Agnico Eagle Mines
Meliadine Environment Department

Freshet Inspection Report

Location: Itivia, Bypass Road, AWAR, Mine Site, Exploration Camp

Owner: Sites Services/Environment

DATE : 18-May-19 Inspected By : JAB/SK/BH

Applicable Management Plans:
- Freshet Action Plan – March 2019 – Version 5

Applicable Licence
- Water Licence No: 2AM-MEL1631 – April 2016

Exploration Camp Area & Road

Specific Risks:
- TSS transport from core stockpile
- TSS transport across road
- Snow pad and runoff at the back of Explo towards Mel. Lake
- TSS transport on downstream end of J1 Culvert towards Mel. Lake
- Ensure snow storage and padding is done in designated area

Observations:
- Good padding along North side of camp.
- Large snow piles behind old genset area.
- Large snow piles behind camp (south and east).

Mitigation Measures:
- Snowpiles should be padded to aid in sublimation at the onset of warmer temperatures.
- Remove snow from old genset area (pad with other snow).

Pictures No.: 1-2

Exploration Camp Road to Portal No. 1

Specific Risks:
- Ponding and runoff (erosion potential) across road from temporary stockpile to P3
- Ensure snow storage and padding is done in designated area

Observations:
- Runoff down road (between snow banks) beginning.

Mitigation Measures:
- Monitor for TSS transportation off of road as snowbanks/pads deplete. Apply TSS logs as necessary.

Pictures No.:

Landfarm B and Fuel Farm B

Specific Risks:
- Water level within berm (i.e., required pumping)
- Seepage through berm
- Excessive snow amongst fuel tanks causing high runoff adjacent to Landfarm B

Observations:
- Snow piling in front of Landfarm and drifting within adjacent Landfarm containment.

Mitigation Measures:
- Remove snow from front of landfarm, granting access to containment. This snow should be removed and padded across the road (south of explo road).
- Snow drifting within the containment that has not made contact with the Landfarm material or base of the pad should be removed and padded along with the other snow across the road. This will reduce the volume of water that will have to be removed from the containment during melt – contained water must *not* exceed the top of the containment berm.

Pictures No.: 3-4

SP1

Specific Risks:
- Slumping or failure of bedrock and overburden walls
- Slumping, erosion, or cracking of downstream berm
- Ensure no unplanned inputs
- Water levels exceeding lowest bedrock elevation

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

SP2

Specific Risks:

- Slumping or failure of bedrock and overburden walls
- Ensure no unplanned inputs

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

D-CP5/CP5

Specific Risks:
- Water levels approaching toe of dike
- Ponding in D-CP5 trench
- Ensure snow is cleared from downstream toe to ensure no seepage to key trench
- Seepage through the downstream dike slope
- Ensure no unplanned inputs

Observations:
- Snow drifting along downstream toe.

Mitigation Measures:
- Snow that has drifted along the downstream (south) toe of D-CP5 should be removed and padded along the main site access road (with other padded snow). The down-stream toe must be clear to prevent any potential of water infiltration to the dike keytrench, and to assist with the early installation of the sump/trench pumps that will be required for freshet.

Pictures No.: 5

Channel 5

Specific Risks:
- Blockages in channel
- Slope failure
- Water levels flooding back and impounding against Berm 3
- Inflows to channels on site which are not part of the water management system

Observations:
- Pipes crossing channel at 2 locations.
- Pooling of water behind north pipe crossing – may be caused by pipe blocking flow.

Mitigation Measures:

- Pipes originating from the SWTP pad/laydown travel across the channel at 2 locations. Ensure piping is not impeding flow or damaged by flow during freshet. Continue to monitor.

Pictures No.: 6

Berm 3

Specific Risks:
- Slumping, cracking or erosion of berm
- Pooling at upstream toe and resultant seepage through berm
- Flow along downstream toe of berm - TSS entrainment

Observations:
- No concerns

Mitigation Measures:

Pictures No.:

P3 and DP3

Specific Risks:
- Seepage under dike trench and toward CP5
- Water levels approaching base of SP3 liner
- Ensure no unplanned inputs

Observations:
- Starting to thaw

Mitigation Measures:
- Continue to survey elevations and pump to P2 as soon as possible.

Pictures No.:

Fuel Farm

Specific Risks:
- Erosion, slumping, or cracking of perimeter berms
- Sump water level
- Seepage away from containment

Observations:
- No concerns

Mitigation Measures:
- Monitor old spill area for pooling – ensure water stays within containment.

Pictures No.:

SP3

Specific Risks:
- Cracking or slumping of SP3 pad/base
- Seepage from containment

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Portal No.1

Specific Risks:
- Channelized flow down the portal
- Significant ponding adjacent to the portal

Observations:
- No concerns

Mitigation Measures:

Pictures No.:

ANFO Plant

Specific Risks:
- TSS transport off of laydown
- Incision of tundra and TSS transport due to snowmelt from snowpad

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

CP4 and Berm-CP4

Specific Risks:
- Water level within CP4 nearing OMM (bedrock elevation)
- Greater than expected TSS transport from WRSF or surrounding area to CP4
- Slumping and cracking of upstream Berm-CP4
- Ensure no unplanned inputs

Observations:
- No concerns – water flowing in underneath rock fill at Channel 4, as well as 2 other locations.

Mitigation Measures:

Pictures No.:

Channel 4

Specific Risks:
- Channel is not completed, but initial blasts done
- Slope failure
- Therefore look for TSS migration from blasted area
- Incision due to channelized flow and associated TSS transport
- Inflows to channels on site which are not part of the water management system

Observations:
- Water beginning to flow.

Mitigation Measures:
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Pictures No.:

Western Exhaust Raise

Observations:
- Not observed.
- Previously pooled water – waiting for removal.

Mitigation Measures:
- Remove water and transport to CP4 as per material movement request.

P2

Specific Risks:
- Changes or increases in previously observed cracking, slumping, and erosion of DP2-A
- Water levels above OMM
- Ensure no unplanned inputs

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

P1

Specific Risks:
- Changes or increases in previously observed cracking, slumping, and erosion of DP1-A and DP1-B
  Migration of water from DP1-B trench towards CP1 or Portal 2
- Water level in Contaminated Snow Cell
- Ensure no unplanned inputs

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Portal No. 1 Haul Road to Industrial Pad

Specific Risks:
- Ponding along roadside (particularly close to Portal 2)
- Ensure no snow storage outside of designated snow pad areas (P2/P3)

Observations:
- Pooling along western side of road – unnamed culvert clear, water should proceed north through culvert before topping road banks.

Mitigation Measures:

- Continue monitoring flow to ensure water passes through unnamed culvert (temp name culvert 6).
- Monitor area where channel 8 would flow for over-topping.

Pictures No.: 7

Portal 2

Specific Risks:
- Any sort of ponding near Portal 2
- Cracking, slumping, and erosion of backfill material

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Culvert 2

Specific Risks:
- Blockages impeding flow
- Damage to in the inlet or outlet which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream

Observations:
- Snow blocking flow through Culvert 2

Mitigation Measures:
- Attempt to clear culvert 2, otherwise monitor for over-topping upstream of channel.

Pictures No.: 8

Channel 1

Specific Risks:
- Blockages impeding flow
- Cracking, slumping, and erosion of rip-rap slopes underneath ramp
- Greater than expected TSS transport
- Prolonged overtopping of banks
- Inflows to channels on site which are not part of the water management system

Observations:
- No concerns

Mitigation Measures:

Pictures No.:

Landfill A

Specific Risks:
- Cracking, sluping, and erosion of landfill berm
- Exceesive seepage through landfill berm
- Excessive pooling within landfill (or snow drifted within which will pool upon thaw)

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

H15

Specific Risks:
- TSS transport from TSF

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

TSF

Specific Risks:
- Excessive snow/runoff on tailings and resultant flow channeling Ponding water
- Unusual settlement or slumping of waste rock cover
- Integrity of Waste Rock perimeter

Observations:

- Large pooling on North side of tailings (within TSF)
- E&I constructed channels to drain areas against tailings
- Overburden perimeter surrounding CP3 blocking drainage from tailings

Mitigation Measures:
- Remove overburden perimeter from western edge of tailings

Pictures No.:

Culvert 18

Specific risks :
- Blockages impeding flow
- Damage to in the inlet or outlet which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

CP3 and Berm-CP3

Specific Risks:
- Water level within CP3 nearing OMM (bedrock elevation)
- Greater than expected TSS transport from TSF to CP3
- Slumping, cracking, and erosion of upstream Berm-CP3
- Ensure no unplanned inputs

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Channel 3

Specific Risks:

- Bridge constructed (and removed) for waste rock transport – ensure no TSS entrainment in this area
- Blockages impeding flow
- Overtopping of banks
- Inflows to channels on site which are not part of the water management system

Observations:
- Water pooling along channel, flow appears to have started

Mitigation Measures:

Pictures No.:

Berm 2

Specific Risks:
- Slumping, cracking or erosion of berm
- Pooling at upstream toe and resultant seepage through berm

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Emulsion Plant and Road

Specific Risks:
- Flow across road (take GPS coordinates of significant flow to plan culverts)
- TSS transport to the Environment (install straw logs if flow off site observed)
- Flow from laydown or snow pads towards environment that is causing incision and TSS transport
- Ensure snow is padded off the side of emulsion laydown
- Ensure no snow piles along road
- Blockage of pad drainage ditch

Observations:
- Pad drainage ditch mostly clear.
- Large drifting on west end of ditch.

Mitigation Measures:
- Attempt removal of snow at west end of ditch to ensure no large runoff across pad.

Pictures No.:

Culvert 13

Specific risks :

- Blockages impeding flow
- Damage to in the inlet or outlet which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream

Observations:

- Not observed

Mitigation Measures:

Pictures No.:

Channel 2

Specific Risks:

- Slope failure
- Overtopping banks
- Greater than expected TSS transport
- Inflows to channels on site which are not part of the water management system

Observations:

- No concerns.

Mitigation Measures:

Pictures No.:

Main Camp Area

Specific Risks:

- Runoff at back of camp causing incision or TSS transport to Channel 2
- Significant flow or ponding on pad or parking areas
- Ensure no snow storage outside of designated snow pad (CP1)

Observations:

- Snow piles at rear of H.E. parking area producing runoff along parking area, generating erosion of pad.

Mitigation Measures:
- Remove snow and transport to snow dump (CP1).

Pictures No.:

Meliadine Esker

Specific Risks:
- TSS transport to Meliadine Lake due to quarrying

Observations:
- Areas of snow piling.

Mitigation Measures:
- Apply TSS controls as needed – monitor runoff during freshet.

Pictures No.:

Landfarm A

Specific Risks:
- Erosion, slumping, or cracking of perimeter berms, particularly south-east corner
- Sump water level
- Seepage towards CP1 or away from Landfarm

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

Industrial Pad Site

Specific Risks:
- Significant pooling causing erosion with vehicle traffic
- Flow across pads or roads causing increased TSS runoff to water management system
- Snow banks or piles causing erosion upon melt
- Esnure no snow storage outside of designated snow pad (CP1)

Observations:

- Still numerous snowpiles around the industrial pad, however shrinking in size. Runoff is causing minor erosional channels on the pad.

Mitigation Measures:

- Remove snow piles to designated area (P2 or CP1, depending on removal location.
- Applied woodchip TSS log at drainage from pooling outside incinerator.

Pictures No.:

Service Road

Specific Risks:

- Flow or pooling along roadside causing TSS transport or washout concerns
- Ensure no snow storage along roadside

Observations:

- No concerns.

Mitigation Measures:

Pictures No.:

Culvert 3

Specific Risks:

- Blockages impeding flow
- Damage to in the inlet or outlet which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream

Observations:

- Culvert not blocked by ice
- Some snow in flow path, monitor if blockage occurs during flow.

Mitigation Measures:

- Remove snow or monitor frequently for blockage or melt.

Pictures No.:

Culvert 4

Specific Risks:

- Blockages impeding flow
- Greater than expected TSS transport

- Damage to in the inlet or outlet which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

CP1 and D-CP1

Specific Risks:
- Overtopping of containment area on downstream end of D-CP1
- Changes or increases in previously observed cracking, slumping, and erosion of D-CP1
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- Ensure no unplanned inputs
- Seepage through the downstream dike slope

Observations:
- No concerns.

Mitigation Measures:

Pictures No.:

H5

Specific Risks:
- Runoff from D-CP1 to H5 (transporting TDS or TSS)

Observations:
- Not observed.

Mitigation Measures:

Pictures No.:

AWAR and Bypass Road

Specific Risks:
- Blockages in culverts impeding flow

- Ice dams upstream or downstream of bridges
- Flow across or along roads (install straw logs as needed)
- Slumping of roadside
- TSS transport from quarries along AWAR into water bodies or streams
- Ensure no snow banks or piles along roadside
- Damage to in the inlet or outlet of culverts which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culverts
- Ensure no bed erosion upstream and downstream of watercourse crossing structures
- Ensure no scour under bridge abutments and abutment foundations
- Ensure no erosion along cutslopes and fillslopes of embankments

Observations:
- To be completed on next AWAR inspection.

Mitigation Measures:

Pictures No.:

Itivia

Specific Risks:
- Blockages of main culvert impeding flow
- Integrity of strawlogs, silt fences, and check dams installed to control TSS
- Any runoff from lease area towards Melvin Bay (sample as needed, install straw logs/silt fences)
- Cracking, slumping, or erosion of perimeter berms
- Integrity of liner/geotextile
- Integrity of all geotechnical structures, laydowns, etc.
- TSS transport from Itivia Quarry
- Ensure snow is stored in designated snow pad
- Damage to in the inlet or outlet of the culvert which may impede flow capacity
- Ensure no snow cover or snow piles, which would prevent routing of water into or out of the culvert
- Ensure no bed erosion upstream and downstream of Culvert
- Ensure no erosion along cutslopes and fillslopes of embankments

Observations:
- Check dams completed.
- Snow removed from upstream and downstream ends of culvert – recent snowfall has drifted in more snow requiring removal, though due to low density it will likely melt/sublimate rapidly.
- Snow piles adjacent to check-dam work area require removal.

Mitigation Measures:
- Remove snowpiles and pad with Itivia snow pad at sea-can laydown.

Pictures No.:

Environmental Personnel: John Baechler
Signature :

Picture 1: Snow piling behind Explo camp and genset.

Picture 2: Snow piling behind explo camp and overtop of old genset spill.

Picture 3: Snow piling in front of Landfarm B

Picture 4: Snow drifts within Landfarm B containment

Picture 5: Snow drifts against the downstream of D-CP5

Picture 6: Pipes crossing Channel 5

Picture 7: Un-named culvert (wrongly labelled culvert 6) on west side of Haul Road

Picture 8: Culvert 2 not flowing – blocked by snow.