KENNECOTT CANADA EXPLORATION INC.
LEGEND JV DIAMOND DRILL LOGS

Drill Hole:	98DH-VA02	**Azimuth:**	N/A
Easting:	362 350 m E (NAD 27)	**Dip:**	-90° to -87° at EOH
Northing:	6 355 490 m N (Z 12)	**Depth (EOH):**	200.3m
Collar Elevation:	~ 720 m amsl (GPS)	**Diameter(s):**	NQ
Grid Location:	940 E, 5000 N	**Geologist:**	Richard Beck
Drill Contractor:	Aggressive Drilling	**Geotech/Sampler:**	Austin Young
Contracted to:	Kennecott Canada	**Project Geologist:**	Theo Aravanis
Drill Type:	Boyles 25A	**Date Collared:**	01 November, 1998
Drill Foreman:	Mitch McLelland	**Date Completed:**	08 November_ 1998

Summary Information

Drill-hole 98DH-VA02 is the second hole drilled into the **Valkyrie Kimberlite** on the Kennecott / Montello Resources Legend Joint Venture in northeast Alberta. The hole intersected kimberlite beneath ~ 130m of till sediment cover. In the VA-02 hole, 127 metres of NW casing was left in the hole as clay seams made it difficult to retrieve. The casing sits in the hole from 7 to 121.9 metres.

PVC was put in the hole from the surface to 170.7 metres.

NQ core recovered coarse graded and bedded kimberlite and xenoliths. The core has been split: half core has been sampled for detection of diamonds (by caustic fusion at Kennecott's micro-diamond facility in Thunder Bay, ON.) Samples have also been taken for indicator HM recovery / EPMA mineral chemistry, petrographic examination, geochronology and palynology (refer end of log). Visual logging has not identified any P or E type indicator minerals / xenoliths (except olivine).

The kimberlite as logged appears to have few HM kimberlitic indicators, and is locally host to bituminous hydrocarbons in whole core sections and in altered crystals and xenoliths. Magnetism thought to be a result of locally prolific serpentine + magnetite alteration of the: some (particularly the smaller) olivine grains in more magnetic intervals appear to be mantled by a black magnetite-bearing alteration rim.

Summary Log

Page

APPENDICES

Page

Detailed Log

0.0 - 119.8 m **Cased Overburden**

Drill timesheets indicate boulder tills encountered at the start of tri-cone drilling then seams of clay and sand while setting the casing.

119.8 - 132.0 m **Cobble and Boulder Till**

Unconsolidated polymictic tills constitute the majority of this interval. According to the drillers, most of the sands and clays cored were washed up the hole, leaving only 1 metre of till in the core tray. Present in this single metre, is a rubble zone of light grey clay followed by a few rounded quartzite cobbles before ending the interval with light brown, fine grained sand.

132.0 - 135.6m **Coarse graded Kimberlite**

Dark green, serpentinized, matrix supported kimberlite. The kimberlite is competent hard and coarse fragmental. Black to green/yellow country rock xenoliths (angular and sub-angular) with few having reaction haloes are abundant throughout this entire unit. Fine-grained olivine and carbonate are both frequent in the matrix with an abundance of medium grained calcite crystals. This interval grades in fragmental component size and packing density from a coarse to fine kimberlite.

132.0 - 134.2m	Dark olive green, coarsely fragmental hard kimberlite. Matrix comprise fine-gained relic olivine and medium grained calcite crystals, yet are devoid of micas. Country rock xenoliths (CRX's) vary in colour from light olive green to black. The green fragments include both marls and green argillites and appear to be the only CRX's being host to reaction haloes. The black CRX's are dominantly angular with clean sharp contacts.
134.2 - 135.6m	This unit is much the same as the above mentioned interval, with the exception of a decrease in fragmental component size. A sharp gradation in fragment size is observed at 134.6m. Xenoliths are smaller, yet of the same variety as mentioned above. Fine-grained relic olivines, calcite, and biotite (<1% - visual interpretation) exist in the black matrix. Small vugs of bitumen can be seen in the groundmass.

135.6 - 145.0 m **Bedded Kimberlite Tuff**

Dark to light grey, coarse to finely fragmental and variably well bedded to locally laminated kimberlite. The interval is competent hard throughout with sharp contacts between coarsely fragmental and fine grained kimberlite. Coarse fragments of CRX's exist locally, however, the interval is dominant with medium to fine fragments. Xenoliths are infrequent, yet locally they are leucocratic sub-angular marls and black sub-angular mudstone. Weathering exists locally, offering a yellow (Fe stained) hue to the rocks. Bitumen is observed in fractures and as small vugs.

135.4 - 136.7m	Dark grey finely bedded interval with sharp gradational contacts @ 135.6 and 136.7m. Grading is coarse to fine. The rock is hard with local minor alteration. Bitumen observed in fractures. The unit begins as a medium grained fragmental kimberlite with a sharp contact and grades into a fine-grained laminated unit before ending in a xenolith rich coarse fragmental zone. In local sections, marl xenoliths are elongated perpendicular tca, offering a "welded" appear-ance. Relic olivines are observed as fine-grained set in a dark densely packed matrix. Medium grained calcite crystals remain abundant throughout the core interval.
136.7 - 145.0m	This interval is much the same as the above interval, but is dominantly medium fragmental with a fine-grained matrix grading into the finer grained bedded units. Bedding is mildly steeped in local sections i.e. 142.9m (refer to "rep" box). The core is hard and competent and locally weathered. Slickensides observed at 144.4m.

145.0 - 147.2 m **Medium grained fragmental (Bituminous) Kimberlite**

Black medium grained fragmental, competent bitumen-rich kimberlite. Xenoliths of mud and marls are sub-angular and sub-rounded and appear to be unaltered by the strong presence of bitumen. Relic olivine is infrequent, yet observed, however, the nature of this unit in that it is "soaked" in bitumen (bitumen is oozing from the core causing both black and faint yellow staining), hinders visual analysis. Minor carbonate veining is observed.

147.2 - 151.5 m **Medium grained fragmental kimberlite**

This interval consists of a massive medium fragmental kimberlite. Grey competent unit with local weathered alterations staining the core yellow. CRX's of green marl and black to brown mud exist throughout majority of the interval with slight gradation in fragment component size toward the end of the interval. The kimberlite becomes devoid of xenoliths at the end of the unit. Relic and fresh olivine grains are frequent throughout the matrix, sharing the groundmass with medium grained calcite crystals.

147.2 - 150.3m	Competent stiff bluish green, medium grained fragmental kimberlite. CRX's are of black mud and green marls (sub angular) ranging in size from 4mm - l Omm. There are frequent xenoliths elongated perpendicular tca, however, this does not suggest a densely packed unit, as there are other equi dimensional xenoliths in abundance. Relic and mildly replaced olivine grains are abundant. Calcite remains abundant in the dark olive green matrix.
150.3 - 151.2m	Same as the above unit, but with a slight gradation in fragment component size. This interval is frequently a mix of whole core and broken zones.

151.5 -152.5m **Fine grained fragmental (Bituminous) kimberlite**

Bituminous kimberlite identical to the 145.0 - 147.2m interval. They differ only by fragment size.

152.5 -156.3m **Bedded Kimberlite Tuff**

This interval is almost identical to that of 135.6 -145.Om Laminated sections with small beds of coarse fragments set in a fine matrix. The rock is competent hard with a mild presence of bitumen. Notably steeper bedding is observed @ 154.6m (refer to "rep" box). Slickensides are present along fractures of veined carbonate.

156.3 - 200.3m **Coarse graded Kimberlite Tuff**

Dark grey to greenish grey, coarse to very coarse fragment comprising previously recognized matrix supported components. This unit is distinguished from the overlying unit by its lack bedding and lack of weathered alteration.

Locally, the rock is very rich with CRX's. Xenoliths are abundant throughout and vary in their colour; - light green to dark green, light brown to dark brown, grey, black and white. Fragments comprise variable amounts of CRX's (1 - 5%), including sub-angular green marls and sub-angular green argillites. In equal abundance are mud xenoliths (sub-angular) and to a lesser degree black angular mud CRX's.These xenoliths range in size from 2mm - 30mm.

Relic and mildly carbonate replaced olivine are observed in the matrix, however, micas (phlogopite?) were not seen.

Carbonate is abundant throughout with veined carbonate dominant at the end of the interval.

156.3 - 157.7m	Medium fragmental bluish green kimberlite with a "welded" appearance. Notably, frequent mud xenoliths are elongated.
157.7 - 158.2m	Rubble zone
158.2 - 158.4m	Very coarse fragmental kimberlite
158.4 - 161.2m	Medium fragmental rock with fine grained olivine
161.2 - 162.Om	Broken zone
162.0 - 175.Om	Identical to the 156.3 - 157.7m interval
175.0 - 175.5m	Rubble zone
175.5 - 200.3m	Identical to the 158.2 - 158.4m interval, however, there is an abundance of small sub-rounded mud xenoliths (2 - 3mm) and veined carbonate.

200.3m E.O.H.

Representative (`Rep') Samples

#	Depth in Hole	Geological Unit	#	Depth in Hole	Geological Unit
1	133.6m	Coarse graded kimberlite	13	154.6m	Bedded kimberlite tuff
2	135.6m	Coarse graded kimberlite	14	157.0m	Coarse graded kimberlite tuff
3	136.7m	Bedded kimberlite tuff	15	160.7m	Coarse graded kimberlite tuff
4	138.9m	Bedded kimberlite tuff	16	167.3m	Coarse graded kimberlite tuff
5	140.0m	Bedded kimberlite tuff	17	170.8m	Coarse graded kimberlite tuff
6	142.9m	Bedded kimberlite tuff	18	182.2m	Coarse graded kimberite tuff
7	144.0m	Bedded kimberlite tuff	19	188.2m	Coarse graded kimberlite tuff
8	146.6m	Med. Frag. Bituminous kimberlite	20	190.5m	Coarse graded kimberlite tuff
9	148.1m	Medium fragmental kimberlite	21	200.2m	Coarse graded kimberlite tuff
10	149.8m	Medium fragmental kimberlite			
11	151.6m	Fine flag. Bituminous kimberlite			
12	152.9m	Bedded kimberlite tuff			

Heavy Mineral / Micro-diamond Sample List

Sample No.	Hole	From (m)	To (m)	Interval (m)	Mass (kg)	Shipped
VR87858A	VA01	122.9	129.1	6.2	10	November 10, 1998
		131.1	132.0	0.9		November 10, 1998
VR87859A	VA02	129.1	131.7	2.6	15	November 10, 1998
HM COMP	VA01	132.0	176.0	44.0		November 10, 1998
		129.1	131.7	2.6	5	November 10, 1998
VR87860A	VA02	132.0	133.1	1.1	10	November 10, 1998
VR87861A	VA02	133.1	139.2	6.1	10	November 10, 1998
VR87862A	VA02	139.2	144.0	4.8	10	November 10, 1998
VR87863A	VA02	144.0	148.9	4.9	10	November 10, 1998
VR87864A	VA02	148.9	153.9	5.0	10	November 10, 1998
VR87865A	VA02	153.9	159.9	6.0	10	November 10, 1998
VR87866A	VA02	159.9	165.2	5.3	10	November 10, 1998
VR87867A	VA02	165.2	170.6	5.4	10	November 10, 1998
VR87868A	VA02	170.6	176.0	5.4	10	November 10, 1998
VR87869A	VA02	176.0	182.1	6.1	10	November 10, 1998
VR87870A	VA02	182.1	187.0	4.9	10	November 10, 1998
VR87873A	VA02	HM	COMP	-	10	November 10, 1998
HM COMP	VA02	176.0	200.2	24.2	10	November 10, 1998
VR87874A	VA02	187.2	192.7	5.5	10	November 10, 1998
VR87875A	VA02	192.7	200.2	7.5	10	November 10, 1998

Home Back

Notable Mantle Nodules

No mantle nodules or their xenocrysts were recognised during logging. A composite sample for indicator mineral chemistry has been submitted (VR8780xA).

Petrology Samples

Geochronology Samples

Sample No.	Depth	Sampled by	Submitted to
VR31095A	158.2	Richard Beck	ROM