

**DUST MANAGEMENT PLAN**  
**for the**  
**HUNSBERGER PIT**

**Prepared by**  
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The following presents potential sources of fugitive dust at the Hunsberger Pit as well as actions to control and mitigate these sources.

### **E.1 POTENTIAL SOURCES OF FUGITIVE DUST**

Due to the nature of activities at a sand and gravel operation, there are several on and off-site sources at the Hunsberger Pit that could potentially contribute to fugitive dust emissions. These are as follows:

- truck travel on the site entrance road;
- loader travel on on-site unpaved roads;
- material processing and handling (conveying, loading, crushing and screening of aggregate); and
- stockpiling (raw and processed materials).

The fugitive dust generated by these sources and activities arises from processing or pulverizing crustal materials, and thus generally does not have significant amounts of other contaminants associated with it. Also, a significant portion of the fugitive dust from these sources is in the coarse fraction which tends to result in nuisance effects; only a small fraction of the dust is in the respirable range, which is of most concern from a health perspective.

In many instances, fugitive dust emissions depend on the wind speed at any given time as well as the activity rates. Thus the amount of effort necessary to control such emissions is greater during windy conditions than during calm conditions.

### **E.2 REQUIRED CONTROL ACTIONS**

In general, most approaches for controlling fugitive dust involve the application of water to prevent the fugitive emissions from being generated. Depending on the source, there are other measures that can be used to remove the source of the dust, and/or reduce the impact of the emissions when they occur. These are discussed in the following sections.

#### **E.2.1 Application of Water to the Site Entrance Road and Internal Haul Route**

The Ministry of Natural Resources (MNR) requires that dust be mitigated on site and therefore, water will be applied to the site entrance road and internal loader routes to mitigate fugitive dust. In the assessment, sufficient calcium chloride application and watering was assumed to be applied to achieve a control efficiency of 90% on the site entrance road and 90% on all unpaved on-site roads travelled by non-road equipment (loaders, etc) and by product trucks that will be used to ship finished materials off site. These levels of control are reasonably achievable, and necessary to prevent excessive emissions.

In order to achieve the level of control that is required to meet the levels that were used in the completion of this study, the following actions are recommended:

- all unpaved on-site haul roads should receive an application of calcium chloride during the spring, and a second application of calcium chloride during the late summer;
- all unpaved on-site haul roads should be watered at a sufficient frequency to control dust generation due to vehicle travel; and,
- vehicle speeds on on-site unpaved haul roads should remain at 20 km/h or less.

An operational watering scheme that is based on the activity levels and meteorological conditions will be developed and followed by trained site personnel, to ensure that watering is completed frequently enough to adequately control fugitive dust emissions. For the purpose of illustration, the following scheme is included as an example of the type of system that could be developed at the Hunsberger Pit.

As part of the process, the licensee will be required to obtain a Regional Entrance permit, and as part of their minimum pit entrance design, it will include an acceleration lane of some 80-100 metres in length. This lane will be fully paved. With respect to track-out onto Katherine Street, the dust control measures proposed for the paved site entrance road (90% control based on water flushing and sweeping) will be extended onto this new acceleration lane.

### **E.2.2 Example Operational Watering Scheme**

Internal haul routes (both within the pit and at grade) will be treated with water as necessary for dust control. The capability for main internal haul truck watering will provide for the required number of passes per hour, as needed to achieve the recommended dust control efficiency.

For operational purposes, a scheme based on the type of day (hot/dry/windy, warm/overcast, cool/overcast, rainy) that prescribes the recommended watering frequency based on the number of truck passes and the length of road, is suggested, as presented below:

- During very hot, dry and sunny conditions (typical of July or August) or windy days (i.e. greater than 20 km/h), sufficient water will be applied to all in-pit roads for these conditions, depending on the traffic level;
- During moderately warm, dry conditions (late spring & fall), sufficient water will be applied to in-pit unpaved roads for these conditions, depending on the traffic level; and
- During wet or rainy periods, the roads generally will not be watered.

The scheme presented above will be adjusted as conditions dictate. For example, roads will definitely be watered regardless of the “rules” if there is visible or blowing dust. A site specific

watering table, which will be a function of wind speed, temperature and relative humidity, will be produced as part of the dust management plan following approval of the final site design.

Dust emissions from traffic and operations will be observed at least twice daily. A visible dust observation from any operation will trigger appropriate mitigation action.

### **E.2.3 Application of Water to Material Handling and Processing**

This assessment was completed assuming that crushing and screening equipment will not have any water sprays to reduce dust emissions. The assessment assumed that no controls will be used on material drops from loaders, excavators and stackers. However, should problems with fugitive dust arise, installation of spray bars on processing equipment will be considered.

### **E.2.4 Application of Water to Material Storage Piles**

Depending on the amount of “fines” present in the material, windblown dust from material storage piles can occur. The assessment was completed with the conservative assumption that wind erosion will occur at all wind speeds. In addition, it was assumed that no controls will be specifically employed to mitigate this source. Should emissions from storage piles become a problem, the piles will be sprayed with water or another approved dust suppressant as necessary to reduce windblown dust.

### **E.2.5 Record Keeping**

A daily log of water applications and other dust control procedures and observations should be kept at the site to demonstrate, if necessary, that dust control actions are being taken.

### **E.2.6 Control of On-site Contractors**

On-site contractors will be required to meet the same requirements as set out in this Best Management Plan at all times that they are on-site.

## **E.3 RECOMMENDED ACTIONS FOR IMPROVED CONTROL**

In addition to the procedures outlined above, SENES recommends that the following options also be considered to further reduce the potential for off-site dust emissions:

- Ensure that the site perimeter berms and surrounding area be sufficiently vegetated as follows:
  - It is important to note that as trees and shrubs grow, some will become tall, while others will remain short; some will spread, while others will remain columnar. The mature plant characteristics of the selected species should be examined to determine

the appropriate plant spacing and placement, such that a good screen is produced once all plants reach their ultimate height and spread; and

- The plantings should contain a mix of coniferous and deciduous species, such that some screening potential remains after the leaves have fallen off of the deciduous plants.

#### **E.4 ENVIRONMENTAL COMPLAINT DOCUMENTATION AND RESPONSE PROCEDURE**

SENES recommends that a complaint documentation and response procedure be established for the Hunsberger Pit, such that standardized procedures are followed in the event that a complaint is made by a member of the public. The documentation should include the date and time of the complaint, the nature of the problem, and whether any follow-up action was taken. The complaint information should be maintained in an on-site log that is available for review by the MOE, if requested.

A sample form is included on the following page.

**HUNSBERGER PIT RECORD OF ENVIRONMENTAL COMPLAINT AND RESPONSE**

1. Location: \_\_\_\_\_
2. Date and Time Complaint Received: \_\_\_\_\_
3. Name of Complainant: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_
4. Form of Complaint and Summary: Visit:  Telephone Call:  Letter:   
Attach Copy:  Other \_\_\_\_\_
5. Meteorological Conditions When Complaint Received:  
\_\_\_\_\_
6. Operation Conditions When Complaint Received:  
\_\_\_\_\_
7. Complaint Referred to Technical Services: No  Yes  and provide details:  
\_\_\_\_\_
8. Contact Made With Government Official(s): No  Yes ; If Yes, Complete and Attach Record of Government Environmental Official Contact Form -- Done
9. Details Concerning Investigation Made by Company Concerning Complaint:  
\_\_\_\_\_  
\_\_\_\_\_
10. Response to Complainant:  
Letter  Date \_\_\_\_\_ Attach copy of letter to this form.  
Telephone Call  Date \_\_\_\_\_ Time \_\_\_\_\_  
Summary of Telephone Call:  
\_\_\_\_\_  
\_\_\_\_\_
11. Follow-up Action Required and/or Taken by Company:  
\_\_\_\_\_  
\_\_\_\_\_
12. Filed Original Form in the Plant Environmental Manual: Yes   
Date \_\_\_\_\_  
\_\_\_\_\_  
Employee Signature, Name & Position