

ABNER RANGE
SEL 9779

Appendix 1.2

Diamond Drill Holes - Logsheets

Appendix 1.2
1.2 Diamond Drill Hole Logsheets.xls

Abner Range diamond drilling 2005: Hole No. ADD 01

Drilling Commenced 22-May-05 Geologist: IWM
 Drilling Completes 23-May-05
 Collar Location: 595360 E 8145610 N
 Datum: WGS84 Zone 53
 Azimuth 0°
 Dip -90
 Core Size HQ

Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
0 - 3.60	1.10	PIS GRAVEL	28	Red brown pisolitic rich clays and minor magnetite. Mnr friable sst fragments towards end of interval
3.60-6.60	0.85	Cret SST/SST	28	White -orbr friable sst - probably cretaceous. Such poor recovery that we may have gone into kim but washed out. One large Prot sst clast @ end of interval
6.60-8.70	0.60	SST/CLAY	29	Broken sst fragments some with rounding although most are remilled and redrilled in core barrel. Some mnr soft sticky clay on ends of sst.
8.70-14.50	1.40	SST/CLAY	24	A/A with sst fragments to 17cm at start of interval, decreasing to about 5cm max from 12.4-14.5. Again all redrilled broken and porr recovery of matrix. Probably kimb as mnr yebr clays with talcy feel on ends of core recovered. Not enough drill mud in hole
14.50-19.30	1.45	SST/CLAY	30	A/A with sst fragments to 8cm max and some mnr kim matrix recovered . Still mainly sst xenoliths t/out but strong suspicion that clays washed out. Hole beginning to fail
19.30-24.60	60.00	SST/CLAY	11	A/A but hole faling with xenoliths falling into hole and being redrilled. Reaming hole helps but corbarrel lost, and shoe bit. No - not enough drilling mud used
				Hole Abandoned

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Abner Range diamond drilling 2005: Hole No. ADD 01a

Drilling Commenced 23-May-05 Geologist: IWM
Drilling Completes 25-May-05
Collar Location: 595362 E 8145611 N
Datum: WGS84 Zone 53
Azimuth 0°
Dip -90
Core Size HQ

Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
0 - 2.40	1.60	PIS GRAVEL	67	Red brown pisolitic rich clays and minor magnetite, becoming a little kaolinitic towards end of run. Mnr rounded sst fragments towards end of interval
2.40-2.84	0.24	PIS GRAVEL	100	A/A but compact core with pisolites to 5mm. Mnr fe-rich sst fragments
2.84-5.00	0.76	Cret SST	35	Orbr to pale br friable sst. Possibly cretaceous. No clasts or pisolites. Non magnetic
5.00-5.63	0.63		100	White strongly silicified med grained qtz sst, coarser with depth. Intensely silicified to 5.08, sugary and friable to 5.55. Subtle bedding plane dip @ 15° at 5.55m
5.63-6.64	1.01	Cret SST / KIM	100	Pale grn-cream coloured sandy matrix kimberlite? Some silicification at contact. Numerous clasts of w'd sst and silts mostly <10mm, rounded to sun-angular to 5.98 m
				From 5.98m sst clasts to 5cm common with reduction of small clasts. Matrix varies between 40-60% by volume with matrix more clay rich with depth
6.64-7.31	0.67	TRANS KIM	100	A/A but with distinctive dark grn-br matrix. Clasts to 65mm (most <50mm) of white qtz sst (40%), br fg sst (20%) and shales (40%). Perhaps some replacement of volcanic shards to silica in matrix @ 6.70m. Xenoliths 70% by volume, generally rounded but still some angularity
7.31-8.60	1.29	TRANS KIM	100	A/A with increasing number of clasts to 80% volume. Rare clast to 100mm, generally <50mm, with proportion of shales to 60%. Strongly Mn and Fe stained
8.60-10.40	1.80	KIM BRECCIA	100	A/A with clasts to 70% volume. Rare clast to 50mm, generally <20mm, with proportion of shales to 60%, rare mafic clast (basalt?) @9.98m. Orbr calcite rich matrix
10.40-14.22	3.34	KIM BRECCIA	87	A/A with clasts to 70% volume. Rare clast to 170mm, generally <50mm, with proportion of shales to 40%. Very angular clasts more common in larger clasts whilst smaller clasts tend to be more rounded. Matrix less sandy and calcitic. Core loss in zones of more dominant matrix material
14.22-16.00	1.15	KIM BRECCIA	65	As for 10.40-14.22m but matrix kimberlite much softer and rarely preserved. Common redrilled and rolled sst clasts <60mm. Xenolith volume 50%
16.00-18.10	1.22	KIM BRECCIA	58	As for 10.40-14.22m with very soft matrix kimberlitic clays. Four large xenoliths 170, 120, 80 and 80mm the rest <50mm. Xenolith content 60%
18.10-22.20	2.08	KIMBERLITE?	51	Large zone of loss in very soft matrix clay, two very large xenoliths 650 and 500mm of qtz sst. Most of the matrix washed out - hard to guess matrix content
22.20-38.58	1.76	KIMBERLITE?	11	Extremely heavy zone of loss with kimberlitic clays almost entirely washed out of hole. All that remains is sst pebbles most 2-5cm, 6 x 7cm, 1 x 16cm. No fg sst pebbles <1cm recovered. Miniscule portions f calcite rich matrix recovered 17cm in total. >50% matrix in hole?/?
38.58-44.28	5.70	KIMBERLITE	100	Good looking diatreme facies kimberlite with yellow green clastic matrix. Some siderite and silica in matrix. >50% matrix t/out interval, large xenoliths rare with few to 40mm, most <15mm. All xenos well rounded with 30%sst, 60%shale, 10%small dark mafics, and 1% autoliths. Some possible lapilli? altered to a green porcelaneous look, could also be altered olivine macrocrysts. Possible resorbed granite at 39.10. Some minor imbrication @ ± right angle to core
44.28-45.30	0.24	KIMBERLITE?	24	As above - lots of loss in very broken and soft clays and sst clasts (all < 30cm)
45.30-48.60	0.47	KIMBERLITE?	14	A/A loss from soft kim clays?
48.60-51.60	0.12	?	4	A/A only 24 sst pebbles 2-4cm in diameter recovered and very little clay material
51.60-52.60	0.11	?	11	Very poor recovery with 2x7cm sst pebbles and several smaller ones recovered. Minor overream of material / core barrel lost
				EOH in bad ground conditions. HQ core barrel lost

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
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Abner Range diamond drilling 2005: Hole No. ADD 02

Drilling Commenced 25-May-05 Geologist : ERM
 Drilling Completes 29-May-05
 Collar Location: 595221 E 8145675 N
 Datum: WGS84 Zone 53
 Azimuth 107°
 Dip -52°
 Core Size HQ

Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
0 - 6.8	1.19	SOIL/GRAVEL	17.5	Soft, weathered, fractured pale grey to pale grey-brown siltstone
6.8 - 8.7	1.63	SILT	86	Pale grey to pale purple-brown well bedded siltstone - dip~45° - weathered & broken to 8.05m
8.7 - 10.6	0.85	SILT	45	Siltstone a/a - dip~40°
10.6 - 12.1	1.1	SILT	73	Siltstone a/a
12.1 - 13.4	1.1	SILT	65	Siltstone a/a
13.4 - 15.1	1.57	SILT	92	Siltstone a/a
15.1 - 17.1	1.27	SILT	64	Siltstone a/a
17.1 - 19.4	0.96	SILT	42	Siltstone a/a
19.4 - 22.4	1	SILT/SHALE	33	Soft purple-brown shales (poor recovery) - minor siltstone
22.4 - 24.1	1.52	SILT/SHALE	89	Grey siltstone with purple-brown shaley interbeds
24.1 - 26.9	2.5	SILT/SHALE	89	Grey siltstone with purple-brown shaley interbeds a/a
26.9 - 28.3	1.23	SILT/SHALE	88	Grey siltstone with purple-brown shaley interbeds a/a
28.3 - 30.3	1.6	SILT/SHALE	80	Grey siltstone with purple-brown shaley interbeds a/a
30.3 - 32.2	1.7	SILT/SHALE	89	Grey siltstone with purple-brown shaley interbeds a/a
32.2 - 35.4	3	SILT/SHALE	94	Grey siltstone with purple-brown shaley interbeds to 34.5m, then grey siltstone below
35.4 - 38.1	2.6	SILT	96	Grey siltstone - dip~40°
38.1 - 41.2	3	SILT	97	Grey siltstone a/a
41.2 - 43.9	2.6	SILT	96	Grey siltstone a/a
43.9 - 47	3	SILT	97	Grey siltstone a/a
47 - 50.2	3.1	SILT	97	Grey siltstone a/a
50.2 - 53.3	3	SILT	97	Grey siltstone a/a
53.3 - 56.4	3	SILT/SHALE	97	Grey siltstone - becoming increasingly shaley from 54.4m with distortion of bedding
56.4 - 58.2	1.8	SILT/SHALE	100	Grey laminated shales and interbedded siltstones
58.2 - 58.5	0.2	SILT/SHALE	67	Grey laminated shales and interbedded siltstones a/a
58.5 - 59.4	0.34	SILT/SHALE	38	Grey laminated shales and interbedded siltstones a/a
59.4 - 60.2	0.65	SILT/SHALE	81	Grey laminated shales and interbedded siltstones a/a
60.2 - 61.6	1.25	SILT/SHALE	89	Grey laminated shales & siltstones a/a, with grey f.g. sandstone 60.2 - 60.4m & 61 - 61.5m
61.6 - 61.9	0.25	SILT/SHALE	83	(Shaley interval)
61.9 - 64.5	2.4	SILT/SHALE	92	Grey siltstone, with fine shaley laminations - dip~40°
64.5 - 64.8	0.27	SILT/SHALE	90	Grey siltstone a/a with increased shale content below 73.7
64.8 - 67.9	2.95	SILT/SHALE	95	Grey siltstone a/a with increased shale content & some distortion of bedding
67.9 - 71.1	3	SILT/SHALE	94	Grey siltstone a/a with increased shale content & some distortion of bedding a/a
71.1 - 74.2	3	SILT/SHALE	97	Grey siltstone a/a with increased shale content & some distortion of bedding a/a
74.2 - 76.2	1.75	SILT/SHALE	88	Grey siltstone a/a with increased shale content & some distortion of bedding a/a
76.2 - 79.4	3.2	SILT/SHALE	100	Grey siltstone a/a with increased shale content & some distortion of bedding a/a
79.4 - 80.8	1.4	SILT/SHALE	100	Grey siltstone a/a with increased shale content & some distortion of bedding a/a
80.8 - 81	0.2	SILT/SHALE	100	Grey siltstone a/a with increased shale content & some distortion of bedding a/a

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
81 - 84	3	SILT	100	Grey siltstone, with f.g. sst. 81 - 83.3m. Dip steepening to ~60°
84 - 87	3	SILT	100	Grey siltstone
87 - 90	3	SILT	100	Grey siltstone with f.g. sst. 87.8 - 89.8m
90 - 93	3	SILT	100	Grey siltstone, dip~ 50-60°
93 - 96	3	SILT	100	Grey siltstone a/a
96 - 99	3	SILT	100	Grey siltstone a/a
99 - 102	3	SILT	100	Grey siltstone a/a
102 - 105	3	SILT	100	Grey siltstone a/a
105 - 108	3	SILT	100	Grey siltstone a/a
108 - 111	3	SILT	100	Grey siltstone a/a
111 - 114	3	SILT	100	Grey siltstone a/a
114 - 117	3	SILT	100	Grey siltstone with f.g. sst. interbed from 114.1 to 118.5m
117 - 119.5	2.5	SILT	100	Grey siltstone from 118.5m
110.5 - 122.7	2.2	SILT	100	Grey siltstone a/a
122.7 - 125.8	3.1	SILT	100	Grey siltstone a/a
125.8 - 128.8	3	SILT	100	Grey siltstone a/a
128.8 - 132	3.2	SILT	100	Grey siltstone a/a
132 - 135	3	SILT	100	Grey siltstone a/a
135 - 138	3	SILT	100	Grey siltstone a/a
138 - 141	3	SILT	100	Grey siltstone a/a
141 - 143.1	2.1	SILT	100	Grey siltstone a/a
143.1 - 146.2	3.1	SILT/CLAY	100	Transition zone from siltstone to claystone, ~ 143-160m
146.2 - 149.2	3	SILT/CLAY	100	Transition zone a/a
149.2 - 151.8	2.6	SILT/CLAY	100	Transition zone a/a
151.8 - 153	1.2	SILT/CLAY	100	Transition zone a/a
153 - 156	3	SILT/CLAY	100	Transition zone a/a
156 - 159	3	SILT/CLAY	100	Transition zone a/a
159 - 162	3	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone
162 - 164.4	2.4	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
164.4 - 167.5	3.1	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
167.5 - 170.7	3.2	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
170.7 - 173.9	3.2	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
173.9 - 177	3.1	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
177 - 178.2	1.2	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone a/a
178.2 - 181.4	3.2	CLAYSTONE	100	Pale grey-brown to pale grey-green claystone to 178.5m, then dark purple-brown claystone
181.4 - 184.3	2.9	CLAYSTONE	100	Dark purple-brown claystone with fine fracturing to 182.1m, then sst. with minor claystone
184.3 - 185.3	1	SST/CLAYST	100	F.g. sst. with minor claystone interbeds
185.3 - 186.6	1.3	SST/CLAYST	100	F.g. sst. with minor claystone interbeds a/a
186.6 - 187.4	0.8	SST/CLAYST	100	F.g. sst. with minor claystone interbeds a/a
187.4 - 189	1.5	SST/CLAYST	94	F.g. sst. with minor claystone interbeds a/a to 188.25m
189 - 192	1.78	CLAYSTONE	59	Fractured purple-brown claystone from 188.25m - pale cream colour along fractures
192 - 195	1.5	KIMB/CLAYST	50	Fractured claystone a/a - indeterminate clays (?kimberlitic?) along fractures
195 - 196.7	0.55	KIMB/CLAYST	32	Fractured claystone a/a - indeterminate clays (?kimberlitic?) along fractures (to 196.5m)
196.7 - 197.4	0.55	SST/CONG	79	Sst. & fine grit / v.f.g. conglomerate between 196.5 & 198.3m
197.4 - 199.3	0.85	KIMB/CLAYST	45	Brecciated claystone (from 198.3m)
199.3 - 201	0.8	KIMB/SST	47	Brecciated sandstone (199.3 - 200.9m) - some suggestion of rounding on clasts
201 - 204	2.6	SST	87	F.g. sandstone (200.9 - 204m)

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
204 - 207	1.65	KIMB?	55	Brecciated, weathered, friable, purple-red sst. 204 - 207.2m (competent f.g. sst. to 204.55 - 206m), nature of matrix uncertain: may have kimberlitic component....
207 - 209.2	1.7	KIMB	77	Tuffisitic kimberlite breccia 207.2 - 209.15m; high proportion of clasts (est. 60-70%)
209.2 - 210.2	0.5	KIM BRECCIA	50	Kimberlite breccia a/a - becoming increasingly fragile below
210.2 - 211.7	?	KIM BRECCIA	?40	Indeterminate clays with sst. clasts 210.2 - 211.5m; probably kimberlitic breccia...
211.7 - 212.5	?	SST	?50	Sst. (xenolith?) 211.5 - ~212.5m
212.5 - 215.6	1.05	KIM BRECCIA	34	Mainly sst. but poor recovery & possible remnant traces of kimberlite breccia in fractures
215.6 - 218.7	1.22	KIM BRECCIA	39	a/a
218.7 - 221	1.35	KIM BRECCIA	59	Kimberlite breccia?, with sandstone xenolith/wall-rock below.
E.O.H.				

Note: Kimberlite breccia exists between 207.2 & 209.15m. Other "kimberlite breccia" may comprise mainly wallrock clasts in a matrix made up largely of dis-aggregated sandstones and claystones. Large intervals of claystone from 192.0 metres onwards mostly kimberlitic

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
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Abner Range diamond drilling 2005: Hole No. ADD 03

Drilling Commenced 29-May-05 Geologist : ERM
 Drilling Completes 31-May-05
 Collar Location: 595286 E 8145446 N
 Datum: WGS84 Zone 53
 Azimuth 0°
 Dip Vert
 Core Size HQ 3

Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
0 - 2	1.7	SOIL / GRAVEL	85	Ferruginous clayey cover with minor sand content
2 - 4	1	SOIL / GRAVEL	50	a/a
4 - 6	1.8	CRET SST?	90	Grey f.g. sst., with claystone interbeds
6 - 7	0.6	CLAYSTONE	60	Pale grey to grey-brown claystone, finely laminated. Gentle dip ~20°
7 - 8.5	1.3	CLAYSTONE	87	Claystone a/a
8.5 - 10	1.5	CLAYSTONE	100	Claystone a/a
10 - 13	3	CLAYSTONE	100	Claystone a/a
13 - 16	2.9	CLAYSTONE	97	Claystone a/a
16 - 19	2.9	CLAYSTONE	97	Claystone a/a
19 - 20.2	1.2	SST	100	Hard f.g. sst. (19.7 - 22m)
20.2 - 22	1.65	CLAYSTONE	92	Pale grey to grey-brown, finely laminated claystone
22 - 25	2.55	CLAYSTONE	85	Pale grey to grey-brown, finely laminated claystone a/a
25 - 28	2.8	CLAYSTONE	93	Pale grey to grey-brown, finely laminated claystone a/a
28 - 31	3	CLAYSTONE	100	Pale grey to grey-brown, finely laminated claystone a/a to 30.1m
31 - 34	3	CLAYSTONE	100	Grey to grey-green claystone, less well laminated than above
34 - 37	3	CLAYSTONE	100	Grey to grey-green claystone a/a
37 - 40	3	CLAYSTONE	100	Grey to grey-green claystone a/a
40 - 42.7	2.7	CLAYSTONE	100	Grey to grey-green claystone a/a
42.7 - 45.8	3.1	CLAYSTONE	100	Grey to grey-green claystone a/a
45.8 - 48.9	3.1	CLAYSTONE	100	Grey to grey-green claystone a/a
48.9 - 51.7	2.6	CLAYSTONE	93	Grey to grey-green claystone a/a
51.7 - 53.6	1.95	CLAYSTONE	99	Grey to grey-green claystone a/a
53.6 - 56.8	3.1	CLAYSTONE	99	Grey to grey-green claystone a/a, becoming purple-brown below ~ 55.5m
56.8 - 60	3.2	CLAYSTONE	100	Purple-brown claystone (to 60.2m), creamy coloured mottle in parts.
60 - 62	1.9	SIL SST	95	Silicified sandstone, red-brown staining to ~80m (fracturing &/or cavities)
62 - 64	1.75	SIL SST	88	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
64 - 64.9	0.65	SIL SST	72	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
64.9 - 69	0.65?	SIL SST	16	Cavities in silicified sst. a/a
69 - 72.4	.65?	SIL SST	19	Cavities in silicified sst. a/a
72.4 - 74.9	2.5	SIL SST	100	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
74.9 - 76.1	1.2	SIL SST	100	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
76.1 - 78.3	2.2	SIL SST	100	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
78.3 - 79.4	1.1	SIL SST	100	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
79.4 - 82.5?	3.1?	SIL SST	100	Silicified sandstone a/a with rdbr and yebr fractures after kim str? Heavily fractured
82.5? - 84.4	1.9?	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
84.4 - 86.1	1.7	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
86.1 - 88	1.9	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
88 - 91	3	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
91 - 91.5	0.5	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
91.5 - 93.5	2	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
93.5 - 95	1.5	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
95 - 96	1	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
96 - 97	1	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
97 - 97.9	0.9	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
97.9 - 98.3	0.4	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
98.3 - 98.9	0.3	SIL SST	50	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
98.9 - 99.5	0.6	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
99.5 - 100.3	0.8	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
100.3 - 101.4	1.1	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
101.4 - 103	1.6	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
103 - 104.4	1.4	SIL SST	100	Grey sst. with rdbr and yebr fractures after kim str? Heavily fractured
E.O.H.				

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Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
Abner Range diamond drilling 2005: Hole No. ADD 04				
Drilling Commenced	31-May-05	Geologist : IM		
Drilling Completes	1-Jun-05			
Collar Location:	595403 E	8145570 N		
Datum:	WGS84	Zone 53		
Azimuth	0			
Dip	-90°			
Core Size	HQ 3			
Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
0 - 6.00	0	SOIL/GRAVEL	0	Blade bit through surficial pisolitic gravel / clay layer no recovery
6.00-6.87	0.38	CLAY	44	Weathered red br clays with mnr rounded mafnetic pisolites and sst fragments
6.87-9.62	2.64	CRET SST	96	Mg-cg gritty qtz sst with minor banding to 8.00m, then totally bleached white to 8.45m. RdBr alt sst to 8.96m , followed by bleached sst to 9.49m with slight coarsening of grainsize. From 9.49-9.62 is a flat lying white to yebr cherty slit like silicified band immediately above the kimberlite contact @9.62m
9.62-12.20	1.28	KIMB BRECCIA	50	Strongly w'd kimberlite with matrix to pale green clays (partially silicified). Abundant <1.5cm sst xenoliths, well rounded and milled, > 80% sst , 15%shale
12.20-13.80	1.58	KIMB BRECCIA	98	Increasingly fresh kimberlite with pale grn clay / calcite / silica matrix. Matrix qtz - calcite rich, mostly alteration products. Many xenos w'd to white clay (after shales), with rare 4cm rounded sst clasts. Matrix : xeno content 30-50 : 70-50. Some imbrication of xenoliths and bedding horizon @ 50° to CA
13.80-15.50	0.69	KIMBERLITE	41	Small runs of increasingly wd kimberlite. Similar to 12.20-13.80 but with 2 large rounded xenos 30cm & 12 cm. Most of the core loss is kimberlitic clay washed out
15.50-18.00	0.83	KIMBERLITE	33	Apparent xenolith supported kimberlite (80% clast / 20% matrix), with clasts mostly < 2cm, rounded and of shale, silt, sst & mafic. Most core loss @ start and end of run where calcite / siderite development is weakest and clays are very soft and where Fe/Si alteration is most intense
18.00-21.81	3.11	KIMBERLITE	82	Progressively fresher ye br kimberlite with several moderately large sst xenoliths to 9cm (largest 13cm). All embayed with cuspsate form. Relatively few smll <1.0cm xenoliths, but matrix:xeno ratio still 35:65. With smaller patches to 50% matrix
21.81-29.12	0.97	KIMBERLITE?	13	Massive loss zone coinciding with increased kim clays wrt xenoliths. In rare coherent sections odf core looks like a clast supported breccia with mostly rounded sst & shale /silt clasts. Again clasts do not exceed 4.0cm. Clay:xeno meaningless due to massive coreloss
29.12-32.09	2.97	KIMB TUFF	100	Good looking kimberlite with YeBr calcitic altered matrix and only 1 clast greater than 4cn in run. Xeno:matrix ratio 50:50 to 40:60, with an increase in the proportion of shale /silt clasts. Rare autoliths to 1%. All xenos strongly rounded. Odd stiffening of the matrix with the influx of calcite - old H2O table?
32.09-36.50	4.41	KIMB TUFF	100	A/A Kimberlite. Some minor phlogopite. Xenos still<5cm, with most 0.5-1.5cm shales. Occ brown sst? clast (possibly basement material) and tiny little mafic volcanics
36.50-45.50	8.93	KIMB TUFF	99	Possible injection of vfg kimberlite or intrusion of a po 35.48-35.54 and 36.22-36.36, are there small garnets? PETRO sample
				A/A Kimberlite. Slight decrease in pporportion of matrix and slight increase in qtz sst xenos size (to 7-10cm) and proportion. Three distict zones of autolithic / fg micaceous kimberlite 40.87-40.93, 41.27-41.31, and 45.11-45.38. Fg material often looks injected into kimberite tuff: later intreusion, also possibly associated with incr in autolith content. Odd zones of br Fe alteration of matrix 40.98-41.20 and 45.08-45.12. Are these reaction to later intrusions. Rare 0.5cm altered lapilli?
45.50-49.60	3.78	KIMB TUFF	92	A/A Kimberlite. Stong increase in large sst xenos with 60cm, 30cm , 17 cm &10cm inthis interval. Very broken around these large xenos with poor recovery. Over entire interval matrix still 40%. Some of the smaller xenos altered replaced lapilli and possibly deep basement clasts esp 48.76-48.81. 100% sst 46.44-47.30
49.60-55.50	5.6	KIMB TUFF	95	As for 36.50-45.50, with decreasin size and frequency of the large xenos(<10cm) , kimbelrite matix 35-50%. Again some late stage injections of fg kim, with two at low angle to CA (30°) fining uphole? from 49.90-50.27, also injections @ 52.50-52.58, 52.78-52.98. Upward fining tuff 53.74-53.84 with mnr xenos
55.50-57.50	0.61	KIMB TUFF	31	Probably as for 54.50-55.50 but with very soft only weakly calcitic matrix, hence poor recovery of matrix. Small clasts in general (<5cm) with most rounded
57.50-58.63	0.41	SST	36	A/A but with one very large rounded sst xeno 58.10-58.63 and no recovery of any kim matrix material
58.63-61.50	1.51	SANDY TUFF	53	Very large qtz grains in matrix of tuff with odd mixing of fg mud and qtz grains 60.50-61.50, few xenos all <3cm, giving 50-70% matrix declining through interval to 20-30%
				Some large slabs of peeled off silt 60.50-61.50- are we getting close to pipe margin?
61.50-63.50	1.25	SANDY TUFF	63	Dark gy-grn sandy qtz tuff A/A but with lots of shale clasts , matrix A/A mixed qtz grains and fine gr clays - no clacite, but washed out strongly
63.50-67.50	3.38	KIMB TUFF	85	Similar kimberlitic tuff to 55.50m but with lots of disaggregated qtz grains in matrix. A lot fewer xenos in general with matrix to 50% , however several "rip-up" shale clast to to 12-15cm seem to imply little milling and may indicate proximity to wall or floor of kim. Also some elongate sst clast in core axis may indicate similar. Very few small xenos and becoming very muddy at end of run (with most of the corel loss)
67.50-70.90	0.85	SST /KIMB	25	Very poor recovery with mostly sst xenos recovered , and virtually no kim matrix(only 10cm in run - the rest washed out?). Broken sst slabs dominate with 4 x 5-9cm, the rest rounded sst xenos < 2cm . A large only weakly mille shale /silt slab (10cm) ate end of run
70.90-73.30	1.39	SST /KIMB	58	Poor recovery of kim matrix, but where seen is qtz grain rich snady tuff. Lots of larger sst xenos in small zones 20-40 cm long
73.30-74.80	1.15	SST/KIMB CLAY?	77	Slabs of qtz sst in core axis with very fq white - pale green soft clay (no qtz grains A/A). Very featurless clay described as snot by driller, with no apparent fine xenos in it

Appendix 1.2
1.2 Diamond Drill Hole Logsheets.xls

Interval drilled (m)	Recovery (m)	Summary	Recovery (%)	Description
74.80-75.60	0.5	SST/KIMB CLAY?	63	Broken sst slabs with no interstitial matrix returned , all washed out . Most sst blocks < 3cm all though 6 x 5-10cm. Hole collapsing with no matrix - are we near edge of pipe