



William C. Cromer Pty. Ltd. Environmental, engineering and groundwater geologists										DDH – SF10								
Engineering log – Cored borehole										Sheet 1 of 3								
Incorporating the Unified Rock Classification System (URCS)																		
Project HYDRO TASMANIA DUNGROVE SCHEME					Location Southernfield (dam axis, central)													
Coordinates			Drill type		Hydra Power Scout		Hole started		13 February 2008									
490368mE 5320630mN			Equipment		120mm hollow auger		Hole finished		14 February 2008									
Datum GDA94			Drill fluid(s)		Water		Drilled by		D. Roberts									
RL Approx. 524m ASL			Logged by		D. Bear		Checked by		W. Cromer									
Inclination 84°																		
Bearing 150°																		
Drilling information			Rock substance					Rock mass defects										
Bit type/size	Case type/size/lift	Fluid loss/water	Notes Samples, tests and weight (UW g/cc)	Core recovery	RQD	Vertical depth metres	Inclined depth	Graphic log	Substance description rock type, grain characteristics, colour, structure, minor components	Weathering					Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol interp
										A	B	C	D	E				
A			SPT05 2,3,7 N=10	20% 40% 80%	20% 40% 80%	1		SAND: grey brown to brown grading to yellow brown; fine grained; minor cobbles; lightly-well cemented; moist; loose-dense						30 100 300 1000 3000	1-5mm joints along sub-horiz bedding, some 45° across bedding. Planar clay infill	Soil		
R			SPT10 3 cb N>25			2		SANDSTONE: yellow brown; fine grained; moist							1-5mm joints along bedding planes	Lower Triassic sedimentary rocks		
NC			Casing advance			3		AS ABOVE; bedded; with interbedded clay seams and occasional thin bands of grey siltstone						1-2mm joints along bedding planes				
TT			Packer test 2.0m to 5.7m Lugoons = 0.14			4								2.5mm joints, clay infill				
			Packer test 5.84 to 9.5m Lugoons = 0.4			5		SANDSTONE becoming reddish brown with occasional black heavy mineral banding						1-2mm joints along bedding planes, clay infill				
						6								1-2mm steeply angled joints rough, dark brown oxide infill				
						7								1-2mm joints along bedding and steeply angled, clean, oxide staining				
						8								1-2mm joints along bedding				
						9		SANDSTONE: brown; fine grained; bedded; minor black heavy mineral banding; occasional cross-bedding; generally sub-horizontal bedding						1mm joints, planar along bedding, clean				







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Engineering log – Cored borehole										Sheet 3 of 3				
Incorporating the Unified Rock Classification System (URCS)														
Project HYDRO TASMANIA DUNGROVE SCHEME				Location Southernfield (dam axis, lower east side)										
Coordinates 490368mE 5320630mN		Datum GDA94		RL Approx. 524m ASL		Drill type Hydra Power Scout		Equipment 120mm hollow auger NQTT triple tube core drilling		Hole started 13 February 2008				
Inclination 84°		Bearing 150°		Drill fluid(s) Water		Logged by D. Bear		Checked by W. Cromer		Hole finished 14 February 2008				
Drilled by D. Roberts KMR Drilling Pty. Ltd.														
Drilling information			Rock substance					Rock mass defects						
Bit type/size	Case type/size/lift	Fluid loss/water	Notes Sample tests, unit weight (UW g/cc)	Core recovery	RQD	metres Vertical depth Inclined depth	Graphic log	Substance description rock type, grain characteristics, colour, structure, minor components	Weathering	Est. strength	Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol Interp
				20% 40% 60% 80%	20% 40% 60% 80%				A B C D E	A B C D E	A B C D E	30 100 300 1000 3000	Significant General	
			Packer test 16.34m to 21.0m. Lugions = 12 Core alignment attempted at each run – (unsuccessful)			19 20 21	SANDSTONE: brown; fine grained; minor dark oxide banding; cross-bedded; sub-horizontal to low angle bedding						Highly fragmented joints generally clean, some clay infill  1.2mm joints along bedding planar, clay infill  1.2mm joints planar along bedding clean, some clay infill	
						21	End of hole 21.0m							
						22								
						23								
						24								
						25								
						26								
						27								

**Drilling**  
 T = Triple tube coning  
 B = Blades  
 R = Roller/Tacone  
 A = Auger  
 W = Wash boring  
 DT = Double tube coring  
 HAM = Rotary hammer

**Case lift**      **Fluid loss**

**RQD (Rock Quality Designation Index)**  
 The sum of the lengths of 'sound' core pieces > 100mm in a drilling run is divided by the total core run length. Expressed as % Core length measured along centreline. Core drilling breaks not included.

**Water**      Level      Inflow      Outflow

Unit weight (UW, g/cc)  
 A = >2.65    B = 2.40-2.55    C = 2.25-2.40  
 D = 2.10-2.25    E = <2.10

**Strength**  
 Hammer impact test      Approx. point load strength index Is(50) MPa      Approx. UCS MPa

A = rebound (RQ)	>4	>103
B = pill (PQ)	2-4	55-103
C = crater (CQ)	1-2	21-55
D = crater (CQ)	0.25-1	7-21
E = moldable friable (MQ)	<0.25	<7

Note: X on log is test result. Otherwise, strength is visually estimated. US = Unconfined Compressive Strength

**Samples and Notes**  
 R = SPT penetration refusal  
 D = Disturbed sample  
 N = Standard Penetration Test  
 pp = Hand penetrometer test  
 SV = In-situ Shear Vane test  
 CS = Core Sample  
 Ux = Undisturbed tube sample (x mm diameter)  
 Nd = SPT and Disturbed Sample

**Soil consistency**  
 Fine grained soils  
 VS = Very Soft  
 S = Soft  
 F = Firm  
 St = Stiff  
 VSt = Very stiff  
 H = Hard

**Soil density index**  
 Coarse grained soils  
 Fb = Friable  
 VY = Very Loose  
 L = Loose  
 MD = Medium Dense  
 D = Dense  
 VD = Very Dense

**Defects**

A = Solid random breaks (SRB)  
 B = Solid preferential breaks (SPB)  
 C = Solid latent breaks (SLB)  
 D = Non intersecting planes (2-D)  
 E = Intersecting open planes (3-D)

**Core loss**

