

DUST MANAGEMENT PLAN

Quarry sites- KM 8,15,16,18,20

Rankin Inlet, Nunavut



Prepared for:
Nunavut Impact Review Board
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SUMMARY

This document is a Dust Management Plan (DMP) prepared for the proposed quarry sites known as KM 8,15,16,18 & 20 on unsurvey land in Rankin Inlet, Nunavut. This plan was produced at the request of the Nunavut Impact Review Board (NIRB) to minimize dust emissions and identify potential sources of dust emissions generated from the quarry operations. Furthermore, the DMP details procedures and practices that will be implemented to reduce the release of atmospheric dust.

INTRODUCTION

The primary air emission associated with quarry operations is particulate matter released in the form of dust. Sources of dust can include traffic from on-site movement of mobile equipment, aggregate extraction and hauling, and natural release from exposed stockpiles and rock faces.

To limit dust emissions, the Hamlet, or contractors who obtain a quarry permit from the Hamlet, will take all reasonable measures to minimize dust emission using techniques outlined in this DMP.

The objectives of this DMP are to:

- Provide an overview of the operations at the sand pit and identify potential sources of dust.
- Discuss dust control measures.
- Outline maintenance, complaint, and inspection procedures.

Once implemented, the DMP will serve to minimize all dust emissions from quarry operations thereby reducing risks to human health and the potential for offsite nuisance.

OVERVIEW OF QUARRY OPERATIONS

The sand pit will primarily produce gravel, sand, silt, and other aggregate used for a wide range of construction and maintenance purposes. Quarried product is a primary component of construction materials used in municipal road maintenance or landscaping. The Hamlet does not have specified operating times for quarries. Operations including loading, hauling, and excavating may occur late in the evenings, but usually cease at approximately 9:00 PM. This allows for maximum extraction during the limited season. Use and frequency of the quarries will be sporadic as it will depend on the maintenance and construction schedule for that particular year. When in use, activities will include:

Aggregate Extraction

All quarry sites contain similar aggregate material and terrain features. Extraction will be done by Track Excavators to dig into soil going down approximately 1-2 metres deep. Over burden will be stripped away and stored for future use or discarded. The Excavator will then stockpile the desired aggregate in a designated area within the quarry.

Aggregate Processing

A Screener will be used to filter out any undesirable material and boulders.

Aggregate hauling and access road

A CAT loader will load aggregate into a dump truck. These dump trucks will then transport the aggregate to its desired location, usually for use within the community of Rankin Inlet. There is an existing access road that will be used to access all quarry sites. This road is known locally as “Diane road” and/or “Diane River road”. Its primary function is to serve recreational traffic from Rankin Inlet to a camping/cabin area called Diane River. Upgrades to the Diane road will be required to allow two-way traffic of mobile equipment. Road upgrade plans are outlined in the ‘Quarry Management Plan’. The haul distance will depend on the site being used. The quarry sites were named after the kilometre distance from Rankin Inlet (Example: Quarry KM8 is 8 kilometres from Rankin Inlet).

DUST EMISSIONS SOURCES

The potential sources of dust emissions from the quarries include:

- Wind erosion of exposed stockpiles and faces.
- Release of dust from excavation.
- Mobile equipment traffic and operation.
- Vehicle traffic along the access road.

DUST CONTROL MEASURES

- The Hamlet will spray water on the access road twice seasonally. An estimated 32,000 litres will be used each spray.
- Stockpiles of aggregate will observe a maximum 5 metre height to reduce dust generated by wind.
- Haul routes will be re-graded seasonally by the Hamlet, to ensure that loose, fine materials on the haul route surface are kept to a minimum.
- Mobile equipment speed limit will be set at 40 km/hr to reduce trailing dust clouds. Enforcement will be done by occasional site inspections by the Hamlet and using quarry permit conditions.
- Excavation and dump truck loading will be suspended if wind speed exceed 60 km/hr.
- The highest point of loaded aggregate shall not exceed the dump truck tray wall unless covered.
- Aggregate stockpiles will be located on the quarry floor near the extraction face or in the designated stockpile area.

IMPLEMENTATION

All control measures are to be in place prior to extraction. Control measures shall remain in place so long as the quarries remain in operation.

The following outlines how this DMP will be implemented:

- A copy of this DMP shall be kept at the Hamlet office for public viewing.
- Each quarry permit issued by the Hamlet will require the contractor to adhere to this DMP.
- The Hamlet staff will follow the DMP procedures.

INSPECTION, MAINTENANCE AND COMPLAINTS

Hamlet staff will adhere to the DMP guidelines during extraction, but due to limited personnel and technical capacity; supervision, and inspection of private contractors, may occur less frequently.

Members of the public who have complaints regarding dust emissions can contact the Hamlet's Planning and Lands Administrator (PLA) by phone at (867) 645-2895 or by email at lands@RankinInlet.ca

Once the Hamlet receives a complaint, the Hamlet, within a reasonable timeframe, investigate the nature of the complaint. Remedy will depend on nature of the complaint and observance of the DMP. The Hamlet shall take steps to ensure the Hamlet operator or contractor comply and are aware of the DMP to avoid repeat infractions.

CONCLUSION

Sand pit excavators will implement and fully abide by the DMP to control on-site dust emissions, Record keeping, inspections, and oversight will ensure an effective dust mitigation throughout the lifespan and operation of Quarry KM 8,15,16,18 & 20.