Prairie Creek Mine
Public Hearings

Air Quality Issues
Outline

1. Contaminant Loading
2. Incineration Management
3. Air Quality and Emissions Monitoring
1. Contaminant Loading

Contaminant Loading:
• Contaminated dust (lead/zinc) depositing on land and water

Mine Site:
• Dust generated by mining activities
• Dust from materials handling
• Dust from mill and concentrate storage facilities
• Wind-blown dust from mine surface

Transportation of concentrate:
• Tracking along roads
• Concentrate spillage and escapement from bags on haul trucks
Contaminant Loading - Examples

Red Dog Mine
• Elevated levels of metals (lead, zinc and cadmium) near mine site and haul road
• Implemented mitigation strategies and monitoring program

Pine Point Mine
• Soil samples of railway bed exceed CCME Soil Quality Guidelines for lead and zinc
CZN Commitments - Contaminant Loading

Section 5.2, Air Quality Assessment, DAR, Appendix 20

- Best Management Practices Plan to Control Fugitive Dust and Metals Emissions (BMPPCFDME)
  - Commitment to develop BMPPCFDME
Recommendations – Contaminant Loading

- Contaminant Loading Management Plan
  - Identify sources of contaminant loading;
  - Identify mitigation approaches;
  - Develop monitoring program;
    - Dustfall, speciation, soil and ice sampling
  - Develop trigger/action levels;
  - Develop adaptive management and contingency plans;
  - Submit annual reports:
    - Results of monitoring program;
    - Effectiveness of mitigation;
    - adaptive management/contingency employed
  - Monthly data reports for at least the first year

- Secondary containment on the trailers during transport of concentrate
Improper incineration practices can lead to the release of bioaccumulative, persistent toxins to the air
  • Dioxins and Furans
  • Polychlorinated biphenyls (PCB)
  • Hexachlorobenzene (HCB)

By the process of deposition, these toxins fall to the land and/or water
  • Adverse effects to water, sediment, fish, wildlife

The GNWT is a signatory to the Canada-wide Standards (CWS) for Dioxins and Furans
CZN Commitment - Incineration Management

Section 5.3, Air Quality Assessment, DAR, Appendix 20

- Incineration Management Plan (IMP) outline.
  - Commitment to develop IMP
Recommendation - Incineration Management

Develop an Incineration Management Plan (IMP):

- Waste audit -- quantities and types of waste incinerated
- Selection of incineration technology
- Operational and maintenance records
- Operator training
- Incinerator ash disposal
- Annual Report

In accordance with Environment Canada’s Technical Document for Batch Waste Incineration, 2010, and in consultation with ENR and EC
3. Air Quality and Emissions Monitoring

Emissions:
- Criteria Air Contaminants
  - PM$_{2.5}$ and PM$_{10}$, NO$_x$, O$_3$, CO, SO$_x$
- Site specific metals
  - Pb, Zn

Sources of Emissions
- Combustion and fugitive emissions from:
  - Power and heat generation
  - Mobile equipment
  - Process facility
  - Product handling
CZN Commitment - Air Quality and Emissions Monitoring

Section 5.1, Monitoring Program and Mitigation and Adaptive Strategies (MPMAS) outline, DAR, Appendix 20

• Commitment to develop MPMAS

Including:

- Air Quality Monitoring Program (Section 5.1.2);
- Emissions Monitoring Program (Section 5.1.3);
- Fuel Use Summary (Section 5.1.4);
- Mitigation and Adaptive Strategies (Section 5.1.5);
- Response Planning (5.1.6);
- Annual Report (Section 5.1.7).
Recommendations -
Air Quality and Emissions Monitoring

Develop MPMAS in consultation with GNWT and EC

• Incorporate links to Contaminants Loading Management Plan
  • Dustfall and soil and ice sampling
• Emissions inventory
• Monitoring
  • Dustfall
  • Ambient particulate monitoring, with speciation
  • Passive monitoring for select Criteria Air Contaminants
• Mitigation measures
• Annual report