7. MINE-SPECIFIC REQUIREMENTS – CREIGHTON MINE

Note: the Contracting Party is to review the following documents as applicable to the work and in conjunction with the associated contract documents:

- General Requirements for Ontario Operations,
- Managing Group Requirements,
- Mine-Specific Requirements – Creighton Mine

REFERENCES

This document is to be read in conjunction with:

- Guidelines for Plant Specific/Mine Specific Contractor Orientation SPI SAF-17

_Safety protocols and procedures listed here are based on current conditions and may change from time to time. Therefore, these items are to be read in conjunction with the applicable plant procedures, orientation training, and site visit instructions. In the event of conflict, the Plant Orientation Instructions shall take precedence._

7.14 CREIGHTON MINE

7.14.1 General PPE Requirements

a) Refer to the “Vale Creighton Mine PPE Policy”.

b) Follow required PPE requirements as noted on signs posted at the mine site.

c) Other PPE – review the Area Specific PPE requirements for each of the areas listed below. Also refer to the “General Requirements for Ontario Operations” for all other PPE requirements.

d) Minimum half face respirators with P100 filter required in all Creighton Conveyor Galleries unless noted otherwise.

e) All workers involved in the task of shotcreting must wear appropriate respirator. Minimum half face respirator with goggles and face shield and chemical resistant gloves. Vale recommends air powered respirators to alleviate heat issues.
General Requirements for Contracted Work - Ontario Operations

7.14.2 General Safety Instructions

a) **Designated Substances**: The following designated substances may be present in workplaces within the mine site: Lead, Silica, Asbestos, Isocyanates, Arsenic, Mercury. Consult the Vale Representative for a list of designated substances present in the specific work areas related to this contract, and the appropriate control measures required.

b) **Hazardous Materials**: In addition to the designated substances listed above, the following hazardous materials may be present in workplaces within the mine site:

   - Biological Hazards (bird and animal droppings, fungi, bacteria, viruses),
   - Hazardous dust (nickel, cobalt, copper, calcium),
   - Hazardous gas (Carbon Monoxide, Nitrogen Oxide, Ammonia, Aluminum Oxide and Magnesium Oxide, Sulfur Dioxide, Elemental Carbon, Ethyl Mercaptan, Hydrogen Sulfide, Methane),
   - Hazardous Liquid (Trichloroethylene)
   - PCB’s (ballasts, tar products).
   - Explosives materials.

Consult the Vale Representative to discuss the hazardous materials that may be present in the specific work areas related to this contract, and the appropriate control measures required.

Radioactive isotopes may be present in flow measuring devices, nuclear density gauges or other instruments.

c) **Hygiene**: the presence of the hazardous material listed above requires good hygiene practices.

Refer to Part 5.0 “General Requirements for Ontario Operations” sub-section 5.2.10 Hygiene for standard hygiene practices. Also refer to the Scope of Work for any additional hygiene requirements.

**Other:**

d) Refer to the “Creighton Mine Working Alone Procedure”.

e) Refer to the “Surface and Underground Tag Board for Personnel Working Underground” OPTG-305.

f) Refer to the “Creighton Mine Protocol for Contractors Called in for Emergency Repair” where applicable.

g) Operation of Toyota Land Cruisers without an operational speed limiting device is not allowed.
General Requirements for Contracted Work - Ontario Operations

7.14.3 SURFACE

a) **Orientation:** All contractor personnel entering the plant must have completed the Creighton Mine Surface Orientation or be escorted by authorized, qualified personnel.

b) **Sign-in:** Refer to the Creighton Mine Visitor Surface Signing in/Tagging In Protocol located at the 1st aid window at the Creighton Mine main visitor’s entrance.

**Emergency Assembly Areas / Fire Procedures:**

c) Refer to the “Creighton Mine Surface Fire Procedure” - EMER01.
d) Refer to the “Creighton Mine Emergency Prep. Procedure”.
e) Surface Alarms are tested every Friday.

7.14.4 UNDERGROUND

a) **Orientation:** All contractor personnel entering the plant must have completed the Creighton Mine Underground Orientation or be escorted by authorized, qualified personnel.

i. Regardless of underground orientation, contractors will only be authorized to perform work and travel within Creighton Mine to the areas associated with the scope of work including refuges, latrines and travel ways near the work areas. Any other areas will be deemed unauthorized unless approved by a Vale representative.

b) **Sign-in:** Refer to the “Creighton Mine Visitor Underground Signing in/Tagging In Protocol”. This document is available inside the 1st Aid office.

**Emergency Assembly Areas / Fire Procedures:**

c) Refer to the “Creighton Mine Underground Fire Procedure” – EMER02.
d) Refer to the “Creighton Mine Emergency Prep Procedure.”

**Area Specific Designated Substances / Hazardous Materials:**

e) In addition to the Designated Substances / Key Hazardous Materials listed above the following may be present at Creighton Mine Surface:

- Biological Hazards (contaminated Sumps),
- Shotcrete / Concrete / resins
- Hazardous Gas (Nitrogen Dioxide, Radon Daughters)
- Mist (Oil Mist)

**Other:**

f) Contracting Party to ensure all ventilation systems (doors, louvers, dampers, vent blanks) are left in their proper positions. (eg: ventilation/fire doors requiring to be closed - stay closed, blanks not removed unless require by the scope of work, dampers not adjusted unless approval has been given etc.)
General Requirements for Contracted Work - Ontario Operations

g) Contracting Party to remove any excess water produced during the course of the work (eg: water sprays, drilling, etc). Contracting Party is responsible to ensure no water is impounded in the work area at any time. Contracting Party shall be responsible to keep construction area dewatered as required to complete the work listed in the scope of work.

h) When performing any dust creating tasks when in the fresh air system underground, contractor must set up double water sprays placed 50ft apart using Vale approved misting nozzles.

i) All Man-carriers or equipment that will be using the ramp below 6800L are to be equipped with a Vale approved base radios.

j) Vale cameras are not permitted to be covered and / or unplugged while working in the area. Any modifications or adjustments to area cameras are to be pre-approved in writing by the Vale Representative.

k) Refer to the “Working in the Fresh Air system” when performing any work that will create dust in the fresh air system.

l) Review and Understand Duties of Shaft Services Leader.

m) Refer to the “Creighton Mine ramp travel radio procedures” – OPTG300 and SHAFT200 3 shaft

n) Refer to the “Controls for Airborne Dust Mitigation procedure” OPTG316.

o) Refer to the “Creighton Mine Protocol - Dust Suppression on Kiruna Ramp”.

p) Refer to the "Head Cold and Going Underground" protocol.

q) Refer to the “Shotcreters Up Early” protocol.

r) Cage times:

<table>
<thead>
<tr>
<th></th>
<th>DAYSHIFT</th>
<th>NIGHTSHIFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning meeting 6:15am</td>
<td>DOWN</td>
<td>UP</td>
</tr>
<tr>
<td>Afternoon meeting 3:30pm</td>
<td>Line Up</td>
<td>Load Cage</td>
</tr>
<tr>
<td>Blast CLEARING</td>
<td>5:30am</td>
<td></td>
</tr>
<tr>
<td>SNO (10 hr.shift) + PMO Misc</td>
<td>5:25am</td>
<td>6:00am</td>
</tr>
<tr>
<td>Contractors (All levels)</td>
<td>6:40am</td>
<td>4:30pm</td>
</tr>
<tr>
<td>Div. 6 - beat 64 / 65 / mobile 10.5 hr (down 7000, 6800, 6600) (up 7000, 6800, 6600)</td>
<td>6:30am</td>
<td>6:55am</td>
</tr>
<tr>
<td>Div 4 / Mobile &amp; Beat 64 – 10.5 hr Shift</td>
<td>UG lineup</td>
<td>7:20am</td>
</tr>
<tr>
<td>Parts Run: Parts on Bottom Deck, Men on Top Deck</td>
<td>7:45am</td>
<td></td>
</tr>
</tbody>
</table>

DM # 678051
**s) Cage Dimensions and Capacity:**

i. Maximum dimension that will enter cage

   i. Upper deck: 57.5" w x 80" h x 12'-6" long
   
   ii. Lower deck: 57.5" w x 102" h x 12'-6" long  
   
   iii. Lower deck: 57.5" w x 120" h x 12'-6" long (with stoppers off)

ii. Maximum weight that can be put on cage:

   i. 21,000 lb. - upper deck
   
   ii. 21,000 lb. - lower deck
   
   iii. Total weight of both decks shall not exceed 24,000 lb.

iii. Maximum weight that can be slung under the cage (with zero deck load) is 27,300 lb. (from two outside points to 6600 Level.)

   i. Slinging capacity of 27,300 lb. is limited by the hoist pull rating of 110,000 lb.
   
   ii. The maximum slung load capacity to the 6800 Level is 26,060 lb.
   
   iii. The maximum slung load capacity to the 7000 Level is 24,260 lb.

iv. Maximum dimension that can be slung in the shaft is: 64" w x 156" long x 82" high. (The height dimension may be increased as width and length dimensions decrease, e.g.: a 25-ft long structural beam can be slung in the shaft.)

v. Travel along the drifts is restricted by 10’-1” w x 6’-10” h vent door openings.

*Note: please contact your Vale Representative for the work to obtain copies of the reference documents if not available via the PMO Extranet Site.*