Photo: 3.20-1
Power Generation Station (Pad B); north edge

Direction:
South / West

Photo: 3.20-2
Power Generation Station (Pad B); south edge along toe of slope

Direction:
East

Photo: 3.20-3
Power Generation Station (Pad B); south edge along toe of slope

Direction:
North / East

Photo: 3.20-4
Power Generation Station (Pad B); toe of slope

Direction:
North / West

3.21 Doris North Portal – Pad L

General Description

The Doris North Portal is located at the east end of the camp, through the bedrock outcrop north of Pad F. The rock face above / around the portal has been covered with rockfall protection netting secured with rock bolts. (Photos 3.21-1 to 3.21-4)

The pad in front of and south of the portal is a thermal rock fill pad.

Observations

The rockfall protection appeared to be in good repair although a detailed inspection was not carried out.

There were no signs of standing water on the surface of the Pad and no areas of significant settlement. There was no standing water noted along the toe of the pad, and no tension cracks were observed along the crest of the pad.

Recommendations

None.

Photo: 3.21-1
Doris North Portal (Pad L)

Direction:
East

Photo: 3.21-2
Doris North Portal (Pad L)

Direction:
North / East

Photo: 3.21-3
Doris North Portal (Pad L)

Direction:
South

Photo: 3.21-4
Doris North Portal (Pad L)

Direction:
East

3.22 Waste Rock Pile – Pad I

General Description

The waste rock pile (Pad I) lies east of Pad C, and is used to stockpile waste rock carried from underground. The pad is almost completely covered with waste rock and is estimated to lie roughly 10 to 15 m above the edge of the pollution control pond on the south side. It is understood that no waste rock has been placed on the pad since the site went into Care and Maintenance in 2012 with the exception of drill cuttings from exploration drill programs. (Photos 3.22-1 to 3.22-2)

Observations

Tension cracks were observed along the edge of Pad I where it forms the north embankment of the Pollution Control Pond. Previous inspections have reported seepage from beneath the waste rock although no obvious seepage was seen at the time of the August 2015 inspection.

Recommendations

Once production resumes and if Pad I is used to store more waste rock, it will need to be managed in accordance with the Waste Rock Management Plan.

The stability of the waste rock pile along the south edge should be assessed, or the waste rock be removed from the edge of the pad. This area should be barricaded off until an assessment confirms that the pile is stable.

Photo: 3.22-1
Waste Rock Pile
(Pad I)

Direction:
North / East

Photo: 3.22-2
Waste Rock Pile
(Pad I)

Direction:
South / West

3.23 Mill Building Site – Pad D

General Description

Pad D is cut into the bedrock with vertical rock faces along the north limit. It was once used as a lined water management pond, which was removed in 2013 (Photos 3.23-1 and 3.23-2).

Observations

At the time of the geotechnical inspection spread footings were being poured for the modular mill complex building that was on its way to site. Foundations were also being poured on the top of the rock face at the north limit, as the mill complex will step up onto the upper bench.

Recommendations

None.

Photo: 3.23-1
Mille Building Site (Pad D) – Foundation Construction

Direction:
West

Photo: 3.23-2
Mille Building Site (Pad D) – Foundation Construction

Direction:
West

3.24 Pollution Control and Sedimentation Ponds

General Description

Located downslope of the camp pads, the Pollution Control Pond and the Sedimentation Pond were originally designed to capture drainage from upstream. They were lined on the downstream side only, with the HDPE liner keyed into the permafrost. Due to construction issues, the original design did not work and the ponds were reconstructed. The Sedimentation Control Pond was completely lined and the Pollution Control Pond had its downstream key trench and liner extended down into the permafrost. In addition, two downstream sumps (Section 4.25) were constructed to allow collection of any water that does manage to bypass any of the reconstructed ponds.

Three ground temperature cables were installed to monitor the Pollution Control Pond in 2012. The Pollution Control Pond is normally operated empty so that water is not permitted to accumulate to prevent the chance of the foundation thawing. Any accumulation is pumped into the Sedimentation Control Pond (Photos 3.24-1 to 3.24-4).

Observations

Pollution Control Pond

Tension cracks were observed on the upstream (north) berm of the Pollution Control Pond. These have been reported since 2012 and are attributed to degradation of the permafrost below the edge of the adjacent thermal pad (Pad I – Waste Rock Pad).

There was no water in the pond except for a small amount along the north limit.

The 2015 thermistor data along the south limit of the Pollution Control Pond indicates conditions around the key trench are comparable with previous years, and that it is performing as designed.

Sedimentation Control Pond

The HDPE liner in the northeast corner of the pond, along the upper portion of the pond slope, is cut at regular intervals, likely due to handling. These cuts appear to lie above the elevation of the two overflow pipes.

The overlap between two sections of liner, at the north end of the berm that separates the two ponds is not sealed. Over liner material and a large rock from the Separator/Diversion Berm have washed down over the liner into the Sedimentation Control Pond. This is causing the liner to sag. Another large rock has fallen into the base of the Sedimentation Control Pond in the west corner.

There was some water in the base of the pond at the time of the inspection, well below the overflow pipes.

Recommendations

Pollution Control Pond

The stability of the south edge of the Pollution Control Pond and the waste rock stockpile should be assessed. The Proponent should continue regular monitoring of the temperature at the downstream side of the pond.

Sedimentation Control Pond

It should be confirmed that the cuts in the HDPE liner lie above the elevation of the overflow pipelines. The overlap between the two sections of liner at the north end of the berm that separates the two ponds should be sealed.

Photo: 3.24-1
Pollution Control Pond

Direction:
North / West

Photo: 3.24-2
Pollution Control Pond – tension cracks

Direction:
South / East

Photo: 3.24-3
Sedimentation Pond; HDPE liner and overflow pipes

Direction:

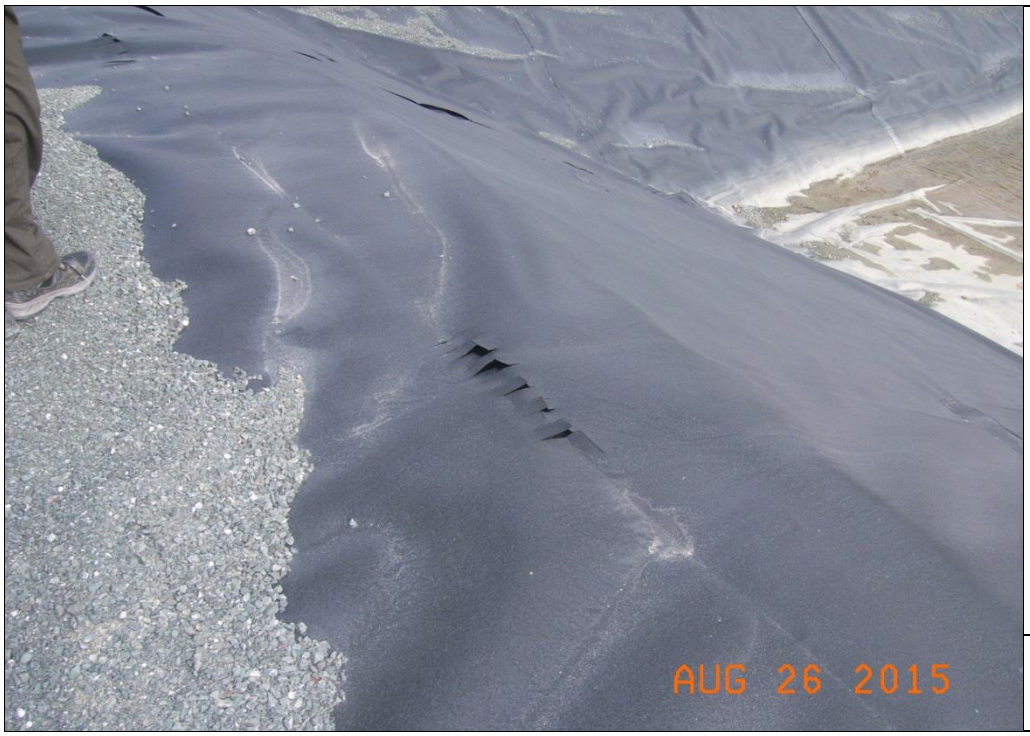

Photo: 3.24-4
Sedimentation Pond; cuts in HDPE liner

Direction:

3.25 Doris North Camp Diversion Berm

General Description

A berm runs approximately east to west along the north side of the Doris Camp. The upstream side of the berm is lined with HDPE; it intercepts and diverts clean surface runoff from upstream of the camp and diverts it to Doris Lake. This reduces the volume of water reporting to the Sedimentation and Pollution Control Ponds. (Photos 3.25-1 to 3.25-2)

Observations

The diversion berm is in good condition.

Recommendations

None

Photo: 3.25-1
Doris North Camp Diversion Berm

Direction:
East

Photo: 3.25-2
Doris North Camp Diversion Berm from Primary Road

Direction:
North / East

3.26 Sumps #1 and #2

General Description

Two sumps were installed within the tundra downstream of the Sedimentation and Pollution Control Ponds, to capture water that may bypass the ponds. Water from the sumps is pumped into the Sedimentation Pond. Sump #1 is located on the south side of the Primary Road, opposite where it intersects the Secondary Road. Sump #2 is located on the south side of the Primary Road, east of the Secondary Road. (Photos 3.26-1 to 3.26-4)

Observations

The sumps appeared to be in good condition. There is disturbance to the vegetation and resulting degradation of the permafrost around Sump #1 where construction and pipeline work appears to have been carried out; however, this is not a new development. There was some minor standing water against the toe of the Primary Road and across the disturbed area.

There is minor disturbance to the soil and permafrost degradation around Sump #2

Recommendation

A previous recommendation to backfill a low area around Sump #1 should be implemented to prevent standing water and further degradation of the permafrost.

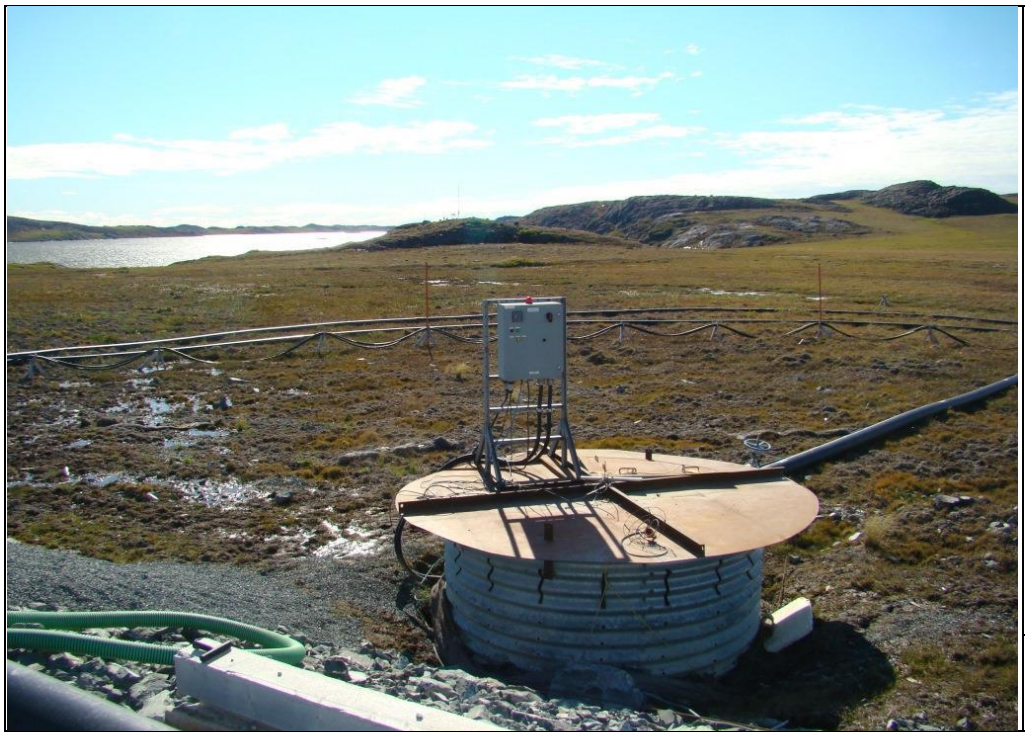

Photo: 3.26-1
Sump #1

Direction:
South

Photo: 3.26-2
Sump #2

Direction:
South / East

Photo: 3.26-3
Sump #2

Direction:
North

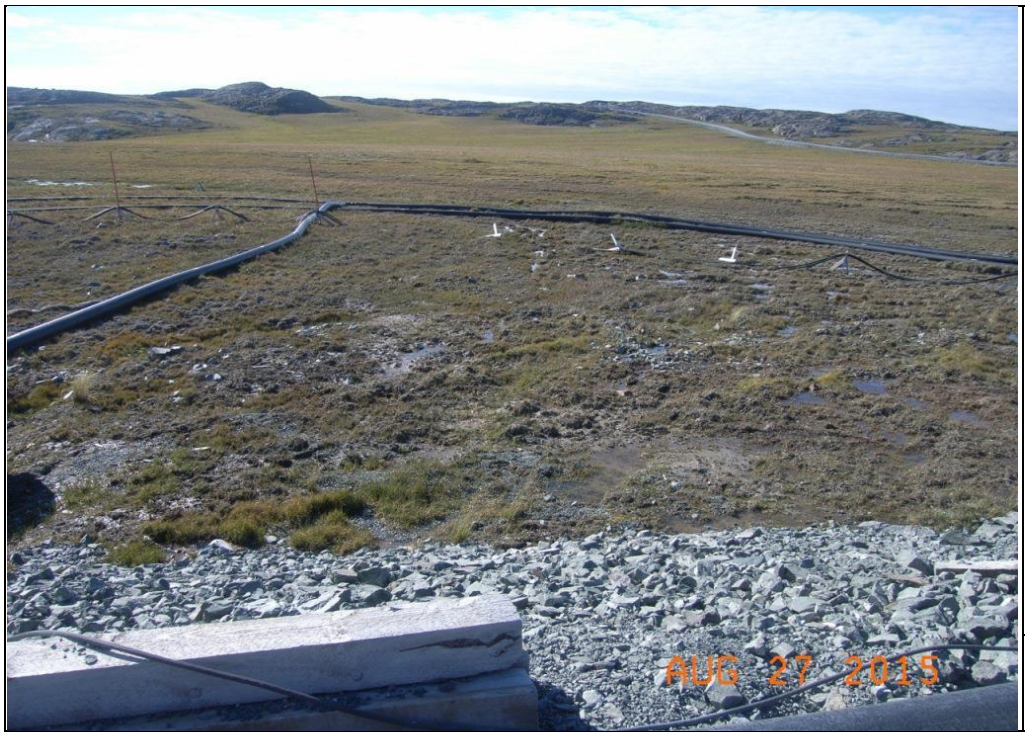

Photo: 3.26-5
Area south of Sump #1

Direction:
South / West

3.27 Doris Lake Pump Station and Ice Access Road

General Description

The Primary Road ends at the shore of Doris Lake where a thermal pad was constructed to house the fresh water intake facilities, consisting of a pump house, emergency back-up generator, and fuel supply. Due to issues with algae, Doris Lake is no longer used as a fresh water source. The thermal pad is not in use although the infrastructure remains on the pad. The road is used to access the Lake for the winter airstrip. (Photos 3.27-1 and 3.27-2)

Observations

There were no signs of standing water on the surface of the pad and no areas of significant settlement. There was no standing water noted along the toe of the pad, and no tension cracks were observed along the crest of the pad.

Recommendations

None.

Photo: 3.27-1
Doris Lake Pump Station and Ice Access Road from Pad G

Direction:
South / East

Photo: 3.27-2
Doris Lake Pump Station Pad

Direction:
North