilty Quarries, Inc. must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS.

- When only plants that are not owned by Hilty Quarries, Inc., which are referred to as separate owner plants, are located at the site, Hilty Quarries, Inc. is exempt for record keeping.

- When separate owner plants and same owner plants are located at the site, Hilty Quarries, Inc. must account for the impacts of the separate owner plants as a background concentration and add it to the total impact of all plants owned by Hilty Quarries, Inc. that are operating at the site. This total is limited below the NAAQS. Hilty Quarries, Inc. will limit the total impact of all plants they own and operate at the site to 67.04 µg/m³ when any plants they do not own are located at the site. Hilty Quarries, Inc. is not permitted to operate with any plant that is not owned by Hilty Quarries, Inc. that has a separate owner background greater than 62.96 µg/m³.

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 conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Hilty Quarries, Inc. 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. For a complete list of applicable requirements for your installation, please consult your operating permit.
GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.

- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.

- *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 10-3.090

SPECIFIC REQUIREMENTS

- 40 CFR 60 Subpart I, "Standards of Performance for Hot Mix Asphalt Facilities" applies to the equipment.

- 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.

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

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.

Gerad Fox
Environmental Engineer

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 29, 2010, received July 29, 2010, designating Hilty Quarries, Inc. as the owner and operator of the installation.

### Attachment A: PM$_{10}$ Ambient Impact Tracking Sheet

**For Same Owner Operation**

Hilty Quarries, Inc. 101-0031  
Project Number: 2010-07-039

**Site Name:** Johnson County  
**Site Address:** NE of Highway 13 and SE 500 Road, Warrensburg, MO 64093  
**Site County:** Johnson, S18, T45N, R25W

This sheet covers the period from ____________________ to ____________________ (Copy as needed)

(Month, Day Year) (Month, Day Year)

<table>
<thead>
<tr>
<th>Date</th>
<th>Hilty Quarries, Inc. 101-0031 2010-07-039</th>
<th>Same Owner Plant</th>
<th>Same Owner Plant</th>
<th>Separate Owner Plant</th>
<th>Back-ground</th>
<th>Total Impact$^3$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Daily Production (tons)</td>
<td>Impact Factor (µg/m$^3$/ton)</td>
<td>Impact$^1$ (µg/m$^3$)</td>
<td>Impact$^2$ (µg/m$^3$)</td>
<td>Impact (µg/m$^3$)</td>
<td>(µg/m$^3$)</td>
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<tr>
<td>Example</td>
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<td></td>
</tr>
</tbody>
</table>

1. Calculate the impact for 101-0031 by multiplying the daily production by the impact factor.
2. Input the impact for any plants owned by Hilty Quarries, Inc. that are operating on the site.
3. Calculate the total impact by adding the applicable impacts and background. A total of 150.0 µg/m$^3$ or less is necessary for compliance.
## Attachment B: PM$_{10}$ Ambient Impact Tracking Sheet

**For Separate Owner Operation**

**Hilty Quarries, Inc. 101-0031**

**Project Number: 2010-07-039**

**Site Name:** Johnson County  
**Site Address:** NE of Hwy 13 and SE 500 Road, Warrensburg, MO 64093  
**Site County:** Johnson, S18, T45N, R25W

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Daily Production (tons)</th>
<th>Impact Factor (µg/m$^3$ton)</th>
<th>Impact$^1$ (µg/m$^3$)</th>
<th>Impact$^2$ (µg/m$^3$)</th>
<th>Impact$^2$ (µg/m$^3$)</th>
<th>Impact$^2$ (µg/m$^3$)</th>
<th>Impact$^2$ (µg/m$^3$)</th>
<th>Background (µg/m$^3$)</th>
<th>Total Impact$^3$ (µg/m$^3$)</th>
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<td>Example</td>
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<td>38.88</td>
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<td>68.94</td>
<td>20.0</td>
<td>138.02</td>
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</tbody>
</table>

1. Calculate the impact for 101-0031 by multiplying the daily production by the impact factor.  
2. Input the impact for any plants owned by Hilty Quarries, Inc. that are operating on the site.  
3. Calculate the total impact by adding the applicable impacts and background. Include the separate owner plant impact if a plant that is not owned by Hilty Quarries, Inc. is located at the site. A total of **150.0** µg/m$^3$ or less is necessary for compliance.
### Attachment C: NO\textsubscript{X} Annual Emissions Tracking Sheet

**Hilty Quarries, Inc. 101-0031**  
**Project Number: 2010-07-039**  
**Permit Number:**

**Site Name:** Johnson County  
**Site Address:** NE of Hwy 13 and SE 500 Road, Warrensburg, MO 64093  
**Site County:** Johnson, S18, T45N, R25W

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

<table>
<thead>
<tr>
<th>Month</th>
<th>Production (tons)</th>
<th>Emission Factor (lb/ton)</th>
<th>Monthly Emissions(^1) (lbs)</th>
<th>Monthly Emissions(^2) (tons)</th>
<th>12-Month Total Emissions(^3) (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>12,500</td>
<td>0.192</td>
<td>2,400.0</td>
<td>1.2</td>
<td>14.46</td>
</tr>
</tbody>
</table>

\(^1\)Multiply the monthly production by the emission factor.  
\(^2\)Divide the monthly emissions (lbs) by 2000.  
\(^3\)Add the monthly emissions (tons) to the sum of the monthly emissions from the previous eleven months. A total of less than 40.0 tons of NO\textsubscript{X} is necessary for compliance.
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 operator shall also record the rational 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.

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1For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)
# Attachment BB: Emission Calculations

**Hilty Quarries, Inc.**  
2010-07-039

<table>
<thead>
<tr>
<th>Description</th>
<th>MHDR Units</th>
<th>MHDR (lb/hr)</th>
<th>PM$_{10}$ EF</th>
<th>EF Units</th>
<th>Control Eff. (%)</th>
<th>Emissions (lb/hr)</th>
<th>Modeling Rate (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Handling Bins</td>
<td>tph</td>
<td>184.00</td>
<td>0.00110</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.01</td>
<td>0.009</td>
</tr>
<tr>
<td>Aggregate Handling Conveyor</td>
<td>tph</td>
<td>368.00</td>
<td>0.00110</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.02</td>
<td>0.017</td>
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<td>Scalping Screen</td>
<td>tph</td>
<td>184.00</td>
<td>0.00870</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.14</td>
<td>0.136</td>
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<tr>
<td>Drum Dryer - #2 Fuel Oil (Diesel)</td>
<td>tph</td>
<td>200.00</td>
<td>6.50000</td>
<td>lb/ton</td>
<td>99.31</td>
<td>8.97</td>
<td>8.970</td>
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<td>Silo Loading</td>
<td>tph</td>
<td>200.00</td>
<td>0.00059</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.12</td>
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<td>Plant Loadout</td>
<td>tph</td>
<td>200.00</td>
<td>0.00052</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.10</td>
<td>0.104</td>
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<tr>
<td>Asphalt Heater - #2 Fuel Oil (Diesel)</td>
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<td>0.0089</td>
<td>2.38000</td>
<td>lb/1000gal</td>
<td>0.00</td>
<td>0.02</td>
<td>0.021</td>
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<tr>
<td>Generator - Large Stationary Diesel Engine</td>
<td>1000 gal/hr</td>
<td>0.0619</td>
<td>7.85000</td>
<td>lb/1000gal</td>
<td>0.00</td>
<td>0.49</td>
<td>0.486</td>
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<tr>
<td>Storage Pile - Load In MC 0.7</td>
<td>tph</td>
<td>184.00</td>
<td>0.01200</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.75</td>
<td>0.754</td>
</tr>
<tr>
<td>Storage Pile - Load Out MC 0.7</td>
<td>tph</td>
<td>184.00</td>
<td>0.01200</td>
<td>lb/ton</td>
<td>0.00</td>
<td>0.75</td>
<td>0.754</td>
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<tr>
<td>Storage Pile - Wind Errosion</td>
<td>acres</td>
<td>1.00</td>
<td>0.08917</td>
<td>lb/acre-hr</td>
<td>0.00</td>
<td>0.09</td>
<td>0.089</td>
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<td>Storage Pile - Vehicular Activity</td>
<td>VMT/hr</td>
<td>0.29</td>
<td>2.84254</td>
<td>lb/VMT</td>
<td>90.00</td>
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<td>0.083</td>
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<td>Haul Road Hual Road #1</td>
<td>VMT/hr</td>
<td>1.30</td>
<td>2.08086</td>
<td>lb/VMT</td>
<td>90.00</td>
<td>0.27</td>
<td>0.271</td>
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<td>Haul Road Hual Road #2</td>
<td>VMT/hr</td>
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<td>2.08086</td>
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<td>0.184</td>
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<td>Haul Road Hual Road #3</td>
<td>VMT/hr</td>
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<td>2.08086</td>
<td>lb/VMT</td>
<td>90.00</td>
<td>0.35</td>
<td>0.350</td>
</tr>
</tbody>
</table>

1. Maximum Hourly Design Rate (MHDR)
2. Emission Factor (EF)
3. The Modeling Rate is the emission rate scaled to the daily hours of operation at MHDR allow by the permit.
Ms. Diane Tucker
Environmental Manager
Hilty Quarries, Inc.
P.O. Box 407
Clinton, MO 64735

RE: New Source Review Permit - Project Number: 2010-07-039

Dear Ms. Tucker:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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 and with your operating permit 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 regarding this permit, please do not hesitate to contact Gerad Fox, 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

Kendall B. Hale
New Source Review Unit Chief

KBH:gfl

Enclosures

c: Kansas City Regional Office
   PAMS File: 2010-07-039

   Permit Number: