Tiller Corporation

Zavoral Mine Dust Control Plan

Scandia, MN

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SUNDE ENGINEERING, PLLC.
10830 Nesbitt Avenue South
Bloomington, MN 55437-3100
Phone: (952) 881-3344
Fax: (952) 881-1913

I. Dust Control Plan

Introduction

The following dust control plan for the Zavoral Mining and Reclamation Plan has been prepared to address potential impacts to air quality resulting from fugitive dust associated with the proposed Project. The Plan identifies several mitigation measures which will be implemented at the Site to eliminate or reduce fugitive dust emissions. Stripping operations, extraction, aggregate loading and hauling on unpaved haul roads are the largest sources of dust creation during the project operation. The site will be operated in compliance with Air Emissions Permit No. 05301018-002 issued to Tiller Corporation, Barton Sand & Gravel Co. The following measures will be taken to limit and reduce the amount of dust created during operations and ensure compliance with the above mentioned permit.

1. Stripping Operations and Reclamation Grading Operations:

Elevated fugitive dust emissions can occur during stripping operations. Topsoil and over burden have already been removed from the majority of the Site during previous mining operations. In the remaining areas that need to be stripped, stripping operations will be performed in a sequence of phases, which minimizes the amount of exposed open areas. Topsoils that are not immediately used for reclamation activities will be stockpiled or shaped into berms and seeded within 14 days to establish vegetation. Watering will take place as needed to control fugitive dust during creation of the berms and stockpiles. The implementation trigger will be determined using visual observations by trained individuals. USEPA Method 22 Visual Determination of Fugitive Emissions is applicable for the determination of the frequency of fugitive emissions from stationary sources. Since the primary source of fugitive emissions will be the haul trucks, berms and stockpiles (non-stationary), a method similar to USEPA Method 22 will be utilized to ensure compliance with Air Emission Permit No. 05301018-002.will be utilized. Berms will be inspected periodically and areas reseeded as necessary to ensure establishment of vegetation. Existing berms as well as new screening berms located along the perimeter of the Site further act to reduce emissions by trapping/containing a portion of the fugitive dust emissions within the Site.

Reclamation activity will proceed as timely as possible as areas of mining are completed (exception is Phase 1 Reclamation which is not proposed to be mined). Perimeter areas will be sloped and the interior areas backfilled and graded to reclamation grades. Topsoil application, seeding and mulching of the graded area will be performed in accordance with the approved Reclamation Plan. The approved Reclamation Plan will contain specifications and schedules for these activities. The schedule will be developed with the intent of reducing the exposure of the applied topsoils, thereby reducing the potential for fugitive dust emissions. Seeded areas will be inspected to assure establishment of vegetation and reseeded as necessary.

2. Active Mining Area:

A. Main Haul Road

1. *Paving*: The main haul road will be paved with asphalt for the first 300 feet into the site.

2. *Millings:* Asphalt millings will be applied to the main haul road, starting from the end of the paved portion of the main haul road down to the base of the mine or approximately 660 feet. Once asphalt millings are applied and graded, truck traffic will compact the material so that after approximately two to five days the millings surface may be swept and washed.

3. *Dust control applications:* Non-chloride agriculturally derived organic polymers or naturally occurring polymers will be applied to the internal haul roads from the edge of the milled portion of the haul road throughout the unpaved haul roads within any given active phase. The application will be at the manufacturers recommended rate of approximately 0.5 gallons per square yard. Generally, an application frequency of once or twice per season has proven to adequately control fugitive dust from truck traffic. During extremely dry periods with heavy truck traffic an additional application may be needed. The implementation trigger for additional applications will be if watering is unable to minimize the visual identification of fugitive dust emissions from the tires of traveling trucks. Coverage of the material will be reviewed on a regular basis, and the polymers will be reapplied if they are no longer effective.

4. *Watering:* Water application to the unpaved haul roads will be conducted as needed between applications of organic polymers for dust control. Any secondary haul roads that are in use will be watered on a daily basis (unless there has been precipitation in the last 24 hours). The implementation trigger for water applications will be the visual identification of fugitive dust emissions from the tires of traveling trucks. The water trucks will be available onsite whenever there is a hauling event or reclamation activity.

5. *Washing:* The paved and milled portion of the main haul road will be washed with a high pressure low volume wash twice a day during haul events. This reduces the accumulation of silts on the road surface significantly reducing fugitive dust emissions.

   Hauling and loading equipment will be washed on a regular basis during active mining operations.

6. *Sweeping:* The Site entrance and the paved portion of the haul road, including that portion surfaced with asphalt millings will be swept one to two times per week to remove accumulated sediments. (Washing the paved sections of the haul road twice a day during haul events will reduce the frequency of sweeping needed.)

Sweeping activities will be completed using a vacuum-assisted sweeping equipment or similar equipment that ensures that sweeping operations do not generate visible airborne emissions.

7. *Tracking:* The Site entrance will be visually inspected for tracking on a daily basis. In the event that tracking is identified at the Site entrance near the public roadways, mitigation measures such as sweeping will be applied as timely as practical.

8. *Records:* Records of the sweeping and water application will be maintained throughout the duration of the Project to document the fugitive dust control measures.

B. Excavation Area:

The sand and gravel deposit naturally contains some moisture which helps control fugitive dust emissions associated with the excavation and loading activities. However, during extended dry periods, this may not be sufficient to adequately control fugitive dust. As required by the air emissions permit mentioned above, material will be analyzed for moisture content. In the event of an extended dry period when the analysis shows inadequate moisture content, water will be applied to the area in the immediate vicinity of the excavation area to achieve the desired moisture.

C. Hauling Operations:

Haul trucks hauling from the Site during haul events will be covered with tarps to reduce wind-blown dust. In addition, haul trucks traveling throughout the Site are required to limit their speed to 15 mph or less which contributes to the reduction of fugitive dust emissions. Haul trucks will not be allowed to idle on the site and approach area for more than 30 minutes.