

Inspection Number: 083261
File Number:
Permit Number:
Total Orders: 26

Report of Inspector of Mines - Mechanical

Issued pursuant to Section 15 of the Mines Act

Mine Name/Number	MYRA FALLS - HW 0800007	Visit Date	2018-04-10
Type of Mining	MU. METAL MINE UNDERGROUND	Location	
Latitude/Longitude		Northing/Easting/Zone	
Manager	Glen Smith	Permittee	Nyrstar Myra Falls Ltd.
Phone Numbers	(604) 336 8314	Address	2840 - 650 West Georgia Street Vancouver, BC V6B 4N8
Email			
Inspector	James Robinson, INSPECTOR	Accompanying Inspector	Barry Tracey, Inspector; Tryfan Jones, Inspector;
Address	PO Box 9395, STN PROV GOVT Victoria, B.C. V8W 9M9		
In Attendance	Glen Smith, Nyrstar; Kevin LeDrew, Nyrstar; Joe Armstrong, Nyrstar; Dave Williams, Nyrstar		
Copies to			

The Mine Manager is required to provide a written response within 15 days of receiving the inspection report. The Manager's response must outline the remedial steps taken by a specified date and the work still outstanding. A copy must be provided to the inspector, and in the case of health and safety matters, the occupational health and safety committee and the local union. In this document, Code means Health, Safety and Reclamation Code for Mines in British Columbia.

Preamble

Inspectors, Tryfan Jones, Barry Tracey and James Robinson conducted a mechanical focused inspection of the Myra Falls mine site on April 10 and 11th, 2018. The mill, LD shop, hoisting plant, head frame underground (21 and 25 levels) and lynx underground diamond drills were inspected .

Area Inspected 1: Process Mill, Maintenance Shops

Latitude/Longitude:

Northing/Easting/Zone:

In the Mill there was a significant amount of remedial work and ventilation additions that had recently been completed, and work was still ongoing to complete the dries, and office areas.

Inspector	Manager Initials	Report Date: 2018-04-18
James Robinson	<div style="border: 1px solid black; width: 100px; height: 20px;"></div>	

MYRA FALLS - HW 0800007

Order 1 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.7, Health, Safety and Reclamation Code for Mines in BC (MA), Welding and Burning Equipment

Observation of Contravention:

In the mill there were numerous compressed cylinders not in use that did not have there valve protection caps in place.

Remedial Action/Results To Be Obtained:

The Manager shall perform an audit of all compressed gas cylinders (surface and underground) to ensure when not in use they have a securely fastened, approved valve protection cap and be adequately secured by chains or other acceptable means to prevent it from being knocked over.

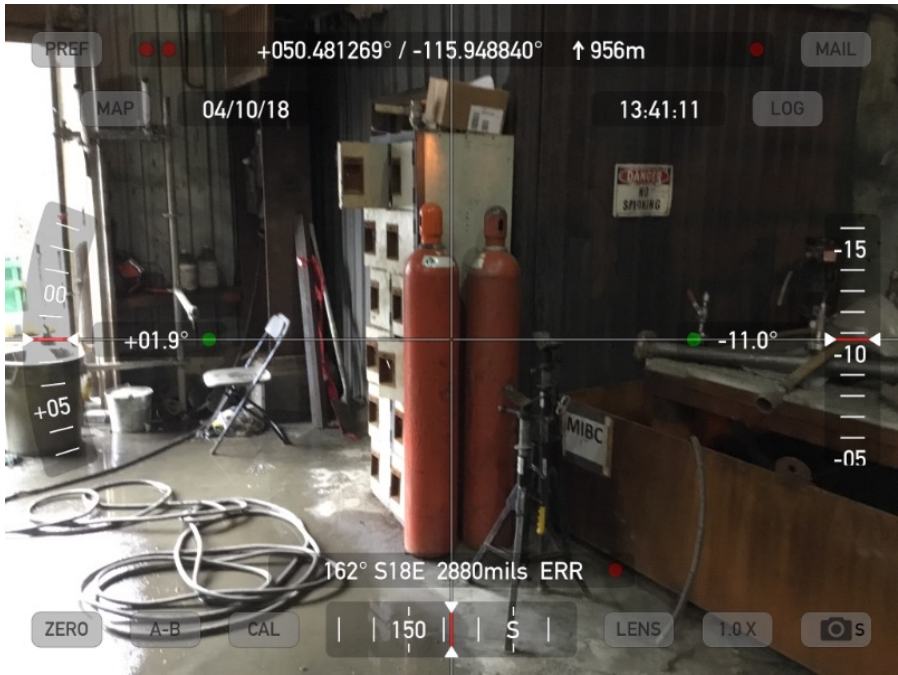
Rectify By/Completion Date: 2018-04-25

Manager Response:

Order Attachments:



No valve protection cap



Unsecured cylinders

Order 2 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.9.4, Health, Safety and Reclamation Code for Mines in BC (MA), Vehicle Requirements

Observation of Contravention:

In the mill there was a Genie lift on the bottom floor that was parked unattended and did not have the required wheel chocks in place.

Remedial Action/Results To Be Obtained:

The Manager shall ensure that all rubber tired mobile equipment over 7000kg gvw (surface and underground) has a minimum of two wheel chocks used whenever necessary.

Rectify By/Completion Date: 2018-04-25

Manager Response:

Order Attachments:

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007



No wheel chocks in place

Order 3 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 5.1.1, Health, Safety and Reclamation Code for Mines in BC (MA), Codes and Standards

Observation of Contravention:

In the mill and shop there were several electrical panels that had there access blocked due to having material stored in front of them. Also, there were several bare exposed wires from outlet holes not yet completed in the areas under construction.

Remedial Action/Results To Be Obtained:

The manager shall ensure that these areas are kept clear of storage in accordance with CSA Standard M421-00 Use of Electricity in Mines.

To be remedied immediately.

Rectify By/Completion Date: 2018-04-18

Inspector

James Robinson

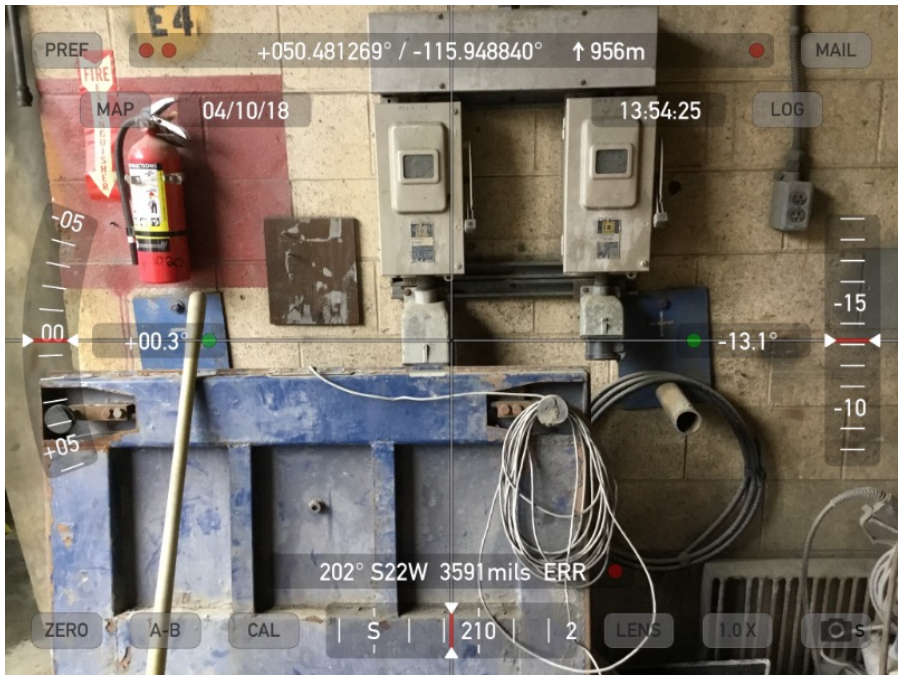
Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order Attachments:



Material stored in front of electrical panel

Order 4 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.5.7, Health, Safety and Reclamation Code for Mines in BC (MA), Logbook

Observation of Contravention:

In the mill a Genie lift aerial device was not equipped with the required logbook.

Remedial Action/Results To Be Obtained:

The Manager shall ensure a logbook be maintained for self-propelled boom-type elevating platform in which any defect, operating difficulty, inspection, test, maintenance, modification and repair work is to be recorded. All entries shall be dated and signed.

Rectify By/Completion Date: 2018-04-23

Manager Response:

Order Attachments:

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007



Logbooks missing

Order 5 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.1.5, Health, Safety and Reclamation Code for Mines in BC (MA), Equipment Entrancesways to

Observation of Contravention:

In the mill and the maintenance shops there were several overhead power operated doors that did not have the automatic sensing device along the lower edge of the door to stop movement of the door upon sensing an obstruction.

Remedial Action/Results To Be Obtained:

The manager shall perform an audit of all overhead power operated doors to ensure these safety devices along the lower edge of the doors are repaired/replaced or apply to the Chief Inspector of Mines for a variance to operate these doors with another means of entrapment protection that offers equal or greater protection.

Rectify By/Completion Date: 2018-05-04

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order Attachments:



Bump stop not working

Order 6 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.18.6, Health, Safety and Reclamation Code for Mines in BC (MA), Logbook

Observation of Contravention:

In the mill and maintenance shops there were several overhead traveling bridge cranes that were not in compliance with logbook requirements.

Remedial Action/Results To Be Obtained:

The Manager shall perform an audit of all the overhead bridge cranes (surface and underground) to ensure they are in compliance with all logbook requirements within the Code for these types of cranes.

Rectify By/Completion Date: 2018-04-25

Manager Response:

Order Attachments:

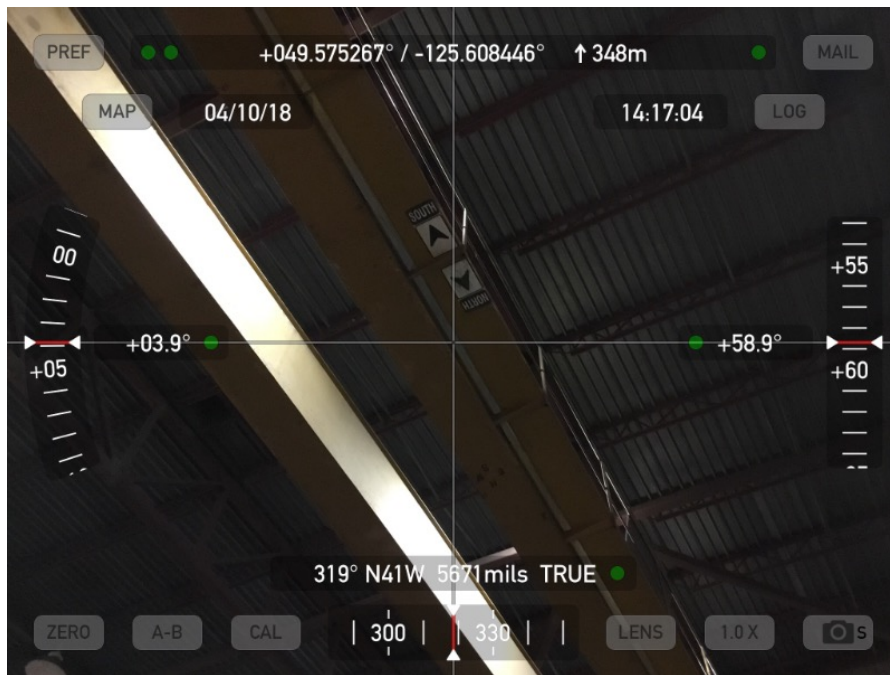
Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007



Logbook requirement for overhead cranes

Order 7 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.2, Health, Safety and Reclamation Code for Mines in BC (MA), Moving Parts of Machinery

Observation of Contravention:

In the mill the area around the ball mills requires improved guarding than what was in place at the time of inspection. The guarding in place would not prevent a person from coming into accidental contact with the mills.

Remedial Action/Results To Be Obtained:

The Manager shall ensure that any revolving part that projects unevenly from the surface shall be effectively enclosed, covered or guarded to prevent a worker from coming into accidental contact with it.

To be remedied before restarting the mill.

Rectify By/Completion Date: 2018-05-09

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order Attachments:



Chains not adequate for guarding



Guarding is weak

Order 8 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.9.3, Health, Safety and Reclamation Code for Mines in BC (MA), Fire Extinguisher

Observation of Contravention:

In the mill there was a forklift on the bottom floor that did not have the required fire extinguisher present.

Remedial Action/Results To Be Obtained:

The Manager shall ensure that every vehicle is equipped with at least one fire extinguisher of adequate size and type.

Rectify By/Completion Date: 2018-04-18

Manager Response:

Inspector

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

James Robinson

Order Attachments:



No fire extinguisher

Order 9 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.9, Health, Safety and Reclamation Code for Mines in BC (MA), Lifting Devices

Observation of Contravention:

It was observed on inspection of the light duty bay that the vehicle hoist was not displaying its annual certification sticker and it was further discussed with management if this lifting device had been NDT this year to which they were going to look into this information.

Remedial Action/Results To Be Obtained:

The Manager shall ensure that all lifting devices be examined and tested by a qualified person before initial use and thereafter at intervals not exceeding one year.

Rectify By/Completion Date: 2018-05-02

Inspector

James Robinson

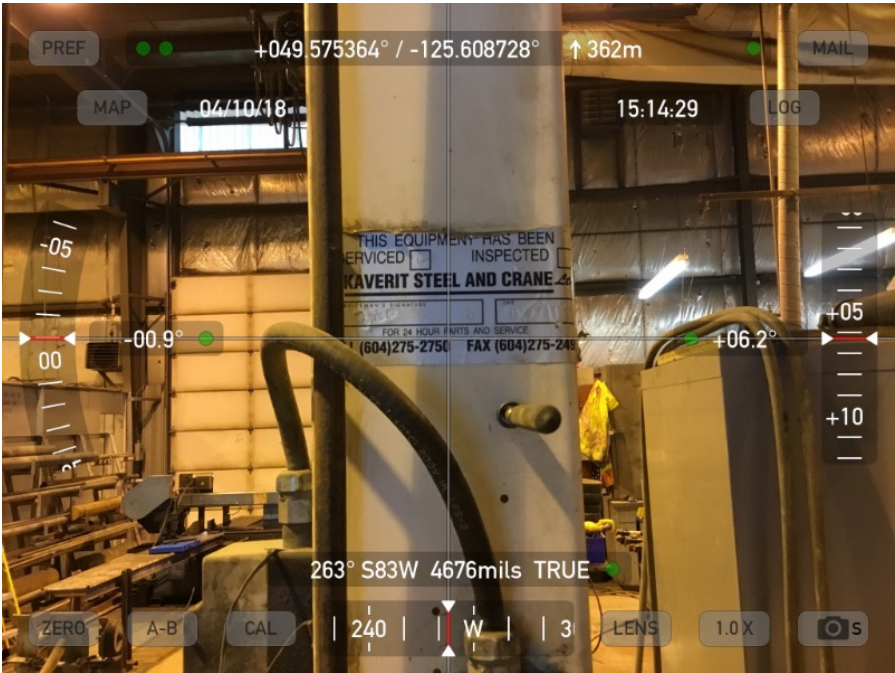
Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order Attachments:



Display out of date

Order 10 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.21.4, Health, Safety and Reclamation Code for Mines in BC (MA), Fiber Webbing Slings

Observation of Contravention:

In the welding bay of the maintenance shop there was a damaged fiber webbing sling hanging from the crane with a sheet metal clamp used for moving and lifting plate steel attached and in use.

Remedial Action/Results To Be Obtained:

The Manager shall immediately remove this sling from service and all other fiber webbing slings that are damaged.

To be remedied immediately.

Rectify By/Completion Date: 2018-04-18

Manager Response:

Order Attachments:

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007



Damaged Fibers webbing sling

Order 11 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)
Section 4.4.3, Health, Safety and Reclamation Code for Mines in BC (MA), Grinders

Observation of Contravention:

In the mill, maintenance shops and welding shops there were numerous bench grinders with their tool rests out of adjustment and exhaust systems not meeting the Code.

Remedial Action/Results To Be Obtained:

The Manager shall perform an audit of all bench grinders (surface and underground) and make sure they are meeting the provisions of the Code.

Rectify By/Completion Date: 2018-05-02

Manager Response:

Order Attachments:



Bench grinder out of compliance

Order 12 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.1.4, Health, Safety and Reclamation Code for Mines in BC (MA), Access to Work Areas

Observation of Contravention:

It was observed in the maintenance shops that there were several exit doors that did not have the required markings and signage as per the requirements of the code for exit doors.

Remedial Action/Results To Be Obtained:

The Manager shall ensure that all emergency exits are clearly marked and designed to provide quick an unimpeded exit from the building.

Rectify By/Completion Date: 2018-05-02

Manager Response:

Order Attachments:



No exit door markings

Order 13 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)
Section 4.18.10, Health, Safety and Reclamation Code for Mines in BC (MA), Controls

Observation of Contravention:

There were several overhead cranes observed that did not have, visible to the operator, signs on the crane structure, clearly indicating the direction of hook, bridge and trolley motions, compatible with the pendant.

Remedial Action/Results To Be Obtained:

The manager shall ensure all bridge, gantry and overhead cranes (surface and underground) are marked as required under 4.18.10 of the Code.

Rectify By/Completion Date: 2018-05-09

Manager Response:

Area Inspected 2: Underground - 21 level shop area and main fan, 25 level crusher. Lower levels of head frame building. Underground drilling at the Lynx mine.

Latitude/Longitude:

Northing/Easting/Zone:

There were approximately 108 workers underground (including both shifts) mostly made up of contractors completing remediation work. We were informed that everyone working underground will now be required to wear 1/2 mask respirators until such a time as the consistent quality of air can be confirmed. The fire suppression in the underground shops and service areas appeared to be completed and crews were working on completing ground control rehab and crusher rehabilitation work.

Order 1 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.9.13, Health, Safety and Reclamation Code for Mines in BC (MA), Rollover Protective Structures

Observation of Contravention:

We were unable to locate the ROPS decal on some of the underground equipment currently in use.

Remedial Action/Results To Be Obtained:

The manager shall conduct a compliance audit of all underground equipment currently in use. There were several potential non-compliances that this audit will help identify and address.

Rectify By/Completion Date: 2018-05-02

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James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order 2 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.9.6, Health, Safety and Reclamation Code for Mines in BC (MA), Fire Suppression For Underground

Observation of Contravention:

There were several pieces of underground equipment that did not appear to have compliant fire suppression systems (missing manual activation plungers on both sides) and the inspection/maintenance of these systems was not known.

Remedial Action/Results To Be Obtained:

The manager shall conduct a compliance audit of all underground equipment currently in use. There were several potential non-compliances that this audit will help identify and address.

Rectify By/Completion Date: 2018-05-02

Manager Response:

Order 3 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 1.1.2, Health, Safety and Reclamation Code for Mines in BC (MA), Absence of Code Requirements

Observation of Contravention:

Many of the pressure vessels underground on equipment (accumulators etc.) were very corroded and CRN numbers could not be located. As per the Chief Inspector Directive from April 28, 2009: all pressure vessels in use in mines in BC shall comply with the Boiler and Pressure Vessels Act and the CSA Standard B-51.

Remedial Action/Results To Be Obtained:

The manager shall conduct a compliance audit of all underground equipment currently in use. There were several potential non-compliances that this audit will help identify and address.

Rectify By/Completion Date: 2018-05-02

Manager Response:

Order 4 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 1.8.7, Health, Safety and Reclamation Code for Mines in BC (MA), Hearing Protection

Observation of Contravention:

There were several workers using jacklegs underground with only ear plugs for hearing protection.

Remedial Action/Results To Be Obtained:

The noise levels experienced by these workers is expected to be greater than 105 dBA Leq (Table 2-2 & Table 2-3 of the Code), therefore they are required to wear the appropriately rated ear plugs and ear muffs until confirmed their noise exposures allow for less protection.

Rectify By/Completion Date: 2018-04-18

Inspector

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

James Robinson

Manager Response:

Order 5 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 6.28.1, Health, Safety and Reclamation Code for Mines in BC (MA), General Standards

Observation of Contravention:

There were several ladders identified underground that were damaged and no longer safe for use.

Remedial Action/Results To Be Obtained:

The manager shall ensure all ladders onsite not fit for use and damaged in anyway are removed from service.

Rectify By/Completion Date: 2018-04-25

Manager Response:

Order 6 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.6.1, Health, Safety and Reclamation Code for Mines in BC (MA), Diesel Equipment Underground

Observation of Contravention:

It was determined while inspecting the underground operation that the workings may be under ventilated as the CANMET engine requirements are being used for minimum air quantity requirements. There were areas inspected with very little noticeable ventilation, most notably the crusher area. All diesel engines used underground in BC require CANMET engine certification (as per CSA M424.2 testing requirements) and these results can be used to determine minimum ventilating air requirements, but if using the CANMET requirements result in less than the minimum required 0.06 cubic meter per second of ventilating air for each kilowatt of power, the prescribed minimum must be used.

Remedial Action/Results To Be Obtained:

The manager shall provide the most recent version of the mines Ventilation Plan signed by a suitable Registered Professional demonstrating compliance with the air quantity and quality requirements as outlined in the Code in all areas where work is being conducted and is proposed.

Rectify By/Completion Date: 2018-04-25

Manager Response:

Order 7 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.10, Health, Safety and Reclamation Code for Mines in BC (MA), Install Fire Protection

Observation of Contravention:

There was a hydraulic/electric power unit located at the underground crusher that may have more than 10L of flammable fluid and is not currently equipped with a fire protection system.

Remedial Action/Results To Be Obtained:

If it is determined this unit (or any other fix equipment meeting this criteria underground) does have more than 10L of a flammable fluid the manager shall outfit it with fire suppression as described in subsection 4.4.10(2) of the Code.

Rectify By/Completion Date: 2018-05-09

Manager Response:

Order 8 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.9, Health, Safety and Reclamation Code for Mines in BC (MA), Lifting Devices

Observation of Contravention:

It was unclear if the anchors supporting the load of the overhead cranes and lifting devices underground have been examined and tested by a qualified person.

Remedial Action/Results To Be Obtained:

The manager shall ensure these anchors, as well as any component that may affect the safe operation of a lifting device, be examined and tested by a qualified person before initial use and at intervals not exceeding once per year.

Rectify By/Completion Date: 2018-05-02

Inspector

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

James Robinson

Manager Response:

Order 9 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 3.12.2, Health, Safety and Reclamation Code for Mines in BC (MA), Servicing Detectors

Observation of Contravention:

The gas detectors permanently located near the 21 level main fan had dirty sensor inlets. It was confirmed that they were working and transmitting readings to surface.

Remedial Action/Results To Be Obtained:

The manager shall ensure all gas detectors are maintained by a qualified person to manufactures recommendations.

Rectify By/Completion Date: 2018-05-02

Manager Response:

Order 10 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.4.2, Health, Safety and Reclamation Code for Mines in BC (MA), Moving Parts of Machinery

Observation of Contravention:

The underground diamond drill inspected did not have acceptable guarding of the drill steel.

Remedial Action/Results To Be Obtained:

The guarding around the drill steel must prevent a person from coming into accidental contact with the rotating parts.

Rectify By/Completion Date: 2018-04-18

Manager Response:

Order 11 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 4.9.6, Health, Safety and Reclamation Code for Mines in BC (MA), Fire Suppression For Underground

Observation of Contravention:

The temperature probe/sensor in the hydraulic oil of the diamond drill was set to shut the drill down at over 75 degrees Celsius. On the second diamond drill (just set up) at the upper elevation Lynx mine there was no deflector shield between the hydraulic pump and the motor.

Remedial Action/Results To Be Obtained:

The manager shall ensure all underground diamond drills are complaint with the code.

Rectify By/Completion Date: 2018-04-25

Manager Response:

Order 12 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 1.11.1, Health, Safety and Reclamation Code for Mines in BC (MA), Training

Observation of Contravention:

During the inspection of the hoist room the hoist operator explained the cage had been released but called down to the collar just to ensure it was safe to move the cage. The response was that there were "men in harms way" even though the cage was previously released to the hoist operator. The next day during the underground inspection while descending to the 25 level crusher the cage tender reached outside of the moving cage for the signal pull cord to notify the hoist operator to start decelerating assuming he had missed his mark. Upon arriving back on surface we were insured an investigation would be conducted on the incident(s).

Remedial Action/Results To Be Obtained:

The manager shall ensure that all persons in these two very critical positions are adequately trained to do their jobs and to communicate with each other in a consistent and clear manner. Please provide copies of all relevant training and orientation records for all hoist operators and cage tenders onsite. Copies of the investigation(s) shall also be forwarded upon completion to myself and the regional Health and Safety Inspectors.

Rectify By/Completion Date: 2018-05-02

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Order 13 (Inspection Mines):

Status: Open

Issued Pursuant To: Mines Act Section 15(4)

Section 7.2.4, Health, Safety and Reclamation Code for Mines in BC (MA), Commissioning Tests

Observation of Contravention:

Because the mine hoisting plant (and the associated infrastructure) is undergoing significant rehabilitation and will need to be reactivated a commissioning test to ensure compliance with the Code as outlined in 7.2.4 of the Code will be required.

Remedial Action/Results To Be Obtained:

The manager shall comply with all recertification/re-commissioning requests made so far by Senior Mechanical Inspector, Greg McLean, about what is required before the hoist and shaft can be reactivated and used for production. The hoist and shaft are still only to be used for underground maintenance and rehabilitation work as previously discussed.

There are many direct reporting requirements specific to hoists and shafts in Part 7 of the Code, including but not limited to 7.2.4, 7.4.4, 7.4.5, 7.4.8, 7.4.13, 7.5.13, 7.9.7, that should be sent to myself and the regional Health and Safety Inspectors as prescribed.

To ease the recertification/re-commissioning process a timeline is required of all assessments, professional recommendations and subsequent remedial actions that have been done on the hoisting plant, shaft, conveyance and head frame structure as a part of this overall rehabilitation process. Those repairs that are not completed but still required please list an expected completion date.

Rectify By/Completion Date: 2018-05-02

Inspector

James Robinson

Manager Initials

Report Date: 2018-04-18

MYRA FALLS - HW 0800007

Manager Response:

Received by _____ on _____
[Mine Manager Name, Title] [Date]

Signature: _____