South Carolina Department of Health and Environmental Control

Luck Stone - Chester Quarry Public Meeting

October 17, 2019
6:30 PM
Draft Synthetic Minor Air Construction Permit
Bureau of Air Quality
Introduction

• Luck Stone produces crushed stone and gravel used as the foundation for roads, bridges, and buildings in the Southeast.

• Proposed New Quarry and Processing Plant: Highway 9, Chester SC
Project Overview

• 550 tons per hour Stone Processing Plant
  • Process Equipment
    • Crushers
    • Screens
    • Conveyors

• Additional sources of dust generated onsite
  • Plant and Customer Haul Roads
  • Storage Piles
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• Pollutant addressed: particulate matter (dust)

• Permit compliance demonstration includes minimization and control of dust

• Weekly recorded inspection of water spray systems to ensure proper operation and dust control

• Potential (“worst case”) emissions below major thresholds with wet suppression.
Particulate Matter

- Mixture of solid particles and liquid droplets
- PM10: Inhalable particles, with diameters 10 microns (μm) and smaller
- PM2.5: Fine inhalable particles, with diameters 2.5 microns (μm) and smaller
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• Federal Regulation Opacity Limitations
  • Required to test equipment to ensure opacity limitation being met
  • 7% opacity limit for screeners/conveyors
  • 12% opacity limit for crushers

• State Opacity Limitations
  • 20% facility-wide opacity limit (includes dust from storage piles and on-site truck traffic)
Example of Opacity

20% Opacity  40% Opacity  80% Opacity

source: auburnsys.com
## Air Quality Analysis

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Max Predicted Concentration ($\mu$g/m$^3$)</th>
<th>Background Concentration ($\mu$g/m$^3$)</th>
<th>Total Concentration ($\mu$g/m$^3$)</th>
<th>State/Fed. Standard ($\mu$g/m$^3$)</th>
<th>Meets Standard?</th>
</tr>
</thead>
<tbody>
<tr>
<td>$PM_{10}$ 24-hr</td>
<td>80.9</td>
<td>42.0</td>
<td>123</td>
<td>150</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- The background concentration of the location is 42.0 $\mu$g/m$^3$.
- The predicted facility concentration is 80.9 $\mu$g/m$^3$.
- Combined, the total concentration will be 123 $\mu$g/m$^3$ and remains below the National Ambient Air Quality Standard (82% of standard).
Onsite Dust Control

• Dust control plan to be reviewed prior to operation
  • Addresses water trucks, truck traffic, storage piles, and process equipment
  • Crusher/screeners/conveyors equipped with wet suppression spray nozzles
  • Onsite truck traffic dust is controlled by the use of water trucks
Air Construction Permit

- Includes:
  - Applicable State and Federal Regulations
  - Recordkeeping, reporting and/or testing requirements that demonstrate compliance
  - “Synthetic Minor” construction permit restricts facility to less than 250.0 tons/yr for PM/PM$_{10}$ and less than 100.0 tons/yr PM$_{10}$ to avoid “major” thresholds
Contact Information

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