

MEETING:	Jay Project Discussion	DATE: February 3, 2015
ATTENDEES:	Dominion Diamond Corp.– Eric Denholm, Rick Bargery Government of Northwest Territories, Environment and Natural Resources, Water Resources – Nathen Richea, Barry Zajdlik (Zajdlik & Associates Inc.), Jamie van Gulck (Arktis Solutions Inc.), Noel Journeaux (Arktis Solutions Inc.) Golder Associates Ltd.– John Faithful, Kristine Mason, John Cuning, Fiona Esford, Mike Herrell, Willy Zawadzki, Don Chorley	

Agenda Item / Discussion	Follow-up
Introduction <ul style="list-style-type: none"> All attendees introduced themselves. GNWT thanked Dominion Diamond for hosting the meeting and allowing their consultants the ability to get up to speed quickly on the file, as they have come onboard later than the ENR had hoped in the review process. Rick provided an update on the adequacy review responses and the upcoming dates for IRs and technical sessions. 	
Project Description <ul style="list-style-type: none"> A presentation was given outlining the location of the Project, placement of proposed facilities, and dike design. Questions and discussions included the following: <ul style="list-style-type: none"> Plan for underground mining? Currently, underground is not included in the Project. As the resource becomes better defined during the operations phase and should economics be favourable, underground mining may be considered and would be included in future applications. Why would Misery Pit be discharged to Lac du Sauvage instead of Lac de Gras when Lac de Gras is closer? The option has been considered (see DAR Section 2, Project Alternatives). However, the pipelines will be in place for pumping from Misery to Lac du Sauvage. Is the Lynx granite needed for the cover at the Misery WRSA? No, there are adequate materials from Misery for this purpose. Will the Misery camp be expanded? If it is expanded, it would be within the footprint presented in the DAR. How long will the caribou crossings be? We will work with community wildlife experts for them to provide input. We have made allowance for the material and it will not be limiting for the size. Additional field visits will be conducted prior to final design. Discussion regarding learnings from Meadowbank dike construction (depth, grout curtain, permeability, overburden materials, turbidity management). Discussion of 2015 upcoming drill program to provide additional information for detailed design (i.e., locations and proposed sampling). Discussion on specific sampling methods to characterize dike foundation materials and bedrock permeability during 2014 and planned for 2015 investigation, including SPT (Split Spoon). Question as to whether lake sediments would be stripped prior to placement of rock foundation. Concern over the displacement of soft sediments that range in depth up to several metres at points along the proposed dike footprint. Discussion regarding the lack of turbidity curtains during winter dike construction. Dominion Diamond explained their position that it is impossible to maintain curtains during winter. Question was raised as to whether the curtains were used at the Diavik Mine over the winter months. GNWT agreed they would look into it. Dominion Diamond explained that rockfill placement will be done at a slower rate to minimize turbidity and a monitoring program will be developed which will be 	Nathen to provide 2015 drilling plan from WLWB site to ENR consultants

<p>used to manage rock placement to avoid negative impacts in the receiving environment. This is a winter construction activity that has been carried out effectively in Dominion Diamond's opinion at another northern mine site. The details of the monitoring program will be developed during permitting phase of the Project.</p> <ul style="list-style-type: none"> ○ Are spawning shoals located close to the dike? Discussed in Section 9 of the DAR, which also includes fish habitat maps that show spawning shoals. Most of the high-quality shoal habitats in the study area are located in Lac de Gras. Most suitable spawning shoals are located a couple of kilometres away from the dike. There is no critical habitat in the area of the dike. ○ Discussion that the PK placement in the Panda and Koala pits is part of the Jay Project on the basis that placement of PK in mined-out pits is an established concept at Ekati. Also discussed PK deposition in pits if Sable was developed, as well as PK deposition in Panda and Koala Pits and potential impact on groundwater / surface water. Discussed that the Jay assessment for the Panda and Koala pits included in DAR (discussed in Section 8.4 of the DAR, p. 8-186). ○ Cell D of Long Lake Containment Facility (LLCF) will remain as backup only throughout the Jay Project operation, continuing Cell D's current role at the LLCF facility. ○ Will the diffuser affect ice formation? If yes, what controls (i.e., monitoring) for health and safety and wildlife are proposed? Was any modelling done? A qualitative assessment was included in Section 8.4 of the DAR (hydrology pathways). The conceptual design and assumptions regarding water depth and diffuser depth in the water column are consistent with diffusers at other mines. ○ Discussion about ice safety concerns near the diffuser raised at other mine sites with diffusers. ○ Has the potential effects on volume and rate of discharge of high TDS water injected at the base of Misery Pit been incorporated into the assessment of Misery Pit stratification? Was discussed later in modelling presentation. Point of discharge at depth in Misery Pit and dispersion process will be designed to minimize disturbance of stratified layers (i.e., maximize stability potential of pit waters). ○ Discussion of the WRSA and the placement of metasediment. There will be a 2 m thick layer of granite rock at the base. Metasediment will be placed as-mined with granitic rock within the WRSA, followed by placement of granite cover that is at least 5 m thick. Why are metasediments not preferentially being placed within the portion of the WRSA where runoff will report to the runoff sump? Dominion Diamond's findings show that this is not necessary to protect water quality and that it is preferable to manage the overall height of the rock pile for best long-term benefit (i.e., minimize height and provide a relatively flat surface). ○ Discussed difference in placement methodology being proposed for Jay waste rock in comparison with Misery. ○ Discussed low potential for leachability of metals from granitic rock. Referenced geochemistry baseline in Annex VIII of the DAR. Questions regarding potential for leaching of metals to occur from granitic rock placed in the water for dike construction and affecting water quality directly discharged to Lac du Sauvage during the dewatering phase or water used to back-flood Lynx Pit. Questions related to surface area of granitic rock in comparison to the 27 million m³ of water in the diked area. Dominion Diamond's findings confirm negligible risk of metal leaching from granitic rock such that TSS remains the clearly dominant factor in managing the dewatering of lake water from within the diked area. ○ Question as to whether a dike monitoring program will be established, as has been done by Diavik. ○ Discussed assessment of the effects of flow at the narrows during the dewatering phase of the Jay Project. Referred to Section 8 of the DAR for change in water depth and wetted perimeter for details. Variation due to Jay Project dewatering is within natural variation that occurs at the narrows. ○ Is there a reason that all of the WRSA runoff is not directed to the sump? Much of the area does report to sump; there are contingency/adaptive management plans noted if need to direct runoff from north area to sump. Contingency management is an established effective process at the Ekati Mine. 	
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<ul style="list-style-type: none"> ○ Question about conceptual designs of these structures in the event that they are needed in the future. 	
<p>Mine Water Management Plan</p> <ul style="list-style-type: none"> • An overview of the water management plan for the Jay Project was provided. • Questions and discussions included the following (references provided to the DAR): <ul style="list-style-type: none"> ○ What criteria would be included for determination of pumping to Misery and Lynx pits versus Lac du Sauvage? Discussed that the dike material will be granite rock and that the primary driver for water quality during dewatering would be re-suspension of lakebed sediment from the diked area (i.e., total suspended solids) ○ Question about capacity and contingency storage within Misery and Lynx Pits. ○ Discussion regarding seepage monitoring at the toe of the WRSA, especially with respect to the north area where any seepage may not directly report to the Jay sump. Dominion Diamond stated that monitoring takes place at least twice per year (spring and fall) through a ground survey of the toe of each WRSA. 	
<p>Modelling</p> <ul style="list-style-type: none"> • A summary of all of the modelling components for the DAR was provided including the conceptual site water quality model, modelled parameters, model inputs (surface water and natural runoff, open pit water quality, groundwater, contact runoff), pit lake conceptual model (operations, closure/post-closure), downstream models (near-field, Lac du Sauvage and Lac de Gras lake hydrodynamic models). A summary of additional modelling being completed to support IRs was also presented. • Questions and discussions included the following: <ul style="list-style-type: none"> ○ Discussion around groundwater TDS vs. depth profile and the conservatism in the profile selected. The profile is based on three shallower water quality samples from the Westbay installation and the slope applied assumed the Frape and Fritz profile at greater depth. The Jay modelled profile fell in between the Diavik profile and the Frape and Fritz profile, which was expected due to Jay pipe location beneath a large lake (i.e., similar setting as at Diavik). ○ Question about the appropriateness of applying the Frape and Fritz slope profile. ○ Discussion regarding the conservatism in the assumptions with respect to the inflows from the EPZ which is the major pathway for TDS inflow into the open pit. Although conservatism is appropriate, don't want to be overly conservative (hyperconservatism) and not at all realistic. ○ Further discussion of hydrogeology field program for 2015 (additional boreholes, packer testing, interference test, Westbay groundwater sampling, etc.) to allow for additional understanding of TDS profile and the level of conservatism in the effects assessment and water quality modelling. ○ Discussion around Monte Carlo simulation. However, it was discussed that there were sensitivity analyses performed and reported in Appendix 8A. ○ Question about running four scenarios to cover the upper and lower bounds of the predicted case. Discussion included potential bounding of predicted effects by assessing the impact of TDS loading into the pit through additional sensitivity analysis (e.g., high TDS concentrations, high EPZ permeability to low TDS concentration and low EPZ). ○ Discussion around the hydrogeology assessment of the Panda Pit located in Section 8.4 of the DAR. ○ Discussion that use of the median concentration to represent the chemistry of groundwater parameters that are not correlated to TDS in the water quality model is conservative, as applying it to the total volume of water flowing to the Jay pit is conservative. The volume of inflow will be the controlling factor for chemical load, so appropriate to assign conservatism to the inflows. ○ Hydrogeology discussion around the transmissivity factor applied for Duey's Fault, modelling domain, use of no flow boundaries at the edges, selection of hydraulic heads for infilling, density effects, use of 2D versus 3D model, Reference Case versus DAR Conservative Case. Dominion Diamond stated that the EA Conservative Case includes EPZ that is equivalent to Duey's Fault, the most transmissive EPZ that is known to exist in the area. ○ Discussion of Cormix modelling and mixing zone. Discharge limits will be developed in the water licencing phase of the project. Indicated that the 	<p>Willy to provide information on hydraulic head conditions at pit wall.</p> <p>Mike to look into providing data for the cell(s) next to the WRSA and the depth of the cell at the first assessment node in the lake.</p>

<p>predicted modelling results at assessment node LdS-1 represented the water quality that we would expect at the edge of the 200 m mixing zone from the discharge diffuser.</p> <ul style="list-style-type: none"> ○ Question about the water quality predictions at the edge of the mixing zone and dilution factor from the diffuser. ○ Question about whether the Diavik discharge to 2023 considers A21? A21 does not extend the life of the Diavik Mine. ○ Question about whether water quality model assumed discharge from Diavik post-closure; ENR indicated that the water in Diavik's North Inlet requires some treatment prior to opening it to the lake (part of the approved ICRP). The model did not account for discharge from Diavik past the end-of-mine life. ○ For the Lac du Sauvage hydrodynamic model, discussion about the cell(s) located right next to the WRSA and the depth of the lake at the first assessment node. Discussion that the discharge may be higher density with greater concentrations nearer the bottom of the lake. Detailed consideration of effluent dispersion will be part of (future) detailed design of the diffuser. ENR requested the hydrodynamic model output for modelling cells proximal to the WRSA. 	
<p>Surface Water Quality Assessment</p> <ul style="list-style-type: none"> • A summary of the historical data sampling locations, assessment nodes and chloride results for Lac du Sauvage and Lac de Gras were presented. <ul style="list-style-type: none"> ○ Discussion regarding the extent of baseline, particularly existing condition, water quality data. 2014 data, not reported in the DAR, will be presented in supplemental monitoring reports in late Q1. ○ Discussion of potential influence of the Misery Pit discharge on Lac du Sauvage during operations and whether sediment and water samples near the outfall in Lac du Sauvage should be used as baseline. ○ Discussion around selection of assessment nodes for the WQ assessment and linkage to Lac du Sauvage and Lac de Gras hydrodynamic model. ○ Chloride plots for Lac du Sauvage and Lac de Gras presented and discussed to show project effects in Lac du Sauvage, and project and cumulative effects in Lac de Gras. Results in the DAR for each water quality constituent and assessment node presented in three forms: depth-averaged; max concentration, and surface concentrations – these are presented for the assessment nodes and additional locations in Lac du Sauvage (Attachment 8F-4) and Lac de Gras (Attachment 8F-5) of Appendix 8F. 	