Ref No. 13589

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No. SBDP Hole 14
REF. No. _____ SHEET No. 1 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		185		Poly 185.8	184.3 – 184.5 Basalt
					184.5 – 184.8 Hard with white (baked) siltstone
					184.8 – 185.1 Basalt
		195			185.1 – 192.2 Brown, semiconsolidated carbonaceous siltstone
					192.2 – 197 Brown/white dirty sand
					197 – 198.5 Siltstone a.a.
		205			198.5 – 202.0 Khaki, lithic (tuffaceous) very coarse sandstone
					202.0 – 202.5 Siltstone a.a.
					202.5 – 203.0 Sandstone a.a
					203.0 – 205.0 Siltstone a.a
		215			205.0 – 219.5 Sand
				Poly 220.5	219.5 – 223.0 Siltstone
					223.0 – 225.0 Sand
		225			225.0 – 241.0 Siltstone a.a
					241.0 – 243.0 Sand
					243.0 – 247.0 Siltstone
		235			
		245		Poly 246.8	247.0 – 249.9 Sand a.a.
					249.9 – Basement
		255			
					Basalt samples from 172, [illegible], 130, 184
		265			

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No. CFDT 161
REF. No. _____ SHEET No. 2 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		250			252 - 320.1 ~~Massive~~ Epiclastic, frequently pumiceous, lithic breccia.
					Rock shows an overall gradational change in composition and clast size from
					252m (pumice-rich) to 320m (dominated by angular volcanic rock fragments),
		260			with an increase in fragment size downhole. Unit is interpreted as a single
					epiclastic mass flow deposit overlying upthole. Core broken and somewhat weathered
	NA				to 253.00m, but no significant thickness of weathered material under the
	↓	270		100635 FT	Tertiary sediments. Change from predominantly pumiceous to mainly equant,
	F-G				angular lithic clasts is marked by a change in rock colour from olive-green to
					pink at about 298m. Dominant clasts are dark green wispy chlorite-sericite
		280			(after pumice), pink quartz-feldspar porphyry, commonly massive ~~to~~ and rarely
					amygdaloidal, aphyric flow-banded felsic lava. Sparser fragment types are
					chloritic feldspar porphyry (andesite?), chert or lithic tuff and siltstone.
		290			Most clasts, apart from some of the sedimentary rock fragments are poorly sorted.
					Matrix is very fine grained, pale green lithic ash. Typical maximum sizes of
					the pumiceous clasts are: at 255m 3-5mm (exceptionally 9mm), at
		300		100672 analysis	270m 10mm (exceptionally 30mm), at 295m 20-30mm, at 301m 10-70mm,
					at 305m 100mm and at 317m 30-50mm (minor reverse grading at base).
					Pumice elongation/core axis angles at 264 and 294m are 70°. Alteration is
					minor: few 1mm pyrite veinlets at 253.6m. Quartz-white/cream weathering
		310			carbonate veins 1 to 30mm thick occur at a frequency of about 1 per 2m
					and have angles of 10 to 50° to the core axis. Some of the carbonate-cemented
				100621 FT	breccia with minor fine-grained pyrite and one or two sub-millimetre specks of galena
		320			occurs from 316 - 317.8m. Pyrite coats some joints between 259 and 307m.
			V V	100621 FT	320.11 - 321.57 Lithic and lithic-crystal tuff (or epiclastic).
			V V V		Pale pink-green colour. To 252m predominantly lithic tuff. Rest of unit
		330	V V V		lithic tuff with scattered 1-2mm quartz, feldspar, and chloritized ferromag.

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TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No. _____
REF. No. _____ SHEET No. 7 of 9

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		330			crystals and towards the base of the unit (after 380m) black shale chips a
	15			325.5m 100654 analysis	few mm long. Traces of pyrite occur sporadically on joints. carbonate
		340			veinlets occur at about the same frequency as in the epiclastic unit
					but one thinner & few cm-sized devitrification voids of sericite
					and carbonate-chlorite are present, notably around 355m. Hair-like chlorite
		350			veinlets occur near the contact with the epiclastic unit and are cut by
				100620 PT	the carbonate veinlets. The contact with the epiclastic is sheared with minor
					carbonate in a breccia at the contact, but is essentially conformable - angle
		360			of contact to core axis is 50°. Bedding/core axis angles are 57° at 327.85m
					and 40° at 387.85 m.
		370			
				100632 PT	
		380			
				100635 PT	
		390			391.57 - 403.22 Interbedded cream-grey volcaniclastic sandstone, siltstone, pink and dark grey
				100669 PT	shale and volcaniclastic breccia.
					391.57 - 391.97 Crystal-rich volcaniclastic sandstone dominant fining up into open framework
				100673 PT	wacke unit with angular sandstone clasts
		400		402.81 100679 PT	391.97 - 395.18 Epiclastic breccia with angular fragments to 20 mm.
				402.81 analysis	395.68 - 402.36 Interbedded dark grey argillaceous sandstone with thin interbeds &
				100653.	grey mudstone
	10			100404 m	BCA. about 50°. 1cm quartz-carbonate-chlorite vein at downhole limit of this sub-unit.
		410		100634 PT	

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No.
REF. No. SHEET No. 4 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		410			402.36-411.78 Cream-pink epiclastic open framework siltstone and sandstone with cream volcanic fragments, pink feldspar crystals and black shale chips to 4mm.
					411.78-417.08 Strongly quartz-carbonate veined black slate; broken core.
		420			417.08-413.62. Inverse to normally graded breccia facing uphole. Close-packed pink angular volcanic fragments at base to 20 mm, passing up to centre of unit with pumices to 2cm and angular clasts to 50mm, to pink vitric siltstone at top. BCA 43°.
		430		430.05 analysis 100655.	413.62-421.7. Interbedded black shales and cream-pink volcaniclastic graded sandstone units (uphole-fining) and laminated siltstone 20 to 40cm thick
					421.7-429.37. Pale grey to cream laminated siltstone with occasional open framework sandstone beds with scattered 2mm feldspar crystals and 10mm shale chips. Weak quartz-carbonate veining.
		440			429.37-434.9. Graded (uphole-facing) volcaniclastic sandstone-vitric ash unit with 1mm feldspar and black shale chips near base and diffuse cream and grey-green colour banding parallel to bedding passing up into fine grained top with white devitrification blebs parallel to bedding (BCA 52°).
		450			434.9-471.2. Interbedded dark and pale grey mudstone and shale, cream volcaniclastic siltstone and sandstone with occasional graded sandstone units - at 436.2-436.95, 437-437.13, 438-438.15, 438.51-438.61, 445.85-446.82, and 446.52-447.51 and 449.54-449.16m. Finer units show spectacular soft-sediment folds and water escape structures in places (e.g. at 453 and 459m) All sedimentary structures indicate uphole-younging sequence. Dominantly black mudstone and cream to pale grey siltstone 440-471m, 457.2-459.65. Thick graded unit (facing uphole) of open framework pumiceous muddy sandstone to siltstone. At base there are angular volcanic clasts to 5mm. Volcanic material is quite sparse and finer uphole; at top is sandy mudstone with a few wispy mudstone fragments. BCA 52°. 5mm clast at 473
	70% 10%	460			
		470		100668 PT	
		480			479.65-482.67. Uphole-fining graded breccia to very fine grained sandstone. At base packed with angular volcanic and rounded chert clasts to 30mm; fines gradually uphole although 1.2m above base is a 35mm chlorite feldspar porphyritic (andesite?) clast. 2m above base maximum angular clast size is 1mm, black shale chips to a few mm common here.
		490			482.67-492.22. Interbedded black shale, cream lithicwacke siltstone in units 30cm to 1-2m thick,

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GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No. _____
REF. No. _____ SHEET No. 5 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		490		100663 PT	graded facing uphole. Sandstone laminae (some starved ripples?) occasionally present in shale.
					493.22 - 582.6 Generally green feldspar-phyric lava
		500			lava is mostly massive, lacks flow banding, but extensive zones of mixing with and veining by grey siltstone occur to 543m. Rock contains abundant coarse feldspar phenocrysts to 5 mm (~25% of rock). Quartz-filled amygdules and green chloritised feldspars are also present locally. Top few metres has a distinct hyaloclastite/pyroclastic texture with spalled-off fragments of lava in grey siltstone. Zones of pink to pale green feldspar sericite alteration occur 538.5 - 538.8, 539.3 - 540.7, 542.3 - 543.2,
		510			544.5 - 547, 552.8 - 553.5 and 560 - 566.5m. Weakly quartz-carbonate veined throughout, with veins to 100 mm thick more common between 541 and 562 m.
		520			562 - 582.6m Porphyry strongly altered, bleached to a pale green colour and core very broken with locally poor recoveries over this interval.
	7	530		100667 PT	
		540			
		550		100664 PT, analysis	
		560			
	17	570			

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

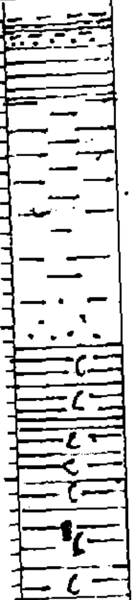
HOLE No. _____
REF. No. _____ SHEET No. 6 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		570			
	40 10	580	FAULT?		582.6 - 625.5 Cherty black shale, cream siltstone, minor ~~white~~ breccia horizons Broken core at contact, suggestive of a fault at porphyry sediment contact. First 10cm of sediment extensively veined by fine quartz-carbonate veinlets; same between 586.4 and 598.5m. Rock is essentially a crackle breccia.
		590			598.2 - 600.2 Open framework, mudstone matrix breccia with angular clasts of quartz-feldspar porphyry to 40mm, inequigranular porphyritic clasts rounded 10mm chert clasts and minor black shale and cream siltstone clasts.
		600		100670 PT	Other breccias 600-85 - 601, 623.5 - 623.8m.
					Carbonate veins throughout; thicker veins at 607m, between 617.5 and 617.8m, 623.5 - 623.8 Very minor pyrite on joints.
		610			Bedding/core axis angles usually variable, dips generally high, e.g. at 615m BCA = 70°, 614m BCA = 40°, 624 BCA = 85°
		620			
					625.5 - 650.2 Breccia, comprised of a number of discrete units.
					625.5 - 626.6; 626.75 - 627.15, 627.22 - 628.17 open framework breccia interbedded with fine sediments
		630		5 isotopes 630.	628.3 - 646.0 Closed framework breccia, coarse fragments to 30cm +? To 640.4 clasts are dominated by aphyric and feldspar-phyric rhyolite, with minor flow-banded rhyolite, chert and fine sediment clasts. Quite thin intervals, particularly from 636m, with thin grey-green colour abundant quartz (+/- pyrite veins) and small disseminated pyrite. Some of the fragments themselves are brecciated and veined by quartz, 1mm
		640		100661 PT analysis	640.4 rock is dominated by pale quartz-feldspar porphyry clasts, with fewer sediment clasts. [redacted] < to 10mm pyrite clasts at 643 [redacted] and 644m.
				100662 PT	
		650			

TASMANIA DEPARTMENT OF MINES
GEOLOGICAL SURVEY

DIAMOND DRILL CORE GEOLOGICAL RECORD

HOLE No. SRDP 14
REF. No.
SHEET No. 7 of 7

Core lift	Core loss (%)	Depth (m)	Graphic Log	Sample No. Depth (m) Prep'n	DESCRIPTION
		650			644.2 – 650.2 m. Fine breccia, mass with clasts of ~~mudstone~~ black shale, pumice and felsic volcanics, minor pyrite, to a few cm in diameter. Beds from 646.4 to 649.2 and 649.75 to 650.2 m are graded and face upside.
		660		100666 PT	650.2 – 688 m. Cream siltstone and sandstone, grey cherty mudstone, ~~[illegible]~~ black shale
					650.2 – 651.85. To 650.9 interbedded black shale & cream siltstone. 650.9 – 651.85. Graded sandstone to siltstone. Faces uphole
					651.85 – 655.06 Dominantly black shale
		670			655.06 – 671.4 Cream-grey medium grained sandstone fining uphole to siltstone.
					671.4 – 688 Pale green-grey cherty mudstone and minor chert breccia. Rare dark carbonaceous shale zones. Apparent clast of black mudstone a few cm across in chert at 684 m.
		680			Extensive carbonate veining throughout. Locally minor fine grained pyrite.
				100671 PT, analysis	Open framework, vein carbonate-cemented breccia from 660.75 – 660.35 m and 661.37 – 661.87 m. BCA at 667.2 = 75°.
		690			End of hole ~~[illegible]~~ 688 m.