BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 1 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling					Sampling		Field Material Description					
METHOD / SUPPORT	PENETRATION RESISTANCE	WATER	LENGTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0.0	880.44 *0.10* 880.34				CI CI	TOPSOIL: Silty CLAY medium plasticity, dark red-brown Silty CLAY with sand medium plasticity, red-brown, with fine to medium grained sand	w ~ PL		TOPSOIL RESIDUAL SOIL Coring water returns were not recorded.
SSA	EP		2.5							w ~ PL	F - St	
			4.5		SPT 4.50-4.95 m 3, 5, 8 N=13							
			5.0									

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 2 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling					Sampling		Field Material Description					
METHOD / SUPPORT	PENETRATION RESISTANCE	WATER	LENGTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SSA			5.0		U 5.00-5.50 m LL = 50% PI = 19% LS = 8.0% ECN = 6 Soil Particle Density (t/m³) = 2.65			CI	Silty CLAY with sand medium plasticity, red-brown, with fine to medium grained sand			RESIDUAL SOIL
			5.5									
			6.0		SPT 6.00-6.45 m 3, 4, 5 N=9					w ~ PL		
			6.5									
			7.0									
	EP		7.5	7.50 872.94	SPT 7.50-7.95 m 2, 2, 5 N=7						F - St	
			8.0									
			8.5							w ~ LL		
WB			9.0		SPT 9.00-9.45 m 2, 3, 6 N=9							
			9.5									
			10.0									

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 3 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling					Sampling		Field Material Description					
METHOD / SUPPORT	PENETRATION RESISTANCE	WATER	LENGTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			10.0					CI	Silty CLAY with sand medium plasticity, red-brown, with fine to medium grained sand			RESIDUAL SOIL
				10.50 869.94	LL = 42% PI = 12% LS = 5.5% ECN = 6 Soil Particle Density (t/m³) = 2.59			ML	Sandy SILT with clay red-brown, fine to coarse grained sand, with clay, trace fine to coarse grained, sub-angular gravel			
			10.5	10.90 869.54	SPT 10.50-10.95 m 3, 2, 5 N=7				10.90m: Remnant rock fabric (white mineral elongation / foliation) observed on gravel.	w ~ LL	F - St	
			11.0									
			11.5									
				12.00 868.44	SPT 12.00-12.45 m 2, 8, 9 N=17				12.00m: Becomes very stiff		VSt	
			12.0	12.20 12.25 868.19				SM	12.20m: Becomes weakly cemented Silty SAND fine to coarse grained, red-brown mottled black and white, with clay, trace fine to coarse grained, sub-angular gravel, low plasticity fines			
WB	EP		12.5									
			13.0									
			13.5		SPT 13.50-13.95 m 5, 7, 9 N=16					W	MD - D	
			14.0									
			14.5									
			15.0									

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 4 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling					Sampling		Field Material Description					
METHOD / SUPPORT	PENETRATION RESISTANCE	WATER	LENGTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	MP		15.0		LL = 34% PI = 9% LS = 3.5% ECN = 5 Soil Particle Density (t/m³) = 2.73 SPT 15.00-15.45 m 10, 15, 17 N=32			SM	Silty SAND fine to coarse grained, red-brown mottled black and white, with clay, trace fine to coarse grained, sub-angular gravel, low plasticity fines	W	MD - D	
			15.5									
			16.0									
			16.5		SPT 16.50-16.95 m 7, 14, 11 N=25							
			17.0									
			17.5									
			18.0		SPT 18.00-18.40 m 8, 17, 20/100mm							
			18.5									
			19.0									
			19.5						For Continuation Refer to Sheet 5			
			20.0									

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ENGEO 2.00.2.2 LIB.GLB Log ENGEO NON-CORED FULL PAGE PIONEER BURDEKIN -MASTERBHT03 REWORK-AUSLAPTOP008.GPJ <<DrawingFile>> 30/10/2024 20:58 10.03.00.09 Datgel Tools

BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 5 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling						Field Material Description						Defect Information	
METHOD / SUPPORT	WATER	TCR	RQD	DRILLED LENGTH (metres)	DEPTH RL	GRAPHIC LOG	MATERIAL DESCRIPTION	DETAILED WEATHERING	INFERRED STRENGTH Is_{50} (MPa) (AS1726:2017) VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	MEASURED STRENGTH: UCS & I_{s50} (MPa)		DEFECT DESCRIPTION Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
				15.0									
				15.5									
				16.0									
				16.5									
				17.0									
				17.5									
				18.0									
				18.5									
				19.0									
					19.30		Continuation of Sheet 4						
					19.40		19.30 m - 19.40 m: CORE LOSS						
HQ3		80	0	19.5	861.05		ALTERED MICRO GRANITE with GRANITE bands, described overleaf	DW					
					19.60								
					860.85		19.60 m - 19.95 m: GRANITE band, medium to coarse grained, orange-brown, black and pale brown-white. Becomes pale grey and dark grey from 19.75 m to 19.95 m.	SA					
		100	100		*19.95*							19.93-20.19 m: J, 75°, Pln, Ro, Cn	
				20.0	860.50								

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 6 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling						Field Material Description				Defect Information	
METHOD / SUPPORT	WATER	TCR	RQD	DRILLED LENGTH (metres)	DEPTH RL	GRAPHIC LOG	MATERIAL DESCRIPTION	DETAILED WEATHERING	INFERRED STRENGTH Is_{50} (MPa) (AS1726:2017) VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	MEASURED STRENGTH: UCS & I_{s50} (MPa) (A.D.I.)	DEFECT DESCRIPTION Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
HQ3		100	100	20.0	*20.08* 860.37		ALTERED MICRO GRANITE with GRANITE bands Fine to medium grained, igneous intrusive. Dark grey and grey. Crystalline, anhedral feldspar with interstitial quartz. Weak / poorly developed foliation (indistinct), defined by alignment of mafic minerals, Granite bands 50 mm to 350 mm thick throughout; medium to coarse grained, white and dark grey, subhedral to anhedral crystals, sharp to diffuse boundaries. With some (>10/m) steep felsic veins (1 to 5 mm thick),, often with pale green alteration halos. 20.08 m - 20.30 m: GRANITE band; medium to coarse grained, pale grey-white and dark grey; with some mm to cm scale, fine to medium grained Dolerite (?) inclusions.	SA		UCS=174	20.36-20.38 m: J, 25°, Pln, Ro, Cn	
				20.5								
				21.0	*21.06* 859.39 859.35		21.06 m - 21.13 m: Brecciated (healed / unbroken), altered, potential minor fault (?) 21.10 m - 21.80 m: "Felsic" veinletts / microdykes up to 5mm thick, 60-80º, with potassic / propylitic (?) alteration halos up to 20mm.					
		100	100	21.5								
				22.0	*22.15* 858.30		22.15 m - 22.20 m; 22.70 - 22.76 m; 22.91 m - 22.94 m; 23.04 m - 23.06 m; and 23.33 m - 23.34 m: GRANITE bands, medium to coarse grained. White and dark grey.				22.58-22.58 m: J, 5°, Pln, Ro, CA Std 22.60-22.60 m: J, 5°, Pln, Ro, CA Std	
				22.5								
				23.0	*23.00* 857.45		23.00 m - 23.35 m: Moderate, pale grey-green propylitic (?) alteration.	MA			22.89-23.52 m: J, 90°, Pln, Ro, CA FL, <1mm. Appears to be infilled with a white mineral.	
		100	91		*23.44* 857.01		GRANITE with ALTERED MICROGRANITE bands Medium to coarse grained, igneous intrusive. White, pale grey and black. Crystalline, anhedral to subhedral With irregular shaped, cm scale, fine grained, dark grey mafic to intermediate inclusions throughout., Weak, patchy, pale green propylitic(?) alteration throughout. Some cross cutting, fine grained mafic to intermediate intrusions up to 250mm. 23.67 m - 23.93 m: DOLERITE (?) intrusion (dyke ?), fine grained, dark grey, irregular. Distinct contacts at top and bottom.	SA			23.25-23.36 m: J, 45°, Und, Ro, CA Std	
				23.5	*23.67* 856.78			SA - FR			23.46-23.56 m: J, 75°, Pln, Ro, CA FL, Infilled with white mineral. 23.48-23.67 m: J, 75°, Pln, Ro, CA FL, Infilled with white mineral.	
				24.0				SA			23.86-23.93 m: J, 90°, Pln, Ro, CA Std	
		100	93		*24.40* 856.05		24.40 m - 24.57 m: Weak, pale pink potassic (?) alteration of orthoclase (?).					
				24.5	*24.57* 855.88		24.57 m - 24.70 m: DACITE (?) intrusion, fine grained, dark green to dark green grey. Fine grained silica (quartz) blebs to 6mm, irregular distribution. Epidote (?) alteration at boundary.				24.56-24.57 m: J, 5°, Pln, Ro, CA Ct, Coating of white mineral. 24.65-24.67 m: J, 20°, Pln, Sm, Cn 24.67-24.76 m: J, 45°, Cvd, Sm, Std	
					24.87 855.58		24.87 m - 25.15 m: MICROGRANITE band, fine to medium grained, dark grey and grey, irregular	FR			24.86-24.88 m: J, 10°, Irr, Ro, Cn	
				25.0								

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 7 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling						Field Material Description					Defect Information	
METHOD / SUPPORT	WATER	TCR	RQD	DRILLED LENGTH (metres)	DEPTH RL	GRAPHIC LOG	MATERIAL DESCRIPTION	DETAILED WEATHERING	INFERRED STRENGTH Is_{50} (MPa) (AS1726:2017) VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	MEASURED STRENGTH: UCS & I_{s50} (MPa) (A.D.I.)	DEFECT DESCRIPTION Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
HQ3		100	93	25.0			margins. GRANITE with ALTERED MICROGRANITE bands Medium to coarse grained, igneous intrusive. White, pale grey and black. Crystalline, anhedral to subhedral With irregular shaped, cm scale, fine grained, dark grey mafic to intermediate inclusions throughout.,	FR			25.12-25.20 m: J, 45°, Pln, Ro, Std 25.16-25.29 m: J, 60°, Cvd, Ro, Std	
					25.40 855.05		Weak, patchy, pale green propylitic(?) alteration throughout. Some cross cutting, fine grained mafic to intermediate intrusions up to 250mm.	SA			25.32-25.53 m: J, 90°, Und, Ro, Std	
				25.5			25.40 m - 25.55 m: MICROGRANITE band, fine to medium grained, dark grey and grey, irregular margins.	FR - SA			25.52-25.69 m: J, 90°, Und, Ro, Std 25.54-26.14 m: J, 85°, Pln, Ro, Std	
		100	100	26.0	*26.20* 854.25		26.20 m - 26.35 m: Weak, pale pink and pale green potassic / propylitic (?) alteration.				26.24-26.59 m: J, 85°, Und, Ro, Std	
					26.35 854.10		26.35 - 26.95 m: Strong, pale green-grey, propylitic (?) alteration associated with healed veinletts.	SA				
				26.5							26.46-26.48 m: J, 60°, Pln, Ro, Std	
				27.0	*27.35* 853.10		27.35 m - 27.38 m: MICROGRANITE inclusion, fine to medium grained, dark grey, round, irregular margins.				27.34-27.34 m: J, 15°, Pln, Sm, Std	
				27.5	*27.60*							
		100	91		852.85		27.62 m - 28.14 m; and 28.16 m - 28.50 m: MICROGRANITE bands, fine to medium grained, dark grey and grey, irregular margins.				27.61-27.61 m: J, 0°, Pln, Sm, Std 27.66-27.66 m: J, 10°, Pln, Sm, Std	
				28.0							27.89-27.89 m: J, 15°, Pln, Ro, Cn	
					28.27 852.18		28.27 m - 28.33 m: PEGMATITE vein (?), irregular.				28.29-28.29 m: J, 0°, Pln, Ro, Std	
					28.40 852.05		28.40 m - 29.00 m: Several irregular shaped MICROGRANITE inclusions, fine to medium grained, mm to cm scale, grey and dark grey.				28.34-28.37 m: J, 40°, Pln, Ro, Std	
				28.5							28.78-28.86 m: J, 45°, Pln, Sm, Std	
				29.0	*29.00* 851.45		ALTERED MICROGRANITE with GRANITE bands Fine to medium grained. Grey and dark grey (described as per 30.00m overleaf)					
		100	100		*29.15* 851.30		29.15 m - 29.35 m: GRANITE inclusions, medium to coarse grained, white, dark grey and pale grey, crystalline. 29.90-30.37 m: GRANITE inclusions, medium to coarse grained, white, dark grey and pale grey, crystalline.				29.23-29.42 m: J, 65°, Pln, Ro, Std	
				29.5							29.57-29.61 m: J, 55°, Pln, Sm	
											29.76-29.89 m: J, 25°, Pln, Ro, Std	
		100	95	30.0	*30.00*							

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BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 8 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling						Field Material Description					Defect Information	
METHOD / SUPPORT	WATER	TCR	RQD	DRILLED LENGTH (metres)	DEPTH RL	GRAPHIC LOG	MATERIAL DESCRIPTION	DETAILED WEATHERING	INFERRED STRENGTH Is_{50} (MPa) (AS1726:2017) VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	MEASURED STRENGTH: UCS & I_{s50} (MPa) (A.D.L.)	DEFECT DESCRIPTION	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
				30.0	850.45		ALTERED MICROGRANITE with GRANITE bands Fine to medium grained, igneous intrusive. Grey and dark grey. Crystalline, subhedral to anhedral. Occasional GRANITE bands up to 150mm thick encountered throughout, Weak, patchy, pale green propylitic (?) alteration throughout. 30.17 m - 30.39 m: Steeply inclined (~70°) felsic vein, <30mm thick, intact.	SA			30.00-30.06 m: J, 45°, Pln, Ro	
					30.17 850.28							
				30.5								
		100	95		*30.75* 849.70		30.75 m - 30.92 m: Grey-green propylitic (?) alteration.				30.65-30.67 m: J, 25°, Pln, Ro	
					30.92 849.53		30.92 m - 31.05 m; 31.16 m - 31.19 m; 31.33 m - 31.40 m; 31.72 m - 31.75 m; 31.97 m - 32.05 m, 32.15 m - 32.26 m; 33.06 m - 33.07 m; 33.11 m - 33.12 m; 33.25 m - 33.40 m; 34.19 m - 34.20 m; 34.44 m - 34.48 m; 34.61 m - 34.70 m; and 34.80 m - 34.87 m:, GRANITE bands, medium to coarse grained, white and dark grey, subhedral to anhedral feldspar with interstitial quartz, annealed, indistinct crystal boundaries.				31.03-31.03 m: J, 5°, Pln, Ro, Std 31.17-31.24 m: J, 45°, Pln, Sm, Std	
				31.0								
											31.39-31.39 m: J, 5°, Irr, Ro, Std	
				31.5								
				32.0								
		100	93								32.11-32.11 m: J, 10°, Pln, Ro, Cn 32.21-32.21 m: J, 5°, Pln, Ro, Cn	
HQ3												
				32.5						UCS=118		
											32.69-32.74 m: J, 45°, Irr, Ro, Cn	
					32.80 847.66		32.80 m - 33.55 m: Weak green propylitic alteration.				32.87-32.91 m: J, 60°, Irr, Ro, Cn	
				33.0								
					33.12 847.34		33.12 m - 33.35 m: Moderately strong green, green-grey propylitic (?) alteration.	MA				
					33.30 847.16		33.30 m - 33.45 m: Altered GRANITE band (potassic / propylitic ?), medium grained, pale green brown, subhedral to anhedral.					
				33.5				MA - SA				
		100	100					SA				
				34.0								
											34.20-34.22 m: J, 0°, Pln, Ro, Cn	
				34.5								
		100	92								34.68-34.68 m: J, 0°, Pln, Ro 34.74-34.77 m: J, 65°, Pln, Ro, Cn	
				35.0								

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ENGEO 2.00.2.2 LIB.GLB Log ENGEO CORED BOREHOLE PIONEER BURDEKIN -MASTERBHT03 REWORK-AUSLAPTOP008.GPJ <<DrawingFile>> 30/10/2024 17:39 10.03.00.09 Datgel Tools

BOREHOLE: BHUA-03

CLIENT: SMEC
PROJECT: Pioneer Burdekin PHES GI
LOCATION: Dalrymple Heights
JOB NO: 23117.000.001

COORDS: 659246.8 m 7666570.3 m GDA 2020 MGA Zone 55
SURFACE RL: 880.44 m DATUM: AHD
INCLINATION: -88° DIRECTION: 182°
HOLE DIA: 96/100 mm HOLE DEPTH: 35.05 m

SHEET: 9 OF 9
DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 15/8/23
CHECKED: SF DATE: 16/10/23

Drilling						Field Material Description					Defect Information	
METHOD / SUPPORT	WATER	TCR	RQD	DRILLED LENGTH (metres)	DEPTH RL	GRAPHIC LOG	MATERIAL DESCRIPTION	DETAILED WEATHERING	INFERRED STRENGTH Is_{50} (MPa) (AS1726:2017) VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	MEASURED STRENGTH: UCS & I_{s50} (MPa) (A.D.I.)	DEFECT DESCRIPTION	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
				35.0	35.05						Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	
					845.41		END OF BOREHOLE @ 35.05 m TARGET DEPTH GROUNDWATER NOT OBSERVED GROUTED Bearing is approximate only.					
				35.5								
				36.0								
				36.5								
				37.0								
				37.5								
				38.0								
				38.5								
				39.0								
				39.5								
				40.0								

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JOB No.:	30032772
Client:	Queensland Hydro
Site:	Pioneer-Burdekin

Borehole ID:	BHUA-03
Termination Depth:	35.05

Depth (m)			Type	Angle (°)	Roughness	Shape	Infill	Weathering	Nature	Comments
From	To	Midpoint								
19.88	19.93	19.905	Alteration Zone	45	Rough	Undulating		Moderately Altered	Infilled	Alteration with a type of white infill, up to 3mm thickness.
19.93	20.19	20.06	Joint	75	Rough	Planar		Moderately Weathered	Clean	
19.98	19.98	19.98	Alteration Zone	0	Smooth	Planar		Slightly Altered	Stained	Appears as a smokey green stain along the rock. 5mm thick.
20.07	20.1	20.085	Alteration Zone	20	Smooth	Planar		Slightly Altered	Stained	Appears as a smokey greenish stain along the rock. 5mm thick.
20.36	20.38	20.37	Joint	25	Rough	Planar		Slightly Weathered	Clean	
20.36	20.4	20.38	Alteration Zone	60	Smooth	Planar		Moderately Altered		2mm band with greenish colouration.
20.45	20.5	20.475	Alteration Zone	45	Smooth	Planar		Moderately Altered		2mm band with greenish colouration.
20.49	20.54	20.515	Alteration Zone	85	Smooth	Planar		Moderately Weathered		1mm band with greenish colouration.
20.52	20.73	20.625	Alteration Zone	85	Rough	Planar		Moderately Altered	Stained	1mm band of greenish alteration, has the same shape at lightning.
20.56	20.56	20.56	Joint	0	Rough	Planar		Slightly Weathered	Stained	
20.9	20.95	20.925	Alteration Zone	45	Rough	Planar		Moderately Altered	Stained	
21.1	21.28	21.19	Alteration Zone	70	Rough	Planar		Slightly Altered	Stained	Thick zone of smokey alteration.
21.23	21.34	21.285	Alteration Zone	85	Rough	Curved		Slightly Altered	Stained	Circular section of alteration.
21.49	21.75	21.62	Alteration Zone	80	Rough	Undulating		Slightly Altered	Stained	
21.57	21.8	21.685	Alteration Zone	80	Very Rough	Curved		Moderately Altered	Stained	
21.8	21.9	21.85	Alteration Zone	90	Very Rough	Irregular		Highly Altered	Infilled	Ink blot shape of alteration. Solid white colouration.
22.19	22.27	22.23	Alteration Zone	80	Rough	Undulating		Slightly Altered	Stained	
22.21	22.21	22.21	Shear	0	Smooth	Planar			Clean	Signs of a shear face causing discontinuities along an exiting joint/altered seam.
22.34	22.54	22.44	Alteration Zone	75	Rough	Planar		Slightly Altered	Stained	
22.57	22.7	22.635	Alteration Zone	70	Rough	Planar		Slightly Weathered	Stained	
22.58	22.58	22.58	Joint	5	Rough	Planar	Calcite	SlightlyWeathered	Stained	
22.6	22.6	22.60	Joint	5	Rough	Planar	Calcite	Slightly Weathered	Stained	
22.89	23.52	23.21	Joint	90	Rough	Planar	Calcite	Slightly Weathered	Infilled	<1mm. Appears to be infilled with a white mineral.
23.25	23.36	23.31	Joint	45	Rough	Undulating	Calcite		Stained	
23.46	23.56	23.51	Joint	75	Rough	Planar	Calcite	Slightly Altered	Infilled	Infilled with white mineral.
23.48	23.67	23.58	Joint	75	Rough	Planar	Calcite	Slightly Altered	Infilled	Infilled with white mineral.
23.86	23.93	23.90	Joint	90	Rough	Planar	Calcite	SlightlyWeathered	Stained	
24.22	24.37	24.295	Alteration Zone	80	Rough	Planar		Slightly Altered	Stained	Appears as surficial green staining.
24.3	24.71	24.505	Alteration Zone	80	Rough	Planar		Slightly Altered	Stained	Appears as surficial green staining.
24.56	24.57	24.57	Joint	5	Rough	Planar	Calcite	Slightly Weathered	Coated	Coating of white mineral.
24.65	24.67	24.66	Joint	20	Smooth	Planar		Fresh	Clean	
24.67	24.76	24.72	Joint	45	Smooth	Curved		Slightly Weathered	Stained	
24.86	24.88	24.87	Joint	10	Rough	Irregular		Fresh	Clean	
25.12	25.20	25.16	Joint	45	Rough	Planar			Stained	
25.16	25.29	25.23	Joint	60	Rough	Curved			Stained	
25.32	25.53	25.43	Joint	90	Rough	Undulating			Stained	
25.52	25.69	25.61	Joint	90	Rough	Undulating			Stained	
25.54	26.14	25.84	Joint	85	Rough	Planar			Stained	
25.96	26.07	26.015	Vein		Rough	Planar		Moderately Altered	Infilled	White infill.
26.24	26.59	26.42	Joint	85	Rough	Undulating			Stained	
26.27	26.53	26.4	Alteration Zone	45	Rough	Planar		Slightly Altered	Stained	Whitish green stain, up to approx. 120mm thick.
26.41	26.54	26.475	Alteration Zone	45	Rough	Planar		Slightly Altered	Stained	Whitish green stain, up to approx. 60mm thick.
26.46	26.48	26.47	Joint	60	Rough	Planar			Stained	
26.53	26.72	26.625	Alteration Zone	45	Rough	Planar		Slightly Altered	Stained	Whitish green stain, up to approx. 10mm thick.
26.64	26.92	26.78	Alteration Zone	80	Rough	Planar		Slightly Altered	Stained	Whitish green stain.
26.86	27	26.93	Vein	45	Rough	Planar		Slightly Altered	Infilled	White mineral infill.
27	27.24	27.12	Vein	75	Rough	Planar		Slightly Altered	Infilled	2mm white infill.
27.11	27.33	27.22	Vein	70	Rough	Planar		Slightly Altered	Infilled	2mm white infill.
27.11	27.37	27.24	Vein	85	Rough	Planar		Slightly Altered	Infilled	1mm white infill.
27.34	27.34	27.34	Joint	15	Smooth	Planar				
27.45	27.59	27.52	Vein	50	Rough	Planar		Slightly Altered	Infilled	Whire infill.
27.46	27.52	27.49	Vein	90	Rough	Curved		Slightly Altered	Infilled	5mm of whitish vreem infill.
27.48	27.62	27.55	Vein	50	Rough	Planar		Slightly Altered	Infilled	White nfill.
27.61	27.61	27.61	Joint	0	Smooth	Planar				
27.66	27.66	27.66	Joint	10	Smooth	Planar		Slightly Altered		
27.76	27.76	27.76	Alteration Zone	10	Rough	Planar		Slightly Altered		5 mm of white/green infill.
27.89	27.89	27.89	Joint	15	Rough	Planar			Clean	
27.97	28.04	28.005	Alteration Zone	20	Rough	Planar		Slightly Altered	Stained	
28.29	28.29	28.29	Joint	0	Rough	Planar		Slightly Altered	Stained	

Depth (m)			Type	Angle (°)	Roughness	Shape	Infill	Weathering	Nature	Comments
From	To	Midpoint								
28.34	28.37	28.36	Joint	40	Rough	Planar		Slightly Altered	Stained	
28.45	28.65	28.55	Vein	80	Rough	Curved		Slightly Altered	Infilled	
28.78	28.86	28.82	Joint	45	Smooth	Planar		Slightly Altered	Stained	
29.05	29.78	29.415	Vein	90	Rough	Planar			Infilled	White infill 1mm.
29.23	29.42	29.33	Joint	65	Rough	Planar			Stained	
29.39	29.48	29.435	Vein	45	Rough	Irregular			Infilled	
29.57	29.61	29.59	Joint	55	Smooth	Planar		Slightly Altered		
29.76	29.89	29.83	Joint	25	Rough	Planar			Stained	
30	30.06	30.03	Joint	45	Rough	Planar		Slightly Altered		
30.11	30.16	30.135	Vein	45	Smooth	Planar		Slightly Altered	Infilled	
30.16	30.41	30.285	Vein	75	Rough	Irregular		Slightly Altered	Infilled	
30.28	30.55	30.415	Alteration Zone	45	Rough	Planar		Slightly Altered	Stained	Whitish green stain.
30.38	30.46	30.42	Alteration Zone	45	Rough	Planar		Slightly Altered	Stained	Whitish green stain.
30.58	30.82	30.7	Alteration Zone	70	Rough	Planar		Slightly Altered	Stained	
30.65	30.67	30.66	Joint	25	Rough	Planar		Slightly Altered		
31.03	31.03	31.03	Joint	5	Rough	Planar		Slightly Altered	Stained	
31.16	31.23	31.195	Alteration Zone	50	Rough	Planar		Slightly Altered	Stained	Whitish green stain.
31.17	31.24	31.21	Joint	45	Smooth	Planar		Slightly Altered	Stained	
31.27	31.37	31.32	Alteration Zone	50	Rough	Planar		Slightly Altered	Stained	Whitish green stain.
31.32	32.49	31.905	Vein	70	Rough	Planar		Slightly Altered	Infilled	2mm white infill.
31.39	31.39	31.39	Joint	5	Rough	Irregular		Slightly Altered	Stained	
31.49	31.56	31.525	Vein	45	Rough	Planar			Infilled	2mm white infill.
31.74	31.94	31.84	Vein	80	Rough	Undulating		Slightly Altered	Infilled	Pink/white infill.
32.11	32.11	32.11	Joint	10	Rough	Planar			Clean	
32.21	32.21	32.21	Joint	5	Rough	Planar			Clean	
32.23	32.25	32.24	Alteration Zone	20	Rough	Planar		Slightly Altered	Stained	Green stain.
32.69	32.74	32.72	Joint	45	Rough	Irregular			Clean	
32.87	32.91	32.89	Joint	60	Rough	Irregular			Clean	
32.93	33.07	33	Alteration Zone	75	Rough	Planar			Clean	
33.11	33.18	33.145	Alteration Zone	50	Rough	Curved		Slightly Altered	Stained	Appears as a greenish stain.
33.17	33.26	33.215	Alteration Zone	60	Rough	Curved			Stained	Appears as a greenish stain.
33.2	33.29	33.245	Vein	85	Rough	Planar		Slightly Altered		
33.25	33.43	33.34	Vein	90	Rough	Undulating		Slightly Altered		
33.43	33.71	33.57	Vein	80	Rough	Planar		Slightly Altered	Infilled	Infilled with white mineral. 30mm thick at thickest part.
33.92	34.07	33.995	Vein	70	Rough	Undulating			Infilled	Green infill.
33.96	34.03	33.995	Vein	45	Rough	Curved		Slightly Altered	Infilled	2mm thick green infill.
34.15	34.28	34.215	Vein	85	Rough	Planar			Infilled	
34.16	34.22	34.19	Vein	50	Smooth	Planar			Infilled	
34.16	34.28	34.22	Vein	85	Rough	Planar			Infilled	
34.2	34.22	34.21	Joint	0	Rough	Planar			Clean	
34.48	34.48	34.48	Joint	0	Rough	Irregular			Clean	
34.6	34.65	34.625	Vein	45	Rough	Planar			Infilled	1mm infill.
34.68	34.68	34.68	Joint	0	Rough	Planar				
34.74	34.77	34.76	Joint	65	Rough	Planar			Clean	
34.77	34.9	34.835	Vein	70	Rough	Undulating			Infilled	1mm infill.
34.91	35	34.955	Vein	45	Rough	Undulating			Infilled	
34.93	35.05	34.99	Vein	45	Rough	Planar			Infilled	
34.95	34.95	34.95	Joint	0	Rough	Irregular			Clean	

Borehole No.: BHUA-03	**Depth Range:** 19.3-23.0	**Box:** 1 / 5

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** GOK	**Page No.** 1/5
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 18/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BHUA-03	**Depth Range:** 23.0 – 27.0m	**Box:** 2 / 5

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** GOK	**Page No.** 2/5
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 18/08/23	**Revision:** 0	**Scale:** N/A

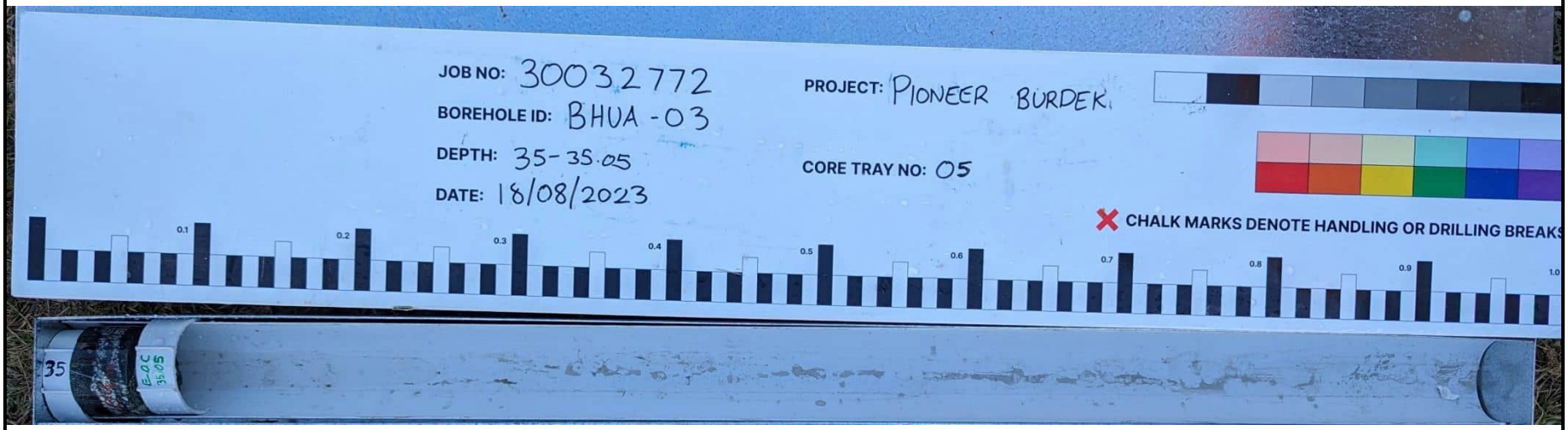
Borehole No.: BHUA-03	**Depth Range:** 27.0 – 31.0m	**Box:** 3 / 5

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** GOK	**Page No.** 3/5
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 18/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BHUA-03	**Depth Range:** 31.0 – 35.0m	**Box:** 4 / 5

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** GOK	**Page No.** 4/5
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 18/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BHUA-03	**Depth Range:** 35.0 – 35.05m	**Box:** 5 / 5



ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** GOK	**Page No.** 5/5
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 18/08/23	**Revision:** 0	**Scale:** N/A

COMPOSITE LOG

BOREHOLE TELEVIEWER AND FULL WAVEFORM SONIC LOGS AND ADVANCED ANALYSIS

Epiroc

Hole Name	BHUA_03	**Drill Depth**	35.0m	**Grid Name**		**Logging Unit**	SV013
Field	EUNGELLA	**Bit Size**	9.6CM	**Collar Easting**	659134m	**Engineer**	DAMON HOSKING
Log Date	18/08/23	**Casing Type**	STEEL	**Collar Northing**	7666388m	**Client Representative**	ROB CAINE
Location	PIONEER-BURDEKIN	**Casing Depth**	18.6m	**Reduced Level**		**Service Type**	Televiewer Interpretation

TELEVIEWER LOGS

Amplitude	ATV Amplitude Image
TT-CENT	Centralised ATV Travel Time Image
3D TV LOG	3D Televiewer Image
Caliper TT-CENT	Acoustic Travel Time Caliper
OTV Picture	Optical Televiewer Image

FULL WAVFORM SONIC LOG & MECHANICAL PROPERTIES

STC-MP	Monopole Slowness-Time-Coherence Projection
DTC	Compressional wave slowness
DTS	Shear wave slowness
VP	Compressional wave velocity
VS	Shear wave velocity
VPVS	Compressional to Shear wave velocity ratio
UCS	Uniaxial (Unconfined) Compressive Strength
Poisson's Ratio	Indicator of material elastic deformation
Young's Modulus	Material length change by applied stress
Bulk Modulus	Change in material volume by applied stress
Shear Modulus	Transverse material displacement by applied stress

STRUCTURAL LOGS

DIPA	Apparent Dip Feature Picks (Sinusoid Presentation)
DIPT	True Dip Feature Picks (Tadpole Presentation)
RD - STRIKE	Rose Diagram - Strike Open Fract. (Arrows represent Mean Vector)
PP - DIP	Polar Projection - Dip (Schmidt) (Lower Hemisphere)

STRUCTURAL ANALYSIS LOGS

RQD	Rock Quality Designation
AFD	(Partial) Open Apparent Fracture Density
TFD	(Partial) Open True Fracture Density
RHI	Rock Hardness Index

GEOPHYSICAL AND VERTICALITY LOGS

Density	Density Log
GAMMA	Natural Gamma Ray
Tilt	Hole Inclination (0 = Vertical Down)
Azimuth	Hole Azimuth
CALIPER	Mechanical Caliper

FEATURES & TADPOLES

Closed Fracture — Foliation/Banding/Bedding — Healed Fracture/Vein

COMMENTS

Image and azimuth data are presented oriented to True north. The magnetic declination correction is +8.12 degrees.

Rock Quality Designation (RQD) is the (Sum of length of image interval sections of more than 10 cm length unaffected by open fractures, faults & breakouts) divided by the (Total length of the interval) times (100%). RQD has been calculated for one meter intervals.

The STC-MP track was produced by processing the RX1-1A (60 cm), RX2-1A (80 cm), RX3-1A (100 cm) and RX4-1A (120 cm) receiver data after applying a moving average filter, stacking and a frequency filter.

Uniaxial Compressive Strength (UCS) was calculated using an exponential trendline between DTC and UCS (McNally, 1987): UCS = 1200 * exp(-0.036 * DTC) , with UCS in MPa and DTC in µs/m units.

Poisson's Ratio was calculated from DTC & DTS. Young's, Bulk & Shear Modulus were calculated from DTC, DTS & Density estimated as ρ = 0.31.Vp exp(1/4)

IMPORTANT NOTE

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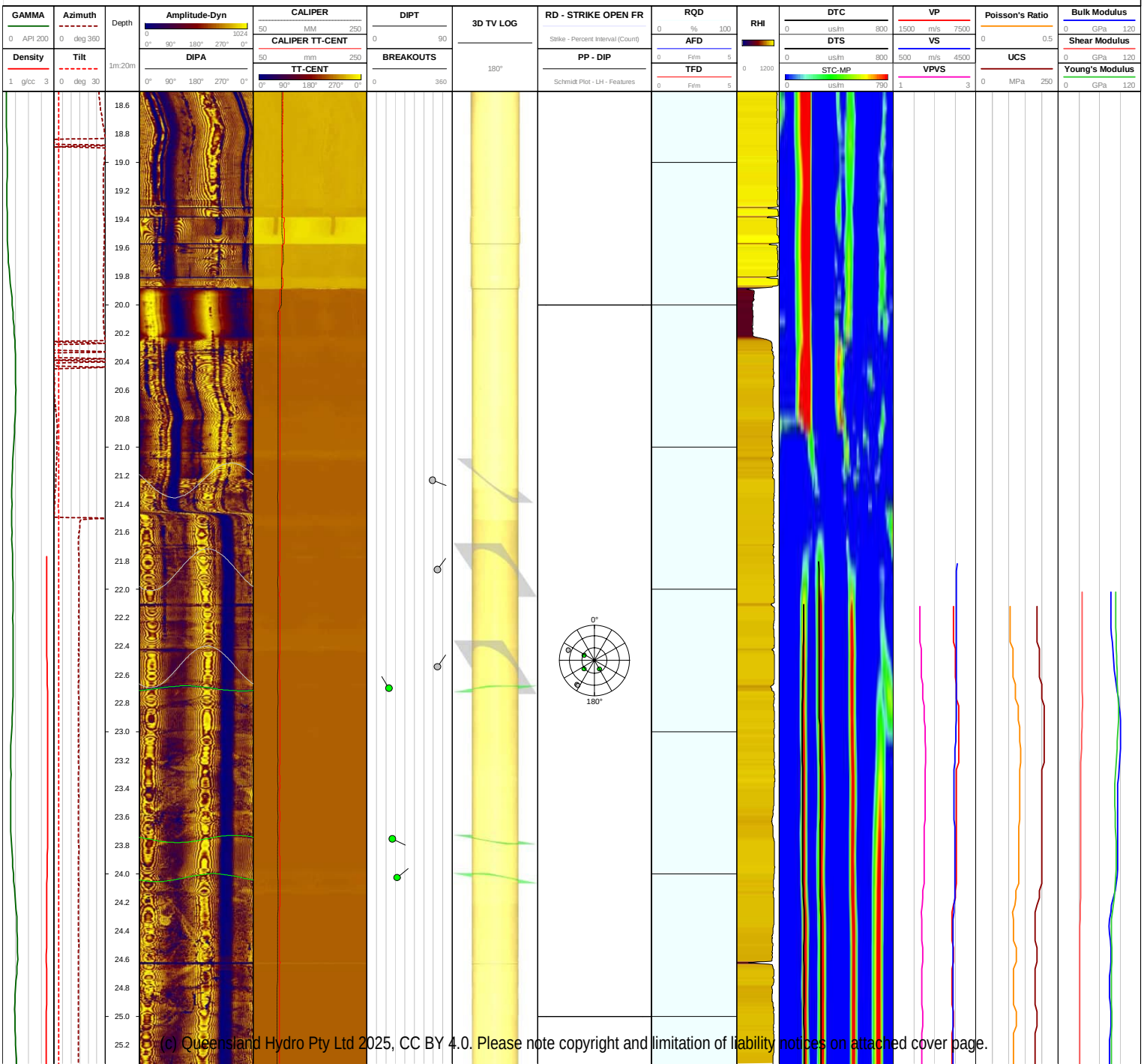
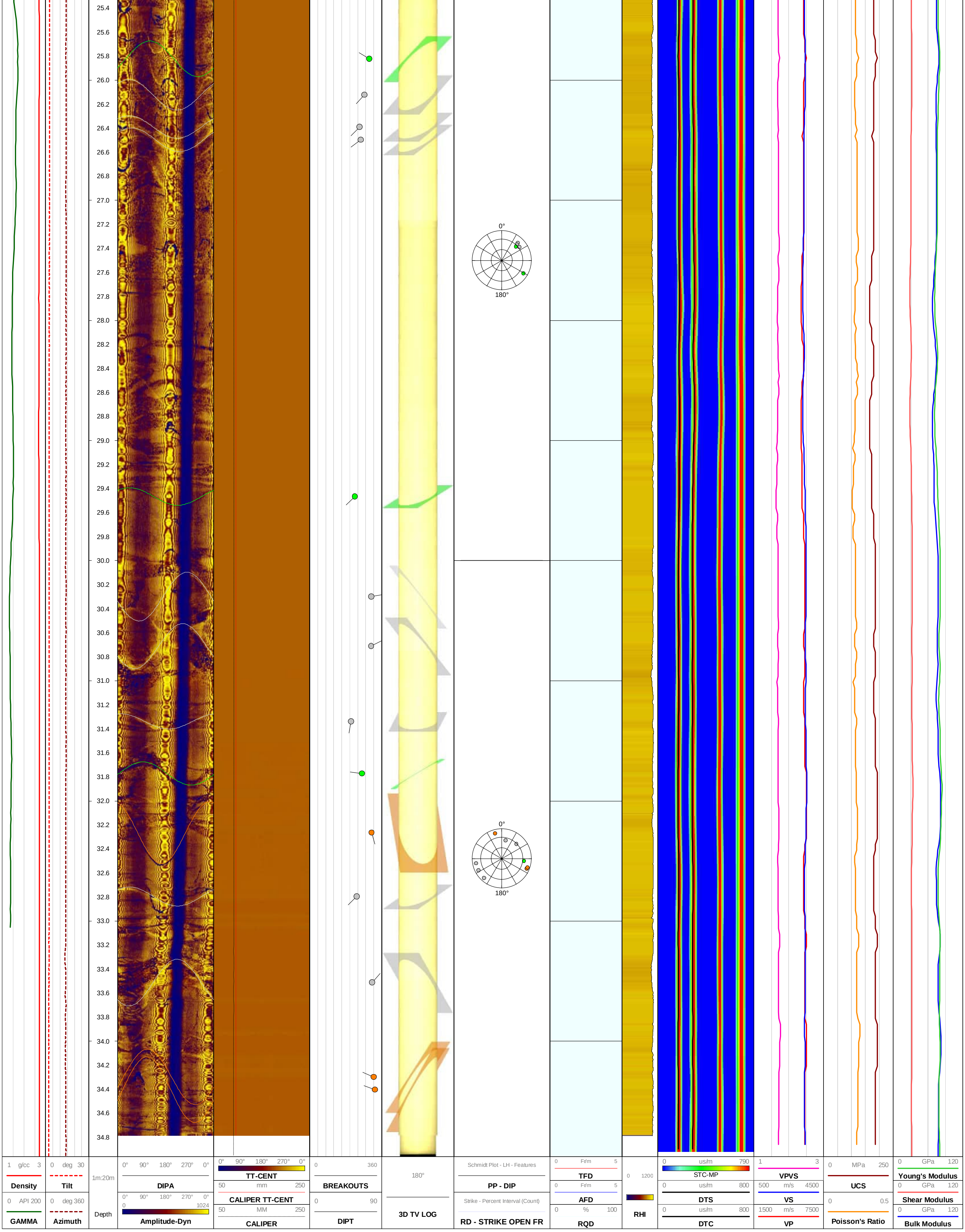
Therefore, Epiroc Kinetic Logging Services shall not be liable or responsible for any loss, damage, cost or expense incurred or sustained by anyone resulting from any interpretations.





BHUA_03 TV Structures

Feature Depth	Azimuth	Dip	Aperture	Visible Azimuth Ranges	Type	Features
m	deg	deg	mm	deg		
21.23	111.38	69.33	0		5	Healed Fracture/Vein
21.86	36.01	74.36	0		5	Healed Fracture/Vein
22.54	33.74	74.32	0		5	Healed Fracture/Vein
22.7	328.06	23.39	0		4	Foliation/Banding/Bedding
23.75	116.05	27.13	0		4	Foliation/Banding/Bedding
24.03	50.43	31.67	0		4	Foliation/Banding/Bedding
25.82	301.11	74.47	0		4	Foliation/Banding/Bedding
26.12	223.07	68.48	0		5	Healed Fracture/Vein
26.39	224.03	62.26	0		5	Healed Fracture/Vein
26.5	233.09	63.8	0		5	Healed Fracture/Vein
29.47	226.34	56.38	0		4	Foliation/Banding/Bedding
30.3	79.46	77.22	0		5	Healed Fracture/Vein
30.71	63.01	76.83	0		5	Healed Fracture/Vein
31.34	192.05	51.9	0		5	Healed Fracture/Vein
31.77	276.42	65.25	0		4	Foliation/Banding/Bedding
32.26	164.81	77.54	0		3	Closed Fracture
32.8	225.62	58.75	0		5	Healed Fracture/Vein
33.51	42.36	78.04	0		5	Healed Fracture/Vein
34.3	292.11	80.07	0		3	Closed Fracture
34.4	289.65	81.62	0		3	Closed Fracture

BHUA_03

SMEC - Pioneer-Burdekin

Acoustic and Optical Televiewer image log Schmidt Stereonet evaluation for interpreted log interval

Log Date: 18 August 2023

IMPORTANT NOTE

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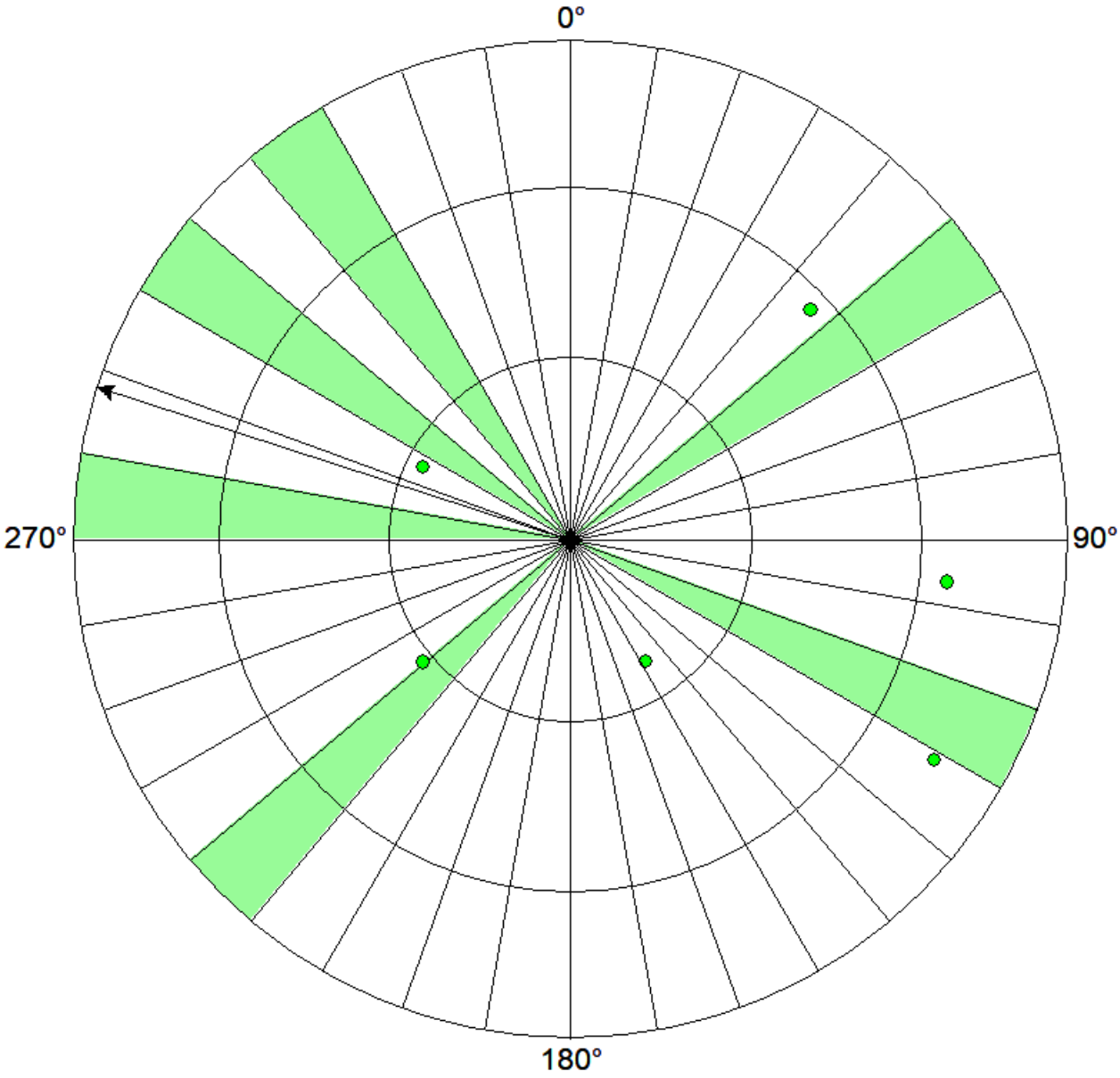
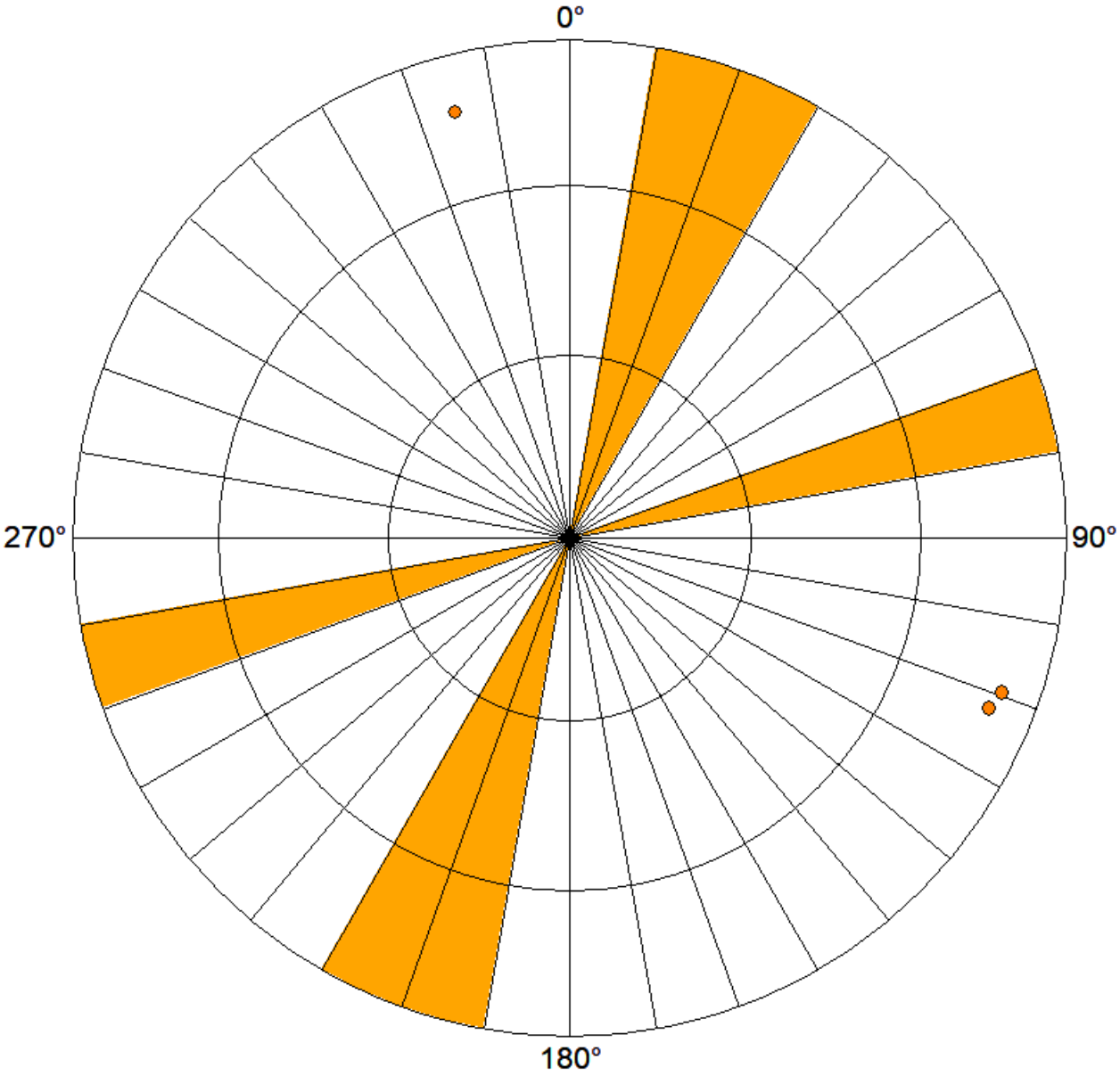
FOLIATIONS – 19.9 TO 34.9 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	6	26.80	287.86	17.86 - 197.86

Foliations: Scattered dip azimuth directions

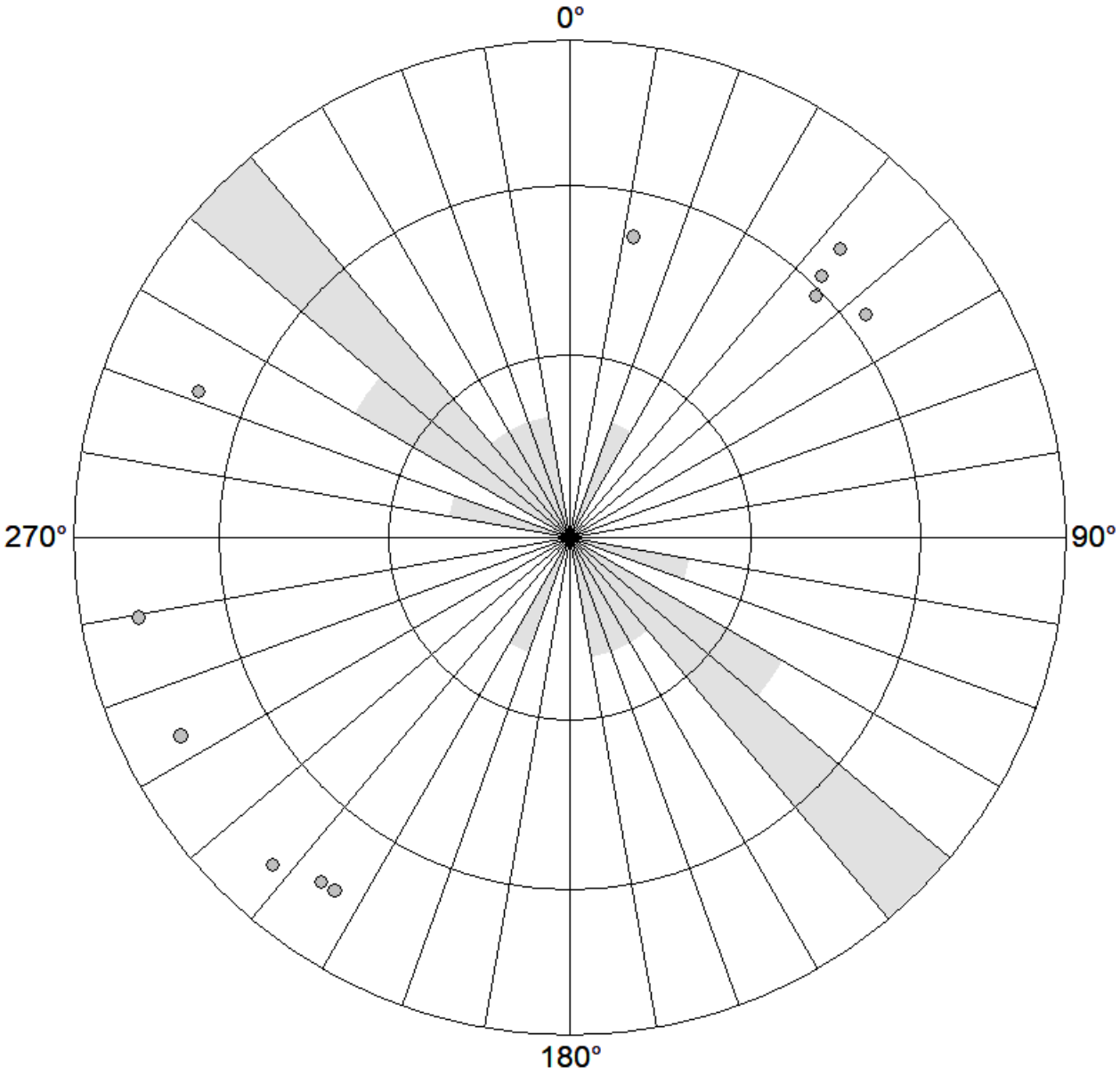
CLOSED FRACTURES – 19.9 TO 34.9 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	3	86.44	304.85	34.85 - 214.85

Closed Fractures: Bimodal strike directions in the NNE to SSW and ENE to WSW direction (caution: small number of picks)

HEALED FRACTURES AND VEINS – 19.9 TO 34.9 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	11	83.66	228.46	138.46 - 318.46

Healed Fractures and Veins: Scattered strike directions with a preference in the SE to NW strike direction

OPTV & BHTV LOG

BHUA_03

WELL	BHUA_03	**DRILL DEPTH**	35m	**DATE**	18/08/23
FIELD	PIONEER-BURDEKIN	**BIT SIZE**	96mm	**CLIENT REP**	ROB CAINE
LOCATION	EUNGELLA	**CASING WEIGHT**	STEEL	**ENGINEER**	DWL
UWI	SV013	**CASING SIZE**	101mm	**EASTING**	659134
COUNTRY	AUSTRALIA	**CASING BOTTOM**	20.0m	**NORTHING**	7666388

TELEVIEWER LOGS

GAMMA	Televiewer Gamma Ray	**INC**	Borehole Inclination (0 deg = Vertical Down)
OPTV	OPTV RGB Image	**AZIM**	Borehole Magnetic Azimuth
AMP	BHTV Amplitude	**HGDELTA**	Potential Field
TT	BHTV Travel Time	**TMAG**	Televiewer Magnetic Field

COMMENTS

- All image log data is oriented to true north. The applied magnetic declination correction is 8.12 degrees.

IMPORTANT NOTE

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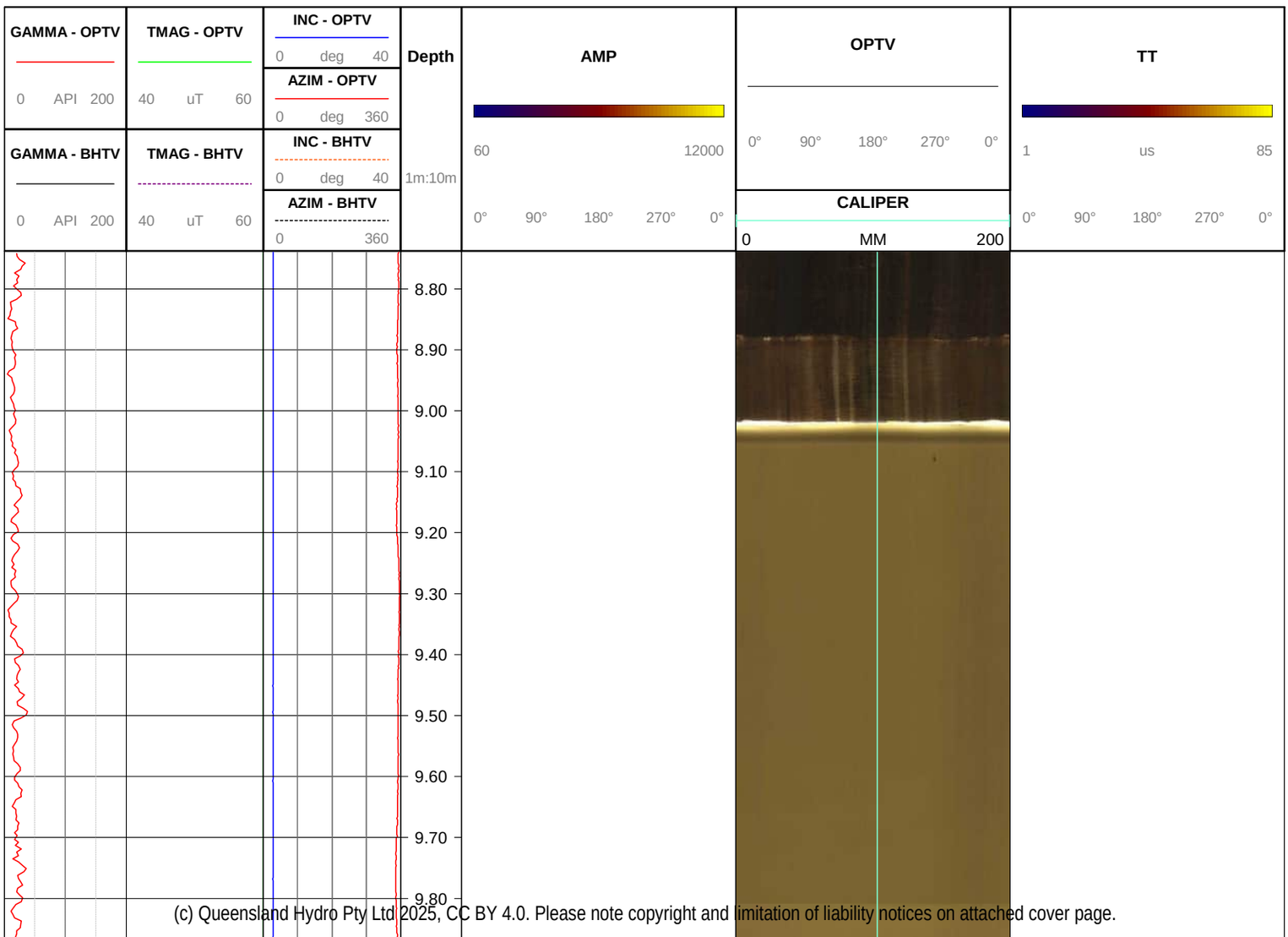
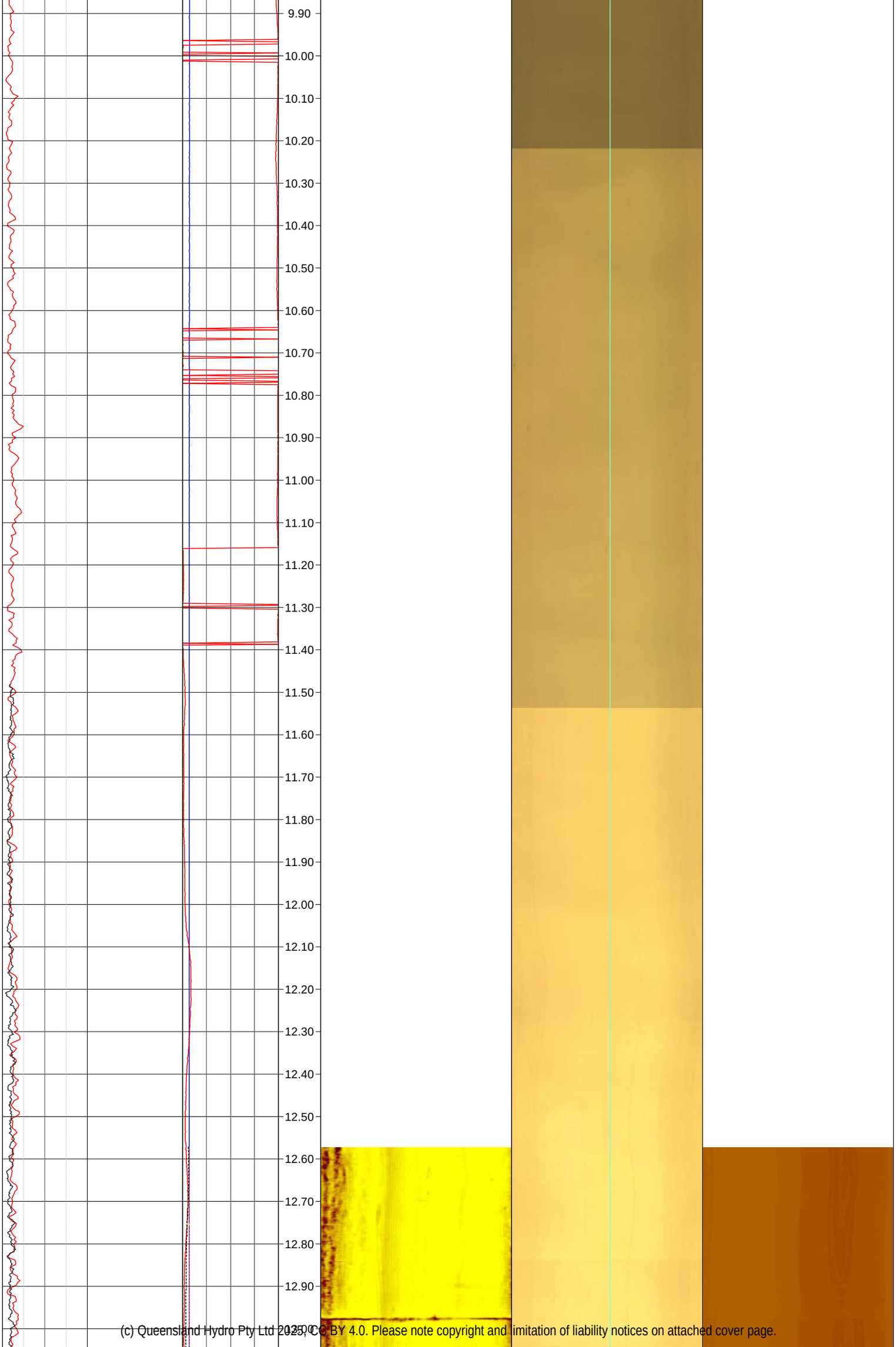
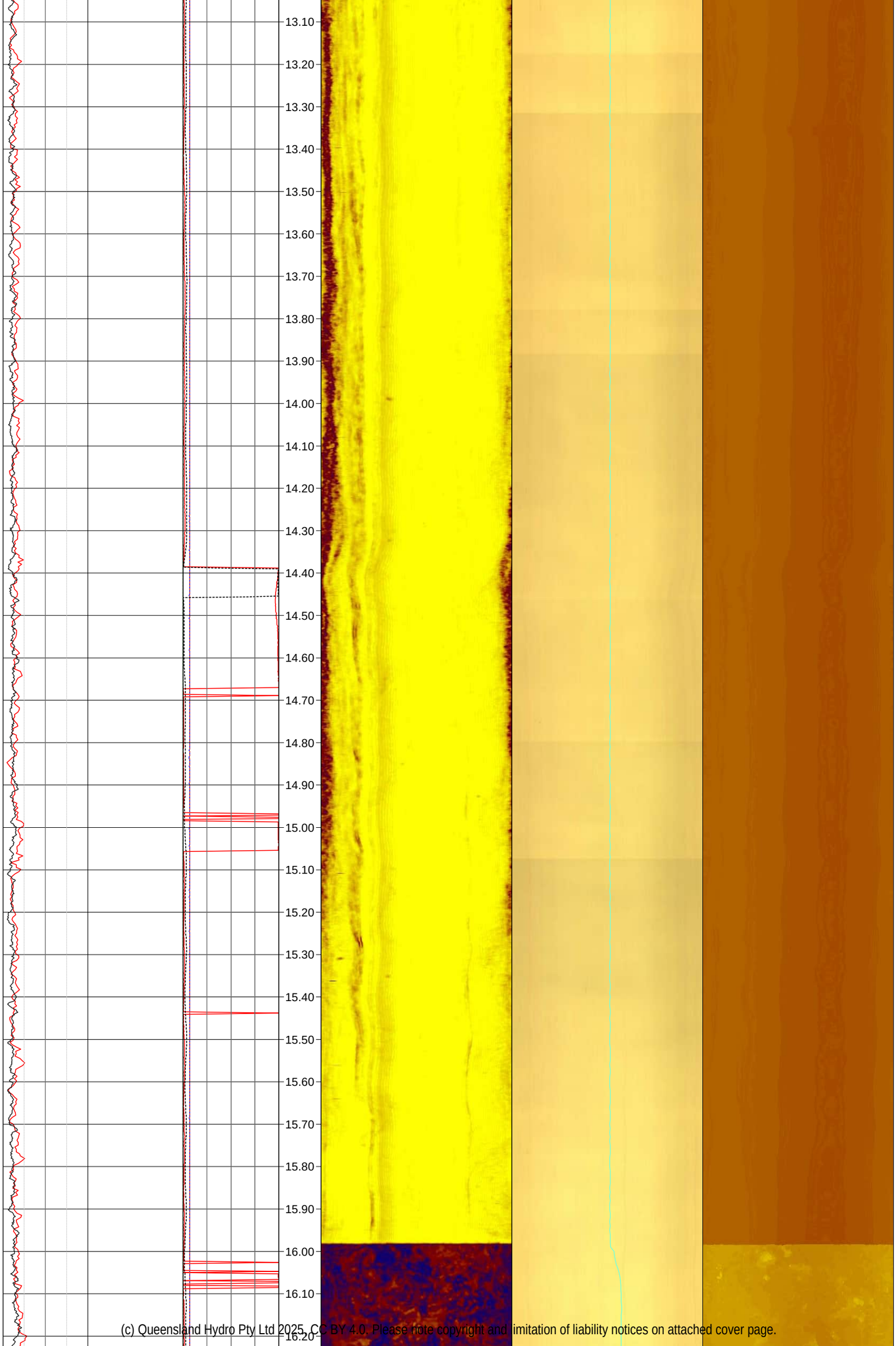
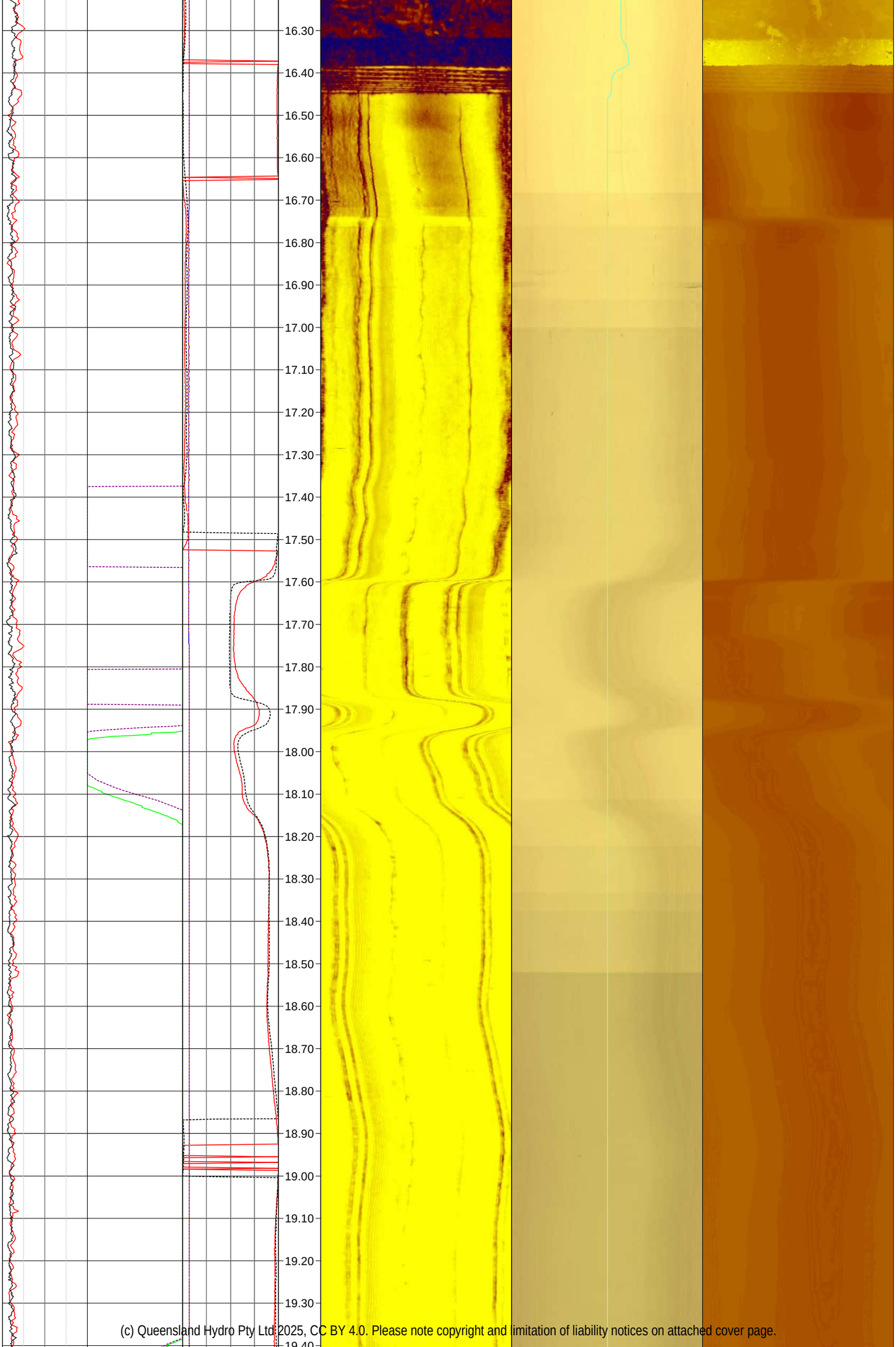
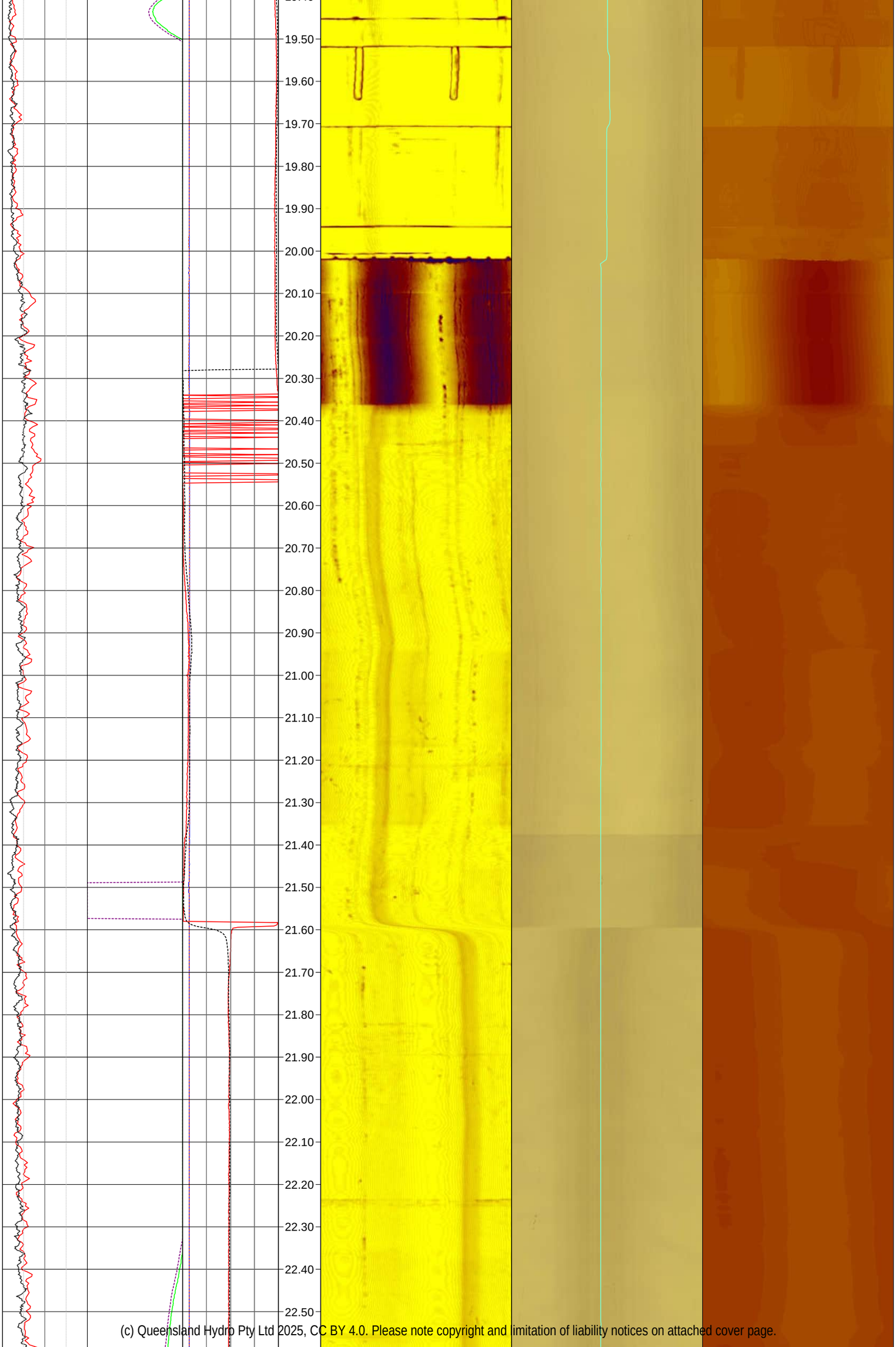
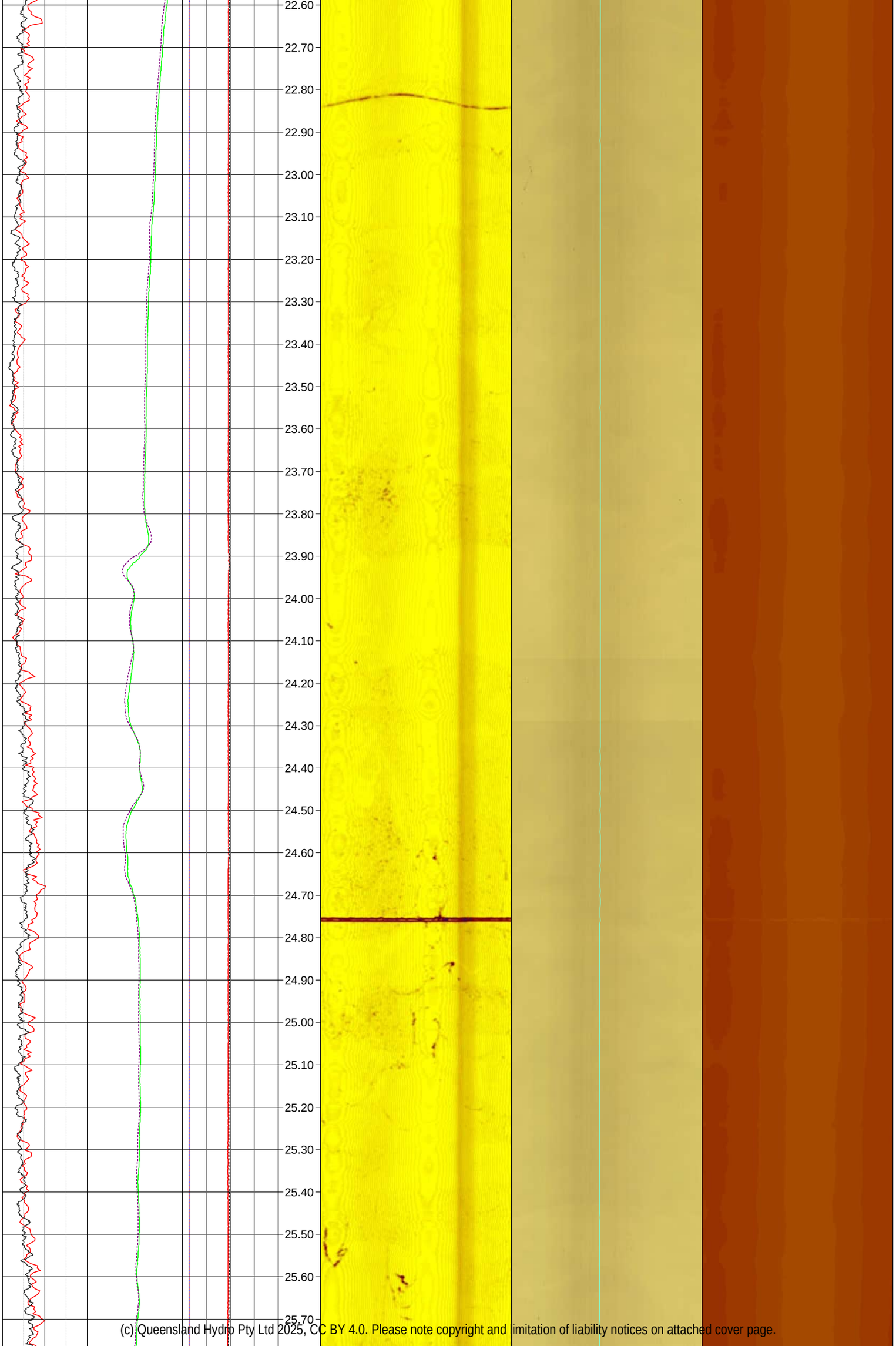


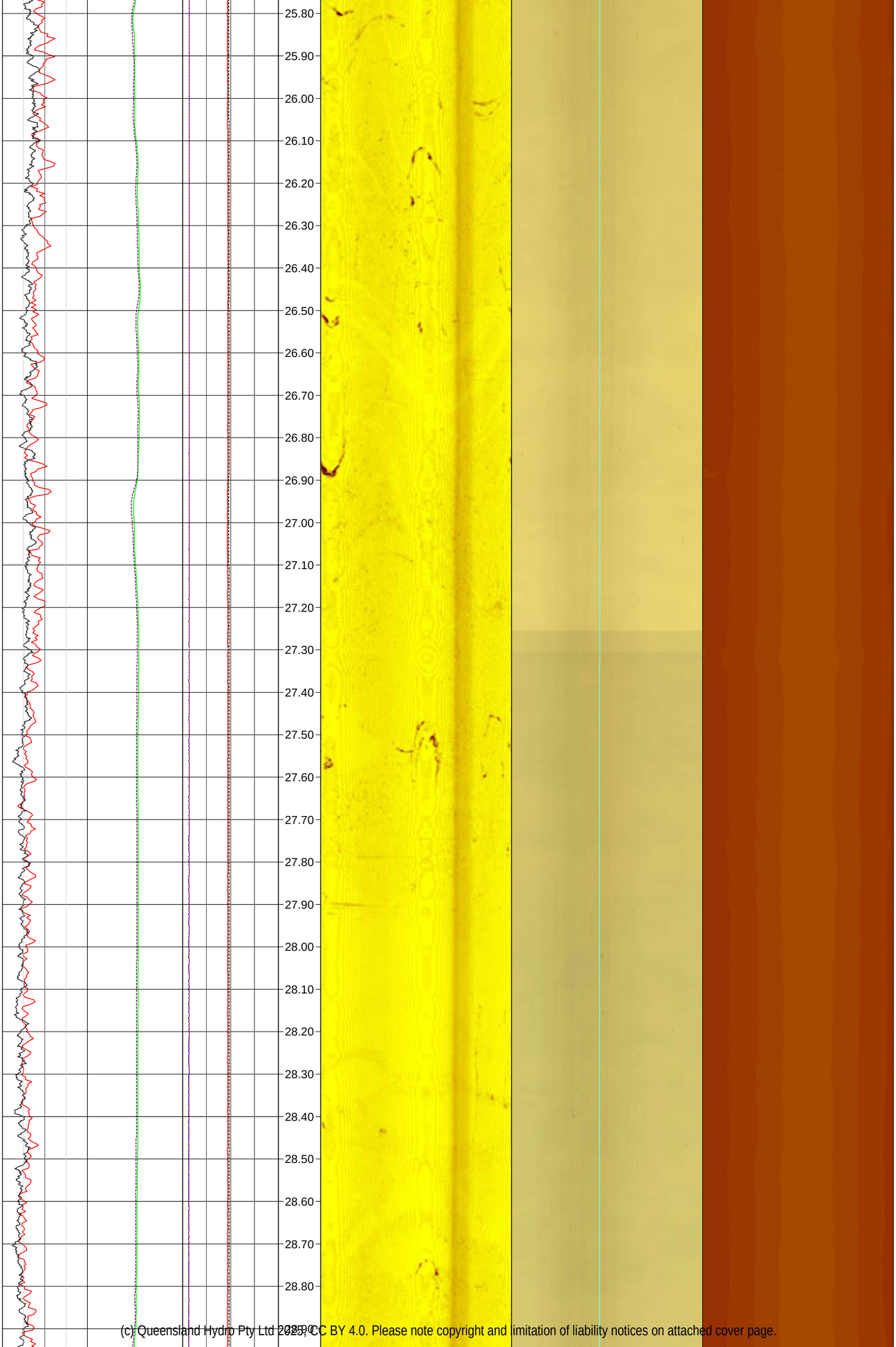


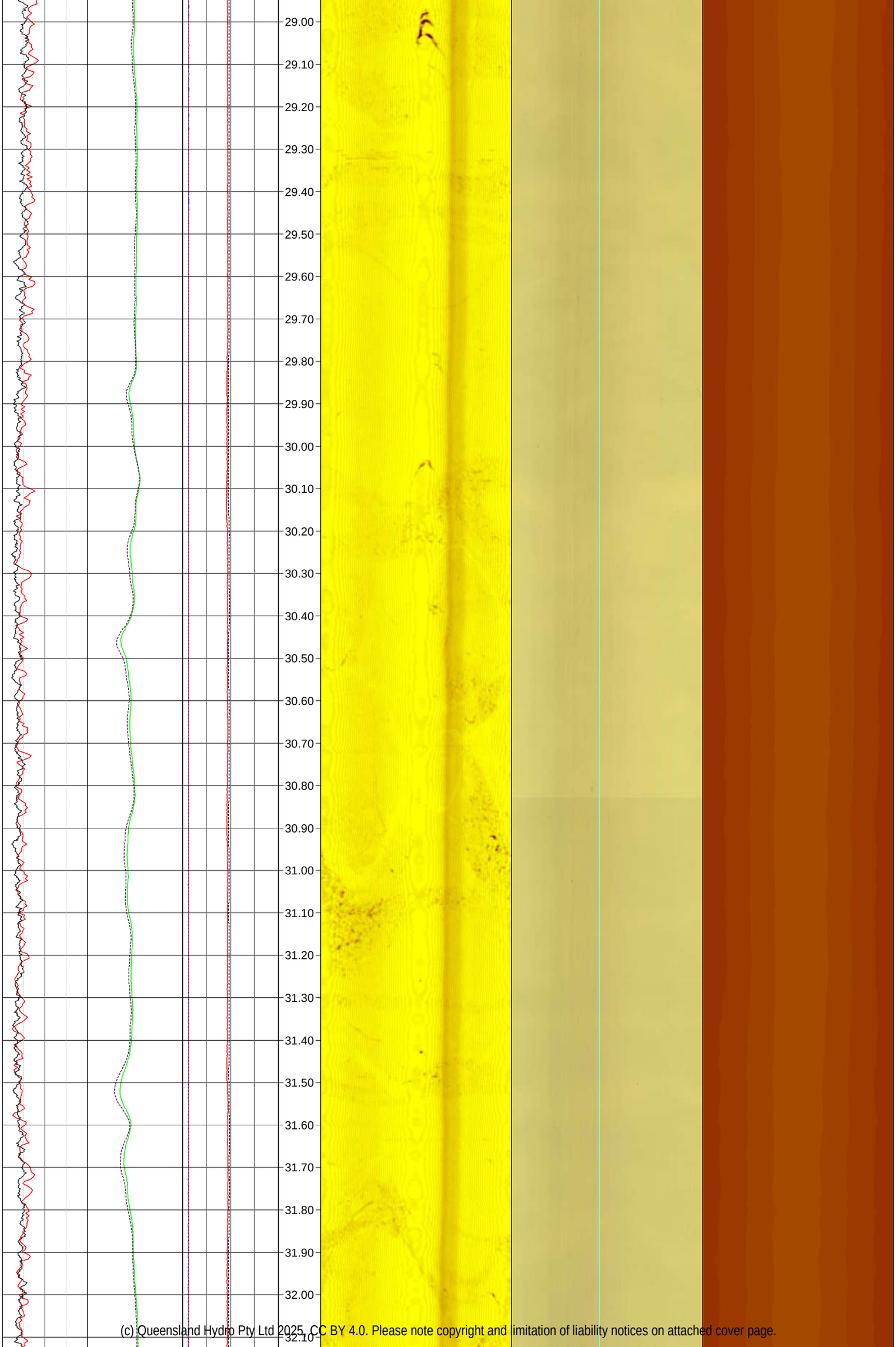


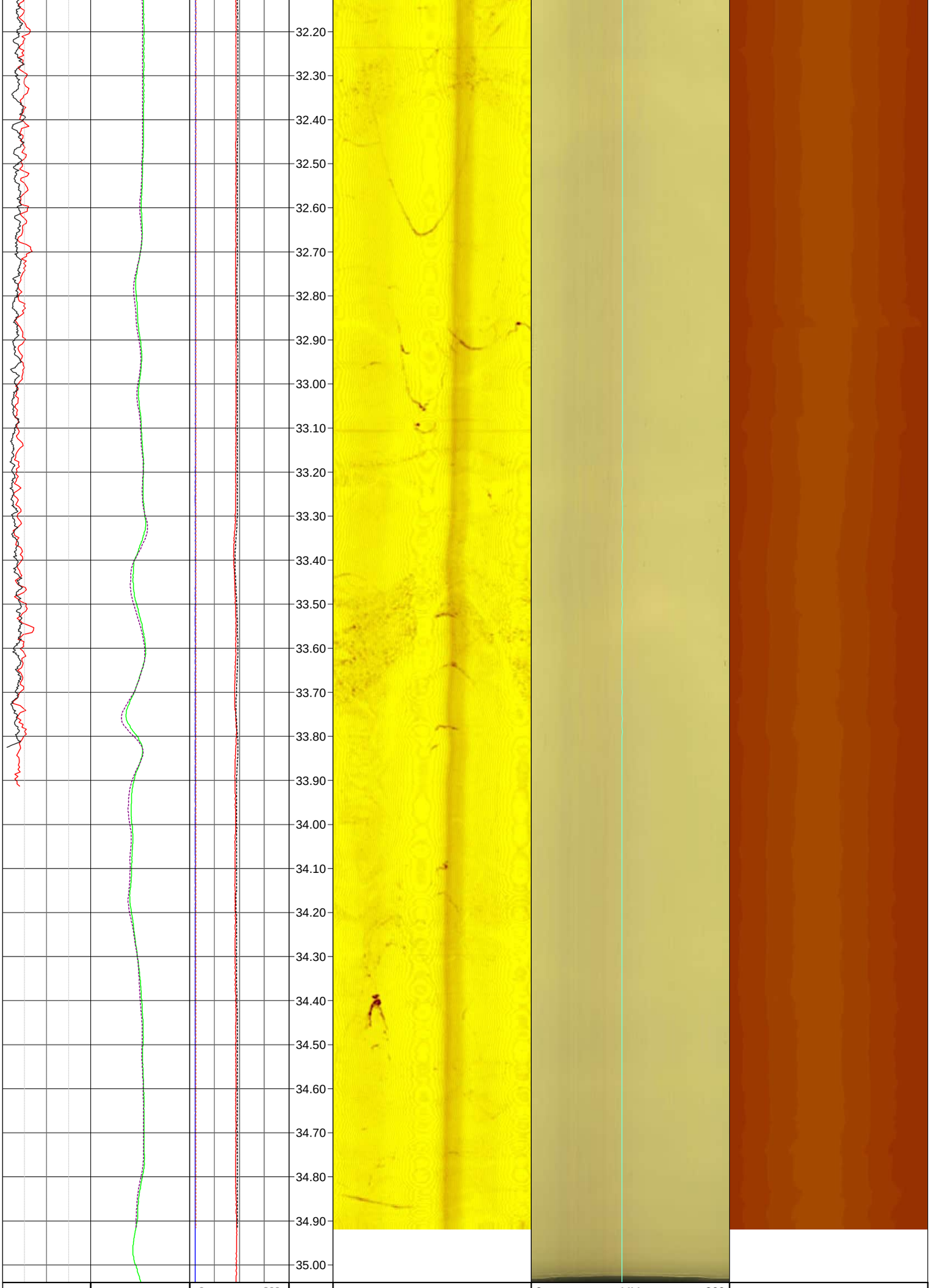












0 API 200
GAMMA - BHTV

40 uT 60
TMAG - BHTV

0 360
AZIM - BHTV

0 deg 40
INC - BHTV

1m:10m

0° 90° 180° 270° 0°
60 12000

0 MM 200
CALIPER

0° 90° 180° 270° 0°
0° 90° 180° 270° 0°

1 us 85

GAMMA - OPTV	TMAG - OPTV	AZIM - OPTV 0 deg 40 INC - OPTV	Depth	AMP	OPTV	TT

WELL	BHUA_03	**LOCATION**	EUNGELLA	**DATE**	18/08/23
FIELD	PIONEER-BURDEKIN	**DRILL DEPTH**	35m	**ENGINEER**	DWL

MULTI-RES LOG

BHUA_03

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BHUA_03	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BHUA_03
COMPANY: SMEC (QLD HYDRO)

LOG MEASURED FROM	GL	ELEVATIONS:	OTHER SERVICES:
DRILLING MEASURED FROM	GL	KB	1.
PERMANENT DATUM		DF	2.
PERMANENT DATUM ELEVATION		GL	3.

LICENSE	SECTION	TOWNSHIP	RANGE	MAGNETIC DECLINATION
				8.12deg

DATE	18-08-2023			RECORDED BY	DWL		
TIME	11-25			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	35m			RIG NUMBER			
DEPTH-LOGGER	35.05m			TOOL TYPE	9057A		
BIT SIZE	96mm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			EASTING	7666388		
CASING ID	101mm			NORTHING	659134		
CASING BOTTOM	20.0m			SAMPLE INT.	.01m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	10.0m			SOURCE TYPE		SOURCE ID	

LOGGER COMMENTS:

1.

2.

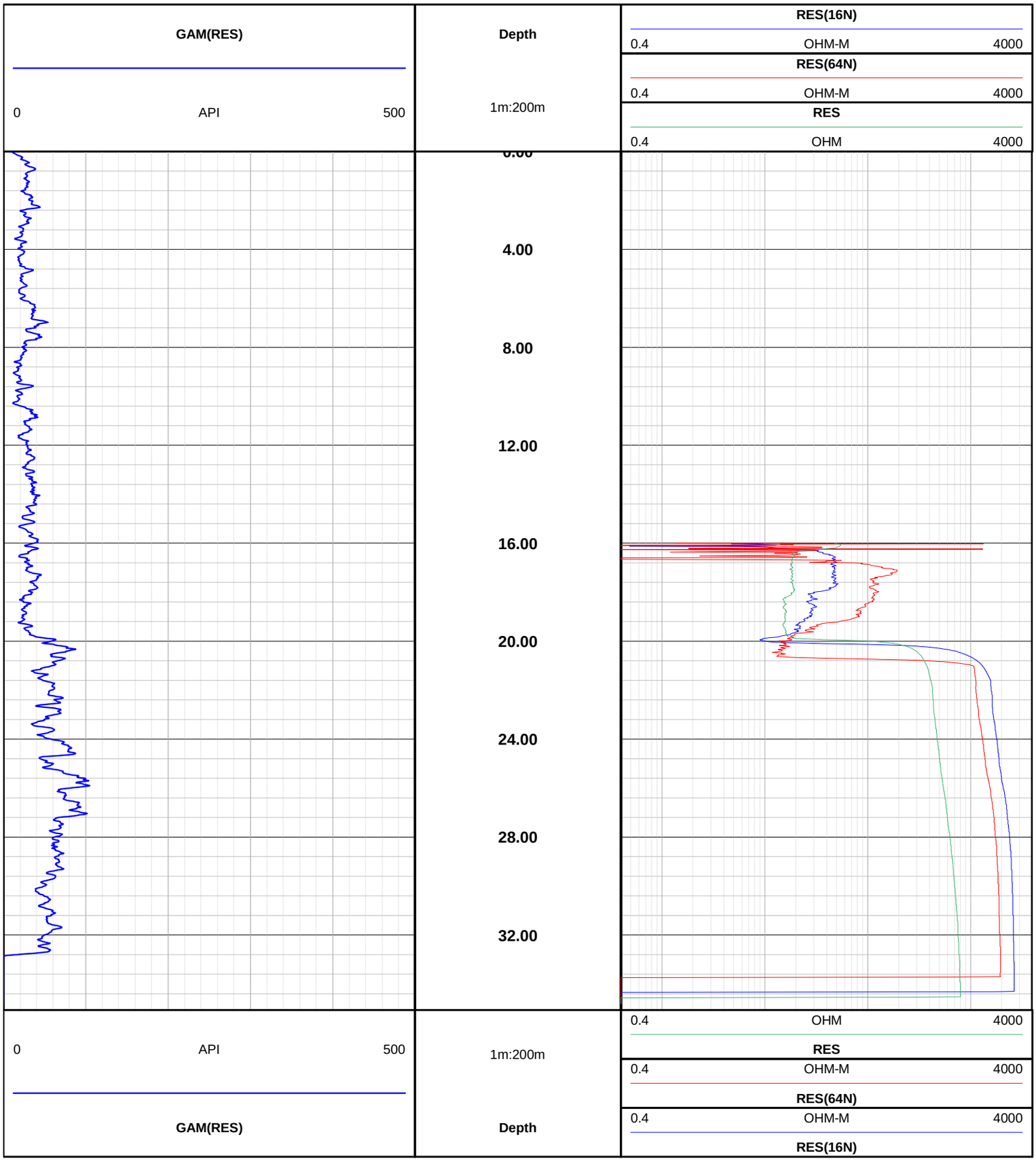
3.

MNEMONICS

GAM(RES)	NATURAL GAMMA FROM MULTI-RES TOOL
RES(16N)	16" NORMAL RESISTIVITY
RES(64N)	64" NORMAL RESISTIVITY
RES	SINGLE POINT RESISTIVITY

IMPORTANT NOTE	The following interpretations are opinions based upon inferences from borehole logs, Epiroc Kinetic Logging Services cannot and does not guarantee the correctness or accuracy of any interpretations. Therefore, Epiroc Kinetic Logging Services shall not be liable or responsible for any loss, damage, cost or expense incurred or sustained by anyone resulting from any interpretations.

DEPTH SCALE 1:200



DEPTH SCALE 1:200

3-ARM LOG

BHUA_03

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BHUA_03	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BHUA_03
COMPANY: SMEC (QLD HYDRO)

LOG MEASURED FROM	GL	ELEVATIONS:	OTHER SERVICES:
DRILLING MEASURED FROM	GL	KB	1.
PERMANENT DATUM		DF	2.
PERMANENT DATUM ELEVATION		GL	3.

LICENSE	SECTION	TOWNSHIP	RANGE	MAGNETIC DECLINATION
				8.12deg

DATE	18-08-2023			RECORDED BY	DWL		
TIME	11-25			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	35m			RIG NUMBER			
DEPTH-LOGGER	35.05m			TOOL TYPE	6074A		
BIT SIZE	96mm			TOOL SERIAL NO.	2796		
CASING TYPE	STEEL			EASTING	7666388		
CASING ID	101mm			NORTHING	659134		
CASING BOTTOM	20.0m			SAMPLE INT.	.01m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	10.0m			SOURCE TYPE		SOURCE ID	

LOGGER COMMENTS:

1.

2.

3.

MNEMONICS

GAMMA	NATURAL GAMMA FROM 3-ARM TOOL
CALIPER3	MECHANICAL CALIPER FROM 3-ARM CALIPER

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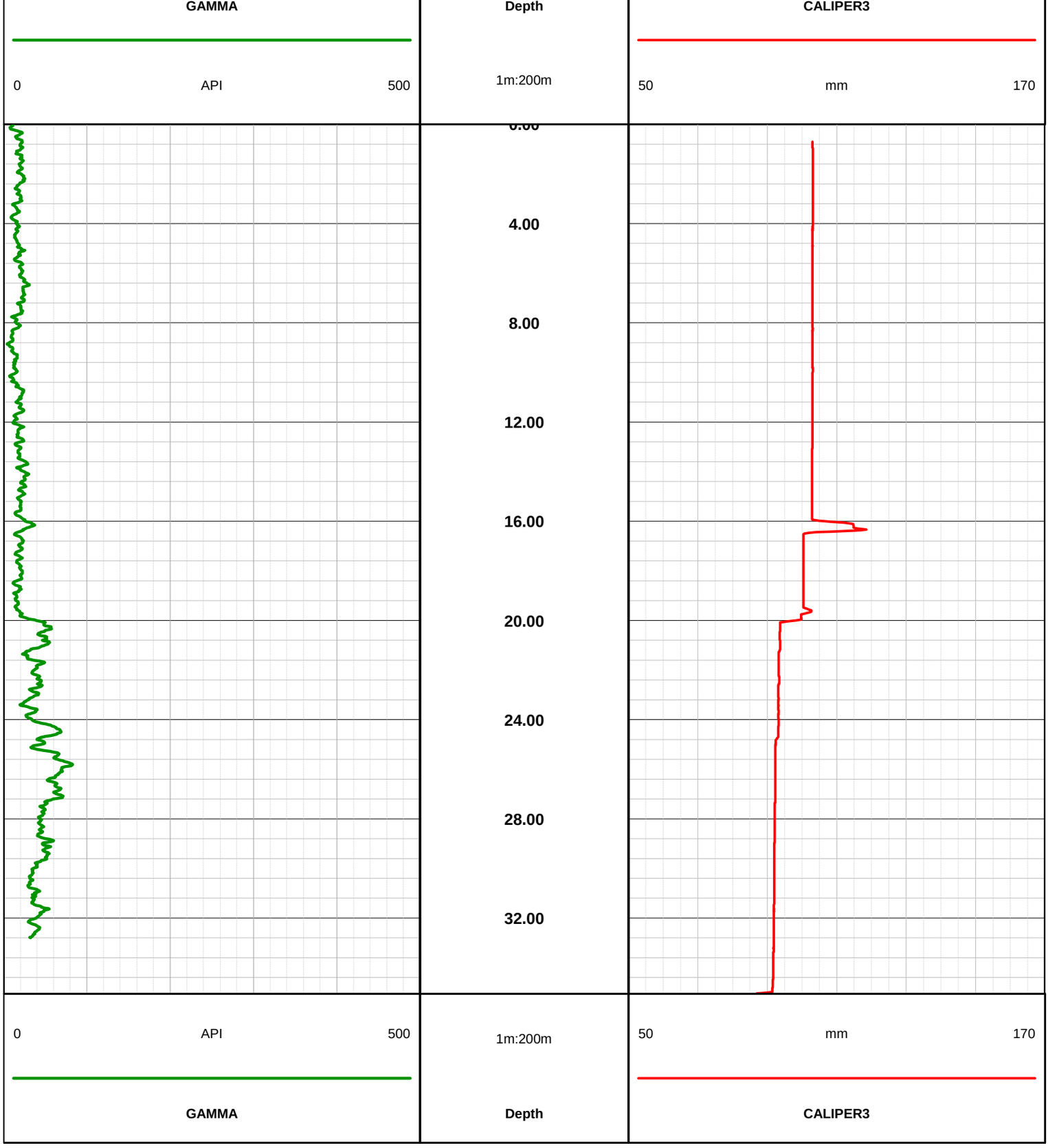
DEPTH SCALE 1:200



DEPTH SCALE 1:200

VERTICALITY ANALYSIS

BHUA_03

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BHUA_03	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BHUA_03
COMPANY: SMEC (QLD HYDRO)

PERMANENT DATUM
PERMANENT DATUM ELEVATION
LOG MEASURED FROM GL
DRILLING MEASURED FROM GL

ELEVATIONS:
KB
DF
GL

REMARKS:
1.
2.

LICENSE	SECTION	TOWNSHIP	RANGE	MAG DECL.
				8.12deg

DATE	18-08-2023			RECORDED BY	DWL		
TIME	15-12			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	35m			RIG NUMBER			
DEPTH-LOGGER	34.80m			TOOL TYPE	9057A		
BIT SIZE	96mm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			EASTING	659134		
CASING OD	101mm			NORTHING	7666388		
CASING BOTTOM	20.0m			SAMPLE INT.	.10m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	10m			SOURCE TYPE		SOURCE ID	

DEVIATION LIST

MNEMONIC DESCRIPTORS

SANGB	SAMPLE ANGLE BEARING
SANG	SAMPLE SLANT ANGLE (0 DEG = VERTICAL DOWN)
TVD	TRUE VERTICAL DEPTH
EAST	BOREHOLE EAST DEVIATION
NORTH	BOREHOLE NORTH DEVIATION
CDIST	DEVIATED CLOSURE DISTANCE
CANGB	DEVIATED CLOSURE ANGLE BEARING

ALL CO-ORDINATES ARE PRESENTED ORIENTED TO TRUE NORTH

MAGNETIC DECLINATION **8.12deg**

Depth	SANGB	SANG	EAST	NORTH	CDIST	CANGB	TVD
m	DEG	DEG	[m]	[m]	[m]	deg	[m]
-0.00	67.1184	2.80243	-999.25	-999.25	-999.25	-999.25	0
1.00	353.681	2.73544	-0.000279299	0.0458435	0.0458444	359.651	0.998838
2.00	346.823	2.69043	-0.00647932	0.0927029	0.092929	356.002	1.99772
3.00	349.586	2.66503	-0.0153528	0.138721	0.139568	353.685	2.99662
4.00	350.144	2.63396	-0.0240373	0.184056	0.185619	352.559	3.99555
5.00	356.016	2.55063	-0.0294964	0.228957	0.23085	352.659	4.99452
6.00	352.302	2.51707	-0.0328479	0.273093	0.275062	353.141	5.99354
7.00	357.463	2.51307	-0.0365501	0.317305	0.319403	353.429	6.99256
8.00	355.761	2.42839	-0.0380978	0.360106	0.362116	353.961	7.99164
9.00	355.862	2.37366	-0.041218	0.402085	0.404192	354.147	8.99075
10.00	1.54429	2.35858	-0.0413312	0.443421	0.445343	354.675	9.98989
11.00	1.60395	2.39166	-0.0407465	0.485135	0.486843	355.199	10.989
12.00	1.51201	2.35684	-0.0388048	0.526616	0.528043	355.786	11.9882
13.00	1.0231	2.33972	-0.0389547	0.567641	0.568976	356.074	12.9873
14.00	356.207	2.29767	-0.0409573	0.608158	0.609535	356.147	13.9865
15.00	356.249	2.30983	-0.0437892	0.648211	0.649689	356.135	14.9857
16.00	354.562	2.32807	-0.0470881	0.688402	0.690011	356.087	15.9849
17.00	338.12	2.22073	-0.0419027	0.713667	0.714896	356.64	16.9841
18.00	356.875	2.36591	-0.06267	0.744817	0.747449	355.19	17.9833

19.00	356.335	2.35562	-0.0655863	0.785554	0.788287	355.227	18.9824
20.00	16.7832	2.54489	-0.061993	0.827106	0.829426	355.714	19.9815
21.00	180.666	2.32143	-0.0537924	0.847799	0.849504	356.369	20.9806
22.00	178.686	2.27894	-0.0544595	0.807938	0.809771	356.144	21.9798
23.00	181.218	2.29768	-0.05376	0.768011	0.769891	355.996	22.979
24.00	179.034	2.29589	-0.0536275	0.727994	0.729966	355.787	23.9782
25.00	175.277	2.28413	-0.0518045	0.688115	0.690062	355.695	24.9774
26.00	176.282	2.30206	-0.0498842	0.64809	0.650007	355.599	25.9766
27.00	177.641	2.31669	-0.0480326	0.607888	0.609782	355.482	26.9758
28.00	177.329	2.33062	-0.0465081	0.567381	0.569284	355.314	27.9749
29.00	174.637	2.3507	-0.0444413	0.526627	0.528498	355.176	28.9741
30.00	175.835	2.34819	-0.0422762	0.485713	0.487549	355.026	29.9733
31.00	176.647	2.38286	-0.0410691	0.444384	0.446278	354.72	30.9724
32.00	177.241	2.33447	-0.0387007	0.4036	0.405451	354.523	31.9716
33.00	170.72	2.34938	-0.0343435	0.36306	0.364681	354.596	32.9707
34.00	180.364	2.34212	-0.0301982	0.32223	0.323642	354.646	33.9699

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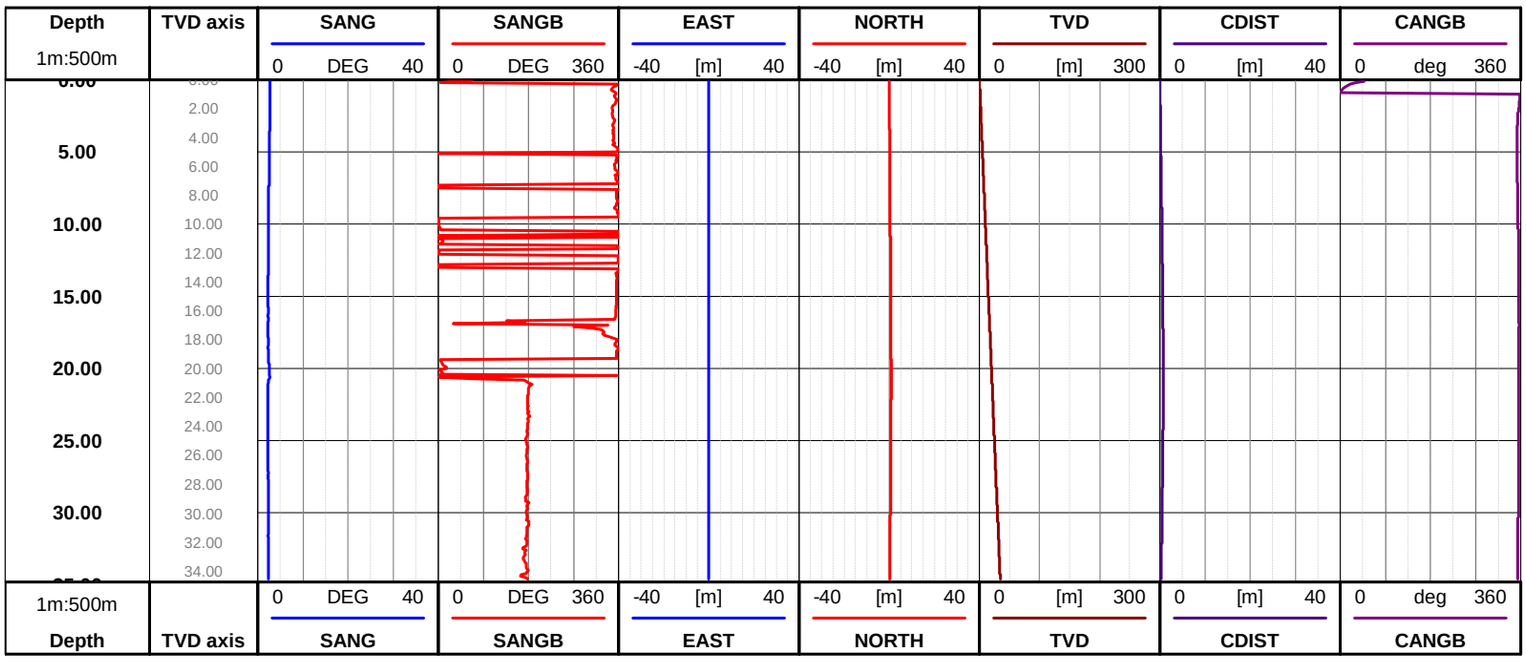

NOTES ON VERTICALITY PLOTS

1. The following verticality plots are scaled automatically to obtain the best visual effect within the default page size.
2. All co-ordinates are presented oriented to True North.

DEVIATION PLOT