Photo: 3.15-3
Landfarm; sump in soil cell

Direction:
North / East

Photo: 3.15-4
Landfarm; snow cell

Direction:
East

Photo: 3.15-5
Landfarm; snow cell – damage to internal ramp

Direction:
South / East

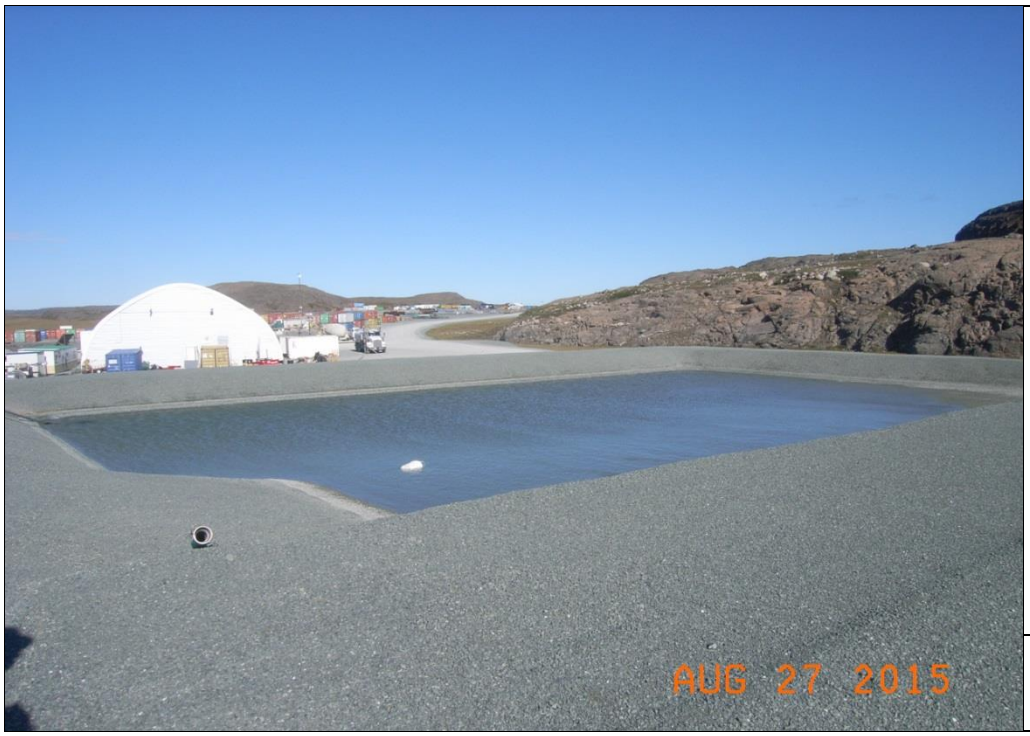

Photo: 3.15-6
Landfarm; clean water cell

Direction:
North

Photo: 3.15-7
Landfarm; bunded area

Direction:
West

Photo: 3.15-8
Ponded water at south end of Land farm

Direction:
West

3.16 Quarry #2 and Crusher Area

General Description

Quarry #2 was developed as the primary source of construction materials for the Project site. The quarry was advanced in two benches, each about 6m high. Gravel, which was previously processed at the site, is currently being loaded and trucked to a construction site. There are plans to process the larger stockpiled rock; a crusher has been mobilized to site to begin and is presently stored in the quarry. (Photos 3.16-1 to 3.16-4)

Observations

There were no signs of standing water on either of the quarry benches, and no evidence of overland surface runoff flowing uncontrolled onto the tundra. This facility is managed under an approved Quarry Management Plan.

Recommendations

None.

Photo: 3.16-1
Quarry #2 Crusher Area

Direction:
South / West

Photo: 3.16-2
Quarry #2 Crusher Area – granular stockpile

Direction:
West

Photo: 3.16-3
Quarry #2 Crusher Area

Direction:
North / East

Photo: 3.16-4
Granular over Tundra at edge of Quarry #2 area

Direction:
East

3.17 Quarry #2 Overburden Dump

General Description

A permanent overburden dump has been established east of Quarry #2 containing overburden stripped from Quarries # 2 and #4, and oversized quarry rock that was not suitable for use in construction. The various materials have not been selectively placed. A sedimentation berm has been constructed downstream of the overburden dump to ensure that no sediment is released from the dump area. (Photos 3.17-1 to 3.17-2)

Observations

At the time of inspection, the area adjacent to the sediment control berm was dry. There was no evidence of transport of sediment from the pile onto the adjacent tundra.

Recommendations

None.

Photo: 3.17-1
Quarry #2
Overburden Dump

Direction:
North

Photo: 3.17-2
Quarry #2
Overburden Dump
and Primary Road

Direction:
South

3.18 Doris North Camp Pads (Pad X, Y, C, E/P, F, G, J/H, Q and Helipad)

General Description

The Doris North Camp area is also the former Quarry #4. The permanent camp has been constructed inside of, and south of, the former quarry.

The highest pad (Pad X) lies adjacent to the rock face along the north and west limits of the pad (former quarry limit), and has been extended south, out over the tundra. Pad X houses the camp, temporary power generation station, equipment storage shed, the sewage treatment plant, fire water tank and pump house, and a muster station. A stone berm has been placed along the toe of the rock face to keep vehicles and personnel at a safe distance from the face. (Photos 3.18-1 and 3.18-2)

Three lower fill pads (Pads E/P, Y, and C) lie south and east of Pad X and lie at various levels, at least about 2 m lower than the upper pad. They provide additional space for camp facilities including the equipment maintenance shop, warehousing, exploration support facilities, and other miscellaneous camp services. (Photos 3.18-3 to 3.18-7)

Pads F and G provide laydown area to support mining activities. (Photos 3.18-8 to 3.18-10) Pad J/H and Q are designated for raw ore storage (Photos 3.18-11 to 3.18-12). Immediately south of the lower camp pads is the helipad, which houses four helicopter pads, a helicopter base station, as well as other related support facilities. (Photo 3.18-13)

All of the pads mentioned above, range in thickness between at least 1 m and up to 6 m thick. They have all been designed as thermal pads to preserve the underlying permafrost.

Observations

In general, there were no signs of standing water on the surfaces of the camp pads and no areas of significant settlement. There was no standing water noted along the toe of the pads, or signs of thermal settlement. No tension cracks were observed along the crests of the pad.

The rock cut along the north and west limit of Pad X is a vertical face. The face has been scaled and there was no loose or spalled pieces of rock below the wall.

Recommendations

Thermal pads are designed with the intent that no permanent heated facilities will be located on top of them. The heat can reduce the insulation properties of the pad and lead to permafrost degradation, and subsequent settlement below the structures. Several heated structures on-site should be monitored for settlement.

The vertical rock face should be inspected periodically particularly after periods of freeze thaw, and loose rock should be scaled. Alternatively, netting and rock bolts could be installed, or barricades installed to prevent access to the base of the wall.

Photo: 3.18-1
Pad X – Accommodations – rock cut

Direction:
North / East

Photo: 3.18-2
Pad X – Accommodations – rock cut

Direction:
North

Photo: 3.18-3
Slope between Pads E/P and Y

Direction:
North / East

Photo: 3.18-4
Pad E/P in foreground; Pad C in background

Direction:
North

Photo: 3.18-5
Pad C (foreground); Pad D (background)

Direction:
North / East

Photo: 3.18-6
Pad C (foreground; Pad J/H (background).

Direction:
North / East

Photo: 3.18-7
Pad sY (foreground) and E/P (background)

Direction:
East

Photo: 3.18-8
North edge of Pad G

Direction:
West

Photo: 3.18-9
Pad G (foreground);
Pad F (background)

Direction:
North

Photo: 3.18-10
Pad F

Direction:
Easy

Photo: 3.18-11
Pad J/H

Direction:
North

Photo: 3.18-12
North edge of Pad F

Direction:
East

Photo: 3.18-13
East edge of Helipad

Direction:
South

3.19 7.5 ML Doris North Camp Tank Farm - Pad R

General Description

The 7.5 ML Doris North Camp Fuel Tank Farm (Pad R) is located at the north side of the camp. It is founded on bedrock and has vertical rock walls along the east and north limits. The tanks are contained within a bunded area that is fully lined with HDPE and covered with gravel. This facility was completed in 2010. There are five tanks located in the facility, sitting on crushed rock pedestals. (Photos 3.19-1 to 3.19-4)

Observations

There was no standing water within the bunded area, although a small amount of water was held in the sump located along the south limit.

There were pieces of rock that had spalled off the rock face into the bunded area, although none of the pieces appears to have reached the tanks.

Recommendations

Long-term stabilization measures have been designed for the rock faces to prevent damage to the tanks and the HDPE liner. These should be implemented as the site moves out of Care and Maintenance.

Photo: 3.19-1
Doris North Tank Farm; containment bund

Direction:
North / East

Photo: 3.19-2
Doris North Tank Farm; containment bund; fallen rock pieces on top of containment bund

Direction:
North / West

Photo: 3.19-3
Doris North Tank Farm; containment bund and rock cut

Direction:
North

Photo: 3.19-4
Doris North Tank Farm; containment bund and rock cut

Direction:
South / East

3.20 Power Generation Station - Pad B

General Description

The site power generating station is located on a rock fill pad (Pad B), south of Pad R. The rock pad is up to 6 m thick and it is reported that the rock fill is founded on ice rich permafrost marine silts and clays. The pad has a rock fill slope wrapping around the east, west, and south limits, with an access road along the toe. The slope is estimated to lie at 1.5 to 2H:1V. The concrete foundations of the power generating station are reported to be located near the edge of the rock fill slope, but other information is unknown. (Photos 3.20-1 to 3.20-4)

Observations

The condition of the pad at the time of the inspection was good. No deformations were noted across the rock slope or toe, and no settlement was observed along the crest of the pad.

Recommendations

The concerns identified with this area are that the station generates vibrations and heat; and that the two 30 m tall exhaust stacks are freestanding. Two settlement-monitoring points have been installed and it is understood that there has been negligible settlement although the data has not been reviewed.

The monitoring of the settlement points should continue regularly. A review of the foundation system should be undertaken to determine where the footings lie in proximity to the slope and what they bear on. A structural assessment of the stacks should also be undertaken.