Dust Control Plan

Mahler Aggregate Mine

City of Hanover, Wright County, Minnesota

Prepared for
Fehn Companies, Inc.

by
Kjolhaug Environmental Services Company, Inc.
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1. Project Description

The Mahler Aggregate Mine is proposing a 130-acre expansion of an existing 25-acre aggregate mine. The mine will be located on 184.9 acres of land in the City of Hanover. The operation will include sand and gravel mining, a wash plant, concrete recycling, and stormwater management. Expansion of the existing aggregate mine will start in September of 2019 and be phased over 15 to 20 years, depending on the demand for aggregate and market conditions.

2. Project Location and Surrounding Land Use

The project is located in Section 30, T120N, R23W , and Section 25, T120N, R24W. The project area is bordered on the north by 15th Street NE, a separate aggregate mining operation, and the City of St. Michael. The project is bordered on the east by the Crow River; on the south by Riverside County Park and agricultural land; and on the west by single-family residential, rural residential, and River Road NE/Lander Avenue NE.

3. Plan Purpose

This dust control plan is prepared to identify practices that will be employed to control fugitive dust emissions at the Mahler Aggregate Mine. Aggregate mining has occurred at the project location since 2006. Mining is to be expanded to cover up to 155 acres, in five phases consisting of about 25 to 40 acres each over the next to 15 to 20 years.

This plan addresses fugitive dust emissions created by mining operations and reclamation activities related to the mine. This plan establishes methods to control fugitive dust emissions from vehicles traveling on unpaved roads, material handling, and wind erosion from disturbed areas. These measures will be implemented, as needed, for the duration of the project.

4. State and Federal Requirements

Minnesota Rule 7011.0150 (Preventing Particulate Matter from Becoming Airborne) does not allow the "handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne." It requires "reasonable precautions to prevent the discharge of visible fugitive dust emissions beyond the property line on which the emissions originate." The Minnesota Pollution Control Agency (MPCA) requires operators of crushed stone and sand and gravel plants to use dust control measures in their operations. The term "fugitive dust" when referring to emissions from aggregate processing, means the dust does

not come from an emission "smoke stack," but from areas exposed to wind such as unpaved roads, stockpiles, or transfer points between conveyors.

Aggregate processing equipment (crushers, screens, conveyors) are subject to the U.S. Environmental Protection Agency (EPA) Standards of Performance for Nonmetallic Mineral Processing Plants (40 CFR Part 60). This rule sets opacity limits for dust emissions from equipment. Opacity refers to the obstruction of light transmittance caused by plumes of dust or gases.

5. Dust Assessment

Sand and gravel mining processing operations include crushing, screening, size classification, material handling, storage operations, and truck loading/unloading. Portable crushing plants consist of an assortment of individual pieces of equipment that are used to physically reduce, size and/or separate earth materials. All of these processes can result in dust emissions. If not properly controlled, dust can be carried by into surrounding neighborhoods by wind.

Dust can become airborne by wind and/or machine movement. Emissions occur at conveyors and drop or transfer points from one conveyor to the next. Storage piles can emit dust under atmospheric conditions such as dry winds. Similarly, unpaved haul roads emit dust under windy conditions and during use by trucks and passenger vehicles. Factors affecting emissions include the amount of activity at the site (dumping, crushing, hauling), the amount of wind, and the moisture content of the aggregate material.

Wash plants do not generate substantial dust because the earthen material becomes wet and stops emitting dust at the start of the wash plant. The moisture content of washed material is high enough to control particulate emissions.

6. Dust Mitigation Measures

The project will prevent avoidable visible dust emissions beyond the property boundary by applying water, approved commercial dust suppressants (such as magnesium chloride), use of a reduced speed limit on haul roads (e.g., 15 mph), and/or tarping of truck loads prior to leaving the mining area. Allowing greater vehicle speeds on unpaved roads can increase the potential for dust generation. These measures are expected to reduce fugitive dust emissions to a reasonable level.

Application of water often provides sufficient dust suppression. Chemical suppression should be used if water does not reduce visible dust enough to keep it from crossing the site boundary. Gravel roads will be sprayed with water or chemical dust suppressants when warranted by dust emissions and site conditions (dry, frequent truck trips, etc.).

Fugitive dust from loading operations will be controlled primarily by spraying problem areas with water. Disturbed areas such as stockpiles and temporary roads are susceptible to wind-blown fugitive dust generation. Fugitive dust emissions from these areas will be limited by using

best management practices such as applying water or chemical dust suppressants, covering, and temporary seeding.

7. Conclusions

Mitigation of dust emissions from aggregate processing and handling operations includes two basic options:

1. reducing the number of processing and/or handling operations; and
2. applying dust control agents such as water or chemical dust suppressants.

Dust control measures to be considered include:

1. use of conveyors to transport aggregate material onsite;
2. limiting the number and distance of internal truck trips by using conveyors;
3. active reclamation to minimize exposed soil areas;
4. use of water (wet suppression) to minimize fugitive dust emissions;
5. covering truckloads prior to aggregate transport during dry or windy conditions;
6. chemical dust suppression; and
7. sequenced mining of smaller subphases.

These dust control measures are expected to reduce emissions of dust and particulate matter from the proposed mining operation.