BOREHOLE: BHLR-13

Project:	Pioneer-Burdekin PHES	Position:	Lower Reservoir	Sheet	1 of 3
Location:	Netherdale/Dalrymple Heights	Coords:	657728.7 m E 7662273.6 m N MGA2020-55		
Client:	Queensland Hydro	Surface RL:	230.4 m AHD	Date Started:	9/4/2024
Job No.:	PS138693	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-DTM	Date Completed:	11/4/2024
		Inclination:	-90° Direction: 000°	Logged:	TH

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	E	Groundwater Not Observed	0	230.41				SW	TOPSOIL Silty SAND: fine to coarse grained, sub-angular, dark brown, silt is low plasticity; with low plasticity clay; with grass rootlets and organic plant fragments.	W	L	TOPSOIL
				0.20 230.21				SP	Silty SAND: fine to medium grained, poorly graded, orange brown, silt is low plasticity.			RESIDUAL SOIL
	F		1		SPT 0.50-0.93 m 13,19,30/125mm HB N=R D 0.50-0.93 m					M		
			2	2.00 228.41	SPT 2.00-2.23 m 13,31/80mm HB N=R D 2.00-2.23 m				Pale brown, fine to coarse grained, sub-angular to angular.			
			3									
			4		SPT 3.50-3.62 m 31/120mm HB N=R D 3.50-3.62 m							
			5	5.00 225.41	SPT 5.00-5.24 m 26,31/90mm HB N=R D 5.00-5.24 m				Brown and white, coarse grained.		VD	
WB	H		6							D		
			7		SPT 6.50-6.57 m 31/70mm HB N=R D 6.50-6.57 m							
				7.00 223.41					Fine to medium grained.			
			8		SPT 8.00-8.08 m 31/80mm HB N=R D 8.00-8.08 m							
			9									
			10		SPT 9.50-9.56 m 31/60mm HB N=R D 9.50-9.56 m							

Continued as Cored Borehole

Comments

Checked GEM

Date 2/12/2024

BOREHOLE: BHLR-13

Project:	Pioneer-Burdekin PHES	Position:	Lower Reservoir	Sheet	2 OF 3
Location:	Netherdale/Dalrymple Heights	Coords:	657728.7 m E 7662273.6 m N MGA2020-55		
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		Inclination:	-90° Direction: 000°	Logged:	TH

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa) ■ - UCS (VL .2, L .6, M 2, H 6, VH 20, EH 200)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
							Continuation from non-cored borehole				
WB	Groundwater Not Observed	90	0	10	10.00 220.31		SP Silty SAND: fine to medium grained, poorly graded, orange brown, silt is low plasticity. very dense; dry to moist. NO CORE 0.10m (10.00-10.10)	XW			
							GRANITE: coarse grained, pale grey and brown, crystalline, massive, trace pyrites.				
		100	0	11						11.28: J, 10°, oxide SN, UN, RF 11.52: J, 55°, oxide SN, PR, RF 11.66: J, 20°, SN, PR, RF	
				12	12.50					12.33: J, 60°, SN, UN, RF	
		40	0	13	217.91 13.60		NO CORE 1.10m (12.50-13.60)				
					216.81 14.00		GRANITE: coarse grained, pale grey and brown, crystalline, massive, trace pyrites.	XW			
				14	216.41 14.50		NO CORE 0.50m (14.00-14.50)				
HQ3	Groundwater Not Observed	67	11		215.91		GRANITE: pale grey and brown, crystalline, massive, trace pyrites.	XW			
				15				MW		15.30: J, 20°, SN, PR, RF 15.44: J, 10°, SN, PR, RF	
					15.62 15.75		NO CORE 0.13m (15.62-15.75)				
		71	0		214.66		GRANITE: medium to coarse grained, white, pale grey and grey, crystalline, massive, with pyrites.	MW			
				16				SW		16.10: J, 70°, Fe SN, PR, RF 16.13: J, 5°, SN, PR, RF	
		100	96							16.54: J, 10°, SN, PR, RF	
				17						16.90: J, 5°, SN, PR, RF	
								FR		17.20: J, 10°, SN, PR, RF 17.20-17.26: EW, 0 - 15°, rubbled host rock IN, UN, RF	
										17.54: J, 15°, CN, UN, RF	
		100	100	18	18.00 212.41		5-10% disseminated pyrites.				
				19							
		100	100	20							

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BOREHOLE: BHLR-13

Project:	Pioneer-Burdekin PHES	Position:	Lower Reservoir	Sheet	3 OF 3
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Job No.:	PS138693	Contractor:	Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-DTM	Date Completed:	11/4/2024
		Inclination:	-90° Direction: 000°	Logged:	TH

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa) ■ - UCS	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm)
HQ3	Groundwater Not Observed	100	100	20			GRANITE: medium to coarse grained, white, pale grey and grey, crystalline, massive, with pyrites.	FR			
		100	100	21							
		100	100	22						22.85: J, 20°, CN, UN, RF	
		100	100	23							
		100	100	24							
				25	25.10 205.31		Hole Terminated at 25.10 m Target depth. Standpipe Piezometer Installed.				
				26							
				27							
				28							
				29							
				30							

Comments

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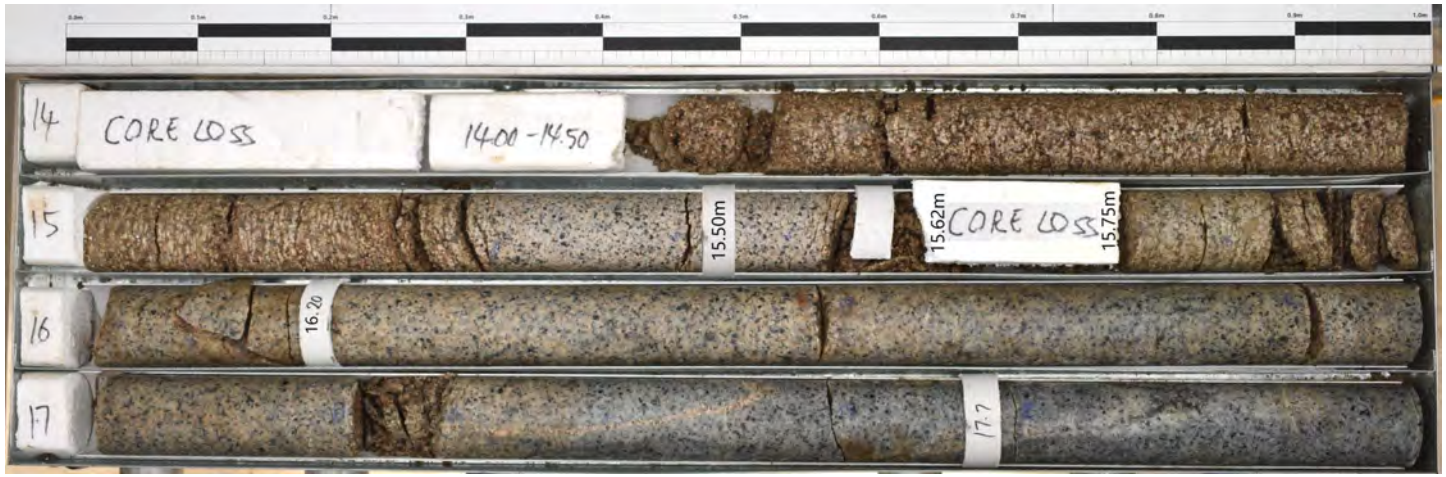
Date 2/12/2024

Pioneer Burdekin Pumped Hydro Energy Storage: Tranche 2 – BHLR - 13 Defects List

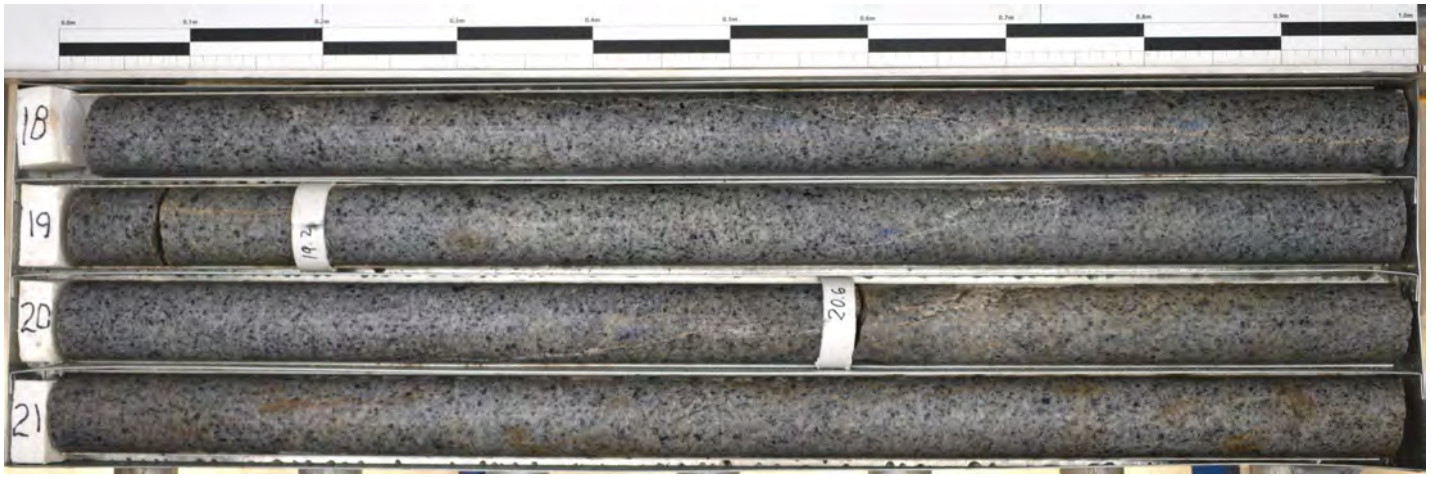
PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
BHLR-13	10.61				HB												
BHLR-13	11.28				J		10		oxide	SN	UN	RF					
BHLR-13	11.52				J		55		oxide	SN	PR	RF					
BHLR-13	11.66				J		20			SN	PR	RF					
BHLR-13	11.86	12.00			HB												
BHLR-13	12.33				J		60			SN	UN	RF					
BHLR-13	12.45	12.50			DB												
BHLR-13	13.68				HB												
BHLR-13	13.90	14.00			DB												
BHLR-13	15.30				J		20			SN	PR	RF					
BHLR-13	15.44				J		10			SN	PR	RF					
BHLR-13	15.70	16.00			MB												
BHLR-13	16.10				J		70		Fe	SN	PR	RF					
BHLR-13	16.13				J		5			SN	PR	RF					
BHLR-13	16.20				DB												
BHLR-13	16.54				J		10			SN	PR	RF					
BHLR-13	16.90				J		5			SN	PR	RF					
BHLR-13	17.20				J		10			SN	PR	RF					
BHLR-13	17.20	17.26			EW		0	15	rubbled host rock	IN	UN	RF					
BHLR-13	17.27	17.51			hJ		80		quartz	CT	UN				tight		
BHLR-13	17.54				J		15			CN	UN	RF					
BHLR-13	17.60	17.85			hJ		70		wh-bk mi		UN		<=	10			wh mi alt halo up to 40mm
BHLR-13	17.70				MB												
BHLR-13	17.88				hJ		10		wh mi		PR						
BHLR-13	17.90				hJ		20				CU						
BHLR-13	17.99				hJ		0		wh mi		UN						
BHLR-13	18.30	19.20			hJ		80	85	pl pk mi		UN						pk mi alt halo <5mm
BHLR-13	19.40	19.74			hJ		80	90	wh mi		UN						
BHLR-13	20.20	20.74			hJ		70	90	wh-pk mi		UN						
BHLR-13	20.61	20.70			hJ		80		wh-pk mi		UN						
BHLR-13	22.04	22.40			hJ		75		wh-pk mi		UN						
BHLR-13	22.17				MB												
BHLR-13	22.85				J		20			CN	UN	RF					
BHLR-13	23.20				hJ		70	90	wh-pk mi		CU						wh-pi alt halo 10mm
BHLR-13	23.36	23.53			hJ		70		wh-pk mi		PR						wh-pi alt halo 5mm
BHLR-13	23.71				MB												
BHLR-13	23.71	23.95			hJ		70		wh-pk mi		UN						wh-pi alt halo 10mm
BHLR-13	24.70	25.10			hJ		85	90	pk mi		PR						pk mi alt halo

PointID : BHLR-13 Depth Range: 10.00 - 14.00 m

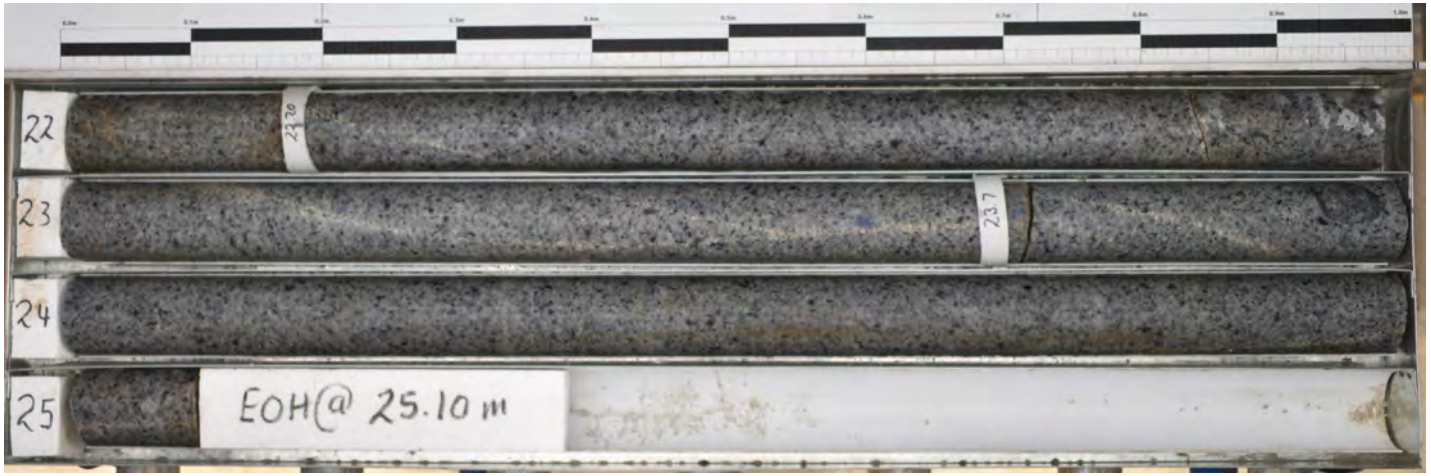


PointID : BHLR-13 Depth Range: 14.00 - 18.00 m

wsp	TITLE: Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core photo - BHLR-13	DRAWN: RC	DATE: 11/11/2024
		CHECKED: GEM	DATE: 18/11/2024
		SCALE: Not To Scale	A4
		PROJECT No: PS138693	FIGURE No: 1/2



PointID : BHLR-13 Depth Range: 18.00 - 22.00 m



PointID : BHLR-13 Depth Range: 22.00 - 25.10 m

wsp	TITLE: Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core photo - BHLR-13	DRAWN: RC	DATE: 11/11/2024
		CHECKED: GEM	DATE: 18/11/2024
		SCALE: Not To Scale	A4
		PROJECT No: PS138693	FIGURE No: 2/2