Mine Dust Management Plan

1 PURPOSE

- The primary purpose of the mine dust management plan is to protect the health of people at work by ensuring that exposures to fugitive dust containing respirable silica is as low as reasonably practicable.

2 SCOPE

- This plan applies to IOC mining operations for work that has the potential to generate elevated dust concentrations.
3 DEFINITIONS

SEG: Similar Exposure Groups are occupations that have similar workplace exposures.

OEL: Occupational Exposure Limit is the legislated limit established for each contaminant. It is the level at which it is believed that workers can be exposed repeatedly for a 8 hour work day (40 hour work week) and not experience adverse health effects.

Assigned Protection Factor (APF): is the anticipated level of respiratory protection that would be provided by a properly functioning respirator or class of respirators to properly fitted and trained users. (CSA Z94.4-02)

Quantitative Fit Test: an assessment of the adequacy of respirator fit that uses numerical measurement of the amount of leakage into the respirator. Quantitative fit tests use a probe inside the facemask.

4 Standard

IOC will comply with relevant regulatory requirements for air quality and dust management.

IOC will observe the following principles of air quality and dust management:

- The minimisation and control of dust emissions will be integral to the planning of all mine development and mining operations;
- Mine personnel will be vigilant at all times in identifying, reporting and responding to excessive dust emissions.

All dust suppression equipment will be maintained in an operable condition.

The effectiveness of dust control procedures will be checked periodically to ensure that dust control objectives are being met.

5 Process

Trafficable Areas

Trafficable areas that are in regular use during a shift will be maintained in a damp condition sufficient to prevent the generation of dust.

Water Truck

IOC water truck fleet consists of 2 large-capacity and 1 small-capacity trucks

Water Application during Summer Months (May-September)

- 2 water trucks shall be operational at all times when there is no precipitation.
- Haul supervisor will brief water truck operators on the main areas that will require watering before each shift commences. If it becomes necessary to alter the watering program during a shift, instructions will be provided by radio to the operator.
• Mining Operations Superintendent or delegate shall deploy calcium truck if water trucks are not operational due to unforeseen circumstances.

Water Truck Maintenance

• Water trucks will be ready for operation by May 1st each year. All relative maintenance activity required will be conducted in March and April to ensure this date can be met.
• Preventative maintenance is performed every 250 hours
• Maintenance is performed every 500 hours
• Schedule is designed to ensure two trucks are always available
• Maintenance is scheduled during nightshift to ensure trucks are available during the day, as this is when the potential for fugitive dust is highest.

Drilling

• Drills are fitted with water suppression systems
• If the water suppression system becomes damaged and cannot be used, the operator shall cease operation until the system can be repaired.

Blasting

• Blasting will be carried out in accordance with procedures. Blasting will not be conducted during weather conditions that are inconsistent with blasting procedure.

Rock Crushing

• The screen discharge hopper shall be enclosed and shall have an adequate mechanical exhaust system or an adequate water spray system;
• Screens shall have partial covers and shall have an adequate mechanical exhaust system or adequate water spray system;
• Material transfer points shall have an adequate mechanical exhaust system or an adequate water spray system; and
• Discharge from a mechanical exhaust system shall be located to prevent the recirculation of contaminated air to areas occupied by a worker.

Equipment

• Persons operating equipment (including Haul trucks, Mobile equipment, and Light vehicles) shall ensure the cab windows are closed at all times. This is to ensure the cab air system can operate effectively and reduce the impact of dust infiltration through open windows.
• Maintenance of cab air systems shall be done at a frequency in accordance with the manufacturer’s specifications.
• Equipment operators shall report defective cab air systems to their supervisors to ensure timely repair.
Hydro Seeding

The mine and HSE identify areas to hydro seed each year. The areas are identified using a risk based approach based on the potential for dust lift off to be a health or safety concern. The vegetation that grows reduces the potential for dust lift off.

Dust Lift off from Mine Pit Walls

During dry windy conditions there is a potential for ambient dust levels to be significant due to lift off from mine pit walls, during such conditions:

- Only business critical work as defined by the mine manager will continue outside of a pressurised cab.
- If visibility is significantly affected the mine manager will suspend equipment operation until visibility returns to acceptable levels.
- If work must be conducted outside a pressurised cab, the worker shall wear a half face respirator with P100 filters and goggles or full face respirator with P100 filters.
- HSE personnel in the mine will monitor the ambient dust concentrations to ensure the selected respiratory protection remains adequate.
- If dust concentrations exceed the APF of this respirator, workers will be notified and the decision to increase respiratory protection or cease outside work will be made by the mine manager.

Occupational Hygiene Monitoring Plan

- HSE technicians shall perform on person monitoring for respirable dust/silica on SEG’s in the mine.
- Monitoring shall be conducted such that it is statistically valid for each SEG based on the # of workers in the group.
- The sampling frequency is risk based.
- Exceedances are reported to the areas within 24 hours of receiving results from analytical lab.
- All results shall be interpreted using approved statistical tool.

Respiratory Protection

- If the controls are insufficient to control the ambient dust concentrations and work must continue outside workers will be required to wear respiratory protection.
- All SEGs that have been identified as being required to perform a portion of their tasks outside have been fit tested for the appropriate respiratory protection.
- Respiratory protection will be required:
  - Half face non disposable with P100 filters + goggles or Full face non disposable with P100 filters mandatory for outside work when wind speed is
  - Full face non disposable with P100 filters (quantitative fit test) is mandatory for outside work when wind speed is
6 ACCOUNTABILITIES

6.1 Accountability

- The Manager Mining Operations is accountable for the mine dust management plan.

6.2 Responsibility

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>Haul Supervisor</td>
<td>• Monitor weather forecast</td>
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<td>• Ensure water trucks are operating when there is no precipitation</td>
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<tr>
<td>Operations Superintendent</td>
<td>• Ensure that calcium is available if required</td>
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<td>• Authorise the usage of calcium on haul roads</td>
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<tr>
<td>Mobile Maintenance Superintendent</td>
<td>• Ensure water trucks are serviced and ready for May 1\textsuperscript{st} each year</td>
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<td>• Schedule maintenance to optimise availability</td>
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<tr>
<td>Mine Manager</td>
<td>• Ensure proper procedures are followed when ambient dust concentrations are elevated and may pose a safety (visibility) or health risk.</td>
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<tr>
<td>Hygiene Advisor</td>
<td>• Ensure the sampling program in the areas is being met</td>
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<td>• Ensure exceedances are communicated to workers, JOSHE and area supervisors</td>
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<td>• Provide technical support to areas where required in the development and implementation of actions</td>
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<td>• Verify actions delivered desired outcomes</td>
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<tr>
<td>H&amp;S technician</td>
<td>• Ensure sampling programs are met to ensure statistically valid data</td>
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<td>• Liaise with workers to help identify specific tasks creating exceedances</td>
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<tr>
<td>Senior Hygiene Advisor</td>
<td>• Ensure documentation provided to areas is accurate</td>
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<tr>
<td></td>
<td>• Provide technical support to areas where required in the development and implementation of actions</td>
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<tr>
<td>Role</td>
<td>Responsibility</td>
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<td>All employees</td>
<td>• Participate in the Occupational hygiene sampling program</td>
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<td>• Be proactive in reporting equipment deficiencies</td>
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<td>• Wear respiratory protection when required</td>
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</tbody>
</table>

7 REFERENCES

- Standard B1, Particulate and Gas / Vapour Exposures. Rio Tinto Occupational Health Standards.
- Newfoundland and Labrador Silica Code
- Newfoundland and Labrador Occupational Health and Safety Regulations