Water Resources Division
Nunavut Regional Office
Iqaluit, NU
X0A 0H0

NWB File: 1AR-NAN0914
CIDMS #: 640132

April 19, 2013

Phyliss Beaulieu
Manager of Licensing, NWB
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: 1AR-NAN0914 – Outstanding Reclamation Issues at Nanisivik Mine Property – Nyrstar Canada Resources Ltd.- Nyrstar.

Please be advised that Aboriginal Affairs and Northern Development Canada (AANDC) has completed a review of the reclamation activities completed at Nanisivik Mine Property owned by Nyrstar Ltd.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4282 or by email at Ian.Parsons@aandc-aadnc.gc.ca.

Sincerely,

Original signed by

Ian Parsons
Regional Coordinator

Cc. Murray Ball, Manager of Water Resources – Aboriginal Affairs and Northern Development Canada (AANDC), Nunavut Regional Office

Technical Review Memorandum

To: Phyllis Beaulieu – Manager of Licensing, Nunavut Water Board

From: Ian Parsons – Regional Coordinator, Aboriginal Affairs & Northern Development Canada.

Re: 1AR-NAN0914 – Outstanding Reclamation Issues at Nanisivik Mine Property – Nyrstar Canada Resources Ltd.- Nyrstar NV.

The Nanisivik Mine Property is a past-producing zinc mine which operated from 1976 until 2002.

Since closure, Breakwater Resources Ltd. has implemented its closure and reclamation plan. As of 2012, final reclamation activities for the site have been completed.

On August 26, 2011 Breakwater Resources Ltd. was purchased by Nyrstar Canada Resources Ltd., a wholly-owned subsidiary of Nyrstar NV.

The existing water license (1AR-NAN0914) is valid until March 31, 2014.

Recommendations/Comments

In 2010 and 2011 AANDC acquired expert technical engineering services to conduct site inspections of the Nansivik Mine Property. These services were acquired to determine if reclamation work carried out by Breakwater Resources was completed based on the approved 2004 closure plan as well as being effective in its purpose.

Listed below are AANDC's outstanding concerns and issues that are to be addressed on the property.

1) Area 14, Oceanview and K-Baseline Areas

There are several acidic seeps and drainage occurrences to be remediated within three areas.

i) Area 14 - Acidic seepage from Area 14 is currently flowing southward down the roadway. At this time it is not clear whether this seepage is flowing to Chris Creek or to East Twin Lake.

There are also other residual acidic seeps at Area 14 and some exposed sulphide-bearing waste rock.

ii) Oceanview - There are several acidic seeps from the covered sulphidic waste piles.

Surface runoff is draining into the Oceanview open pit area and a collection pond of iron-rich seepage has developed from the Oceanview west raise cover area.

iii) K-Baseline - Exposed sulphide-bearing rock was observed below the road between Oceanview and K-Baseline. This material is producing drainage that may be acidic.

Recommendation: An updated Abandonment and Restoration (A&R) Plan should provide detailed assessment and remediation plans for the acidic seeps.

2) Shale Quarry Area

The shale quarry area has not been remediated. The main access road for the site is immediately adjacent to the quarry and if the area were to remain as is then road stability would be jeopardized.

Recommendation: It is recommended that this area be remediated and that the detailed plans of the remediation be included in an updated A&R Plan.

3) Port, Tank Farm Area, Industrial Complex Yard and Barrel Dump

The dock and port area are currently owned by Department of Fisheries and Oceans (DFO), and the Canadian Coast Guard (CCG) is operating the site. The port area has been fully reclaimed except for the former fuel tank farm.

Concentrate Storage Shed - The storage shed has been dismantled leaving only the concrete pad. At the request of the community, the pad was cleaned and subsequently buried to assure no residual concentrate was present at surface. It is understood that the CCG subsequently removed a large percentage of the cover on the pad in order to use the pad as a laydown area. The pad is now exposed and residual concentrate is evident on the pad.

Tank Farm - the fuel storage tanks have been dismantled and the steel is stockpiled at the port awaiting removal. There is about 5000 m^3 of contaminated

soil at the tank farm that is being remediated. The soil will be treated in 8 small bio-treatment piles in an area just north of the concentrate storage pad. The treatment of fuel -contaminated soils is expected to last for another 3 to 5 years. It is understood a new tank farm will be built to support port operations under the control of DFO.

Barrel Dump- There are approximately 250 barrels of contaminated sludge (understood to be from tank bottoms) remaining on site.

Hydrocarbons- Some hydrocarbon contaminated soil remains down gradient and around the fuel pump house.

Recommendation: The barrel dump requires remediation followed by subsurface soil testing to assure there is no residual contamination from spilled/leaking barrels.

4) West Twin Lake Creek, Spillway and Area

There appear (from visual observations) to be some residual tailings on the steep banks of West Twin Lake Creek.

West Twin Lake Creek Dike spillway is functioning as intended, however, minor deformation in the base and side slopes of the spillway have occurred. There is also a minor thaw settlement area (area of subsidence) near the spillway outlet.

An area of water retention (ponding) has developed above West Twin Lake Creek Dike spillway.

Recommendation: These areas require additional remediation and maintenance to prevent further degradation.

5) Crown Pillars and Portals

i) Oceanview Portal – A previous thaw settlement noted in the southwest corner has not been repaired (backfilled), however observations from year to year site inspections indicate that the thaw settlement area appears to have stabilized.

ii) 17 N Portal – A previous thaw settlement feature was observed in 2008 and was subsequently backfilled.

iii) Crown Pillars in East and West Open Pits – some cracking has been observed at surface above these crown pillars.

Recommendation: Previous thaw settlements and crown pillar cracking events should be monitored for any degradation or subsidence events. Any further remediation plans should be contained in an updated A&R Plan.

6) Covers

i) The East Open Pit cover has minor erosion rills and one minor tension crack.

ii) Surface Cell Tailings Cover – The thermistor data shows that this cell is freezing back as designed, however, there was one area of thaw settlement along the south edge.

iii) There has been some weathering and degradation of the shale used in the thermal surface covers. If this continues the effectiveness of the covers may be a concern.

Recommendation: Remediate the cover areas as required and continued monitoring cover integrity.

7) Other

1) Some slumping of cover material in the former blasting/explosives storage area has occurred and should be addressed.

2) The former carpenter shop area across from the maintenance garage is poorly drained and requires grading and shaping to improve drainage and aesthetics of the area.

3) The thermistor cable in the Industrial Complex Cover requires additional backfill around the PVC pipe. AANDC recommends backfilling the hole as soon as possible to restrict surface water access.

4) Some cracks were noted on the concrete weir at the West Twin discharge from the polishing pond. A coffer dam was built and material was excavated in order to install a geothermal liner along the upstream side of the wall prior to backfilling. Regular monitoring of these features is recommended to ensure their effectiveness.

5) The East Adit Treatment Facility Dikes were breached in 2006. The flow through the Treatment Pond was observed to be relatively unimpeded. However, some water retention (ponding) has occurred. The area of water retention (ponding) should be investigated and monitored to determine whether it is having a negative impact on the area.

8) Abandonment and Restoration

An updated Abandonment and Restoration Plan (A&R Plan) with options and alternatives to remediate the areas noted above as well as a monitoring plan, detailing how these areas are to be regularly monitored to ensure stability of the site, should be submitted to the Nunavut Water Board at the same time as the water licence renewal application.

9) License Expiry

AANDC would like to remind the proponent that the water licence is set to expire on March 31, 2014, and the process for renewal of a Type A water Licenses may take close to a year.

Cc. Murray Ball, Manager of Water Resources – AANDC, Nunavut Regional Office
Erik Allain, Manager Field Operations - AANDC, Nunavut Regional Office