NWB Tools

Richard Dwyer <richard.dwyer@nwb-oen.ca>

FW: 2AM-LUP2032 water licence commitment submissions

Richard Dwyer <richard.dwyer@nwb-oen.ca> Tue, Aug 25, 2020 at 1:31 PM
Draft To: "Okonkwo, Godwin (AADNC/AANDC)" <godwin.okonkwo@canada.ca>

-------- Original message --------
From: "Okonkwo, Godwin (AADNC/AANDC)" <godwin.okonkwo@canada.ca>
Date: 2020-08-25 12:57 a.m. (GMT-05:00)
To: Derek Donald <derek.donald@nwb-oen.ca>
Subject: RE: 2AM-LUP2032 water licence commitment submissions

Hello Derek,

Thanks for the opportunity to review the referenced documents sumbitted as per committments of the water licence 2AM-LUP2032. Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the submissions pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*.

Please find the result of CIRNAC review below for your consideration.

REFERENCE: A.1 200608 2AM-LUP2032 19136158-Rev0-Condition E 25-TM-Dome Design_08 June 2020-IMLE

In response to this condition, Lupin Mines Incorporated (LMI) provided a 3-page Technical Memorandum from Golder dated 8 June 2020. The contents of the memo included:

- Section 1 Introduction – which provides reference to the Water Licence Condition 25 which requires that LMI provide "*design details on the Waste Rock Dome, including, but not limited to the following:*
    a. *Cardinal direction cross sections and slopes;*
    b. *Details on drainage systems and conceptual water features; and*
    c. *Erosion control measures and cover stabilization of the dome."*
- Section 2 Waste Rock Dome Design – which includes,
    - Section 2.1 Design Objectives – consolidate and cover waste rock
    - Section 2.2 Design Drawings – which comments on the 2 Drawings included with the memo.
- Section 3 Closure – closing sentence

The Golder Memo provides two cross-sections of the dome, a profile of a drainage chute and three "typical details", one of perimeter berm, one profile and one cross section of the drainage chute. The drawings are stamped as Not for Construction. In addition to the typical details, the provision of contours on the Plan figure and the cross-section A-A provides additional information not previously presented.

CIRNAC Comments on Condition 25 Dome Design

COMMENT 1: Review of the information provided in the Golder memo indicated some new information in terms of design details and related design data to support the assessment of the long-term stability and performance of the proposed concept. No additional discussions were provided in the body of memo to support the civil design basis of the runoff control features or to support the long stability of the 10% slope surfaces against erosion. CIRNAC review of the plans and sections observed that the 10% slopes, about 300m of top edge in the north portion of the "dome" is as much as 10m high and this extends out about 100m to the toe. The west and southwest side of the dome has a height of between 5m and 6m and thus extends out some 50+/- meters in these areas. There was an indication that a berm will be constructed on the top edge of the dome to direct "dome surface" runoff to drainage chutes (see below). However, no erosion control measures are included to ensure erosion protection and stability of these long 10% esker slopes.

RECOMMENDATION 1: CIRNAC recommends that LMI include erosion control measures to ensure erosion protection and stability of these long 10% esker slopes.

COMMENT 2: The plans and sections indicate that surface water runoff from the 1.6% surface slope, is expected to be drained off the dome, down the 10% slopes, via 6 runoff "drainage chutes". Surface runoff is to be directed to these "chutes" by a small perimeter berm along the edge of the dome surface (0.5m high, 0.5m crest width, 2:1 slopes) constructed with the same esker material as the 1m dome cover surface. Given the importance of this berm in preventing overland sheet flow to the 10% slopes, CIRNAC is concerned with the long-term stability of the berm design as presented.

No information was provided to support the designs of the top perimeter berm, the chutes, or the stilling basins. No drainage elevations were provided with respect to surface grading on the top of the dome edges, and no information is provided with respect to the drainage runoff flows leaving the "stilling basins" at the toe of the dome. No details were provided for the toe of the 10% slopes, nor for runoff from "stilling basins", which in some locations could undercut the toe of the cover (see north central discharge). In the absence of these information we question the long-term erosion stability of the designs.

RECOMMENDATION 2: CIRNAC recommends that LMI provide the information stated above to demonstrate the long-term erosion stability of the designs.

COMMENT 3: The notes on the site plan included:

- Drawing Note 1 which states that *"subgrade under the dome area is to be prepared in accordance with the Water Licence and FCRP before waste rock or cover materials are placed".* While CIRNAC agrees with the intent of this statement it is not clear how LMI will ensure compliance with this note is achieved if it these requirements are not specifically stated on the drawings.
- Drawing Note 2 provides a list of materials that are to be removed before waste rock is placed, but the drawing does not identify the locations of these materials. it is unclear how this will be achieved in the absence of specific references to the dome plan.
- Drawing Note 4 states that crown pillar and openings and mine shafts are to be filled before waste rock is placed on top. No details or specifications are provided with respect to these activities, and no reference is made to necessary approvals from the mines inspector.
- In addition to our specific concerns with the "dome" design concepts, CIRNAC is also concerned that the remedial requirements that need to be undertaken are not specifically identified or referenced on the plan provided. that LMI should provide specific cross reference to these works to ensure

RECOMMENDATION 3: CIRNAC recommends that all relevant requirements and works be specifically referenced.

REFERENCE: A.3 200608 2AM-LUP2032 129500081_Lupin LUP2032 Commitment Part E Item 27 Response 06082020-IMLE

In response to this condition, LMI provided a 7-page Technical Memorandum from Stantec dated 8 June 2020 entitled "Technical Memorandum on Exposed Tailings Preliminary Cover Design".

The contents of the memo included:

- An Introduction - which provides reference to the Water Licence Condition 27 which requires that LMI provide the introduction noted that the memo that "… *a Technical Memorandum that provides rationale and detailed designs of cover construction for tailings that becomes exposed, including but not limited to the following:*

    a. Further rationale supporting in-situ cover as a contingency measure;
    b. Preliminary detail designs;
    c. Typical cross sections; and,
    d. Long-term erosion control measures."
- A Design Rationale Section – which provides background information and seven rationale bullets to support in place covering of tailings
- A Preliminary Design Section – which provides information on capping approach proposed for the known exposed tailings in Cell 4.
- Closure – closing sentences which state that covering any potential exposed tailings in place is the prudent measure to mitigate ARD risks.

CIRNAC Comments on Condition 27 Exposed Tailings Preliminary Cover Design

COMMENT 4: CIRNAC appreciates the information provided by this submission with respect to both the rationale and the design approach for the Cell 4 exposed tailings. In general, CIRNAC has no issues with this information or the plans sections and details provided. However, it is noted that Cell 4 exposed tailings are known exposed tailings. The Nunavut Water Board request was to provide details on how LMI would handle tailings that could potentially become exposed when drawing down the water levels in the ponds.

While it can be inferred that the approach to covering any newly exposed tailings that might result from drawing down Ponds 1 and 2 would be the same as that used for covering the Cell 4 tailings, no details or discussions have been presented on how such tailings covers would be placed and secured. It is important for LMI to indicate whether esker materials will be placed directly over the tailings or if a geotextile filter clothe be placed prior to placing esker materials over the tailings, and if the perimeters of the cover material will be stabilized with geotextile fabric and boulder materials? At this point in time, the Stantec's comment on how any potentially exposed tailings materials would be handled is that "*If other exposed tailings are found, outside of the identified Cell 4 area, specific design will be done according to specific site conditions. The general criteria above will apply, along with specific design feature(s) as needed once site condition and specifics are identified."*

RECOMMENDATION 4: CIRNAC recommends that LMI provides the necessary site specific design(s) for any such tailings area cover(s) for review before LMI can cover any exposed tailings.

If you any questions please do not hesitate to contact me.

Best regards,
Godwin Okonkwo

Sent from my Bell Samsung device over Canada's largest network.

-------- Original message --------
From: Derek Donald <derek.donald@nwb-oen.ca>
Date: 2020-08-18 1:23 p.m. (GMT-05:00)
To: "Okonkwo, Godwin (AADNC/AANDC)" <godwin.okonkwo@canada.ca>
Subject: Re: 2AM-LUP2032 water licence commitment submissions

Hi Godwin

Here is a link to the comments and responses as well, for you to have a look at. Just so you know what came up.

ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-LUP2032%20LMI/3%20TECH/E%20WASTE%20DISP/

Derek Donald- ᑎᐅᓇᒃ ᑖᓄᑦᑦ
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On Tue, Aug 18, 2020 at 8:45 AM Derek Donald <derek.donald@nwb-oen.ca> wrote:

> Hi Godwin
>
> Thanks for getting back to me, and no problem It's been a hectic few months. Yes, if you can provide comments by the end of the week that should still work.
>
> Thanks,
> Derek

Derek Donald- ᑎᐅᓇᒃ ᑖᓄᑦᑦ

Technical Advisor - Conseiller technique ᐱᓗᐊᖅᓇᖅᑐᓕᕆᓂᕐᒧᑦ ᐃᑲᔪᖅᑎ-
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On Tue, Aug 18, 2020 at 8:21 AM Okonkwo, Godwin (AADNC/AANDC) <godwin.okonkwo@canada.ca> wrote:

Hi Derek,

My team missed it because we were all on vacation. Is it possible to send a comment by the end of the week? I am reviewing it now while in isolation Ottawa. If the time is past to comment, we will accept it that way.

Thanks and best regards,
Godwin
867-222-1668

Sent from my Bell Samsung device over Canada's largest network.

-------- Original message --------
From: Derek Donald <derek.donald@nwb-oen.ca>
Date: 2020-08-17 5:59 p.m. (GMT-05:00)
To: "Okonkwo, Godwin (AADNC/AANDC)" <godwin.okonkwo@canada.ca>
Subject: Fwd: 2AM-LUP2032 water licence commitment submissions

Hi Godwin

How are things going with yourself? It's been an interesting few months to say the least.

I am just double checking with you in regards to the correspondence below, just that the NWB did not receive correspondence from CIRNA and I have been asked to make sure this was not missed?

Thanks,
Derek

Derek Donald- ᑎᐅᓇᒃ ᑖᓄᑦᑦ

Technical Advisor - Conseiller technique ᐱᓗᐊᖅᓇᖅᑐᓕᕐᓂᖅᒧᑦ ᐃᑲᔪᖅᑎ-
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---------- Forwarded message ---------
From: **Richard Dwyer** <richard.dwyer@nwb-oen.ca>
Date: Wed, Jun 10, 2020 at 8:49 AM
Subject: 2AM-LUP2032 water licence commitment submissions
To: Karyn Lewis <k.lewis@mandalayresources.com>

Good afternoon,

The Nunavut Water Board acknowledges receipt June 8&9, 2020 from Lupin Mines Incorporated the attached commitments for water licence 2AM-LUP2032:

- **Part E, Item 25 Design for Waste Rock Dome**
- **Part E, Item 26 Technical Memorandum on Additional Geotechnical Details on TCA Dam K and Dam M Cross Sections**
- **Part E, Item 27 Technical Memorandum on Exposed Tailings Preliminary Cover Design**

Interested parties are invited to submit comments by June 24, 2020.

Regards,

Richard

Richard Dwyer- ᓇᓕᓂᕐᓂ ᑐᐊᐃᔨᕐᓂ

Manager of Licensing - Responsable des Permis ᐊᐅᓪᓕᖅᑎᓄ ᓪᐃᓴᓕᓇᓂᖅᓯᒪᔪᓕᒫᓂ- Maniyauyuq Laisaliginiqmun

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