DE BEERS
A DIAMOND IS FOREVER

12 February 2003

Mackenzie Valley Environmental Impact Review Board (MVEIRB)
Box 938, 5102 – 50th Avenue
Yellowknife, NT X1A 2N7

Attention: Glenda Fratton, Environmental Assessment Coordinator

Dear: Glenda

SUBJECT: Meeting Record: Assessment of Impacts to Biodiversity

Please accept the attached meeting record outlining methods used for assessment of impacts to biodiversity presented in the Snap Lake Environmental Assessment for submission to the Public Registry. This meeting was held in response to issues raised by Gartner Lee Limited during the MVEIRB Technical Sessions.

Should you have any questions, please feel free to contact the undersigned.

Sincerely,
SNAP LAKE DIAMOND PROJECT

Robin Johnstone
Senior Environmental Manager

MEMORANDUM

10th Floor, 940 - 6 Ave. S.W.
Calgary, Alberta, Canada
T2P 3T1

Golder Associates

Golder Associates Ltd.
Telephone No.: 403-299-5600
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DATE: February 3, 2003   022-6659-5300

TO: Robin Johnstone, De Beers Canada Mining Inc.

FROM: Dawn Kelly and Rick Schryer

PREPARED BY: Sandra Marken

RE: Meeting Record for November [Dec] 04, 2002 between Sandra Marken (Golder Associates Ltd.)
        and Glenda Fratton (Gartner Lee) to discuss the methods used for assessment of impacts to
        biodiversity presented in the Snap Lake EA

During the December 2, 2002 Mackenzie Valley Environmental Impact Review Board (MVEIRB)
technical session for the De Beers Snap Lake Diamond Project, Glenda Fratton of Gartner Lee posed
several biodiversity related questions to De Beers representatives. The discussion related to the
questions was deferred to a follow-up session between Glenda Fratton and Sandra Marken (Golder
Associates for De Beers Canada) on December 4, 2002 at 12:00. At that meeting, the methods used to
assess impacts to biodiversity, as presented in the Snap Lake Diamond Project Environmental
Assessment Report (De Beers 2002[1]), were discussed.

The focus of the discussion involved clarification of Table 10.3-3 (Ecosystem Level Ranking for
Biodiversity Potential) of the Environmental Assessment Report (Part 2, page 10-64). This table shows
the calculated values for each Ecological Land Class (ELC) type in the Regional Study Area (RSA) for
the following indicators of ecosystem biodiversity: mean cover (%), mean number of community types,
mean plant species richness, and mean plant diversity index. The combination of the values assigned
to each indicator was used to assign an overall Biodiversity Rank to each ELC type.

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[1] De Beers Canada Mining Inc. February 2002. Snap Lake Diamond Project Environmental Assessment
    Report, Part 2, Section 10.3.1.4.3.

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Robin Johnstone   February 3, 2003
De Beers Canada Mining   -2-   022-6659-5300

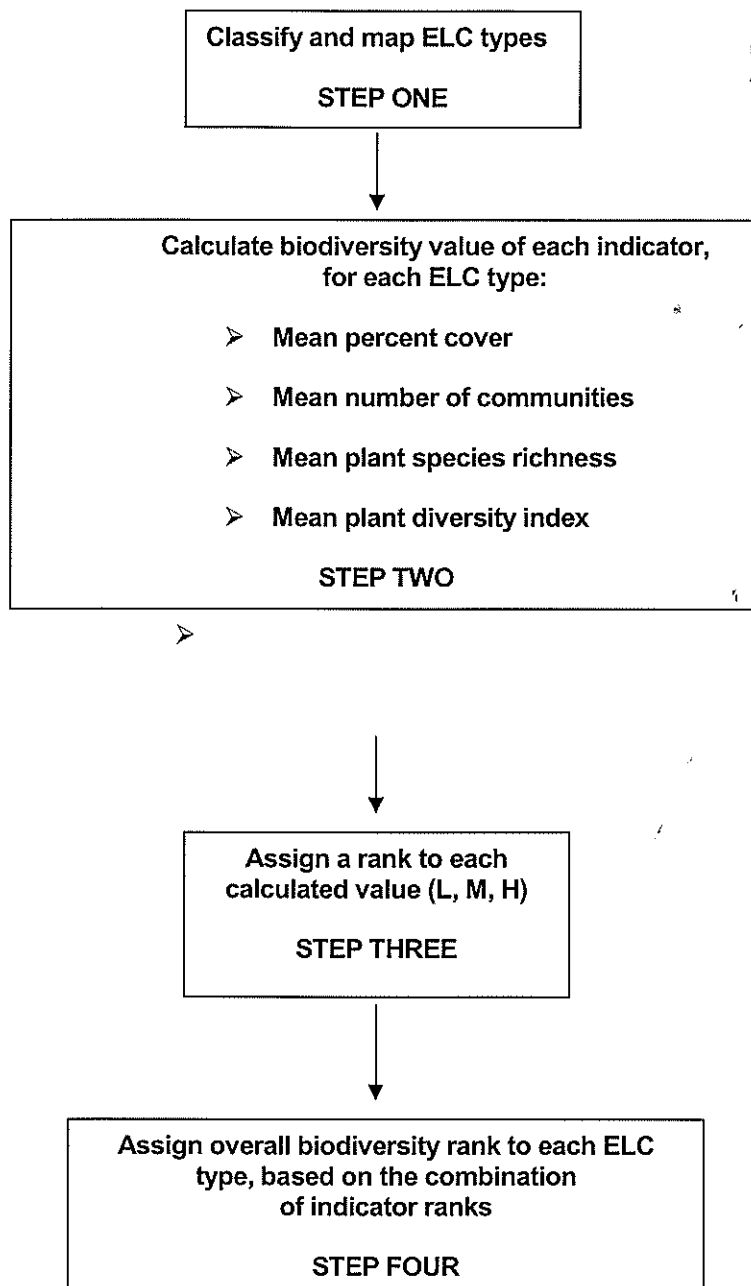**Table 10.3-3   Ecosystem Level Ranking for Biodiversity Potential**

Ecological Land Class	Mean cover (%)	Mean Number of Community types	Mean Plant Richness	Mean Plant Diversity	Biodiversity Rank
Bedrock	16	2	10	2.1	L
Boulder	5	2	4	3.2	L
Heath/Bedrock	56	3	15	4.5	M
Heath/Boulder	26	2	15	5.3	M
Heath Tundra	70	4	20	5.8	H
Esker Complex	10 to 64	5	25	6.7	H
Open spruce forest	41	2	12	6.2	M
Closed spruce forest	65	4	17	5.9	M
Mixedwood deciduous forest	63	6	28	6.8	H
Birch seep	40	3	13	4.8	M
Riparian tall shrub	75	5	26	6.8	H
Tussock-hummock	85	2	22	5.1	H
Sedge wetland	80	2	23	6.9	H
Deep water	1	1	1	N/A	L
Shallow water	5	1	1	4.2	L
Burn	85	1	6	3.2	M
Disturbed	N/A	N/A	N/A	N/A	L
Unclassified	N/A	N/A	N/A	N/A	L

Source: De Beers Canada Mining Inc. February 2002. Snap Lake Diamond Project Environmental Assessment Report, Part 2, Section 10.3.1.4.3.

A four-step process was used to determine the overall biodiversity rank for each ELC type (Figure 1):

1. ELC types within the study area were mapped and classified.

2. For each ELC type, indicators of biodiversity were calculated. The indicators used were mean percent cover, mean number of communities, mean plant species richness, and mean plant diversity index.

3. Values for each of the indicators were ranked into three categories: Low (L), Medium (M) and High (H).

4. Depending on the combination of values of the indicators within each ELC type, an overall biodiversity rank was assigned to each ELC type.

Figure 1   **Steps used to Assess Ecosystem Biodiversity**

Classify and map ELC types

STEP ONE

Calculate biodiversity value of each indicator, for each ELC type:

➢   **Mean percent cover**

➢   **Mean number of communities**

➢   **Mean plant species richness**

➢   **Mean plant diversity index**

STEP TWO

➢

Assign a rank to each calculated value (L, M, H)

STEP THREE

Assign overall biodiversity rank to each ELC type, based on the combination of indicator ranks

STEP FOUR

The meeting involved clarifying two steps in the process:

- How were the calculated values for each of the biodiversity indicators ranked (i.e., Step 3 in Figure 1)?

- How were the ranks for each biodiversity indicator combined to provide the overall biodiversity rank for the ELC types (i.e., Step 4 in Figure 1)?

Assigning Biodiversity Indicator Ranks

For each biodiversity indicator, the range of values was calculated for each ELC type. Those values are reported in Table 10.3-3. In step three (Figure 1), the range of values for each biodiversity indicator was then divided into three categories: Low (L), Medium (M) or High (H). Table 1 outlines how values were assigned in each category.

Table 1   Biodiversity Indicator Values and Ranks

Biodiversity Indicator	Low	Medium	High
percent vegetation cover	0 to 29	30 to 59	60 to 90
number of communities	1,2	2 to 4	5,6
plant species richness	1 to 9	10 to 19	20 to 30
plant diversity index	1 to 3	3 to 5	5 to 7

Ranking Overall Biodiversity for ELC Types

In Step 4 (Figure 1), the combined ranks for each biodiversity indicator for each ELC type were used to assign an overall biodiversity value of Low, Medium, or High (Table 2).

Table 2   Biodiversity Indicator Ranks and Overall Biodiversity Rank for each ELC Type

Combination of Biodiversity Indicator Ranks			Overall Biodiversity Rank
LLLL	LLLM	LLLH	L
LLMM	MMMM	LMMH	
LLMH	LMMM	LMHH	M
LLHH			
HHMM			M or H[*]
HHHH	HHHM	HHHL	H

[*] A moderate or high rank was assigned based on whether the values for each biodiversity criterion trended toward the high end (H) or the low end (M) of the range

Table 3 presents the same information as provided in Table 10.3-3, but using the indicator ranking instead of the calculated values. This table illustrates how the overall biodiversity rank for each ELC type was derived from the individual biodiversity indicators.

Table 3   Ecosystem Level Ranking for Biodiversity

Ecological Land Class	Mean cover (%)	Mean Number of Community types	Mean Plant Richness	Mean Plant Diversity	Overall Biodiversity Rank
Bedrock	L	L	L	L	L
Boulder	L	L	L	M	L
Heath/bedrock	M	M	M	M	M
Heath/boulder	L	L	M	H	M
Heath tundra	H	M	H	H	H
Esker complex	M	H	H	H	H
Open spruce forest	M	L	M	H	M
Closed spruce forest	H	M	M	H	M
Mixedwood deciduous forest	H	H	H	H	H
Birch seep	M	M	M	M	M
Riparian tall shrub	H	H	H	H	H
Tussock-hummock	H	L	H	H	H
Sedge wetland	H	L	H	H	H
Deep water	L	L	L	N/A	L
Shallow water	L	L	L	M	L
Burn	H	-	L	M	M
Disturbed	N/A	N/A	N/A	N/A	L
Unclassified	N/A	N/A	N/A	N/A	L