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May 9, 2014

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Angela Love
Regulatory Officer
Mackenzie Valley Land & Water Board
Box 2130
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Yellowknife NT X1A 2P6

Dear Ms. Love:

**Gahcho Kué Project Mackenzie Valley Land and Water Board Public Hearing
– Undertaking #1 Draft Guidelines for Segregation of Mine Rock at the Gahcho Kué Project**

Undertaking 1:

De Beers Canada Inc. to provide to the MVLWB an updated Standard Operating Procedure (SOP) for handling PAG and Non-PAG rock. The SOP shall include the placement procedures (including volumes of rock), and the verification process for the rock placement strategy. Due May 9, 2014.

Response:

Provided herein are draft protocols for segregation of potentially acid generating (PAG) mine rock at the Gahcho Kué Project (Project).

This protocol is referenced in the Gahcho Kué draft water license (MV2005L2-0015) submitted to the Mackenzie Valley Land and Water Board (MVLWB) on March 10, 2014, and is specific to Part E: Conditions Applying to Construction (Item 5) and Part G: Conditions Applying to Water and Waste Management, in particular, the Geochemical Characterization Plan (Item 22), and the Processed Kimberlite and Mine Rock Management Plan (Item 24).

1.0 BACKGROUND

Based on the available data set of 1,254 mine rock samples collected from the Gahcho Kué Project site, approximately 7.5% of the samples contained greater than 0.1 percent by weight (wt %) total sulphur content, and about 4.8% of samples were determined to be potentially acid generating (PAG) when considering both the total sulphur content and the overall Acid Base Accounting (ABA) results (De Beers 2012; Golder 2014a, b).

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The remaining 95.2% of samples are classified as non-acid generating (non-AG), and, overall the blended material is expected to be non-acid generating. The current mine plan calls for identification and segregation of PAG materials. For the first two years, PAG rock identified will be placed below the final closure water level of Kennedy Lake within the final footprint of the mine rock piles. Between Year 2 and Year 4, PAG rock placement will be segregated within the mine rock piles. Following about Year 4, the PAG rock will be placed within the mined out open pits and will ultimately be below the final closure water level of Kennedy Lake. Where possible, mine rock placed above the final water table in the mine rock piles will be placed in a designated area within the pile to reduce potential future mitigation requirements. This document provides the details of the procedures that are proposed to manage the segregation of PAG rock.

2.0 OBJECTIVE, SCOPE AND APPLICABILITY

The objective of this guideline is to establish a uniform method for the handling and placement of mine rock at the Gahcho Kué site. This includes the collection rate of appropriate samples, responsibilities for sampling and data analysis, criteria for identification PAG rock, placement of PAG rock in designated areas, and ongoing analysis of results.

3.0 OVERALL MANAGEMENT OF MINE ROCK

Specific Standard Operating Procedures (SOP) will be developed as necessary at a more detailed level, however, the overall protocol for identification and handing of mine rock is as follows:

1. The geology department will be responsible for the collection and analysis of data for PAG materials.
2. The drill blast holes will be sampled evenly at a frequency of a minimum of eight (8) samples per 100,000 tonnes (t) of the planned blast by the Geology department.
3. Sampling for PAG material will be conducted daily in accordance with point 1. The sample density may be increased adaptively in response to actual results and in order to better define the extent of PAG material.
4. Geological mapping of recently exposed mining faces will augment and provide guidance to the blast hole sampling. The face mapping will record the location of structures or zones in which potentially acid generating minerals are observed. This information, together with the cumulative database of existing results, will be used to adaptively direct the sampling of the drill blast holes to provide for improved evaluation of the volume of mine rock containing PAG materials.
5. Samples will be packaged and sent to an off-site accredited laboratory under chain of custody documentation on a regular basis.

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6. The samples will be analysed by the laboratory for total sulphur content.
7. If a sample or cluster of samples return results higher than 0.1% total sulphur, the area that they were sampled from will be demarcated after the blast as PAG material, or additional testing may be completed such as ABA testing or Net Acid Generation testing to further evaluate if the material is PAG.
8. The area to be demarcated will be based on the boundary of the closest non-PAG samples immediately adjacent to the PAG samples, and will be set at roughly half the distance between the PAG sample and the non-AG sample locations. This protocol will be reviewed and updated as required as the database of available information increases during operations.
9. The PAG area will be demarcated by the mine surveyor using pylons, flagging, or other means after the blast. This will define the area to be loaded as PAG material.
10. The mine operations team will be responsible for monitoring the loading of mine rock after blasting to ensure that PAG material is being dispatched to the assigned PAG area.
11. Non-PAG material may be used for construction.
12. Starting in Year 1 and likely through Year 2 (depending on the amount of PAG material encountered), PAG material will be placed within the mine rock piles within the submerged zones of the final footprint of either mine rock pile. Thereafter, through Year 4, the PAG material will be placed within an assigned area in the middle of the South or West Mine Rock Pile. The assigned areas will be demarcated to ensure there is a minimum horizontal distance of 15 metres (m) from the edge of the PAG assigned area to the outer edge of the mine rock pile by the mine surveyor.
13. Once the Hearne and 5034 pits are available, all PAG designated material will be placed in these pits.
14. The amount of PAG material (i.e., truck loads/tonnes) placed on each level of the mine rock piles will be recorded by the mining team and provided to the mine geologist. This information will be used by the project geochemist to evaluate the overall acid generating potential of the mine rock pile.
15. The project geochemist will provide an annual report on geochemical trends, with recommendations for follow-up actions, if necessary.

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4.0 SAMPLING AND ANALYSIS (SAMPLE IDENTIFICATION, SHIPPING, AND TURNAROUND TIMES)

Sampling and analysis of mine rock will be undertaken where there is potential for mine rock to be used for construction, or placed above the final water level in Kennedy Lake.

Blasting and sampling will take place following a regular pattern or grid spacing.

- Samples for laboratory analysis will consist of drill cuttings collected as composite grab samples from each hole prior to loading of explosives.
- Samples will be uniquely identified, likely by blast hole designation, and the location of samples will be recorded in a site database, which will be managed by the site geologist to inform the mine engineering manager.
- Analyses of samples will occur at a minimum frequency of eight (8) samples per 100,000 t, or 1 sample per 12,480 t, which equates to a bench sample grid spacing of about 20 m, with a bench height of 12 m, and an assumed rock density of 2.6 tonnes per cubic metre (t/m^3).
- Samples will be labeled and analysed on site, or if not analysed on site, will be shipped off site for analysis at an accredited laboratory.
- Results will be available prior to loading of the material after blasting from the open pits.

5.0 EXPECTED QUANTITY OF ROCK TREATED AS PAG MATERIAL

The quantity of rock treated as PAG material will be dependent on the type of testing conducted and the criteria used to demarcate the PAG area within the rock mass to be blasted. For example, if only the total sulphur criteria of 0.1% is used, and if the boundary of the PAG classified materials is taken as half the distance to the nearest non-AG holes, then on average, the amount of material handled as PAG per year is 1.9 million tonnes (Mt) (i.e., 7.5 % of total mine rock waste material).

Key site assumptions:

- 7.5% of mine rock samples have >0.1% total sulphur (as observed in the current database).
- 4.8% of samples were determined to be PAG when considering both the total sulphur content and the overall Acid Base Accounting (ABA) results.
- The sample grid spacing will be 20 m.
- The bench height will be 12 m.
- The mine rock density is 2.6 t/m^3 .
- One sample represents 12,480 t of rock.

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6.0 TREND ANALYSIS AND REVIEW

Trend analysis will include the following items:

- The site geologist will routinely review the laboratory testing results, and record volumes of mine rock moved and identified as PAG material, including general placement locations.
- This data will be provided to the project geochemist on a biannual basis.
- The site geologist will adaptively modify the protocol in response to trends that track away from expectations that may be observed within the data.
- As indicated in the Geochemical Characterization Plan, a geochemical site inspection will be conducted biannually and supplemental samples will be collected and analysed as stipulated in the Geochemical Characterization Plan.
- Data from the operational monitoring program and the supplemental program will be evaluated by the project geochemist biannually, and reported annually to the MVLWB as stipulated in the Geochemical Characterization Plan.

This trend analyses will include recommendations that will be provided should adjustments to the mine rock management procedures be deemed necessary.

Sincerely,



Veronica Chisholm

References:

De Beers (De Beers Canada Inc.). 2012. Environmental Impact Statement Supplemental Information Submission for the Gahcho Kué Project. Submitted to the Mackenzie Valley Environmental Impact Review Board, Yellowknife, NWT. April 2012.

Golder (Golder Associates Ltd.). 2014a. 2013 Update – Metal Leaching and Acid Rock Drainage Report. Gahcho Kué Project. Submitted to De Beers Canada Inc. Yellowknife, NWT. January 2014.

Golder. 2014b. Geochemistry Summary – Gahcho Kué Project. Technical Memorandum. Submitted to De Beers Canada Inc. February 2014.