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DE BEERS CANADA MINING INC.
HEARING PRESENTATION SUBMISSION

General Approach to Presentation of Issues

De Beers' approach to presentations at the hearing will be to provide the Board with an overview of the issues associated with the development of the Snap Lake Diamond Project. The discussion will be focused on outstanding issues that were identified at the Pre-Hearing Conference. The following provides some more detailed information on how these outstanding issues will be presented at the Hearing.

Day 1, AM – De Beers' Opening Remarks

Project Overview – John McConnell, DBCMI
A description of the Snap Lake Diamond Project including: project description, mining method, continuing work since the EA submission, update on other agreements (Socio-economic Agreement, Impact Benefit Agreements), and commitments made by De Beers to date.

Issues Overview – Robin Johnstone, DBCMI
A description of the issues that have been associated with the Snap Lake Diamond Project and the progress that has been made in resolving these issues to date will be provided. This presentation will also include an overview of the proposed mitigation and monitoring measures, the Environmental Management System and the critical remaining issues that we will work toward resolving during the Public Hearings.

Day 1, PM – Geotechnical/Geochemistry

Geotechnical – Terry Eldridge, Golder Associates Ltd.
The broad geotechnical issues have been resolved and only a few issues remain, all of which are related to the North Pile. The presentation will provide an overview of the North Pile, and will provide background and rationale for the use of paste deposition.

Thermal Model
Models allow us to ask "what if" questions to test the behaviour of the system and help to identify what we should monitor to determine performance in the field, where we can best monitor and when action should be taken. The temperature (or thermal) model was set up using the laboratory-measured characteristics of the paste PK (processed kimberlite) and the actual site weather data. This model will be discussed in the presentation. Details of the various runs of the model that were performed to assess the potential impacts of warmer and colder winter temperatures will be explained. There will also be discussion on the model results: frozen and unfrozen zones within the pile, paste temperature below 0°C in about 2 years, paste continuing to cool for decades, and uncertainty related to year-to-year weather predictions.

Cryo-concentration
Cryo-concentration (or freezing concentration) occurs during freezing.. As ice forms, chemicals in the water are expelled from the ice and remain in the water. This results in

a smaller amount of water remaining with a higher concentration of chemicals. This is an issue with respect to the quality of the water seeping from the paste and leads to the ultimate issue, which is the seepage from the pile. There will be a specific discussion on how the total load of dissolved solids will remain about the same in relation to an increase in the chemical concentration and a reduction in the volume of water.

Seepage from the North Pile
The issue was that water would seep from the ditch into the lake. To resolve the issue, we have reversed the direction of that flow so that it is now from the lake to the ditch. This was done by putting the bottom of the ditch slightly lower than the lake level. This also means that the ditch bottom will be in granite bedrock. As an additional control for seepage, we will build an embankment beside the ditch to raise the permafrost level above the ditch bottom, which creates a barrier to flow. As will be discussed, with these modifications, we are confident that we have broken the pathway between the North Pile and Snap Lake. Details on construction techniques, ditch size and capacity, and expected flows will be provided for this contingency measure.

Geochemistry – Ken de Vos, Golder Associates Ltd.
Board consultants grouped the remaining geochemistry issues into one generic issue referred to as prediction of mine water discharge quality.

Mine Water Discharge Quality
The mine water is the largest component of the discharge and has the largest effect on the discharge water quality. The key factors contributing to the mine water quality are the amount and concentrations of the connate water entering the mine. The approach used to predict the mine water discharge quality (applying available and representative data from other sites to develop a site specific water quality model, use of groundwater flow and water quality modelling to investigate possible variations in discharge water, and critical evaluation of results of uncertainty assessment to select realistic, conservative values) and the rationale for selection of appropriate values for use in the assessment will be discussed. The results of several different modelling scenarios recommended by interveners and presented in the February Technical submission to the Board will be reviewed. Predictions of mine water discharge quality will be reviewed in light of this modelling.

<u>Day 2, AM/PM - Hydrogeology</u>

De Beers will make a brief statement regarding its commitment to monitoring Air Quality, relating to PM_{10} and $PM_{2.5}$ in resolution of the only outstanding air quality issue.

Hydrogeology – Lee Atkinson, Hydrologic Consultants Inc. (HCI)
Most of the hydrogeology issues have been resolved or are no longer issues; the Board consultants grouped the few remaining hydrogeology issues into one generic issue referred to as prediction of mine water discharge quantity.

Mine Water Discharge Quantity
Snap Lake is at a higher elevation than all of the surrounding large lakes. This means that under baseline conditions and at closure, water will flow downward and outward from Snap Lake, below the permafrost to large lakes at lower elevations. During

operations, pumping from the mine will cause downward flow from the lake to the mine and will draw in groundwater from the fractures in the rock.

How much water enters the mine, and from where, will affect water management, the size of equipment on site and predicted discharge concentrations. The approach used to predict how much water will enter the mine (measured inflows and material properties, range of behaviour to be expected through numerical modelling of different conditions, and critical evaluation of assumptions and uncertainties) and the rationale for selection of appropriate values for use in the assessment will be discussed. The data collected was from the underground workings during the AEP. A range of inflow conditions (to be provided) were investigated, and monitoring of inflows during the AEP confirmed model predictions. The possibility of upward diffusion will also be addressed.

Day 3, AM/PM – Water Quality and Aquatics

Water Quality – Mark Digel, Golder Associates Ltd.

Water Treatment

The proposed water treatment plant will provide best available treatment of site water prior to release to Snap Lake. The treatment process is based on proven technology that is practical for a remote northern project. An overview will be provided of the selection and capabilities of the treatment process, including: extensive sampling of underground mine water combined with modelling to predict untreated water quality, modeling of the treatment system process and bench-scale and pilot plant testing. These tests demonstrated that the treatment plant will be able to remove some of the dissolved metals and phosphorus present in untreated site water however, to be conservative, the environmental assessment accounted only for the removal of particulate metals and phosphorus associated with suspended solids, but did not account for any removal of dissolved metals or phosphorus.

Under-Ice Mixing

The treated water from the Snap Lake Project will be discharged to Snap Lake through a diffuser outfall. The diffuser provides initial mixing of the treated water discharge with lake water. During ice-covered conditions, currents are very small and mixing in Snap Lake will be governed by density differences between the treated discharge and water in Snap Lake. The approach used to account for under-ice mixing and predict conservative estimates of under-ice water quality in Snap Lake will be discussed. The underlying assumptions to this conservatism will be reviewed.

Nutrient Enrichment

The amount of phosphorus is expected to increase in Snap Lake over the life of the Project. The concern is that the resulting increase in algal productivity will change the nature of the aquatic communities of the lake (including the presence of keystone species). The range of potential increases in phosphorus and the consequences on the aquatic ecosystem of Snap Lake will be discussed in light of remodelling done at the request of interveners. The results of the modelling update will be discussed in relation to the productive status of Snap Lake.

Dissolved Oxygen Concentrations
Dissolved oxygen may decrease in deeper portions of the lake in late winter. This phenomenon would be associated with increased productivity. The concern is that this would affect habitat quality in Snap Lake. The potential changes in winter dissolved oxygen concentrations and the consequence of changes in habitat quality on fish and other aquatic life in Snap Lake will be examined. The results of winter oxygen profiles and predicted changes to baseline conditions will be reviewed and the predicted impacts reviewed in relation to this work. Results show that changes from baseline conditions will be low and restricted in area.

Metal Concentrations
There is a potential for a minor chronic toxicity effect in the immediate vicinity of the diffuser due to the levels of cadmium and chromium in the treated effluent released into Snap Lake. There was a concern that this would have a direct effect on aquatic life and an indirect effect on fish food availability. The potential impact of the discharge of these metals on the aquatic ecosystem of Snap Lake will be discussed. Conservatism will be outlined and the predicted levels of metals discussed in relation to guidelines and benchmarks.

Aquatic Effects – Stella Swanson, Golder Associates Ltd.

Total Dissolved Solids (TDS)
The amount of TDS (salts) is expected to increase gradually in Snap Lake over the life of the Project, and then eventually drop. The concern is that the increase in TDS levels will affect aquatic life in Snap Lake. The predicted changes in TDS concentrations and the potential impact on the aquatic ecosystem of Snap Lake will be reviewed in relation to levels known to result in effects. The predicted changes in TDS in Snap Lake fall within the range where the aquatic life in Snap Lake are known to survive. Furthermore, the increase in TDS will be very gradual. There may be indirect effects because some of the salts are needed for the outer shells of small clams or water fleas.

Multiple Stressors
There is a concern about the combined effects of the changes listed above to act as "multiple stressors" on the aquatic ecosystem of Snap Lake. The potential combined effects of these changes on the aquatic ecosystem of Snap Lake will be discussed.

More specifically, an explanation of the results and two approaches used to predict multiple stressors, laboratory tests on treated mine water and weight of evidence, will be provided, as well as the validity of the approach used to address uncertainty and incorporate conservatism into the predictions.

Keystone Species
The potential for loss of keystone species in relation to the changes listed above will be examined both in the context of individual changes and overall effects.

Adequacy of Baseline Data
There was a concern regarding the adequacy of baseline data collected. The adequacy of the baseline data in relation to the level of information required to conduct the impact

assessment will be discussed, recognizing that the purpose of baseline data is to provide enough of an understanding of the basic features of Snap Lake to allow impact predictions to be made.

Day 4, AM – Wildlife, Wildlife Habitat and Vegetation (The Land)

Wildlife, Wildlife Habitat and Vegetation – Bette Beswick, Golder Associates Ltd.

The Land
In the assessment process, a broad range of land-based components (e.g., wildlife, vegetation) were examined to predict project effects. As most of the issues were centered around reclamation, caribou, wolverine and grizzly bear, the presentation will focus on these components. The main concerns with the impact predictions involve the adequacy of baseline data (do we understand what is there now), project effects (familiarity with project activities, how they could affect the land and what the predicted changes could be), and the details of mitigation and management plans (monitoring and preventing and/or minimizing impacts).

Adequacy of Baseline Data
The adequacy of baseline data collected for land and wildlife will be discussed. The various sources of baseline data will be presented and discussed, as will the adequacy of the baseline data in relation to the level of information required to conduct the impact assessment.

A description of the study area will be provided, as well as an outline of the data collected and reviewed for terrain, soils & vegetation (satellite images, Traditional Knowledge, aerial photographs, collecting information on the ground), caribou, wolverine and grizzly bear (Traditional Knowledge, historic caribou trails, RWED satellite data of animal movements, aerial surveys throughout RSA, site observations, monitoring data from other projects).

Analysis of Baseline Data
There is a concern regarding the analysis of baseline data, and why additional modelling tools were not needed. The methods used to analyze the baseline date will be discussed and confidence that impacts have not been underestimated will be reviewed.

Impact Analysis
There is a concern regarding the analysis of impacts in the assessment. Specifically, the concerns centre around the issue of uncertainty in impact predictions. Key results of the impact analysis will be presented, and factors that provide confidence in the analysis discussed.

A summary of the potential effects to terrain, soils & vegetation (habitat loss, geographic features, area affected, reclamation), caribou, wolverine and grizzly bear (habitat loss, changes in movement or behaviour, direct mortality, health effects) will be provided.

Reducing Uncertainty
There is a concern regarding the uncertainty of predictions, relating to impacts of the Project to wildlife and the land. Methods used to reduce uncertainty will be discussed,

including the use of conservatism in the assessment, the importance of information from existing operations, and the value of adaptive management and monitoring programs.

To ensure that impact predictions have not been underestimated, De Beers has assumed that the entire project footprint will be lost for the duration of the project. Additionally, our predictions have had the benefit of monitoring from other projects and the track-record from Snap Lake to date confirms our expectations that wildlife mitigation can be effective. The EMS also provides rigorous methods to ensure mitigation plans are put in place, used, checked to see if they are working, refined where improvements are needed and continually improved. An explanation of methods used to reduce uncertainty will also be provided.

Day 4, PM and Day 5, AM – Social/Cultural/Economic

Social/Cultural/Economic – Peter Homenuck, IER

De Beers' approach to presentations at the hearing will be to provide the Board with an overview of the issues associated with the development of the Snap Lake Diamond Project. The discussion will be focused on outstanding socio-economic issues that were identified at the Pre-Hearing Conference. The following provides some more detailed information on how the socio-economic outstanding issues will be presented at the Hearing.

Before addressing the outstanding issues related to the socio-economic impact assessment, a broad overview of the state of the science, methodology used and analysis performed will be provided.

Ensuring Maximum Employment

One of the most important socio-economic concerns for Aboriginal and Northerners is the attainment of meaningful and long-term employment in every sector of the economy. Increased employment will occur through direct jobs at the Snap Lake site and through the implementation of impact management measures that focus on Aboriginal and northern hiring priorities, recruitment and employment strategies. Impact management measures related to recruitment, training and employment: preferential hiring of northerners and Aboriginals, recruitment and employment strategies, literacy programs, on-site learning centre and employment training programs will be outlined

Ensuring Maximum Benefits to individuals, families and communities

The development and implementation of the impact management measures will help to ensure the maximum benefits to individuals, families and communities. With the implementation of the Impact management measures benefits will include: increased opportunities for economic diversification, long-term community economic sustainability, the provision of social support services, and opportunities for cultural and traditional activities.

Ensuring the appropriate socio-economic support systems are developed and effectively implemented

Full and effective implementation of the 14 impact management measures will require adaptive implementation, based on continuous and ongoing monitoring of impacts as

they unfold and the ability to meet the needs of individual communities. De Beers recognizes that partnerships between Territorial and Federal governments, industry, communities, and learning institutions are a proven approach to implement many of the IMM.

An overview of partnerships will be provided, including their role in the human resource development plan, partnerships already formed, and a general idea of expected timelines.

Ensuring that an effective monitoring program is established and properly implemented

There are some uncertainties in predicting social and economic changes. Developing a monitoring program within the context of constant change requires SEIA to be ongoing, continuous and adaptive. Adaptive management is required as socio-economic impact assessment effects will change over time and adjustments will be necessary.

The uncertainties inherent to socio-economic impact prediction will be discussed. The way forward is to have a process of monitoring and adaptive management. The process for obtaining this will be described, as will the following categories that are to be addressed: training/education, employment, business, health and wellness and monitoring protocols.

Addressing Cumulative Socio-Economic Effects

Socio-economic cumulative impacts analysis is an area of interest to many stakeholders. Cumulative effects analysis is a complex undertaking because of the many factors and linkages and the dynamic nature of the inter-relationships of factors over-time. The analysis undertaken is based on responding to community issues and concerns, through recent grounded experiences and professional judgment.

The methodology used in determining socio-economic cumulative effects involved first grouping community issues into broad themes and then analyzing the available information, scenarios and current experiences. The analysis was discussed with a cross–section of community representatives before applying a reasoning process utlizing this information and professional experience to describe the anticipated cumulative effects.

Economic Impact Assessment – Andy Swiderski, Terriplan

A review of the following six aspects of the economic impact assessment for the Snap Lake Diamond Project will be provided: NWT economy in perspective, regional labour market, economic and tax models, model assumptions and projections, economic impacts and tax and fiscal impacts.

Additional Panelists

Geotechnical: Greg Oryall (AMEC), Grant Graber (AMEC), Sandy Marken (Golder Associates Ltd.), Don Hayley (EBA Engineering Consultants Ltd.)

Hydrogeology: Don Chorley (Golder Associates Ltd.)

Water Quality/Aquatic Resources: Rick Schryer (Golder Associates Ltd.), Pat Tones (Golder Associates Ltd.), Kevin Himbeault (Golder Associates Ltd.), Amy Langhorne (Golder Associates Ltd.), Brent Topp (Golder Associates Ltd.), Tom Higgs (AMEC)

Air Quality: Wayne Speller (Golder Associates Ltd.)

Wildlife: John Virgl (Golder Associates Ltd.), Andy McMullen (Bearwise)

Socio-economic: Timm Rochon (IER), Anna Olssen (IER), John Simpson (Genesis Group)