

## Sachi De Souza

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**From:** Bargery, Richard <Richard.Bargery@ekati.ddcorp.ca>  
**Sent:** July-24-15 11:49 AM  
**To:** Sachi De Souza  
**Cc:** Bargery, Richard; Chuck Hubert; Lee, Claudine A  
**Subject:** Re: summary table of model results

Thanks

Richard Bargery  
Manager, Permitting Jay Project  
Dominion Diamond Ekati Corp  
(Cell) 867-446-1636

Sent from my iPhone

On Jul 24, 2015, at 9:40 AM, "Sachi De Souza" <[sdesouza@reviewboard.ca](mailto:sdesouza@reviewboard.ca)> wrote:

Hi Rick

I've provided responses below in green. I hope this clarifies. In the DAR this data was presented in Table 6-1 from Appendix 3A of the DAR.

Sachi

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**From:** Bargery, Richard [<mailto:Richard.Bargery@ekati.ddcorp.ca>]  
**Sent:** July-23-15 10:11 PM  
**To:** Sachi De Souza  
**Cc:** Chuck Hubert; Lee, Claudine A  
**Subject:** FW: summary table of model results

Hi Sachi:

We should be able to provide this information early next week but our team is requesting clarification of a few items first. Can you respond to the questions below.

Thanks Rick

The request for input parameters is clear, and this information will be provided.

To prepare the requested information on output parameters, we require clarification on the following to confirm the information being requested.

In the first row of the table does "total inflows" refer to inflows to the Jay Pit or minewater discharge to Misery? If the table is referring to inflows to the Jay Pit, is total groundwater inflow or total minewater reporting to the Jay Pit being requested? –The request is for the total water (groundwater, surface water runoff, rainwater) that is managed by the Misery Pit. From Table 6-1 of Appendix 3A of the DAR this would be the total inflows to the Misery pit which appears to be the sum of the total inflows from the Jay

Pit, the Jay diked area, and surface water runoff reporting to Misery from the Misery catchment area. For example, the total for year 1 of operations (from Table 6-1) would be 6.2Mm<sup>3</sup>.

In the second row of the table does “Proportion of total inflows from surface water (%)” refer to direct surface water inputs such as precipitation over the open pit footprint or does this refer to the proportion of groundwater inflow that originates from Lac du Sauvage. – the proportion of surface water is looking for the proportion of water to manage that is from rainfall and rainfall runoff (i.e. runoff over the natural catchment and runoff over the WRSA). This should not include the groundwater that originates from Lac du Sauvage.

In the third row of the table does “Proportion of total inflows from groundwater (%)” refer to the proportion of total minewater that originates from groundwater or does it refer to the proportion of groundwater inflow that originates from storage in the rock. To add context to this virtually all inflow to the Jay pit area, except direct precipitation, is groundwater – Lac du Sauvage water flows as groundwater down through the weathered bedrock and through the rock to the pit. – given what is described, if Dominion could provide the proportion of water that originates as groundwater stored in the rock and the proportion of water that originates from Lac du Sauvage (as in add another row to the table) that would be more useful in describing the water that is considered as groundwater.

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**From:** Bargery, Richard [<mailto:Richard.Bargery@ekati.ddcorp.ca>]  
**Sent:** Monday, July 20, 2015 4:51 PM  
**To:** Mason, Kristine; Herrell, Michael; Chorley, Don  
**Cc:** Lee, Claudine A; Eric Denholm  
**Subject:** FW: summary table of model results

Here is the information that they want from this morning’s meeting. How much work is this for us?

Rick

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**From:** Sachi De Souza [<mailto:sdesouza@reviewboard.ca>]  
**Sent:** Monday, July 20, 2015 1:13 PM  
**To:** Bargery, Richard  
**Cc:** Chuck Hubert  
**Subject:** summary table of model results

Hi Rick,

Thank you for taking the time to walk us through the modelling results. It was very helpful for us. After reviewing the IR2 submissions it would be helpful to have a summary of some of the key pieces on information that describe the inputs and outputs from the water modelling. The specifics are tabulated below. The first part of the table relates to the water that will need to be managed for the Jay project under the different scenarios. The second part is related to the input parameters for the hydrogeological model. The input parameters were described in the DAR in Appendix 8A, Table 8A3-2, and then supplemented during IR round 1 in response to GNWT-IR-6. It would be helpful if the lower bound scenario that was just completed was put into this format as well to allow for an easy comparison.

Please let me know if this is unclear.

Summary of Outputs			
	Lower Bound	Reasonable	DAR Case

	Scenario	Estimate Case	
<i>Water Quantity</i>			
Total Inflows over LOM (Mm <sup>3</sup> ) (including a reference to where the year by year estimates can be found)			
Proportion of total inflows from surface water (%)			
Proportion of total inflows from groundwater (%)			
Proportion of gw from EPZ (%)			
Proportion of gw from weathered bedrock (%)			
Proportion of gw from competent bedrock (%)			
<i>Water Quality</i>			
Peak TDS concentration in Misery Pit (mg/L)			
Peak TDS concentration of discharge water to Lac du Sauvage during life of mine (mg/L)			
Peak TDS concentration of overflow from Misery Pit post-closure (mg/L)			

*Updates to DAR table 8A3-2 and table 6-1 provided in the response to GNWT IR-6 from IR round 1*

Input Parameters	Lower Bound Scenario	Reasonable Estimate Case	DAR Case	Upper Bound	Lower Bound
Porosity of competent bedrock					
Specific storage of competent bedrock					
Hydraulic Conductivities (including variations with depth if applicable)					
Hydraulic conductivity of weathered bedrock					
Hydraulic conductivity of					

competent bedrock					
Hydraulic conductivity of EPZ					
EPZ extent/width (including variations with depth as described in section 2.1.2.1 of the Uncertainty attachment to IR round 2)					

Thanks,

Sachi De Souza  
Environmental Assessment Officer  
Mackenzie Valley Environmental Impact Review Board  
Box 938, 5102-50<sup>th</sup> Ave, Yellowknife, NT X1A 2N7  
(Direct) 867-766-7054  
(Fax) 867-766-7074  
[www.reviewboard.ca](http://www.reviewboard.ca)  
<image001.jpg>

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