APPENDIX D.7.6
2016 WSCC INSPECTION REPORTS
AND BAFFINLAND RESPONSES

20160129

email Bernard.Laflamme@baffinland.com

Bernard Laflamme
Chief Operating Officer
Baffinland Iron Mines Corporation
2275 Upper Middle Road East - Suite 300
Oakville ON L6H 0C3

Dear Mr. Laflamme:

Further to the **Mine Health and Safety Act article 26** attached is my 20160129 Mary River project inspection report.

As per **MHSA article**

28. please post a copy of this inspection report in a conspicuous location, and

29. advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.

32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Fred Bailey or myself. His phone number is 867 669 4430 or email fred.bailey@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o tony.noseworthy@baffinland.com

WSCC Workers' Safety & Compensation Commission | ᐃᖅᑲᓇᐃᔭᖅᑎᓄᑦ ᐊᑦᑕᓇᖅᑐᓂᒃ ᐊᒻᒪ ᓇᓪᓕᐅᒃᑯᒪᓂᒃ ᖃᐅᔨᓴᖅᑎᑦ

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit
Operator:	Baffinland Iron Mines Corp.	Lat. 71-19'N	Long. 79-24'W
Manager:	Bernard Laflamme	Inspection Date:	20160114 to 19
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3		

Fred Bailey (chief inspector of mines) and Martin van Rooy (engineer/mine inspector) conducted a general safety inspection of Baffinland's Milne Inlet site, Tote Road and Mary River site. Baffinland's response to WSCC's safe advantage program was audited.

At Milne Inlet the ore storage pad, site services shop, welding shop, Toromont's shop, Maintenance shop, site services garage, incinerator building, ERT building, sewage treatment plant, water treatment plant, Fountain tire's shop and warehouse were checked.

At Mary River the ERT building, welding shop, maintenance shop, truck wash building, Toromont shop, crushing plants C and B, Winterhaven camp, incinerator building, site services garage, warehouse, vehicle fuel station, component rebuild shop, power plant electrical switch rooms 1 and 2 and E-house #1 at camp were checked.

Robert Bateman, Keith Butt, Thane Champion, Tess Daoust, Darryl Finlay, Roland Hardy, Jerry Hodnett, Matthew Johnson, Nuyalea Kipanik, Robert Lanyon, Quency Lewis, Noel O'Brian and Dale Wales accompanied Fred Bailey and Martin van Rooy for parts of this inspection.

Noticed the flagging along some sections of the Tote road and bends is missing, making it difficult to see the road's direction and or edge in the dark.

1 Please consult with the ore haul truck drivers, to identify those sections of Tote road where additional flagging is required, to assist in travel guidance of the road.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed at Milne after the ore haul trucks have dumped their load, the truck is moved away from the dump to check for hang-ups in the trailers and to clean the door gap before closing the dump door. This action requires the operator to walk the full length of the rig in the dark exposing him/her to the mobile equipment working in the area.

2 Please establish an area complete with suitable flood lighting, away from the mobile equipment work area, where the haul trucks can stop and the operator can check for hang-ups and clean their trailers.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

MHSR sect 9.43. *Subject to section 9.44 and unless otherwise specified in these regulations, the manager shall ensure that at all working places on the surface of a mine, suitable and adequate illumination is provided that meets the standards set out in the ANSI/IES Standard RP-7-1979, American National Standard Practice for Industrial Lighting.*

Noticed there are no lights at the ore haul truck-parking area at Milne Inlet requiring the operators to walk to/from their equipment and around their equipment in the dark for their pre-operating inspection.

3 Please install suitable floodlights in the Milne Inlet ore haul truck's parking area so the operators can see and be seen.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

MHSR sect 9.43. *Subject to section 9.44 and unless otherwise specified in these regulations, the manager shall ensure that at all working places on the surface of a mine, suitable and adequate illumination is provided that meets the standards set out in the ANSI/IES Standard RP-7-1979, American National Standard Practice for Industrial Lighting.*

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed Baffinland's procedure requires radio contact with the loader operator when entering his/her area. However, the loader's number is not clearly visible in the dark and therefore this is a problem when trying to contact an individual loader operator when more than one loader is working in the same area.

4 Please ensure a loader's identification is clearly visible during the day and nighttime operation.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed some supervisors are not ensuring that previously reported safety hazards, are not occurring in their work site i.e.
Milne Inlet:
a) site services shop - i) ready access to three fire extinguishers blocked by material stored in front of them, ii) truck HTP 012 battery box removed and the exposed battery terminals were not covered, iii) an electric cable hanging from cable tray in roof and its end not capped and tagged to advise where the other end is located, iv) welding cables lying indiscriminately across the floor without protection,
b) maintenance shop – puddle on floor because the sump is over flowing,
c) site service garage - the high-pressure Hotsy hose and wand is lying unprotected in trailer.
Mary River
a) incinerator building – puddle on floor because the sump is over flowing
b) warehouse – batteries stored without an insulating cover on their posts
c) component rebuild shop – i) oxygen and acetylene cylinders stored together and not separated by 60 feet, ii) oxygen and acetylene cylinders not properly secured to prevent their falling over, iii) two come-a-longs with no safety latches in their hooks. iv) grinding disc lying flat on a horizontal surface

5 Please ensure all supervisors at least once each shift check for safety hazards in their area of responsibility.

MHSR sect 5.07. *Every shift boss or supervisor shall, within his or her area of responsibility and authority,*

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

(a) carry out the duties set out in the Act and these regulations;
(b) give precedence to the health and safety of persons in his or her charge over any other duties and at the end of his or her shift, communicate with the next shift boss or supervisor all necessary information relating to health and safety concerns;
(c) ensure that all persons in his or her charge are adequately trained and given clear instructions regarding the work they are to perform;
(d) ensure compliance with the relevant provisions of the Act and these regulations;
(e) be knowledgeable about essential safeguards against hazards and about safe working procedures at the worksites for which he or she is responsible so that he or she can routinely assess the safety of the environment and operations affecting persons in those worksites;
(f) by thorough supervision, protect the health and safety of all persons in the area for which he or she is responsible;
(g) make himself or herself familiar with all parts of the area for which he or she is responsible including those parts where persons do not normally work and with safe escape routes, refuge stations and other mustering points;
(h) ensure that there is sufficient safety equipment of appropriate standards for the work being performed;
(i) expeditiously investigate and address health and safety matters drawn to his or her attention;
(j) record before the end of every shift in a log-book kept for that purpose, all matters affecting health and safety, making special notes of any unusual or hazardous conditions or deficiencies found during the shift and of any remedial actions taken; and
(k) read and countersign all reports of the previous shift and discuss any health and safety matters of concern and any unusual or hazardous conditions or deficiencies with persons under his or her control before deploying them to their worksites.

Noticed a grizzly-bar grate frame was being fabricated in the Milne Inlet site services shop. A service truck's crane was hooked to the frame and it appeared it was intended to use this crane to place the frame on a grizzly feeder hopper parked next to the crane in the shop. A number of deficiencies were noted, such as the cranes outrigger were not extended, the crane's horizontal boom reach and load capacity was approaching its limit, the frame's lifting lugs were welded perpendicular to its pulling force of the slings and a near horizontal sling angle is used to lift the frame. The supervisor was advised to review the lifting arrangement and not to install the frame with the service truck crane until it was

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

determined that the weight of the frame and its size could safely be installed onto the hopper with the service truck crane.

6 Please ensure no person performs any rigging or operates any hoisting or pulling equipment unless qualified and authorized.

MHSR sect 10.128.(3) *In addition to the requirements of sections 10.13 to 10.15, an operator of a crane, shovel, dragline, boom truck or similar type of equipment that uses a rope or cable to raise, lower or swing a load or materials during its work cycle shall be qualified in accordance with a program acceptable to the chief inspector.*

MHSR sect 10.13. *No person shall operate or service any equipment or system unless he or she has received the minimum training required for that particular equipment or system pursuant to the training program established by the manager under section 6.03 and is authorized to operate or service the equipment or system by his or her supervisor.*

Noticed in Milne Inlet's site services shop, a hot work permit issued for an area used for welding. The Baffinland hot work permit states a fire watch is required for three hours after the hot work is completed. The welder advised they do not stop the hot work three hours before the end of shift as they perform a hot change i.e. the welder works overtime until the next shift takes over. However if a person works overtime in addition to their twelve hour shift, they cannot have twelve hours rest between shifts.

7 Please ensure no person is scheduled to exceeds their twelve hour shift and ensure each person on site has a minimum of twelve hours rest between shifts.

MHSR sect 2.01.(1) *The manager shall not permit the employment of a person on surface of a mine for a period longer than 12 hours in a day and there shall be a minimum of 12 hours of rest between shifts.*

Noticed an oxygen/acetylene welding cart in Milne Inlet site service shop and at Mary River crusher plant `C` without a fire extinguisher, attached to the cart.

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

8 Please check all oxygen/acetylene welding carts and ensure each is equipped with a suitable fire extinguisher

MHSR sect 10.135.(9) *The manager shall ensure that each welding machine and each set of oxygen and flammable gas cylinders in use is equipped with a fire extinguisher that*
(a) has a capacity for extinguishing a fire that is equal to or greater than a minimum Underwriters' Laboratories of Canada classification of 1A, 10B; and
(b) is suitable for class A and B fires.

Noticed a truck air receiver, in the Milne Inlet welding shop, was hooked-up to a 125-psi 60 cfm stationary air compressor. The welder advised they had installed the truck air receiver for added surge capacity from the compressor. He advised there was no engineering design performed for this installation. He was advised to remove the truck air receiver from stationary compressor discharge line, as the air receiver is not CSA approved system only SAE approved and therefore it may not be safe in this application. He complied, and disconnected the truck air receiver.

9 Please ensure no person modifies a high-pressure fluid system unless the modification has been designed or reviewed by an engineer.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

MHSR sect 10.97.(1) *Boilers, compressors and pressure vessels and associated piping and fittings shall be installed and maintained in accordance with CSA Standard B51-95, Boiler, Pressure Vessel and Pressure Piping Code, and the heated or refrigerated fluid plant shall comply with the requirements of the Boiler and Pressure Vessels Act and the regulations under that Act.*

Date of Report 2016 01 29 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed in the Milne Inlet welding shop, a blowgun is used for compressed air cleaning. There is no sign at the blowgun, for restricting its use and or warning of the hazard of using compressed air for cleaning.

10 Please review the practice of using compressed air for cleaning and where this procedure is required, ensure-

a) a safe work procedure is developed that addresses without limiting, personal protective equipment, hearing protection, maximum air pressure to the blowgun, barricades around the work area...
b) people, authorized to use compressed air for cleaning, are trained in this safe work procedure, and
c) submit a copy of the safe work procedure for using compressed air for cleaning.

MHSR sect 10.121.(1) *The manager shall identify and supply all suitable personal protective equipment to be worn by the operator for the safe operation of all miscellaneous tools including grinders, chain saws, pneumatic tools and all power activated tools.*

(2) *No person shall use any miscellaneous tool unless*
(a) the person is trained and authorized to use the tool;
(b) the person is wearing, and has received training on, the proper personal protective equipment required for the safe operation of the equipment; and
(c) the personal protective equipment is in good condition.

Noticed the pedestal grinder in Toromont shop at Milne Inlet is not equipped with a vacuum exhaust system, to extract the grinding dust, while grinding.

11 As noted in 12 October 2015 inspection report, please ensure a grinder is equipped with a suitable vacuum system to capture and remove the dust generated by the grinding process.

MHSR sect 10.122.(7) *Powered grinding wheels, other than portable hand held machines, shall be equipped with an exhaust system or other means for removing dust produced during the grinding operation.*

Date of Report 2016 01 29 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the Milne Inlet temporary warehouse building has now become the permanent warehouse building.

12 Please conduct an engineering assessment of this warehouse and submit the certified engineered drawings of this structure certifying it complies with national building code, national fire code and national electrical code.

MHSA art 2.(1) *The owner of a mine shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at the mine.*

(2) *The owner of a mine shall*
(a) implement and maintain work practices that are safe and that do not present undue risk to health; and
(b) provide and maintain healthy and safe worksites.

Noticed the red line field revisions drawn on the electrical schematics posted on the wall of the Milne Inlet E-house #1 and there were no electrical schematic posted on the wall of E-house #2.These as-built electrical revisions need to be up-dated on the original drawings and certified.

13 As previously noted in the 20 December 2014 inspection report, please ensure
a) the single line electrical schematics are revised at suitable intervals not exceeding 3 months, and
b) a clear legible copy of the most recent up-to-date single line schematic is posted on the wall in each electrical switch room and distribution room.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the soot on the faces of the welders working in the Mary River welding shop and soot is accumulating on the surfaces inside the building. The welders confirmed that soot comes out of their nose, when they blow it into a clean tissue. The welders advised they have ~~a full-face~~ mask pressurized

Date of Report 20160129 **Inspector** [signature]

respirator however, they only wear it for certain work but not all the time, while in the welding shop.

14 Please ensure people working in the welding shop at Milne Inlet and Mary River, wear their full-face mask pressurized respirator at all times while working in the welding shop, to avoid breathing in the contaminated shop air.

MHSR sect 10.135.(10) *The manager shall ensure that persons are protected from fumes, gases, dust, vapours and noise produced during a welding, cutting, brazing or heating operation and that*
(a) where general ventilation at the work is not sufficient a local exhaust system is used to minimize the exposure by persons to airborne contaminants produced by the operation; and
(b) procedures are established to reduce noise levels for persons using welding, burning, cutting, brazing or heating equipment and for persons working in the vicinity.

Noticed the landing at the south end of the mobile maintenance shop in Mary River, is about 12 inches above the shop floor and it is a potential trip hazard.

15 Please install a wide step for access to/from the shop floor to the landing

MHSR sect 1.89. *The manager shall provide a safe means of access to a work site*

Noticed further to the 12 October 2015 inspection report, the lid on the Milne Inlet 40-gallon solvent cleaning tank, was repaired however, the Mary River 40-gallon solvent cleaning tank lid is not repaired.

16 Please install the solvent tank lid's restraining device as per the manufacturer's instructions, to ensure the lid will automatically fall closed, in case of a fire in the solvent tank.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Date of Report 2016 01 29 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the truck wash shop, to wash the ore haul trucks and other mobile equipment, is under construction.

17 Please submit the certified electrical schematics for this shop and confirm the electrical equipment is compliant with CSA M421 Use of Electricity in Mines.

MHSR sect 13.01.(1) *The electrical system and electrical equipment at a mine shall be*
(a) designed in accordance with good engineering practice; and
(b) constructed in accordance with a design and plans that have been certified by a professional engineer.

(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed there were two men working from a Genie manlift and another two men working from a Skyjack scissor lift, inside Toromont's shop. The men on the Genie lift had recorded on their pre-operation sheet, their weight and the weight of tools and material loaded in the basket. However, the men using the Skyjack platform had not recorded their weights on the platform. The work was stopped, as these four men had not been checked-out by Baffinland's training department, for this equipment.

18 Please ensure no person operates any manlift device unless signed-off on Baffinland`s operating procedures, for these devices

MHSR sect 10.133.(1) *The manager shall ensure that a procedure is established for the safe operation, maintenance, inspection and testing of all portable or mobile platforms, scaffolding, bosun's chairs and other types of temporary work or access platforms.*

Noticed there are a number of accessible sections of conveyors in crushing plant 'A', 'B' and 'C' that do

Date of Report 2016 01 29 **Inspector** [signature]

not have nip point guards at their head, tail and tension pulleys.

19 Please install barricades at the crushing and screening plant equipment to prevent access to the moving parts while the equipment is running, or install nip point guards at the head, tail and tension pulleys.

MHSR sect 10.118.(3) *All accessible head, tail, drive and tension pulleys of a conveyor shall be effectively guarded at their nip points and the guards shall extend for a distance of at least 1 m from the nip point.*

Noticed the electrical panel #1 in the Winterhaven camp corridor, has open slots allowing access to the bus duct.

20 Please cover the open slots.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines*

Noticed the broken panic bar on the welding shop exit door and that some of the exit doors, in the Winterhaven camp, could not be opened because of ice build-up.

21 Please check and ensure all exit doors are maintained operational for use in case of an emergency.

MHSR sect 1.159.(1) *The manager shall prepare a procedure for the examination of worksites that provides for examination*
(i) of the emergency arrangements including safe means of egress;

Noticed the steps, to Mary River's incinerator service platform, are damaged.

Date of Report 20160129 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

22 Please repair the damaged steps

MHSR sect 1.89. *The manager shall provide a safe means of access to a work site*

Noticed the electrical panel, in the center of Mary River's site service building north wall, has no steps for ease of access.

23 Please provide a convenient access to the electrical panel.

MHSR sect 1.89. *The manager shall provide a safe means of access to a work site*

Noticed an 18,000 lt jet fuel tanker is parked with some other mobile equipment in Mary River's site service building.

24 Please review the procedure that must be followed for parking this fuel tanker inside this building and determine if the fire detection and protection is adequate when it is parked in this building.

MHSR sect 12.01.(1) *The manager shall ensure that a fire risk assessment is carried out not later than March 31 in each calendar year for all parts of the mine, both underground and surface, and the assessment shall*

(a) identify the potential for a fire or explosion by examining

(i) ignition sources, such as internal combustion engines, malfunctioning equipment, welding and burning and electrical equipment,

(ii) fuel sources such as combustible materials including class A ordinary combustibles and class B flammable and combustible liquids, and

(iii) the proximity of ignition sources to fuel sources, damaged equipment and accumulations of combustible materials;

(b) determine if persons may be exposed to the effect of fire;

(c) identify the need for fire protection and the type of fire protection that should be provided; and

(d) set out measures to be taken to reduce the hazard from fire, including

(i) equipment design,

Date of Report 2016 01 29 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

(ii) adequate maintenance of equipment,
(iii) proper training,
(iv) evacuation procedures,
(v) use of detection and early fire warning devices,
(vi) type of fire suppression equipment, and
(vii) means of egress from a worksite.

(2) *The manager shall ensure that*
(a) a complete audit is made of the fire risk assessment at least annually by a qualified person; and
(b) the results of the fire risk assessment are entered in the log-book kept for that purpose and are made available to an inspector and to the Committee.

MHSR sect 12.11. *The manager shall ensure that suitable warning signs identify all fire hazard areas, including*
(a) fuel storage areas;
(b) explosives storage areas;
(c) timber storage areas; and
(d) fuelling areas.

Noticed the long extension cords used for power to the toilets and frost fighters installed in Mary River's warehouse building.

25 Please install an electrical outlet at the equipment, plug the equipment directly into the outlet and remove the extension cord.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the METSO HP epoxy backing material drums stored in the component rebuild shop however, the MSDS sheet for this product was not found in the MSDS book.

Date of Report 2016 01 29 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

26 Please ensure the latest version of this products MSDS sheet is available and that the people using this material have read and comply with its safety requirements.

MHSR sect 5.07. *Every shift boss or supervisor shall, within his or her area of responsibility and authority,*
(c) ensure that all persons in his or her charge are adequately trained and given clear instructions regarding the work they are to perform;

As a follow-up on the 28 May 2014 inspection report, the ore haul truck drivers were consulted for the areas along the Tote road where they do not have direct radio communication with the medic. They advised there are still problems at about the 30 and 60 km area of the Tote road.

27 Please consult with the ore haul truck drivers to determine where along the Tote road they are unable to make direct radio contact with the medic and ensure these blind spots are corrected.

MHSR sect 8.44. *There shall be an effective means of communication between the person in charge of the first aid facility and all worksites to be served.*

Noticed a number of changes have occurred in Baffinland's organization

28 Please submit an up-to-date copy of Baffinland's organization chart

MHSR sect 5.05.(1) *The manager shall prepare an organizational chart showing the job titles for the positions within the organization and the reporting relationships between the positions.*

(2) *The manager shall ensure that the areas of responsibility and authority are not so extensive as to prevent a shift boss or supervisor from diligently carrying out his or her duties concerning health and safety.*

Date of Report 2016/01/29 **Inspector** [signature]

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February 9, 2016

Mr. Martin Van Rooy
Mines Inspector
Worker's Compensation Commission
PO Box 669
Iqaluit, Nunavut
X0A 0H0

Dear Martin,

Please find below, the Baffinland response to the site inspection dated January 29, 2016.

1. Noticed the flagging along some sections of the Tote road and bends is missing, making it difficult to see the road's direction and or edge in the dark.

Please consult with the ore haul truck drivers, to identify those sections of Tote road where additional flagging is required, to assist in travel guidance of the road.

RESPONSE: *Completed April 8, 2016.*

2. Noticed at Milne after the ore haul trucks have dumped their load, the truck is moved away from the dump to check for hang-ups in the trailers and to clean the door gap before closing the dump door. This action requires the operator to walk the full length of the rig in the dark exposing him/her to the mobile equipment working in the area.

Please establish an area complete with suitable flood lighting, away from the mobile equipment work area, where the haul trucks can stop and the operator can check for hang-ups and clean their trailers.

Response: *Developed layout for the truck cleaning and positioned light plants accordingly. See photos below.*




3. Noticed there are no lights at the ore haul truck-parking area at Milne Inlet requiring the operators to walk to/from their equipment and around their equipment in the dark for their pre-operating inspection.

Please install suitable floodlights in the Milne Inlet ore haul truck's parking area so the operators can see and be seen.

Response: *Lighting at the laydown area for OHT parking:*

4. Noticed Baffinland's procedure requires radio contact with the loader operator when entering his/her area. However, the loader's number is not clearly visible in the dark and therefore this is a problem when trying to contact an individual loader operator when more than one loader is working in the same area.

Please ensure a loader's identification is clearly visible during the day and nighttime operation.

Response: *Determine and procure sample identification system. Install approved identification system. Target date to complete: May 31, 2016.*

5. Noticed some supervisors are not ensuring that previously reported safety hazards, are not occurring in their work site i.e.

Milne Inlet:

a) site services shop - i) ready access to three fire extinguishers blocked by material stored in front of them, ii) truck HTP 012 battery box removed and the exposed battery terminals were not covered, iii) an electric cable hanging from cable tray in roof and its end not capped and tagged to advise where the other end is located, iv) welding cables lying indiscriminately across the floor without protection,
b) maintenance shop – puddle on floor because the sump is over flowing,
c) site service garage - the high-pressure Hotsy hose and wand is lying unprotected in trailer.

Mary River:

a) incinerator building – puddle on floor because the sump is over flowing
b) warehouse – batteries stored without an insulating cover on their posts
c) component rebuild shop – i) oxygen and acetylene cylinders stored together and not separated by 60 feet, ii) oxygen and acetylene cylinders not properly secured to prevent their falling over, iii) two come-a-longs with no safety latches in their hooks. iv) grinding disc lying flat on a horizontal surface

Please ensure all supervisors at least once each shift check for safety hazards in their area of responsibility.

RESPONSE:

Milne Inlet:

5. a) Complete - Sent notice to supervisors of FPM to confirm (and demonstrate) that the immediate hazards listed by the Mines Inspector are addressed. Also sent instruction to all supervisors that upon issuing a daily report (as is often the case) that the expectations henceforth will be to include a section on safety observations of the day, corrective actions taken and etc. This will produce a record capable of demonstrating compliance to the Mines Inspector's report.

5. b) To be pumped regularly – Ongoing. Also, requested warehouse to stock sump pumps.

5. c) Complete February 08, 2016

Mary River:

5. a) To be pumped regularly – Ongoing.

5. b) Complete - The batteries have been covered. (Photo below). Please see attached memo regarding this matter.

5. c) Complete - Grinding disk, come-alongs without hook latch. Both taken out of service and disposed of. Bottles have been taken back to warehouse for proper storage and secured.

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6. Noticed a grizzly-bar grate frame was being fabricated in the Milne Inlet site services shop. A service truck's crane was hooked to the frame and it appeared it was intended to use this crane to place the frame on a grizzly feeder hopper parked next to the crane in the shop. A number of deficiencies were noted, such as the cranes outrigger were not extended, the crane's horizontal boom reach and load capacity was approaching its limit, the frame's lifting lugs were welded perpendicular to its pulling force of the slings and a near horizontal sling angle is used to lift the frame. The supervisor was advised to review the lifting arrangement and not to install the frame with the service truck crane until it was determined that the weight of the frame and its size could safely be installed onto the hopper with the service truck crane.

Please ensure no person performs any rigging or operates any hoisting or pulling equipment unless qualified and authorized.

Response: *Members of FPM have been trained. This will be ongoing training for those who require it.*

---

7. Noticed in Milne Inlet's site services shop, a hot work permit issued for an area used for welding. The Baffinland hot work permit states a fire watch is required for three hours after the hot work is completed. The welder advised they do not stop the hot work three hours before the end of shift as they perform a hot change i.e. the welder works overtime until the next shift takes over. However if a person works overtime in addition to their twelve hour shift, they cannot have twelve hours rest between shifts.

Please ensure no person is scheduled to exceeds their twelve hour shift and ensure each person on site has a minimum of twelve hours rest between shifts.

Response: We have instructed our supervisors, superintendents and managers not to schedule overtime such that our staff don't have to work past the allowable 12 hours in any given day. If this cannot be achieved, we will ask for a variance for this.

---

8. Noticed an oxygen/acetylene welding cart in Milne Inlet site service shop and at Mary River crusher plant `C` without a fire extinguisher, attached to the cart.

Please check all oxygen/acetylene welding carts and ensure each is equipped with a suitable fire extinguisher

Response:
Completion Date: February 8, 2016.

9. Noticed a truck air receiver, in the Milne Inlet welding shop, was hooked-up to a 125-psi 60 cfm stationary air compressor. The welder advised they had installed the truck air receiver for added surge capacity from the compressor. He advised there was no engineering design performed for this installation. He was advised to remove the truck air receiver from stationary compressor discharge line, as the air receiver is not CSA approved system only SAE approved and therefore it may not be safe in this application. He complied, and disconnected the truck air receiver.

Please ensure no person modifies a high-pressure fluid system unless the modification has been designed or reviewed by an engineer.

Response: *Complete - The modification has been removed. Receiver was disconnected at the Milne welding shop.*

---

10. Noticed in the Milne Inlet welding shop, a blowgun is used for compressed air cleaning. There is no sign at the blowgun, for restricting its use and or warning of the hazard of using compressed air for cleaning.

Please review the practice of using compressed air for cleaning and where this procedure is required, ensure-

a) a safe work procedure is developed that addresses without limiting, personal protective equipment, hearing protection, maximum air pressure to the blowgun, barricades around the work area...

b) people, authorized to use compressed air for cleaning, are trained in this safe work procedure, and

c) submit a copy of the safe work procedure for using compressed air for cleaning.

Response: *Manager to prepare an SOP on cleaning with compressed air units. Target Completion Date: May 31, 2016. The blowgun has been taken out of service until SOP is developed.*

---

11. Noticed the pedestal grinder in Toromont shop at Milne Inlet is not equipped with a vacuum exhaust system, to extract the grinding dust, while grinding.

As noted in 12 October 2015 inspection report, please ensure a grinder is equipped with a suitable vacuum system to capture and remove the dust generated by the grinding process.

Response: Pedestal Grinder has been shut down and removed from use*. Completion Date: February 07, 2016.*

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12. Noticed the Milne Inlet temporary warehouse building has now become the permanent warehouse building.

Please conduct an engineering assessment of this warehouse and submit the certified engineered drawings of this structure certifying it complies with national building code, national fire code and national electrical code.

Response: *The warehouse at the Port Site will have a engineer assessment for the above items. Completion date: June 30 2016*

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13. Noticed the red line field revisions drawn on the electrical schematics posted on the wall of the Milne Inlet E-house #1 and there were no electrical schematic posted on the wall of E-house #2.These as-built electrical revisions need to be up-dated on the original drawings and certified.

As previously noted in the 20 December 2014 inspection report, please ensure

a) the single line electrical schematics are revised at suitable intervals not exceeding 3 months, and

b) a clear legible copy of the most recent up-to-date single line schematic is posted on the wall in each electrical switch room and distribution room.

Response: ***New drawings have been created and are under review. They will be posted after review is completed and appropriate corrections made. Drawing mounting boards are to be ordered. Expected completion May 31, 2016***

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14. Noticed the soot on the faces of the welders working in the Mary River welding shop and soot is accumulating on the surfaces inside the building. The welders confirmed that soot comes out of their nose, when they blow it into a clean tissue. The welders advised they have a full-face mask pressurized respirator however, they only wear it for certain work but not all the time, while in the welding shop.

Please ensure people working in the welding shop at Milne Inlet and Mary River, wear their full-face mask pressurized respirator at all times while working in the welding shop, to avoid breathing in the contaminated shop air.

Response: *Welding helmets are on order at the Port site and are available at the Mine Site. Welders have been instructed to use them. Welding helmets scheduled to arrive at Port Site for May 10, 2016.*

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15. Noticed the landing at the south end of the mobile maintenance shop in Mary River, is about 12 inches above the shop floor and it is a potential trip hazard.

Please install a wide step for access to/from the shop floor to the landing

Response: *Completed: February 8, 2016*

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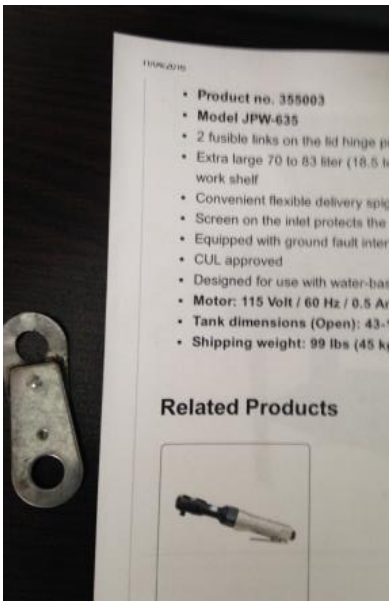
16. Noticed further to the 12 October 2015 inspection report, the lid on the Milne Inlet 40-gallon solvent cleaning tank, was repaired however, the Mary River 40-gallon solvent cleaning tank lid is not repaired.

Please install the solvent tank lid's restraining device as per the manufacturer's instructions, to ensure the lid will automatically fall closed, in case of a fire in the solvent tank.

Response: *Latch Installed on April 11, 2016*



17. Noticed the truck wash shop, to wash the ore haul trucks and other mobile equipment, is under construction.

Please submit the certified electrical schematics for this shop and confirm the electrical equipment is compliant with CSA M421 Use of Electricity in Mines.

Response: *Completed on February 18, 2016: See file entitled "Item 17 Verification". These files have already been sent*

H349001-4750-70-082-0003-001.pdf
H349000-4523-70-095-0001.pdf
H349000-4523-70-090-0001.pdf
E349000-PM114-70-090-0002.pdf
E349000-PM114-70-090-0001.pdf
E349000-PM114-50-042-0003.pdf
PH CONTROLLER ATM.PDF
HYDROSITE ATM.PDF
HYDROKLEEN ATM.PDF
HYDROBLASTER ATM.PDF
H349001-4750-70-082-0003-002.pdf

18. Noticed there were two men working from a Genie man lift and another two men working from a Skyjack scissor lift, inside Toromont's shop. The men on the Genie lift had recorded on their pre-operation sheet, their weight and the weight of tools and material loaded in the basket. However, the men using the Skyjack platform had not recorded their weights on the platform. The work was stopped, as these four men had not been checked-out by Baffinland's training department, for this equipment.

Please ensure no person operates any man lift device unless signed-off on Baffinland`s

operating procedures, for these devices

Response: *Will ensure sign off to BIM procedures before equipment is released to contractors.*

---

19. Noticed there are a number of accessible sections of conveyors in crushing plant 'A', 'B' and 'C' that do not have nip point guards at their head, tail and tension pulleys.

Please install barricades at the crushing and screening plant equipment to prevent access to the moving parts while the equipment is running, or install nip point guards at the head, tail and tension pulleys.

Response: Photo below of barrier with warning.

---

20. Noticed the electrical panel #1 in the Winterhaven camp corridor, has open slots allowing access to the bus duct.

Please cover the open slots.

Response: *Blanks are installed. Completion April 08, 2016*

21. Noticed the broken panic bar on the welding shop exit door and that some of the exit doors, in the Winterhaven camp, could not be opened because of ice build-up.

Please check and ensure all exit doors are maintained operational for use in case of an emergency.

Response: *Emergency exit doors have been repaired.*

South End of Arctic Corridor (MSWH)

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22. Noticed the steps, to Mary River's incinerator service platform, are damaged.

Please repair the damaged steps

Response: *The platform has been repaired.*

Stairs repaired at the Incinerator Building (Mine Site)

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23. Noticed the electrical panel, in the center of Mary River's site service building north wall, has no steps for ease of access.

Please provide a convenient access to the electrical panel.

Response: *Completed Date: April 12, 2016.*

24. Noticed an 18,000 lt jet fuel tanker is parked with some other mobile equipment in Mary River's site service building.

Please review the procedure that must be followed for parking this fuel tanker inside this building and determine if the fire detection and protection is adequate when it is parked in this building.

Response: *Hot work activities will not be permitted in that building. Signage will be posted. Target Completion Date: March 1, 2016. Completed February 13 2016*

25. Noticed the long extension cords used for power to the toilets and frost fighters installed in Mary River's warehouse building.

Please install an electrical outlet at the equipment, plug the equipment directly into the outlet and remove the extension cord.

Response: *COMPLETED on February 18, 2016*

---

26. Noticed the METSO HP epoxy backing material drums stored in the component rebuild shop however, the MSDS sheet for this product was not found in the MSDS book.

Please ensure the latest version of this products MSDS sheet is available and that the people using this material have read and comply with its safety requirements.

Response: *The MSDS has been made available in the building.*

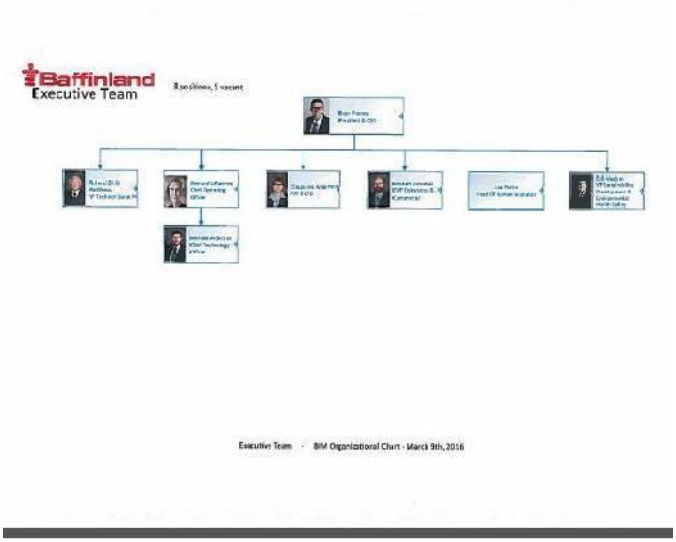
27. As a follow-up on the 28 May 2014 inspection report, the ore haul truck drivers were consulted for the areas along the Tote road where they do not have direct radio communication with the medic. They advised there are still problems at about the 30 and 60 km area of the Tote road.

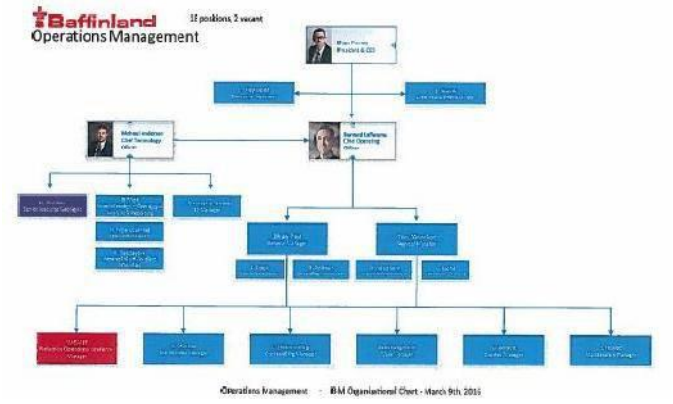
Please consult with the ore haul truck drivers to determine where along the Tote road they are unable to make direct radio contact with the medic and ensure these blind spots are corrected.

Response: *Install and program repeater. Target Completion Date: April 30, 2016*

28. Noticed a number of changes have occurred in Baffinland's organization

Please submit an up-to-date copy of Baffinland's organization chart





Response: *Org chart sent March 15, 2016*

Should you have any questions regarding this submission please contact Bernard Laflamme by phone at 647.253.0596 ext. 6091 or email at bernard.laflamme@baffinland.com .

Best Regards,

Bikash Paul
General Manager-Operations

cc. Bernard Laflamme
Erik Madsen
Tony Woodfine
Stephane Houde / Sandeep Kumar / Scot Klingmann / Lyle Hemmerling / Anant Minhas
Tony Noseworthy / Hal Finley
Fred Bailey - WSCC

20160519

email Bernard.Laflamme@baffinland.com

Bernard Laflamme
Chief Operating Officer
Baffinland Iron Mines Corporation
2275 Upper Middle Road East - Suite 300
Oakville ON L6H 0C3

Dear Mr. Laflamme:

Further to the **Mine Health and Safety Act article 26** attached is my 20160519 Mary River project inspection report.

As per **MHSA article**

28. Please post a copy of this inspection report in a conspicuous location, and

29. Advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.

32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Fred Bailey or myself. His phone number is 867 669 4430 or email fred.bailey@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o tony.noseworthy@baffinland.com

WSCC Workers' Safety & Compensation Commission | ᐃᖅᑲᓇᐃᔭᖅᑎᓄᑦ ᐊᑦᑕᓇᖅᑐᓂᒃ ᐊᒻᒪ ᓇᓪᓕᐅᒃᑯᒪᓂᒃ ᖃᐅᔨᓴᖅᑏᑦ

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit		
Operator:	Baffinland Iron Mines Corp.	Lat.	71-19'N	Long.	79-24'W
Manager:	Bernard Laflamme	Inspection Date:	20160504 to 10		
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3				

Martin van Rooy (engineer/mine inspector) conducted a general safety inspection of Baffinland's Milne Inlet and Mary River sites. He also performed a Safe Advantage audit of QIL and followed-up on two complaints received from site regarding ore haul truck brakes, wheels falling off the trailers, working of overtime and rest the period, after arrival on site on fly days.

At Milne Inlet:- the ore storage pad, site services shop, welding shop, Toromont's shop, Maintenance shop, site services garage, incinerator building, water treatment plant, Fountain tire's shop, Milne camp kitchen, Winterhaven camp kitchen, powerhouse and warehouse were checked.

At Mary River:- the ERT building, welding shop, maintenance shop, truck wash building, Toromont shop, crushing plants A, B and C, Winterhaven camp kitchen, E-House 7 and 9, incinerator building, site services garage, warehouse, component rebuild shop, water treatment plant, power plant electrical switch rooms 1 and 2, Mary River camp kitchen, laundry facilities and assay laboratory were checked.

Robert Bateman, Steve Campbell, Mark Ebenal, Darryl Finlay, Jerry Hodnett, Matthew Johnson, Brian Larson, Josh Manning, James McMath, Kenneth Mullen, Shawn Pattimore, Christopher Teske and Andrew Thornton, accompanied Martin van Rooy for parts of this inspection.

Noticed a person walking around the perimeter on top of the coarse product pile at Milne Inlet, he was surveying the pile.

1 Please consult with Baffinland's geotechnical consultant to ensure the pile is stable and will not slough or settle when ore is added or removed from the pile; trapping a person accessing the pile or walking on it.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the*

Date of Report 20160519 **Inspector** [signature]

health and safety of employees and other persons at a mine.

MHSR sect 8.20. *Before a person is allowed to work close to or on top of a stockpile of unconsolidated material, the stockpile shall be*
(a) inspected for hazardous conditions by an authorized person; and
(b) made safe.

Noticed there were two STOP signs about 100 feet apart, on the main access road entering the ore storage pad at Milne.

2 Please remove one of the STOP signs to avoid confusion over where to stop for approval to enter the ore stockpile area.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed extension cords and air hoses lying indiscriminately across the floor of the Milne Inlet Fountain Tire shop

3 Please review the practice of allowing electrical cords, hoses and other items... to lie indiscriminately over the ground or across a floor without protection, creating a hazard.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed an extension cord used to provide power to the following items
a) Herman Nelson heater in the Milne Inlet Fountain Tire shop

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

b) base station radio in the Milne Inlet site service shop.
c) steam tray in the Milne Inlet Winterhaven kitchen
d) breakfast griddle Mary River camp kitchen
e) buffer tank located in Mary River's assay laboratory

4 Please install an electrical outlet at the heater, radio, steam tray, breakfast griddle, buffer tank... and plug the equipment into the outlet and remove the extension cord.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the Globe stand-up dough mixer in the Milne Inlet camp kitchen, is hard wired into the electrical circuit. The equipment must be locked-out for cleaning however, because the unit is hard wired into the electrical circuit, an electrician is required to lock it out at the electrical panel.

5 Please install an electrical out-let and plug on the Globe stand-up mixer to allow the kitchen staff to unplug the mixer for cleaning.

MHSR sect 10.21.(1) *The manager shall develop a lock-out procedure for each mechanical or electrical equipment system, and the procedure shall*
(a) include the requirements of subsections (2) to (6) and sections 10.22 and 10.23;
(b) address the sources of all hazards that may be presented when a person is working on the equipment or system; and
(c) specify, before the work starts, how the equipment or system is to be checked to verify that all hazards have been neutralized and that the equipment or system is safe to work on.

Noticed there is water on the floor below the Milne Inlet camp kitchen dishwasher.

6 Please repair the leaking dishwasher.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed the welder working in the site service fixed plant shop at Milne and the welder(s) in the welding shop at Mary River had soot on their face. Each one confirmed that soot was present in a tissue when they blew their nose.

7 This is a repeat infraction see inspection reports 29 January 2016 and 12 October 2015. Please ensure people working in the welding shop at Milne Inlet and Mary River, wear their full-face mask pressurized respirator at all times while working in the welding shop area, to avoid breathing in the contaminated shop air.

MHSR sect 10.135.(10) *The manager shall ensure that persons are protected from fumes, gases, dust, vapours and noise produced during a welding, cutting, brazing or heating operation and that*
(a) where general ventilation at the work is not sufficient a local exhaust system is used to minimize the exposure by persons to airborne contaminants produced by the operation; and
(b) procedures are established to reduce noise levels for persons using welding, burning, cutting, brazing or heating equipment and for persons working in the vicinity.

Noticed there is no deadman switch in the wand of the Rigid Kallmann high-pressure hot water washer, in Milne Inlet site service fixed plant shop. Without the deadman switch safety device in the wand, the high-pressure (1750 psi) hot water (140 deg. F) must be shut-off manually at the pump.

8 Please replace the existing wand with a deadman switch equipped wand

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional

Date of Report 20160519 **Inspector** [signature]

engineer; and
(c) acceptable to the chief inspector.

Noticed an electrical panel with open slots located in a kitchen storage seacan at the Milne Inlet Winterhaven kitchen. However, the shelving units in the seacan blocks access to the panel.

9 Please remove the shelving in front of the electrical panel to provide 1m of clear access to the panel and close the open slots.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the ground conductor is missing from the cable tray located between electrical panels 2540 PNL-001A and 2540 PNL-004B in the Milne Inlet incinerator building.

10 Please install a ground conductor in the cable tray.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the single line electrical distribution schematics in the electrical rooms at Milne Inlet and at Mary River are stamped ***For Reference – Not for Construction***

11 Please remove these electrical schematics and replace them with the certified ***As Built*** electrical schematics.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the expansion bellow, on the exhaust system of the Milne Inlet diesel fire pump, is extensively stretched and it appears to be beyond the design limit of the bellow.

12 Please check the design limit of the expansion bellows and install a spacer in the exhaust system to release the strain on the bellow.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed there is no berm along the Tote Road at the drop-off at km 40 and at km 52, to prevent a vehicle from going off the road and losing control.

13 Please install berms or barriers at the drop-off located at km 40, km 52 and at other locations along the Tote Road where a vehicle going of the road could loose control.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the vee-belt guard is missing from the vibrating feeder drive at crushing plant 'A' feed hoper.

14 Please replace the missing vee-belt drive guard to prevent contact with the moving parts and to contain a loose or broken vee-belt.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 10.16. *Every*
(a) drive belt, chain, rope or cable,
(b) pulley, sprocket, flywheel or geared wheel,
(c) opening through which any belt, pulley or wheel operates,
(d) bolt, key or set screw,
(e) revolving, reciprocating or relative motion part,
(f) item projecting from a surface, and
(g) counter or tension weight unit and travel path,
and every other item that has motion or relative motion or is hot or electrically energized shall, unless it is so situated as to prevent a person from coming into accidental contact with it, be effectively enclosed, covered or guarded.

Noticed there is no barrier installed for the exposed tail pulley of the conveyor below the vibrating feeder of crusher 'A' and there are no barriers installed to prevent access by a persons to the missing belt conveyor nip-point guards at crushing and screening plant 'A', 'B' and 'C'.

15 This is a repeat infraction see inspection report 29 January 2016. Please install barricades at the crushing and screening plant 'A', 'B' and 'C' to prevent access to the moving conveyor parts or install nip-point guards.

MHSR sect 10.118.(3) *All accessible head, tail, drive and tension pulleys of a conveyor shall be effectively guarded at their nip points and the guards shall extend for a distance of at least 1 m from the nip point.*

Noticed there is a layer of dust present on the floor and on the vertical surfaces of crusher control room 'A'. The crushing plant operator advised he had cleaned the control room earlier in his shift. The dust in the control room is a concern, as the operator is not wearing a respirator for protection from breathing in the dust-contaminated air, in the control room. There is also a large plume of dust coming from crushing and screening plant 'C'; however, the men working in this area are not wearing respirators for protection from breathing in the dust-contaminated air.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

16 The requirement for the crushing and screening plant operators to wear respirators for protection from the dust was previously noted see inspection reports 21 March 2015, 26 July 2014 and 28 May 2014. Please ensure the crushing and screening plant personnel wear a full-face pressurized respirator (some have beards) for protection from the dust in the air, when the crushing plant is running.

MHSR sect 9.02.(1) *Employees shall not be exposed to airborne concentrations of chemical or physical substances in excess of those specified in the 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists.*

(2) *Where shifts are worked longer than eight hours a day or more than 40 hours a week, the airborne concentration of chemical and physical substances shall not exceed the threshold limit value established under the formula set out in Schedule 4.*

Noticed a long extension cord run from crusher 'C' electrical room through the door, through the water to a heater servicing a seacan workshop installed at crusher 'C'. The extension cord was removed during our inspection.

17 Please install an outdoor electrical outlet at the heater and plug the heater directly into the electrical outlet

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed a fire extinguisher was standing on the floor of Toromont shop at Mary River.

18 Please ensure all fire extinguishers are hung-up and not set on a flat surface where moisture may collect, corroding the bottom of the extinguisher.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 12.16.(1) *The manager shall ensure that all fire fighting equipment provided at the mine is maintained by an authorized person.*

(2) *The manager shall ensure that all fire fighting equipment provided at the mine is inspected by an authorized person at least once each month and that the results of the inspection are*
(a) noted on the fire fighting equipment's tag;
(b) entered in a logbook kept for that purpose; or
(c) entered in the mobile equipment logbook.

Noticed the floor of production drill DRL007 cab was relatively clean however, the inside of the half mask respirator, hanging on the wall in the cab, is coated with a layer of dust.

19 Please install a good vacuum cleaner in each drill cab, to assist the operator in keeping his clothing and work area free of drill dust.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the Caterpillar 930 loader in Nuna's shop was under repair however, it was not locked-out and it had no wheel chocks applied, to prevent unintended movement.

20 Please ensure all contractors on site comply with Baffinland's lockout procedure and apply wheel chocks to prevent unintended movement, of parked equipment.

MHSA art 15. *Where a contractor performs work at a mine, the contractor, the employee or officer of the contractor in charge of the work of the contractor at the mine and the owner and manager of the mine shall, in respect of the work of the contractor at the mine,*
(a) take every reasonable measure and precaution to protect the health and safety of employees of the contractor, employees of the mine and other persons at the mine; and
(b) comply with, and ensure that other persons comply with, this Act and the regulations and any applicable orders or directives issued under this Act or the regulations.

Date of Report 2016 05 19 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the high-pressure hose of the Hotsy high-pressure (2500 psi) hot water (250 deg. F) was being extended with a length of extra hose however, the work was stopped as the fittings used; black iron, brass... are not designed for this high-pressure.

21 Please ensure no person modifies high-pressure, hot or cold water, washing equipment without the approval of the manufacturer or the approval of a professional engineer.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

MHSR sect 10.97.(2) *A boiler, compressor or pressure vessel to which the Boiler and Pressure Vessels Act and the regulations under that Act do not apply shall be maintained in a proper and safe condition by a qualified person.*

Noticed there is no fall protection provided on the vertical access ladder to the rough terrain Grove and Terex crane parked at Mary River. This is a concern as the deck is about 7 feet above the ground and therefore it should have guarding.

22 Please review the operation of all the cranes on site and ensure fall protection is provided to prevent a person on or in the crane from falling to a lower level.

MHSR sect 1.98. *Except in an underground mine, a ladderway at an angle steeper than 70 to the horizontal shall be fixed in place and be provided with*
(a) platforms at intervals not greater than 7 m;
(b) a safety cage; or
(c) a protective device that, when used, will prevent a worker from falling.

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 1.91. *The manager shall provide every walkway and every working platform more than 1.5 m above the ground with*
(a) a handrail not less than 910 mm nor more than 1.07 m above the floor of the walkway or platform;
(b) a second rail placed at mid-point between the top rail and the floor of the walkway or platform, unless the space between the top rail and the floor is closed by a screen; and
(c) toeboards that extend from the floor to a height of not less than 100 mm.

Noticed there is nearly a 90 deg. bend in the electric cable attached to the electrical panel in the site service change room. The panel also has some open breaker slots allowing access to the energized parts.

23 Please realign the electrical cable and cover the open breaker slots in the electrical panel.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed at Milne Inlet and at Mary River a homemade frame used to support the front end of the ore haul trailers. However, there is no information on the frame, to indicate the maximum safe load limit that may be applied to the frame.

24 Please ensure before using these homemade frames, a professional engineer certifies the maximum safe load that may be applied to the frame and record it on the frame.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed there is a small diesel engine crane operating in the Mary River maintenance shop.

Date of Report 20160519 **Inspector** [signature]

Box 8888 • Yellowknife, NT X1A 2R3 • Telephone: (867) 920-3888 • Toll Free: 1-800-661-0792 • Fax: (867) 873-4596 • Toll Free Fax: 1-866-277-3677
Box 669 • Iqaluit, NU X0A 0H0 • Telephone: (867) 979-8500 • Toll Free: 1-877-404-4407 • Fax: (867) 979-8501 • Toll Free Fax: 1-866-979-8501
wscc.nt.ca • wscc.nu.ca

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

25 Please check the exhaust of this crane and ensure it is equipped with an exhaust gas scrubber.

MHSR sect 10.59.(4) *No diesel or propane powered vehicle or equipment shall be operated inside a building for the purpose of servicing the vehicle unless it is equipped with a exhaust gas scrubber acceptable to an inspector.*

Noticed the materials stored in the Mary River laundry electrical room

26 Please remove the stored material from the electrical room and maintain it free from trip and fire hazards

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed some furnace covers in the Mary River kitchen complex, are removed.

27 Please ensure the furnace cover is replaced on a furnace after it has been removed.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed a small air receiver referred to as a buffer tank, located in the assay laboratory. This air receiver is feed from a larger Champion air compressor however, it is not clear if the small pressure relieve valve

Date of Report 20160519 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

on the buffer tank, can handle the volume of compressed air output from Champion compressor.

28 Please check and ensure that the pressure relieve valve on the buffer tank when tripped, can handle the full volume of compressed air output from the Campion compressor.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed the Champion air compressor and receiver installed in the Assay Laboratory however, it is not clear if the unit is CSA approved.

29 Please submit a copy of the Nunavut boiler and pressure vessel permit for this unit

MHSR sect 10.97.(1) *Boilers, compressors and pressure vessels and associated piping and fittings shall be installed and maintained in accordance with CSA Standard B51-95, Boiler, Pressure Vessel and Pressure Piping Code, and the heated or refrigerated fluid plant shall comply with the requirements of the Boiler and Pressure Vessels Act and the regulations under that Act.*

The complaints received from site regarding ore haul truck brakes, wheels falling off the trailers... were checked and it was found Baffinland is addressing these maintenance problem. However, the rest period, after arrival on site on fly days, is a problem i.e. the Milne Inlet day shift crew on Tuesday May 3 arrived at Milne about 1:30 am May 4 and some of these people were scheduled to start work at 4 am.

30 Please ensure a sufficient rest period is provided to a person after their arrival on site and before they are required to report for work and submit a copy of Baffinland's procedure for travel delay.

MHSA art 2.(1) *The owner of a mine shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at the mine.*

Date of Report 20160519 **Inspector** [signature]

Baffinland

20160613

Martin van Rooy
Engineer/Mines Inspector
WSCC
Iqaluit, Nunavut

Dear Mr. van Rooy:

Further to 20160519 Mary River project inspection report, please see our response to your inspection.

Bikash Paul
General Manager

Mine:	Mary River project	Location:	~950 km NW of Iqaluit
Operator:	Baffinland Iron Mines Corp.	Lat. 71-19'N	Long. 79-24'W
Manager:	Sylvain Proulx	Inspection Date:	20160504 to 10
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3		

Noticed a person walking around the perimeter on top of the coarse product pile at Milne Inlet, he was surveying the pile.

1 Please consult with Baffinland's geotechnical consultant to ensure the pile is stable and will not slough or settle when ore is added or removed from the pile; trapping a person accessing the pile or walking on it.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

MHSR sect 8.20. *Before a person is allowed to work close to or on top of a stockpile of unconsolidated material, the stockpile shall be*
(a) inspected for hazardous conditions by an authorized person; and
(b) made safe.

Response: Please find attached a technical memorandum from our geotechnical consultant regarding the stockpile stability and an inspection form to be used when accessing the stockpile.

Completion: June 05 2016

Noticed there were two STOP signs about 100 feet apart, on the main access road entering the ore storage pad at Milne.

2 Please remove one of the STOP signs to avoid confusion over where to stop for approval to enter the ore stockpile area.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Response:

The stop sign has been removed. Completion: June 12 2016

Noticed extension cords and air hoses lying indiscriminately across the floor of the Milne Inlet Fountain Tire shop

3 Please review the practice of allowing electrical cords, hoses and other items... to lie indiscriminately over the ground or across a floor without protection, creating a hazard.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed an extension cord used to provide power to the following items
a) Herman Nelson heater in the Milne Inlet Fountain Tire shop
b) base station radio in the Milne Inlet site service shop.
c) steam tray in the Milne Inlet Winterhaven kitchen

d) breakfast griddle Mary River camp kitchen
e) buffer tank located in Mary River's assay laboratory

Response: These items will be complete June 30, 2016

4 Please install an electrical outlet at the heater, radio, steam tray, breakfast griddle, buffer tank... and plug the equipment into the outlet and remove the extension cord.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

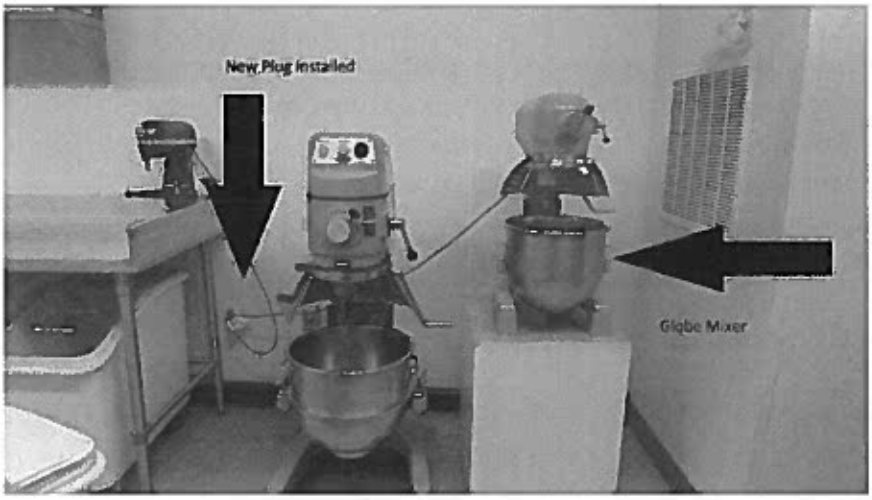
Response: This item is scheduled to be completed July 31, 2016

Noticed the Globe stand-up dough mixer in the Milne Inlet camp kitchen, is hard wired into the electrical circuit. The equipment must be locked-out for cleaning however, because the unit is hard wired into the electrical circuit, an electrician is required to lock it out at the electrical panel.

5 Please install an electrical out-let and plug on the Globe stand-up mixer to allow the kitchen staff to unplug the mixer for cleaning.

MHSR sect 10.21.(1) *The manager shall develop a lock-out procedure for each mechanical or electrical equipment system, and the procedure shall*
(a) include the requirements of subsections (2) to (6) and sections 10.22 and 10.23;
(b) address the sources of all hazards that may be presented when a person is working on the equipment or system; and
(c) specify, before the work starts, how the equipment or system is to be checked to verify that all hazards have been neutralized and that the equipment or system is safe to work on.

Response: The Globe stand up mixer now has a plug installed. Completion: June 09 2016



Noticed there is water on the floor below the Milne Inlet camp kitchen dishwasher.

6 Please repair the leaking dishwasher.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Response: There is a seal that needs to be replaced on the dishwasher. The seal is ordered. Expected completion date is July 31, 2016

Noticed the welder working in the site service fixed plant shop at Milne and the welder(s) in the welding shop at Mary River had soot on their face. Each one confirmed that soot was present in a tissue when they blew their nose.

7 This is a repeat infraction see inspection reports 29 January 2016 and 12 October 2015. Please ensure people working in the welding shop at Milne Inlet and Mary River, wear their full-face mask pressurized respirator at all times while working in the welding shop area, to avoid breathing in the contaminated shop air.

MHSR sect 10.135.(10) *The manager shall ensure that persons are protected from fumes, gases, dust, vapours and noise produced during a welding, cutting, brazing or heating operation and that*
(a) where general ventilation at the work is not sufficient a local exhaust system is used to minimize the exposure by persons to airborne contaminants produced by the operation; and
(b) procedures are established to reduce noise levels for persons using welding, burning, cutting, brazing or heating equipment and for persons working in the vicinity.

Response: These respirators are ordered. Expected completion date is July 31, 2016

Noticed there is no deadman switch in the wand of the Rigid Kallmann high-pressure hot water washer, in Milne Inlet site service fixed plant shop. Without the deadman switch safety device in the wand, the high-pressure (1750 psi) hot water (140 deg. F) must be shut-off manually at the pump.

8 Please replace the existing wand with a deadman switch equipped wand.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Response: This unit has been taken out of service. Completion: May 15, 2016

Noticed an electrical panel with open slots located in a kitchen storage seacan at the Milne Inlet Winterhaven kitchen. However, the shelving units in the seacan blocks access to the panel.

9 Please remove the shelving in front of the electrical panel to provide 1m of clear access to the panel and close the open slots.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Response: this item is scheduled to be completed June 30, 2016

Noticed the ground conductor is missing from the cable tray located between electrical panels 2540 PNL-001A and 2540 PNL-004B in the Milne Inlet incinerator building.

10 Please install a ground conductor in the cable tray.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Response: expected completion date June 30 2016

Noticed the single line electrical distribution schematics in the electrical rooms at Milne Inlet and at Mary River are stamped ***For Reference – Not for Construction***

11 Please remove these electrical schematics and replace them with the certified ***As Built*** electrical schematics.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

This item is expected to be complete September 31, 2016

Noticed the expansion bellow, on the exhaust system of the Milne Inlet diesel fire pump, is extensively stretched and it appears to be beyond the design limit of the bellow.

12 Please check the design limit of the expansion bellows and install a spacer in the exhaust system to release the strain on the bellow.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and

(c) acceptable to the chief inspector.

Response: We need an engineering solution to this problem. Expected completion date is July 31, 2016

Noticed there is no berm along the Tote Road at the drop-off at km 40 and at km 52, to prevent a vehicle from going off the road and losing control.

13 Please install berms or barriers at the drop-off located at km 40, km 52 and at other locations along the Tote Road where a vehicle going of the road could loose control.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Response: Expected completion date is June 30, 2016

Noticed the vee-belt guard is missing from the vibrating feeder drive at crushing plant 'A' feed hoper.

14 Please replace the missing vee-belt drive guard to prevent contact with the moving parts and to contain a loose or broken vee-belt.

MHSR sect 10.16. *Every*
(a) drive belt, chain, rope or cable,
(b) pulley, sprocket, flywheel or geared wheel,
(c) opening through which any belt, pulley or wheel operates,
(d) bolt, key or set screw,
(e) revolving, reciprocating or relative motion part,
(f) item projecting from a surface, and
(g) counter or tension weight unit and travel path,
and every other item that has motion or relative motion or is hot or electrically energized shall, unless it is so situated as to prevent a person from coming into accidental contact with it, be effectively enclosed, covered or guarded.

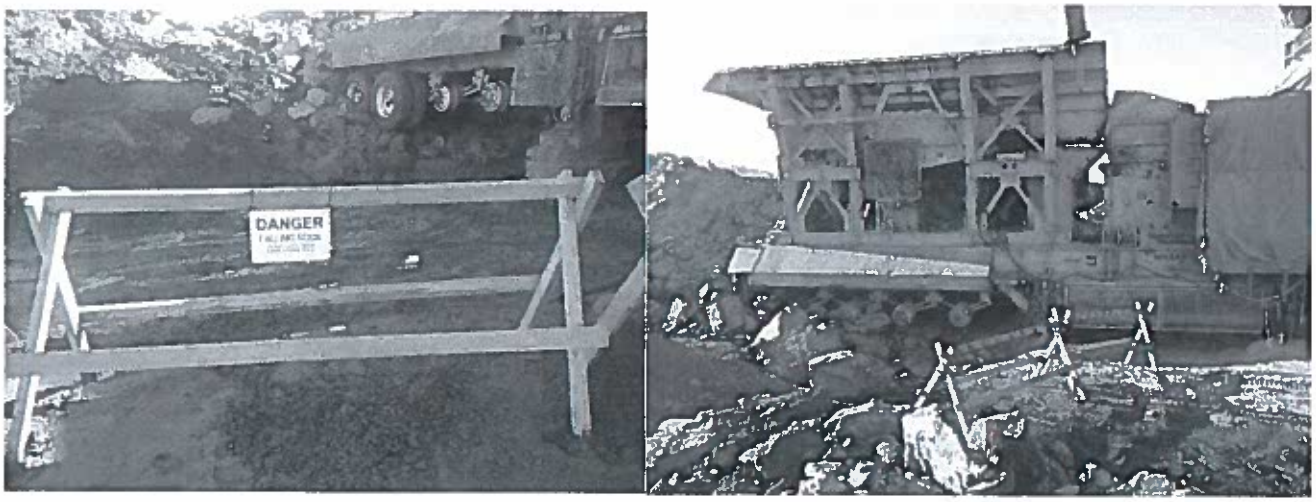
Response: The guard has been replaced on the vee-belt drive guard. Completion: June 05, 2016

Noticed there is no barrier installed for the exposed tail pulley of the conveyor below the vibrating feeder of crusher 'A' and there are no barriers installed to prevent access by a persons to the missing belt conveyor nip-point guards at crushing and screening plant 'A', 'B' and 'C'.

15 This is a repeat infraction see inspection report 29 January 2016. Please install barricades at the crushing and screening plant 'A', 'B' and 'C' to prevent access to the moving conveyor parts or install nip-point guards.

MHSR sect 10.118.(3) *All accessible head, tail, drive and tension pulleys of a conveyor shall be effectively guarded at their nip points and the guards shall extend for a distance of at least 1 m from the nip point.*

Response: Barriers have been erected to prevent access to moving conveyor parts. Date completed June 07, 2016



Noticed there is a layer of dust present on the floor and on the vertical surfaces of crusher control room 'A'. The crushing plant operator advised he had cleaned the control room earlier in his shift. The dust in the control room is a concern, as the operator is not wearing a respirator for protection from breathing in the dust-contaminated air, in the control room. There is also a large plume of dust coming from crushing and screening plant 'C'; however, the men working in this area are not wearing respirators for protection from breathing in the dust-contaminated air.

16 The requirement for the crushing and screening plant operators to wear respirators for protection from the dust was previously noted see inspection reports 21 March 2015, 26 July 2014 and 28 May 2014. Please ensure the crushing and screening plant personnel wear a full-face pressurized respirator (some have beards) for protection from the dust in the air, when the crushing plant is running.

Response: Completion date July 31, 2016

MHSR sect 9.02.(1) *Employees shall not be exposed to airborne concentrations of chemical or physical substances in excess of those specified in the 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists.*

(2) *Where shifts are worked longer than eight hours a day or more than 40 hours a week, the airborne concentration of chemical and physical substances shall not exceed the threshold limit value established under the formula set out in Schedule 4.*

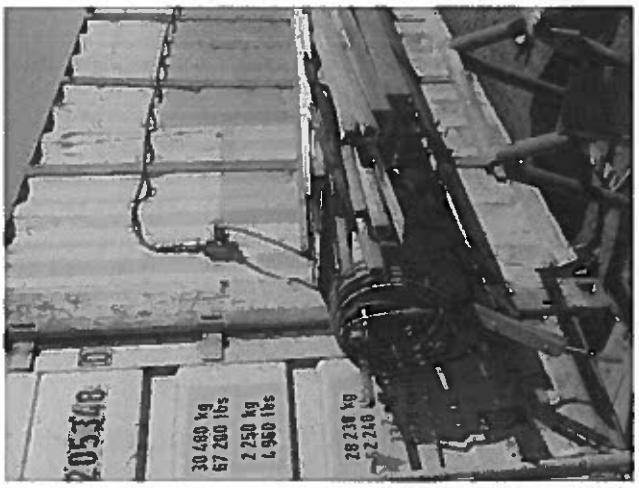
Response:

Noticed a long extension cord run from crusher 'C' electrical room through the door, through the water to a heater servicing a seacan workshop installed at crusher 'C'. The extension cord was removed during our inspection.

17 Please install an outdoor electrical outlet at the heater and plug the heater directly into the electrical outlet

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Response: The extension cord has been removed and an outside plug in has been installed. Also a sign has been placed on the door.



Noticed a fire extinguisher was standing on the floor of Toromont shop at Mary River.

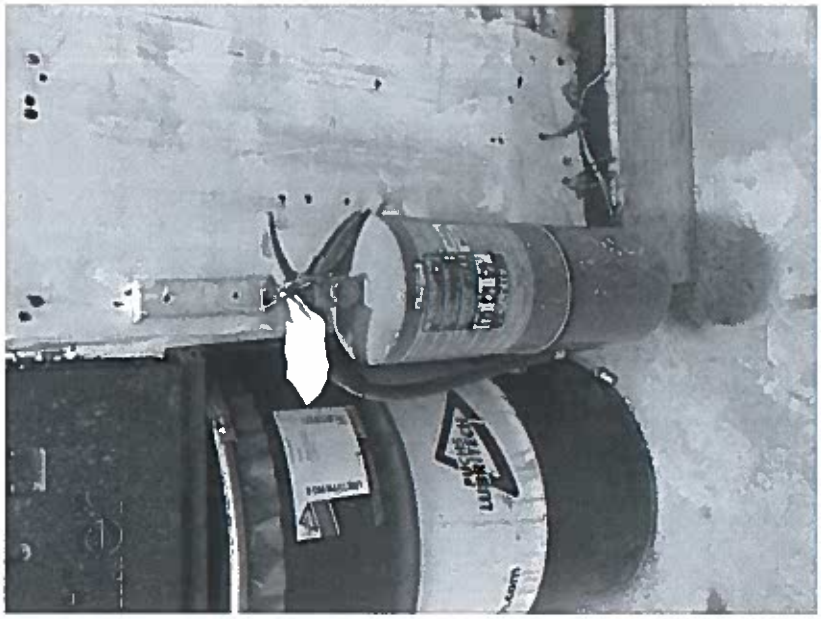
18 Please ensure all fire extinguishers are hung-up and not set on a flat surface where moisture may

collect, corroding the bottom of the extinguisher.

MHSR sect 12.16.(1) *The manager shall ensure that all fire fighting equipment provided at the mine is maintained by an authorized person.*

(2) *The manager shall ensure that all fire fighting equipment provided at the mine is inspected by an authorized person at least once each month and that the results of the inspection are*
(a) noted on the fire fighting equipment's tag;
(b) entered in a logbook kept for that purpose; or
(c) entered in the mobile equipment logbook.

Response: The fire extinguisher has been hung on the wall. Completion date: June 12, 2016



Noticed the floor of production drill DRL007 cab was relatively clean however, the inside of the half mask respirator, hanging on the wall in the cab, is coated with a layer of dust.

19 Please install a good vacuum cleaner in each drill cab, to assist the operator in keeping his clothing and work area free of drill dust.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Response: Vacuum cleaners will be ordered and this will be completed July 31, 2016

Noticed the Caterpillar 930 loader in Nuna's shop was under repair however, it was not locked-out and it had no wheel chocks applied, to prevent unintended movement.

20 Please ensure all contractors on site comply with Baffinland's lockout procedure and apply wheel chocks to prevent unintended movement, of parked equipment.

MHSA art 15. *Where a contractor performs work at a mine, the contractor, the employee or officer of the contractor in charge of the work of the contractor at the mine and the owner and manager of the mine shall, in respect of the work of the contractor at the mine,*
(a) take every reasonable measure and precaution to protect the health and safety of employees of the contractor, employees of the mine and other persons at the mine; and
(b) comply with, and ensure that other persons comply with, this Act and the regulations and any applicable orders or directives issued under this Act or the regulations.

Response: All contractors have received training on BIM Zero Energy Isolation Procedure and on wheel chocking and safety coordinators are doing cyclical audits of all areas to ensure compliance.

Completion: May 14, 2016

Noticed the high-pressure hose of the Hotsy high-pressure (2500 psi) hot water (250 deg. F) was being extended with a length of extra hose however, the work was stopped as the fittings used; black iron, brass... are not designed for this high-pressure.

21 Please ensure no person modifies high-pressure, hot or cold water, washing equipment without the approval of the manufacturer or the approval of a professional engineer.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and

(c) acceptable to the chief inspector.

Response: This unit has been taken out of service. Parts have been ordered per manufactures specifications and will be returned to service once parts arrive.

MHSR sect 10.97.(2) *A boiler, compressor or pressure vessel to which the Boiler and Pressure Vessels Act and the regulations under that Act do not apply shall be maintained in a proper and safe condition by a qualified person.*

Noticed there is no fall protection provided on the vertical access ladder to the rough terrain Grove and Terex crane parked at Mary River. This is a concern as the deck is about 7 feet above the ground and therefore it should have guarding.

22 Please review the operation of all the cranes on site and ensure fall protection is provided to prevent a person on or in the crane from falling to a lower level.

MHSR sect 1.98. *Except in an underground mine, a ladderway at an angle steeper than 70 to the horizontal shall be fixed in place and be provided with*
(a) platforms at intervals not greater than 7 m;
(b) a safety cage; or
(c) a protective device that, when used, will prevent a worker from falling.

MHSR sect 1.91. *The manager shall provide every walkway and every working platform more than 1.5 m above the ground with*
(a) a handrail not less than 910 mm nor more than 1.07 m above the floor of the walkway or platform;
(b) a second rail placed at mid-point between the top rail and the floor of the walkway or platform, unless the space between the top rail and the floor is closed by a screen; and
(c) toeboards that extend from the floor to a height of not less than 100 mm.

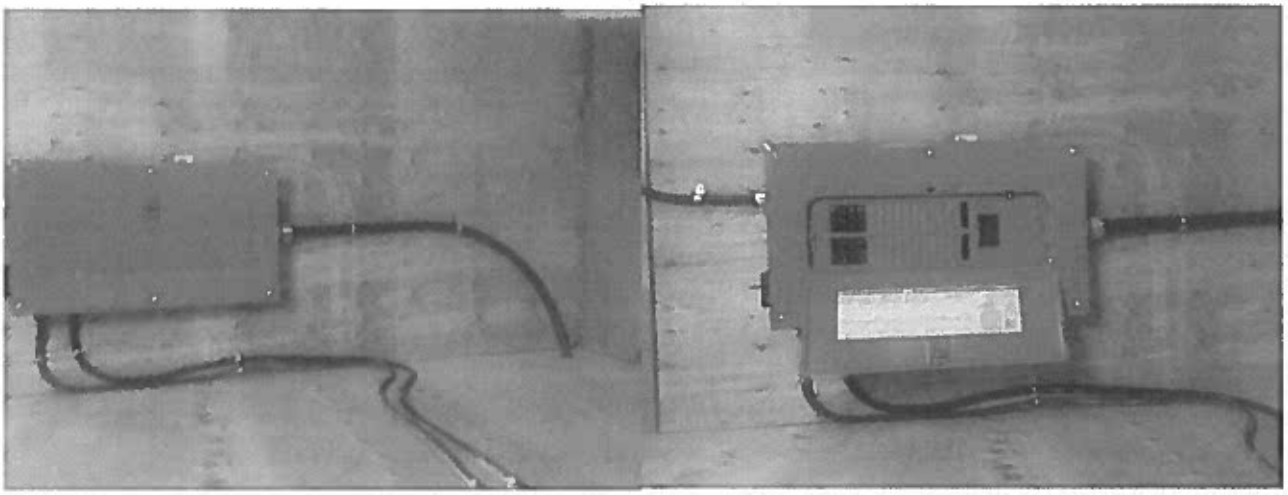
Response: We will require engineering support for this order. Expected completion August 31, 2016

Noticed there is nearly a 90 deg. bend in the electric cable attached to the electrical panel in the site service change room. The panel also has some open breaker slots allowing access to the energized parts.

23 Please realign the electrical cable and cover the open breaker slots in the electrical panel.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Response: this item is complete. June 13, 2016



Noticed at Milne Inlet and at Mary River a homemade frame used to support the front end of the ore haul trailers. However, there is no information on the frame, to indicate the maximum safe load limit that may be applied to the frame.

24 Please ensure before using these homemade frames, a professional engineer certifies the maximum safe load that may be applied to the frame and record it on the frame.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Response: Please see the attached engineer drawings for the stands. Complete June 12, 2016

Noticed there is a small diesel engine crane operating in the Mary River maintenance shop.

25 Please check the exhaust of this crane and ensure it is equipped with an exhaust gas scrubber.

MHSR sect 10.59.(4) *No diesel or propane powered vehicle or equipment shall be operated inside a building for the purpose of servicing the vehicle unless it is equipped with a exhaust gas scrubber acceptable to an inspector.*

Response: Scrubber is ordered. Expected completion date September 30, 2016

Noticed the materials stored in the Mary River laundry electrical room

26 Please remove the stored material from the electrical room and maintain it free from trip and fire hazards

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Response: Materials have been removed from the electrical room. Completed June 12, 2016.

Noticed some furnace covers in the Mary River kitchen complex, are removed.

27 Please ensure the furnace cover is replaced on a furnace after it has been removed.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Response: Covers have been replaced. Completed June 12, 2016

Noticed a small air receiver referred to as a buffer tank, located in the assay laboratory. This air receiver is feed from a larger Champion air compressor however, it is not clear if the small pressure relieve valve on the buffer tank, can handle the volume of compressed air output from Champion compressor.

Response: Expected completion date June 30, 2016

28 Please check and ensure that the pressure relieve valve on the buffer tank when tripped, can handle the full volume of compressed air output from the Campion compressor.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed the Champion air compressor and receiver installed in the Assay Laboratory however, it is not clear if the unit is CSA approved.

Response: Please see response regarding this order named WSCC inspection ALS lab.

29 Please submit a copy of the Nunavut boiler and pressure vessel permit for this unit

MHSR sect 10.97.(1) *Boilers, compressors and pressure vessels and associated piping and fittings shall be installed and maintained in accordance with CSA Standard B51-95, Boiler, Pressure Vessel and Pressure Piping Code, and the heated or refrigerated fluid plant shall comply with the requirements of the Boiler and Pressure Vessels Act and the regulations under that Act.*

Response: expected completion date June 30, 2016

The complaints received from site regarding ore haul truck brakes, wheels falling off the trailers... were checked and it was found Baffinland is addressing these maintenance problem. However, the rest period, after arrival on site on fly days, is a problem i.e. the Milne Inlet day shift crew on Tuesday May 3 arrived at Milne about 1:30 am May 4 and some of these people were scheduled to start work at 4 am.

30 Please ensure a sufficient rest period is provided to a person after their arrival on site and before they are required to report for work and submit a copy of Baffinland's procedure for travel delay.

MHSA art 2.(1) *The owner of a mine shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at the mine.*

Response: Please find attached a copy of BIM hours of work policy. Complete June 12, 2016

WSCC Workers' Safety & Compensation Commission | ᐃᖃᓇᐃᔭᙱᓂᓄᑦ ᐊᑦᑕᓇᖅᑐᓂᒃ ᐊᒻᒪ ᓇᓪᓕᐅᒃᑯᒪᓂᒃ ᖃᐅᔨᓴᖅᑏᑦ

20160720

email Sylvain.Proulx@baffinland.com

Sylvain Proulx
Chief Operating Officer
Baffinland Iron Mines Corporation
2275 Upper Middle Road East - Suite 300
Oakville ON L6H 0C3

Dear Mr. Proulx:

Further to the **Mine Health and Safety Act article 26** attached is the 20160720 Mary River project electrical inspection report.

As per **MHSA article**

28. Please post a copy of this inspection report in a conspicuous location, and

29. Advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.

32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Fred Bailey or myself. His phone number is 867 669 4430 or email fred.bailey@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o tony.noseworthy@baffinland.com hal.finely@baffinland.com

WSCC Workers' Safety & Compensation Commission | ᐃᖅᑲᓇᐃᔭᖅᑎᓄᑦ ᐊᑦᑕᓇᖅᑐᓂᒃ ᐊᒻᒪ ᓇᓪᓕᐅᒃᑯᒪᓂᒃ ᖃᐅᔨᓴᖅᑏᑦ

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit		
Operator:	Baffinland Iron Mines Corp.	Lat.	71-19'N	Long.	79-24'W
Manager:	Sylvain Proulx	Inspection Date:		2016012 to 15	
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3				

A general electrical safety inspection was conducted by Mr. J. Fuller, WSCC's electrical consultant, of Baffinland's Milne Inlet and Mary River sites. Mr. Martin van Rooy, WSCC's engineer/mine inspector, was to accompany Mr. Fuller for this inspection however; bad weather in Iqaluit prevented his flight. Mr. Fullers report '*Baffinland Iron Mines – Mary River and Milne Inlet Electrical Inspection*' is attached for information.

Neil Robinson at Milne Inlet and Steve Gogo at Mary River accompanied Mr. Fuller.

Noticed no single line electrical diagram was posted on the wall of Milne Power House B.

1 Please post an up-to-date single line at this Power House.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA -M421 -93, Use of Electricity in Mines*

Some electrical equipment at Milne Inlet and at Mary River, are equipped with molded case breakers however, the adaptor for locking out the breaker, is not present in the electrical room.

2 Please ensure where molded case breakers are used, the lock out station has the adapters for locking out the molded case breakers.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed clutter or storage in front of electrical distribution panels at Milne's 1) Mobile Equipment

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Maintenance Shop, 2) Mine Rescue Team Building, and 3) Batch Plant.,

3 This is a repeat infraction see inspection report 21 March 2015... Please instruct all supervisors to check all electrical distribution panels in their area routinely, to ensure at least one meter clear working space, free of clutter is maintain around the electrical equipment.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

MHSR sect 5.07. *Every shift boss or supervisor shall, within his or her area of responsibility and authority,*
(e) be knowledgeable about essential safeguards against hazards and about safe working procedures at the worksites for which he or she is responsible so that he or she can routinely assess the safety of the environment and operations affecting persons in those worksites;

Noticed the fire alarm panel at the Milne Mobile Equipment Maintenance Shop and at the Welding Shop are not active.

4 Please determine if fire detection in these areas is necessary and either remove or activate the installed fire alarm panels.

MHSR sect 12.01.(1) *The manager shall ensure that a fire risk assessment is carried out not later than March 31 in each calendar year for all parts of the mine, both underground and surface, and the assessment shall*
(c) identify the need for fire protection and the type of fire protection that should be provided; and
(d) set out measures to be taken to reduce the hazard from fire, including
(i) equipment design,
(ii) adequate maintenance of equipment,
(iii) proper training,

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

(iv) evacuation procedures,
(v) use of detection and early fire warning devices,
(vi) type of fire suppression equipment, and
(vii) means of egress from a worksite.

Noticed a personal protection lock left on 1) Panel 2521.2-2A-500 at the Milne Welding shop, 2) on the out of service feeder cable for the wash car fed from the Milne BIM Project Office, and 3) for the long term locking and tagging at panel 2513-PNL-002A in the Milne Mine Rescue Team Building. Personal protection locks should only be used for personal protection when the worker is present and should be removed at end of shift.

5 Please review the Baffinland lockout and tagging procedure and ensure the long-term or out-of-service equipment lockout is addressed and complied with.

MHSR sect 10.21.(1) *The manager shall develop a lock-out procedure for each mechanical or electrical equipment system, and the procedure shall*
(a) include the requirements of subsections (2) to (6) and sections 10.22 and 10.23;
(b) address the sources of all hazards that may be presented when a person is working on the equipment or system; and
(c) specify, before the work starts, how the equipment or system is to be checked to verify that all hazards have been neutralized and that the equipment or system is safe to work on.

Noticed the cables between the Milne Toromont Shop and Office are not secured and protected.

6 Please secure and protect the electrical cables between the Toromont shop and office.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the Teck cable between the main 600V switch and the splitter at the Milne Toromont shop is bent well beyond acceptable minimum radius.

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

7 Please re-serve the Teck cable in accordance with the Canadian Electrical Code.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the electrical panel of the furnace on the South wall of the Milne Toromont Shop, is damaged preventing the panel door from closing.

8 Please repair the enclosure to restore its rating and permit the door to be closed or replace the enclosure.

Noticed some movable generators are installed without a ground 1) PDG 017 at the ship loader office, 2) the 20kW unit at the Mine 110 laydown area, and 3) the unit at the Mine 110 Communications Sea Can

9 Please Install grounding in accordance with CSA M421-11 Clause 4.4.5.2.2.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed some of the electrical cables at the movable generators, are placing a strain on their connectors/terminations.

10 Please provide a means of securing the cables at movable generators, to remove the strain from connectors/terminations.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed an extension cord is used to supply power to the heat tracing on the sewage line at the ship loader office.

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

11 Please hardwire the heat trace cable with Teck cable.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed there is an out-of-service feeder cable for the wash car fed from the Milne BIM Project Office Sea can.

12 Please remove the out-of-service feeder cable for the wash car fed from the Milne BIM Project Office Sea can or identify and insulate the end(s).

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the disconnect switches at Milne's Sewage Truck Storage Building, are not accessible from the floor.

13 Please make the distribution panel readily accessible with at least one-meter clear working space.

MHSR sect 1.90. *Where workers are required to work, operate, maintain or service equipment, a safe means of access shall be provided as required by section 1.89.*

Noticed a portable heater and portable compressor fed by an extension cord, located on the access platform for the Milne Mine Rescue Team Building distribution.

14 Please remove the portable heater and portable compressor from the access platform so as not to interfere with electrical equipment access.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the main electrical control panel at the Milne Water Treatment Plant, is on a noticeable slant

Date of Report 20160720 **Inspector** [signature]

because the wooden floor it is attached to, has subsided.

15 Please re-block the platform and ensure that anchoring for this platform is adequate given the increased lean of this panel.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed the sensor on top of the fire pump's diesel tank at the Milne Water Treatment Plant, is bent by a sagged water line because of the subsiding floor.

16 Please secure the water line and repair the sensor.

MHSR sect 10.01.(1) *All mechanical equipment... ...acceptable to the chief inspector.*

Noticed computer power bars used for shop extension cords at the Milne Batch Plant. As noted in previous inspection reports, these devices are not designed for high current loads.

17 Please install electrical outlets for plugging in the equipment and remove the power bars.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the mechanical interlock on the welding receptacle disconnect switch 2521.1 WPD 504 at the Milne Batch Plant, is broken.

18 Please replace the mechanism and restore to proper operation.

Date of Report 2016 07 20 **Inspector** ____________

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the access door of the main 600V termination lugs on the portable generators used on the ore pad, is not locked, providing easy access to the live terminals.

19 Please lock or bolt the electrical enclosures to prevent access to the live terminals without the use of tool and post on the access doors, the highest voltage present in the cabinet.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the e-stops on the ship loader and on the reclaim conveyor do not operate when the pull cord is pulled toward the switch.

20 This is a repeat infraction see inspection report 12 October 2015, please ensure pull cords are checked routinely to ensure the e-stop activates for all directions of pull on the cord.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the flags on the above-mentioned e-stops are seized and do not operate when the e-stop trips.

21 Please free up the flags and ensure they operate at the same time as conducting the pull cord tests.

MHSR sect 10.01.(1) *All mechanical equipment... ...acceptable to the chief inspector.*

Noticed the protection relay on breaker H-411 (Crusher 8B Feeder) at the Mary River Power House 2 does not have a test sticker.

22 Please ensure that the relay was tested and apply a sticker to the relay indicating when the relay was tested. Provide evidence of the testing.

Date of Report 2016 07 20 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the insulating gloves stored in cardboard boxes at Mary River Power House 2.

23 Please relocate the insulating gloves to another suitable storage location or provide metal storage cabinets for storage of the gloves and ensure combustible materials are eliminated from switch rooms to the greatest extent possible.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed a few items, not directly associated with the operation and maintenance of the E-Houses at Mary River, stored in the E-Houses

24 Please remove these items.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed a lockout station is provided in some Mary River E-houses, others have lockout stations that have not yet been installed.

25 Please install a lockout station in each E-house at Mary River and Milne and include adapters for locking molded case breaker toggles where applicable

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the Twin Pack batteries in Mary River's E-House 1, are badly corroded.

Date of Report 2016 07 20 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

26 Please clean and maintain the batteries.

MHSA art 10.(1) *The manager shall... ... employees and other persons at a mine.*

Noticed in-line plugs/receptacles have been installed in two of the 480V cords for Mary River refrigeration units. These plugs are a hazard as they can be pulled under load.

27 Please remove the in-line plugs.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed there is iron ore dust in the crushing plant's E-House 8. The electrical equipment is not designed for this type of environment and hence it requires frequent inspection and cleaning of the internal components.

28 Further to last year's electrical inspection report 20 May 2015 item 18, please advise the frequency the internal components of the switch gear and the transformers were checked for an accumulation of iron ore dust and the frequency it required cleaning.

MHSR sect 13.04. *The manager shall ensure that*
(a) the requirements of sections 10.04 and 10.13 to 10.15 are met in respect of all electrical systems and electrical equipment

MHSR sect 10.04.(3) *The procedure referred to in subsection (1) shall be based on the manufacturer's recommendations and shall*
(d) ensure that a written record of each test, inspection and maintenance work carried out on each unit of equipment or system is entered into a maintenance record specific to each unit of equipment or system and as required in the equipment's or system's log-book; and

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed there is an unprotected portable power cable running on the ground from e-House 8 to a Sea Can. This unprotected cable is routed through an equipment lay down area and is exposed to vehicle or equipment damage.

29 Please replace the portable cable with Teck cable and re-route it to protect it from physical damage.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed filler plates are required in 1) the lighting panel at the A-side Crusher MCC, and 2) the 20kW generator distribution panel at the Mine 110 laydown area

30 Please install filler plates in 1) and 2) to close opening left by the removed breakers.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed a cable is pulled out of the connector at a 6x6 JB on the tail end of crusher B screen feed conveyor.

31 Please re-secure the cable and ensure adequate strain relief is provided to prevent a recurrence.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed most of the cover screws are missing from the electrical distribution panels at Mary River's Truck Wash Building.

32 Please install all fasteners as per original equipment design.

MHSR sect 13.01.(1) *The electrical system and electrical equipment at a mine shall be*
(a) designed in accordance with good engineering practice; and
(b) constructed in accordance with a design and plans that have been certified by a professional

Date of Report 20160720 **Inspector** [signature]

engineer.

Noticed a sump pump at the South side of the truck wash platform, is fed by an extension cord from a receptacle on the perimeter of the building.

33 Please provide a hardwired permanent receptacle for the sump pump and eliminate the extension cord or remove the sump pump.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed an extension cord run through a window at the Mine 110 laydown office, to feed an adjacent Sea Can.

34 Please provide a permanent feed to the Sea Can and eliminate the extension cord.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the meter box used as a pull box at the Mary River Site Services Office trailer, however, it has no covers.

35 Please provide suitable covers for the enclosure or replace it.

MHSR sect 13.01.(1) *The electrical system... ... professional engineer.*

Noticed there is no working space at the electrical distribution equipment located on both sides of Mary River's Site services Garage.

36 Please provide a minimum of one-meter clear working space for the electrical distribution equipment located on the sides of the building.

Date of Report 2016 07 20 **Inspector** ____________

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the 600V switches at splitter 7451-SPL-002, have no labels.

37 Please identify the purpose of these switches and label them with proper printed labels.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed temporary handwritten labels used to identify electrical equipment in some areas of the mine.

38 As noted in inspection report 20 December 2014, please ensure permanent identification labels are installed on electrical equipment throughout the Milne Inlet and Mary River sites.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed the 208V disconnect switches at the Pit Office Distribution Sea Can, are labeled incorrectly.

39 Please install durable printed labels with the correct information.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Noticed at the bit sharpening shop extension cords are used to distribute power throughout the building.

40 Please install permanent wiring in the bit sharpening shop and remove the flexible cords...

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Date of Report 20160720 **Inspector** ________

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed there is a receptacle outside the Pit Office, it is fed from a mini-distribution center via G-GC cable. The G-GC cable has been damaged and a splice has been made with electrical tape.

41 Please remake the splice with a shrink-on sleeve to provide the same protection, strength etc. as the original cable jacket or replace the G-GC cable. Provide GFI protection and ensure the receptacle is rated for this application.

MHSR sect 13.01.(2) *Except... ...CAN/CSA -M421 -93, Use of Electricity in Mines*

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Baffinland Iron Mines – Mary River and Milne Inlet Electrical Inspection

By: Jeff Fuller – J.A. FULLER ENGINEERING LTD Insp. Date: July 13 - 14, 2016

1) Milne Power House B did not have a single line diagram posted. Please post an up-to-date single line at this Power House.
2) Lock out stations should include adapters for locking molded case breakers where applicable.
3) Milne Mobile Equipment Maintenance Shop had clutter on the access platform for the distribution panels. Maintain one-meter clear working space free of clutter around this type of equipment.
4) Noticed that fire alarm panels at the Milne Mobile Equipment Maintenance Shop and Welding Shop were not active. Determine whether fire detection is necessary in these areas and either remove or activate the installed fire alarm panels.
5) Noticed a personal protection lock left on Panel 2521.2-2A-500 at the Milne Welding shop. Personal protection locks should only be used for personal protection when the worker is present and should be removed at end of shift. Follow the locking and tagging procedure for long term lock-out.
6) Cables between the Milne Toromont Shop and Office need to be secured and protected.
7) Teck cable between the main 600V switch and the splitter at the Milne Toromont shop is bent well beyond acceptable minimum radius. Re-serve in accordance with the Canadian Electrical Code.
8) The furnace on the South wall of the Milne Toromont Shop is damaged. Damage to the electrical panel is preventing the panel door from being closed. Repair or replace as required to restore the enclosure rating and permit the door to be closed.
9) Generator PDG 017 at the ship loader office has no ground. Install grounding in accordance with CSA M421-11 Clause 4.4.5.2.2.
10) Heat tracing on the sewage line at the ship loader office is connected via extension cord from the far side of the trailer. Hardwire the heat trace cable with Teck cable.
11) The out of service feeder cable for the wash car fed from the Milne BIM Project Office Sea can must be removed or insulated and identified.
12) A personal protection lock has been used for long term tagging of the above mentioned out of service wash car feeder switch. Follow locking and tagging procedure for long term locking and tagging.
13) Disconnect switches at the Milne Sewage Truck Storage Building are not accessible from the floor. Make the distribution readily accessible with one meter clear working space.

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

14) A personal protection lock has been used for long term locking and tagging at panel 2513-PNL-002A in the Milne Mine Rescue Team Building. Follow the locking and tagging procedure for long term locking and tagging.
15) A portable heater was temporarily stored on the access platform for the Milne Mine Rescue Team Building distribution. Other clutter was present on the platform as well. One meter clear working space must be maintained at all times. A portable compressor was located on the access platform and fed by an extension cord. Relocate the compressor so as not to interfere with electrical equipment access and to eliminate the extension cord.
16) At the Milne Water Treatment Plant the floor has subsided to the point that the main electrical control panel is on a noticeable slant. This panel is secured to a relatively narrow wooden platform. Ensure that anchoring for this platform is adequate given the increasing lean.
17) At the Milne Water Treatment Plant the sensor on top of the diesel tank for the fire pump has been bent almost to the point of breaking by a water line that has sagged as a result of the subsiding floor. Secure the water line and repair the sensor.
18) At the Milne Batch Plant computer power bars have been used for shop extension cords. These devices are not designed for high current loads. Remove the power bars and replace with permanent means of plugging in equipment as required.
19) At the Milne Batch Plant the mechanical interlock on the welding receptacle disconnect switch 2521..1 WPD 504 is broken. Replace the mechanism and restore to proper operation.
20) At the Milne Batch Plant sheet steel has been placed in front of a lighting panel such as to make it inaccessible. Maintain one meter clear working space.
21) Noticed that the portable generators used on the ore pad have main 600V termination lugs accessible without the use of tools. The latches on these access doors have provision for locking. Lock electrical enclosures that access live terminals without the use of tools.
22) Post the highest voltage (600V) on the above mentioned access doors.
23) Noticed that e-stops on the ship loader and on the reclaim conveyor do not operate when the pull cord is pulled toward the switch. Inadequate tension seems to be the problem. Re-tension these pull cords and include testing of e-stops in regular maintenance.
24) The flags on the above mentioned e-stops are seized and do not operate when the e-stop trips. These are monitoring devices and do not interfere with operation of the switch. Free up and test operation of the flags at the same time as the pull cord tests.

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

25) The protection relay on breaker H-411 (Crusher 8B Feeder) at the Mary River Power House 2 does not have a test sticker. Ensure that the relay was tested, apply a sticker indicating when the relay was tested, and provide evidence of the testing.
26) Insulating gloves are stored in cardboard boxes at Mary River Power House 2. Relocate the insulating gloves to another suitable storage location or provide metal storage cabinets. Eliminate combustible materials from switch rooms to the greatest extent possible.
27) Mary River E-Houses general note – a few items were noticed that are not directly associated with operation and maintenance of the E-Houses. These items should be removed.
28) Lockout stations are provided at some Mary River E-houses. Some have lockout stations that have not yet been installed. Apply a uniform policy. Include adapters for locking molded case breaker toggles where applicable.
29) Mary River E-House 1 Twin Pack batteries are badly corroded. Clean and maintain the batteries.
30) In-line plugs/receptacles have been installed in two of the 480V cords for Mary River refrigeration units. These plugs can be pulled under load. Remove the in-line plugs.
31) Mary River E-House 8 at the Crushers is very dusty. Show evidence of inspection of the transformers and switchgear to determine cleaning requirements and a schedule for periodic cleaning. After the electrical inspection in May of 2015 it was requested that a periodic inspection and cleaning be initiated. The equipment is not designed for this type of environment and hence requires periodic inspection and cleaning of internal components.
32) A portable power cable running from e-House 8 to a Sea Can is not protected and is in a lay down area for equipment where it will be damaged by vehicles or equipment. Replace with Teck cable and re-route to protect the cable from physical damage.
33) At the A-side Crusher MCC the lighting panel requires filler plates to close opening left by breakers being removed.
34) A cable is pulled out of the connector at a 6x6 JB on the tail end of the B spread screen feed conveyor. Re-secure the cable and ensure adequate strain relief to prevent a recurrence.
35) At the Mary River Truck Wash Building most of the cover screws are missing from the electrical distribution panels. Install all fasteners as per original equipment design.
36) At the South side of the truck wash platform a sump pump is fed by an extension cord from a receptacle on the perimeter of the building. If this sump pump is required then provide a hardwired permanent receptacle for it and eliminate the extension cord.

Date of Report 20160720 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

37) At the Mine 110 laydown area the 20kW generator is not grounded. Provide grounding in accordance with CSA M421-11 Clause 4.4.5.2.2.
38) Provide filler plates for the distribution panel in the above mentioned generator.
39) At the Mine 110 laydown office an extension cord is run through a window to feed an adjacent Sea Can. Provide a permanent feed as required and eliminate the extension cord.
40) Provide a means of securing cables at movable generators to remove strain from connectors/terminations.
41) The generator at the 110 Communications Sea Can does not appear to be grounded. Provide grounding for the generator.
42) At the Mary River Site Services Office trailer the meter box is used as a pull box but has no covers. Provide suitable covers for the enclosure or replace it.
43) At the Mary River Site services Garage one meter clear working space is required for electrical distribution equipment on both sides of the building.
44) 600V switches at splitter 7451-SPL-002 have no labels. Identify the purpose of these switches with proper printed labels.
45) Implement a program to replace handwritten temporary labels with durable printed labels suitable for the environment.
46) At the Pit Office Distribution Sea Can 208V disconnect switches are labeled incorrectly. Install durable printed labels with the correct information.
47) At the bit sharpening shop extension cords have been used to distribute power throughout the building. Replace flexible cord with suitable permanent wiring methods.
48) Outside the Pit Office a receptacle is fed from a mini-distribution center via G-GC cable. The G-GC cable has been damaged and a splice has been made with electrical tape. Remake the splice with a shrink-on sleeve which affords the same protection, strength etc. as the original cable jacket or replace the G-GC. Provide GFI protection. Ensure that the receptacle is properly rated for the application.

The following individuals participated in electrical inspections:
Milne Inlet – Neil Robinson (electrical)
Mary River – Steve Gogo (electrical)

Date of Report 20160720 **Inspector** [signature]

20160721 – ELECTRICAL INSPECTION

August 8, 2016

Martin van Rooy
WSCC Mines Inspector
Iqaluit, Nunavut

Dear Mr. van Rooy:

Further to 20160721 Mary River project electrical and geotechnical inspection reports, please see our response to your inspection.

Best Regards,
Bikash Paul
General Manager

ELECTRICAL INSPECTION:

Noticed no single line electrical diagram was posted on the wall of Milne Power House B.

1 Please post an up-to-date single line at this Power House.

Response: Expected completion September 30, 2016

Some electrical equipment at Milne Inlet and at Mary River, are equipped with molded case breakers however, the adaptor for locking out the breaker, is not present in the electrical room.

2 Please ensure where molded case breakers are used, the lock out station has the adapters for locking out the molded case breakers.

Response: Adaptors for locking molded case breakers are received Expected completion date October 30, 2016

Noticed clutter or storage in front of electrical distribution panels at Milne's 1) Mobile Equipment Maintenance Shop, 2) Mine Rescue Team Building, and 3) Batch Plant.,

3 This is a repeat infraction see inspection report 21 March 2015... Please instruct all supervisors to check all electrical distribution panels in their area routinely, to ensure at least one meter clear working space, free of clutter is maintain around the electrical equipment.

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The equipment stored in front of the electrical panel at the MRT garage has been removed. Completed July 27, 2016

Above pic is the MRT – complete.

Noticed the fire alarm panel at the Milne Mobile Equipment Maintenance Shop and at the Welding Shop are not active.

4 Please determine if fire detection in these areas is necessary and either remove or activate the installed fire alarm panels.

Item to be completed November 31st 2016

Noticed a personal protection lock left on 1) Panel 2521.2-2A-500 at the Milne Welding shop, 2) on the out of service feeder cable for the wash car fed from the Milne BIM Project Office, and 3) for the long term locking and tagging at panel 2513-PNL-002A in the Milne Mine Rescue Team Building. Personal protection locks should only be used for personal protection when the worker is present and should be removed at end of shift.

5 Please review the Baffinland lockout and tagging procedure and ensure the long-term or out-of-service equipment lockout is addressed and complied with.

RESPONSE:

BEFORE

AFTER

BEFORE

AFTER

All items to be completed by September 21st 2016.

Noticed the cables between the Milne Toromont Shop and Office are not secured and protected.

6 Please secure and protect the electrical cables between the Toromont shop and office.

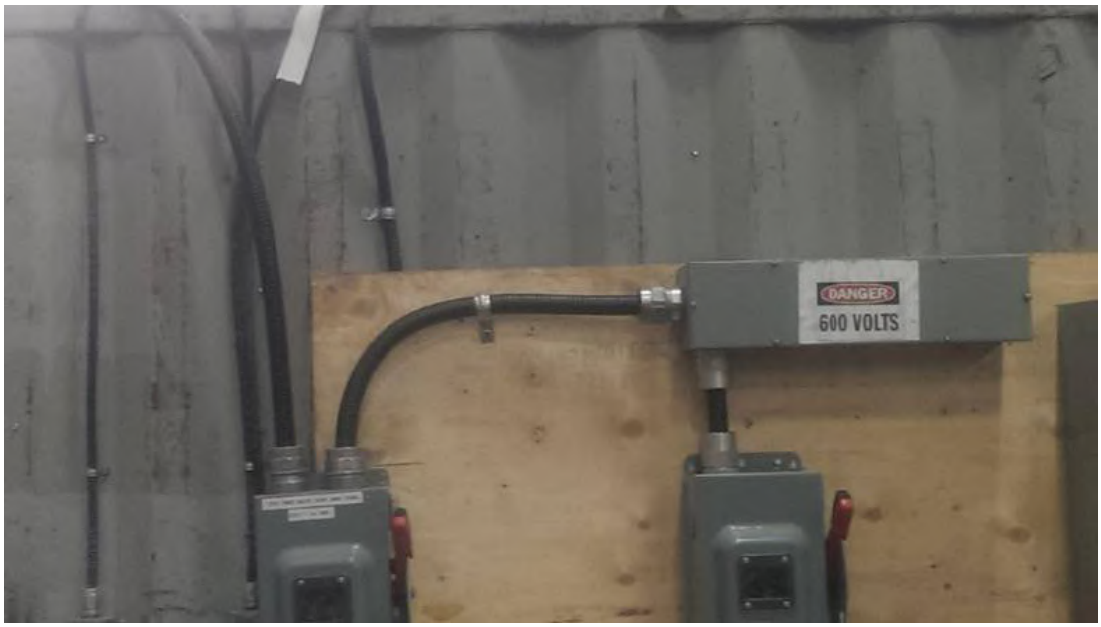
RESPONSE:

Picture shows completion of action item.

Noticed the Teck cable between the main 600V switch and the splitter at the Milne Toromont shop is bent well beyond acceptable minimum radius.

7 Please re-serve the Teck cable in accordance with the Canadian Electrical Code.

RESPONSE:



Picture above shows completion.

Noticed the electrical panel of the furnace on the South wall of the Milne Toromont Shop, is damaged preventing the panel door from closing.

8 Please repair the enclosure to restore its rating and permit the door to be closed or replace the enclosure.

Item completed – pictures forthcoming.

Noticed some movable generators are installed without a ground 1) PDG 017 at the ship loader office, 2) the 20kW unit at the Mine 110 laydown area, and 3) the unit at the Mine 110 Communications Sea Can

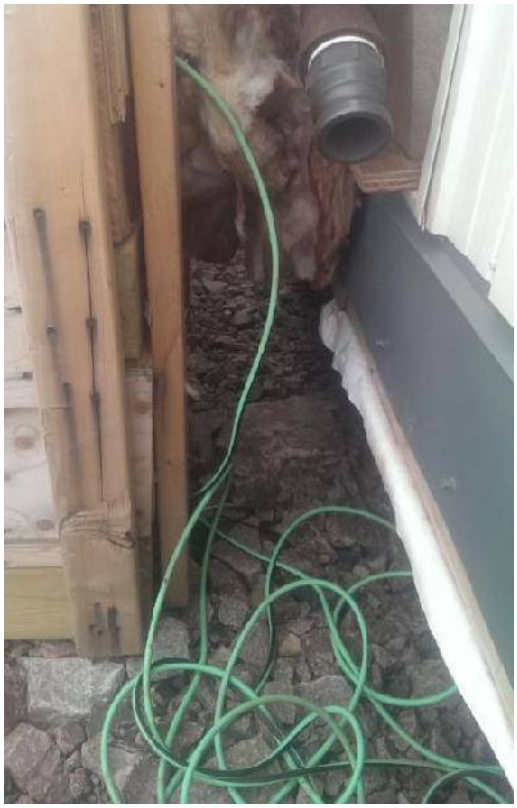
9 Please Install grounding in accordance with CSA M421-11 Clause 4.4.5.2.2.

Item completed

Noticed some of the electrical cables at the movable generators, are placing a strain on their connectors/terminations.

10 Please provide a means of securing the cables at movable generators, to remove the strain from connectors/terminations.

RESPONSE:



BEFORE

AFTER

Noticed an extension cord is used to supply power to the heat tracing on the sewage line at the ship loader office.

11 Please hardwire the heat trace cable with Teck cable.

Item completed

Noticed there is an out-of-service feeder cable for the wash car fed from the Milne BIM Project Office Sea can.

12 Please remove the out-of-service feeder cable for the wash car fed from the Milne BIM Project Office Sea can or identify and insulate the end(s).

RESPONSE: Item 12 to be completed by October 31st 2016

Noticed the disconnect switches at Milne's Sewage Truck Storage Building, are not accessible from the floor.

13 Please make the distribution panel readily accessible with at least one-meter clear working space.

Response: Item to be completed by November 31st 2016

Noticed a portable heater and portable compressor fed by an extension cord, located on the access platform for the Milne Mine Rescue Team Building distribution.

14 Please remove the portable heater and portable compressor from the access platform so as not to interfere with electrical equipment access.

RESPONSE: Item completed – September 2016.

Noticed the main electrical control panel at the Milne Water Treatment Plant, is on a noticeable slant because the wooden floor it is attached to, has subsided.

15 Please re-block the platform and ensure that anchoring for this platform is adequate given the increased lean of this panel.

Completed –

Noticed the sensor on top of the fire pump's diesel tank at the Milne Water Treatment Plant, is bent by a sagged water line because of the subsiding floor.

16 Please secure the water line and repair the sensor.

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Completed – pic above is rotated 90degrees.

Noticed computer power bars used for shop extension cords at the Milne Batch Plant. As noted in previous inspection reports, these devices are not designed for high current loads.

17 Please install electrical outlets for plugging in the equipment and remove the power bars.

To be completed November 31st 2016

Noticed the mechanical interlock on the welding receptacle disconnect switch 2521.1 WPD 504 at the Milne Batch Plant, is broken.

18 Please replace the mechanism and restore to proper operation.

Item completed

Noticed the access door of the main 600V termination lugs on the portable generators used on the ore

pad, is not locked, providing easy access to the live terminals.

19 Please lock or bolt the electrical enclosures to prevent access to the live terminals without the use of tool and post on the access doors, the highest voltage present in the cabinet.

Item completed

Noticed the e-stops on the ship loader and on the reclaim conveyor do not operate when the pull cord is pulled toward the switch.

20 This is a repeat infraction see inspection report 12 October 2015, please ensure pull cords are checked routinely to ensure the e-stop activates for all directions of pull on the cord.

To be completed September 21st 2016

Noticed the flags on the above-mentioned e-stops are seized and do not operate when the e-stop trips.

21 Please free up the flags and ensure they operate at the same time as conducting the pull cord tests.

Response: Item 21 tentative completion October 31st; depending on delivery of components that may be required.

Noticed the protection relay on breaker H-411 (Crusher 8B Feeder) at the Mary River Power House 2 does not have a test sticker.

22 Please ensure that the relay was tested and apply a sticker to the relay indicating when the relay was tested. Provide evidence of the testing.

RESPONSE:

BEFORE AFTER

Noticed the insulating gloves stored in cardboard boxes at Mary River Power House 2.

23 Please relocate the insulating gloves to another suitable storage location or provide metal storage cabinets for storage of the gloves and ensure combustible materials are eliminated from switch rooms to the greatest extent possible.

RESPONSE:
Insulating gloves and material stored in switch room.

Noticed a few items, not directly associated with the operation and maintenance of the E-Houses at Mary River, stored in the E-Houses

24 Please remove these items.

RESPONSE:
Items were removed.

Noticed a lockout station is provided in some Mary River E-houses, others have lockout stations that have not yet been installed.

25 Please install a lockout station in each E-house at Mary River and Milne and include adapters for locking molded case breaker toggles where applicable

RESPONSE:



Noticed the Twin Pack batteries in Mary River's E-House 1, are badly corroded.

26 Please clean and maintain the batteries.

Item to be completed September 21st 2016.

Noticed in-line plugs/receptacles have been installed in two of the 480V cords for Mary River refrigeration units. These plugs are a hazard as they can be pulled under load.

27 Please remove the in-line plugs.
Item may require investigation – completion target October 31st.

Noticed there is iron ore dust in the crushing plant's E-House 8. The electrical equipment is not designed for this type of environment and hence it requires frequent inspection and cleaning of the internal components.

28 Further to last year's electrical inspection report 20 May 2015 item 18, please advise the frequency the internal components of the switch gear and the transformers were checked for an accumulation of iron ore dust and the frequency it required cleaning.

RESPONSE:
The iron ore dust in e-house 8 has been cleaned up. Regular cleaning will continue.

Noticed there is an unprotected portable power cable running on the ground from e-House 8 to a Sea Can. This unprotected cable is routed through an equipment lay down area and is exposed to vehicle or equipment damage.

29 Please replace the portable cable with Teck cable and re-route it to protect it from physical damage.

RESPONSE:
Portable power cable feeding sea can was replaced with armored cable and rerouted.


Noticed filler plates are required in 1) the lighting panel at the A-side Crusher MCC, and 2) the 20kW generator distribution panel at the Mine 110 laydown area

30 Please install filler plates in 1) and 2) to close opening left by the removed breakers.

RESPONSE:
Filler plates installed.

Noticed a cable is pulled out of the connector at a 6x6 JB on the tail end of crusher B screen feed conveyor.

31 Please re-secure the cable and ensure adequate strain relief is provided to prevent a recurrence.

Completion October 31st 2016.

Noticed most of the cover screws are missing from the electrical distribution panels at Mary River's Truck Wash Building.

32 Please install all fasteners as per original equipment design.

RESPONSE:
Fasteners installed.



Noticed a sump pump at the South side of the truck wash platform, is fed by an extension cord from a receptacle on the perimeter of the building.

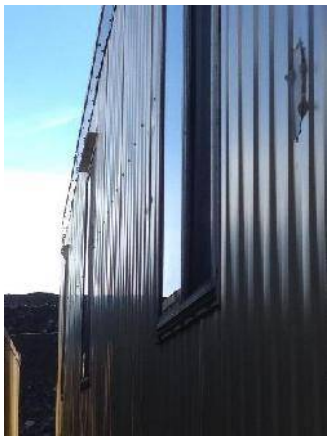
33 Please provide a hardwired permanent receptacle for the sump pump and eliminate the extension cord or remove the sump pump.

RESPONSE:
Truck wash sump pump hard wires receptacle.

Noticed an extension cord run through a window at the Mine 110 laydown office, to feed an adjacent Sea Can.

34 Please provide a permanent feed to the Sea Can and eliminate the extension cord.

RESPONSE:

Noticed the meter box used as a pull box at the Mary River Site Services Office trailer, however, it has no covers.

35 Please provide suitable covers for the enclosure or replace it.

RESPONSE:
Cover placed on meter box.

Noticed there is no working space at the electrical distribution equipment located on both sides of Mary River's Site services Garage.

36 Please provide a minimum of one-meter clear working space for the electrical distribution equipment located on the sides of the building.

Completed August 15, 2016


Noticed the 600V switches at splitter 7451-SPL-002, have no labels.

37 Please identify the purpose of these switches and label them with proper printed labels.

RESPONSE:
Labels posted.

Noticed temporary handwritten labels used to identify electrical equipment in some areas of the mine.

38 As noted in inspection report 20 December 2014, please ensure permanent identification labels are installed on electrical equipment throughout the Milne Inlet and Mary River sites.

Item to be completed October 31st 2016.

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Noticed the 208V disconnect switches at the Pit Office Distribution Sea Can, are labeled incorrectly.

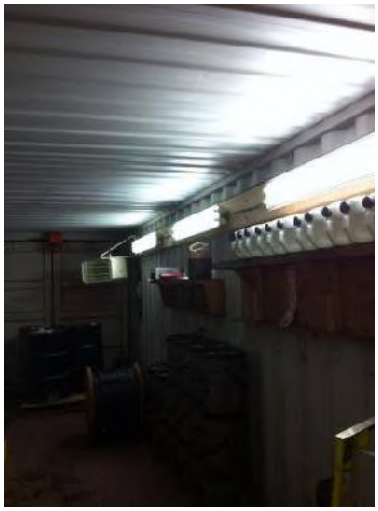
39 Please install durable printed labels with the correct information.

RESPONSE:
Pit office disconnect labeled properly.

Noticed at the bit sharpening shop extension cords are used to distribute power throughout the building.

40 Please install permanent wiring in the bit sharpening shop and remove the flexible cords...

RESPONSE:



Noticed there is a receptacle outside the Pit Office, it is fed from a mini-distribution center via G-GC cable. The G-GC cable has been damaged and a splice has been made with electrical tape.

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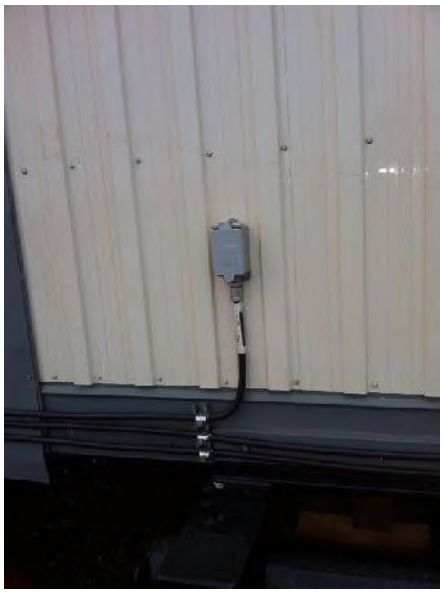
41 Please remake the splice with a shrink-on sleeve to provide the same protection, strength etc. as the original cable jacket or replace the G-GC cable. Provide GFI protection and ensure the receptacle is rated for this application.

RESPONSE:



20160721

email Sylvain.Proulx@baffinland.com

Sylvain Proulx
Chief Operating Officer
Baffinland Iron Mines Corporation
2275 Upper Middle Road East - Suite 300
Oakville ON L6H 0C3

Dear Mr. Proulx:

Further to the **Mine Health and Safety Act article 26** attached is the 20160721 Mary River project geotechnical inspection report.

As per **MHSA article**

28. Please post a copy of this inspection report in a conspicuous location, and
29. Advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.
32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Fred Bailey or myself. His phone number is 867 669 4430 or email fred.bailey@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o tony.noseworthy@baffinland.com hal.finely@baffinland.com

WSCC Workers' Safety & Compensation Commission | ᐃᓚᐅᑲᓂᐃᓯᖅᑎᓄᑦ ᐊᑦᑕᓇᖅᑐᓂᒃ ᐊᒻᒪ ᓇᓪᓕᐅᒃᑯᒥᓂᒃ ᖃᐅᔨᓴᖅᑎᑦ

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit
Operator:	Baffinland Iron Mines Corp.	Lat. 71-19'N	Long. 79-24'W
Manager:	Sylvain Proulx	Inspection Date:	2016012 to 15
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3		

A geotechnical inspection was conducted by Mr. Michael Cullen, WSCC's geotechnical, of Baffinland's Milne Inlet and Mary River sites. Mr. Martin van Rooy, WSCC's engineer/mine inspector, was to accompany Mr. Cullen for this inspection however; bad weather in Iqaluit prevented his flight. The site review included the pit, waste rock dump, Mary River quarries, ore load out dock, ore stockpiles, and Milne quarry. Mr. Cullen's report '*Geotechnical Review of Mary River Project: July 13, 14, 15 2016*' is attached for information.

Darryl Finlay at Milne Inlet and Jeremy Moar at Mary River accompanied Mr. Cullen for this inspection.

Noticed the mine has restricted access to the danger zone at the crest and toe of pit walls however, the Standard Operating Procedure (SOP) and Job Hazard Analysis (JHA) reviewed contained only limited documentation of this restriction.

1 Please develop an appropriate SOP for all persons and equipment working in the pit and where work is required below a face, it must have prior approval from the geotechnical specialist on site.

MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the SOP and JHA for Milne Inlet's ore stockpile sample and survey work did not clearly articulated Golder's recommendations and warnings concerning working on and excavating stockpile slopes.

2 Please reviewed the SOP and JHA and ensure the recommendations made by Golder, are clearly articulated in the documents.

Date of Report 20160721 **Inspector** ________________

Box 8888 • Yellowknife, NT X1A 2R3 • Telephone: (867) 920-3888 • Toll Free: 1-800-661-0792 • Fax: (867) 873-4596 • Toll Free Fax: 1-866-277-3677
Box 669 • Iqaluit, NU X0A 0H0 • Telephone: (867) 979-8500 • Toll Free: 1-877-404-4407 • Fax: (867) 979-8501 • Toll Free Fax: 1-866-979-8501
Box 368 • Rankin Inlet, NU X0C 0G0 • Telephone: (867) 645-5600 • Toll Free: 1-877-404-8878 • Fax: (867) 645-5601
Box 1188 • Inuvik, NT X0E 0T0 • Telephone: (867) 678-2301 • Fax: (867) 678-2302
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Promote workplace safety and care for injured workers

WSCC Workers' Safety & Compensation Commission

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

An angle of repose stockpile is only marginally stable, as soon as the toe of the stockpile is excavated the stockpile angle increases and it becomes potentially unstable. As such, no foot traffic should be allowed on a stockpile face once extraction has commenced (even if extraction is no longer occurring). Buried ice and snow also create potentially unstable conditions and no foot traffic should be allowed on stockpiles faces with buried snow or ice that have potentially melted.

3 Please develop an SOP for stockpile extraction for when the excavated face become oversteep due to presence of ice or consolidated material and an SOP for surveying the stockpile that includes no foot access on potentially unstable surfaces.

MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the following deficiencies noted for the Milne Inlet Quarry:- 1) significant loose on the bench faces, 2) bench width is less than 8m, 3) inadequate berms on the haul roads, and 4) a frozen blast at the south end.

4 Please install berms and post NO-ENTRY signage restricting access to the quarry and perform no work in it until a quarry design compliant with the requirements of the MHSR (e.g Section 1.03 and 1.04) and accepted engineering practice has been approved by WSCC.

MHSR sect 1.03.(1) *The owner of a surface mine or an underground mine shall maintain a mine design, acceptable to the chief inspector, assessing the ground stability of the active and proposed workings of the mine.*

(2) *The mine design that the owner is required to maintain shall be prepared by or under the direction of a professional engineer experienced in ground stability design and shall bear the engineer's seal and signature.*

Date of Report 20160721 **Inspector** ____________

Box 8888 • Yellowknife, NT X1A 2R3 • Telephone: (867) 920-3888 • Toll Free: 1-800-661-0792 • Fax: (867) 873-4596 • Toll Free Fax: 1-866-277-3677
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www.wscc.nt.ca • www.wscc.nu.ca

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the following deficiencies noted for the QMR2 Quarry: - 1) loose across the bench faces, and 2) bench width is less than 8m.

5 Please install berms and post NO-ENTRY signage restricting access to the quarry and perform no work in it until a quarry design compliant with the requirements of the MHSR (e.g. Section 1.03 and 1.04) and accepted engineering practice has been approved by WSCC.

MHSR sect 1.03.(1) *The owner of a surface mine or an underground mine shall maintain a mine design, acceptable to the chief inspector, assessing the ground stability of the active and proposed workings of the mine.*

(2) *The mine design that the owner is required to maintain shall be prepared by or under the direction of a professional engineer experienced in ground stability design and shall bear the engineer's seal and signature.*

Date of Report 20160721 **Inspector** ____________

2282 Seabank Road
Courtenay, B.C. V9J 1Y1
Phone (250) 339-2633
michaelcullen@shaw.ca

July 18, 2016

Workers' Safety and Compensation Commission
PO Box 8888
Yellowknife, NT
X1A 2R3

Attn: Fred Bailey P.Eng., Chief Inspector of Mines

Subject: Geotechnical Review of Mary River Project: July 13, 14, 15 2016

Introduction

As requested Michael Cullen Geotechnical Ltd (MCG) completed a geotechnical review of Baffinland Iron Ore Mines Corporation Mary River Project on July 13, 14, 15 2016. The purpose of this inspection was as follows:

1. To assess if the operation is meeting the intent of the Mine Health and Safety Regulation (MHSR) as it applies to geotechnical stability.
2. To review if the operation is following generally accepted engineering practices for geotechnical design, construction, and operation that may affect health and safety.
3. To provide general comment on geotechnical conditions at the mine that may affect health and safety.
4. To provide direction to the Mines Inspectors on geotechnical issues potentially affecting health and safety.

The site review tour included the pit, waste rock dump, Mary River quarries, ore load out dock, ore stock piles, and Milne quarry. The Milne Inlet site review was completed with Daryl Finlay of Baffinland. The Marry River site review was completed with Jeremy Moar, of Baffinland. A close out meeting with Mine Management and OHS personal was held following the inspection.

As part of this review we received and have reviewed the following documents:

- "Guidelines for Working Near Crushed Ore Stockpiles" by Golder Associates dated May 3, 2016.
- "Geotechnical Review of the Updated 5 Year Pit Deposit 1 Open Pit Mary River, Baffinland" by Golder Associates, dated April 17, 2016.
- "Ground Control Management Plan R0" by Baffinland Iron Mines Corporation, December 2015.
- "Baffinland Mary River Open Pit Geotechnical Inspection August 2015" by Golder Associates, dated September 21, 2015.
- Various Standard Operating Procedures and Job Hazard Analysis prepared by Baffinland Iron Mines Corporation.
- "Bench Scale Rockfall Report Letter" by Baffinland Iron Mines, dated June 24, 2016.

Open Pits

The 5-year starter pit is underway with 3 benches: 640, 650 and 660.

Due to uncertainty with geologic structure a somewhat conservative design approach has been adopted for the starter pit: it is less than 100m deep, with an overall slope of 45 degrees, final walls will use 20m high bench faces with a 70 degree face angle, and 13m design width. All final walls will be trim blasted. The configuration of the starter pit is such that there will be opportunity to adjust the configuration as experience and additional knowledge is gained. The experience and knowledge gained in the starter pit will be used to design the final pit.

The design for the starter pit did not include a detailed assessment of bench crest break-back, assessment of the ability of bench to contain the largest expected bench scale failure, or assessment of rockfall capture. The rational for omitting was lack of credible information. We consider that it was acceptable to omit these assessments due to the relatively small pit size, 5 year pit life, conservative design approach taken with adaptable configuration.

The mine is completing routine mapping of geologic structure to verify design assumptions and to project structures into future benches to allow time to modify layout if required. The Mine has engaged Golder Associates to assist with pit design and blast design.

Final pit wall bench faces are to be 20m high (up to 25m on first bench). The upper half of the final pit walls is now exposed on the 660 bench, see Photo 1 and 2. During spring thaw a 200t failure occurred from a section of the final wall. It is understood that this section of the wall appeared to be stable at the time of development. The failure was controlled by the dominate N-S striking structure, see Photo 1. Following the failure, the wall once again appears stable. We suspect that there will be ongoing stability issues with the first bench face once it is taken to final height (10m more than present). It should be noted that very few pits in the NWT and Nunavut attempt to create double benches in the first 30m below surface due the presence of the more fractured and weathered cap rock. The Mine reports that it is implementing the following measures to mitigate stability concerns and the rockfall hazard on the upper final wall:

- Re-scale all exposed walls while still reachable
- Place berms at toe of faces identified as potentially unstable.
- Restrict access to the danger zone at the crest and toe of a bench.
    - We reviewed several SOP and JHA and only found limited documentation of this restriction. We recommend that appropriate SOP be developed for all persons and equipment working in the pit.
- Require that work below faces be approved by technical services.
    - We reviewed several SOP and did not find this to be documented as a standard operating procedure. We recommend that appropriate SOP be developed.
- Regular inspections by shift boss and technical services.
- Maintain bench access to allow for future scaling and removal of rockfall material if required.
- Ability to reduce height of upper bench by cutting down top.

Internal pit benches are 10m high. The condition of the internal bench faces was observed to vary from good to poor. Faces that break back to the dominant N-S structure often look very good whereas geologic structure and blast damage may both contributed to the poor conditions.

It is understood that blast pattern changes are being made to reduce this damage, especially in the vicinity of final wall crests. Photo 3 shows a typical internal wall on 650 Bench.

Overburden consisting of very fractured rock and residual soil is present across the crest of many of the new benches opened across the hill. It is understood that when frozen the overburden material is fairly competent. Once thawed the material is cohesionless and tends to fail from the crest of the cuts, see Photo 4. The Mine reports that it manages this with the following procedures:

- Pull back unstable overburden material from the crest
- Place berms at toe of faces identified as potentially unstable.
- Restrict access to the danger zone at the crest and toe of a bench.
    - We reviewed several SOP and JHA and only found limited documentation of this restriction. We recommend that appropriate SOP be developed for all persons and equipment working in the pit.
- Require that work below faces be approved by technical services.
    - We reviewed several SOP and did not find this to be documented as a standard operating procedure. We recommend that appropriate SOP be developed.
- Regular inspections by shift boss and technical services.

Based on this review we consider that the starter pit is being designed, constructed and operated in general conformance with the requirements of the Mine Health and Safety Regulation as well as accepted engineering practices. No areas of unmanaged geotechnical concern affecting safety were identified although there is a need to formalize and document standard procedures.

Waste Rock Dump

The waste rock dump currently consists of two 3m lifts: one NAP one PAG, see Photo 5. The dump is being constructed by conventional end dumping. The dump is considered low hazard; it is being constructed on gentle sloping ground and its final height will be ~22m.

Section 1.147 of the MHSR requires that a monitoring and surveillance program be developed. For low hazard dumps the minimum acceptable program would include documented inspections by persons familiar with dump design and stability. It is understood that operations staff complete daily inspections of the dump during dumping operations, and that Technical Services complete weekly inspections.

Based on this review we consider that the waste rock dump is being designed, constructed and operated in general conformance with the requirements of the Mine Health and Safety Regulation as well as accepted engineering practices. No areas of geotechnical concern affecting safety were identified.

Milne Inlet Ore Stockpiles

The temporary ore stockpiles are constructed using either a stacker or loader. The stockpiles will be up to 18m high with angle of repose slopes see Photo 6. The stockpiles are extracted by

loader excavation at the toe. It is understood that the stockpiles have performed well to date, with no indications of instability other than shallow movement at surface. It should be noted that this is the first year that full height stockpiles have been developed.

It is understood that the stockpiles need to be sampled and surveyed on a regular basis. Surveying is generally completed by foot traverses over the stockpiles. Golder Associates reviewed stockpile stability and provided appropriate direction and warnings concerning working on and excavating stockpile slopes. We reviewed several SOP and JHA and did not find that Golder's recommendations were articulated in these documents.

An angle of repose stockpile is only marginally stable, as soon as the toe of the stockpile is excavated the stockpile angle increases and it becomes potentially unstable. As such, no foot traffic should be allowed on a stockpile face once extraction has commenced (even if extraction is no longer occurring). Buried ice and snow also create potentially unstable conditions and no foot traffic should be allowed on stockpiles faces with buried snow or ice that have potentially melted. Alternate means of surveying should be used in these situations (e.g. drone, reflector-less EDM).

Based on this review we consider that the stockpiles are being designed, constructed and operated in general conformance with the requirements of the Mine Health and Safety Regulation and accepted engineering practices. An appropriate SOP and JHA has been developed for sampling around the stockpiles. A SOP should be developed for surveying that includes no foot access on potentially unstable stockpile surfaces. A SOP should be developed for stockpile extraction for when the excavation faces become oversteep due to presence of ice or consolidated material.

Milne Inlet Dock

It is understood that a recent deformation survey of the pile foundations showed that piles are performing as per the assumptions and analysis by PND and GeoEngineers. The piles are considered stable.

Sinkholes up to 0.5m deep were noted in the dock fill deck below and on the seaward side of the ship loaders. It is understood that sinkholes up to ~1m deep have occurred in the past. The cause, and significance of these sinkholes is being investigated by the Mine and its consultants. At this time equipment traffic is restricted from using this area and regular visual inspections are being completed.

Quarries

The Milne Inlet Quarry was not operational at the time of this inspection. It is understood that the quarry will be brought back into operation in the near future. The quarry is up to 40m high and consists of 4 bench faces, see Photo 7. The following deficiencies were noted:

- There is significant loose on the bench faces.
- Bench width is less than 8m, in some cases this appears to be by design rather than due to crest break back.
- There are inadequate berms present on the haul roads.
- A frozen blast is located on the south end.

The quarry should be designed and operated as per the requirements of the MHSR (e.g Section 1.03 and 1.04) and accepted engineering practice. We recommend that no further work be allowed until such time as a mine plan, consistent with the MHSR, is developed and submitted to WSCC. A berm should be placed to restrict access to the quarry.

The QMR2 Quarry was not operational at the time of this inspection. It is understood that the quarry will be brought back into operation in the near future. The quarry is up to 30m high and consists of 3 bench faces that are 8 to 10m high, see Photo 8. The following deficiencies were noted:

- There is loose across the bench faces.
- Bench width is less than 8m, it appears that this is due to crest break back.

The quarry should be designed and operated as per the requirements of the MHSR (e.g Section 1.03 and 1.04) and accepted engineering practice. We recommend that no further work be allowed until such time as a mine plan, consistent with the MHSR, is developed and submitted to WSCC. A berm should be placed to restrict access to the quarry.

The D1Q2 Quarry has just started operation adjacent to KM106 on the haul road. It is understood that the Technical Services group have developed plans for this quarry that are consistent with the requirements of the MHSR.

Compliance with the Mine Health and Safety Regulation

Table 1 lists the relevant ground control requirements of the Mine Health and Safety Regulation. The table provides comment on if the Mine is meeting the intent of the Regulation, and if not what is required. Sections in the Table left blank were not assessed during this review or are not applicable at this time.

Conclusions and Recommendations

Other than some operation concerns around stockpiles, highwalls, and quarries no significant unmanaged worker safety hazards related to geotechnical aspects of design and operation were noted during our site review. For the most part the intent of the Mine Health and Safety Regulation as it relates to ground stability and worker safety is being met at the Mine. The Mine is following the recommendations of their geotechnical engineers and consultants, whose designs are considered to be consistent with accepted engineering practices.

The documentation that we reviewed is considered to be consistent with accepted practices. To be consistent with best practices we recommend that the following be adopted by the Mine:

- In the future any rock fall reports should include a "lessons learned" section to help understand and mitigate the hazard of future events.
- The ground control management plan should include the pit design basis information in an appendix such that it is readily referenced by future designers and regulators.
- The ground control log book should include a system to track concerns and note when ground control issued have been remedied.

When available we request that the following documents be submitted to WSCC.

- 2016 Geotechnical Inspection Review report for the pit.
- Design for the QMR2 quarry consistent with the MHSR
- Design for the QMR1 quarry consistent with the MHSR
- Design for the Milne quarry consistent with the MHSR
- Assessment of the frozen blast at the south end of the Milne quarry
- Assessment of the sinkholes along the ore dock
- SOP for surveying the Milne ore stock piles.
- SOP for stockpile excavation.
- SOP for work being completed around the crest and toe of pit highwalls.

Limitations and Closure

Michael Cullen Geotechnical Ltd. prepared this report for the use of the WSCC. This report is based on a review of select reports and work areas at the Mine, and cannot practically cover the entire mine site. Professional reliance has been used throughout this review. This report provides comments and opinions only, based on limited observations and review of the work of others; it is not intended to be used in engineering design.

Michael Cullen Geotechnical Ltd. does not accept liability for any damages suffered where a third party uses this report, or where it is used for purposes other than intended.

We trust that this report satisfies your present requirements. Should you have any questions or comments, please do not hesitate to contact us.

Sincerely
Michael Cullen Geotechnical Ltd.
Per:

Michael Cullen, P.Eng.
Cc Martin van Rooy

Photo 1: 200 t failure from 15m high final pit wall face on upper bench. Ultimate height will be ~25m

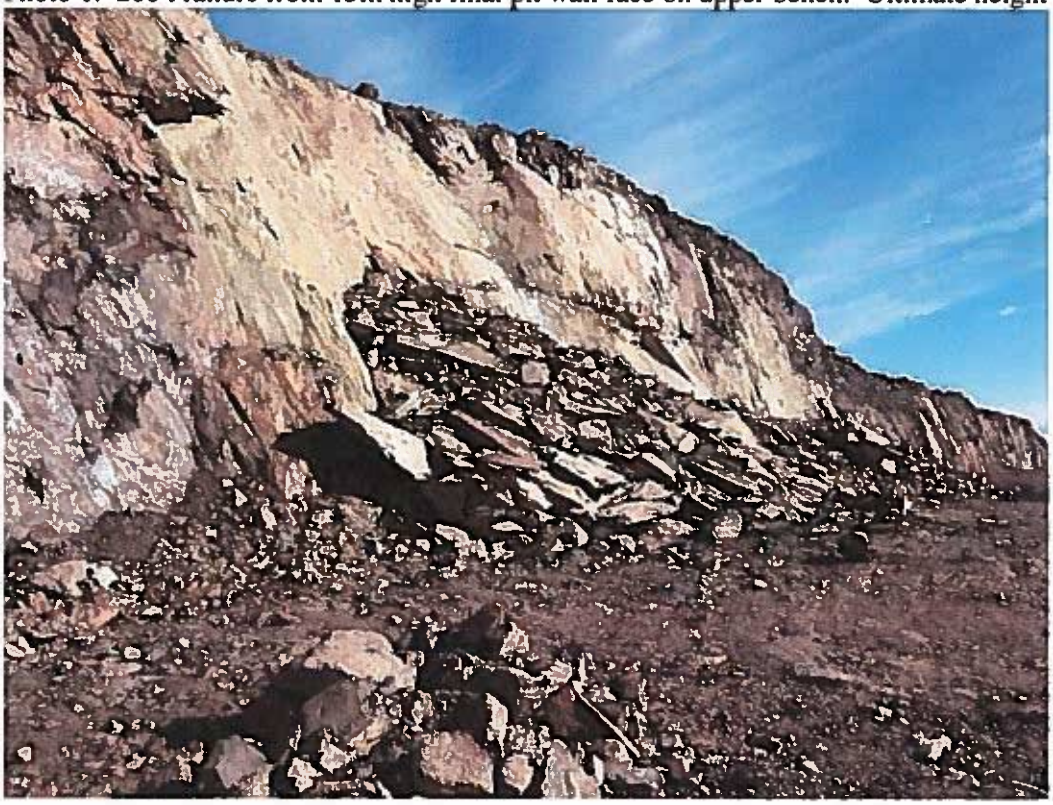

Photo 2: Ongoing raveling from 12m high final pit wall face on upper bench. Ultimate will be ~22m

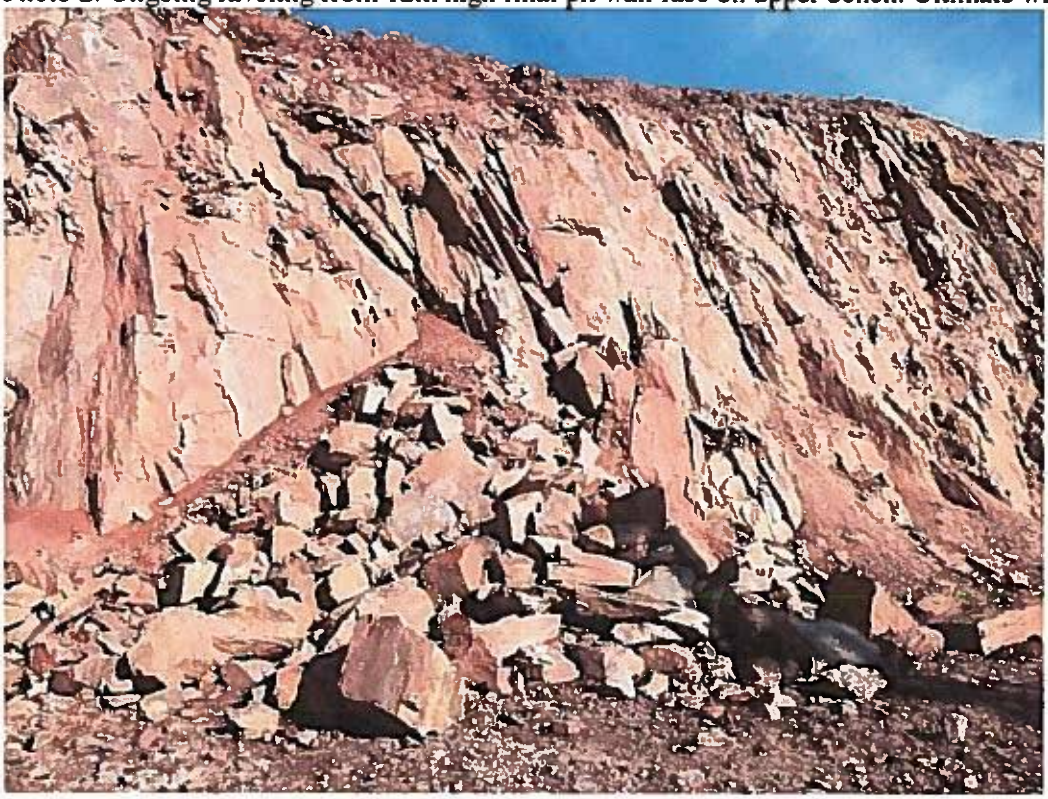

Photo 3: 10m high internal wall on 650 Bench. Geologic structure and blast damage contribute to local instability.

Photo 4: 10m high internal wall on outside edge of 640 Bench. Overburden across top of bench is raveling now that it has thawed.

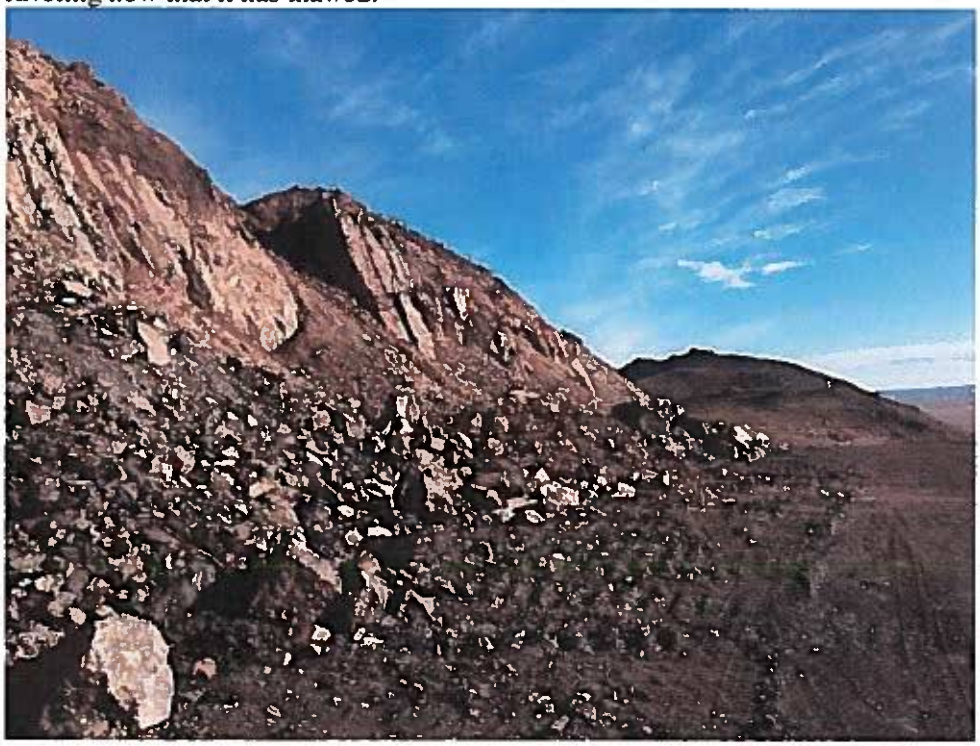

Photo 5: Waste Rock Dump with new sediment pond in background.

Photo 6: 18m high angle of repose stockpile with frost on surface

Photo 7: Milne Quarry. Much loose present of faces and bench width less than 8m

Photo 8: QMR2 Quarry. Much loose present of faces and bench width less than 8m

Table 1: Relevant Geotechnical Requirements of the Mine Health and Safety Regulation

Section of Regulation	Comments	Recommended Action
1.03.(1) The owner of a surface mine or an underground mine shall maintain a mine design, acceptable to the chief inspector, assessing the ground stability of the active and proposed workings of the mine. (2) The mine design that the owner is required to maintain shall be prepared by or under the direction of a professional engineer experienced in ground stability design and shall bear the engineer's seal and signature.	Milne Port and QMR2 quarry are not in compliance with regulation	Pit is in conformance with the regulation. No action is required at this time. Mine to submit appropriate design for Milne and QMr2 quarry prior to them being put back into operation.
1.04. The mine design shall consist of drawings, plans, calculations, specifications and written descriptions and shall (a) describe the geology of the mine; (b) outline the geometry of existing excavations, if any, and proposed excavations; (c) provide the rock mass characteristics that are representative of the ore, footwall and hanging wall rock that will be encountered most frequently and identify the orientation of the most common joint sets; (d) describe the hydrological features that may affect the working of the mine; (e) describe previous occurrences of ground instability and include recommendations from reports of investigations; (f) describe, for surface mines, expected climate conditions, the presence of permafrost, if any, and average monthly precipitation; (g) describe the mining method including bench or stope sequencing and blasting methods; (h) specify ground support systems, including pillars, backfill, timber support, tendon support and any other type of support, the criteria used concerning their selection, dimension, spacing and extent; (i) describe measures used and planned to assess potential ground instability; (j) include specific precautions to be taken concerning parts of the mine where bodies of water, overburden, tailings, gas, low oxygen or water soaked material may inrush or flood the workings; and (k) include such other information as the chief inspector may require.	Milne Port and QMR2 quarry are not in compliance with regulation.	Pit is in conformance with the regulation. No action is required at this time. Mine to submit appropriate design for Milne and QMR2 quarry prior to them being put back into operation.
1.05. The mine design shall be assessed and updated by an authorized person annually and before any major change is made to the mining method or the equipment used.		Mine is in conformance with the regulation. No action is required at this time.

Table 1: Relevant Geotechnical Requirements of the Mine Health and Safety Regulation

Section of Regulation	Comments	Recommended Action
1.24. A ground control logbook shall be maintained for surface and underground mines (a) the time, date and location of all tests relating to the requirements of the quality control program for ground support systems specified in section 1.13; (b) if there is any ground movement in the mine, details of the records of the ground monitoring devices in the area affected before the ground movement; (c) details of uncontrolled falls of ground; (d) details of working ground, tension cracks or other signs of instability; (e) details of rockburst and seismic events; (f) damaged supports; and (g) measurements taken from monitoring devices.	Mine has implemented a ground control logbook	Mine is in conformance with the regulation. No action is required at this time.
1.26. The shift boss shall convey the information contained in the ground control logbook referred to in the paragraphs 1.24(c) to (f) to every employee, worker and any other person working in the area under the shift boss' supervision before the employee, worker or other person begins working in the area.		Mine is in conformance with the regulation. No action is required at this time.
1.27. The ground control logbook shall be read and signed each day by the shift boss and by the mine engineer designated by the manager.		Mine is in conformance with the regulation. No action is required at this time.
1.135. All trees and other vegetation, clay, earth, sand, gravel, loose rock or other unconsolidated material lying within 2 m of the rim of a working face or wall in a surface mine shall be removed and beyond this distance all unconsolidated material shall be sloped to an angle less than the natural angle of repose.		Mine is in conformance with the regulation. No action is required at this time.
1.136. (1) No work shall be conducted at or below a face or wall of a surface mine until that face or wall has been examined and declared safe by the shift boss. (2) Nothing in subsection (1) shall prevent the shift boss from being accompanied by other persons who may be required to make the face or wall safe.		Mine is in conformance with the regulation.
1.137. (1) Where a surface mine is worked in benches, (a) each catchment berm shall be designed so that its final width will not be less than 8 m; and (b) loose rock shall not be allowed to accumulate on a bench or catchment berm in a manner that endangers any person working on a lower bench. (2) The manager shall, in consultation with the Committee, develop a procedure acceptable to the chief inspector that provides for the safety of workers should loose rock accumulate on a catchment berm and access to clean it not be possible.	Milne Port and QMR2 quarry are not in compliance with regulation	Pit is in conformance with the regulation. No action is required at this time. Mine to submit appropriate design for Milne and QMR2 quarry prior to them being put back into operation.

Table 1: Relevant Geotechnical Requirements of the Mine Health and Safety Regulation

Section of Regulation	Comments	Recommended Action
1.138. No person shall allow any part of a face or wall of a surface mine to overhang.		Mine is in conformance with the regulation. No action is required at this time.
1.139. At a surface mine where unconsolidated material is being worked or removed and could collapse onto the loading equipment, the vertical face shall not be higher than the reach of the loading equipment.		Mine is in conformance with the regulation. No action is required at this time.
1.140. Except where the working face is sloped at an angle acceptable to the chief inspector, the height of the working face shall not be more than 2 m higher than the reach of the loading equipment.		Mine is in conformance with the regulation. No action is required at this time.
1.141. Sections 1.139 and 1.140 do not apply (a) where material is removed by backhoe, excavator, dragline or similar equipment operating from above the face that it is excavating; or (b) where a multiple bench system of mining is being carried on in accordance with conditions approved by the chief inspector.		Mine is in conformance with the regulation. No action is required at this time.
1.147. The manager shall implement and maintain a surveillance and instrumentation program recommended in a waste dump design approved by the chief inspector.	WRD is inspected daily by shift boss and weekly by Technical Services	Mine is in conformance with the regulation. No action is required at this time.
1.150. A dump shall be designed by a professional engineer where required by the chief inspector or where it has one or more of the following characteristics: (a) a planned volume that exceeds one million cubic m; (b) a height of dump in excess of 50 m; (c) an area to be covered by the dump exceeding 5 ha; (d) it is founded upon natural or trimmed slopes which are sometimes steeper than 20 from a horizontal plane; (e) where waste material is dumped or placed in a water course having a potential peak flow greater than 1 cubic m per second, once in every 200 years, (f) it is situated in such a way that it may be a potential menace to a building, a road, a domicile, a prominent power transmission line, a pipeline or a major water course.	The WRD is considered low hazard.	Mine is in conformance with the regulation. No action is required at this time.

Table 1: Relevant Geotechnical Requirements of the Mine Health and Safety Regulation

Section of Regulation	Comments	Recommended Action
1.161. (1) The manager shall prepare procedures for the examination of open pit workings including (a) accumulations of loose rock on catchment berms which may endanger persons working below; (b) the height of working face in relation to reach of machine digging it; (d) the condition of roads to working area; (h) the presence of overhangs, face slips and faults in the face. (2) The manager shall prepare procedures for the examination of waste rock dumps including (a) irregularities noted in the dump platform; (b) the adequacy of mixing of rock being dumped; (c) the drainage and water problems; (d) any over-steepening in dump face; (e) the adequacy of berms; (g) the gradient of dump platform; and (h) any safety concerns beyond the toe of the dump. (3) The manager shall prepare procedures for the examination of tailings ponds including (a) the condition of the face of the embankment; (b) signs of seepage; (c) sloughing; (d) the condition of beach; (e) the width of top of embankment; and (f) the depth of water.	Regular inspections are made by shift boss and Technical Services. Yearly inspections completed by consultant (Golder Associates). Mine indicates that procedures are in place for work around crest and toe of pit walls however documented SOP could not be located. Mine indicates that procedures are in place for excavation of stockpiles, however documented SOP could not be located. Mine indicates that procedures are in place for foot traffic on stockpiles, however current SOP do not cover all situations.	Mine is in conformance with the regulation. Mine to develop and submit SOP for work around toes and crest of pit walls. Mine to develop and submit SOP for foot traffic on stockpiles Mine to develop and submit SOP for excavation of stockpiles

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

20160721 – GEOTECHNICAL INSPECTION

September 03, 2016

Martin van Rooy
WSCC Mines Inspector
Iqaluit, Nunavut

Dear Mr. van Rooy:

Further to 20160721 Mary River project electrical and geotechnical inspection reports, please see our response to your inspection.

Best Regards,
Bikash Paul
General Manager

GEOTECHNICAL INSPECTION:

Noticed the mine has restricted access to the danger zone at the crest and toe of pit walls however, the Standard Operating Procedure (SOP) and Job Hazard Analysis (JHA) reviewed contained only limited documentation of this restriction.

1 Please develop an appropriate SOP for all persons and equipment working in the pit and where work is required below a face, it must have prior approval from the geotechnical specialist on site.

RESPONSE:

In progress. Expected completion date: September 30, 2016.

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the SOP and JHA for Milne Inlet's ore stockpile sample and survey work did not clearly articulated Golder's recommendations and warnings concerning working on and excavating stockpile slopes.

2 Please reviewed the SOP and JHA and ensure the recommendations made by Golder, are clearly articulated in the documents.

RESPONSE:

In progress. Expected completion date September 30, 2016

An angle of repose stockpile is only marginally stable, as soon as the toe of the stockpile is excavated the stockpile angle increases and it becomes potentially unstable. As such, no foot traffic should be allowed on a stockpile face once extraction has commenced (even if extraction is no longer occurring). Buried ice and snow also create potentially unstable conditions and no foot traffic should be allowed on stockpiles faces with buried snow or ice that have potentially melted.

3 Please develop an SOP for stockpile extraction for when the excavated face become oversteep due to presence of ice or consolidated material and an SOP for surveying the stockpile that includes no foot access on potentially unstable surfaces.

RESPONSE:

In progress. Expected completion date September 30, 2016

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the following deficiencies noted for the Milne Inlet Quarry:- 1) significant loose on the bench faces, 2) bench width is less than 8m, 3) inadequate berms on the haul roads, and 4) a frozen blast at the south end.

4 Please install berms and post NO-ENTRY signage restricting access to the quarry and perform no work in it until a quarry design compliant with the requirements of the MHSR (e.g Section 1.03 and 1.04) and accepted engineering practice has been approved by WSCC.

RESPONSE:

Berm is installed at the Milne Quarry. August 17, 2016

In progress. Expected completion date November 30, 2016

Noticed the following deficiencies noted for the QMR2 Quarry: - 1) loose across the bench faces, and 2) bench width is less than 8m.

5 Please install berms and post NO-ENTRY signage restricting access to the quarry and perform no work in it until a quarry design compliant with the requirements of the MHSR (e.g. Section 1.03 and 1.04) and accepted engineering practice has been approved by WSCC.

RESPONSE:

Berm is installed at QMR2. Installed August 15, 2016

In progress. Expected completion date November 30, 2016.

20160722

email Sylvain.Proulx@baffinland.com

Sylvain Proulx
Chief Operating Officer
Baffinland Iron Mines Corporation
2275 Upper Middle Road East - Suite 300
Oakville ON L6H 0C3

Dear Mr. Proulx:

Further to the **Mine Health and Safety Act article 26** attached is the 20160922 Mary River project inspection report.

As per **MHSA article**

28. Please post a copy of this inspection report in a conspicuous location, and

29. Advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.

32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Fred Bailey or myself. His phone number is 867 669 4430 or email fred.bailey@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o tony.noseworthy@baffinland.com hal.finely@baffinland.com

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit		
Operator:	Baffinland Iron Mines Corp.	Lat.	71-19'N	Long.	79-24'W
Manager:	Sylvain Proulx	Inspection Date:	20160907 to 14		
Address	2275 Upper Middle Road East - Suite 300 Oakville ON L6H 0C3				

Martin van Rooy, WSCC's engineer/mine inspector, conducted a general safety inspection of Baffinland's Milne Inlet and Mary River sites.

Robert Bateman, Steven Campbell, Yvan Deslauriers, Denis Doucet, Mark Ebenal, Darryl Finlay, Jean Gauthier, Adam Gyorffy, Matthew Johnson, Brian Larson, Josh Manning, Kenneth Mullen, Edwin Patten, Justin Prosser, Robert Shea, Anthony Stewart, Matthew Tracey and Dale Wales assisted Martin van Rooy for parts of this inspection

Noticed at the Milne ore stockpile, a man, after contacting the 988-loader operator, walked through the loader's work area. The Loader operator continued loading ore from the stockpile and dumping it into the reclaim feed conveyor hopper while the man was walking through his area. The man, a Levert employee, advised he was aware of Baffinland's operating procedure requiring the loader operator to place the bucket on the ground while he was in the loader's work area.

1 Please ensure loader operators and persons working near loaders are trained and comply with Baffinland's procedure that the loader is parked with the bucket on the ground before a person enters the loader's work area and the bucket remains on the ground while the person is in the loader's work area.

   MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed three 988 loaders working on reclaiming ore feeding reclaim conveyor hoppers at Milne however, these loaders have no visible number on the equipment to identify the operator, before entering his work area.

Date of Report 20160922 **Inspector** ______________

Box 8888 • Yellowknife, NT X1A 2R3 • Telephone: (867) 920-3888 • Toll Free: 1-800-661-0792 • Fax: (867) 873-4596 • Toll Free Fax: 1-866-277-3677
Box 669 • Iqaluit, NU X0A 0H0 • Telephone: (867) 979-8500 • Toll Free: 1-877-404-4407 • Fax: (867) 979-8501 • Toll Free Fax: 1-866-979-8501
Box 368 • Rankin Inlet, NU X0C 0G0 • Telephone: (867) 645-5600 • Toll Free: 1-877-404-8878 • Fax: (867) 645-5601
Box 1188 • Inuvik, NT X0E 0T0 • Telephone: (867) 678-2301 • Fax: (867) 678-2302
www.wscc.nt.ca • www.wscc.nu.ca

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

2 Please note this is a repeat infraction see inspection report 29 January 2016. Please ensure a loader's identification is clearly visible during day and nighttime operation.

MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the operator of articulating truck ART 008, leave the ore stockpile area at Milne where the loaders are working and travel on the ore stockpile haul road however, he did not switched his radio to the MTAC channel as required for this area, from the drill and blast (ship loading) channel he was using.

3 Please ensure the boundary between the loader work area and the ore haul road area at Milne's ore stockpile pad, is clearly marked with barricades and signage stating the radio channel to use to permit direct communication with the people in the same work area.

MHSA article 10. (1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed one of the three 988 loaders at the ore pad at Milne and a number of articulating trucks travelling on the Tote road and working at Mary River, are missing either one or both wheel chocks

4 Please ensure rubber tired mobile equipment is equipped with two wheel chocks and the operator, before leaving their equipment in a parked position, blocks one of the unit's wheels with wheel chocks, to prevent unintended movement.

MHSR sect 10.29.(1) *All rubber tired mobile equipment having a gross weight exceeding 7,000 kg and any other piece of equipment specified by the chief inspector, shall have a minimum of two wheel chocks that shall be used when the operator leaves the equipment in a stationary position.*

Noticed an open bottom transformer installed on a wooden base, at the ship loader office. The transformer has no external ground conductor to show it is grounded.

Date of Report 2016 09 22 **Inspector** [signature]

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REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

5 Please place a steel plate below the transformer and install an external ground conductor from XO on the transformer to the generator's ground system.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed a number of electrical cabinets are missing their maximum voltage warning sign i.e. outside the ship loader's office, ship loader 2351-SL-002-CP04, SL002 JB024, 2351-ER-04-DP05, ship loader 1 and 2 construction power supply, Fountain tire shop, panel in seacan next to building #01...

6 Please note this is a repeat infraction see inspection reports 20 July 2016, 12 October 2015... ensure electrical panels installed at Milne Inlet, Tote Road and Mary River are equipped with clear signs warning of the highest voltage hazard present inside the cabinet.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed there are electric cables lying on the upper floor of ship loader 1 and on 2, at the construction power panel area. Also noticed at the construction power panel of ship loader 1, a cover removed from plug-in outlet and a cable connected directly to the outlet's cables.

7 Please review the construction power installation at ship loader 1 and 2 and either remove it or organise it to prevent damage to the cables and equipment. Remove the cable connected to the outlet's cables and replace the outlet cover.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Date of Report 2016 09 22 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the security guard, stationed at the ship loader office, wearing a ring. He was advised that rings must not be worn, while working on site.

8 Please advise all supervisors to ensure they and the persons working under their supervision, are in compliance with Baffinland's policy regarding no wearing of rings while at work.

MHSR sect 8.15.(1) *Where there is a risk of a person coming into contact with moving parts of machinery or with electrically energized equipment or where the work process is such that a similar hazard exists, the person*
(a) shall wear clothing that fits closely about the body;
(b) shall not wear dangling neckwear, bracelets, wrist-watches, rings or similar articles; and
(c) shall confine cranial and facial hair or wear it at a length which will prevent it from being snagged or caught.

Noticed the nip point pulley guards on the sample tower feed conveyor are not installed.

9 Please install the nip point pulley guards

MHSR sect 10.118.(3) *All accessible head, tail, drive and tension pulleys of a conveyor shall be effectively guarded at their nip points and the guards shall extend for a distance of at least 1 m from the nip point.*

Noticed there are some vertical access ladders that require fall protection, i.e. the two ladders to access the walkway across the reclaim conveyor, the two ladders to access the slewing motors platform in tower 002. Noticed the top of the lower vertical ladder to the slewing motor platform finished below the floor making it difficult to access the level or to access the ladder from the floor.

10 Please ensure vertical ladders more than 5 feet high are equipped with fall protection and that their side rails extend at least one meter above the work level the ladder is servicing.

Date of Report 20160922 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

MHSR sect 1.98. *Except in an underground mine, a ladderway at an angle steeper than 70 to the horizontal shall be fixed in place and be provided with*
(a) platforms at intervals not greater than 7 m;
(b) a safety cage; or
(c) a protective device that, when used, will prevent a worker from falling.

Noticed the access door on some 600 Volt cabinets were not locked providing easy access to 600 Volt terminals, i.e. 2351-SL-002-CP04, SL002 JB004, 2351-ER-04-DP01, 2351-ER-04-DP05 and in ER-04 there is a cover missing from the panel below starter marked 'Capstan SL002 Dock East side'.

11 Please ensure electrical enclosures are locked or bolted and that they require tools or keys to gain access to the live terminals and cover the opening below the starter.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed there are field revisions drawn on the electrical schematic in ship loader room ER-4.

12 Please have these as-built electrical revisions up-dated on the original drawings and certified.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed four men working on a screening plant at the ore stockpile, all men had locked-out and tagged the screen's master switch however, one man had not written his name on the lock-out tag. The person is a contract employee and had not received Baffinland's lockout training.

Date of Report 20160922 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

13 Please note this is a repeat infraction see inspection report 19 May 2016, 20 Dec. 2014... ensure every person on site, authorized to work on equipment, is trained and complies with Baffinland's lockout procedure.

MHSR sect 10.22.(1) *Locks and tags shall be issued to each person who works on machinery or equipment that has to be locked out.*

(2) *Tags issued to individual persons shall contain space for the recording of the person's name, the type of work being performed, the date and time the work was started and the name of the supervisor in charge.*

(3) *Where equipment is to be locked out, each person working on the equipment shall be responsible for affixing his or her own lock and tag to the lock-out device and for removing them on the completion of the work.*

Noticed Baffinland has supplemented its own work force with contract personnel. However, some of these contractors are not complying with Baffinland's work procedures. As noted in
item 1, a man walking through the loader's work area without the loader bucket on the ground and the loader operator not keeping the bucket on the ground while the man was in his work area,
item 3, an operator not switching his radio channel to the new work area, and
item 12, a man not completing his lockout tag information.

14 Please ensure all contract personnel are qualified, trained and comply with all Baffinland's procedures applicable to their work.

MHSA art 15. *Where a contractor performs work at a mine, the contractor, the employee or officer of the contractor in charge of the work of the contractor at the mine and the owner and manager of the mine shall, in respect of the work of the contractor at the mine,*
(a) take every reasonable measure and precaution to protect the health and safety of employees of the contractor, employees of the mine and other persons at the mine; and
(b) comply with, and ensure that other persons comply with, this Act and the regulations and any applicable orders or directives issued under this Act or the regulations.

Date of Report 20160922 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the cables and hoses were lying indiscriminately among the large jack stands at Milne's mobile maintenance shop, creating a trip hazard.

15 Please note this is a repeat infraction see inspection report 12 Oct 2015, 21... Please ensure no supervisor allows electrical cords, hoses and other items... to lie indiscriminately and without protection over the ground or across a floor where they are a potential trip hazard and or other hazard if un-intentionally cut or damaged.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed a mechanic working on ore haul truck OHT 24 however, he had not locked out the equipment.

16 Please ensure all persons working with or on equipment are trained in the lockout procedure and apply their individual lock and tag to the lockout system, before working on the equipment.

MHSR sect 10.22.(1) *Locks and tags shall be issued to each person who works on machinery or equipment that has to be locked out.*

(2) *Tags issued to individual persons shall contain space for the recording of the person's name, the type of work being performed, the date and time the work was started and the name of the supervisor in charge.*

(3) *Where equipment is to be locked out, each person working on the equipment shall be responsible for affixing his or her own lock and tag to the lock-out device and for removing them on the completion of the work.*

Date of Report 2016 09 22 **Inspector** [signature]

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REPORT OF AN INSPECTOR OF MINES

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Noticed there is no simple and clear instruction sheet on the wall of the Milne power plant, on the procedure to follow to start-up the power plant and this could be a problem, for an inexperienced operator.

17 Please develop a clear and simple start up instruction sheet for the Milne power plant and for the Mary River power plant and post it in the power plant.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the fire pump system at Milne had settled further since the May 2016 inspection, increasing the strain on the diesel fire pump exhaust bellows and the fire pumps' piping system. It was also noted that the diesel fire pump had not run since May 2016 because of concerns by the operator, of potential fire line breakage. The operator also advised misalignment between the electric motor and fire pump had damaged the membrane in the electric fire pump's coupling.

On September 10, 2016 at about 6:30 am, instructions were issued to Baffinland to correct without further delay, the Milne fire pump problems. Baffinland advised on September 16, 2016 that the alignment of fire line piping and equipment were completed and the fire pumps were now safe to run without concern of fire line breakage from the settlement.

18 Please review the settlement problems in Milne's water treatment plant and implement a permanent solution, to stop the fire pump system settlement problems.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed extension cords and air hoses lying indiscriminately across the floor of Milne's Fountain Tire shop and there is no clear access to the electrical panel on the wall as it is blocked by a heater hose, a wheel rim and rings.

Date of Report 2016 09 22 **Inspector** ________________

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

19 Please remove the clutter in front of the electrical panel and provide 1-meter clear access to the panel. Remove the extension cords and hoses lying indiscriminately on the floor and provide retractable reels for the hoses and cables for service from above the work area or organize them in orderly manner on the floor with their lines covered

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed Baffinland has received new ore haul trucks and trailers. These units have larger tire diameters than the other ore haul units therefore, the berms along the Tote road must be raised to ¾ the height of the larger tires. Also noticed a berm is required at ~km 10 and the berms at km 34-35, ~42.5 and ~80 are very low. At ~km 57 there is a blind corner and call sign is required to warn oncoming traffic.

20 Please submit a copy of Baffinland's design standard for the Tote road's berms and ensure all sections of the Tote road, where a vehicle could lose control if it went off the road, are bermed to ¾ the height of the largest ore haul tire used on the road. Ensure call signs are installed North and South of blind corners and blind hills.

MHSR sect 1.143.(1) *The manager shall ensure that surface haulage roads are designed, constructed and maintained to provide*
(a) a travel width where dual lane traffic exists, of not less than three times, or where single lane traffic exists, of not less than two times the width of the widest haulage vehicle used on the road; and
(b) a shoulder barrier
(i) at least 3/4 the height of the largest tire on any vehicle using the road,
(ii) of a construction or a specification that is acceptable to the chief inspector

Noticed the Winterhaven water pumphouse at Mary River needs a clean-up

Date of Report 2016 09 22 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

21 Please clean-up the Winterhaven pump house.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed in the helicopter garage, a stack of pickets are placed in front of the fire extinguisher, the terminals of a storage battery are uncovered and there is an electrical panel with no maximum voltage warning sign and with an open hole in the bottom of the panel.

22 Please ensure clear and unobstructed access is maintained to fire extinguishers, cover the storage battery terminals, plug the electrical cabinet's open hole and affix a maximum voltage sign to it.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed the extension cords used to power the Herman Nelson heaters in Nuna workshop and in the Mary River warehouse.

23 Please provide an outlet at each heater and plug the heater directly into the outlet. Remove the extension cords.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Date of Report 20160922 **Inspector** [signature]

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REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the switches in the electrical panel in Mary River's service garage dry, have no labels plus there is an open slot in the panel and it is missing its maximum voltage sign.

24 Please label the circuit the switch services, cover the open slot and affix a maximum voltage sign

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the 16" x 1¾" reinforcing of the 8" x 8" main roof beam of Mary River electrical shop, is not installed continuous between the columns as per the design drawings thereby not achieving the designed beam strength required.

25 Please consult with the design engineer and have him submit a certified drawing showing how to correct the construction error.

MHSR sect 10.01.(1) *All mechanical equipment used at mines shall be*
(a) designed in accordance with good engineering practice;
(b) constructed in accordance with a design and plans that have been certified by a professional engineer; and
(c) acceptable to the chief inspector.

Noticed the hammer and drill bits for the Caterpillar MD6290 drill, are stored in the bit grinding shop at Mary River. The hammer weighs approximately 230-pound and the drill bits about 50-pounds and these are manually hauled from inside the shop onto a truck and then onto the drill. This manual manipulation of the hammer and or drill bits is of concern because of the heavy weights involved in this awkward installation work.

Date of Report 2016 09 22 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

26 Please review the complete bit and hammer handling cycle, to/from the storage, to/from the drill, to/from the bit grinding shop, other... to ensure effective protection is provided for any person exposed to the risk of injury from manually handling this equipment. In addition, ensure each person engaged in the bit and hammer handling cycle, receives routine training in manual lifting procedure(s).

MHSR sect 9.72.(1) *The manager shall ensure that suitable mechanical equipment is provided and used for the handling of heavy or awkward loads.*

(2) *Where the use of mechanical equipment is not practicable, the manager shall take all practical means to adapt heavy or awkward loads to facilitate lifting, holding or transporting by employees or to otherwise minimize the manual handling required.*

Noticed the materials stored in the electrical room of the bit grinding shop, blocked ready access to the electrical equipment in the room.

27 Please remove the stored material and maintain at least one-meter clear working space about the electrical equipment.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines*

Noticed the long extension cords used at crushing and screening plants 'A', 'B' and 'C'.

28 Please provide convenient outlets in and around the areas where the extension cords are used, plug the equipment directly into the outlet and remove the long extension cords.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines*

Date of Report 20160922 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Noticed the open cardboard containers stored on the floor in Mary River's mobile maintenance shop warehouse, are a potential fire hazard.

29 Please remove the cardboard containers and other combustible products and minimize the potential fire hazard in this area.

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed the small propane torch gas bottles are stored in a 45-gallon drum in Mary River's mobile maintenance shop. This is a concern, as the propane from a leaking bottle would accumulate in the 45-gallon drum awaiting ignition. The shop supervisor was advised to move the 45-gallon drum outside and provide vent holes in the bottom of the drum to prevent propane accumulation.

30 Please ensure empty or full propane cylinders/bottles when not in use, are stored outside in a well-ventilated area

MHSR sect 10.101.(1) *All gas fired appliances, equipment and pipelines shall be installed and maintained in accordance with the standard CAN/CGA-B149.1-M95, Natural Gas Installation Code and CAN/CGA-B149.2-M95, Propane Installation Code, and the system shall comply with the requirements of the Gas Protection Act and the regulations under that Act.*

Noticed a new crane is replacing the crane on the back of service truck parked in the mobile maintenance shop however, the replacement crane is not an exact duplicate of the old crane.

31 Please ensure a professional engineer certifies the replacement crane and replaces the load chart and

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REPORT OF AN INSPECTOR OF MINES

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crane decals on the truck for the existing crane with the new crane's data.

MHSR sect 10.128.(2) *A new or used crane, shovel, dragline, boom truck or similar type of equipment that uses a rope or cable to raise, lower or swing a load or materials during its work cycle shall not be put into service unless*
(a) a certificate has been obtained from the manufacturer or from a professional engineer competent in the design of hoisting equipment, certifying
(i) the maximum load capacity and maximum operating speed of the hoisting or lifting system, and
(ii) that all critical load-bearing components of the complete assembly and accessories have been inspected and non-destructively tested; and
(b) all the commissioning tests have been successfully completed.

Noticed there are extension cords and air hoses lying indiscriminately across the floor at Fountain Tire's work area in the mobile maintenance shop.

32 Please remove the extension cords and hoses lying indiscriminately on the floor and provide retractable reels for the hoses and cables for service from above the work area or organize them in orderly manner on the floor with their lines covered

MHSR sect 9.04. *The manager shall develop and implement an effective housekeeping program to ensure that*
(a) all worksites and travelways are maintained in a safe condition;
(b) materials and equipment are stored in a manner so as not to endanger persons; and
(c) appropriate action is taken whenever necessary to maintain a hazard-free environment.

Noticed ore haul truck OHT 29 cab is equipped with a high-pressure air hose with a blowgun attached for cleaning. There is no sign in the cab warning of the hazard of using compressed air for cleaning and the PPE required while using high-pressure air for cleaning. A high-pressure air blowgun was also removed from a Baffinland toolbox in the mobile equipment service garage.

33 Please note this is a repeat infraction see inspection report 29 Jan 2016. Please direct all supervisors

Date of Report 20160922 **Inspector** [signature]

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

to remove high-pressure air blowguns from service including the ore haul trucks and as previously noted review the practice of using compressed air for cleaning and where this procedure is required, ensure-
a) a safe work procedure is developed that addresses without limiting, personal protective equipment, hearing protection, maximum air pressure to the blowgun, barricades around the work area...
b) people, authorized to use high-pressure air for cleaning, are trained in this safe work procedure,
c) submit a copy of the safe work procedure for using high-pressure air for cleaning, and
d) identify the areas where an ***authorized person*** may use high-pressure air for cleaning.

MHSR sect 10.121.(1) *The manager shall identify and supply all suitable personal protective equipment to be worn by the operator for the safe operation of all miscellaneous tools including grinders, chain saws, pneumatic tools and all power activated tools.*

(2) *No person shall use any miscellaneous tool unless*
(a) the person is trained and authorized to use the tool;
(b) the person is wearing, and has received training on, the proper personal protective equipment required for the safe operation of the equipment; and
(c) the personal protective equipment is in good condition.

Noticed ore haul truck OHT 12 was allowed to run in the mobile maintenance shop for some time to build-up brake line air pressure however, the engine's exhaust is not ducted out of the building causing exhaust fumes to build up in the shop.

34 Please review alternate means of charging-up the ore haul truck's brake line air pressure such as plant compressed air, to avoid discharging the truck's engine exhaust into the shop.

MHSR sect 10.59.(2) *The exhaust of an internal combustion engine that is temporarily or permanently operating within a building on the surface shall be conducted to a point outside the building and prevented from*
(a) re-entering the building;
(b) entering the intake of any compressor;

Date of Report 20160922 **Inspector** [signature]

(c) contaminating the atmosphere of another building; or
(d) contaminating mine workings.

Noticed in the various shops at Milne and Mary River, hoses, welding cable and extension cords are placed on the floor for work reasons however, on the floor these items become trip hazards and are damaged or cut by men or equipment traveling over them or material falling on them.

35 Please ensure hoses, cables, extension cords... are placed in an organized manner on the floor of the shop and are covered to minimize the trip hazard and protect them from damage alternatively where feasible us vertical drop lines to avoid placing them on the floor.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed the panic bar on the exit door of the Mary River welding shop is still broken making it difficult to open the exit door however, this was noted as repaired in Baffinland's response of April 20, 2016 to item 21 of inspection report 20160129.

36 Please repair the Mary River welding shop exit door panic bar.

MHSR sect 1.159.(1) *The manager shall prepare a procedure for the examination of worksites that provides for examination*
(i) of the emergency arrangements including safe means of egress;

Noticed an open slot in electrical panel 4521.3 PNL 002A in the Mary River welding shop.

37 Please cover the open slot in the electrical panel

Date of Report 20160922 **Inspector** [signature]

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REPORT OF AN INSPECTOR OF MINES

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MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines*

Date of Report 20160922 **Inspector**

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Promote workplace safety and care for injured workers

Baffinland

20170228

Martin van Rooy
Engineer/Mines Inspector
WSCC
Iqaluit, Nunavut

Dear Mr. van Rooy:

Further to your letter of outstanding government orders, please see responses for completed orders in this letter.

Robert Gagne
General Manager

1. Order # 20160129-10 cleaning with compressed air is not allowed at Bim - complete.
2. Order #20160129 – 16 A new tank with a fuseable link has been installed – complete
3. Order #20160921 – 19 the fountain tire shop has been cleaned up and material removed from in front of the electrical panel – complete
4. Order #20160921 – 29 The cardboard containers and other combustible products have been removed – complete
5. Order #20160921 – 32 The extension cords and air hoses have been removed and are stored neatly – complete
6. Order #20160921 – 33 All of the OHTs have been checked and the air hoses removed from each unit – complete
7. Order #20160921 – 34 All air tanks are retrofitted to use shop compressed air rather than run the truck – complete
8. Order #20160921 – 35 All hoses, cables and extension cords are picked up and stored neatly – complete
9. Order #20160921 – 30 The drum of small propane bottles has been moved outside and vented – complete
10. Order #20160129 – 13 the single line schematics are posted in the electrical rooms and will be updated whenever there are changes – complete
11. Order #20160519 – 21 The hotsy has been checked and verified to be compliant – complete
12. Order #20160721 – 01 – a single line diagram has been posted on the wall of Milne power house B – complete
13. Order #20160721 – 08 the enclosure is repaired which allows to the door to be closed – complete
14. Order #20160721 – 09 – Grounding has been installed in accordance with CSA M421-11 clause 4.4.5.2.2 – complete
15. Order #20160721- 10 This is complete on the one on the pad and the spare one will be done before bringing it on operation – complete for the one on the pad
16. Order #20160721 – 11 This unit removed from service – complete
17. Order #20160721 – 12 This unit removed from service – complete
18. Order #20160721 – 15 This is complete
19. Order #20160721 – 16 – this is complete
20. Order #20160721 – 17 Electrical outlets have been installed - complete
21. Order #20160721 – 19 – this is done on the one on the pad and the spare one will be done before bringing it in operation – complete for the one on the pad
22. Order #20160721 – 30

23. Order #20160922 – 21 Weatherhaven pump house has been cleaned up – complete
24. Order #20160922- 22 Items completed
25. Order #20160922 – 23 Outlets have been installed and extension cords removed – complete
26. Order #20160922 – 24 Items completed
27. Order #20160721 – 03 The items have been removed from in front of the electrical panels – complete
28. Order #20160922 – 04 All units have been fitted with two wheel chocks – complete
29. Order #20160519 – 19 Vacuum cleaners are now in each drill – complete
30. Order #20160721 – 06 Complete
31. Order #20160922 – 26 See attached procedure – complete
32. Order #20160721 - 01 See attached SOPs – complete
33. Order #20160721 – 02 See attached SOPs – complete
34. Order #20160721 – 03 See attached SOPs – complete
35. Order #20160721 – 05 No entry signs have been erected and quarry design criteria has been submitted to and approved by WSCC – complete
36. Order#20160922 – 27 Area is cleaned up and material removed from in front of the electrical equipment – complete
37. Order #20160922 – 08 Memo has been issued to all personal that jewelry is not to be worn while at work – complete
38. Order #20160922 – 36 Door has been repaired – complete.
39. Order #20160922 – 11 Complete
40. Order #20160922 – 12 Complete