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BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES
Location: Netherdale/Dalrymple Heights
Client: Queensland Hydro
Job No.: PS138693

Position: Upper Reservoir
Coords: 657845.3 m E 7667599.8 m N MGA2020-55
Surface RL: 856.73 m AHD
Contractor: Twin Hills Engineering & Drilling Drill Rig: Hanjin D&B-8D(D)
Inclination: -87° Direction: 007°

Sheet 1 of 14
Date Started: 31/1/2024
Date Completed: 4/3/2024
Logged: JC/AAB/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		
ADV	F-H	Groundwater Not Encountered	0	856.73	PP 1.50 m >600 kPa		SM	Silty SAND: fine to coarse grained, orange red, silt is low plasticity; trace clay.		w<PL	VSt - H	RESIDUAL SOIL			
			1												
			2	1.97 854.76			GC	Sandy Clayey GRAVEL: fine to medium, orange red and pale grey, clay is low plasticity; sand is fine to medium grained.					M	D	EXTREMELY WEATHERED MATERIAL
			3	3.00 853.73	PP 3.00 m =200 kPa		CL-ML	Sandy Clayey SILT: low to medium plasticity, orange red and pale grey, sand is fine to coarse grained; trace fine to medium grained gravel.		w=PL	St - VSt	RESIDUAL SOIL			
			4	3.50 853.23			With gravel.								
			5	4.50 852.24			Orange red.		w<PL						
			6	5.00 851.64	PP 6.00 m =300 kPa		GP-GC	Sandy Clayey GRAVEL: fine to medium, orange red, yellow and black, clay is medium plasticity; sand is fine to coarse grained.		M	D				
			7	6.00 850.74			CL-ML	Sandy CLAY: low to medium plasticity, orange brown, sand is fine to coarse grained; trace fine to medium grained gravel.					w<PL	VSt	
			8	7.90 848.84	PP 7.50 m =190 kPa		SC	Clayey SAND: fine to medium grained, orange red, black and pale grey, clay is medium plasticity; with fine to to medium grained gravel.		M	MD - D				
			9	8.30			CH	Gravelly Sandy CLAY: high plasticity, red with black, sand is fine to coarse grained; gravel is fine to medium sized.					w=PL	St	
			10				ML	Sandy SILT: low plasticity, pale orange brown, sand is fine to medium grained; trace low plasticity clay; likely extremely weathered material.		w<PL	H / Fr	EXTREMELY WEATHERED MATERIAL			
			Continued as Cored Borehole												
Comments															
Checked GEM															
Date 16/10/2024															



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Drill Rig: Hanjin D&B-8D(D)

Inclination: -87° Direction: 007°

Sheet 2 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
				0									
				1									
				2									
				3									
				4									
				5									
				6									
				7									
				8									
				9									
				10									
HQ3				848.37			Continuation from non-cored borehole						
				8.68			NO CORE 0.31m (8.37-8.68)						
				848.06			METAGRANITE: medium to coarse grained, pink, pale orange, dark grey, pale grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, green alteration halo around some defects.	HW		8.82: J, 40°, bk mi VN, PR, SM			
										8.93: J, 65°, bk and or mi CT, ST, RF			
										8.97: J, 50°, bk and or mi CT, UN, RF			
										9.16: J, 45°, bk and or mi CT, UN, RF			
										9.19: J, 70°, bk and or mi CT, PR, RF			
										9.24: J, 15°, CN, ST, RF			
										9.61: J, 25°, bk and or mi CT, UN, RF			
										9.78: J, 40°, CN, UN, RF			
										9.79: J, 50°, bk and or mi CT, ST, RF			
				9.83			NO CORE 0.19m (9.83-10.02)						

Comments

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Sheet 3 OF 14
Date Started: 31/1/2024
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Drilling					Field Material Description				Defect Information				
METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
								VL J M H VH EH	2 4 8 16 32 64 128 256 512 1024			10 30 100 300 1000 3000	
HQ3	10/10/2024, WWP	77	33	10	846.02	+	METAGRANITE: medium to coarse grained, pale orange, dark grey, pale grey, red brown, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, orange weathering staining around some defects.	HW		9.80: J, 20°, or mi SN, UN, RF			
							+		MW		10.37: J, 0°, bk and or mi CT, UN, RF		
							+				10.59: J, 30°, bk and or mi CT, PR, RF 10.64: J, 60°, bk and or mi CT, CU, RF 10.66: J, 15°, bk and or mi CT, PR, RF 10.67: J, 30°, bk and or mi CT, PR, RF 10.95: J, 30°, or mi CN, PR, RF 11.01: J, 20°, bk and gr mi VN, PR, RF 11.11: J, 25°, bk and gr mi SN, ST, RF 11.14: J, 10°, or mi CT, PR, RF 11.15: J, 40°, bk and gr mi SN, UN, RF 11.20: J, 0°, bk an or mi CT, ST, RF 11.22: J, 20°, bk an or mi CT, ST, RF 11.23: J, 60°, bk mi, PR, RF 11.29: J, 0°, bk an or mi CT, UN, RF 11.19-11.61: Js, 30 - 50°, bk mi, PR, RF, extremely closely spaced		
							+				11.40: J, 35°, bk mi CT, PR, RF 11.45: J, 90°, rd and bk mi CT, PR, RF 11.46: J, 30°, bk mi CT, PR, RF 11.51: J, 0°, bk mi CT, PR, RF 11.63-11.65: CS, 45°, bk and or mi, coarse gravel VN, PR, RF, angular rock fragments < 7 mm 11.67: J, 30°, bk mi CT, UN, RF 11.68: J, 50°, bk mi SN, PR, RF 11.80: J, 20°, or mi VN, UN, RF 12.14: J, 30°, gr mi SN, UN, RF 12.55: J, 0°, bk and or mi CT, UN, RF 12.57: J, 50°, bk and or mi CT, UN, RF 12.80: J, 25°, bk and or mi CT, UN, RF 12.87: J, 45°, bk and or mi CT, UN, RF 12.89: J, 50°, or mi, UN, RF		
		100	41	11	11.70 845.05	+	Pink, grey and dark grey.	SW			12.98: J, 40°, bk and or mi VN, PR, RF 13.02: J, 30°, bk and or mi VN, PR, RF 13.15: J, 40°, bk and or mi CT, PR, RF 13.27: J, 40°, bk and or mi VN, PR, RF 13.39: J, 40°, bk and or mi CT, PR, RF 13.53: J, 40°, bk and or mi CT, PR, RF 13.81: J, 25°, bk and gr mi CT, PR, RF 14.00-14.50: PLT(A) Is50 = 2.4MPa (W); PLT(D) Is50 = 3.3MPa (M) 14.17: J, 20°, CN, PR 14.27: J, 20°, bk and gr mi VN, PR, RF 14.28: J, 60°, bk, or and gr mi CT, PR, SM 14.29: J, 50°, CN, PR, SM 14.64: J, 30°, bk and gr mi VN, ST, RF 14.83: J, 40°, bk and gr mi SN, UN, RF 14.99: J, 20°, or and gr mi CT, PR, SM 15.16: J, 50°, bk mi SN, PR, RF 15.23: J, 75°, bk mi SN, PR, SM 15.30: J, 10°, or mi SN, PR, RF 15.38: J, 55°, bk, or and gr mi CT, PR, SM 15.40: J, 35°, bk, or and gr mi CT, UN, RF 15.46: J, 30°, bk and or mi SN, ST, RF 15.50: J, 35°, bk and or mi SN, ST, RF 15.63: J, 25°, bk and or mi SN, PR, RF 15.67: J, 30°, bk and or mi SN, UN, RF 15.91: J, 30°, bk and gr mi SN, PR, RF 16.04: J, 15°, or mi SN, PR, RF 16.05: J, 80°, or and gr mi SN, PR, RF 16.07: J, 20°, or and gr mi SN, PR, RF 16.08: J, 10°, or and gr mi SN, PR, RF 16.10: J, 35°, bk and gr mi SN, PR, SM 16.11: J, 55°, bk and gr mi SN, PR, RF 16.12: J, 35°, bk and or mi SN, UN, RF 16.13: J, 35°, bk and gr mi SN, UN, RF 16.16: J, 60°, bk and gr mi SN, UN, RF 16.19: J, 0°, bk and gr mi VN, UN, RF 16.25: J, 60°, bk, or and gr mi CT, UN, RF 16.28: J, 15°, bk and rd mi SN, UN, RF 16.37: J, 70°, bk and or mi CT, UN, RF 16.41: J, 20°, bk and or mi SN, UN, RF 16.45: J, 10°, bk and or mi VN, ST, RF 16.81: J, 20°, CN, UN, RF 17.13: J, 35°, bk mi SN, UN, RF 17.16: J, 40°, bk and gr mi SN, UN, RF 17.18: J, 20°, bk and gr mi SN, UN, RF 17.35: J, 35°, gr mi SN, PR, RF 17.60: J, 25°, CN, PR, RF 18.62: J, 20°, gr mi SN, UN, RF 18.95-127.33: 50% water return 19.27: J, 0°, CN, UN, RF 19.29: J, 10°, gr mi SN, UN, RF 19.30: J, 10°, CN, ST, RF 19.38: J, 50 - 70°, gr mi, IR, healed		
	0% water return												
		100	75	12									
	50% water return												
		100	92	13	13.70 843.05	+	LAMPROPHYRE: fine to medium grained, dark red brown grey, porphyritic, massive.						
HQ3	0% water return												
		100	92	14	14.00 842.75	+	METAGRANITE: medium to coarse grained, pale orange, dark grey, pale grey, red brown, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, orange weathering staining around some defects.						
50% water return													
	100	57	15	14.47 842.28	+	LAMPROPHYRE: fine to medium grained, dark red brown grey, porphyritic, massive.							
HQ3	0% water return												
		100	83	16	15.30 841.45	+	METAGRANITE: medium to coarse grained, pink, grey and dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.						
	50% water return												
		100	68	17	17.00 839.75	+	Orange, pink, grey, pale yellow green alteration.						
HQ3	0% water return												
		100	72	18	17.89 838.80	+	NO CORE 0.06m (17.89-17.95)	FR					
	50% water return												
		100	0	19	19.15 837.61 19.37 837.39	+	METAGRANITE: medium to coarse grained, orange, pink, grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, pale yellow green alteration.						
50% water return													
	100	72	20		+	LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive.							
50% water return													
	100	0		+	METAGRANITE: medium to coarse grained, pink, grey, dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.								

Comments

Checked
Date

GEM
16/10/2024



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Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 4 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)
									VL-2 L-4 M-20 H-40 VH-200 EH			10 30 100 300 1000 3000
HQ3	50% water return	100	72	20				FR		19.43: J, 10°, CN, UN, RF		
				20.31	836.45		19.45: J, 10°, CN, UN, RF					
		100	100	21			LAMPROPHYRE: fine to medium grained, dark grey, grey brown, porphyritic, massive, contacts with adjacent rock are blended.	FR		19.46: J, 5°, CN, PR, RF		
				20.80	835.96		19.47: J, 5°, CN, PR, RF					
							19.48: J, 5°, CN, PR, RF					
							19.49: J, 10°, CN, UN, RF					
		100	84	22			METAGRANITE: medium to coarse grained, pink, grey, dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, occasional pale yellow alteration.	FR		19.52: J, 0°, CN, UN, RF		
							19.53: J, 0°, CN, PR, RF					
		100	91	23				FR		19.54: J, 0°, CN, PR, RF		
				22.85	833.91		LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive, pale grey pheonocrysts to 2mm diameter, occasional pale yellow alteration.		19.57: J, 90°, gr mi CT, UN, RF			
		100	85	24				SW - FR		19.63: J, 30°, CN, UN, RF		
24.00	832.76				METAGRANITE: coarse grained, pink, dark grey, crystalline, massive, mafic inclusions to 20mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	19.68: J, 25°, CN, UN, RF						
						19.70: J, 5°, CN, ST, RF						
						19.71: J, 10°, CN, UN, RF						
						19.80: J, 5°, CN, UN, RF						
						20.45: J, 55°, bk mi SN, PR, RF						
						20.46: J, 0°, bk mi SN, ST						
						20.48: J, 0°, bk mi SN, ST						
						20.51: J, 20°, CN, PR						
						20.70: J, 20°, CN, ST						
100	95			25					FR		20.78: J, 70°, gr mi SN, UN, RF	
						20.81: J, 60°, bk, or and gr mi CT, UN, 1 mm wh alt halo						
						20.83: J, 30°, bk mi CT, PR						
						20.86: J, 30°, bk mi SN, UN						
						20.90: J, 40°, CN, PR, RF						
						20.93: J, 55°, gr mi CT, PR, RF						
						20.95: J, 45°, CN, UN, RF						
						20.99: J, 35°, gr mi CT, PR, RF						
						21.11: J, 25°, CN, PR, RF						
						21.16: J, 20°, CN, UN, RF						
		100	100	26				FR			21.17: J, 30°, bk and gr mi CT, PR, RF	
						21.25: J, 15°, or and gr mi CT, PR, SM						
						21.44: J, 15°, CN, UN, RF						
						21.59: J, 25°, gr mi CT, UN, RF						
						21.72: J, 30°, CN, UN, RF						
						21.95: J, 40°, CN, UN, RF						
						22.03: J, 20°, gr mi CT, UN, RF						
						22.34: J, 20°, CN, UN, RF						
						22.54: J, 25°, CN, PR, RF						
						22.55: J, 25°, CN, UN, RF						
100	96			27					FR		22.59: J, 15°, CN, PR, RF	
						22.61: J, 50°, gr mi CT, PR						
						22.66: J, 15°, rd mi VN, PR						
						22.68: J, 20°, rd mi VN, UN						
						22.70: J, 30°, bk and gr mi VN, PR, RF						
						22.82: J, 40°, bk and or mi CT, UN, RF						
						23.01: J, 25°, gr mi SN, UN, RF						
						23.05: J, 30°, CN, UN, RF						
						23.13: J, 65°, bk and gr mi CT, UN, RF						
						23.29: J, 25°, gr mi SN, UN, RF						
		100	100	28				FR			23.51: J, 35°, or mi CT, UN, RF	
						23.91: J, 50°, gr mi CN, PR, RF						
						24.24: J, 70°, bk and gr mi CT, PR, RF						
						24.30: J, 10°, CN, UN, RF						
						24.55: J, 25°, CN, UN, RF						
						24.81: J, 10°, CN, ST, RF						
						25.33: J, 85°, bk mi VN, UN, SM						
						25.36: J, 50°, bk and gr mi CT, UN, RF						
						25.41: J, 60°, or mi, PR, SM						
						25.43: J, 60°, bk and or mi, UN, RF						
100	100			29					FR		25.67: J, 10°, bk and or mi SN, PR, RF	
						25.79: J, 40°, bk and gr mi SN, UN, RF						
						26.11: J, 45°, bk mi SN, ST, RF						
						26.28: J, 45°, bk and gr mi CT, UN, RF						
						26.55: J, 45°, gr mi SN, UN						
						26.56: J, 35°, CN, UN						
						27.04: J, 70°, bk, gr and rd mi CT, UN						
						27.07: J, 0°, bk mi SN, ST						
						27.09: J, 50°, gr and wh mi CT, UN						
						28.38: J, 20°, CN, ST, RF						
		100	100	30				FR			28.39: J, 60°, CN, UN, RF	
						28.42: J, 10°, CN, UN, RF						
						28.47: J, 80°, CN, UN, RF						
						28.95: J, 0°, CN, PR, RF						
						28.98: J, 70°, CN, UN, RF						
						29.00: J, 30°, CN, UN, RF						

Comments

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Date 16/10/2024



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Sheet 5 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm)	
								SW - FR	VL 2 J 2 M 2 H 2 S 2 V 2 EH 2		10 30 100 300 1000 3000	
HQ3	50% water return		100	100	30	+	METAGRANITE: coarse grained, pink, dark grey, crystalline, massive, mafic inclusions to 20mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	SW - FR		30.01: J, 45°, or mi VN, ST, RF 30.03: J, 60°, bk and or mi VN, ST, RF 30.19: J, 40°, bk mi, PR 30.28: J, 55°, bk mi CT, UN, RF 30.53: J, 20°, CN, ST, RF 30.83: J, 10°, CN, ST, RF		
					31	+		FR				
			100	100	32	+				31.61: J, 40°, bk mi VN, UN, RF 31.85: J, 30°, wh and gy mi CT 32.00-32.60: PLT(A) Is50 = 1.7MPa (W); PLT(D) Is50 = 17MPa (M) 32.01: J, 30°, CN, UN 32.30: J, 25°, CN, PR, RF		
					33	+				33.02: J, 35°, CN, UN, RF 33.19: J, 0°, SN, PR, RF 33.36-33.45: J, 50°, SN, PR, RF, very closely spaced		
			100	89	34	+				33.65: J, 65°, bk mi SN, PR, RF 33.76: J, 55° - 65°, SN, ST, RF 33.83: J, 15°, SN, UN, RF 33.97: J, 35°, CN, UN, RF		
					34.06	+						
					822.72	+	LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive, pale grey pheoncrysts to 2mm diameter.					
			100	87	34.45	+						
					822.33	+	METAGRANITE: coarse grained, pink, dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.					
					35	+						
			100	100	35.35	+						
					821.43	+	LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive.					
					35.86	+						
					36.00	+						
			100	100	36	+	Fine to medium grained, dark grey, porphyritic, massive, pale grey pheoncrysts to 4mm diameter. Fine to medium grained, dark grey, porphyritic, massive.			36.03: J, 65°, CN, UN, SM 36.75: J, 60°, PR, SM		
					37	+						
			100	100	38	+				38.30: J, 70°, CN, PR, RF		
					38.60	+				38.57: J, 30°, PR, SM		
					818.18	+	METAGRANITE: medium to coarse grained, pink, dark grey, pale grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, orange alteration around defects.			38.79: J, 45°, CN, PR		
					39.16	+				39.01: J, 60°, CN, ST, RF		
			100	100	817.58	+	LAMPROPHYRE: fine grained, dark grey.			39.37: J, 20°, CN, PR, RF		
					39.42	+						
					817.36	+	METAGRANITE: medium to coarse grained, pink, pale orange, dark grey, crystalline, massive.					
					39.92	+	LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive.					
					40	+						

Comments

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METHOD	WATER	TCR	RQD	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
									■ - UCS VL 2 L 4 M 30 H 40 VH 200 EH			10 30 100 300 1000 3000	
HQ3	50% water return	100	100	40	816.86	+ + <							

Comments

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Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
									■ - UCS				
HQ3	50% water return	100	96	50			METAGRANITE: coarse grained, pink, pale orange, dark grey, pale grey, crystalline, massive, occasional mafic inclusions to 10mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	FR		49.99: J, 25°, CN, PR, RF			
		50.44: J, 45°, CN, PR, RF 50.55: J, 55°, gr mi SN-VE, PR, SM 50.66: J, 75°, CN, PR, RF											
		100	100	51	51.43: J, 20°, CN, PR, RF								
		100	100	52	51.82: J, 35°, CN, PR, RF								
		52.46: J, 35°, CN, PR, RF 52.62: J, 34°, CN, PR-UN, RF											
		100	68	53	53.00: J, 70°, pl gr gy mi SN-VN, PR, RF 53.05: J, 60°, pl gr gy mi SN-VN, PR, RF 53.14: J, 60°, gr gy mi SN-VN, PR, RF 53.24: J, 45°, gr gy mi SN-VN, PR, RF 53.39: J, 40°, gy mi SN-VN, PR, RF 53.54: J, 40°, gy mi SN-VN, CU, RF 53.62: J, 45°, gy mi SN-VN, ST, RF 53.66: J, 55°, gy mi SN-VN, PR, RF								
		54.15: J, 60°, CN, PR-UN, RF 54.26: J, 75°, gr gy mi SN-VN, PR-UN 54.38: J, 60°, gy mi SN-VN, PR											
		100	59	54	54.56-54.59: Js, 55°, gr gy mi SN-VN, PR, RF, x2 54.62: J, 60°, gr gy mi SN-VN, PR, RF 54.67-54.76: Js, 50°, gr gy mi SN-VN, PR, RF, x2 54.79: J, 85°, gr gy mi SN-VN, PR, RF 54.81-54.84: Js, 5°, CN, ST, RF, x2 54.84: J, 40°, gr gy mi VN, PR, RF 54.89: J, 35°, gr gy mi SN-VN, PR, RF 54.97: J, 50°, gr gy mi SN-VN, PR, RF 55.15: J, 50°, gr mi SN-VN, PR, RF 55.13-55.19: J, 45°, gr mi SN-VN, PR, RF, x2 55.28: J, 85°, gr mi SN-VN, PR, RF 55.34: J, 45°, gr mi SN-VN, PR, RF 55.51: J, 40°, gr mi SN-VN, PR, RF 55.64: J, 50°, gr gy mi SN-VN, PR, RF 55.71: J, 40°, gr mi SN, PR, RF 55.78: J, 70°, bk mi VN-CT, PR, SM-RF 55.80: J, 15°, CN, PR, RF 55.85: J, 75°, bk mi VN-CT, PR, SM-RF 55.87: J, 25°, CN, UN, RF 55.90: J, 10°, bk mi SN, UN, RF 55.93: J, 70°, gr mi SN-VN, PR, RF 55.97: J, 85°, or br mi SN, PR, SM 56.11: J, 45°, CN, PR, SM 56.13: J, 85°, CN, PR, SM 56.18: J, 45°, gr mi VN-CT, PR, SM-RF 56.19: J, 35°, CN, PR, SM 56.20: J, 85°, CN, PR, SM 56.23-56.29: J, 65°, CN, UN, SM, x3 56.55: J, 5°, CN, UN, RF 56.58: J, 75°, CN, PR, RF 56.99: J, 65°, wh mi, PR, SM, 5 mm 57.38: J, 10°, CN, UN, RF 58.08: J, 5°, CN, PR-UN								
		100	54	55	59.04: J, 35°, gy mi, PR								
		100	100	59	59.31: J, 25°, gy mi, PR								
		100	99	60	59.53: J, 15 - 40°, CN, ST, RF								

Comments

Checked GEM
Date 16/10/2024



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 8 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
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								WEATHERING	INFERRED STRENGTH (MPa)				
								WEATHERING	INFERRED STRENGTH (MPa)				
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								WEATHERING	INFERRED STRENGTH (MPa)				
					</								

Comments

Checked GEM
Date 16/10/2024



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 9 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
									VL L SL N SN UN UH EH				
HQ3	50% water return	100	94	70			METAGRANITE: coarse grained, pink, pale orange, dark grey, crystalline, massive, occasional mafic inclusions to 15mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	FR		69.93: J, 70°, SN, PR, RF 69.95: J, 75°, CN, PR, RF 70.01: J, 75°, CN, PR, RF 70.22: J, 70°, CN, PR, RF 70.38: J, 35°, CN, PR, RF			
					71.11: J, 25°, CN, PR, RF								
		100	95	71						71.64: J, 25°, CN, PR, RF 71.80: J, 30°, CN, PR, RF			
					72.05: J, 25°, CN, PR, RF 72.08: J, 25°, CN, PR, RF 72.14: J, 15°, CN, PR, RF 72.25: J, 35°, CN, PR, RF 72.41: J, 30°, CN, PR, RF								
		100	85	72						72.72: J, 30°, CN, PR, RF 72.76: J, 20°, CN, PR, RF 72.88: J, 25°, CN, PR, RF			
					73.27: J, 15°, CN, UN, RF 73.46: J, 10°, CN, PR, RF 73.64-73.70: Jx3, 35°, CN, PR, RF, very closely spaced								
		100	95	74						74.14: J, 10 - 40°, CN, UN, RF 74.48: J, 40°, CN, PR, RF 74.64: J, 30°, CN, PR, RF			
					75.53-76.20: PLT(A) Is50 = 5.1MPa (W); PLT(D) Is50 = 15MPa (M) 75.79: J, 5°, CN, PR, SM								
					76.01: J, 10°, CN, PR, SM 76.05: J, 10°, CN, PR, SM								
					76.60: J, 50°, CN, UN, RF 76.91: J, 0 - 10°, CN, CU, RF 77.16: J, 50°, CN, PR, SM								
									77.52: J, 50°, CN, UN, RF 77.57: J, 60°, CN, PR, RF				
100	95	77		77.94: J, 30°, CN, PR, RF 78.00: J, 0 - 5°, CN, UN, RF 78.05: J, 45°, CN, PR, RF 78.33: J, 50°, CN, PR, RF 78.44: J, 50°, CN, PR, RF									
			78.82: J, 40°, CN, PR, RF 79.00: J, 40°, CN, PR, RF										
100	95	78											
100	92	79		79.51: J, 40°, CN, PR, RF 79.65: J, 35°, CN, PR, RF 79.80: Jx2, 35°, CN, PR, PO, very closely spaced									

Checked GEM

Date 16/10/2024



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 10 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm)	
								VL J M H VH EH	2 5 10 20 40 80 160 300		10 30 100 300 1000 3000	
HQ3	50% water return	100	92	80			METAGRANITE: coarse grained, pink, pale orange, dark grey, crystalline, massive, occasional mafic inclusions to 15mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	FR		80.02: J, 80 - 90°, CN, UN, RF 80.05: J, 35°, CN, PR, RF		
		100	77	81						81.10: J, 35°, CN, PR, RF 81.18: J, 40°, CN, UN, RF 81.31: J, 40 - 80°, CN, ST, RF		
				82						81.62: J, 40°, CN, PR, RF 81.87: J, 50°, dk gy mi SN, PR, RF 82.08: J, 30°, CN, PR, RF 82.19: J, 30°, CN, PR, RF 82.39: J, 30°, CN, PR, RF		
		100	97	83						82.70: J, 30°, CN, PR, RF 83.02: J, 40°, CN, PR, SM 83.07: J, 40°, CN, PR, SM 83.19: J, 40°, CN, PR, SM		
				84						83.62: J, 35°, CN, PR, RF 84.02: J, 40°, CN, PR, RF 84.28: J, 40°, CN, PR, RF 84.41: J, 35°, CN, PR, SM		
		100	97	85						84.65: J, 50°, CN, PR, RF 84.67: J, 25 - 35°, CN, CU, RF 84.96: J, 5 - 55°, CN, IR, RF		
				86						85.66: J, 50°, CN, PR, RF 85.85: J, 0°, CN, PR, SM 85.92: J, 35°, wh gy mi VN, PR, RF		
		100	91	87						86.24: J, 40°, CN, PR, RF 86.37: J, 50°, CN, PR, RF		
				88						87.05: J, 30°, CN, PR, RF 87.17: J, 40°, CN, PR, SM 87.27: J, 30°, CN, PR, SM 87.44: J, 55°, CN, PR, RF		
		100	82	89						87.82: J, 45°, CN, PR, RF 88.12: J, 40°, CN, PR, RF 88.49: J, 35°, SN, PR, RF 88.63: J, 10 - 15°, CN, UN, RF		
		100	98	90						89.03: J, 40°, SN, PR, RF 89.32-89.34: J, 50°, CN, PR, RF, very closely spaced		
		100	99									

Comments

Checked GEM
Date 16/10/2024



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 11 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
									VL L J M H VH 2 5 10 20 30 40 50 60 70 80 90 100 EH				
HQ3	50% water return		100	99	90		METAGRANITE: coarse grained, pink, pale orange, dark grey, crystalline, massive, occasional mafic inclusions to 15mm diameter, altered granite, fabric shows metamorphic crystal reorientation.	FR		89.98: J, 45°, SN, UN, RF			
					91					90.45: J, 45°, CN, PR, RF			
										90.65: J, 45°, CN, PR, RF			
										90.81: J, 50°, CN, PR, RF			
										90.94: J, 60°, CN, PR, RF			
										91.20: J, 35 - 45°, CN, UN, RF			
										91.50: J, 30°, CN, PR, RF			
										91.58: J, 35°, CN, PR, RF			
										92.03: J, 55°, CN, UN, RF			
										92.21: J, 30°, CN, PR, RF			
			100	80	92					92.42: J, 30°, CN, PR, RF			
										92.65: J, 5°, CN, PR, RF			
										92.97: J, 45°, CN, PR, RF			
										93.47: J, 30°, CN, PR, RF			
										93.65: J, 50°, CN, ST, RF			
										93.79: J, 70°, SN, PR, RF			
										94.30-94.80: PLT(A) Is50 = 13MPa (M); PLT(D) Is50 = 10MPa (M)			
										95.17: J, 25°, PR, SM			
										95.19: J, 25°, PR, SM			
										95.73: J, 60°, yl mi, PR, SM			
			100	79	96					96.43: J, 10°, CN, UN, RF, open, handling			
										96.70: J, 70°, quartz, PR, RF			
										97.10: J, 70°, CN, PR, RF, at end of run			
										98.29: J, 70°, CN, PR, RF			
										98.40: J, 65°, CN, PR, RF			
										98.87: J, 40°, CN, PR, RF			
										99.28: J, 70°, CN, PR, RF			
										99.82: J, 50°, CN, PR, RF			
							LAMPROPHYRE: fine to medium grained, grey and dark grey, porphyritic, massive, dark grey phenocrysts to 3mm diameter.						
							METAGRANITE: coarse grained, pink, dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.						
			100	93	99								
								Pale yellow alteration.					

Comments

Checked GEM
Date 16/10/2024



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 12 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/TH

Drilling					Field Material Description			Defect Information		
METHOD	WATER	TCR	RQD	DEPTH (metres)	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)	AVERAGE DEFECT SPACING (mm)
				DEPTH RL			VL 2 J M H V 40 200 EH	■ - UCS		10 30 100 300 1000 3000
HQ3	50% water return			100	100.07 100.21 756.66	LAMPROPHYRE: fine grained, dark grey, porphyritic, massive, pale yellow alteration.	FR		99.83-100.07: AZ, CN, PR	
					100.45 756.42 100.66 756.21	METAGRANITE: medium to coarse grained, pink and dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.			100.12: J, 35°, CN, PR, RF	
		100	33			LAMPROPHYRE: fine to medium grained, dark grey, porphyritic, massive, pale grey phenocrysts to 2mm diameter.			100.17: J, 0°, CN, PR, RF	
				101	101.21 755.66	METAGRANITE: medium to coarse grained, pink, dark grey, pale grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation, contacts with adjacent rocks are blended.			100.21: J, 30°, CN, PR, RF	
						LAMPROPHYRE: fine to medium grained, grey and dark grey, porphyritic, massive, dark grey and pale grey phenocrysts to 2mm diameter.			100.49: J, 50°, CN, ST, RF	
		100	76						100.77: J, 40°, CN, PR, RF	
				102	102.54 754.33	METAGRANITE: coarse grained, pink and dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.			100.82: J, 75°, CN, PR, RF, x2	
				103					100.84: J, 0°, CN, PR, RF	
									100.93: J, 85°, wh mi, PR, RF	
		100	95						100.99: J, 90°, CN, PR, RF	
				104		pale yellow alteration			101.05: J, 0°, CN, PR, RF	
				105					101.17: J, 50°, CN, PR, RF	
		100	100						101.29: J, 30°, CN, PR, RF	
				106					101.32: J, 90°, CN, PR, RF	
									101.45: J, 40°, CN, PR, RF, x2	
				107		mafic inclusion, 60mm diameter			102.11: J, 25°, CN, PR, RF	
		100	89						102.30: J, 70°, CN, PR, RF	
				108					102.57: J, 30°, CN, PR, RF	
									103.03: J, 25°, CN, PR, RF	
		100	71						103.39: J, 20°, CN, PR, RF	
				109					103.59: J, 50°, CN, PR, RF	
		100	91						106.09: J, 10°, br mi SN, PR, RF	
				110					106.10-106.45: J, 85°, wh mi, PR, SM	

Comments

Checked GEM
Date 16/10/2024

PEPHES LIB REV B.GLB Log IS AU CORED BOREHOLE 3 BHUA-12_241016.GPJ <<DrawingFile>> 21/10/2024 18:54 10.03.00.09 Digel Lab and In Situ Tool - DGD | Lib: WSP 5.07.2 2023-10-30 Proj: WSP 5.04.1 2023-06-14



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 13 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	
				110			METAGRANITE: coarse grained, pink and dark grey, crystalline, massive, altered granite, fabric shows metamorphic crystal reorientation.	FR					
		100	91										
				111									
		100	100										
				112						111.83: J, 45°, bk mi CT, PR, SM			
										111.94: J, 20°, CN, PR, SM			
										112.10: J, 70°, CN, PR, RF			
										112.38: J, 90°, CN, ST, RF			
		100	57							112.81: J, 85°, CN, PR, RF, possibly opened in drilling			
				113						112.85: J, 20°, CN, PR, RF			
										113.13: J, 20°, CN, PR, RF			
										113.14-113.30: J, 90°, wh clay VN, PR, SM			
										113.22: J, 30°, PR, SM			
										113.31: J, 30°, PR, SM			
										113.38: J, 30°, PR, SM			
										113.47: J, 30°, PR, SM			
										113.51: J, 70°, white clay VN, PR, SM			
		100	19							113.58: J, 45°, CN, PR, SM			
				114						113.70: J, 55°, CN, PR, SM			
										113.71: J, 30°, CN, PR, RF			
										113.97: J, 20°, CN, PR, RF			
										113.14-114.93: J, 90°, clay VN, PR, SM, stepped in places,			
										114.41: J, 60°, CN, PR, RF			
										114.49: J, 15°, CN, PR, SM			
										114.54: J, 30°			
										114.73: J, 30°, CN, PR, SM-RF			
										114.91: J, 20°, CN, PR, SM			
										115.07: J, 55°, CN, PR, SM			
										115.09: J, 20°, CN, PR, SM			
										115.10: CS, 20 - 30°			
		100	79							115.93: J, 40°, CN, PR, SM			
				116						116.08: J, 25°, CN, PR, SM			
										116.42: J, 60°, CN, PR, SM			
										116.57: J, 25°, CN, PR, RF			
										116.65: J, 50°, CN, PR, SM			
										116.91: J, 30°, CN, PR, SM			
										117.04: J, 25°, CN, PR, SM			
										117.18: J, 25°, CN, PR, RF			
										117.21: J, 10°, CN, PR, SM			
										117.32: J, 75°, CN, PR, RF			
										117.53: J, 45°, CN, PR, RF			
										117.71: J, 5°, dk gy mi VN, PR, RF, rock pieces up to 10 mm			
										117.98: J, 40°, CN, PR, SM			
										118.00: J, 45°, CN, PR-UN, RF			
										118.01: J, 40°, CN, CN, SM			
										118.07: J, 90°, CN, CN, RF, x3			
										118.49: J, 90°, CN, CN, RF			
										118.51: J, 80°, CN, CN, RF			
										118.53: J, 40°, CN, CN, RF			
										118.69: J, 70°, CN, CN, RF			
										118.90: J, 90°, CN, PR, RF			
										118.93: J, 70°, CN, UN, RF			
										118.95: J, 70°, CN, UN, RF			
										119.10: J, 0°, CN, UN, RF			
		100	89							119.52: J, 30°, CN, PR, RF			
				119						119.64: J, 30°, CN, UN, RF			
										119.68: J, 70°, bk and or mi SN, PR, RF			
										119.76: J, 20°, CN, PR			
				120									
Comments										Checked GEM		Date 16/10/2024	



BOREHOLE: BHUA-12

Project: Pioneer-Burdekin PHES

Location: Netherdale/Dalrymple Heights

Client: Queensland Hydro

Job No.: PS138693

Position: Upper Reservoir

Coords: 657845.3 m E 7667599.8 m N MGA2020-55

Surface RL: 856.73 m AHD

Contractor: Twin Hills Engineering & Drilling

Inclination: -87° Direction: 007°

Sheet 14 OF 14

Date Started: 31/1/2024

Date Completed: 4/3/2024

Logged: JC/AAB/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)	DEFECT DESCRIPTION & Additional Observations (Core partings shown - refer to Detailed Defect Descriptions table for all logged features)		AVERAGE DEFECT SPACING (mm)	

Comments

Checked GEM
Date 16/10/2024

PEPHES LIB - REV B.GLB Log IS AU CORED BOREHOLE 3 BHUA-12_241016.GPJ <-DrawingFile>> 21/10/2024 18:55 10.03.00.09 D:\geol\lab and in situ\Tool - DGD\ [Lib: WSP 5.07.2.2023-10-30 Proj: WSP 5.04.1 2023-06-14]



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	8.68	8.97															core recovered as fragmented rock
BHUA-12	8.82				J		40		bk mi	VN	PR	SM					
BHUA-12	8.83				hJ		25		bk mi		UN						
BHUA-12	8.84				hJ		50		bk and gr mi		PR						
BHUA-12	8.85				hJ		0		bk mi		PR						
BHUA-12	8.86				hJ		35		bk mi		PR						
BHUA-12	8.93				J		65		bk and or mi	CT	ST	RF					
BHUA-12	8.95				V		55		plyl mi		PR			3			healed
BHUA-12	8.97				J		50		bk and or mi	CT	UN	RF					
BHUA-12	9.01				hJ		60		gr mi		PR						
BHUA-12	9.08				V		20		bk and gr mi		UN			3			healed
BHUA-12	9.10				hJ		40		bk mi		PR						
BHUA-12	9.11				V		30		gr mi		UN			3			healed
BHUA-12	9.14				hJ		10		bk mi		PR						
BHUA-12	9.15				hJ		20		bk and or mi		UN						
BHUA-12	9.16				J		45		bk and or mi	CT	UN	RF					
BHUA-12	9.18				hJ		50		or mi		PR						
BHUA-12	9.19				J		70		bk and or mi	CT	PR	RF					
BHUA-12	9.20				hJ		45		or mi		UN						
BHUA-12	9.22				hJ		55		or mi		PR						
BHUA-12	9.23				hJ		65		or mi		UN						
BHUA-12	9.24				J		15			CN	ST	RF					
BHUA-12	9.28				hJ		40		bk and gr mi		PR						
BHUA-12	9.33				V		80		gr mi		UN			4			healed
BHUA-12	9.35				hJ		55		or mi		PR						
BHUA-12	9.39				V		25		bk mi		IR						
BHUA-12	9.40				V		30		bk mi		IR						
BHUA-12	9.44				hJ		30		gr and wh mi		PR						
BHUA-12	9.45				hJ		40		gr mi		UN						
BHUA-12	9.49				hJ		50		gr mi		PR						
BHUA-12	9.51				hJ		40		or mi		PR						
BHUA-12	9.53				hJ		50		bk and or mi		PR						
BHUA-12	9.54				hJ		50		bk mi		UN						
BHUA-12	9.61				J		25		bk and or mi	CT	UN	RF					
BHUA-12	9.62				hJ		10		bk mi		UN						
BHUA-12	9.65				hJ		30		bk mi		PR						
BHUA-12	9.66				hJ		3		bk and gr mi		PR						
BHUA-12	9.67				V		50		gr mi		PR			2			healed
BHUA-12	9.68				hJ		60		gr mi		UN						
BHUA-12	9.69				hJ		90		gr mi		UN						
BHUA-12	9.70				hJ		80		gr and wh mi		UN						
BHUA-12	9.71				hJ		50		gr mi		PR						
BHUA-12	9.74				hJ		40		bk mi		UN						
BHUA-12	9.75				hJ		40		bk mi		PR						
BHUA-12	9.76				hJ		50		wh mi		PR						
BHUA-12	9.77				hJ		20		gr mi		PR						
BHUA-12	9.78				J		40			CN	UN	RF					
BHUA-12	9.79				J		50		bk and or mi	CT	ST	RF					
BHUA-12	9.80				hJ		30			CN	UN						
BHUA-12	9.80				J		20		or mi	SN	UN	RF					
BHUA-12	10.37				J		0		bk and or mi	CT	UN	RF					
BHUA-12	10.38				V		40		bk and or mi		PR			3			healed
BHUA-12	10.40				hJ		30		bk mi		PR						
BHUA-12	10.41				hJ		60		gr mi		PR						
BHUA-12	10.42				hJ		30		gr mi		PR						
BHUA-12	10.59				J		30		bk and or mi	CT	PR	RF					
BHUA-12	10.64				J		60		bk and or mi	CT	CU	RF					
BHUA-12	10.66				J		15		bk and or mi	CT	PR	RF					
BHUA-12	10.67				J		30		bk and or mi	CT	PR	RF					
BHUA-12	10.69				V		90		bk mi		UN			2			healed
BHUA-12	10.71				V		40		bk mi		UN			1			healed
BHUA-12	10.74				V		30		bk mi		PR			2			healed
BHUA-12	10.78				hJ		45		bk mi		UN						
BHUA-12	10.79				hJ		60		or and gr mi		PR						
BHUA-12	10.81				hJ		30		bk mi		PR						
BHUA-12	10.86				hJ		20		gr mi		PR						
BHUA-12	10.87				hJ		70		gr mi		UN						
BHUA-12	10.91				hJ		35		bk mi		PR						
BHUA-12	10.95				J		30		or mi	CN	PR	RF					
BHUA-12	11.01				J		20		bk and gr mi	VN	PR	RF					
BHUA-12	11.06				hJ		30		bk mi		PR						
BHUA-12	11.09				hJ		70		bk mi		ST						
BHUA-12	11.11				J		25		bk and gr mi	SN	ST	RF					
BHUA-12	11.14				J		10		or mi	CT	PR	RF					
BHUA-12	11.15				J		40		bk and gr mi	SN	UN	RF					
BHUA-12	11.19	11.61			Js		30	50	bk mi		PR	RF				extremely closely	
BHUA-12	11.20				J		0		bk an or mi	CT	ST	RF					
BHUA-12	11.22				J		20		bk an or mi	CT	ST	RF					
BHUA-12	11.23				J		60		bk mi		PR	RF					

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Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	11.29				J		0		bk an or mi	CT	UN	RF					
BHUA-12	11.40				J		35		bk mi	CT	PR	RF					
BHUA-12	11.45				J		90		rd and bk mi	CT	PR	RF					
BHUA-12	11.46				J		30		bk mi	CT	PR	RF					
BHUA-12	11.51				J		0		bk mi	CT	PR	RF					
BHUA-12	11.63	11.65			CS		45		bk and or mi, coarse gravel	VN	PR	RF					angular rock fragments < 7 mm
BHUA-12	11.67				J		30		bk mi	CT	UN	RF					
BHUA-12	11.68				J		50		bk mi	SN	PR	RF					
BHUA-12	11.71				V		60		gr mi		UN			6			healed
BHUA-12	11.74				V		60		bk mi		UN			2			healed
BHUA-12	11.75				hJ		90		bk mi		ST						
BHUA-12	11.80				J		20		or mi	VN	UN	RF					
BHUA-12	11.81				hJ		70		gr mi		PR						
BHUA-12	11.82				V		40		gr mi		PR			2			healed
BHUA-12	12.03				hJ		90		gr mi		UN						
BHUA-12	12.05				hJ		75		gr mi		UN						
BHUA-12	12.06				hJ		70		gr mi		UN						
BHUA-12	12.07				hJ		60		bk mi		PR						
BHUA-12	12.12				hJ		75		bk mi		UN						
BHUA-12	12.14				J		30		gr mi	SN	UN	RF					
BHUA-12	12.21				hJ		65		gr mi		UN						
BHUA-12	12.22				hJ		75		bk mi		UN						
BHUA-12	12.23				hJ		90		bk mi		UN						
BHUA-12	12.26				hJ		30		bk mi		PR			1			healed
BHUA-12	12.33				hJ		30		gr mi		UN						
BHUA-12	12.35				hJ		30		gr mi		UN						
BHUA-12	12.37				hJ		60		gr mi		UN						
BHUA-12	12.39				hJ		40		gr mi		UN						
BHUA-12	12.44				hJ		80		gr mi		UN						
BHUA-12	12.45				hJ		10		bk mi		UN						
BHUA-12	12.50				hJ		65		bk mi		UN						
BHUA-12	12.51				hJ		90		bk mi		UN						
BHUA-12	12.52				hJ		70		wh mi		UN						
BHUA-12	12.54				hJ		30		bk mi		UN						
BHUA-12	12.55				J		0		bk and or mi	CT	UN	RF					
BHUA-12	12.57				J		50		bk and or mi	CT	UN	RF					
BHUA-12	12.62	12.92			hJs		50		gr mi		UN						
BHUA-12	12.67				hJ		40		bk mi		UN						
BHUA-12	12.68				hJ		25		bk mi		UN						
BHUA-12	12.70				hJ		30		bk mi		UN						
BHUA-12	12.73				hJ		80		bk and gr mi		UN						
BHUA-12	12.80				J		25		bk and or mi	CT	UN	RF					
BHUA-12	12.83				V		50		gr mi		UN			3			healed
BHUA-12	12.87				J		45		bk and or mi	CT	UN	RF					
BHUA-12	12.89				J		50		or mi		UN	RF					
BHUA-12	12.95				hJ		75		bk and or mi		UN						
BHUA-12	12.98				J		40		bk and or mi	VN	PR	RF					
BHUA-12	13.02				J		30		bk and or mi	VN	PR	RF					
BHUA-12	13.06	13.33			hJs		40		gr mi		UN						
BHUA-12	13.15				J		40		bk and or mi	CT	PR	RF					
BHUA-12	13.24	13.53			hJs		50		bk mi		UN						
BHUA-12	13.27				J		40		bk and or mi	VN	PR	RF					
BHUA-12	13.30				hJ		25		bk mi		UN						
BHUA-12	13.31				hJ		30		bk mi		UN						
BHUA-12	13.39				J		40		bk and or mi	CT	PR	RF					
BHUA-12	13.40				hJ		30		bk mi		UN						
BHUA-12	13.42				hJ		50		bk and or mi		UN						
BHUA-12	13.44				V		60		gr mi		UN			4			healed
BHUA-12	13.53				J		40		bk and or mi	CT	PR	RF					
BHUA-12	13.57				V		40		gr mi		PR			3			healed
BHUA-12	13.61				hJ		40		bk mi		UN						
BHUA-12	13.64				hJ		45		bk mi		UN						
BHUA-12	13.66				hJ		35		bk mi		UN						
BHUA-12	13.67				hJ		20		bk and gr mi		PR						
BHUA-12	13.68				hJ		80		bk and or mi		PR						
BHUA-12	13.69				hJ		5		gr mi		PR						
BHUA-12	13.72				hJ		30		gr mi		PR						
BHUA-12	13.73				hJ		10		wh mi		PR						
BHUA-12	13.75				V		40		gr mi		UN			2			healed
BHUA-12	13.77				V		45		or and gr mi		PR			3			healed
BHUA-12	13.78				hJ		25		bk mi		PR						
BHUA-12	13.81				J		25		bk and gr mi	CT	PR	RF					
BHUA-12	13.82				hJ		10		gr mi		UN						
BHUA-12	13.83				hJ		10		gr mi		UN						
BHUA-12	13.85				hJ		30		gr mi		UN						
BHUA-12	13.86				hJ		30		gr mi		UN						
BHUA-12	13.87				hJ		40		bk and gr mi		UN			4			healed
BHUA-12	13.90				V		35		gr mi		UN						
BHUA-12	13.94				hJ		55		gr and bk mi		UN						



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	13.96				V		25		gr mi		UN			10			healed
BHUA-12	13.98				hJ		35		bk mi		UN						
BHUA-12	13.99				hJ		35		bk mi		UN						
BHUA-12	14.00				hJ		0		wh mi		UN						
BHUA-12	14.01				hJ		10		gr mi		UN						
BHUA-12	14.02				hJ		60		wh mi		UN						
BHUA-12	14.03				hJ		65		bk mi		UN						2 mm wh alt halo
BHUA-12	14.05				hJ		0		wh mi		PR						
BHUA-12	14.06				hJ		40		bk and gr mi		UN						
BHUA-12	14.10				hJ		40		bk mi		PR						1 mm wh alt halo
BHUA-12	14.11				hJ		30		bk mi		PR						1 mm wh alt halo
BHUA-12	14.12				hJ		25		bk mi		PR						1 mm wh alt halo
BHUA-12	14.13				hJ		40		bk mi		UN						1 mm wh alt halo
BHUA-12	14.14				hJ		35		bk mi		PR						bk mi
BHUA-12	14.15				hJ		20		bk mi		PR						
BHUA-12	14.16				hJ		35		bk mi		PR						bk mi
BHUA-12	14.17				J		20			CN	PR						
BHUA-12	14.20				hJ		30		gr mi		PR						
BHUA-12	14.22				hJ		30		wh mi		PR						
BHUA-12	14.23				hJ		30		wh mi		PR						
BHUA-12	14.24				hJ		50		wh mi		PR						
BHUA-12	14.25				hJ		50		wh mi		PR						
BHUA-12	14.26				hJ		20		wh mi		PR						
BHUA-12	14.27				J		20		bk and gr mi	VN	PR	RF					
BHUA-12	14.28				J		60		bk, or and gr mi	CT	PR	SM					
BHUA-12	14.29				J		50			CN	PR	SM					
BHUA-12	14.30				hJ		40		gr mi		PR						
BHUA-12	14.31				V		45		gr mi		UN			3			healed
BHUA-12	14.32				hJ		0		gr mi		UN						
BHUA-12	14.33				hJ		30		gr mi		UN						
BHUA-12	14.34				hJ		20		bk mi		UN						
BHUA-12	14.36				hJ		30		bk mi		UN						
BHUA-12	14.38				V		60		bk mi		UN			2			healed
BHUA-12	14.39				hJ		15		bk and gr mi		UN						
BHUA-12	14.40				hJ		50		gr mi		UN						
BHUA-12	14.42				hJ		50		bk mi		UN						
BHUA-12	14.46				hJ		20		gr mi		UN						
BHUA-12	14.53				hJ		70		gr mi		UN						
BHUA-12	14.55				hJ		30		gr mi		UN						
BHUA-12	14.56				hJ		40		gr mi		UN						
BHUA-12	14.58				hJ		40		bk mi		UN						
BHUA-12	14.59				hJ		40		gr mi		UN						
BHUA-12	14.60				hJ		40		bk mi		UN						
BHUA-12	14.62				hJ		30		gr mi		UN						
BHUA-12	14.64				J		30		bk and gr mi	VN	ST	RF					
BHUA-12	14.65				V		10		gr mi		UN			4			healed
BHUA-12	14.67				hJ		20		bk mi		UN						2 mm wh alt halo
BHUA-12	14.74				hJ		25		gr mi		UN						
BHUA-12	14.75				hJ		25		gr mi		UN						
BHUA-12	14.76	14.98			hJs		20	55	gr mi		UN						
BHUA-12	14.83				J		40		bk and gr mi	SN	UN	RF					
BHUA-12	14.84				V		45		gr mi		UN			3			healed
BHUA-12	14.86				hJ		20		gr mi		UN						2 mm wh alt halo
BHUA-12	14.88				hJ		25		wh mi		UN						
BHUA-12	14.90				hJ		75		bk and wh mi		PR						
BHUA-12	14.99				J		20		or and gr mi	CT	PR	SM					
BHUA-12	15.00				hJ		60		bk mi		UN						1 mm wh alt halo
BHUA-12	15.01				hJ		50		wh mi		PR						
BHUA-12	15.02				hJ		60		wh mi		UN						
BHUA-12	15.03				hJ		80		wh mi		UN						
BHUA-12	15.09				V		50		gr mi		PR			4			healed
BHUA-12	15.12	15.58			hJs		30	45	bk and gr mi		UN						
BHUA-12	15.16				J		50		bk mi	SN	PR	RF					
BHUA-12	15.23				J		75		bk mi	SN	PR	SM					
BHUA-12	15.26				hJ		90		or and gr mi		UN						
BHUA-12	15.30				J		10		or mi	SN	PR	RF					
BHUA-12	15.32				hJ		60		bk mi		UN						
BHUA-12	15.33				V		45		wh mi		PR			2			healed
BHUA-12	15.34				hJ		85		bk mi		UN						
BHUA-12	15.36				hJ		50		bk and gr mi		PR						
BHUA-12	15.38				J		55		bk, or and gr mi	CT	PR	SM					
BHUA-12	15.40				J		35		bk, or and gr mi	CT	UN	RF					
BHUA-12	15.43	15.63			hJs		30	40	gr mi		IR						
BHUA-12	15.46				J		30		bk and or mi	SN	ST	RF					
BHUA-12	15.50				J		35		bk and or mi	SN	ST	RF					
BHUA-12	15.52				hJ		90		bk mi		UN						1 mm wh alt halo
BHUA-12	15.55				hJ		10		bk mi		UN						1 mm wh alt halo
BHUA-12	15.63				J		25		bk and or mi	SN	PR	RF					
BHUA-12	15.67				J		30		bk and or mi	SN	UN	RF					



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

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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
BHUA-12	15.69				hJ		25				UN						
BHUA-12	15.77				hJ		45				UN						
BHUA-12	15.79				hJ		40				UN						
BHUA-12	15.82				hJ		45				UN						
BHUA-12	15.85				hJ		20		or mi		UN						
BHUA-12	15.86				hJ		50		bk mi		UN						
BHUA-12	15.87				V		70		bk mi		UN			2			healed
BHUA-12	15.88				V		35		bk mi		UN			3			healed
BHUA-12	15.89				hJ		50		bk mi		UN						
BHUA-12	15.90				hJ		45		bk mi		UN						
BHUA-12	15.91				J		30		bk and gr mi	SN	PR	RF					
BHUA-12	15.92				hJ		40		bk mi		UN						
BHUA-12	15.97				hJ		50		bk mi		UN						
BHUA-12	15.99				hJ		55		bk mi		UN						
BHUA-12	16.03				hJ		40		bk and or mi	SN	PR	RF					
BHUA-12	16.04				J		15		or mi	SN	PR	RF					
BHUA-12	16.05				J		80		or and gr mi	SN	PR	RF					
BHUA-12	16.07				J		20		or and gr mi	SN	PR	RF					
BHUA-12	16.08				J		10		or and gr mi	SN	PR	RF					
BHUA-12	16.09				hJ		50		bk		PR						1 mm wh alt halo
BHUA-12	16.10				J		35		bk and gr mi	SN	PR	SM					
BHUA-12	16.11				J		55		bk and gr mi	SN	PR	RF					
BHUA-12	16.12				J		35		bk and or mi	SN	UN	RF					
BHUA-12	16.13				J		35		bk and gr mi	SN	UN	RF					
BHUA-12	16.15				hJ		60		bk mi		UN						
BHUA-12	16.16				J		60		bk and gr mi	SN	UN	RF					
BHUA-12	16.19				J		0		bk and gr mi	VN	UN	RF					
BHUA-12	16.21				hJ		30		gr mi		UN						
BHUA-12	16.25				J		60		bk, or and gr mi	CT	UN	RF					
BHUA-12	16.26				V		80		bk and gr mi		UN			4			healed
BHUA-12	16.27				hJ		20		bk mi		UN						
BHUA-12	16.28				J		15		bk and rd mi	SN	UN	RF					
BHUA-12	16.30				hJ		0		bk mi		UN						
BHUA-12	16.31				hJ		40		bk mi		UN						
BHUA-12	16.32				hJ		20		or mi		UN						
BHUA-12	16.33				hJ		40		bk and or mi		UN						
BHUA-12	16.34				hJ		75		bk mi		UN						
BHUA-12	16.35				hJ		90		bk mi		UN						
BHUA-12	16.37				J		70		bk and or mi	CT	UN	RF					
BHUA-12	16.41				J		20		bk and or mi	SN	UN	RF					
BHUA-12	16.43				hJ		30		bk mi		UN						
BHUA-12	16.44				V		90		bk mi		UN						
BHUA-12	16.45				J		10		bk and or mi	VN	ST	RF					
BHUA-12	16.46				hJ		35		bk mi		UN						
BHUA-12	16.47				hJ		30		bk mi		UN						
BHUA-12	16.48				hJ		70		bk mi		UN						
BHUA-12	16.49				hJ		60		bk mi		UN						
BHUA-12	16.50				hJ		30		bk mi		UN						
BHUA-12	16.51				hJ		50		bk mi		UN						
BHUA-12	16.52				hJ		30		bk mi		UN						
BHUA-12	16.54				hJ		35		gr mi		UN						
BHUA-12	16.55				hJ		35		wh mi		PR						
BHUA-12	16.56				hJ		35		wh mi		UN						
BHUA-12	16.58				V		90		bk and gr mi		UN			4			healed
BHUA-12	16.59				hJ		55		wh mi		UN						
BHUA-12	16.60				V		80		bk and gr mi		UN			4			healed
BHUA-12	16.66				hJ		40		gr mi		UN						
BHUA-12	16.68				hJ		55		gr mi		UN						
BHUA-12	16.70				hJ		70		bk and gr mi		UN						
BHUA-12	16.71				V		80		bk mi		UN			3			healed
BHUA-12	16.73				hJ		60		bk mi		UN						
BHUA-12	16.75	16.97			hJs		70	75	bk, wh and gr mi		UN						
BHUA-12	16.81				J		20			CN	UN	RF					
BHUA-12	16.83				hJ		20		wh mi		UN						
BHUA-12	16.85				hJ		20		wh mi		UN						
BHUA-12	16.87				hJ		15		bk mi		UN						
BHUA-12	16.89				hJ		70		gr mi		UN						
BHUA-12	16.90				V		55		bk and gr mi		UN			2			healed
BHUA-12	16.95				hJ		40		bk and wh mi		UN						
BHUA-12	16.97	17.21			hJs		30	55	bk and gr mi		UN						
BHUA-12	17.08				V		90		gr mi		UN			2			healed
BHUA-12	17.12				V		30		gr mi		UN			5			healed
BHUA-12	17.13				J		35		bk mi	SN	UN	RF					
BHUA-12	17.16				J		40		bk and gr mi	SN	UN	RF					
BHUA-12	17.18				J		20		bk and gr mi	SN	UN	RF					
BHUA-12	17.22				hJ		30		bk mi		PR						
BHUA-12	17.23				hJ		75		bk mi		UN						
BHUA-12	17.24				hJ		30		bk mi		UN						
BHUA-12	17.25				hJ		45		bk mi		UN						



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

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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
BHUA-12	17.26				hJ		50		gr mi		UN						
BHUA-12	17.28				hJ		80		gr mi		UN						
BHUA-12	17.30				hJ		40		gr mi		PR						
BHUA-12	17.32				hJ		35		gr mi		PR						
BHUA-12	17.33				V		30		bk and gr mi		PR			2			healed
BHUA-12	17.35				J		35		gr mi	SN	PR	RF					
BHUA-12	17.43	19.19							gr mi		IR						numerous healed microfractures
BHUA-12	17.45				hJ		30		gr mi		ST						
BHUA-12	17.60				J		25			CN	PR	RF					
BHUA-12	17.93				hJ		25		wh mi		PR						
BHUA-12	18.31				hJ		90		wh mi		UN						
BHUA-12	18.32				V		65		bk and gr mi		UN			2			healed
BHUA-12	18.36				hJ		40		wh mi		PR						
BHUA-12	18.56				hJ		25		wh mi		PR						
BHUA-12	18.62				J		20		gr mi	SN	UN	RF					
BHUA-12	18.79				hJ		30		bk mi		UN						
BHUA-12	18.81				hJ		65		gr mi		UN						
BHUA-12	18.86				hJ		60		bk mi		PR						
BHUA-12	18.93				V		35		bk and gr mi		UN			2			healed
BHUA-12	19.21				V		40		bk mi		PR			1			healed
BHUA-12	19.24				hJ		20		bk mi		PR						1 mm wh alt halo
BHUA-12	19.27				J		0			CN	UN	RF					
BHUA-12	19.29				J		10		gr mi	SN	UN	RF					
BHUA-12	19.30				J		10			CN	ST	RF					
BHUA-12	19.31				hJ		25		bk mi		PR						
BHUA-12	19.32				hJs		35		bk mi		PR						
BHUA-12	19.38				J		50	70	gr mi		IR						healed
BHUA-12	19.42				V		80		bk, or and gr mi	CN	PR	RF		3			angular rock fragments < 10 mm
BHUA-12	19.43				J		10			CN	UN	RF					
BHUA-12	19.44				hJs		50	60			ST						
BHUA-12	19.45				J		10			CN	UN	RF					
BHUA-12	19.46				J		5			CN	PR	RF					
BHUA-12	19.47				J		5			CN	PR	RF					
BHUA-12	19.48				J		5			CN	PR	RF					
BHUA-12	19.49				J		10			CN	UN	RF					
BHUA-12	19.52				J		0			CN	UN	RF					
BHUA-12	19.53				J		0			CN	PR	RF					
BHUA-12	19.54				J		0			CN	PR	RF					
BHUA-12	19.55	19.70			hJs		0	80	gr mi		ST						
BHUA-12	19.57				J		90		gr mi	CT	UN	RF					
BHUA-12	19.63				J		30			CN	UN	RF					
BHUA-12	19.67				V		75		bk and gr mi		PR	RF		4			healed
BHUA-12	19.68				J		25			CN	UN	RF					
BHUA-12	19.70				J		5			CN	ST	RF					
BHUA-12	19.71				J		10			CN	UN	RF					
BHUA-12	19.80				J		5			CN	UN	RF					
BHUA-12	19.88	20.15			hJs		35		gr mi		UN						
BHUA-12	19.92				V		35		gr mi		UN			2			healed
BHUA-12	20.01	20.08			hJs		40		bk mi		PR						
BHUA-12	20.20				V		65		bk and gr mi		UN			3			healed
BHUA-12	20.23				V		22		gr mi		UN			2			healed
BHUA-12	20.24				hJ		25		gr mi		UN						
BHUA-12	20.25				V		70		bk and gr mi		UN			2			healed
BHUA-12	20.31	21.13			hJs		40	50	bk and gr mi		PR					extremely closely	
BHUA-12	20.45				J		55		bk mi	SN	PR	RF					
BHUA-12	20.46				J		0		bk mi	SN	ST						
BHUA-12	20.48				J		0		bk mi	SN	ST						
BHUA-12	20.51				J		20			CN	PR						
BHUA-12	20.70				J		20			CN	ST						
BHUA-12	20.74				hJ		25		wh mi		PR						
BHUA-12	20.75				hJ		45		bk mi		UN						1 mm wh alt halo
BHUA-12	20.78				J		70		gr mi	SN	UN	RF					
BHUA-12	20.81				J		60		bk, or and gr mi	CT	UN						1 mm wh alt halo
BHUA-12	20.83				J		30		bk mi	CT	PR						
BHUA-12	20.86				J		30		bk mi	SN	UN						
BHUA-12	20.88				hJ		40		bk mi		UN						1 mm wh alt halo
BHUA-12	20.90				J		40			CN	PR	RF					
BHUA-12	20.93				J		55		gr mi	CT	PR	RF					
BHUA-12	20.95				J		45			CN	UN	RF					
BHUA-12	20.99				J		35		gr mi	CT	PR	RF					
BHUA-12	21.01				hJ		45		wh mi		PR						
BHUA-12	21.07				hJ		60		bk mi		PR						1 mm wh alt halo
BHUA-12	21.08				hJ		50		bk and gr mi		PR						
BHUA-12	21.10				hJ		50		bk mi		PR						
BHUA-12	21.11				J		25			CN	PR	RF					
BHUA-12	21.13				hJ		0		gr mi		PR						
BHUA-12	21.14				hJ		20		gr mi		PR						
BHUA-12	21.16				J		20			CN	UN	RF					
BHUA-12	21.17				J		30		bk and gr mi	CT	PR	RF					



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

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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
BHUA-12	21.18				hJ		5		gr mi		PR						
BHUA-12	21.19				hJ		0		gr mi		PR						
BHUA-12	21.20				hJ		50		bk mi		PR						
BHUA-12	21.21				hJ		5		gr mi		PR						
BHUA-12	21.24				hJ		35		bk mi		PR						
BHUA-12	21.25				J		15		or and gr mi	CT	PR	SM					
BHUA-12	21.31	21.34			hJs		20	25	bk and gr mi		PR						
BHUA-12	21.34				hJ		5		gr mi		PR						
BHUA-12	21.41				hJ		65		wh mi		UN						
BHUA-12	21.42				hJ		20		gr mi		UN						
BHUA-12	21.43				hJ		70		bk and wh mi		PR						
BHUA-12	21.44				J		15			CN	UN	RF					
BHUA-12	21.50				hJ		70		bk and gr mi		UN						
BHUA-12	21.51				hJ		70		bk and gr mi		UN						
BHUA-12	21.59				J		25		gr mi	CT	UN	RF					
BHUA-12	21.72				J		30			CN	UN	RF					
BHUA-12	21.76				V		80		gr mi		UN			3			healed
BHUA-12	21.81				hJ		80		bk mi		UN						
BHUA-12	21.90				hJ		45		bk and gr mi		UN						
BHUA-12	21.95				J		40			CN	UN	RF					
BHUA-12	21.97				hJ		35		bk mi		UN						
BHUA-12	21.98				hJ		50		wh mi		PR						
BHUA-12	22.03				J		20		gr mi	CT	UN	RF					
BHUA-12	22.04				hJ		65		bk mi		UN						
BHUA-12	22.08				hJ		20		gr mi		PR						
BHUA-12	22.23				hJ		85		bk mi		UN						
BHUA-12	22.29				V		55		gr mi		UN			6			healed
BHUA-12	22.31				hJ		55		gr mi		UN						
BHUA-12	22.34				J		20			CN	UN	RF					
BHUA-12	22.35	22.64			hJs		35		gr mi		UN					extremely closely	healed
BHUA-12	22.53				hJ		25		bk mi		UN						1 mm wh alt halo
BHUA-12	22.54				J		25			CN	PR	RF					
BHUA-12	22.55				J		25			CN	UN	RF					
BHUA-12	22.59				J		15			CN	PR	RF					
BHUA-12	22.61				J		50		gr mi	CT	PR						
BHUA-12	22.65				hJ		35		gr mi		PR						
BHUA-12	22.66				J		15		rd mi	VN	PR						
BHUA-12	22.68				J		20		rd mi	VN	UN						
BHUA-12	22.69	22.76			hJs		25		bk mi		UN						
BHUA-12	22.70				J		30		bk and gr mi	VN	PR	RF					
BHUA-12	22.71				hJ		20		gr mi		PR						
BHUA-12	22.77				hJ		20		gr mi		UN						
BHUA-12	22.78				hJ		30		gr mi		UN						
BHUA-12	22.79				hJ		80		gr mi		UN						
BHUA-12	22.80				hJ		75		gr mi		UN						
BHUA-12	22.81				hJ		5		gr mi		UN						
BHUA-12	22.82				J		40		bk and or mi	CT	UN	RF					
BHUA-12	22.86	23.16			hJs		20	50	gr mi		UN						
BHUA-12	22.91				V		40		gr mi		UN			3			healed
BHUA-12	22.97				hJ		70		gr mi		UN						
BHUA-12	23.01				J		25		gr mi	SN	UN	RF					
BHUA-12	23.05				J		30			CN	UN	RF					
BHUA-12	23.13				J		65		bk and gr mi	CT	UN	RF					
BHUA-12	23.24				hJ		20		gr mi		UN						
BHUA-12	23.25				hJ		15		gr mi		PR						
BHUA-12	23.29				J		25		gr mi	SN	UN	RF					
BHUA-12	23.30				hJ		30		gr mi		UN						
BHUA-12	23.31				V		25		gr mi		UN			2			healed
BHUA-12	23.32				hJ		30		gr mi		UN						
BHUA-12	23.33				hJ		40		gr mi		UN						
BHUA-12	23.37				hJ		30		gr mi		UN						
BHUA-12	23.40				hJ		20		gr mi		UN						
BHUA-12	23.44				hJ		20		gr mi		UN						
BHUA-12	23.47				hJ		35		gr mi		UN						
BHUA-12	23.48				hJ		30		gr mi		UN						
BHUA-12	23.51				J		35		or mi	CT	UN	RF					
BHUA-12	23.54				hJ		40		wh mi		PR						
BHUA-12	23.55				hJ		40		gr mi		UN						
BHUA-12	23.56				hJ		45		gr mi		UN						
BHUA-12	23.59				hJ		45		gr mi		ST						
BHUA-12	23.61				hJ		30		gr mi		ST						
BHUA-12	23.63				hJ		50		gr mi		UN						
BHUA-12	23.66				hJ		30		gr and gy mi		UN						
BHUA-12	23.68				V		30		gr and gy mi		PR						
BHUA-12	23.70				V		30		gr mi		PR			1			healed
BHUA-12	23.75				hJ		50		gr mi		PR						
BHUA-12	23.76				V		35		gr and gy mi		UN			1			healed
BHUA-12	23.78				hJ		10		gr mi		UN						
BHUA-12	23.89				hJ		40		gr mi		PR						



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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
BHUA-12	23.91				J		50		gr mi	CN	PR	RF					
BHUA-12	23.92				hJ		50		gr mi		UN						
BHUA-12	23.96				V		80		pl gr mi		UN			2			healed
BHUA-12	23.99				hJ		50		gr mi		UN						
BHUA-12	24.00				hJ		30		gr mi		UN						
BHUA-12	24.02				V		80		wh mi		UN			1			healed
BHUA-12	24.04				hJ		50		gr mi		UN						
BHUA-12	24.10				hJ		40		gr mi		UN						
BHUA-12	24.12				hJ		40		gr mi		PR						
BHUA-12	24.15				hJ		30		gr mi		PR						
BHUA-12	24.16				hJ		75		gr mi		UN						
BHUA-12	24.17				hJ		50		gr mi		UN						
BHUA-12	24.18				hJ		50		gr mi		UN						
BHUA-12	24.20				hJ		50		gr mi		UN						
BHUA-12	24.21				V		85		bk mi		UN			2			healed
BHUA-12	24.22				hJ		45		gr mi		UN						
BHUA-12	24.23				hJ		50		gr mi		UN						
BHUA-12	24.24				J		70		bk and gr mi	CT	PR	RF					
BHUA-12	24.30				J		10			CN	UN	RF					
BHUA-12	24.33				hJ		50		gr and wh mi		UN						
BHUA-12	24.34				hJ		70		gr mi		UN						
BHUA-12	24.36				hJ		55		bk and or mi		UN						
BHUA-12	24.39				hJ		55		wh mi		UN						
BHUA-12	24.40				hJ		90		wh mi		UN						
BHUA-12	24.43				hJ		50		or mi		UN						
BHUA-12	24.46				hJ		30		or mi		UN						
BHUA-12	24.55				J		25			CN	UN	RF					
BHUA-12	24.57				hJ		55		bk and or mi		UN						
BHUA-12	24.59				hJ		20		wh mi		UN						
BHUA-12	24.60				V		60		bk and or mi		UN						
BHUA-12	24.61				hJ		40		or mi		UN						
BHUA-12	24.65				hJ		45		bk mi		UN						
BHUA-12	24.73				hJ		70		bk and or mi		UN						
BHUA-12	24.79				hJ		55		bk and or mi		UN						
BHUA-12	24.80				hJ		45		bk mi		UN						
BHUA-12	24.81				J		10			CN	ST	RF					
BHUA-12	24.86				hJ		60		bk mi		UN						
BHUA-12	24.88				hJ		60		or mi		UN						
BHUA-12	25.07				hJ		50		bk mi		UN						
BHUA-12	25.08				hJ		65		bk mi		UN						
BHUA-12	25.15				hJ		50		bk mi		UN						
BHUA-12	25.21				hJ		75		wh mi		UN						
BHUA-12	25.23				hJ		40		gr mi		UN						
BHUA-12	25.26				hJ		60		gr mi		UN						
BHUA-12	25.33				J		85		bk mi	VN	UN	SM					
BHUA-12	25.36				J		50		bk and gr mi	CT	UN	RF					
BHUA-12	25.37				hJ		75		or mi		UN						
BHUA-12	25.38				hJ		85		bk mi		UN						
BHUA-12	25.39				hJ		65		or mi		PR						
BHUA-12	25.40				hJ		10		bk and or mi		UN						
BHUA-12	25.41				J		60		or mi		PR	SM					
BHUA-12	25.42				hJ		65		bk mi		UN						
BHUA-12	25.43				J		60		bk and or mi		UN	RF					
BHUA-12	25.47				hJ		65		gr mi		UN						
BHUA-12	25.51				V		75		bk and gr mi		UN			2			healed
BHUA-12	25.58				hJ		60		bk and gr mi		UN						
BHUA-12	25.61				hJ		70		bk and gr mi		UN						
BHUA-12	25.63				hJ		70		bk and gr mi		PR						
BHUA-12	25.64				hJ		70		bk and gr mi		UN						
BHUA-12	25.67				J		10		bk and or mi	SN	PR	RF					
BHUA-12	25.68				hJ		30		gr mi		UN						
BHUA-12	25.69				hJ		75		gr mi		PR						
BHUA-12	25.71				hJ		60		bk mi		UN						
BHUA-12	25.73				hJ		30		bk mi		UN						
BHUA-12	25.75				hJ		60		bk mi		UN						
BHUA-12	25.77				hJ		50		bk mi		PR						
BHUA-12	25.78				hJ		35		gr mi		UN						
BHUA-12	25.79				J		40		bk and gr mi	SN	UN	RF					
BHUA-12	25.80				hJ		5		wh mi		UN						
BHUA-12	25.81				hJ		60		gr mi		UN						
BHUA-12	25.82				hJ		45		gr mi		UN						
BHUA-12	25.84				hJ		70		gr mi		UN						
BHUA-12	25.86				hJ		40		gr mi		UN						
BHUA-12	25.87				hJ		40		gr mi		UN						
BHUA-12	25.88				hJ		80		bk and gr mi		UN						
BHUA-12	25.91				hJ		30		gr mi		UN						
BHUA-12	25.93				hJ		80		gr mi		UN						
BHUA-12	25.99				hJ		90		bk and gr mi		UN						
BHUA-12	26.00				hJ		60		bk mi		PR						



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

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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
BHUA-12	26.02				hJ		85		bk mi		UN						
BHUA-12	26.07				hJ		70		wh mi		UN						
BHUA-12	26.10				V		90		bk mi		UN			2			healed
BHUA-12	26.11				J		45		bk mi	SN	ST	RF					
BHUA-12	26.14				hJ		60		bk mi		UN						
BHUA-12	26.26				hJ		85		bk mi		UN						
BHUA-12	26.28				J		45		bk and gr mi	CT	UN	RF					
BHUA-12	26.34				hJ		60		wh mi		UN						
BHUA-12	26.36				V		90		bk and or mi		UN			1			healed
BHUA-12	26.42				V		65		bk an wh mi		UN			2			healed
BHUA-12	26.46				hJ		80		bk mi		UN						
BHUA-12	26.53				hJ		75		rd mi		UN						
BHUA-12	26.55				J		45		gr mi	SN	UN						
BHUA-12	26.56				J		35			CN	UN						
BHUA-12	26.58				hJ		75		wh mi		UN						
BHUA-12	26.59				hJ		40		rd mi		UN						
BHUA-12	26.61				hJ		70		gr mi		UN						
BHUA-12	26.82				V		70		gr and or mi		PR						
BHUA-12	26.86				hJ		50		bk mi		UN						
BHUA-12	26.87				hJ		60		wh mi		UN						
BHUA-12	27.04				J		70		bk, gr and rd mi	CT	UN						
BHUA-12	27.07				J		0		bk mi	SN	ST						
BHUA-12	27.08				hJ		75		bk and rd mi		UN						
BHUA-12	27.09				J		50		gr and wh mi	CT	UN						
BHUA-12	27.25				hJ		90		bk and gr mi		UN						
BHUA-12	27.26				V		80		bk mi		PR			2			healed
BHUA-12	27.27				V		60		bk mi		PR			2			healed
BHUA-12	27.30	27.36			hJs		60	65	gr mi		UN						
BHUA-12	27.32				hJ		0		or mi		UN						
BHUA-12	27.36				hJ		90		bk mi		UN						
BHUA-12	27.37				hJ		60		bk mi		PR						
BHUA-12	27.42				hJ		80		bk mi		UN						
BHUA-12	27.43				V		90		bk and or mi		UN			2			healed
BHUA-12	27.47				hJ		90		bk mi		PR						1 mm wh alt halo
BHUA-12	27.49				hJ		90		bk and or mi		UN						
BHUA-12	27.55				hJ		65		bk and or mi		PR						
BHUA-12	27.58				V		65		bk and gr mi		UN			4			healed
BHUA-12	27.59				hJ		30		bk mi		UN						
BHUA-12	27.60				hJ		35		bk and gr mi		UN						
BHUA-12	27.62				hJ		60		bk mi		PR						
BHUA-12	27.63				hJ		40		bk mi		UN						
BHUA-12	27.64				hJ		90		wh mi		UN						
BHUA-12	27.68				hJ		50		gr mi		UN						
BHUA-12	27.69				hJ		80		wh mi		UN						
BHUA-12	27.88				V		80		or and wh mi		UN			2			healed
BHUA-12	27.92				hJ		55		gr mi		UN						
BHUA-12	27.93				hJ		90		wh mi		UN						
BHUA-12	27.95				hJ		55		bk and gr mi		PR						
BHUA-12	27.96				hJ		90		wh mi		PR						
BHUA-12	28.02				hJ		50		wh mi		UN						
BHUA-12	28.04				hJ		75		bk and gr mi		UN						
BHUA-12	28.06				V		90		gr mi		IR			3			healed
BHUA-12	28.13				hJ		55		gr mi		PR						
BHUA-12	28.16				hJ		50		gr mi		PR						
BHUA-12	28.20				V		85		gr mi		UN			2			healed
BHUA-12	28.38				J		20			CN	ST	RF					
BHUA-12	28.39				J		60			CN	UN	RF					
BHUA-12	28.41				V		90		bk and wh mi		UN						2 mm wh alt halo
BHUA-12	28.42				J		10			CN	UN	RF					
BHUA-12	28.44				hJ		65		wh mi		UN						
BHUA-12	28.46				hJ		90		wh mi		UN						
BHUA-12	28.47				J		80			CN	UN	RF					
BHUA-12	28.48				hJ		60		wh mi		UN						
BHUA-12	28.49				hJ		65		wh mi		UN						
BHUA-12	28.50				hJ		35		wh mi		UN						
BHUA-12	28.51				V		30		bk mi		UN			2			healed
BHUA-12	28.52				hJ		90		wh mi		UN						
BHUA-12	28.53				hJ		90		wh mi		UN						
BHUA-12	28.54				hJ		30		bk mi		UN						
BHUA-12	28.56				hJ		60		bk mi		UN						
BHUA-12	28.59				hJ		90		wh mi		UN						
BHUA-12	28.60				V		20		bk mi		UN			4			healed
BHUA-12	28.61				hJ		50		or and wh mi		PR						
BHUA-12	28.62				hJ		65		wh mi		UN						
BHUA-12	28.63				hJ		90		vk and wh mi		UN						
BHUA-12	28.68				hJ		65		bk mi		UN						
BHUA-12	28.76				hJ		70		bk mi		UN						
BHUA-12	28.81				hJ		35		bk and wh mi		UN						
BHUA-12	28.82				hJ		90		bk mi		UN						



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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
BHUA-12	28.83				V		85		bk and wh mi		UN						
BHUA-12	28.84				hJ		35		wh mi		UN						
BHUA-12	28.90				hJ		60		bk and or mi		UN						
BHUA-12	28.95				J		0			CN	PR	RF					
BHUA-12	28.98				J		70			CN	UN	RF					
BHUA-12	29.00				J		30			CN	UN	RF					
BHUA-12	29.05				hJ		70		bk and wh mi		UN						
BHUA-12	29.09				hJ		50		wh and gr mi		UN						
BHUA-12	29.13				hJ		70		gr mi		UN						
BHUA-12	29.16				hJ		70		gr mi		UN						
BHUA-12	29.18				hJ		40		gr mi		PR						
BHUA-12	29.19				hJ		50		gr mi		PR						
BHUA-12	29.20				hJ		75		bk mi		UN						
BHUA-12	29.23				hJ		90		gr mi		UN						
BHUA-12	29.26				hJ		70		bk and gr mi		UN						
BHUA-12	29.30				hJ		30		bk mi		PR						
BHUA-12	29.31				hJ		80		wh mi		UN						
BHUA-12	29.33				hJ		50		bk mi		UN						
BHUA-12	29.34				hJ		90		wh mi		UN						
BHUA-12	29.41				hJ		85		bk mi		UN						
BHUA-12	29.42				V		80		bk mi		UN			2			healed
BHUA-12	29.43				hJ		85		bk mi		UN						
BHUA-12	29.47				V		75		bk mi		UN			2			healed
BHUA-12	29.63				hJ		80		wh mi		UN						
BHUA-12	29.69				hJ		0		bk and wh mi		UN						
BHUA-12	29.86				hJ		20		wh mi		UN						
BHUA-12	29.87				V		80		bk and or mi		UN						
BHUA-12	29.88				hJ		70		bk mi		UN						
BHUA-12	29.91				hJ		90		wh mi		UN						
BHUA-12	29.97				V		85		bk, or and wh mi		ST						
BHUA-12	30.01				J		45		or mi	VN	ST	RF					
BHUA-12	30.03				J		60		bk and or mi	VN	ST	RF					
BHUA-12	30.05				hJ		70		or mi		UN						
BHUA-12	30.06				V		85		or and wh mi		UN						
BHUA-12	30.13				hJ		30		gr mi		PR						
BHUA-12	30.14				hJ		60		bk and or mi		UN						
BHUA-12	30.19				J		40		bk mi		PR						
BHUA-12	30.22				V		80		bk mi		PR			2			healed
BHUA-12	30.23				hJ		85		wh mi		UN						
BHUA-12	30.24				hJ		60		wh mi		UN						
BHUA-12	30.25				hJ		40		bk mi		UN						
BHUA-12	30.28				J		55		bk mi	CT	UN	RF					
BHUA-12	30.29				V		10		bk mi		UN			1			healed
BHUA-12	30.30				hJ		70		bk and wh mi		UN						
BHUA-12	30.36				hJ		85		wh mi		UN						
BHUA-12	30.37				hJ		75		bk and wh mi		UN						
BHUA-12	30.39				hJ		75		bk mi		UN						
BHUA-12	30.41				hJ		75		bk mi		UN						
BHUA-12	30.53				J		20			CN	ST	RF					
BHUA-12	30.59				hJ		10		bk mi		UN						
BHUA-12	30.60				V		80		wh and gr mi		UN			2			healed
BHUA-12	30.73				hJ		30		bk mi		UN						
BHUA-12	30.75				hJ		60		bk mi		UN						
BHUA-12	30.78				hJ		55		bk mi		UN						
BHUA-12	30.83				J		10			CN	ST	RF					
BHUA-12	30.85				hJ		20		bk and or mi		PR						
BHUA-12	30.86				hJ		55		bk mi		PR						
BHUA-12	30.87				hJ		40		bk mi		UN						
BHUA-12	30.93				hJ		60		bk and or mi		UN						
BHUA-12	30.94				hJ		85		bk and or mi		UN						
BHUA-12	30.98				hJ		80		bk mi		PR						
BHUA-12	31.06				hJ		70		bk and or mi		PR						
BHUA-12	31.10				hJ		45		wh mi		UN						
BHUA-12	31.13				hJ		80		bk mi		UN						
BHUA-12	31.15				hJ		80		bk mi		UN						
BHUA-12	31.16				V		70		bk and gr mi		UN			2			healed
BHUA-12	31.19				V		90		bk and or mi		UN			2			healed
BHUA-12	31.27				hJ		80		bk mi		UN						1 mm wh alt halo
BHUA-12	31.31				hJ		90		bk mi		UN						
BHUA-12	31.32				V		90		bk and gr mi		UN			2			healed
BHUA-12	31.33				hJ		90		wh mi								
BHUA-12	31.34				hJ		90		wh mi								
BHUA-12	31.35				hJ		0		bk mi		UN						
BHUA-12	31.40				hJ		70		bk mi		UN						
BHUA-12	31.54				hJ		90		bk and wh mi		UN						
BHUA-12	31.61				J		40		bk mi	VN	UN	RF					
BHUA-12	31.69				V		80		or mi								
BHUA-12	31.79				hJ		90		wh mi		UN						
BHUA-12	31.81				hJ		50		bk and gy mi		UN						



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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
BHUA-12	31.82				hJ		45		bk mi		UN						
BHUA-12	31.85				J		30		wh and gy mi	CT							
BHUA-12	31.86				hJ		55		wh mi		UN						
BHUA-12	31.92				hJ		90		gr mi		UN						
BHUA-12	31.98				V		90		gr mi		UN			1			healed
BHUA-12	32.01				J		30			CN	UN						
BHUA-12	32.05				hJ		70		wh mi								
BHUA-12	32.10				hJ		50		gr mi								
BHUA-12	32.11				hJ		30		bk mi		UN						
BHUA-12	32.13				hJ		50		bk mi		UN						
BHUA-12	32.14				hJ		30		bk mi		UN						
BHUA-12	32.22				hJ		30		bk mi		UN						
BHUA-12	32.25				hJ		60		rd mi		UN						
BHUA-12	32.26				hJ		20		gy mi		UN						
BHUA-12	32.30				J		25			CN	PR	RF					
BHUA-12	32.31				hJ		90		wh mi		UN						
BHUA-12	32.32				hJ		25		bk mi		UN						
BHUA-12	32.41				hJ		85		wh mi		UN						
BHUA-12	32.43				hJ		35		wh mi		UN						
BHUA-12	32.60				hJ		65		wh mi		UN						
BHUA-12	32.62				hJ		80		bk mi		UN						
BHUA-12	32.63				hJ		90		bk and gr mi		UN						
BHUA-12	32.69				hJ		80		bk and gr mi		UN						
BHUA-12	32.70				hJ		65		wh mi		UN						
BHUA-12	32.77				V		90		wh mi		UN						
BHUA-12	32.84				V		55		wh and gr mi		UN						
BHUA-12	32.89				hJ		45		wh and gr mi		UN						
BHUA-12	33.00				hJ		80		wh and gr mi		UN						
BHUA-12	33.02				J		35			CN	UN	RF					
BHUA-12	33.19				J		0			SN	PR	RF					
BHUA-12	33.21				hJ		30		rd mi		UN						
BHUA-12	33.22				V		80		bk and wh mi		UN			1			healed
BHUA-12	33.23				hJ		10		rd mi		UN						
BHUA-12	33.24				hJ		75		rd mi		UN						
BHUA-12	33.25				hJ		70		wh mi		UN						
BHUA-12	33.36	33.45			J		50			SN	PR	RF				very closely	
BHUA-12	33.65				J		65		bk mi	SN	PR	RF					
BHUA-12	33.76				J		55	65		SN	ST	RF					
BHUA-12	33.83				J		15			SN	UN	RF					
BHUA-12	33.97				J		35			CN	UN	RF					
BHUA-12	34.68				hJ		30				PR						
BHUA-12	34.70				hJ		15				PR						
BHUA-12	34.71				hJ		55		dk gy mi		PR						
BHUA-12	34.71	34.72			hJ		70				PR					extremely closely	x2
BHUA-12	34.80				hJ		80				PR						
BHUA-12	34.82				hJ		45				PR						
BHUA-12	34.83				hJ		50				PR						
BHUA-12	34.83				hJ		65				PR						
BHUA-12	34.84				hJ		10				PR					extremely closely	x2
BHUA-12	34.88				hJ		5				PR						
BHUA-12	34.92				hJ		20				PR						
BHUA-12	35.00	35.07			hJ		70				PR					very closely	x3
BHUA-12	36.03				J		65			CN	UN	SM					
BHUA-12	36.50	36.51			V		35		wh mi		UN			3			x2
BHUA-12	36.57				V		40		wh mi		UN			2			
BHUA-12	36.71				HB												
BHUA-12	36.75				J		60				PR	SM					
BHUA-12	36.79				V		80		wh mi		UN			5			
BHUA-12	36.81				V		40		wh mi		UN			3			
BHUA-12	36.84	36.86			V		20		wh mi		UN			4			x2
BHUA-12	37.03				hJ		45				PR						
BHUA-12	37.10				V		40		wh mi		UN			4			
BHUA-12	37.60				hJ		40				PR						
BHUA-12	37.66				V		70		wh mi		PR			3			
BHUA-12	37.72				HB												
BHUA-12	38.04				hJ		40				PR						
BHUA-12	38.30				J		70			CN	PR	RF					
BHUA-12	38.48				V		40		bk mi		PR			3			
BHUA-12	38.57				J		30				PR	SM					
BHUA-12	38.59						40			VN							
BHUA-12	38.60	38.64			hJ		65				PR						x6
BHUA-12	38.65				hJ		90				PR						
BHUA-12	38.66				hJ		20				PR						
BHUA-12	38.72				HB												
BHUA-12	38.75	38.77			hJ		60				PR						x2
BHUA-12	38.79				J		45			CN	PR						
BHUA-12	38.90	38.93			hJ		20				PR						x3
BHUA-12	38.95	38.96			hJ		60				PR						x2
BHUA-12	38.96	39.07			hJ		70				PR						x2



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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
BHUA-12	39.01				J		60			CN	ST	RF					
BHUA-12	39.12				hJ		45				PR						
BHUA-12	39.14				hJ		90				PR						
BHUA-12	39.22	39.25			hJ		60				PR						x2
BHUA-12	39.30				V		45				IR						
BHUA-12	39.33				hJ		80				PR						
BHUA-12	39.34				hJ		90				ST						
BHUA-12	39.35				hJ		75				ST						
BHUA-12	39.37				J		20			CN	PR	RF					
BHUA-12	39.40	39.42			hJ		20				UN						
BHUA-12	39.42				hJ		80				PR						
BHUA-12	39.47				hJ		30				UN						
BHUA-12	39.53				V		20		wh mi		ST			3			
BHUA-12	39.55				hJ		65				ST						
BHUA-12	39.57				hJ		35				PR						
BHUA-12	39.59				hJ		45				PR						
BHUA-12	39.61				V		30		wh mi		ST			3			
BHUA-12	39.63				V		50		wh mi		PR			3			
BHUA-12	39.64				V		45		wh mi		PR			2			
BHUA-12	39.65				hJ		60				PR						
BHUA-12	39.65				hJ		85				PR						
BHUA-12	39.67				hJ		20				PR						
BHUA-12	39.72				HB												
BHUA-12	39.75				hJ		60				PR						
BHUA-12	39.82				hJ		40				PR						
BHUA-12	39.84				V		80		wh mi		IR			3			
BHUA-12	39.85				V		55		wh mi		IR			3			
BHUA-12	39.86				V		20		wh mi		UN			2			
BHUA-12	39.92				hJ		50				PR						x2
BHUA-12	39.96	39.99			hJ		40				PR						x2
BHUA-12	40.01	40.05			V		30		wh mi		PR			2			x3
BHUA-12	40.03				hJ		10				UN						
BHUA-12	40.05	40.09			hJ		50				PR						x4
BHUA-12	40.19	40.20			hJ		70				PR						x2
BHUA-12	40.22				J		50			CN	UN						
BHUA-12	40.29				V	x2	30		quartz		IR			70			
BHUA-12	41.75				hJ		85	90	wh mi		PR						
BHUA-12	41.78				hJ		35		wh mi		PR						
BHUA-12	41.86				hJ		35		wh mi		PR						
BHUA-12	41.87				hJ		20		wh mi		PR						
BHUA-12	41.90				hJ		35		wh mi		PR						
BHUA-12	41.91				hJ		30		wh mi		PR						
BHUA-12	41.92				hJ		35		wh mi		PR						
BHUA-12	41.96				hJ		35		wh mi		PR						
BHUA-12	42.09				hJ		40		wh mi		PR						
BHUA-12	42.14				hJ		35		wh mi		PR						
BHUA-12	42.16				hJ		50		wh mi		PR						
BHUA-12	42.19				hJ		50		wh mi		PR						
BHUA-12	42.22				hJ		40		wh mi		PR						
BHUA-12	42.24				hJ		70		wh mi		PR						
BHUA-12	42.29				J		50			CN	PR	RF					
BHUA-12	42.31				V		45		qtz, pyrite pieces < 1 mm		PR			1			
BHUA-12	42.42				hJ		45		wh mi		PR						
BHUA-12	42.43				J		50			CN	PR	RF					
BHUA-12	42.47				hJ		85		wh mi		PR						disturbed by drilling
BHUA-12	42.61				hJ		55		wh mi		PR						
BHUA-12	42.67				hJ		85		wh mi		PR						
BHUA-12	42.73	42.79			hJs		40		wh mi		PR					extremely closely	disturbed when cutting core
BHUA-12	42.82				J		30			CN	PR	RF					
BHUA-12	42.83				hJ		40		wh mi		PR						
BHUA-12	42.85				hJ		20		wh mi		PR						
BHUA-12	42.89				hJ		40		wh mi		PR						
BHUA-12	42.91				J		30			CN	PR	RF					
BHUA-12	43.01				hJ		15		wh mi		PR						
BHUA-12	43.02				hJ		70		wh mi		PR						
BHUA-12	43.10				hJ		75		wh mi		PR						
BHUA-12	43.13				hJ		25		wh mi		PR						
BHUA-12	43.42				hJ		5		wh mi		PR						
BHUA-12	43.52				hJ		45		wh mi		PR						
BHUA-12	43.63				J		15			CN	PR	RF					
BHUA-12	43.71				hJ		50		wh mi		PR						
BHUA-12	43.85				hJ		10		wh mi		PR						
BHUA-12	43.94				hJ		5		wh mi		PR						
BHUA-12	44.03				hJ		5		wh mi		PR						
BHUA-12	44.10				hJ		70		wh mi		PR						
BHUA-12	44.14				J		10			CN	PR	RF					
BHUA-12	44.27				hJ		70		wh mi		PR						
BHUA-12	44.38				hJ		60		wh mi		PR						
BHUA-12	44.49				hJ		60		wh mi		PR						



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	44.56				J		70		wh mi	VN	PR	RF					
BHUA-12	44.81	44.84			hJs		65		wh mi		PR					very closely	
BHUA-12	44.86				hJ		70		wh mi		PR						
BHUA-12	45.03				V		60		wh to clear mi		PR						
BHUA-12	45.40				J		30			CN	PR	RF					
BHUA-12	45.48				hJ		70		wh mi		PR						
BHUA-12	45.56				J		65			CN	PR	RF					
BHUA-12	45.79				hJ		65				PR						
BHUA-12	46.06				hJ		80		wh mi		PR						disturbed due to breaking off core run
BHUA-12	46.08				hJ		10		wh mi		PR						disturbed due to breaking off core run
BHUA-12	46.10				hJ		25		wh mi		PR						
BHUA-12	46.13	46.17			hJs		35		wh mi		PR					very closely	disturbed due to breaking off core run
BHUA-12	46.36				hJ		85		wh mi		PR						
BHUA-12	46.53				hJ		80		wh mi		PR						disturbed cutting core run
BHUA-12	46.63				hJ		10		or and wh mi		PR						disturbed cutting core run
BHUA-12	46.64				hJ		80		bk mi		PR						
BHUA-12	46.67				hJ		75		bk mi		PR						
BHUA-12	46.74				hJ		85		wh mi		PR						
BHUA-12	46.80				hJ		85		wh mi		PR						
BHUA-12	46.91				J		15			CN	PR	RF					
BHUA-12	46.94				J		55			CN	PR	RF					
BHUA-12	46.97				J		15			CN	PR	RF					
BHUA-12	47.08				J		5			CN	PR	RF					
BHUA-12	47.33				hJ		70		bk mi		PR						
BHUA-12	47.35				hJ		50		bk mi		PR						
BHUA-12	47.48	47.60			hJs		40		wh mi		PR					closely	
BHUA-12	47.65				J		45			CN	PR	RF					
BHUA-12	48.31				J		65			CN	PR	RF					
BHUA-12	48.55				hJ		25		gy mi		PR						
BHUA-12	48.57				J		30			CN	PR	RF					
BHUA-12	48.98				J		10			CN	PR	RF					
BHUA-12	49.39				J		75		wh and br mi	VN	PR	SM					
BHUA-12	49.56				hJ		85		gy mi		PR						
BHUA-12	49.77				hJ		45		gy mi		PR						
BHUA-12	49.99				J		25			CN	PR	RF					
BHUA-12	50.33				hJ		55		gr mi		PR						
BHUA-12	50.35				hJ		65		gr mi		PR						
BHUA-12	50.39				hJ		25		gr gy mi		PR						
BHUA-12	50.44				J		45			CN	PR	RF					
BHUA-12	50.48	50.50			hJ		35		gy mi		PR						x2
BHUA-12	50.55				J		55		gr mi	SN-VE	PR	SM					
BHUA-12	50.60				hJ		85		gy mi		PR						
BHUA-12	50.66				J		75			CN	PR	RF					
BHUA-12	50.75				hJ		40		gy mi		PR						
BHUA-12	50.78				hJ		45		gy mi		PR						
BHUA-12	50.82				hJ		50		gy mi		PR						
BHUA-12	50.87				hJ		50		wh mi		PR						
BHUA-12	50.94				hJ		45		wh mi		PR						
BHUA-12	50.98				hJ		50		dk gy mi		PR						
BHUA-12	51.01				hJ		80	85	wh and gy mi		PR						
BHUA-12	51.08				hJ		50		gy mi		PR						
BHUA-12	51.15				hJ		55		gr mi		PR						
BHUA-12	51.22				hJ		55		dk gy mi		PR						
BHUA-12	51.43				J		20			CN	PR	RF					
BHUA-12	51.82				J		35			CN	PR	RF					
BHUA-12	51.92				hJ		50		gy mi		PR						
BHUA-12	52.00				hJ		45		gy mi		PR						
BHUA-12	52.10				hJ		40		gy mi		PR						
BHUA-12	52.16				hJ		30		gy mi		PR						
BHUA-12	52.22				hJ		30		gy mi		PR						
BHUA-12	52.40				hJ		80		gy mi		PR						
BHUA-12	52.46				J		35			CN	PR	RF					
BHUA-12	52.52				hJ		35		gy mi		PR						
BHUA-12	52.54				hJ		45		gy mi		PR						
BHUA-12	52.62				J		34			CN	PR-UN	RF					
BHUA-12	52.71				hJ		75		gy mi		PR						disturbed by drilling/handling
BHUA-12	52.81				hJ		75		gy mi		PR						
BHUA-12	52.85				hJ		35		gy mi		PR						
BHUA-12	52.91				hJ		60		gy mi		PR						
BHUA-12	52.96				hJ		70		gy mi		CU						
BHUA-12	52.97				hJ		60		gy mi		PR						
BHUA-12	52.98				hJ		65		gy mi		PR						
BHUA-12	53.00				J		70		pl gr gy mi	SN-VN	PR	RF					
BHUA-12	53.05				J		60		pl gr gy mi	SN-VN	PR	RF					
BHUA-12	53.06				hJ		50		gy mi		UN						
BHUA-12	53.08				hJ		40		gy mi		PR						
BHUA-12	53.09				hJ		50		gy mi		PR						
BHUA-12	53.11				hJ		85		gy mi		PR						
BHUA-12	53.14				J		60		gr gy mi	SN-VN	PR	RF					



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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
BHUA-12	53.24				J		45		gr gy mi	SN-VN	PR	RF					
BHUA-12	53.39				J		40		gy mi	SN-VN	PR	RF					
BHUA-12	53.43				hJ		85		gy mi		PR-UN						
BHUA-12	53.47				hJ		85		gy mi		PR-UN						
BHUA-12	53.54				J		40		gy mi	SN-VN	CU	RF					
BHUA-12	53.62				J		45		gy mi	SN-VN	ST	RF					
BHUA-12	53.66				J		55		gy mi	SN-VN	PR	RF					
BHUA-12	53.74				hJ		55		gy mi		PR						disturbed during drilling/handling
BHUA-12	53.80				hJ		65		gy mi		PR						
BHUA-12	53.83				hJ		65		gy mi		PR						
BHUA-12	53.84				hJ		85		gy mi		PR						
BHUA-12	53.89				hJ		70		gy mi		PR						
BHUA-12	53.96				hJ		75		gy mi		UN						
BHUA-12	53.99	54.04			hJs		60		gr gy mi		PR						x3, thin sections disturbed by drilling
BHUA-12	54.15				J		60			CN	PR-UN	RF					
BHUA-12	54.24				hJ		35		gy mi		PR						
BHUA-12	54.25				hJ		60		gy mi		PR						
BHUA-12	54.26				J		75		gr gy mi	SN-VN	PR-UN						
BHUA-12	54.27				hJ		50		gy mi		PR						
BHUA-12	54.28				hJ		35		gy mi		PR						
BHUA-12	54.34				hJ		85		gy mi		PR-UN						
BHUA-12	54.37				hJ		50		gy mi		PR						disturbed by drilling
BHUA-12	54.38				J		60		gy mi	SN-VN	PR						
BHUA-12	54.45				hJ		55		gy mi		PR						
BHUA-12	54.48				hJ		85		gy mi		PR						
BHUA-12	54.51				hJ		25		gy mi		PR						disturbed by drillers
BHUA-12	54.54				hJ		45		gy mi		PR						disturbed by drillers
BHUA-12	54.56	54.59			Js		55		gr gy mi	SN-VN	PR	RF					x2
BHUA-12	54.62				J		60		gr gy mi	SN-VN	PR	RF					
BHUA-12	54.67	54.76			Js		50		gr gy mi	SN-VN	PR	RF					x2
BHUA-12	54.79				J		85		gr gy mi	SN-VN	PR	RF					
BHUA-12	54.81	54.84			Js		5			CN	ST	RF					x2
BHUA-12	54.84				J		40		gr gy mi	VN	PR	RF					
BHUA-12	54.89				J		35		gr gy mi	SN-VN	PR	RF					
BHUA-12	54.93				V		80		gr gy, bk mi		PR-UN			10			
BHUA-12	54.97				J		50		gr gy mi	SN-VN	PR	RF					
BHUA-12	54.98				V		45		gr gy mi		PR			7			
BHUA-12	55.04				hJ		35		gr mi		PR						
BHUA-12	55.13	55.19			J		45		gr mi	SN-VN	PR	RF					x2
BHUA-12	55.15				J		50		gr mi	SN-VN	PR	RF					
BHUA-12	55.26				hJ		75		gr mi		PR						
BHUA-12	55.28				J		85		gr mi	SN-VN	PR	RF					
BHUA-12	55.29				hJ		80		gr mi		PR-UN						disturbed by drilling
BHUA-12	55.34				J		45		gr mi	SN-VN	PR	RF					
BHUA-12	55.35				hJ		30		gr mi		PR						
BHUA-12	55.39				V		25		pl gy mi		PR			2			
BHUA-12	55.51				J		40		gr mi	SN-VN	PR	RF					
BHUA-12	55.64				J		50		gr gy mi	SN-VN	PR	RF					
BHUA-12	55.65				hJ		50		gr mi		PR						
BHUA-12	55.67				hJ		30		gr mi		PR						
BHUA-12	55.71				J		40		gr mi	SN	PR	RF					
BHUA-12	55.76				hJ		70		gr mi		PR						
BHUA-12	55.78				J		70		bk mi	VN-CT	PR	SM-RF					
BHUA-12	55.80				J		15			CN	PR	RF					
BHUA-12	55.81				V		85		gy mi		CU			2			
BHUA-12	55.85				J		75		bk mi	VN-CT	PR	SM-RF					
BHUA-12	55.87				J		25			CN	UN	RF					
BHUA-12	55.90				J		10		bk mi	SN	UN	RF					
BHUA-12	55.93				J		70		gr mi	SN-VN	PR	RF					
BHUA-12	55.97				J		85		or br mi	SN	PR	SM					
BHUA-12	55.98				hJ		35		gy br mi		PR						
BHUA-12	55.99				hJ		85		gy br mi		PR						
BHUA-12	56.03				hJ		85		gr mi		PR						
BHUA-12	56.04				hJ		30		or br mi		PR						
BHUA-12	56.11				J		45			CN	PR	SM					
BHUA-12	56.13				J		85			CN	PR	SM					
BHUA-12	56.14				V		40		quartz		PR-UN						
BHUA-12	56.16				V		85		quartz		PR-UN						
BHUA-12	56.18				J		45		gr mi	VN-CT	PR	SM-RF					
BHUA-12	56.19				J		35			CN	PR	SM					
BHUA-12	56.20				J		85			CN	PR	SM					
BHUA-12	56.23	56.29			J		65			CN	UN	SM					x3
BHUA-12	56.35				hJ		80		gr mi		PR						
BHUA-12	56.39				hJ		40		wh mi		PR						
BHUA-12	56.47				hJ		55		wh mi		PR						
BHUA-12	56.55				J		5			CN	UN	RF					
BHUA-12	56.58				J		75			CN	PR	RF					
BHUA-12	56.99				J		65		wh mi		PR	SM		5			
BHUA-12	57.15	57.34			hJs		75		gy mi		PR						x2



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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
BHUA-12	57.38				J		10			CN	UN	RF					
BHUA-12	57.99				hJ		65		gy mi		PR						
BHUA-12	58.05				hJ		75		gy mi		PR						
BHUA-12	58.08				J		5			CN	PR-UN						
BHUA-12	58.11				V		85		gy mi		UN			5			
BHUA-12	58.25				hJ		85		gy mi		PR						
BHUA-12	58.44				hJ		55		gy mi		PR						
BHUA-12	58.51				hJ		25		wh mi		PR						
BHUA-12	58.55				hJ		65			CN	PR	SM					
BHUA-12	58.69				hJ		30		gy mi		PR	SM-RF					
BHUA-12	58.76				V		70		quartz		UN						
BHUA-12	58.90				hJ		35		gy mi		PR						
BHUA-12	58.92				hJ		70		dk gy mi		PR						
BHUA-12	59.04				J		35		gy mi		PR						
BHUA-12	59.05	59.24			hJ		75		gy mi	VN	PR						x2
BHUA-12	59.31				J		25		gy mi		PR						
BHUA-12	59.45				hJ		75		gy mi		PR						
BHUA-12	59.50				hJ		55		gy mi		PR						
BHUA-12	59.53				J		15	40		CN	ST	RF					
BHUA-12	59.92				J		50			CN	PR	SM					
BHUA-12	60.04				J		45			CN	PR	RF					
BHUA-12	60.18				J		45			CN	PR	RF					
BHUA-12	60.48				J		20	30		CN	UN	RF					
BHUA-12	60.70				J		45			CN	PR	RF					
BHUA-12	61.24				J		55			CN	PR	SM					
BHUA-12	61.58				J		55			CN	UN	RF					
BHUA-12	62.21				J		25			CN	UN	RF					
BHUA-12	62.93				J		0			CN	PR	SM					
BHUA-12	63.04				J		5			CN	PR	RF					
BHUA-12	63.84				J		10	25		CN	IR	RF					
BHUA-12	64.14				J		15			CN	UN	RF					
BHUA-12	64.26				J		5	10		CN	UN	RF					
BHUA-12	66.46				J		40			CN	PR	RF					
BHUA-12	66.91				J		5	15		CN	UN	RF					
BHUA-12	67.04				J		65	90		SN	UN	RF					
BHUA-12	67.09				J		20	30		SN	UN	RF					
BHUA-12	67.50				J		65			SN	UN	RF					
BHUA-12	67.83				J		50			CN	PR	RF					
BHUA-12	68.32				J		55			CN	PR	RF					
BHUA-12	68.67				J		5			CN	PR	RF					
BHUA-12	68.74				J		5			CN	PR	RF					
BHUA-12	68.99				J		5			SN	PR	RF					
BHUA-12	69.20				J		5			CN	PR	RF					
BHUA-12	69.93				J		70			SN	PR	RF					
BHUA-12	69.95				J		75			CN	PR	RF					
BHUA-12	70.01				J		75			CN	PR	RF					
BHUA-12	70.22				J		70			CN	PR	RF					
BHUA-12	70.38				J		35			CN	PR	RF					
BHUA-12	71.11				J		25			CN	PR	RF					
BHUA-12	71.64				J		25			CN	PR	RF					
BHUA-12	71.80				J		30			CN	PR	RF					
BHUA-12	72.05				J		25			CN	PR	RF					
BHUA-12	72.08				J		25			CN	PR	RF					
BHUA-12	72.14				J		15			CN	PR	RF					
BHUA-12	72.25				J		35			CN	PR	RF					
BHUA-12	72.41				J		30			CN	PR	RF					
BHUA-12	72.72				J		30			CN	PR	RF					
BHUA-12	72.76				J		20			CN	PR	RF					
BHUA-12	72.88				J		25			CN	PR	RF					
BHUA-12	73.27				J		15			CN	UN	RF					
BHUA-12	73.46				J		10			CN	PR	RF					
BHUA-12	73.64	73.70			J	x3	35			CN	PR	RF				very closely	
BHUA-12	74.14				J		10	40		CN	UN	RF					
BHUA-12	74.48				J		40			CN	PR	RF					
BHUA-12	74.64				J		30			CN	PR	RF					
BHUA-12	75.79				J		5			CN	PR	SM					
BHUA-12	76.01				J		10			CN	PR	SM					
BHUA-12	76.05				J		10			CN	PR	SM					
BHUA-12	76.60				J		50			CN	UN	RF					
BHUA-12	76.91				J		0	10		CN	CU	RF					
BHUA-12	77.16				J		50			CN	PR	SM					
BHUA-12	77.52				J		50			CN	UN	RF					
BHUA-12	77.57				J		60			CN	PR	RF					
BHUA-12	77.94				J		30			CN	PR	RF					
BHUA-12	78.00				J		0	5		CN	UN	RF					
BHUA-12	78.05				J		45			CN	PR	RF					
BHUA-12	78.33				J		50			CN	PR	RF					
BHUA-12	78.44				J		50			CN	PR	RF					
BHUA-12	78.82				J		40			CN	PR	RF					



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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
BHUA-12	79.00				J		40			CN	PR	RF					
BHUA-12	79.51				J		40			CN	PR	RF					
BHUA-12	79.65				J		35			CN	PR	RF					
BHUA-12	79.80				J	x2	35			CN	PR	PO				very closely	
BHUA-12	80.02				J		80	90		CN	UN	RF					
BHUA-12	80.05				J		35			CN	PR	RF					
BHUA-12	81.10				J		35			CN	PR	RF					
BHUA-12	81.18				J		40			CN	UN	RF					
BHUA-12	81.31				J		40	80		CN	ST	RF					
BHUA-12	81.62				J		40			CN	PR	RF					
BHUA-12	81.87				J		50		dk gy mi	SN	PR	RF					
BHUA-12	82.08				J		30			CN	PR	RF					
BHUA-12	82.19				J		30			CN	PR	RF					
BHUA-12	82.39				J		30			CN	PR	RF					
BHUA-12	82.70				J		30			CN	PR	RF					
BHUA-12	83.02				J		40			CN	PR	SM					
BHUA-12	83.07				J		40			CN	PR	SM					
BHUA-12	83.19				J		40			CN	PR	SM					
BHUA-12	83.62				J		35			CN	PR	RF					
BHUA-12	84.02				J		40			CN	PR	RF					
BHUA-12	84.28				J		40			CN	PR	RF					
BHUA-12	84.41				J		35			CN	PR	SM					
BHUA-12	84.65				J		50			CN	PR	RF					
BHUA-12	84.67				J		25	35		CN	CU	RF					
BHUA-12	84.96				J		5	55		CN	IR	RF					
BHUA-12	85.66				J		50			CN	PR	RF					
BHUA-12	85.85				J		0			CN	PR	SM					
BHUA-12	85.92				J		35		wh gy mi	VN	PR	RF					
BHUA-12	86.24				J		40			CN	PR	RF					
BHUA-12	86.37				J		50			CN	PR	RF					
BHUA-12	87.05				J		30			CN	PR	RF					
BHUA-12	87.17				J		40			CN	PR	SM					
BHUA-12	87.27				J		30			CN	PR	SM					
BHUA-12	87.44				J		55			CN	PR	RF					
BHUA-12	87.82				J		45			CN	PR	RF					
BHUA-12	88.12				J		40			CN	PR	RF					
BHUA-12	88.49				J		35			SN	PR	RF					
BHUA-12	88.63				J		10	15		CN	UN	RF					
BHUA-12	89.03				J		40			SN	PR	RF					
BHUA-12	89.32	89.34			J		50			CN	PR	RF				very closely	
BHUA-12	89.98				J		45			SN	UN	RF					
BHUA-12	90.45				J		45			CN	PR	RF					
BHUA-12	90.65				J		45			CN	PR	RF					
BHUA-12	90.81				J		50			CN	PR	RF					
BHUA-12	90.94				J		60			CN	PR	RF					
BHUA-12	91.20				J		35	45		CN	UN	RF					
BHUA-12	91.50				J		30			CN	PR	RF					
BHUA-12	91.58				J		35			CN	PR	RF					
BHUA-12	92.03				J		55			CN	UN	RF					
BHUA-12	92.21				J		30			CN	PR	RF					
BHUA-12	92.42				J		30			CN	PR	RF					
BHUA-12	92.65				J		5			CN	PR	RF					
BHUA-12	92.97				J		45			CN	PR	RF					
BHUA-12	93.47				J		30			CN	PR	RF					
BHUA-12	93.65				J		50			CN	ST	RF					
BHUA-12	93.79				J		70			SN	PR	RF					
BHUA-12	95.17				J		25				PR	SM					
BHUA-12	95.19				J		25				PR	SM					
BHUA-12	95.26				hj		40				PR	SM					
BHUA-12	95.27				hj		0		yl mi		PR	SM					
BHUA-12	95.32				hj		0		yl mi		PR	SM					
BHUA-12	95.34				hj		0		yl mi		PR	SM					
BHUA-12	95.35				hj		60		bk mi		PR	SM					
BHUA-12	95.36				hj		0		yl mi		PR	SM					
BHUA-12	95.36				hj		0		yl mi		PR	SM					
BHUA-12	95.42				hj		70		yl mi		CU	SM					
BHUA-12	95.49				hj		60		yl mi		ST	SM					
BHUA-12	95.52				hj		60		yl mi		PR	SM					
BHUA-12	95.54				hj		60		yl mi		ST	SM					
BHUA-12	95.65				hj		25		yl mi		PR	SM					
BHUA-12	95.73				J		60		yl mi		PR	SM					
BHUA-12	95.76				hj		55		yl mi		ST	SM					
BHUA-12	95.80				hj		60		bk mi		ST	SM					open (handling)
BHUA-12	95.82				hj		60		bk mi		ST	SM					
BHUA-12	96.29				hj		25		yl mi		PR	SM					
BHUA-12	96.35				hj		25			CN	PR	SM					
BHUA-12	96.43				J		10			CN	UN	RF					open, handling
BHUA-12	96.44				hj		25		yl mi		PR	SM					
BHUA-12	96.47				hj		25		yl mi		PR	SM					



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

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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
BHUA-12	96.51				hJ		25		yl mi		PR	SM					
BHUA-12	96.53				hJ		25		yl mi		PR	SM					
BHUA-12	96.58				hJ		30		bk mi		PR	SM					
BHUA-12	96.60				hJ		30		yl mi		PR	SM					
BHUA-12	96.63				hJ		35		yl mi		PR	SM					
BHUA-12	96.65				hJ		25		yl mi		PR	SM					
BHUA-12	96.70				J		70		quartz		PR	RF					
BHUA-12	96.94				hJ		80		quartz		PR						
BHUA-12	97.00				hJ		35		wh mi		PR						
BHUA-12	97.10				J		70			CN	PR	RF					at end of run
BHUA-12	97.22				hJ		70		wh mi		PR						
BHUA-12	97.28				hJ		70		wh mi		PR						
BHUA-12	97.35				hJ		60		wh mi		PR						
BHUA-12	97.37				hJ		40		wh mi		PR						
BHUA-12	97.43				hJ		80		wh mi		PR						
BHUA-12	97.67				hJ		60				PR						
BHUA-12	97.78				hJ		80		wh mi		PR						
BHUA-12	98.11				hJ		15		wh mi		PR						
BHUA-12	98.18				hJ		15		wh mi		PR						
BHUA-12	98.24				hJ		25		wh mi		PR						
BHUA-12	98.29				J		70			CN	PR	RF					
BHUA-12	98.40				J		65			CN	PR	RF					
BHUA-12	98.55				DB												
BHUA-12	98.65				hJ		10		bk mi, alt	CN	PR			5			
BHUA-12	98.68				hJ		85		wh mi		PR						
BHUA-12	98.70				hJ		45		wh mi		PR						
BHUA-12	98.71				hJ		40		wh mi		PR						
BHUA-12	98.81				hJ		45		wh mi		PR						
BHUA-12	98.84				hJ		45		wh mi		PR						
BHUA-12	98.87				J		40			CN	PR	RF					
BHUA-12	98.93				hJ		40		wh mi		PR						
BHUA-12	98.97				hJ		50		wh mi		PR						
BHUA-12	99.04				hJ		50		wh mi		PR						
BHUA-12	99.11	99.17			hJ		50		wh mi		PR						x3
BHUA-12	99.18				hJ		70		wh mi		PR						
BHUA-12	99.28				J		70			CN	PR	RF					
BHUA-12	99.40	99.44			hJ		50		yl mi		PR						x3
BHUA-12	99.53	99.60			hJ		50		yl mi		PR						x2
BHUA-12	99.62	99.68			hJ		40		yl mi		PR						x11
BHUA-12	99.70	99.71			hJ		70		yl mi		PR						x2
BHUA-12	99.74	99.76			hJ		40		yl mi		PR						x2
BHUA-12	99.82				J		50			CN	PR	RF					
BHUA-12	99.83	100.07			AZ					CN	PR						
BHUA-12	100.12				J		35			CN	PR	RF					
BHUA-12	100.17				J		0			CN	PR	RF					
BHUA-12	100.21				J		30			CN	PR	RF					
BHUA-12	100.27				hJ		40		yl mi		PR						
BHUA-12	100.31				hJ		80		yl mi		PR						
BHUA-12	100.32	100.35			hJ		30		yl mi		PR						x5
BHUA-12	100.42				hJ		50		yl mi		PR						
BHUA-12	100.45				hJ		50		yl mi		PR						
BHUA-12	100.49				J		50			CN	ST	RF					
BHUA-12	100.54				hJ		55		wh mi		PR						
BHUA-12	100.57				hJ		55		wh mi		PR						
BHUA-12	100.62				hJ		75		wh mi		PR						
BHUA-12	100.65	100.75			hJ		25		yl mi		PR						x5
BHUA-12	100.77				J		40			CN	PR	RF					
BHUA-12	100.82				J		75			CN	PR	RF					x2
BHUA-12	100.84				J		0			CN	PR	RF					
BHUA-12	100.93				J		85		wh mi		PR	RF					
BHUA-12	100.96				hJ		50		bk mi		PR						
BHUA-12	100.99				J		90			CN	PR	RF					
BHUA-12	101.04	101.10			hJ		40		wh mi		PR						x5
BHUA-12	101.05				J		0			CN	PR	RF					
BHUA-12	101.15	101.21			hJ		60		wh mi		PR						x4
BHUA-12	101.17				J		50			CN	PR	RF					
BHUA-12	101.29				J		30			CN	PR	RF					
BHUA-12	101.32				J		90			CN	PR	RF					
BHUA-12	101.34				hJ		50		wh mi		PR						
BHUA-12	101.37				hJ		40		wh mi		PR						x2
BHUA-12	101.45				J		40			CN	PR	RF					x2
BHUA-12	101.56	101.64			hJ		40		wh mi		PR						x5
BHUA-12	101.70	101.95			hJ		50		wh mi		PR						x4
BHUA-12	101.90				hJ		90		wh mi		PR						
BHUA-12	102.05				hJ		55		wh mi		PR						
BHUA-12	102.11				J		25			CN	PR	RF					
BHUA-12	102.15	102.23			hJ		25		wh mi		PR						x3
BHUA-12	102.30				J		70			CN	PR	RF					
BHUA-12	102.35	102.65			V				quartz		PR						andesite fractures



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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
BHUA-12	102.57				J		30			CN	PR	RF					
BHUA-12	102.65				hJ		80		wh mi		PR						
BHUA-12	102.69				hJ		60		yl mi		PR						x2
BHUA-12	102.71				hJ		80		yl mi		PR						
BHUA-12	102.74				hJ		10		yl mi		PR						
BHUA-12	102.75	102.81			hJ		55		wh mi		PR						x5
BHUA-12	102.82				hJ		65		wh mi		PR						
BHUA-12	102.85	102.91			hJ		50		wh mi		PR						x11
BHUA-12	102.94	102.98			hJ		45		wh mi		PR						x11
BHUA-12	103.00				hJ		60		wh mi		PR						
BHUA-12	103.03				J		25			CN	PR	RF					
BHUA-12	103.05	103.09			hJ		55		yl and bk mi		PR						x6
BHUA-12	103.15	103.18			hJ		35		yl mi		PR						x5
BHUA-12	103.21	103.24			hJ		25		yl mi		PR						x3
BHUA-12	103.25	103.32			hJ		30		nk mi		PR						x10
BHUA-12	103.31				hJ		50		bk mi		PR						
BHUA-12	103.35	103.38			hJ		40		yl mi		PR						x4
BHUA-12	103.39				J		20			CN	PR	RF					
BHUA-12	103.41	103.58			hJ		25		yl and bk mi		PR						x16
BHUA-12	103.42				hJ		40		bk mi		PR						
BHUA-12	103.59				J		50			CN	PR	RF					
BHUA-12	103.62				hJ		35		wh mi		PR						
BHUA-12	103.64	104.15			hJ		5				PR						
BHUA-12	104.24				HB												
BHUA-12	104.40				HB												
BHUA-12	104.65				DB												
BHUA-12	105.24				HB												
BHUA-12	105.44				DB												
BHUA-12	105.68				DB												
BHUA-12	105.75	106.10			hJ		85		wh mi		PR						
BHUA-12	106.09				J		10		br mi	SN	PR	RF					
BHUA-12	106.10	106.45			J		85		wh mi		PR	SM					
BHUA-12	106.24				DB												
BHUA-12	106.25				HB												
BHUA-12	106.45	107.60			hJ		85		wh mi		PR						
BHUA-12	106.70				J		50		bk mi	SN	PR	RF					
BHUA-12	106.95				J		30		bk mi	SN	PR	RF					
BHUA-12	107.13				hJ		15		bk mi	SN	PR						
BHUA-12	107.25				HB												
BHUA-12	107.34				hJ		30										
BHUA-12	107.38				hJ		20										
BHUA-12	107.45				hJ		40										
BHUA-12	107.60				J		35		bk mi	SN	PR	RF					
BHUA-12	107.68				hJ		45										
BHUA-12	107.94				hJ		10										
BHUA-12	108.01				hJ		10										
BHUA-12	108.10				hJ		10										
BHUA-12	108.16				hJ		20										
BHUA-12	108.32				hJ		5										
BHUA-12	108.33				hJ		5										
BHUA-12	108.36				hJ		40										
BHUA-12	108.39				hJ		5										
BHUA-12	108.41				J		20			CN	UN	RF					
BHUA-12	108.54				hJ		75										
BHUA-12	108.61				J		75			CN	PR	RF					
BHUA-12	108.63				hJ		10										
BHUA-12	108.74				hJ		20										
BHUA-12	108.75				hJ		5										
BHUA-12	108.98				J		80			CN	PR	RF					
BHUA-12	109.10				J		20			CN	UN	RF					
BHUA-12	109.15				hJ		20										
BHUA-12	109.23				hJ		25										
BHUA-12	109.31				hJ		20										
BHUA-12	109.32				hJ		20										
BHUA-12	109.33				hJ		20										x2
BHUA-12	109.43				hJ		15										
BHUA-12	109.51				hJ		35										
BHUA-12	109.66				hJ		30										
BHUA-12	109.71				hJ		35										
BHUA-12	109.84				hJ		40										
BHUA-12	109.92				hJ		25										
BHUA-12	109.94				hJ		20										
BHUA-12	109.95				hJ		25										
BHUA-12	110.01				hJ		30										
BHUA-12	110.05				hJ		25										x2
BHUA-12	110.17				hJ		20										
BHUA-12	110.19				hJ		20										
BHUA-12	110.21				hJ		20										
BHUA-12	110.39				hJ		10										



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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
BHUA-12	110.43				hJ		15										
BHUA-12	110.66				hJ		60										
BHUA-12	110.70				hJ		15										
BHUA-12	110.73				hJ		75										
BHUA-12	110.81				hJ		70										
BHUA-12	110.89				hJ		20										
BHUA-12	110.92				hJ		20										
BHUA-12	110.94				hJ		15										
BHUA-12	111.01				hJ		15										
BHUA-12	111.16				hJ		70										
BHUA-12	111.30				hJ		45										
BHUA-12	111.40				hJ		5										
BHUA-12	111.52				hJ		90										
BHUA-12	111.53				hJ		85										x2
BHUA-12	111.56				hJ		85										
BHUA-12	111.65				hJ		30										
BHUA-12	111.70				hJ		80										
BHUA-12	111.83				J		45		bk mi	CT	PR	SM					
BHUA-12	111.90				hJ		45										
BHUA-12	111.94				J		20			CN	PR	SM					
BHUA-12	112.10				J		70			CN	PR	RF					
BHUA-12	112.15				hJ		90										x2
BHUA-12	112.18				hJ		40										
BHUA-12	112.38				J		90			CN	ST	RF					
BHUA-12	112.41				hJ		30			CN	PR	RF					
BHUA-12	112.46				hJ		5										
BHUA-12	112.55				hJ		20										
BHUA-12	112.57				hJ		5										
BHUA-12	112.59				hJ		5										
BHUA-12	112.70				hJ		30										
BHUA-12	112.71				hJ		30										
BHUA-12	112.81				J		85			CN	PR	RF					possibly opened in drilling
BHUA-12	112.85				J		20			CN	PR	RF					
BHUA-12	112.95				hJ		90										x2
BHUA-12	112.99				hJ		20										
BHUA-12	113.00				hJ		20										
BHUA-12	113.01				hJ		75										
BHUA-12	113.06				hJ		30										
BHUA-12	113.08				hJ		40										
BHUA-12	113.09				hJ		30										
BHUA-12	113.13				J		20			CN	PR	RF					
BHUA-12	113.14	113.30			J		90		wh clay	VN	PR	SM					
BHUA-12	113.14	114.93			J		90		clay	VN	PR	SM					stepped in places,
BHUA-12	113.22				J		30				PR	SM					
BHUA-12	113.31				J		30				PR	SM					
BHUA-12	113.38				J		30				PR	SM					
BHUA-12	113.47				J		30				PR	SM					
BHUA-12	113.51				J		70		white clay	VN	PR	SM					
BHUA-12	113.58				J		45			CN	PR	SM					
BHUA-12	113.60				hJ		60										
BHUA-12	113.63				hJ		10										
BHUA-12	113.66				hJ		10										
BHUA-12	113.70				J		55			CN	PR	SM					
BHUA-12	113.71				hJ		40										
BHUA-12	113.71				J		30			CN	PR	RF					
BHUA-12	113.76				hJ		30										
BHUA-12	113.78				hJ		30										
BHUA-12	113.81				hJ		40										
BHUA-12	113.82				hJ		90										
BHUA-12	113.86				hJ		80										
BHUA-12	113.88				hJ		30										
BHUA-12	113.97				J		20			CN	PR	RF					
BHUA-12	114.03				hJ		20										
BHUA-12	114.06				hJ		30										
BHUA-12	114.13				hJ		60										
BHUA-12	114.14				hJ		35										
BHUA-12	114.15				hJ		30										
BHUA-12	114.18				hJ		70										
BHUA-12	114.23				hJ		20										
BHUA-12	114.41				J		60			CN	PR	RF					
BHUA-12	114.46				hJ		60										
BHUA-12	114.49				J		15			CN	PR	SM					
BHUA-12	114.51				hJ		40										
BHUA-12	114.54				J		30										
BHUA-12	114.73				J		30			CN	PR	SM-RF					
BHUA-12	114.91				J		20			CN	PR	SM					
BHUA-12	115.07				J		55			CN	PR	SM					
BHUA-12	115.09				J		20			CN	PR	SM					
BHUA-12	115.10				CS		20	30									



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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
BHUA-12	115.46				hJ		70										
BHUA-12	115.50				hJ		70										
BHUA-12	115.66				hJ		10										
BHUA-12	115.93				J		40			CN	PR	SM					
BHUA-12	116.08				J		25			CN	PR	SM					
BHUA-12	116.18				hJ		20										
BHUA-12	116.42				J		60			CN	PR	SM					
BHUA-12	116.47				hJ		85										x2
BHUA-12	116.57				J		25			CN	PR	RF					
BHUA-12	116.65				J		50			CN	PR	SM					
BHUA-12	116.79				hJ		85										
BHUA-12	116.85				hJ		85										
BHUA-12	116.91				J		30			CN	PR	SM					
BHUA-12	116.99				hJ		85										
BHUA-12	117.04				J		25			CN	PR	SM					
BHUA-12	117.08				hJ		30										
BHUA-12	117.18				J		25			CN	PR	RF					
BHUA-12	117.21				J		10			CN	PR	SM					
BHUA-12	117.26				hJ		75										
BHUA-12	117.29				hJ		75										
BHUA-12	117.32				J		75			CN	PR	RF					
BHUA-12	117.45				hJ		45										
BHUA-12	117.53				J		45			CN	PR	RF					
BHUA-12	117.56				hJ		30										
BHUA-12	117.57				hJ		45										
BHUA-12	117.61				hJ		70										
BHUA-12	117.67				hJ		45										
BHUA-12	117.71				J		5		dk gy mi	VN	PR	RF					rock pieces up to 10 mm
BHUA-12	117.77				hJ		85										
BHUA-12	117.88				hJ		60										
BHUA-12	117.91				hJ		30										
BHUA-12	117.98				J		40			CN	PR	SM					
BHUA-12	118.00				J		45			CN	PR-UN	RF					
BHUA-12	118.01				J		40			CN	CN	SM					
BHUA-12	118.07				J		90			CN	CN	RF					x3
BHUA-12	118.21				hJ		60										
BHUA-12	118.49				J		90			CN	CN	RF					
BHUA-12	118.51				J		80			CN	CN	RF					
BHUA-12	118.53				J		40			CN	CN	RF					
BHUA-12	118.56				hJ		20										
BHUA-12	118.59				hJ		45										
BHUA-12	118.62				hJ		90										
BHUA-12	118.63				hJ		30										
BHUA-12	118.68				hJ		50										
BHUA-12	118.69				J		70			CN	CN	RF					
BHUA-12	118.90				J		90			CN	PR	RF					
BHUA-12	118.93				J		70			CN	UN	RF					
BHUA-12	118.95				J		70			CN	UN	RF					
BHUA-12	118.97				hJ		55		rd mi		PR						
BHUA-12	119.00				hJ		70		rd mi		UN						
BHUA-12	119.03				hJ		55		rd mi		PR						
BHUA-12	119.06				hJ		60		rd mi		PR						
BHUA-12	119.07				hJ		30		rd mi		PR						
BHUA-12	119.10				J		0			CN	UN	RF					
BHUA-12	119.13				hJ		50		bk mi		PR						
BHUA-12	119.15				hJ		30		bk mi		PR						
BHUA-12	119.18				hJ		50		bk and wh mi		UN						
BHUA-12	119.23				hJ		0		wh mi		UN						
BHUA-12	119.24				hJ		45		wh mi		UN						
BHUA-12	119.25				hJ		75		bk mi		UN						
BHUA-12	119.34				hJ		25		gr mi		PR						
BHUA-12	119.35				hJ		60		bk mi		PR						
BHUA-12	119.39				hJ		70		bk mi		UN						
BHUA-12	119.40				hJ		70		bk mi		PR						
BHUA-12	119.42	120.75			hJs		30		gr mi		UN						
BHUA-12	119.48				hJ		75		bk mi		PR						
BHUA-12	119.49				hJ		40		wh mi		UN						
BHUA-12	119.52				J		30			CN	PR	RF					
BHUA-12	119.55				hJ		80		gr mi		UN						
BHUA-12	119.61				hJ		70		wh mi		UN						
BHUA-12	119.64				J		30			CN	UN	RF					
BHUA-12	119.68				J		70		bk and or mi	SN	PR	RF					
BHUA-12	119.74				hJ		55		bk mi		PR	RF					
BHUA-12	119.76				J		20			CN	PR						
BHUA-12	119.88				V		30		bk mi		PR			5			healed
BHUA-12	120.00				hJ		75		wh mi		UN						
BHUA-12	120.06				J		30		gr mi	VN	UN	RF					
BHUA-12	120.08				J		25		gr mi	SN	UN	RF					
BHUA-12	120.10				J		20			CN	UN	RF					



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	120.11				hJ		20		bk mi		PR						
BHUA-12	120.13				hJ		25		bk mi		PR						
BHUA-12	120.24				J		20		gr mi		UN	RF					
BHUA-12	120.27				V		70		bk and gr mi		PR			3			healed
BHUA-12	120.32				hJ		60		bk mi		PR						
BHUA-12	120.34				hJ		40		bk and gr mi		PR						
BHUA-12	120.37				hJ		65		bk mi		PR						
BHUA-12	120.44				hJ		50		bk mi		PR						
BHUA-12	120.45	121.00			hJs		35		bk, gr and rd mi		PR						
BHUA-12	120.49				J		70		bk mi	SN	UN	RF					
BHUA-12	120.51				J		20		bk and gr mi	SN	UN	RF					
BHUA-12	120.52				V		35		bk mi		PR			2			healed
BHUA-12	120.58				J		30		bk and gr mi	SN	ST	RF					
BHUA-12	120.65				hJ		5		gr mi		PR						
BHUA-12	120.86	121.00			hJs		30		bk and gr mi		PR						
BHUA-12	120.92				hJ		65		wh mi		PR						
BHUA-12	121.01				hJ		20		bk mi		PR						
BHUA-12	121.13				hJ		15		or mi		PR						
BHUA-12	121.14				hJ		15		or mi		PR						
BHUA-12	121.16				hJ		90		bk and wh mi		UN						
BHUA-12	121.18				J		40			CN	UN	RF					
BHUA-12	121.19				hJ		40		gr mi		PR						
BHUA-12	121.22				hJ		70		rd and wh mi		PR						
BHUA-12	121.24				hJ		85		wh mi		PR						
BHUA-12	121.29				hJ		70		bk and wh mi		UN						
BHUA-12	121.36				J		50		gr mi	SN	UN	RF					
BHUA-12	121.37				J		40			CN	PR	RF					
BHUA-12	121.40	121.91			hJs		60	70	bk and wh mi		PR			3			healed
BHUA-12	121.41				hJ		25		bk and gr mi		PR						
BHUA-12	121.46				hJ		40		gr mi		PR						
BHUA-12	121.52				hJ		25		bk mi		PR						
BHUA-12	121.53	122.24			hJs		25	35	gr mi		PR						
BHUA-12	121.59				hJ		30		gr mi		PR						
BHUA-12	121.61				hJ		80		wh mi		UN						
BHUA-12	121.65				J		40			CN	ST	RF					
BHUA-12	121.74				J		80			CN	ST	RF					
BHUA-12	121.90				hJ		35		gr mi		PR						
BHUA-12	121.96				hJ		25		gr mi		PR						
BHUA-12	121.98				J		30			CN	ST	RF					
BHUA-12	121.99				hJ		5		rd mi		PR						
BHUA-12	122.00				hJ		5		rd mi		PR						
BHUA-12	122.03				hJ		80			CN	UN						
BHUA-12	122.14				J		40			CN	ST	RF					
BHUA-12	122.16				J		65			CN	UN	RF					
BHUA-12	122.20				J		30		bk and gr mi	VN	PR	RF					
BHUA-12	122.23				hJ		40		wh mi		PR						
BHUA-12	122.34				hJ		80		bk mi		UN						
BHUA-12	122.36				hJ		50		bk mi		PR						
BHUA-12	122.39				hJ		40		bk mi		UN						
BHUA-12	122.44				hJ		45		bk and gr mi		PR						
BHUA-12	122.45				J		40			CN	UN	RF					
BHUA-12	122.51				J		40			CN	UN	RF					
BHUA-12	122.52				hJ		90		wh mi		UN						
BHUA-12	122.53				hJ		50		wh mi		PR						
BHUA-12	122.54				hJ		35		bk mi		PR						
BHUA-12	122.55				V		40		bk mi		PR			2			healed
BHUA-12	122.59				hJ		60		bk mi		PR						
BHUA-12	122.60				J		80		bk mi	VN	UN	RF					
BHUA-12	122.61				J		80			CN	UN	RF					
BHUA-12	122.62				hJ		55		bk mi		UN						
BHUA-12	122.63				hJ		25		bk mi		PR						
BHUA-12	122.63				hJ		85		wh mi		UN						
BHUA-12	122.65				J		20			CN	PR	RF					
BHUA-12	122.65				hJ		10		bk and rd mi		UN						
BHUA-12	122.66				J		45		bk and gr mi	CT	PR	RF					
BHUA-12	122.66				hJ		80		bk mi		PR						
BHUA-12	122.68				hJ		40		gr mi		UN						
BHUA-12	122.69				J		40		gr mi		UN	RF					
BHUA-12	122.69				J		0			CN	UN	RF					
BHUA-12	122.70				J		20			CN	PR	RF					
BHUA-12	122.72				hJ		20		bk mi		PR						
BHUA-12	122.73				hJ		20		bk mi		PR						
BHUA-12	122.74				hJ		20		bk mi		PR						
BHUA-12	122.75				hJ		90			CN	PR						
BHUA-12	122.80				hJ		85		bk mi		PR						
BHUA-12	122.81				hJ		85		bk and wh mi		PR						
BHUA-12	122.94				hJ		15		bk mi		PR						
BHUA-12	122.97				J		75		bk and gr mi	VN	PR	RF					
BHUA-12	122.99				hJ		30		wh mi		PR						



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

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
BHUA-12	123.03				hJ		60		or mi		PR						
BHUA-12	123.05				hJ		25		wh mi		PR						
BHUA-12	123.07				hJ		50		wh mi		PR						
BHUA-12	123.09				hJ		65		or mi		PR						
BHUA-12	123.10				hJ		30		wh mi		PR						
BHUA-12	123.14				hJ		60		gy mi		PR						
BHUA-12	123.16				hJ		75		rd mi		PR						
BHUA-12	123.19				J		35		bk mi	VN	ST	RF					
BHUA-12	123.22				hJ		80		bk and wh mi		PR						
BHUA-12	123.24				hJ		60		wh mi		PR						
BHUA-12	123.25				J		60		rd and bk mi	CT	PR	RF					
BHUA-12	123.27				J		40			CN	PR	RF					
BHUA-12	123.32	123.93			Js		25	30	rd and bk mi	CT	PR	RF					
BHUA-12	123.41				hJ		40		gr mi		PR						
BHUA-12	123.42				J		65			CN	PR	RF					
BHUA-12	123.44				hJ		40		bk, wh and or mi		UN						
BHUA-12	123.46				hJ		10		bk mi		UN						
BHUA-12	123.47				hJ		50		rd mi		PR						
BHUA-12	123.49				hJ		60		wh mi		PR						
BHUA-12	123.51				J		60			CN	UN	RF					
BHUA-12	123.55				hJ		45		bk mi		PR						
BHUA-12	123.56				hJ		40		rd mi		PR						
BHUA-12	123.57				hJ		30		rd mi		UN						
BHUA-12	123.59				hJ		65		bk mi		UN						
BHUA-12	123.61				hJ		75		wh mi		ST						
BHUA-12	123.66				hJ		60		bk mi		UN						
BHUA-12	123.71				J		60		bk and gr mi	VN	UN	RF					
BHUA-12	123.72				J		60		rd mi	VN	ST	RF					
BHUA-12	123.75				hJ		70		rd and wh mi		PR						
BHUA-12	123.78				J		70		bk and rd mi	VN	UN	RF					
BHUA-12	123.79				hJ		40		bk and rd mi		PR						
BHUA-12	123.85				J		70		bk, gr and or mi	VN	PR	RF					
BHUA-12	123.99				hJ		55		rd mi		ST						
BHUA-12	124.07				J		65		bk and or mi	SN	ST	RF					
BHUA-12	124.08				hJ		70		bk mi		UN						
BHUA-12	124.10				hJ		70		bk mi		UN						
BHUA-12	124.14				hJ		45		wh mi		PR						
BHUA-12	124.15				hJ		25		rd mi		PR						
BHUA-12	124.18				J		30		bk mi	SN	UN	RF					
BHUA-12	124.25				hJ		90		bk mi		UN						
BHUA-12	124.27				hJ		35		gr mi		PR						
BHUA-12	124.39				J		40		gr mi	VN	PR	RF					
BHUA-12	124.43				hJ		50		gr mi		UN						
BHUA-12	124.45				hJ		75		bk mi		PR						
BHUA-12	124.46				hJ		50		gr mi		UN						
BHUA-12	124.47				hJ		25		gr mi		PR						
BHUA-12	124.50				J		50		gr mi	CT	PR	RF					
BHUA-12	124.53				hJ		70		wh mi		PR						
BHUA-12	124.54				hJ		40		gr mi		PR						
BHUA-12	124.58				hJ		65		gr mi		UN						
BHUA-12	124.65				hJ		50		bk mi		PR						
BHUA-12	124.71				V		50		bk and gr mi	IN	PR			3			healed
BHUA-12	124.75				hJ		85		wh mi		PR						
BHUA-12	124.77				hJ		75		gr mi		UN						
BHUA-12	124.78				hJ		65		wh mi		UN						
BHUA-12	124.79				J		30		rd and gr mi	VN	UN	RF					
BHUA-12	124.97				J		10		bk and rd mi	CT	PR	RF					
BHUA-12	124.98				J		60		bk and gr mi	VN	PR	RF					
BHUA-12	125.01				J		40		bk and gr mi	VN	PR	RF					
BHUA-12	125.03				hJ		30		gr mi		UN						
BHUA-12	125.04				hJ		60		gr mi		PR						
BHUA-12	125.06				hJ		70		gr mi		PR						
BHUA-12	125.11				V		45		bk and gr mi		PR			2			healed
BHUA-12	125.13				hJ		50		gr mi		PR						
BHUA-12	125.16				hJ		50		gr mi		UN						
BHUA-12	125.19				hJ		60		wh mi		UN						
BHUA-12	125.25				hJ		80		wh mi		UN						
BHUA-12	125.32	126.29			hJs		25	40	gr mi		UN						
BHUA-12	125.35				J		35		gr mi	SN	PR	RF					
BHUA-12	125.36				J		30			CN	UN	RF					
BHUA-12	125.43				J		50		bk and gr mi	SN	PR	RF					
BHUA-12	125.47				J		20			CN	UN	RF					
BHUA-12	125.59				hJ		55		gr mi		UN						
BHUA-12	125.78				J		5			CN	ST	RF					
BHUA-12	125.91				J		20			CN	PR	RF					
BHUA-12	126.05				hJ		80		wh mi		UN						
BHUA-12	126.17				hJ		90		wh mi		UN						
BHUA-12	126.22				J		15		gr mi	SN	UN	RF					
BHUA-12	126.35				V		30		gr mi		PR			4			healed



Pioneer-Burdekin Pumped Hydro Energy Scheme: Tranche 1 – BHUA-12 Defects List

Refer to Explanatory Notes sheets for abbreviation definitions

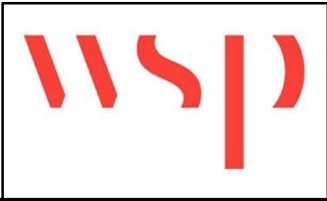
PointID	Depth	Bottom	Fracture Set	Defect Number	Type	Type Suffix	Dip Minimum (degrees)	Dip Maximum (degrees)	Infilling Material	Aperture Observation	Planarity	Roughness	Aperture Measurement Sign	Aperture Measurement	Aperture	Spacing	Remark
BHUA-12	126.48				hJ		55		bk and wh mi		PR						
BHUA-12	126.50				hJ		65		bk and gr mi		PR						
BHUA-12	126.56				V		60		bk mi		PR			2			healed
BHUA-12	126.61				J		25		bk and gr mi	CT	UN	RF					
BHUA-12	126.72				J		90		or mi	SN	PR	RF					
BHUA-12	126.74				J		30			CN	PR	RF					
BHUA-12	126.78				hJ		75		bk mi		CN						
BHUA-12	126.94				hJ		80		wh mi		UN						
BHUA-12	127.06				hJ		45		wh mi		PR						
BHUA-12	127.09				hJ		90		wh mi		UN						
BHUA-12	127.10				J		50			CN	PR	RF					

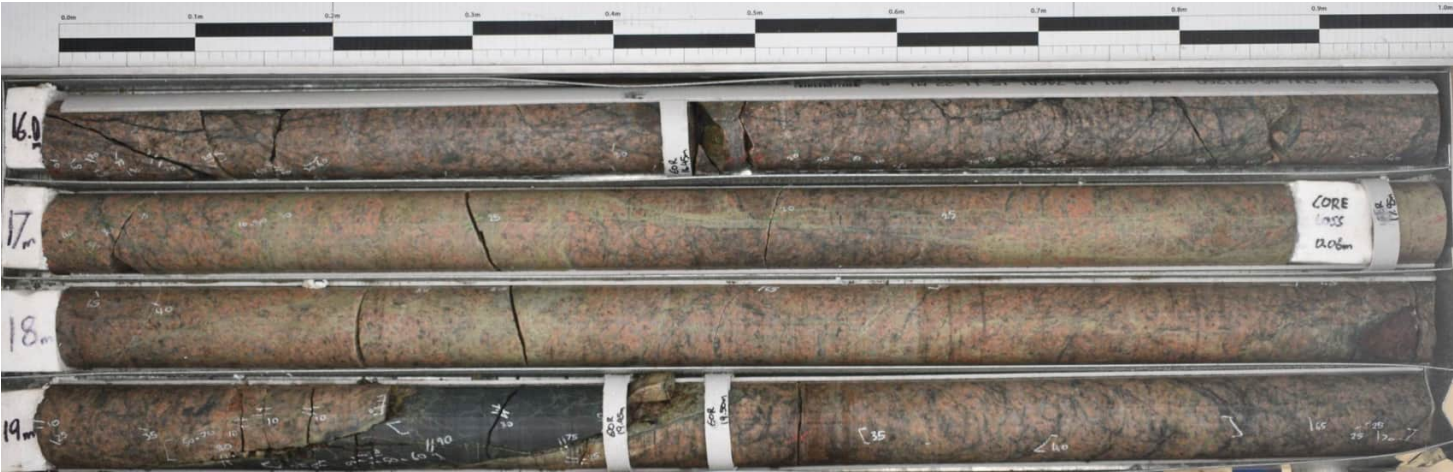


PointID : BHUA-12 Depth Range: 8.37 - 12.00 m



PointID : BHUA-12 Depth Range: 12.00 - 16.00 m

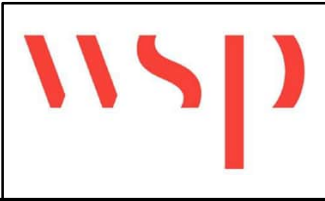
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		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693		FIGURE No 1/15



PointID : BHUA-12 Depth Range: 16.00 - 20.00 m



PointID : BHUA-12 Depth Range: 20.00 - 24.00 m

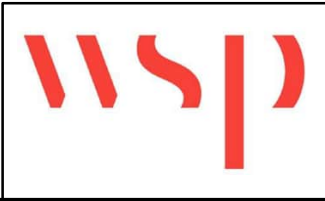
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		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693		FIGURE No 2/15



PointID : BHUA-12 Depth Range: 24.00 - 28.00 m



PointID : BHUA-12 Depth Range: 28.00 - 32.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693	FIGURE No	3/15



PointID : BHUA-12 Depth Range: 32.00 - 36.00 m



PointID : BHUA-12 Depth Range: 36.00 - 40.00 m



TITLE

Queensland Hydro
Netherdale/Dalrymple Heights
Pioneer-Burdekin PHES
Core Photo - BHUA-12

DRAWN

RC

DATE

16/10/2024

CHECKED

GEM

DATE

16/10/2024

SCALE

Not To Scale

A4

PROJECT No

PS138693

FIGURE No

4/15

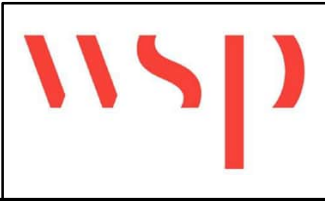
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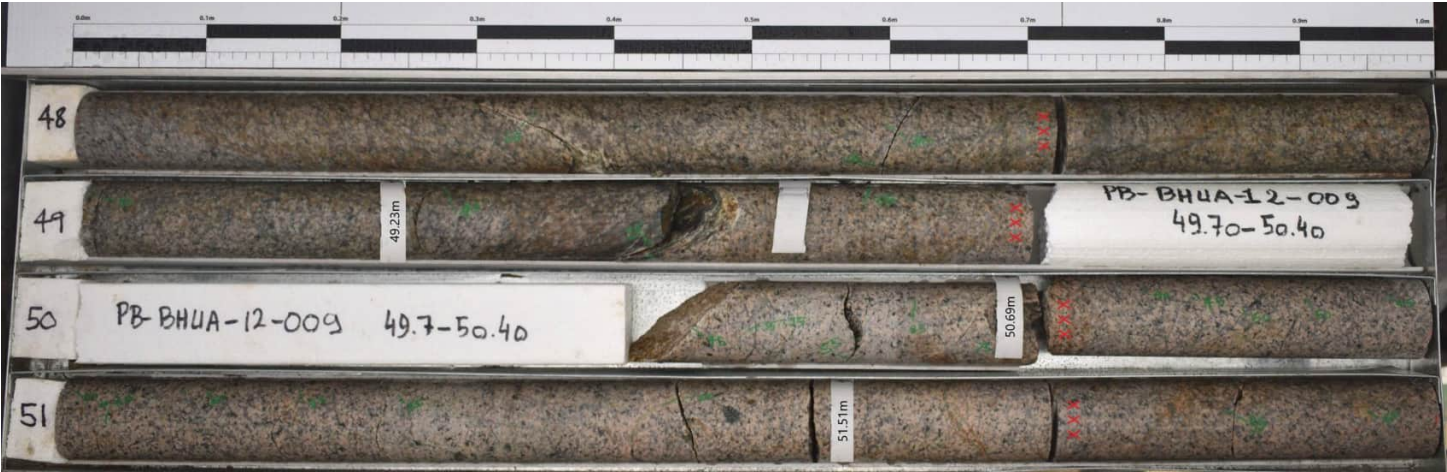


PointID : BHUA-12 Depth Range: 40.00 - 44.00 m

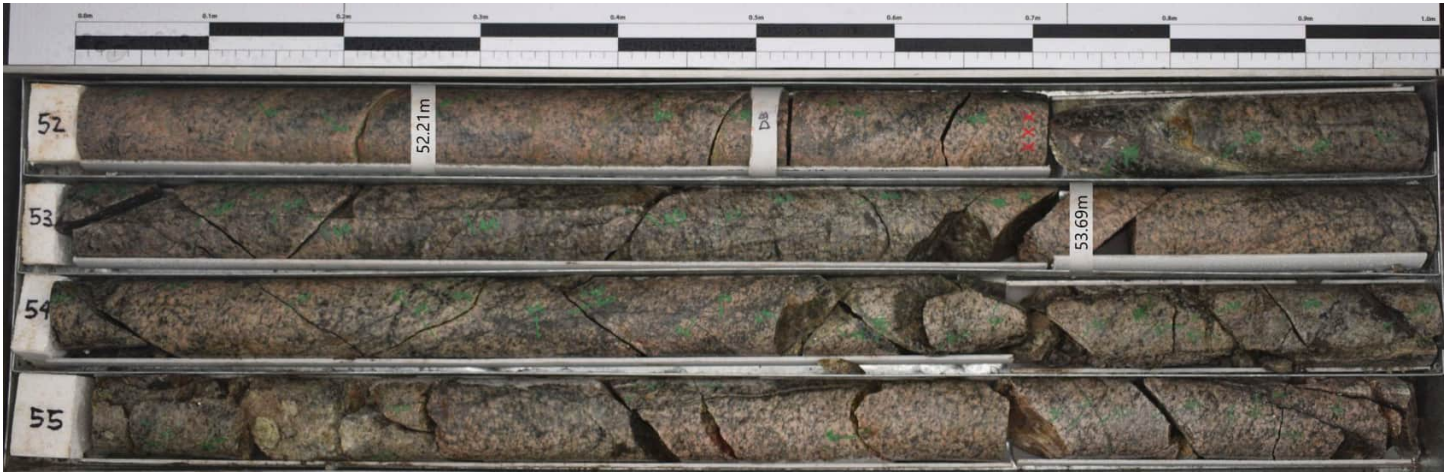


PointID : BHUA-12 Depth Range: 44.00 - 48.00 m

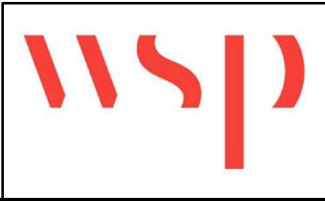
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		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693		FIGURE No 5/15



PointID : BHUA-12 Depth Range: 48.00 - 52.00 m

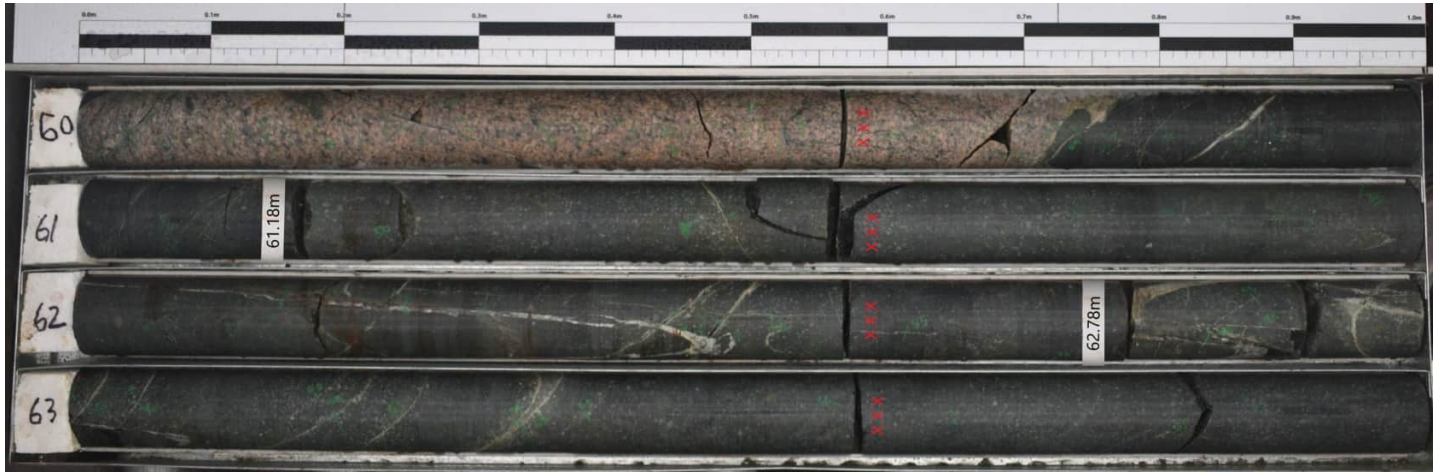


PointID : BHUA-12 Depth Range: 52.00 - 56.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693		FIGURE No 6/15



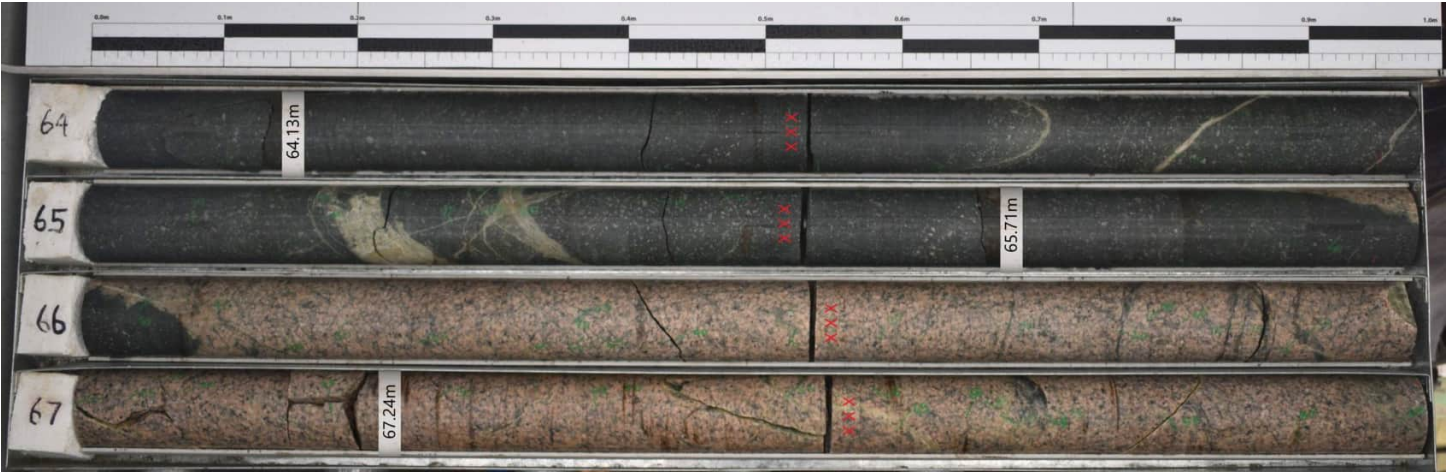
PointID : BHUA-12 Depth Range: 56.00 - 60.00 m



PointID : BHUA-12 Depth Range: 60.00 - 64.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN RC	DATE 16/10/2024		
		CHECKED GEM	DATE 16/10/2024		
		SCALE Not To Scale			A4
		PROJECT No PS138693		FIGURE No 7/15	

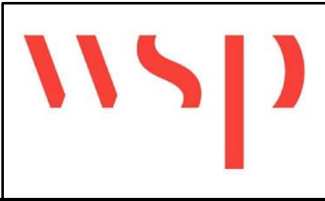
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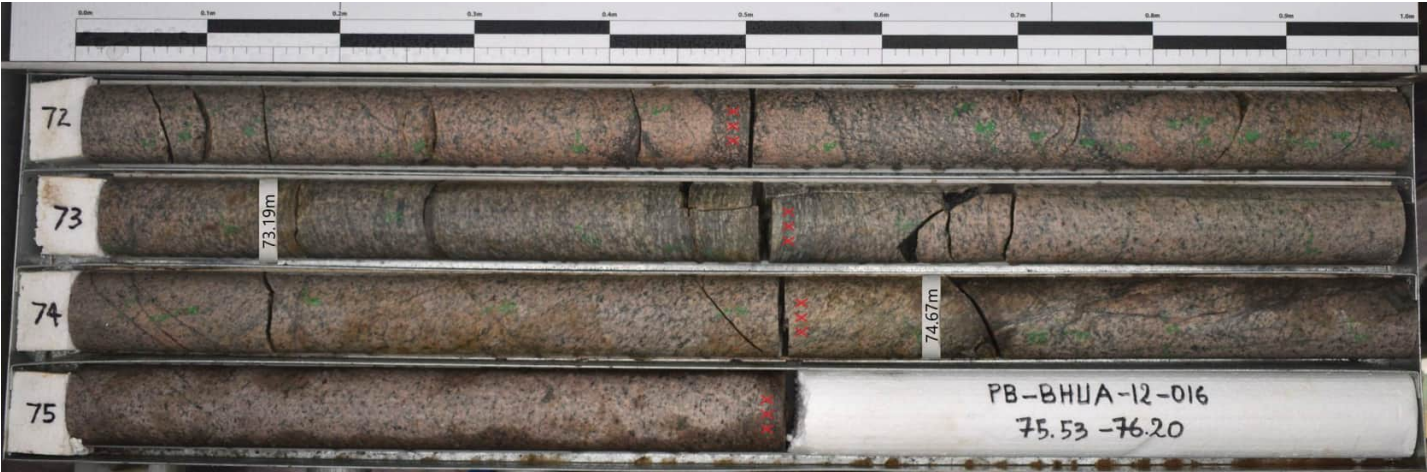
PointID : BHUA-12 Depth Range: 64.00 - 68.00 m



PointID : BHUA-12 Depth Range: 68.00 - 72.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE Not To Scale			A4
		PROJECT No PS138693		FIGURE No 8/15	

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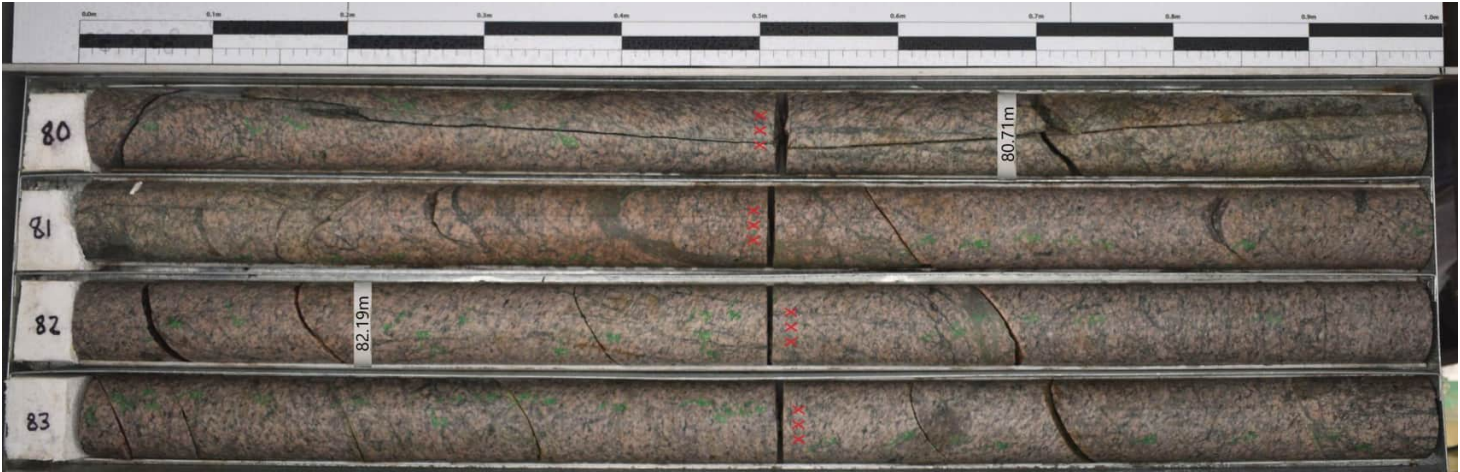


PointID : BHUA-12 Depth Range: 72.00 - 76.00 m

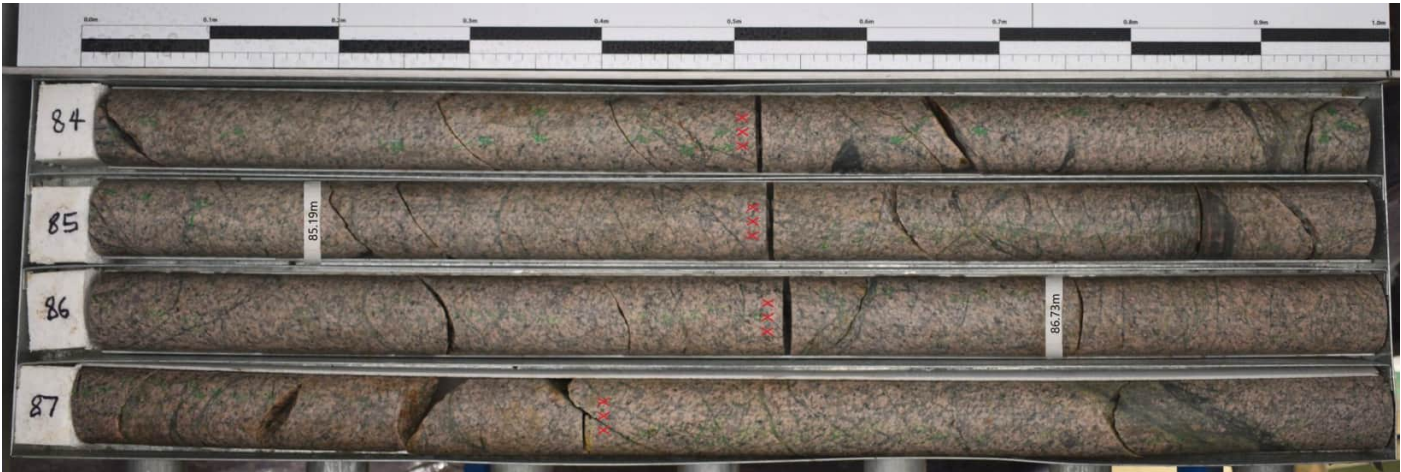


PointID : BHUA-12 Depth Range: 76.00 - 80.00 m

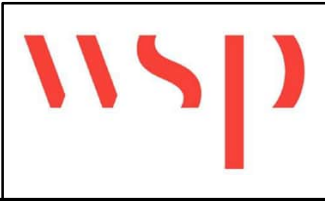
	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN RC		DATE 16/10/2024		
		CHECKED GEM		DATE 16/10/2024		
		SCALE Not To Scale				A4
		PROJECT No PS138693		FIGURE No 9/15		

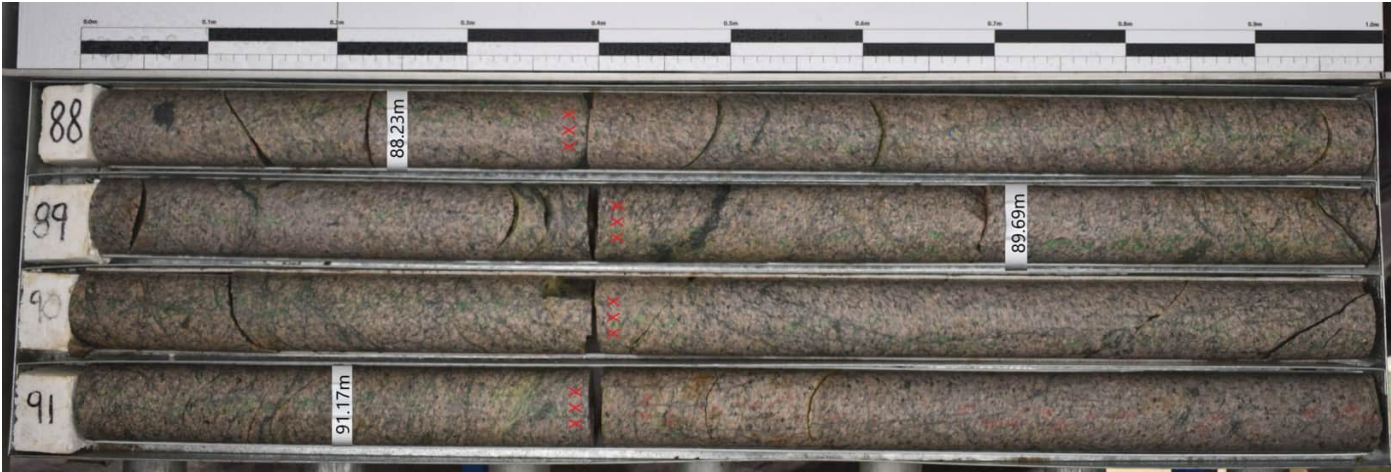


PointID : BHUA-12 Depth Range: 80.00 - 84.00 m



PointID : BHUA-12 Depth Range: 84.00 - 88.00 m

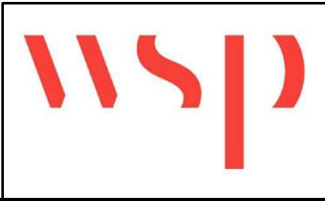
	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE Not To Scale			A4
		PROJECT No PS138693		FIGURE No 10/15	

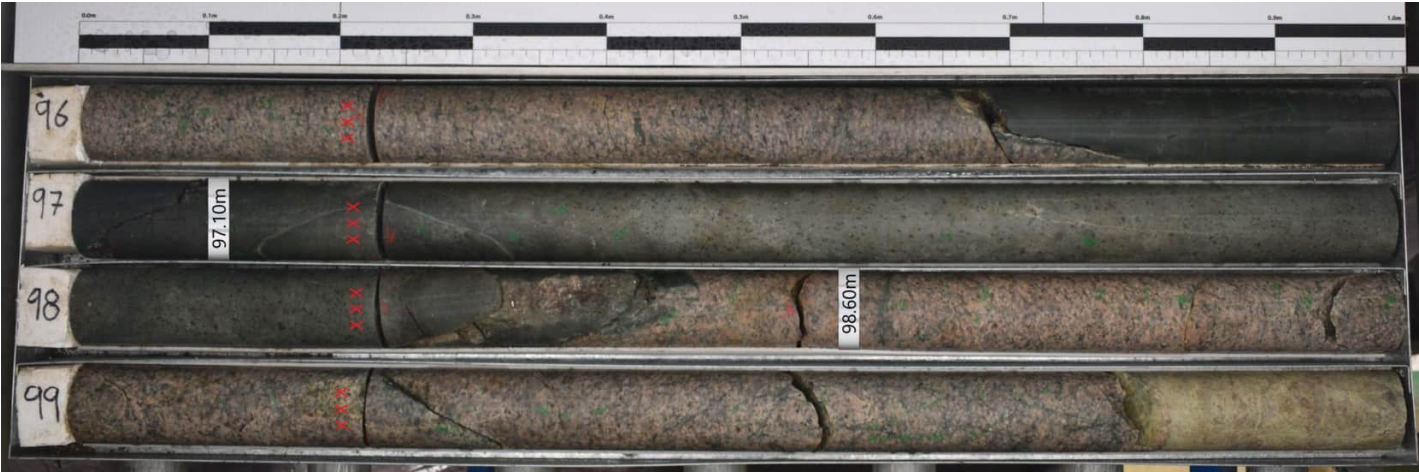


PointID : BHUA-12 Depth Range: 88.00 - 92.00 m



PointID : BHUA-12 Depth Range: 92.00 - 96.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE Not To Scale			A4
		PROJECT No PS138693		FIGURE No 11/15	



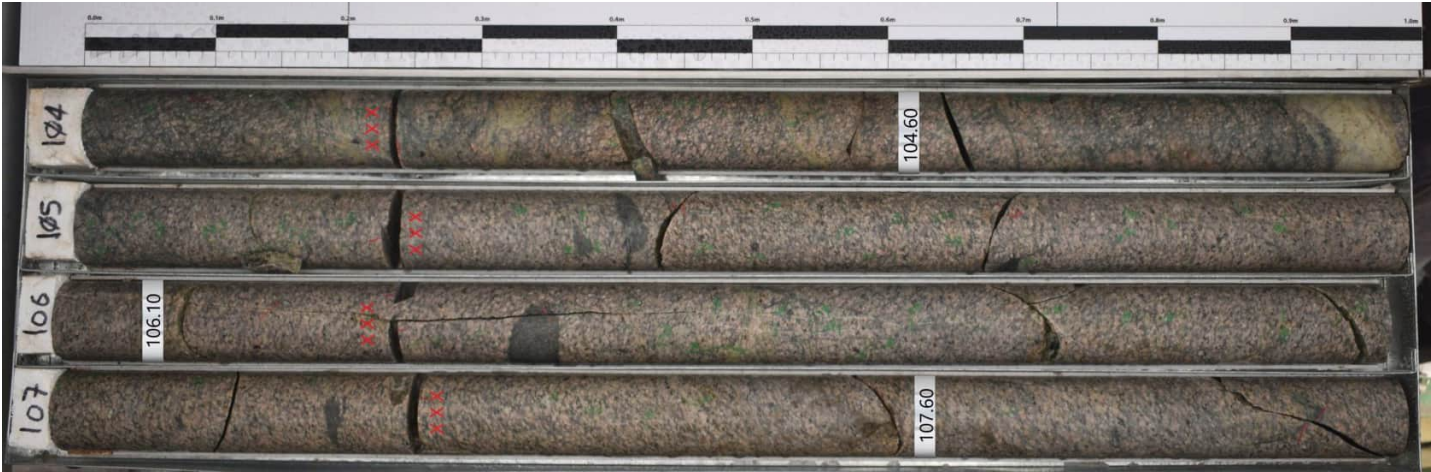
PointID : BHUA-12 Depth Range: 96.00 - 100.00 m



PointID : BHUA-12 Depth Range: 100.00 - 104.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN RC	DATE 16/10/2024	
		CHECKED GEM	DATE 16/10/2024	
		SCALE Not To Scale		A4
		PROJECT No PS138693		FIGURE No 12/15

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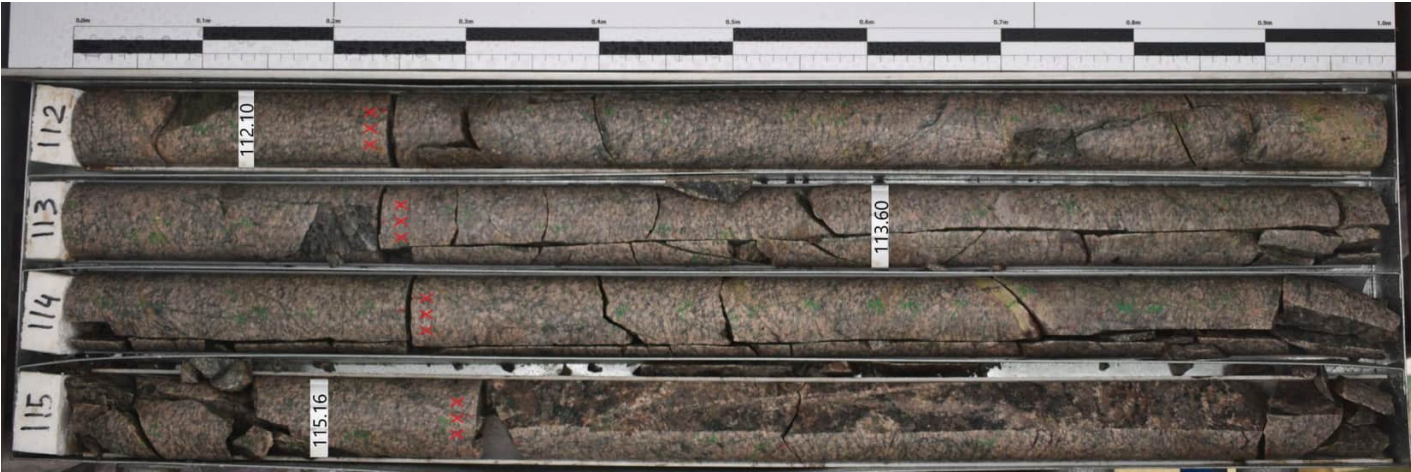


PointID : BHUA-12 Depth Range: 104.00 - 108.00 m

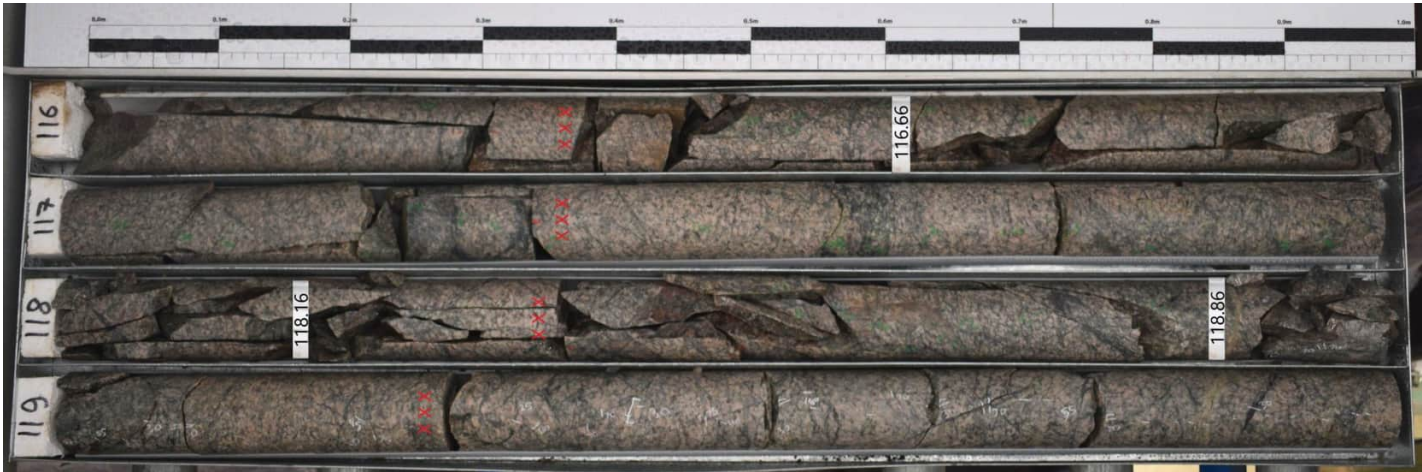


PointID : BHUA-12 Depth Range: 108.00 - 112.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE	Not To Scale		A4
		PROJECT No	PS138693		FIGURE No 13/15



PointID : BHUA-12 Depth Range: 112.00 - 116.00 m



PointID : BHUA-12 Depth Range: 116.00 - 120.00 m

	TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
		CHECKED	GEM	DATE	16/10/2024
		SCALE Not To Scale			A4
		PROJECT No PS138693		FIGURE No 14/15	

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PointID : BHUA-12 Depth Range: 120.00 - 124.00 m



PointID : BHUA-12 Depth Range: 124.00 - 127.33 m



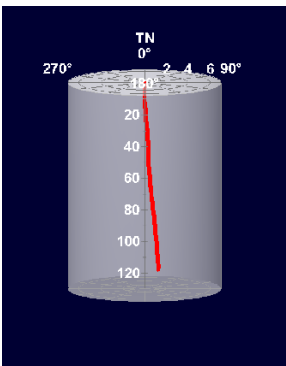
TITLE Queensland Hydro Netherdale/Dalrymple Heights Pioneer-Burdekin PHES Core Photo - BHUA-12	DRAWN	RC	DATE	16/10/2024
	CHECKED	GEM	DATE	16/10/2024
	SCALE	Not To Scale		A4
	PROJECT No	PS138693	FIGURE No	15/15



BHUA-12 Structural Log



PROJECT:	Pioneer-Burdekin PHES	JOB #	PS138693
CLIENT:	Queensland Hydro	DATE:	26/06/2024



LOCATION:	Upper Reservoir	BH DEPTH:	128.06 m
EASTING:	657845.620 m E	BH DIAMETER:	HQ (96 mm)
NORTHING:	7667599.470 m N	BH AZIMUTH:	007°
ELEVATION:	856.73 m	BH PLUNGE:	-87°
COORD SYSTEM:	MGA2020-55	CASING DEPTH:	9.10 m
LOGGING DATUM:	Ground Level	CASING TYPE:	HWT

LOGGED BY: JH

LOGGED DATE: 05/03/2024

DRAWN BY: SB
REVIEWED BY: GH

FILE: BHUA-12_Structure_RevD

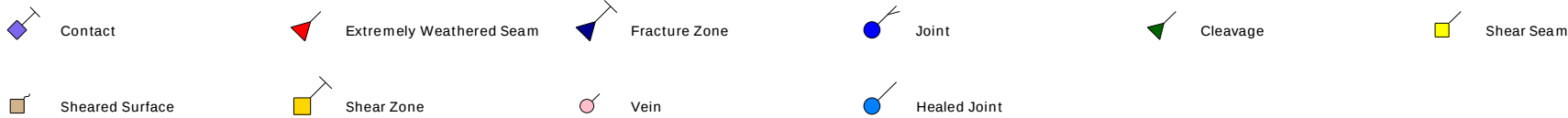
LOGGED DEPTH: 126.00 m

Image logs are oriented relative to borehole high side. Final structures corrected to true north using magnetic declination of 8.2 deg East.

Mechanical calliper log used for structure dip corrections.

All logs zeroed to ground level. Cased section assumed straight for deviation calculations.

INTERPRETED STRUCTURES



Depth		Image Logs				BHUA-12					Structural Data				Core
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo					
1m:20m	AHD	09000	07000	0°90°180°270°0°	0°90°180°270°0°	-0°	-0°	090 Freq/metre 0counts/m18	Schmidt Plot - LH - Type	Core Photo					
847.5															
9.5															
847.0															
10.0															
846.5															
10.5															
846.0															
11.0															
845.5															
11.5															
845.0															
12.0															
844.5															
12.5															
844.0															
13.0															
843.5															
13.5															
843.0															
14.0															
842.5															
1m:20m	AHD	09000	07000	0°90°180°270°0°	0°90°180°270°0°	-0°	-0°	090 Freq/metre 0counts/m18	Schmidt Plot - LH - Type	Core Photo					
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo					
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core					

Schmidt Plot - LH - Type

Depth: 10.00 [m] to 15.00 [m]

0°

180°

Counts

Dip[deg]

Azi[deg]

Mean

41

26.85

112.71

3

23.65

287.53

1

22.34

149.80

31

30.05

110.04

5

68.01

314.25

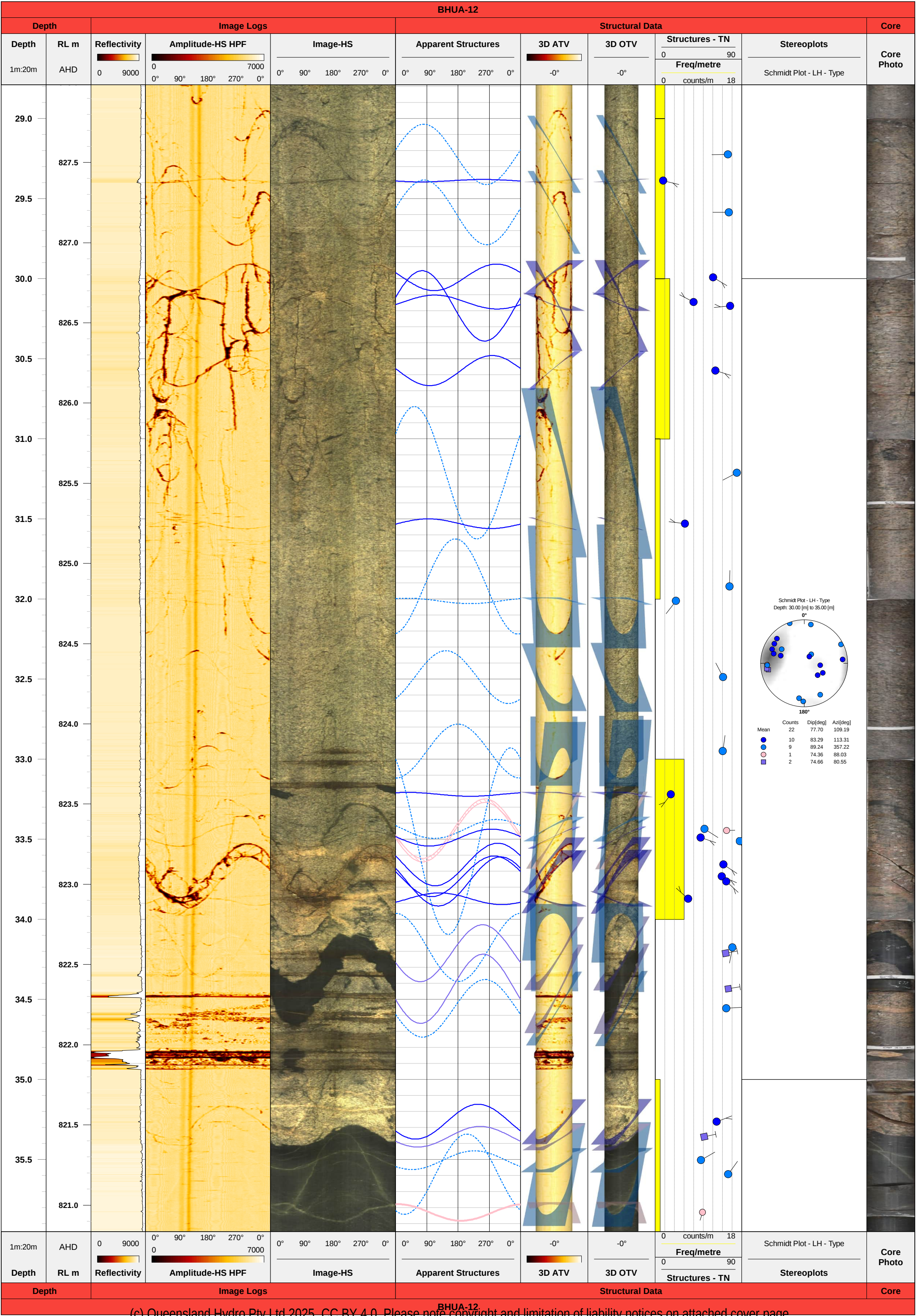
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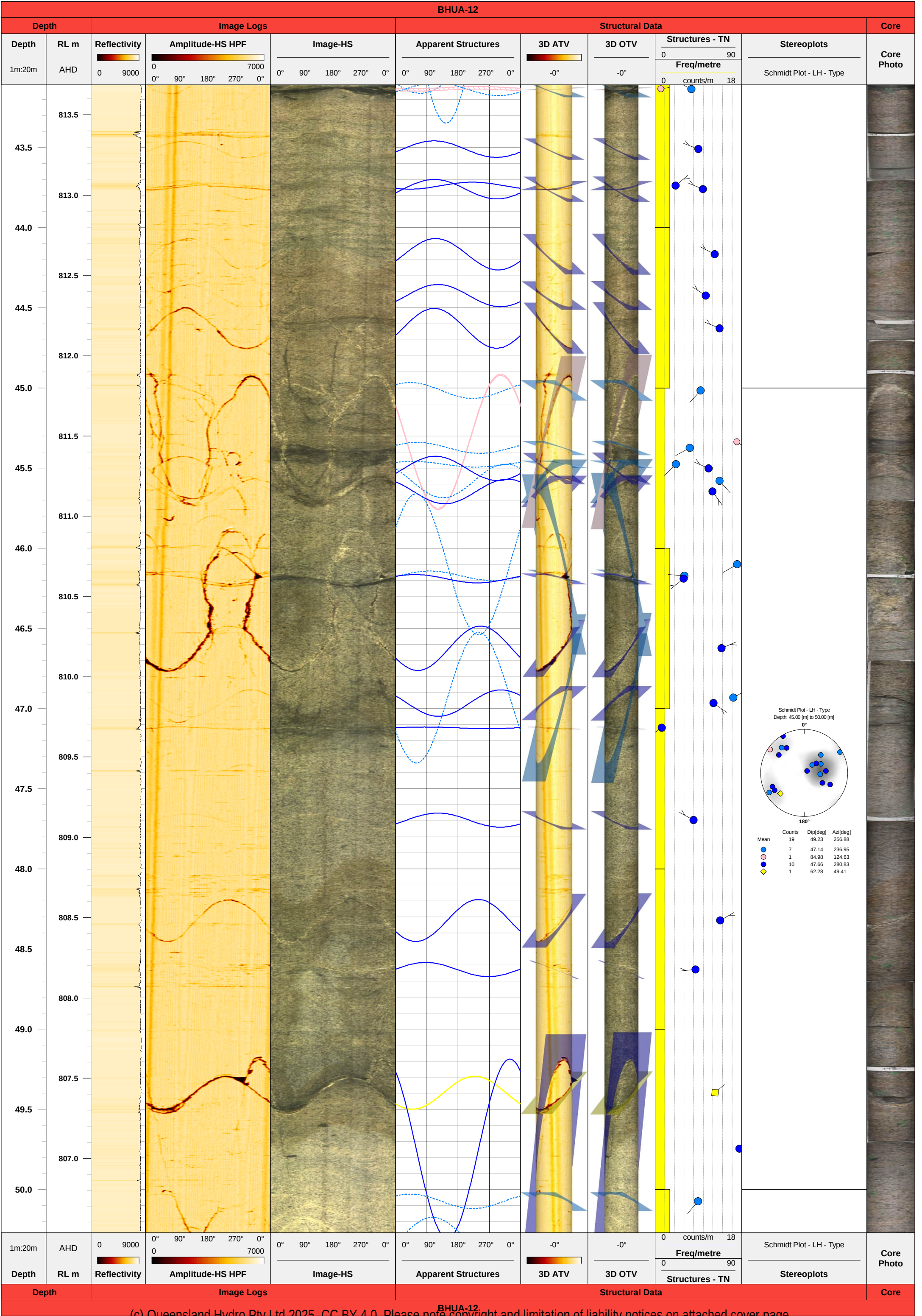
46.98

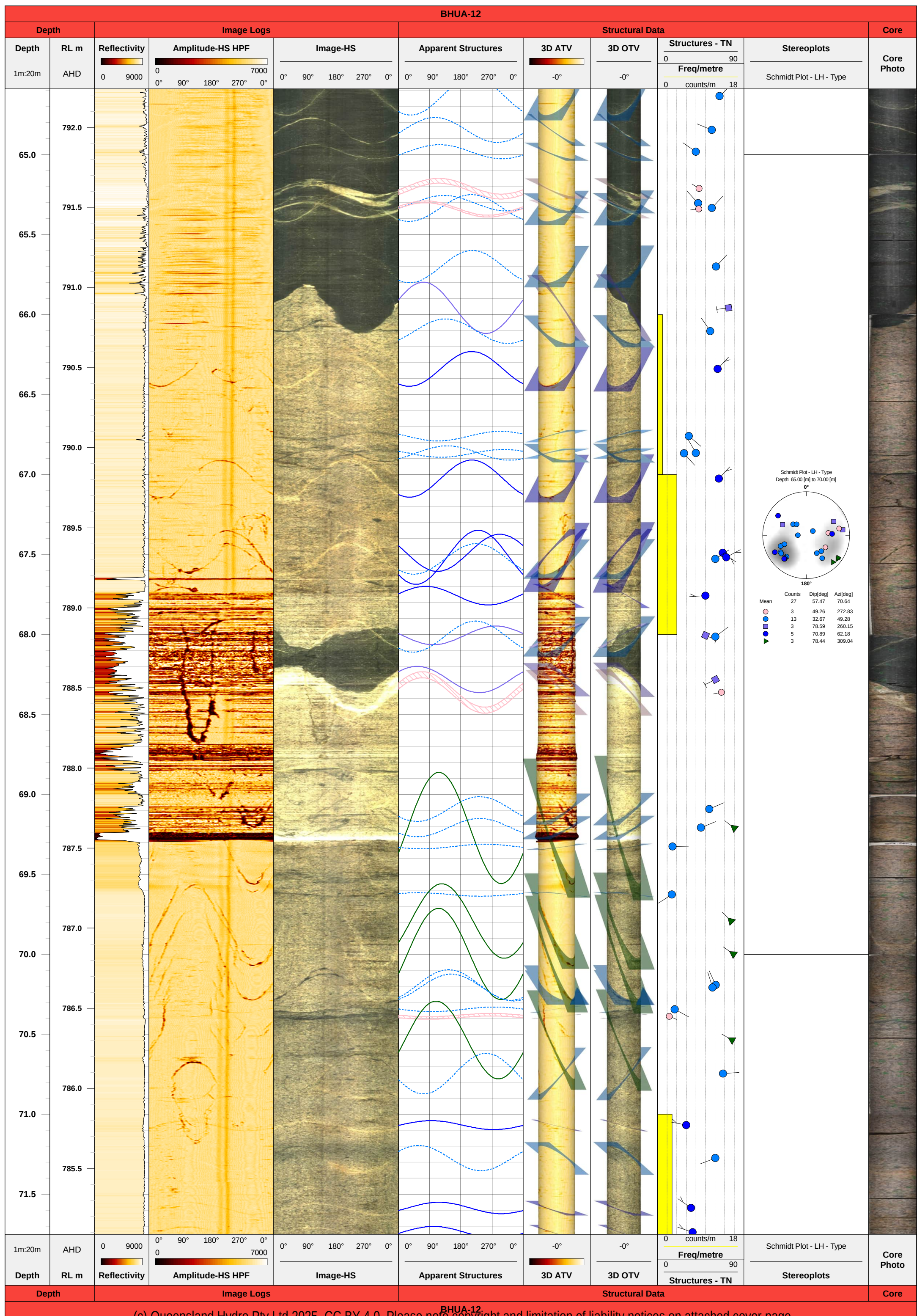
325.47

</

BHUA-12										
Depth		Image Logs			Structural Data					Core
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo
1m:20m	AHD	0 9000	0 7000 0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	-0°	-0°	0 90 Freq/metre 0 counts/m 18	Schmidt Plot - LH - Type	Core Photo
22.0	835.0									
22.5	834.5									
23.0	834.0									
23.5	833.5									
24.0	833.0									
24.5	832.5									
25.0	832.0									
25.5	831.5									
26.0	831.0									
26.5	830.5									
27.0	830.0									
27.5	829.5									
28.0	829.0									
28.5	828.5									
28.8	828.0									
1m:20m	AHD	0 9000	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	-0°	-0°	0 90 Freq/metre 0 counts/m 18	Schmidt Plot - LH - Type	Core Photo
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo







BHUA-12										
Depth		Image Logs			Structural Data					Core
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	Core Photo
1m:20m	AHD	09000	07000 0°90°180°270°0°	0°90°180°270°0°	0°90°180°270°0°	-0°	-0°	090 Freq/metre 0counts/m18	Schmidt Plot - LH - Type	Core Photo
Depth	RL m	Reflectivity	Amplitude-HS HPF	Image-HS	Apparent Structures	3D ATV	3D OTV	Structures - TN	Stereoplots	
Depth		Image Logs			Structural Data					Core

Schmidt Plot - LH - Type

Depth: 85.00 [m] to 90.00 [m]

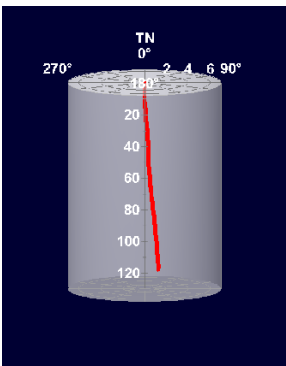
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BHUA-12 Composite Log



PROJECT:	Pioneer-Burdekin PHES	JOB #	PS138693
CLIENT:	Queensland Hydro	DATE:	26/06/2024



BOREHOLE DETAILS

DOCUMENT DETAILS

NOTES

LOCATION:	Upper Reservoir	BH DEPTH:	128.06 m
EASTING:	657845.620 m E	BH DIAMETER:	HQ (96 mm)
NORTHING:	7667599.470 m N	BH AZIMUTH:	007°
ELEVATION:	856.73 m	BH PLUNGE:	-87°
COORD SYSTEM:	MGA2020-55	CASING DEPTH:	9.10 m
LOGGING DATUM:	Ground Level	CASING TYPE:	HWT

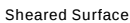
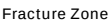
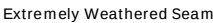
LOGGED BY: JH
LOGGED DATE: 05/03/2024
DRAWN BY: SB
REVIEWED BY: GH
FILE: BHUA-12_Comp_Rev1
LOGGED DEPTH: 126.00 m

Image logs are oriented relative to borehole high side. Final structures corrected to true north using magnetic declination of 8.2 deg East.

Mechanical calliper log used for structure dip corrections.

All logs zeroed to ground level. Cased section assumed straight for deviation calculations.

INTERPRETED STRUCTURES



BHUA-12

Depth	Image Logs			Calliper	Structural Logs			Sonic Logs	Gamma Logs		Electrical Logs		
Depth	Amplitude-HS HPF	Image-HS	Reflectivity	CAL	Structures - TN	3D ATV	Core Photo	Vp	GR	U	N16	Ma16	
	0 7000	0° 90° 180° 270° 0°	0 9000	80 mm 160	0 90	0 ms 50		1000 m/s 7000		0 ppm 10	500 Ohm.m 50000	0 ms 50	
	0° 90° 180° 270° 0°	0 9000	80 mm 160	0 counts/m 18	-0°	1000 m/s 7000		0 API 250		0 % 10	500 Ohm.m 50000	Ma64	
	0° 90° 180° 270° 0°	0 9000	80 mm 160	0 counts/m 18	-0°	1000 m/s 7000		0 API 250		0 ppm 10	500 Ohm.m 50000	0 ms 50	
1m:50m	0 7000	0° 90° 180° 270° 0°	0 9000	80 mm 160	0 counts/m 18	-0°		1000 m/s 7000		0 ppm 10	500 Ohm.m 50000	0 ms 50	
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
1m:50m	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0 9000	80 mm 160	0 counts/m 18	-0°		1000 m/s 7000	0 API 250	0 ppm 10	500 Ohm.m 50000	0 ms 50	
Depth	Amplitude-HS HPF	Image-HS	Reflectivity	CAL	Structures - TN	3D ATV	Core Photo	Vp	GR	Th	N8	Ma16	
Depth	Image Logs			Calliper	Structural Logs			Sonic Logs	Gamma Logs		Electrical Logs		

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