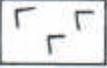
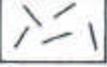
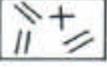


**Appendix 3**  
**NCT001 – Drill Logs**

(See Digital File EL202003\_200405\_07\_Appendix 3.pdf)

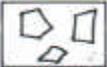
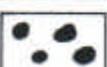
### SYMBOLS FOR COHERENT TEXTURES

- single line symbols for low to moderate phenocryst abundance
- double line symbols for abundant phenocrysts
- smaller symbols for fine grained phenocrysts
- larger symbols for coarse grained phenocrysts
- additional "+" symbol for coarse, phenocryst-rich granitoid texture

	basalt, poorly to moderately porphyritic basalt
	phenocryst-rich basalt
	andesite, poorly to moderately porphyritic andesite
	phenocryst-rich andesite
	dacite, poorly to moderately porphyritic dacite
	phenocryst-rich dacite
	fine, poorly to moderately porphyritic rhyolite
	coarse, poorly to moderately porphyritic rhyolite
	coarse, phenocryst-rich rhyolite
	coarse rhyolitic porphyry
	flow foliation
	spherulites, lithophysae, alteration spots, nodular devitrification texture

### SYMBOLS FOR VOLCANICLASTIC TEXTURES

- closer spaced symbols for dominant grain size and grain type

	pumice or relict pumice
	angular, juvenile lava clasts
	fiamme/vitriclast or relict vitriclast
	accretionary lapilli
	angular, polymict lithic clasts
	rounded, polymict lithic clasts
	mudstone intraclast
	sand-size particles, granular texture
	mud-size particles
	distinct planar stratification
	diffuse planar stratification
	cross bedding
	micro-cross lamination
e.g.	
	pumice clasts in sand matrix
	angular polymict lithic clasts and mudstone intraclasts in sand matrix

### SYMBOLS FOR JUVENILE-CLAST-RICH DEPOSITS

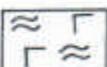
	jigsaw-fit texture of fine, moderately porphyritic rhyolite		pumice-clast-rich deposit, coarse, moderately porphyritic rhyolitic composition
	jigsaw-fit texture of coarse, moderately porphyritic rhyolite		pumice-clast-rich deposit, coarse, phenocryst-rich rhyolitic composition
	jigsaw-fit texture of coarse phenocryst-rich andesite		pumice-clast-rich deposit, coarse, moderately porphyritic dacitic composition

Fig. 9—Recommended composition and texture symbols for graphic logging of volcanic deposits.





Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT: <u>QUEENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>March 2004</u>
LOGGED BY: <u>I. J. TEDDER</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG					GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT	ALT	0.06	0.1	0.2	0.3	0.4		
82			T100082														
84																	
86		30															
88		90															
90		90															
92		80															
94		70															
96		86															
98		90															
100		90															
102		90															
104		80															
106		90															
108		80															
110		90															
112		40															
114		80															
116		90															
118		60															
120																	

Alt continues to be weak seroprotic - chl - calcite - (ser)  
No sulphides  
No magnetite.

Flat and steep qtz - k-feldspar veins  
Qtz veins may represent structure at change from gritty volcaniclastic to slightly more crowded clastics around 96.2 m (end of qtz)  
Fault (open) 99.2 - 99.4 m Clay G

Lithology is as before - qtz phreic subrounded to subangular polygonitic + mod open framework volcaniclastic. clasts dom by elongate f.g. green (chl alt) volcanic siltstone but some qtz phreic pink (rhyolite) and some pumice (?) frag.  
Clasts elongate slightly in direction of foliation.  
In places hint of sandy texture to matrix - but no bedding defined.

REMARKS

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting AMG
			Northing AMG
			Elevation (m)
			Azimuth Mag
			Dip

PROJECT: <u>CLDENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>MARCH 2004</u>
LOGGED BY: <u>D. J. FEEDER</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG	GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT	ALT			
122			90/1100122									120.6-121.4. C.g. polymeric, qtz phyrne bed with closed framework. Clasts down by chlorite at fig. volcanoclastic - clast aligned steeply parallel foliation - flat to core axis. clast angular to sub rounded.	
126													
126		90	70										
128													
130												121.4 to 155.4	
132		90										Main unit continues as qtz phyrne volcanoclastic with clasts generally 1-2 cm subangular and often elongate into foliation. Clasts down by fig. chloritic volc clast. Open framework, sandy matrix. Some slight variation in sorting with bands of finer grained over 5-10 m but no bedding	
134													
136		90											
138													
140		90										Larger clasts up to 5 cm Rarely up to 10 cm. Rare pink clasts.	
142		90										All is weak chl-calcite-ser.	
144												No sulphides	
146												More pink clasts from around 144 m down to 155.4 m.	
148													
150													
152													
154													
156												155.4-162.3. Coarse clastics in open to closed framework. Dark grey colour. Patchy qtz phyrne matrix. Clasts subangular and aligned with foliation sharp upper contact (red) qtz vein at bottom contact - fault(?)	
158													
160													
REMARKS													

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT: <u>QUEENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>March 2004</u>
LOGGED BY: <u>I. J. TEDDER</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG	GEOLOGY NOTES	SUMMARY LOG
				PREFIX	%	1	3	1	3	5			
162		90	T100162									qtz veins start 160.5 - 161 (chl + k-fld) Also 161.5 - 162.1. Large qtz - chl - ep vein 162.3 - 163.1 (minor k-fld)	U
164													
166													
168												170.7 End of HQ, start NA	
170	80											163.1 to 175.2 Unit description as for unit from 121.4 - 155.4.	
172		90										173.5 - 175.8 small open fault with clay gouge	
174												As usual, clasts > 1cm from about 5-15% of rock mass, only about 1-5% of those are pinkish (qtz) rhyolite clasts	G
176													
178		90											
180		50											
		65											
182		95											
		90											
184													
186		90											
		50											
188		20										Fractures	
		70											
190		70											
		90											
192		20										fractures parallel foliation	
194													
		20										Fractures	
196												15cm qtz - chl - (cb?) vein marks contact at 195.2. qtz vein 195.2 to 195.35	U
												195.2 - 197.7 coarse vein congl - 199.1 - 199.3 - Qtz - chl - ca veins 10cm alt (bleached slightly) envelope	
198												195.35 - 197.7 Dark grey clay framework polymineralic altered unit.	Ve
200													

REMARKS

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT: QUEENSTOWN-MT DARWIN
PROSPECT: LAKE JUKES
DATE: March 2004
LOGGED BY: E. J. TEDDER

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG					GEOLOGY NOTES	SUMMARY LOG
				PREFIX	1	3	1	3	5	STRUCT	ALT	mm	0.06	0.5	1		
200			7/10203												197.7 - 207.7 Dark grey sandy to gritty volcanoclastic. Polymictic, moderate foliation.	✓	
204																	
206		40															
208		50															
210																	
212																	
214																	
216		40															
218		80															
220																	
222		10															
224		30															
226		90															
228		80															
230																	
232																	
234																	
236		90															
238																	
240																	
REMARKS																	

197.7 - 207.7 Dark grey sandy to gritty volcanoclastic. Polymictic, moderate foliation.

207.7 - 214.4 Dark grey, relatively close packed lapilli, polymictic volcanoclastic - variable amount of sandy matrix. Clast predom f.s. chloritic volc, some hornblende porphyry and some f.g. pinkish volcanic (dark). Larger clasts sometimes have tanish gashes filled with qtz-calcite. Clasts angular to subangular.

215.75 Possible bed contact - sandy above gritty below. Sedime in plane of cleavage 10 cm qtz-calc vein starts at 216.45

222.2 - 222.7 qtz-calc vein (cb?) vein.

214.4 - 238.3 Same unit as from 21.4 - 155.4. Clast predom subangular - maybe more angular.

228.05 - 228.4 qtz-calc- (ch) vein

238.3 - 241 Almost closed framework polymictic pebble volcanoclastic.

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_AMG	
			Northing_AMG	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT: <u>QUEENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUNGES</u>
DATE: <u>31/3/04</u>
LOGGED BY: <u>J. J. TEDDER</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG	GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT	ALT			
242			7100262									241.5 - start of 15 cm $qtz-ch-cb$ vein 241 - (248m) $qtz$ physis, polymictic dipon framensonia volcanoclastic - as before. (i.e. 2274-255-4)	
244												From 243-272.6 lithology is slightly darker grey colour but no obvious lithological difference.	
246												245-246 Poorly defined zone here with 3-5% calc streaked out in foliation!	
248									wk ch				
250													
252													
254		90											
256													
258												257.5 - start of 312 cm $qtz-ch-cb$ vein.	
260													
262									wk ch				
264		90											
266													
268		90											
270													
272		70										271.5 - start of 26cm $qtz-ch-cb$ vein.	
274		60											
276		60											
278		70											
279		90											
280		30										Fault 279.8-280	
REMARKS													

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT: <u>QUEENSTOWN-MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>March 2004</u>
LOGGED BY: <u>I. J. TEDDER</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG				GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT	ALT	mm					
			PREFIX							0.06	0.5	2	5	64		
282	90	60	T100282													
284	90	60														
286	90	60														
288	90	60														
290	90	70														
292	90	30														
294	90	90														
296	90	90														
298	90	90														
300	90	90														
302	90	90														
304	90	90														
306	90	60														
308	90	30														
310	90	10														
312	90	90														
314	90	90														
316	90	90														
318	90	90														
320	90	80														

288.3-288.8 Fault with rock flow.

241-357m Qtz phric, polymictic open framework volcaniclastic conative. clasts still dominated by fs. chlorite at side.

286.2-286.8 Qtz-ch-cb vein

As usual, clast 5-10cm from 5620% of rock. Only 1-5% clasts are pink. 301-302m has higher portion of pinkish quartz sized clasts

Feldspar porphyry clast noted (2.6cm) at 301m. Has same fs in groundmass as normal clasts. Feldspar phenocrysts are anhedral (due to albite (?) clt alt and deformation). Only sparse distribution of phenol.

Two ~20cm Qtz-cb veins between 308.1-308.9. Faults on top contact of the veins. Some bleaching of wall rocks (clay alt?)

309.9 Start of 15cm Qtz-cb vein

REMARKS



Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT: <u>QUEENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>7-4-2004</u>
LOGGED BY: <u>KIMORRISON</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG					GEOLOGY NOTES	SUMMARY LOG
				PREFIX	%	STRUCT	ALT	mm	0.06	0.5	1	2	4				
362	90		7100362														
364	80																
366	90																
368	90																
370	80																
372	90																
374	70																
376	70																
378	90																
380	80																
382	60																
384	70																
386	90																
388	90																
390	90																
392	90																
394	70																
396	90																
398	80																
400	30																

REMARKS  
 f = fractures  
 F = fault, MF = major faults

357-387.5 fine-grained quartz phyric polymict volcaniclastic conglom. Qtz phenocryst to 2mm, lithic clasts subrounded - subangular to 4cm - 362.3 fractures with pitting, B250  
 Background of weak chloritic alt, overprint of pink mottled blotchy hemifeldsp. alt  
 Rock is very quartz rich, with poorly preserved feldspars. Lithic clasts flattened in cleavage.  
 -369.5 } B300  
 -370.4 } B295  
 Qtz carb veins 2-3cm.  
 Rock grades from quartz phenocryst rich dacitic volcaniclastic with lithic clasts to a poorly sorted open framework conglom.  
 Clasts often hematitic ± veins, some dark brown rhyolite, some fg silica.  
 Poorly developed fixing-up cycles.  
 386-387.0 } B100 5-10cm Qtz carb chlor veins  
 finer grained better sorted quartz phyric grey-green volcanic with occasional mainly sub rounded siliceous lithic clasts to 1cm. Clasts of lava, sediments, chert.  
 Background weak chloritic alt, less pink blotchy overprint than above.  
 394-396 } B120  
 394-396 } B120 Qtz, minor carb, chlor veins - 5cm grey green coherent to locally hyaloclastic dacite. Qtz > feldsp. phyric alt. Deacidifying lithic clasts clear hole. Weak chlorite + minor pink blotchy ? hematite alt.

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

SHEET 11 OF 14

PROJECT: <u>QUEENSTOWN - MT DARWIN</u>
PROSPECT: <u>LAKE JUKES</u>
DATE: <u>7-4-2004</u>
LOGGED BY: <u>KM.</u>

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG					GEOLOGY NOTES	SUMMARY LOG	
				%					STRUCT	ALT	mm							
				1	3	1	3	5			0.5	1	2	5	10			30
402		70																
404		90																
406		90																
408		90																
410		90																
412		80																
414		90																
416		80																
418		90																
420		90																
422		90																
424		70																
426		100																
428		60																
430		50																
432		50																
434		80																
436		80																
438		90																
440		100																
REMARKS				<p>432-435 - One unit - 1g thymite box - some pinkish clasts - some chl - alt F1' clast</p> <p>435-437 - chl weathered.</p> <p>435-436 -</p>														

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_AMG	
			Northing_AMG	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

<b>PROJECT:</b>	QUEENSTOWN - MT DARWIN
<b>PROSPECT:</b>	LAKE JUKES
<b>DATE:</b>	13-11-2004
<b>LOGGED BY:</b>	KM

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO	SULPHIDES				PICTORIAL LOG		GRAPHIC LOG	GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT			
		90										
442	100	100	T100843								443.8 - 444.8 - chl spotted medium.	
		60									442.8 <sup>2.15</sup> fracture zone	
444	100	100									444.2' clast of ?granite elongated with foliation.	
446	90										Rock contains lithic clasts of rhyolite, tuff, siltst, spherulitic lava, ?granite. Lithic clasts decrease down hole.	
448	90										450.9 - 451.5 sts - chl vein	
450	90										449.8 <sup>2.60</sup> fracture zone	
		50									450.9 <sup>2.40</sup> vein of coarse gtz, possibly 2 conks, zone of massive chlor.	
452	80										451.4 <sup>2.200</sup>	
		90										F
454	90										439 - 455	
		90									grey green felic rhyolite - rhyodacite grading from	
456	90										autobrecciated coherent lava to open framework	
		90									volcaniclastic conglom with rhyolitic groundmass	
458	90										thin level of chloritic alt including flecks	
		90									decker chlorite (?replacing felds). Fine wispy	
460	90										veinlet network of calcite. Common micropoikilitic-	
		90									spherulitic snowflake texture, esp 459-462.	
462	90										Occasional streaks, blebs, specks chssom. pyr.	
		100									Some pseudo-clastic texture enhanced by chlorite	
464	90										overprinting autobreccia.	
		100									↑ chl spotted.	
466	90										444.3	
		80									↓ same chl spotted lath. - chl br	
468	90										440	
		90									447.1 <sup>2.150</sup> 5cm coarse gtz, carb, chlor vein, abundant	
470	90										pyr only visible on break surface	
		90										R
472	90											
		90										
474	90											
		100										
476	70											
		90										
478	90											
		90										
480	100											
<b>REMARKS</b>												

Survey Depth	Azimuth	Dip	Hole Co-ordinates
			Easting_AMG
			Northing_AMG
			Elevation (m)
			Azimuth_Mag
			Dip

PROJECT:	QUEENSTOWN-MT DARWIN
PROSPECT:	LAKE JUKES
DATE:	23-4-2004
LOGGED BY:	KM

HOLE DEPTH	CORE RECOVERY	ROD	SAMPLE NO	SULPHIDES					PICTORIAL LOG		GRAPHIC LOG					GEOLOGY NOTES	SUMMARY LOG
				1	3	1	3	5	STRUCT	ALT	0.06	0.5	2	8	32		
482	90	90	100482													Rhyolite q/a	
484	90	100													485-486-4 Foliated - tectonically associated d.s. rhyolite.		
486	90	100													- 485-491 - m.d. at foot	R	
488	90	90													- 486-1-486-4 angular schist texture in cleaved pumice bx. ± 55 R290 Autobrecciated rhyolite with pseudoclasts enhanced by chlorite ± sericite alt, wispy calcite, minor dark pyr.		
490	70	70													- 489-7 ± 70 oxidised hackly fracture with pitting (no line)		
492	80	70													10cm fault zone with pits, rock flour		
494	90	80													- 491-9 ± 5 partly annealed irregular hackly fracture		
496	90	70													491-509-9 - 25-40d po (chrysolite)		
498	70	60													- 494-3 ± 25 smooth slickensided fracture R235		
499	90	70													- 496-9 ± 30 base of 1.5m zone of qtz carb. chlor veining. P170		
500	70	70													- 497-2 ± 50 hackly fracture with pyro. MnO <sub>2</sub> P090		
502	60	70													- 499-5 ± 25 2cm qtz carb. chlor vein P150		
504	50	50													- Minor ? biotite phenocrysts.	R	
506	60	50													- 502 ± 20 slickensided fracture		
508	90	50													491-509-9 grey glassy qtz phytic - porphyritic rhyolite lava, mainly coherent with snowflake devit and amygdaloidal textures, locally autobrecciated. Patchy relict pumice. More coherent with coarser phenocrysts towards base. Unit from weak chlorite ± minor sericite alt.		
510	80	50													Fault zone in rhyolite from 506-4-509-9. Rock heavily fractured, oxidised, crushed with core loss.		
512	70	30													- fault zone 506-4-511		
514	50	50													509-9-511-1 Cleaved black shale, pumice, rhyolite frag breccia, chaotic texture, in part in fault zone black shale decreases below 516. Patchy, chloritic sericite trails, stringers, - 512-5 ± 40 cleavage chn. of calcite, pyro.		
516	50	50													- 514-9 ± 80 bedding	S	
518	90	50													- 511-8 ± 80 bedding, cleavage ± 60		
520	80	50													- 516 ± 55 cleavage		
															517-1-521 pumice, rhyolite lava bx		
															± 15 hackly oxid fracture 502-2 P100	RP	

REMARKS

