BOREHOLE: BQLA-02

SHEET: 1 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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	EP		0.0	185.23				SW	SAND fine to coarse grained, well graded, sub-angular to angular, pale brown and brown mottled pale grey, trace fine grained, sub-angular gravel, trace low plasticity fines	M	D - VD	RESIDUAL SOIL Coring water returns were not recorded.
			1.65	183.58	LL = 30% PI = 11% LS = 4.0% ECN = 2 Soil Particle Density (t/m³) = 2.40 SPT 1.50-1.90 m 13, 23, 27/100mm HB			SW	SAND fine to coarse grained, well graded, sub-angular to angular, pale brown and brown mottled pale grey, trace fine grained, sub-angular gravel, trace low plasticity fines, (Extremely Weather Granite)			EXTREMELY WEATHERED MATERIAL
	MP				SPT 3.00-3.33 m 21, 38, 12/30mm HB					M	VD	
					SPT 4.50-4.75 m 24, 50/100mm HB							

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

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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 20:59 10.03.00.09 Datgel Tools

BOREHOLE: BQLA-02

SHEET: 2 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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		19/08/23	5.0					SW	SAND fine to coarse grained, well graded, sub-angular to angular, pale brown and brown mottled pale grey, trace fine grained, sub-angular gravel, trace low plasticity fines, (Extremely Weather Granite)	M	VD	EXTREMELY WEATHERED MATERIAL
			5.5									
			6.0	*6.00* 179.23	Soil Particle Density (t/m³) = 2.62 SPT 6.00-6.36 m 11, 35, 15/55mm HB			SM	SAND fine to coarse grained, well graded, sub-angular to angular, pale brown and brown mottled pale grey, with low plasticity silt, trace fine grained, sub-angular gravel, trace clay			
			6.5									
			7.0									
WB	MP		7.5									
			8.0							M	VD	
			8.5		SPT 8.28-8.53 m 40, 50/100mm HB							
			9.0									
		21/08/23	9.5									
			10.0		SPT 9.78-9.79 m 40/10mm HB					W		

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BOREHOLE: BQLA-02

SHEET: 3 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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			10.0					SM		W	VD	
									For Continuation Refer to Sheet 4			
			10.5									
			11.0									
			11.5									
			12.0									
			12.5									
			13.0									
			13.5									
			14.0									
			14.5									
			15.0									

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BOREHOLE: BQLA-02

SHEET: 4 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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
				10.0								
					10.23		Continuation of Sheet 3					
HQ3	22/08/23	100	0	10.5	175.00		GRANITE Coarse grained, igneous intrusive. White and pale brown to orange-brown. Crystalline, phaneritic. With frequent bands of clayey sand (XW material)., Biotite and hornblende decomposed with FeO throughout, orange to orange-brown discolouration. Occasional quartz veins, <10 mm wide, at 30º., NOTE: XW zones logged where core is disaggregated and soil-like; however could possibly associated with binding in barrel or core catcher so may not be 100% representative of conditions in-situ. All machine rippable to 19.55 m.	XW			Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	
		100	0	11.0				HW				
		100	0	11.5				XW				
		100	0	12.0				HW				
		100	0	12.5				XW				
		100	0	13.0				HW				
		100	0	13.5				XW				
		100	0	14.0				HW				
		100	0	14.5				XW				
				15.0								

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BOREHOLE: BQLA-02

SHEET: 5 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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
HQ3		100	0	15.0			GRANITE Coarse grained, igneous intrusive. White and pale brown to orange-brown. Crystalline, phaneritic. With frequent bands of clayey sand (XW material)., Biotite and hornblende decomposed with FeO throughout, orange to orange-brown discolouration. Occasional quartz veins, <10 mm wide, at 30°., NOTE: XW zones logged where core is disaggregated and soil-like; however could possibly associated with binding in barrel or core catcher so may not be 100% representative of conditions in-situ. All machine rippable to 19.55 m.	XW HW XW HW			Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	
		100	0	16.0								
		100	0	17.0								
		100	0	18.0								
				18.5	*18.75* 166.48		18.75m - 19.55m: Suspect disaggregated upon removal from core catcher.	XW				
		0	0	19.0	*19.23* 166.00		CORE LOSS					
				19.5								
				20.0								

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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 18:07 10.03.00.09 Datgel Tools

BOREHOLE: BQLA-02

SHEET: 6 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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	AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
					20.0						Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	
HQ3		0	0		CORE LOSS							
					20.5							
					20.94							
					21.0	164.30	GRANITE Medium to coarse grained, igneous intrusive. Pale grey and dark grey. Crystalline, phaneritic, relatively equigranular, subhedral to anhedral, well developed hornblende and biotite. Occasional assemblages of darker minerals, likely hornblende (?) <17 mm wide. Weak / poorly developed foliation (indistinct) defined by alignment of mafic / dark minerals at 40° - 45° Alteration of orthoclase from white to orange-pink in halos about joints, typically at >70°., Defects generally intact and healed / infilled with quartz and calcite.	FR				
		86	67		21.5							
					22.0							
					22.5					I_{50}(A)>5.45		
		100	100		23.0							
					23.25							
						161.94	23.25 m: Some defects at 85° persisting across meters of core. Alteration of orthoclase from white to orange-pink about major joints at ~40° opposing fabric.	SA			23.35-23.41 m: J, 42°, Pln, Ro, VN	
					23.5		23.30 m: Defects are typically 70° - 80°, intact to infilled / healed with calcite, moderately altered.	FR				
					24.0							
		100	93								24.31-24.32 m: J, 0°, Pln, VRo, Std	
					24.5						24.56-24.62 m: J, 45°, Pln, Ro, Std 24.60-24.62 m: J, 15°, Pln, Ro, Std	
					25.00							

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BOREHOLE: BQLA-02

SHEET: 7 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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
HQ3		100	93	25.0	160.24		GRANITE Medium to coarse grained, igneous intrusive. Pale grey and dark grey. Crystalline, phaneritic, relatively equigranular, subhedral to anhedral, well developed hornblende and biotite. Occasional assemblages of darker minerals, likely hornblende (?) to <17 mm wide. Weak / poorly developed foliation (indistinct) defined by alignment of mafic / dark minerals at 40º - 45º Alteration of orthoclase from white to orange-pink in halos about joints, typically at 70° - 80°., Defects generally intact and healed / infilled with quartz and calcite.	FR				
				25.5							25.50-26.52 m: J, 85°, Und, FL, Parasites with 10 mm halo.	
		100	97	26.0	*26.05* 159.19		26.05 m - 26.60 m: Slight pale yellow-pink discolouration.	SA				
				26.5							26.48-26.51 m: J, 23°, Und, VRo, Cn 26.55-26.60 m: J, 50°, Und, VRo, Cn	
		100	100	27.0				FR				
				27.5							27.86-28.08 m: J, 64°, Pln, Std	
	100% RETURN			28.0	*28.32* 156.92		28.32 m - 28.83 m: Slight "chalkiness" to cut surface.	SA		I_{50}(A)=3.83		
				28.5							28.61-28.61 m: J, 5°, Und, Ro, Cn	
		100	100	29.0				FR			29.02-29.04 m: J, 15°, Und, Ro, FL	
				29.5								
		100	100	30.0								

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BOREHOLE: BQLA-02

SHEET: 8 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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)	MEASURED STRENGTH: UCS & I_{s50} (MPa)	DEFECT DESCRIPTION	AVERAGE DEFECT SPACING (mm) (ISO14689:2017)
									VL 0.03 L 0.1 M 0.3 H 1.0 VH 3.0 EH 10	(A.D.I.)	Mechanical Discontinuities / non-intact defects shown only. See attached Detailed Defect Log for all recorded discontinuities and defects	EC 20 VC 60 C 200 M 600 W 2000 VW
HQ3	98% RETURN	100	100	30.0			GRANITE Medium to coarse grained, igneous intrusive. Pale grey and dark grey. Crystalline, phaneritic, relatively equigranular, subhedral to anhedral, well developed hornblende and biotite. Occasional assemblages of darker minerals, likely hornblende (?) to <17 mm wide. Weak / poorly developed foliation (indistinct) defined by alignment of mafic / dark minerals at 40º - 45º Alteration of orthoclase from white to orange-pink in halos about joints, typically at 70° - 80°., Defects generally intact and healed / infilled with quartz and calcite.	SA - FR				
	92% RETURN	100	100	30.5							30.73-30.73 m: J, 8°, Und, Sm, Cn	
	95% RETURN	100	100	31.0							31.73-31.73 m: J, 4°, Und, Ro, Cn	
				31.5								
				32.0							32.14-32.14 m: J, 2°, Irr, Ro, Cn	
				32.5								
	95% RETURN	100	100	33.0						I_{50}(A)>5.56		
				33.5								
				34.0							34.04-34.06 m: J, 5°, Und, Ro, Std	
	95% RETURN	100	100	34.5						I_{50}(A)=4.21	34.53-34.53 m: J, 3°, Und, Sm, VN 34.57-34.58 m: J, 18°, Und, Ro, VN	
				35.0						UCS=179		

This log must be read in conjunction with accompanying symbols and abbreviations used on Geotechnical Logs.
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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 18:07 10.03.00.09 Datgel Tools

BOREHOLE: BQLA-02

SHEET: 9 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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	I_{50}		AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
HQ3	95% RETURN	100	100	35.0			GRANITE Medium to coarse grained, igneous intrusive. Pale grey and dark grey. Crystalline, phaneritic, relatively equigranular, subhedral to anhedral, well developed hornblende and biotite. Occasional assemblages of darker minerals, likely hornblende (?) to <17 mm wide. Weak / poorly developed foliation (indistinct) defined by alignment of mafic / dark minerals at 40º - 45º Alteration of orthoclase from white to orange-pink in halos about joints, typically at 70° - 80°., Defects generally intact and healed / infilled with quartz and calcite.	SA - FR				
				35.5								
				36.0							36.08-36.08 m: J, 3°, Und, Ro, Cn 36.20-36.20 m: J, 7°, Und, Ro, Std	
	95% RETURN	100	96	36.5							36.67-36.67 m: J, 6°, Und, Ro, Cn	
				37.0							36.99-36.99 m: J, 4°, Und, Ro, Cn 36.99-37.15 m: J, 78°, Und, Ro, VN	
				37.5	37.56 147.68		37.56 m - 37.59 m: Mafic inclusion; fine to medium grained, dark grey and grey, rounded, diffuse margin.				37.78-37.78 m: J, 25°, Und, Ro, Cn	
	95% RETURN	100	100	38.0				FR				
				38.5								
				39.0						I_{50}(A)>5.44		
	95% RETURN	100	100	39.5	39.20 146.04		39.20 m - 39.23 m: Mafic inclusion; fine to medium grained, dark grey and grey, rounded, diffuse margin.					
					39.65 145.59		39.65 m - 39.68 m: Mafic inclusion; fine to medium grained, dark grey and grey, rounded, diffuse margin.					
				40.0								

BOREHOLE: BQLA-02

SHEET: 10 OF 10

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

COORDS: 659642.2 m 7661007.3 m GDA 2020 MGA Zone 55
SURFACE RL: 185.23 m DATUM: AHD
INCLINATION: -89° DIRECTION: 188°
HOLE DIA: 96/100 mm HOLE DEPTH: 40.30 m

DRILL RIG: TH24
CONTRACTOR: Twin Hills
LOGGED: ENGEO DATE: 22/8/23
CHECKED: SF DATE: 30/8/23

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	50		AVERAGE DEFECT SPACING (mm) (ISO14689:2017) EC 20 VC 60 C 200 M 600 W 2000 VW
HQ3		100	100	40.0				FR				
					40.30 144.94		END OF BOREHOLE @ 40.30 m TARGET DEPTH GROUTED Bearing is approximate only.					
				40.5								
				41.0								
				41.5								
				42.0								
				42.5								
				43.0								
				43.5								
				44.0								
				44.5								
				45.0								

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

Borehole ID:	BQLA-02
Termination Depth:	40.3

Depth (m)			Type	Angle (°)	Roughness	Shape	Infill	Weathering	Nature	Comments
From	To	Midpoint								
21.00	21.14	21.07	Joint	65		Planar		Slightly Weathered	Hairline	
23.31	23.38	23.35	Joint	45		Planar		Slightly Altered	Healed	
23.35	23.41	23.38	Joint	42	Rough	Planar		Slightly Weathered	Vein	
23.42	24.05	23.74	Joint	80		Undulating		Moderately Altered,	Healed	Parasites with 10 mm halo.
23.65	23.71	23.68	Vein	40		Planar		Fresh	Infilled	
23.70	24.44	24.07	Joint	90		Undulating		Slightly Altered	Healed	
24.31	24.32	24.32	Joint	0	Very Rough	Planar		Slightly Weathered	Stained	
24.56	24.62	24.59	Joint	45	Rough	Planar		Slightly Weathered	Stained	
24.60	24.62	24.61	Joint	15	Rough	Planar		Slightly Weathered	Stained	
24.76	24.83	24.80	Vein	50		Planar		Slightly Altered	Infilled	
25.50	26.52	26.01	Joint	85		Undulating		Moderately Altered	Infilled	Parasites with 10 mm halo.
26.48	26.51	26.50	Joint	23	Very Rough	Undulating		Fresh	Clean	
26.55	26.60	26.58	Joint	50	Very Rough	Undulating		Fresh	Clean	
26.78	27.00	26.89	Vein	72		Planar		Moderately Altered	Infilled	Biotite component of infill.
27.86	28.08	27.97	Joint	64		Planar		Slightly Weathered	Stained	
28.61	28.61	28.61	Joint	5	Rough	Undulating		Slightly Weathered	Clean	
28.63	28.76	28.70	Vein	37	Smooth	Undulating		Slightly Weathered	Intact	
29.02	29.04	29.03	Joint	15	Rough	Undulating		Slightly Weathered	Infilled	
29.79	29.81	29.80	Vein	47	Rough	Undulating		Slightly Weathered	Intact	
29.98	30.06	30.02	Vein	51	Rough	Undulating		Slightly Weathered	Intact	
30.73	30.73	30.73	Joint	8	Smooth	Undulating		Slightly Weathered	Clean	
30.81	30.85	30.83	Vein	37	Smooth	Curved		Slightly Weathered	Intact	
30.81	30.87	30.84	Vein	52	Smooth	Curved		Slightly Weathered	Intact	
31.33	31.66	31.50	Vein	88	Rough	Undulating		Slightly Weathered	Intact	
31.64	31.81	31.73	Vein	84	Rough	Undulating		Slightly Weathered	Intact	
31.73	31.73	31.73	Joint	4	Rough	Undulating		Slightly Weathered	Clean	
31.82	31.86	31.84	Vein	59	Smooth	Undulating		Slightly Weathered	Intact	
31.85	31.90	31.88	Vein	54	Smooth	Curved		Slightly Weathered	Intact	
31.89	31.98	31.94	Vein	64	Rough	Curved		Slightly Weathered	Intact	
32.03	32.23	32.13	Vein	79	Rough	Undulating		Moderately Altered	Intact	
32.14	32.14	32.14	Joint	2	Rough	Irregular		Slightly Weathered	Clean	
32.25	32.33	32.29	Joint	76	Rough	Curved		Slightly Weathered	Intact	
32.60	32.46	32.53	Vein	81	Rough	Undulating		Moderately Altered	Intact	
32.83	32.95	32.89	Joint	68	Rough	Undulating		Slightly Weathered	Intact	
32.95	32.96	32.96	Joint	24	Rough	Undulating		Slightly Weathered	Intact	
33.82	33.93	33.88	Vein	79	Rough	Undulating		Moderately Altered	Intact	
33.89	34.20	34.05	Vein	89	Rough	Undulating		Moderately Altered	Intact	
34.04	34.06	34.05	Joint	5	Rough	Undulating		Slightly Weathered	Stained	
34.18	34.40	34.29	Vein	67	Rough	Undulating		Moderately Altered	Intact	
34.41	34.45	34.43	Vein	9	Rough	Undulating		Slightly Weathered	Intact	
34.53	34.53	34.53	Joint	3	Smooth	Undulating		Slightly Weathered	Vein	
34.57	34.58	34.58	Joint	18	Rough	Undulating		Slightly Altered.	Vein	
35.53	35.63	35.58	Vein	70	Rough	Undulating		Moderately Altered	Infilled	
35.68	35.68	35.68	Vein	8	Smooth	Undulating		Slightly Weathered	Intact	
35.98	36.11	36.05	Vein	69	Smooth	Undulating		Moderately Altered	Infilled	
36.08	36.08	36.08	Joint	3	Rough	Undulating		Slightly Altered	Clean	
36.11	36.25	36.18	Vein	66	Smooth	Undulating		Slightly Weathered	Intact	
36.20	36.20	36.20	Joint	7	Rough	Undulating		Slightly Weathered	Stained	
36.67	36.67	36.67	Joint	6	Rough	Undulating		Slightly Weathered	Clean	
36.90	36.91	36.91	Vein	11	Rough	Stepped		Slightly Altered	Vein	
36.99	36.99	36.99	Joint	4	Rough	Undulating		Slightly Weathered	Clean	
36.99	37.15	37.07	Joint	78	Rough	Undulating		Slightly Weathered	Vein	
37.33	37.41	37.37	Joint	59	Rough	Undulating		Slightly Weathered	Intact	
37.40	37.64	37.52	Vein	79	Rough	Undulating		Moderately Altered	Intact	
37.78	37.78	37.78	Joint	25	Rough	Undulating		Slightly Weathered	Clean	
38.38	38.41	38.40	Vein	31	Rough	Undulating		Moderately Altered	Coating	
38.80	38.99	38.90	Joint	76	Rough	Undulating		Slightly Weathered	Intact	
38.83	38.88	38.86	Joint	48	Rough	Undulating		Slightly Altered	Intact	

Depth (m)			Type	Angle (°)	Roughness	Shape	Infill	Weathering	Nature	Comments
From	To	Midpoint								
39.10	39.29	39.20	Joint	81	Rough	Undulating		Slightly Weathered	Intact	
39.82	39.84	39.83	Vein	15	Rough	Curved		Moderately Altered	Intact	
40.06	40.13	40.10	Vein	51	Rough	Undulating		Moderately Altered	Intact	
40.15	40.20	40.18	Vein	51	Rough	Undulating		Moderately Altered	Intact	
40.27	40.27	40.27	Joint	5	Rough	Undulating		Slightly Weathered	Intact	Dark green colour.

Borehole No.: BQLA-02	**Depth Range:** 10.23-14.0	**Box:** 1 / 8

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC	
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 1/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 19/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 14.0-18.0	**Box:** 2 / 8

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 2/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 19/08/23	**Revision:** 0	**Scale:** N/A

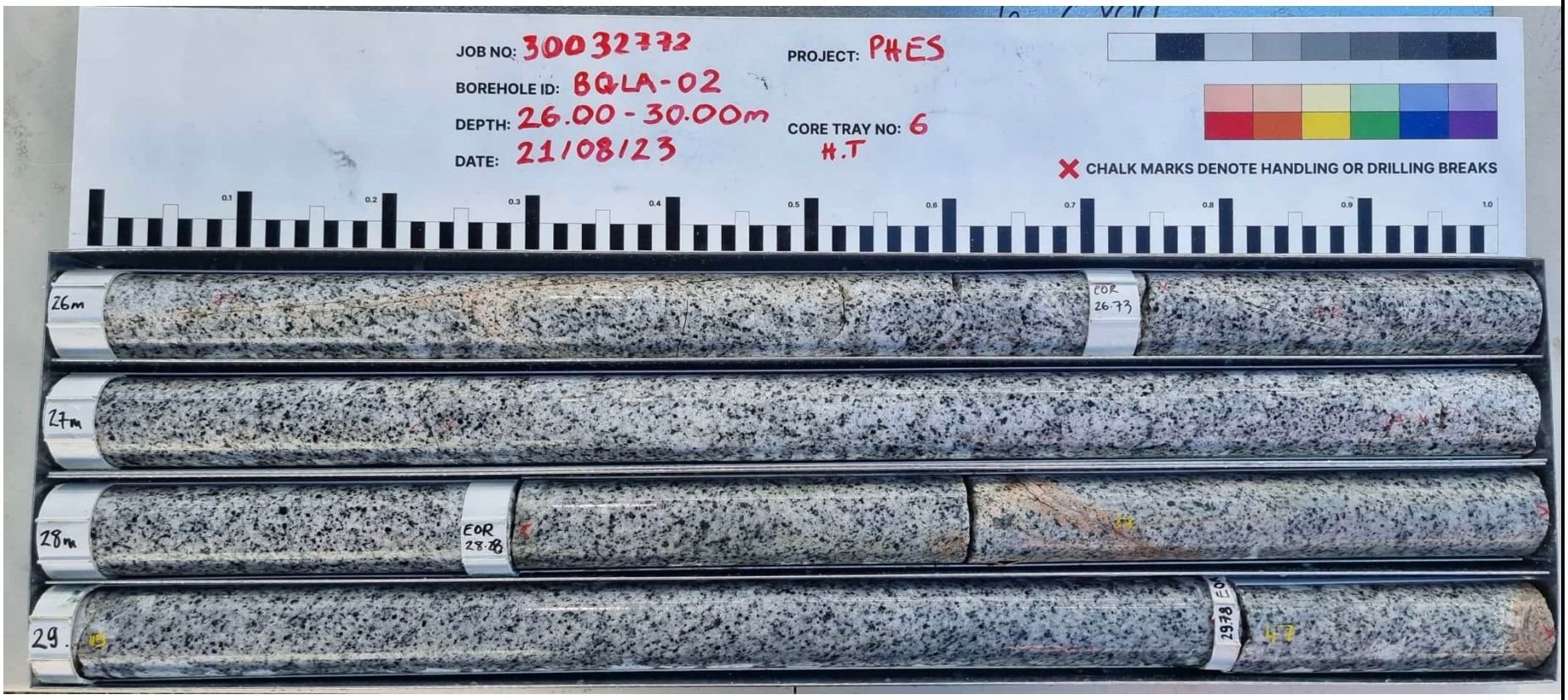
Borehole No.: BQLA-02	**Depth Range:** 18.0-22.0	**Box:** 3 / 8

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 3/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 19/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 22.0-26.0	**Box:** 4 / 8

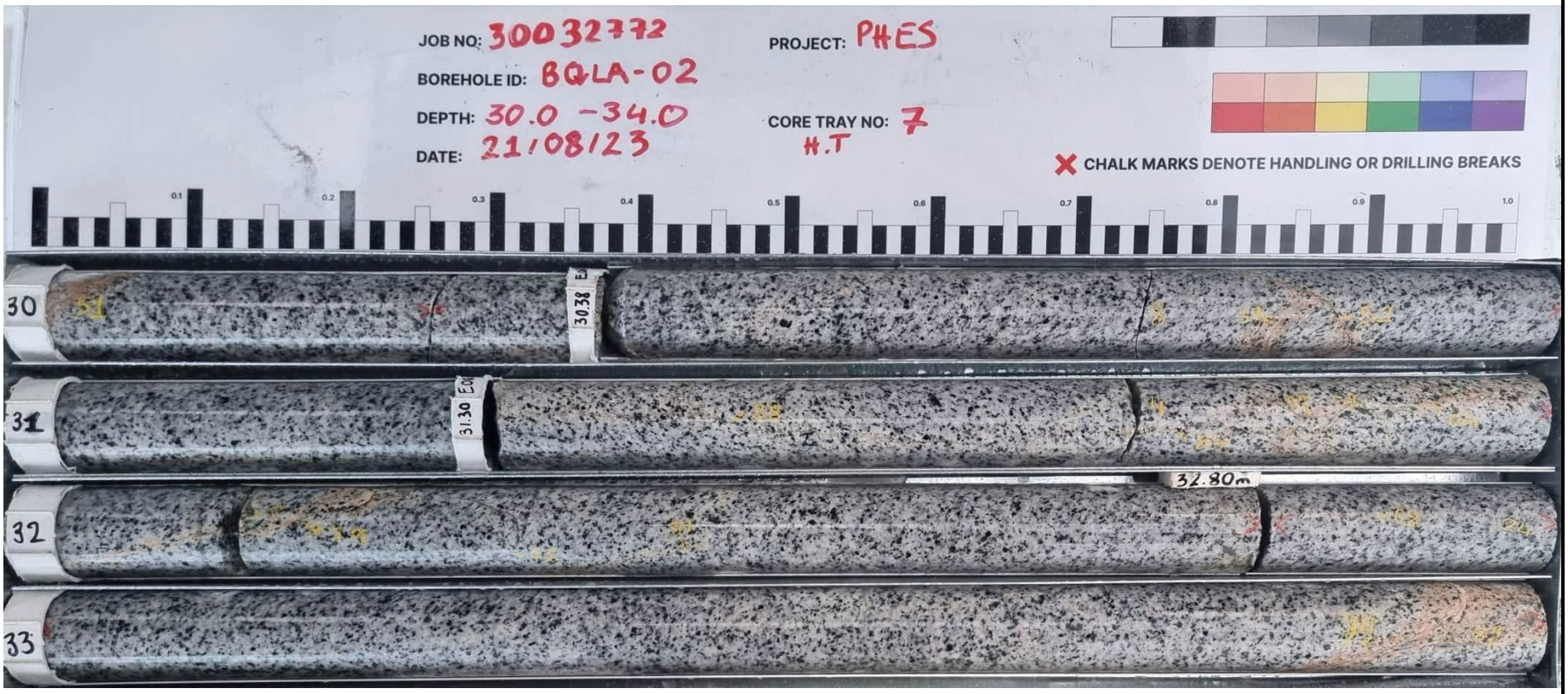
ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 4/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 19/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 26.0-30.0	**Box:** 5 / 8



ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 5/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 21/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 30.0-34.0	**Box:** 6 / 8

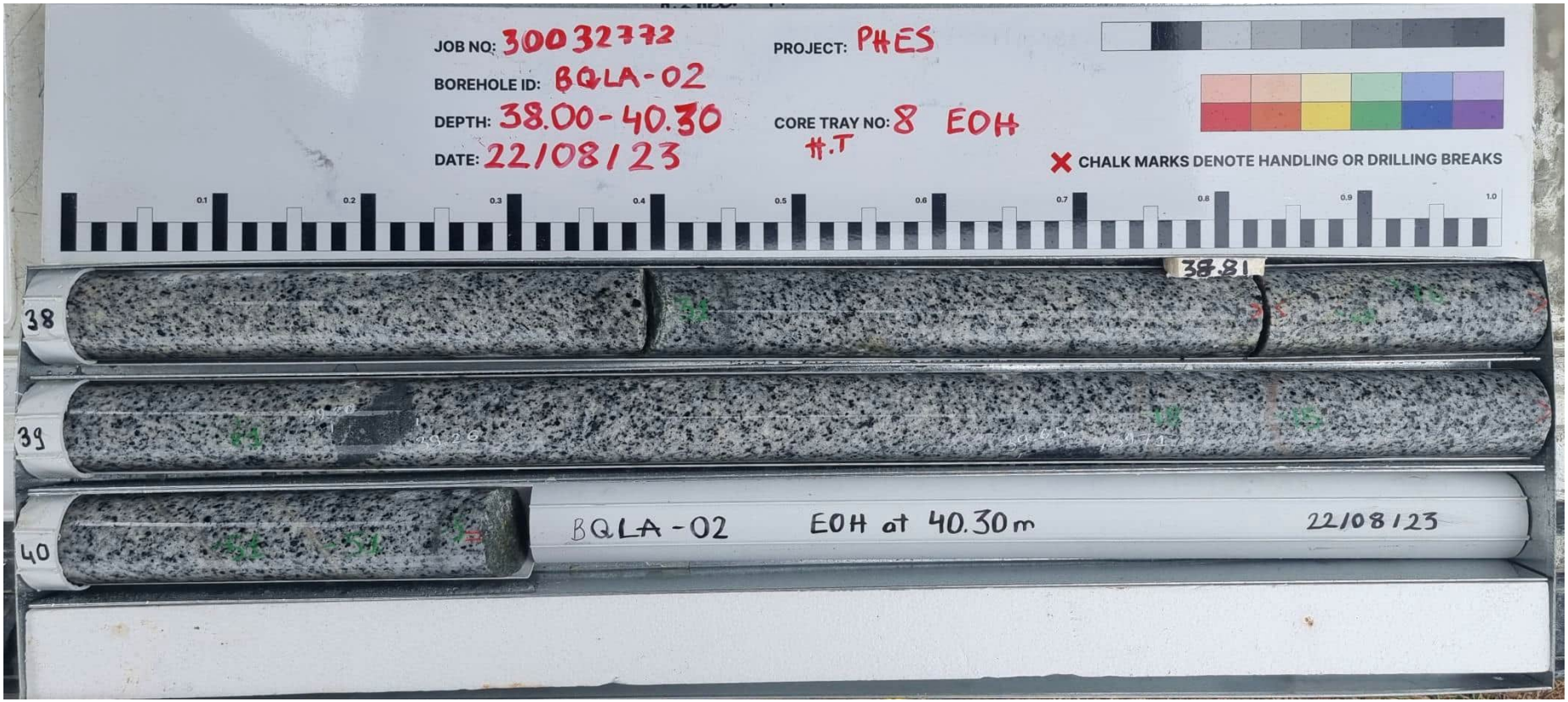


ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 6/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 21/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 34.0-38.0	**Box:** 7 / 8

ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 7/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 22/08/23	**Revision:** 0	**Scale:** N/A

Borehole No.: BQLA-02	**Depth Range:** 38.0-40.30	**Box:** 8 / 8



ENGEO	**Geotechnical Investigation Borehole Photos**	**Client:** SMEC		
		Project: Pioneer-Burdekin PHES	**Drawn:** HG	**Page No.** 8/8
		Project No. 23117.000.001	**Checked:** SF	**Size:** A4
		Date Drilled: 22/08/23	**Revision:** 0	**Scale:** N/A

COMPOSITE LOG

BOREHOLE TELEVIEWER AND FULL WAVEFORM SONIC LOGS AND ADVANCED ANALYSIS

Epiroc

Hole Name	BQLA_02	**Drill Depth**	40.23m	**Grid Name**		**Logging Unit**	SV013
Field	EUNGELLA	**Bit Size**	96mm	**Collar Easting**	659527m	**Engineer**	DAMON HOSKING
Log Date	23/08/23	**Casing Type**	STEEL	**Collar Northing**	7660828m	**Client Representative**	ROB CAINE
Location	PIONEER-BURDEKIN	**Casing Depth**	12.0m	**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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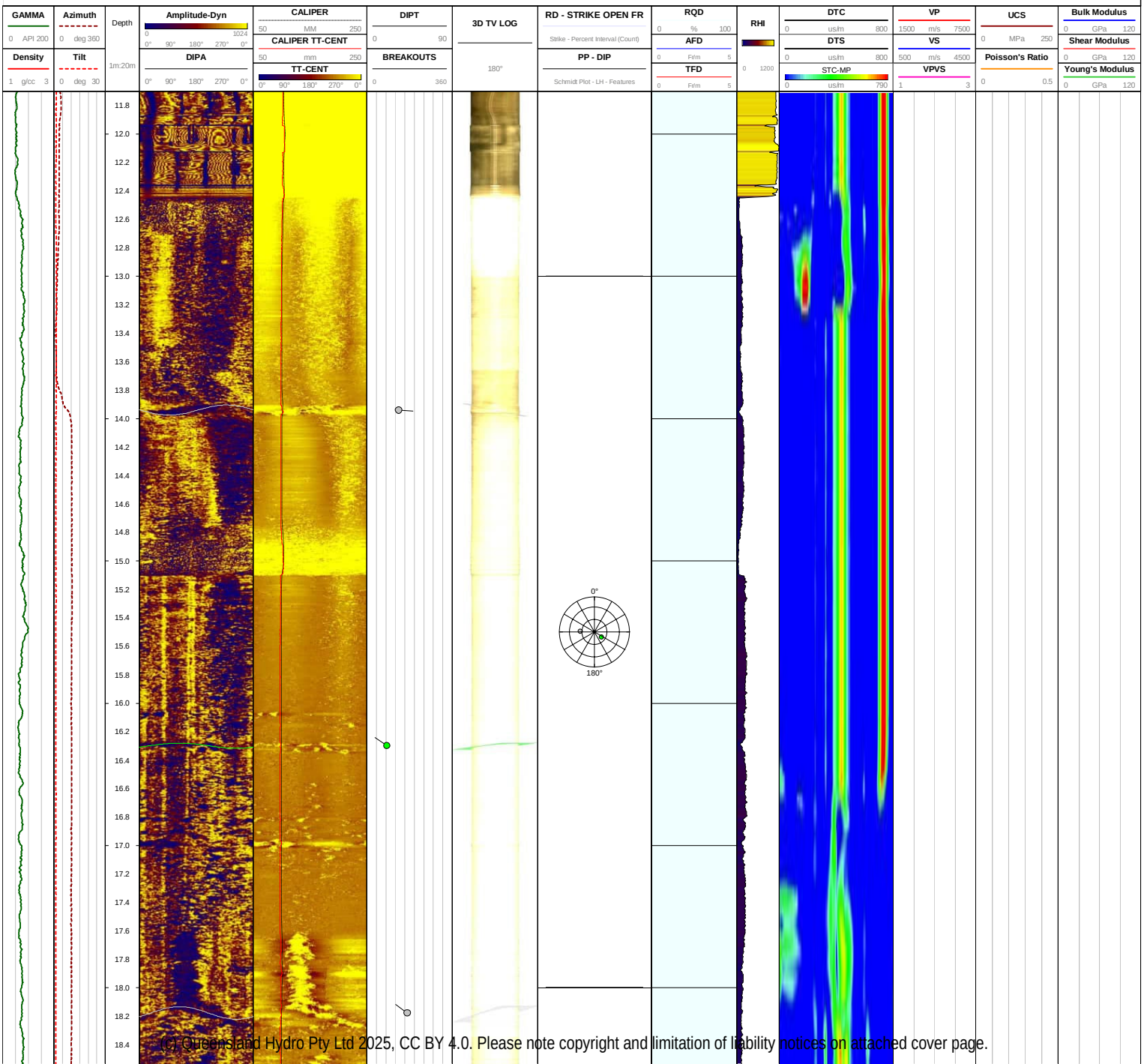
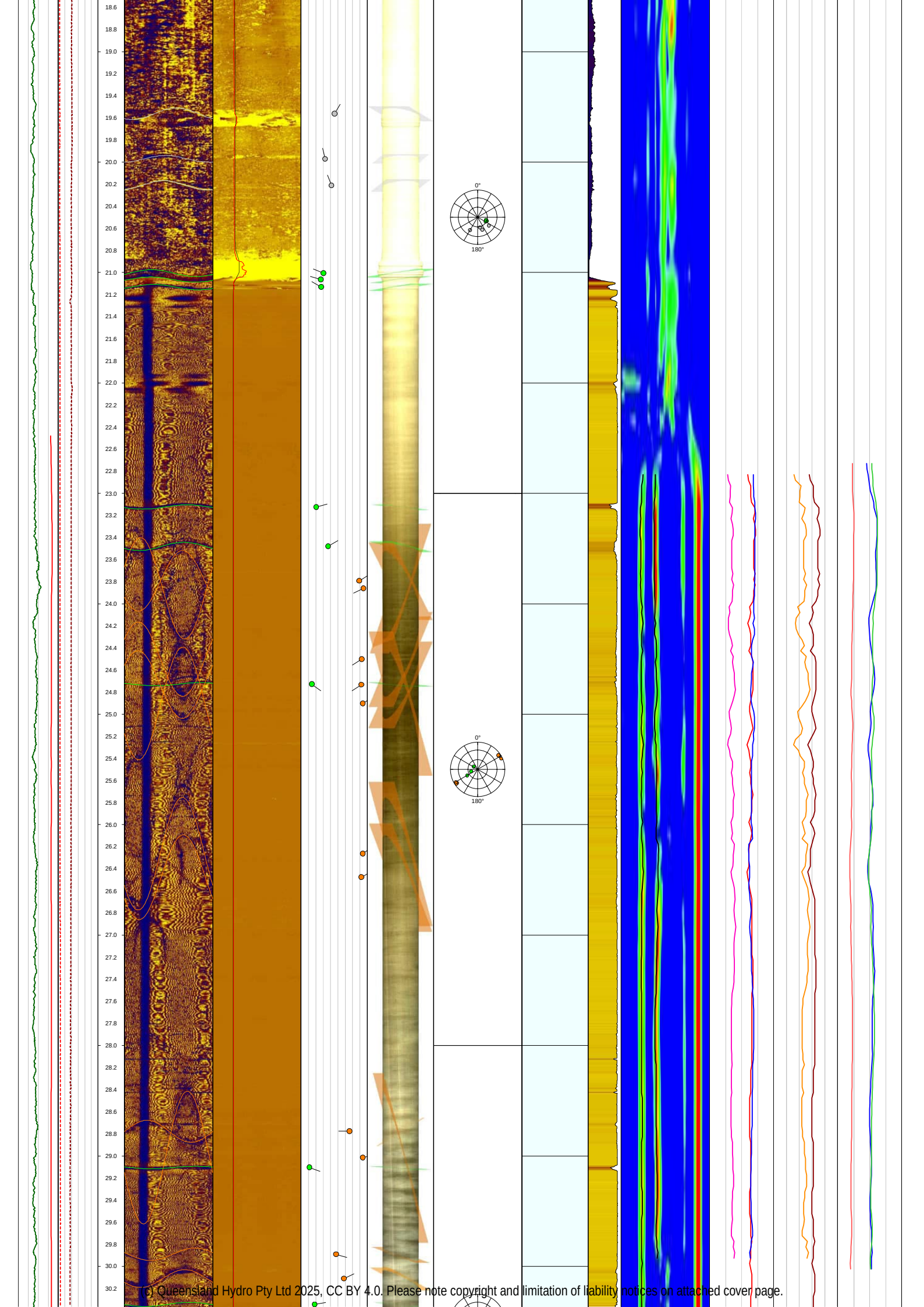
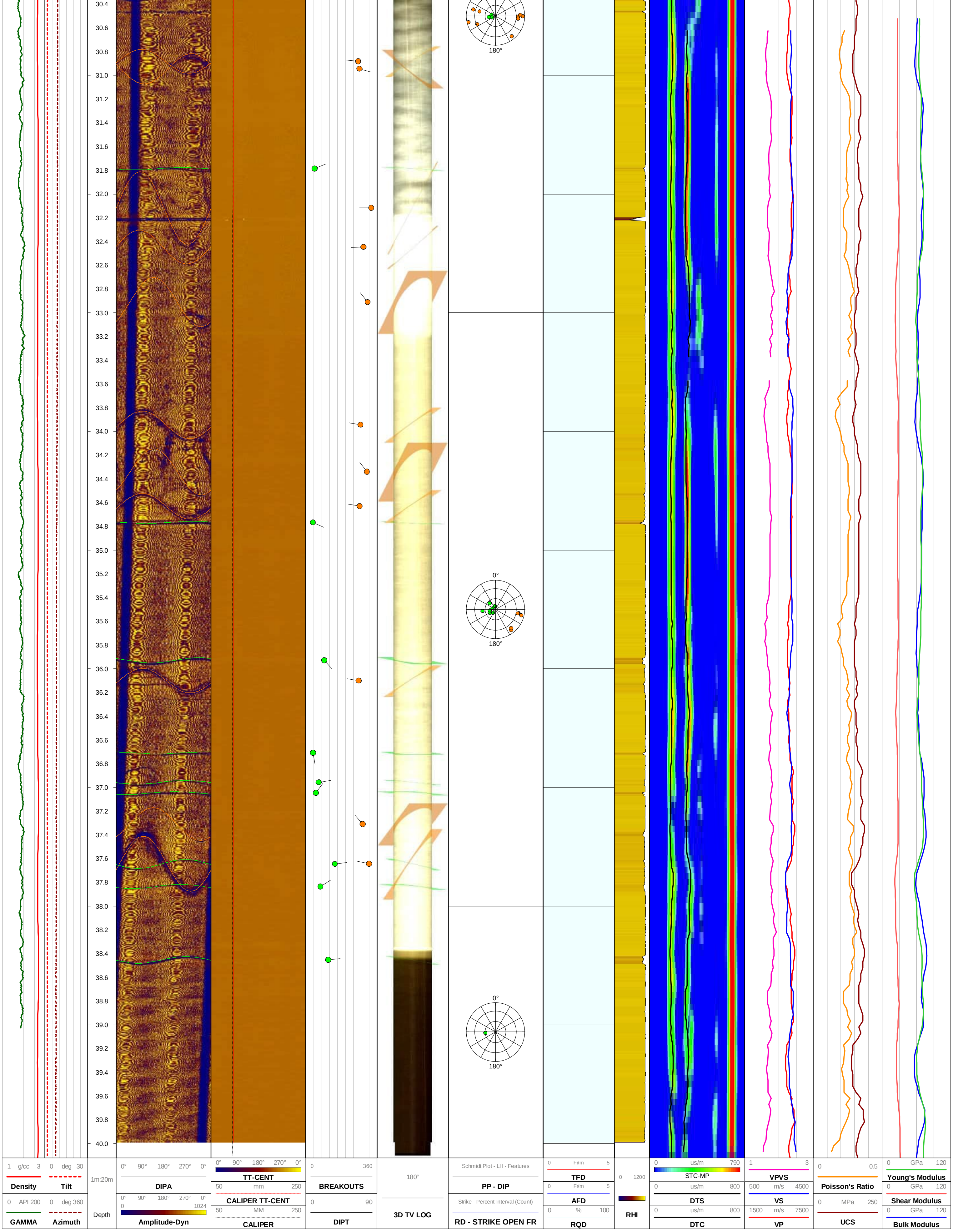
Therefore, Epiroc Kinetic Logging Services shall not be liable or responsible for any loss, damage, cost or expense incurred or sustained by anyone resulting from any interpretations.







BQLA_02 Televiewer Structures

Feature Depth	Depth	Azimuth	Dip	Aperture	Visible Azimuth Ranges	Type	Features
m	m	deg	deg	mm	deg		
13.94	13.94	94.2	33.6	0		5	Healed Fracture/Vein
16.3	16.3	305.77	21.05	0		4	Foliation/Banding/Bedding
18.18	18.18	306.96	42.73	0		5	Healed Fracture/Vein
19.56	19.56	30.17	45.5	0		5	Healed Fracture/Vein
19.97	19.97	346.12	32.62	0		5	Healed Fracture/Vein
20.21	20.21	339.5	41.32	0		5	Healed Fracture/Vein
21.01	21.01	291.95	30.55	0		4	Foliation/Banding/Bedding
21.06	21.06	287.72	26.92	0		4	Foliation/Banding/Bedding
21.13	21.13	298.48	27.72	0		4	Foliation/Banding/Bedding
23.12	23.12	73.15	20.56	0		4	Foliation/Banding/Bedding
23.48	23.48	59.26	37	0		4	Foliation/Banding/Bedding
23.79	23.79	56.87	79.34	0		3	Closed Fracture
23.86	23.86	245.37	84.9	0		3	Closed Fracture
24.5	24.5	237.34	82.59	0		3	Closed Fracture
24.73	24.73	126.3	14.6	0		4	Foliation/Banding/Bedding
24.73	24.73	235.55	81.78	0		3	Closed Fracture
24.9	24.9	57.7	83.88	0		3	Closed Fracture
26.26	26.26	55.73	83.86	0		3	Closed Fracture
26.48	26.48	59.54	82.02	0		3	Closed Fracture
28.78	28.78	271.67	65.96	0		3	Closed Fracture
29.01	29.01	76.88	84.1	0		3	Closed Fracture
29.1	29.1	111.32	11.45	0		4	Foliation/Banding/Bedding
29.89	29.89	106.39	47.59	0		3	Closed Fracture
30.11	30.11	65.01	58.12	0		3	Closed Fracture
30.34	30.34	81.26	18.64	0		4	Foliation/Banding/Bedding
30.88	30.88	277.03	66.22	0		3	Closed Fracture
30.94	30.94	106.4	67.66	0		3	Closed Fracture
31.79	31.79	67.95	10.96	0		4	Foliation/Banding/Bedding
32.12	32.12	270.87	82.72	0		3	Closed Fracture
32.45	32.45	267.78	73.02	0		3	Closed Fracture
32.91	32.91	321.48	78.33	0		3	Closed Fracture
33.94	33.94	279.71	69.33	0		3	Closed Fracture
34.34	34.34	322.55	77.39	0		3	Closed Fracture
34.63	34.63	280.34	68.04	0		3	Closed Fracture
34.77	34.77	114.53	9.1	0		4	Foliation/Banding/Bedding
35.93	35.93	137.16	23.48	0		4	Foliation/Banding/Bedding
36.1	36.1	280.43	66.81	0		3	Closed Fracture
36.71	36.71	170.32	9.36	0		4	Foliation/Banding/Bedding
36.96	36.96	79.09	16.5	0		4	Foliation/Banding/Bedding
37.05	37.05	35.43	12.8	0		4	Foliation/Banding/Bedding
37.31	37.31	320.12	72.06	0		3	Closed Fracture
37.64	37.64	282.92	79.96	0		3	Closed Fracture
37.64	37.64	82.1	36.83	0		4	Foliation/Banding/Bedding
37.83	37.83	59.31	18.56	0		4	Foliation/Banding/Bedding
38.45	38.45	83.63	28.55	0		4	Foliation/Banding/Bedding

BQLA_02

SMEC - Pioneer-Burdekin

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

Log Date: 23 August 2023

IMPORTANT NOTE

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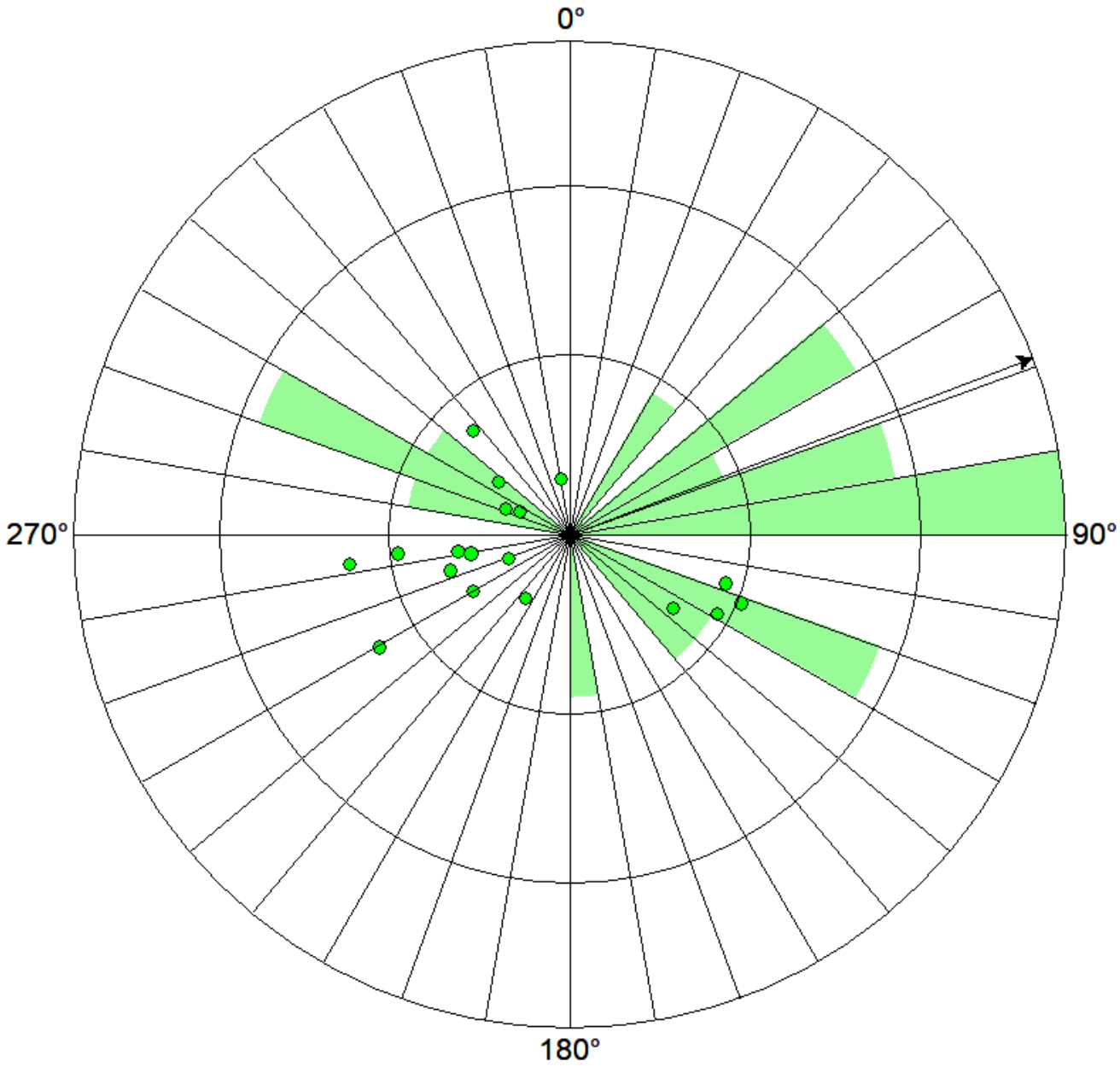
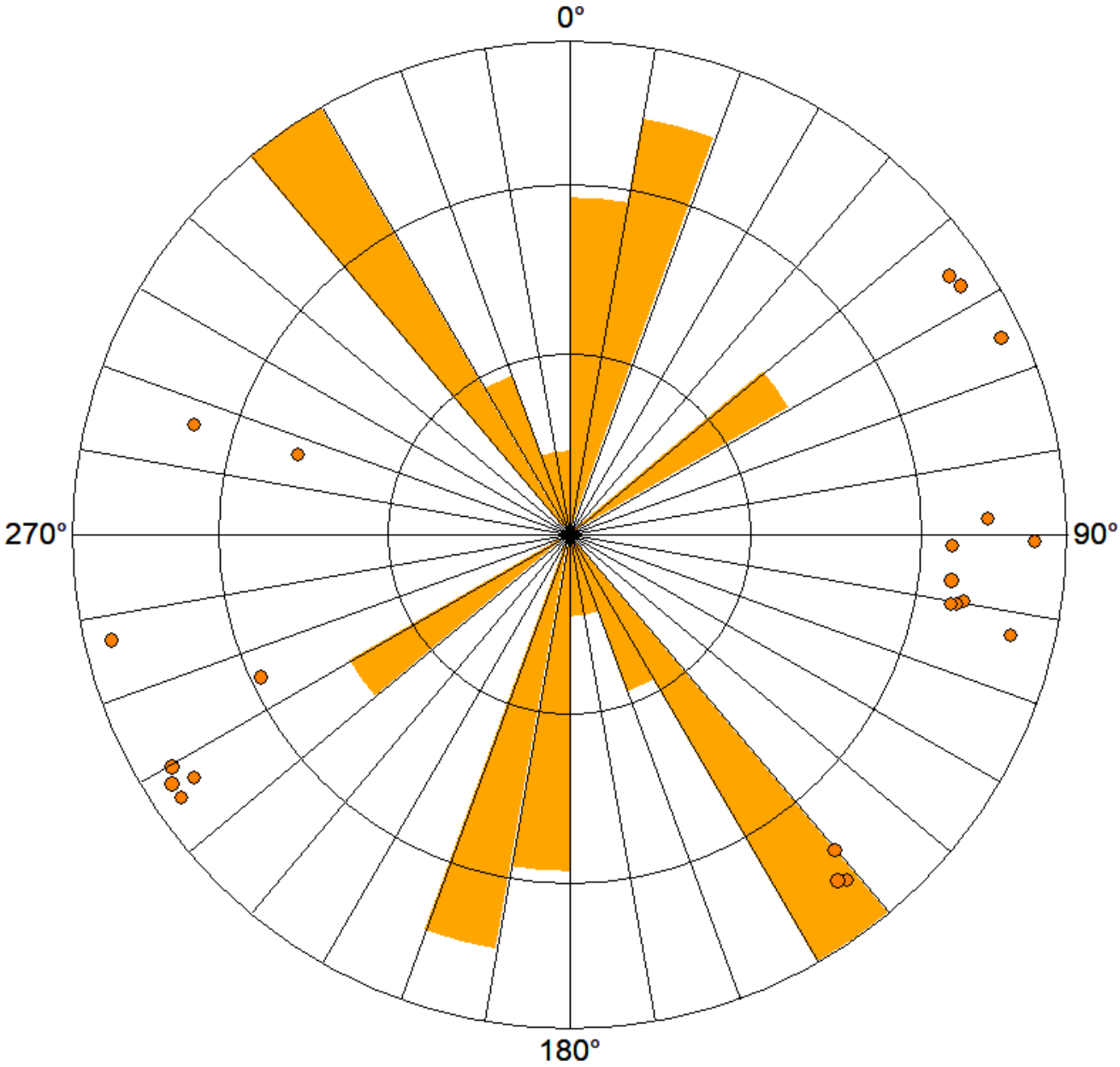
FOLIATIONS – 12.5 TO 40.0 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	18	9.37	68.82	158.82 - 338.82

Foliations: Scattered dip azimuth directions

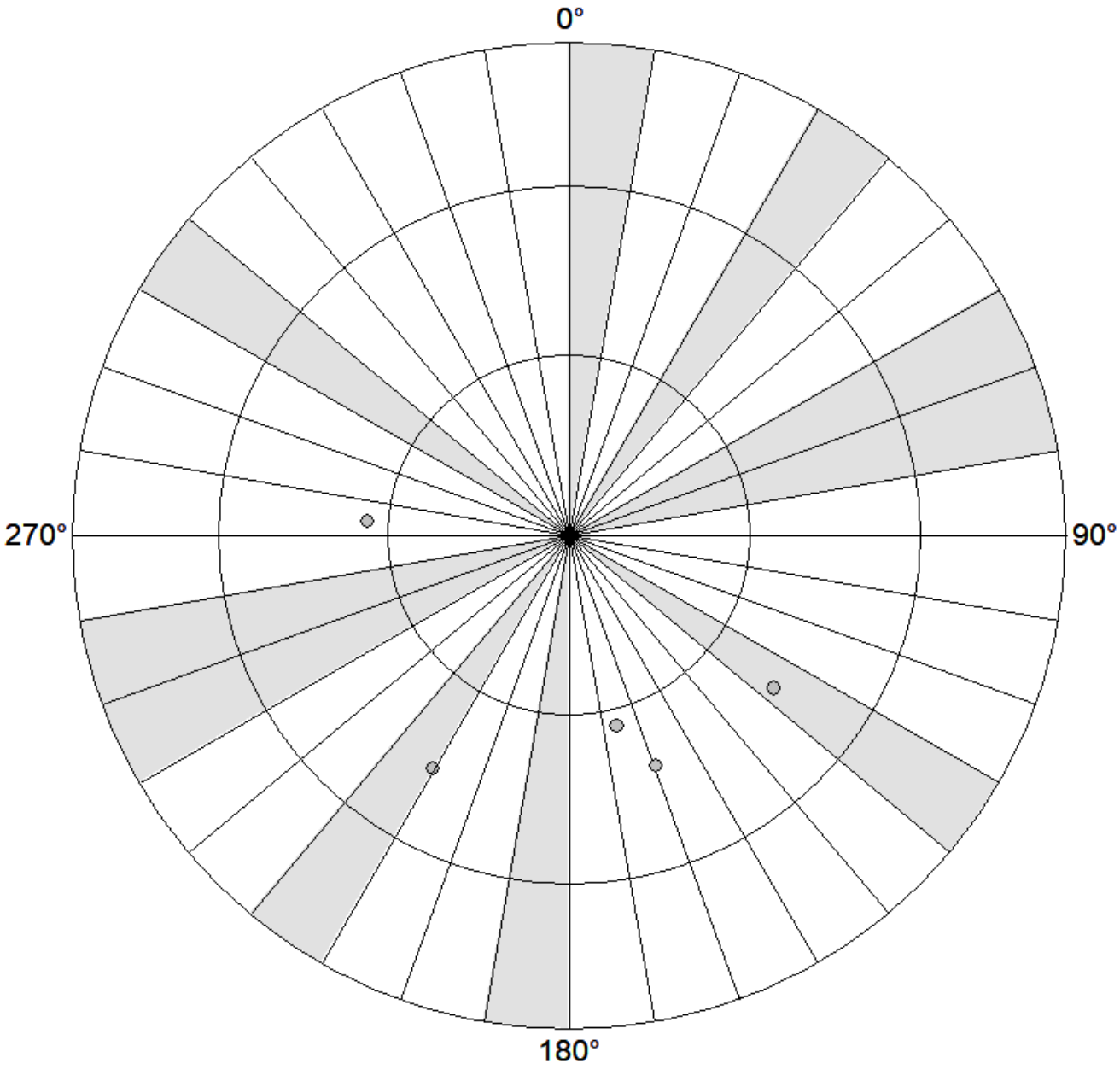
CLOSED FRACTURES – 12.5 TO 40.0 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	22	84.96	265.44	175.44 - 355.44

Closed Fractures: Bimodal strike directions in the NNE to SSW and SE to NW direction

HEALED FRACTURES AND VEINS – 12.5 TO 40.0 M



	Counts	Dip [deg]	Azimuth [deg]	Strike [deg]
Mean	5	30.53	356.68	86.68 - 266.68

Healed Fractures and Veins: Scattered strike directions (caution: small number of picks)

OPTV & BHTV LOG

BQLA_02

WELL	BQLA_02	**DRILL DEPTH**	40.23m	**DATE**	23/08/23
FIELD	PIONEER-BURDEKIN	**BIT SIZE**	96mm	**CLIENT REP**	ROB CAINE
LOCATION	EUNGELLA	**CASING WEIGHT**	STEEL	**ENGINEER**	DTH
UWI	SV013	**CASING SIZE**	101mm	**EASTING**	659527
COUNTRY	AUSTRALIA	**CASING BOTTOM**	12m	**NORTHING**	7660828

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.

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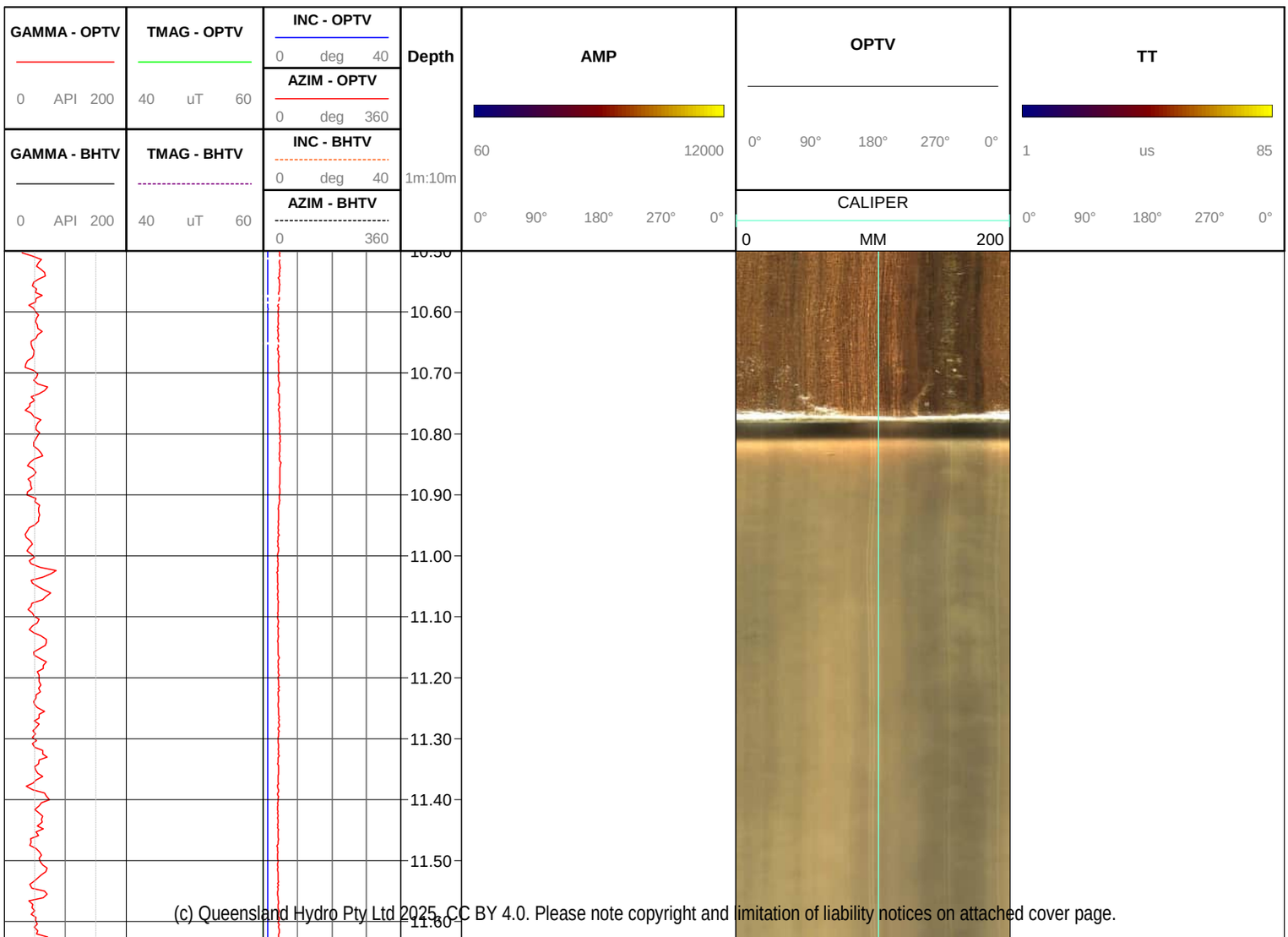
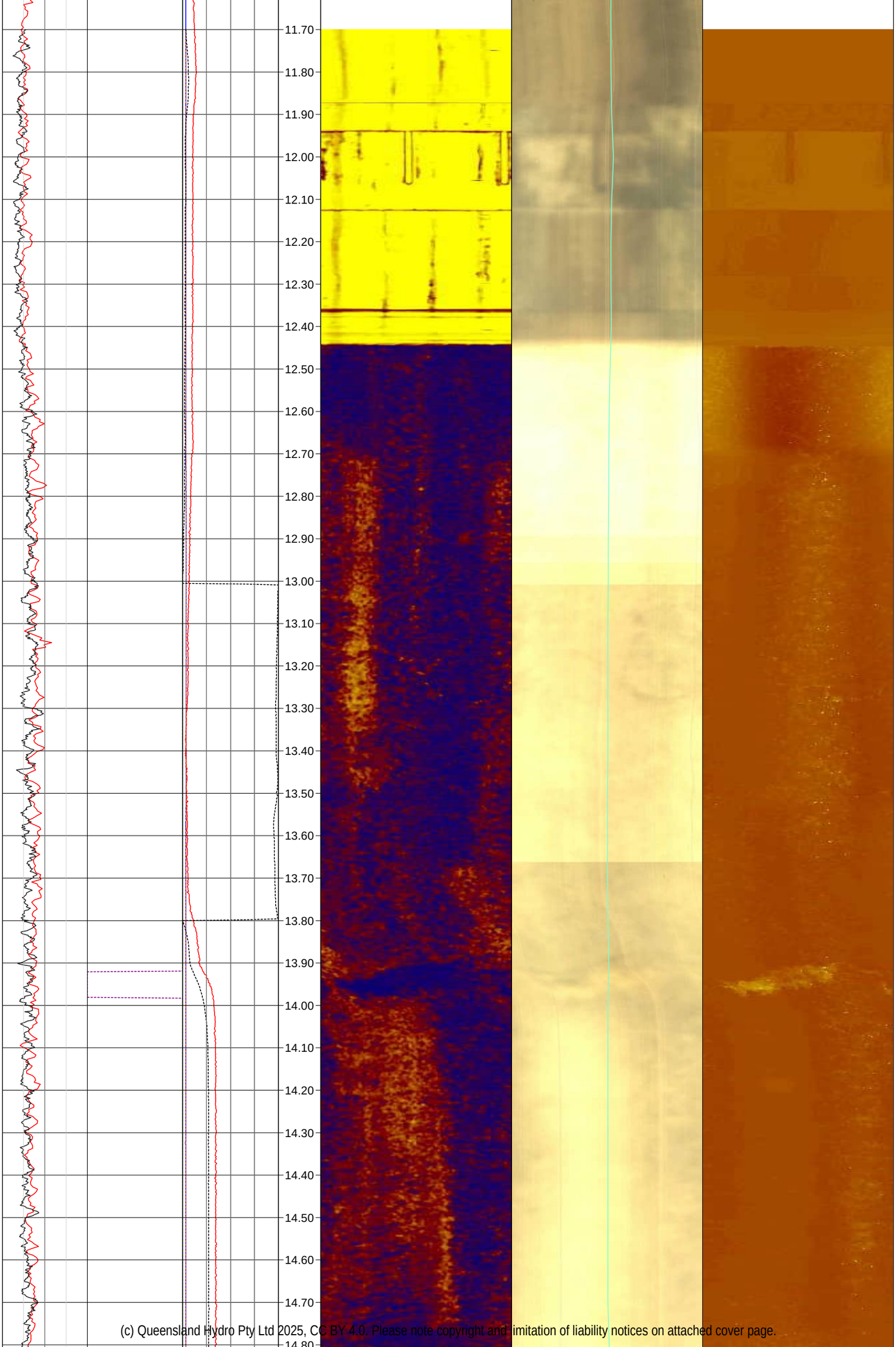
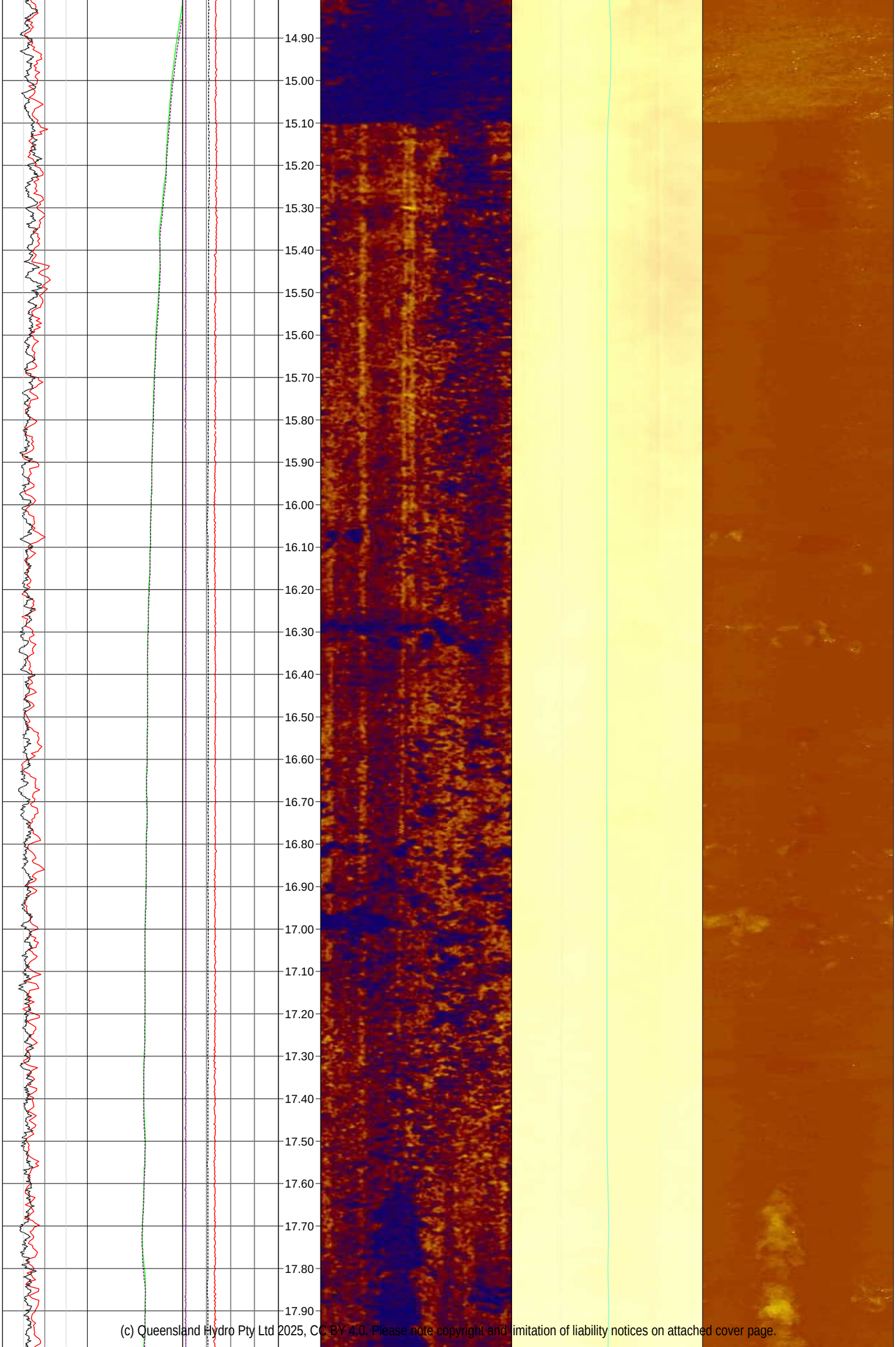
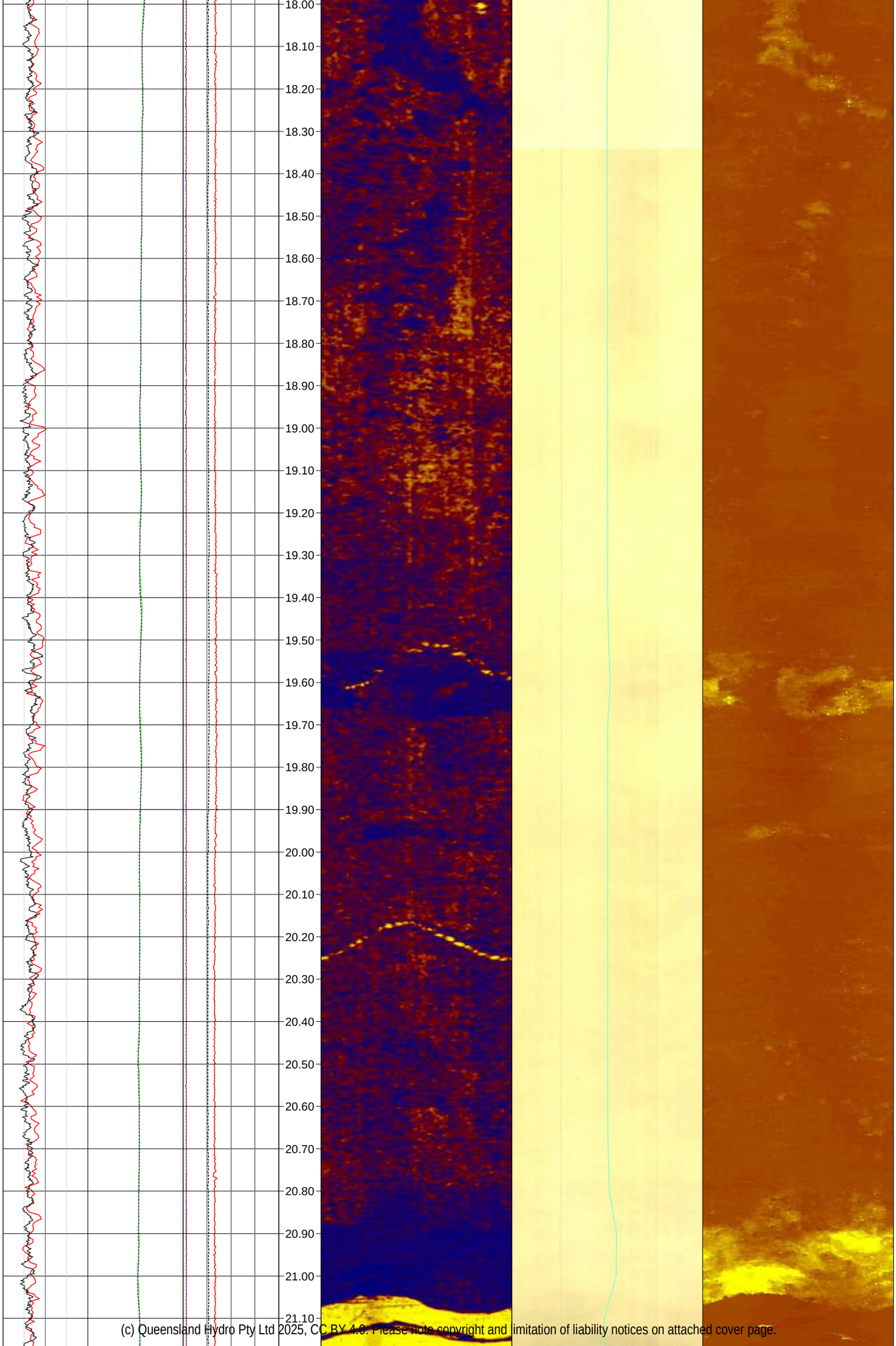
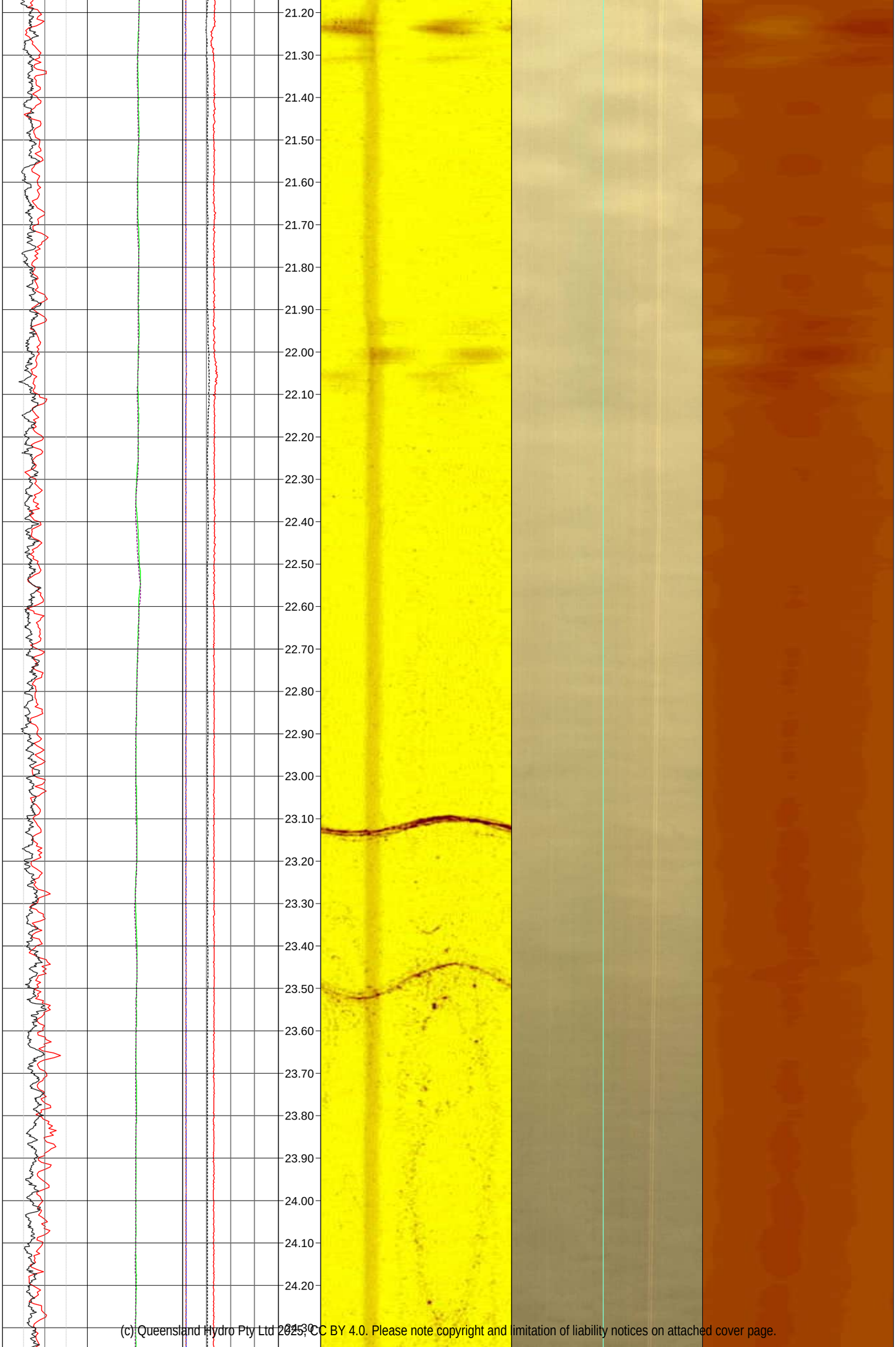
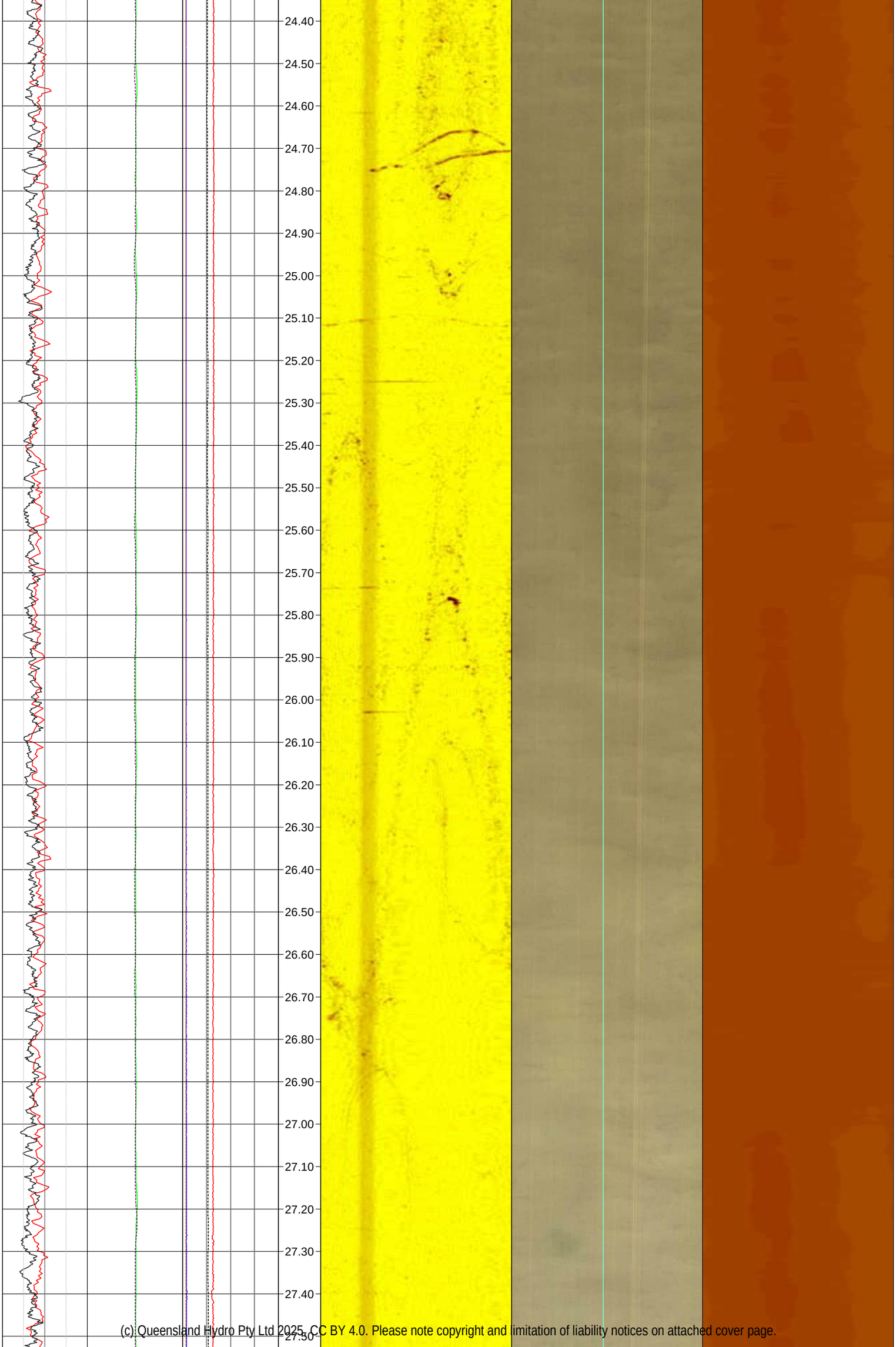


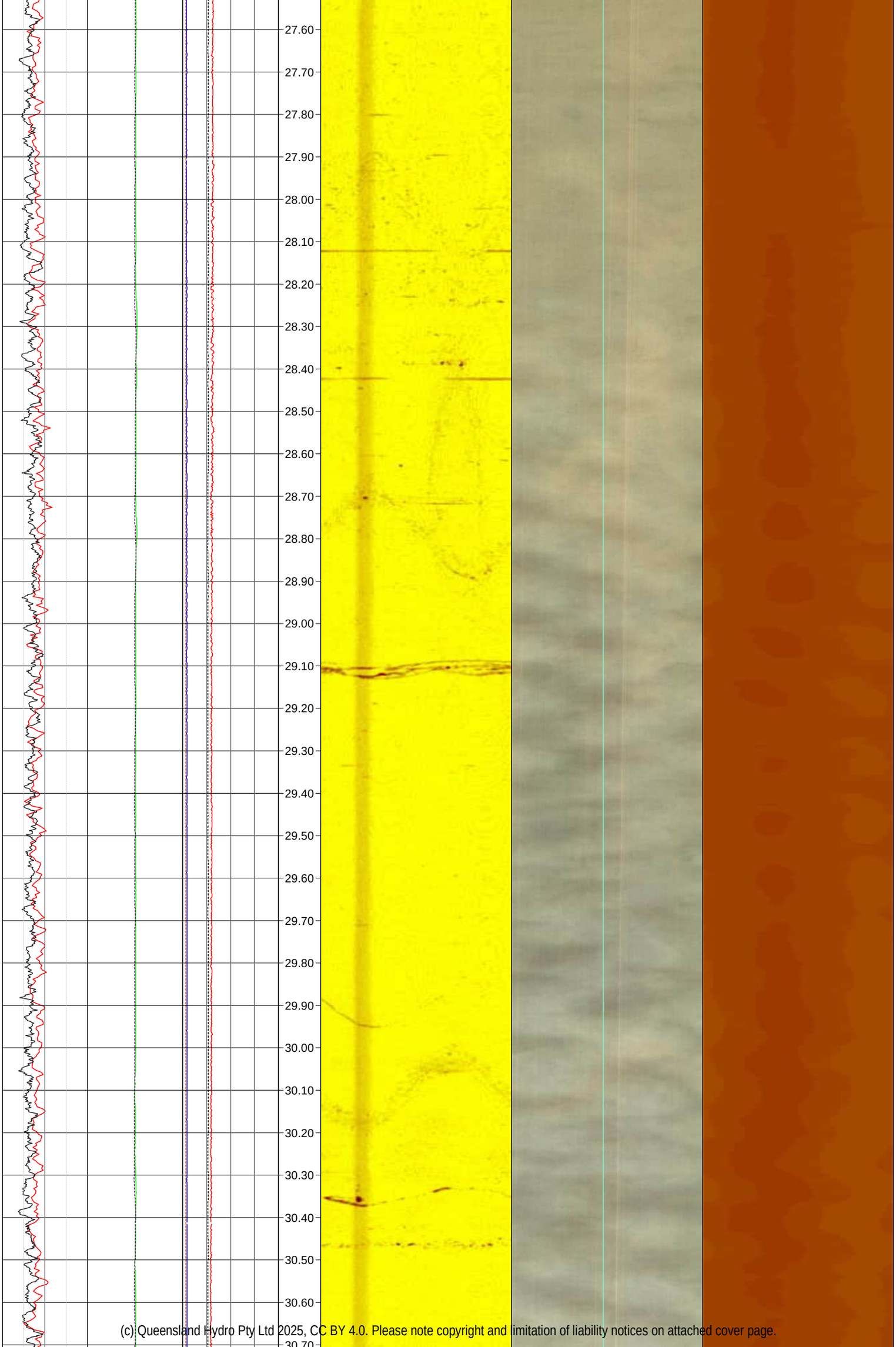


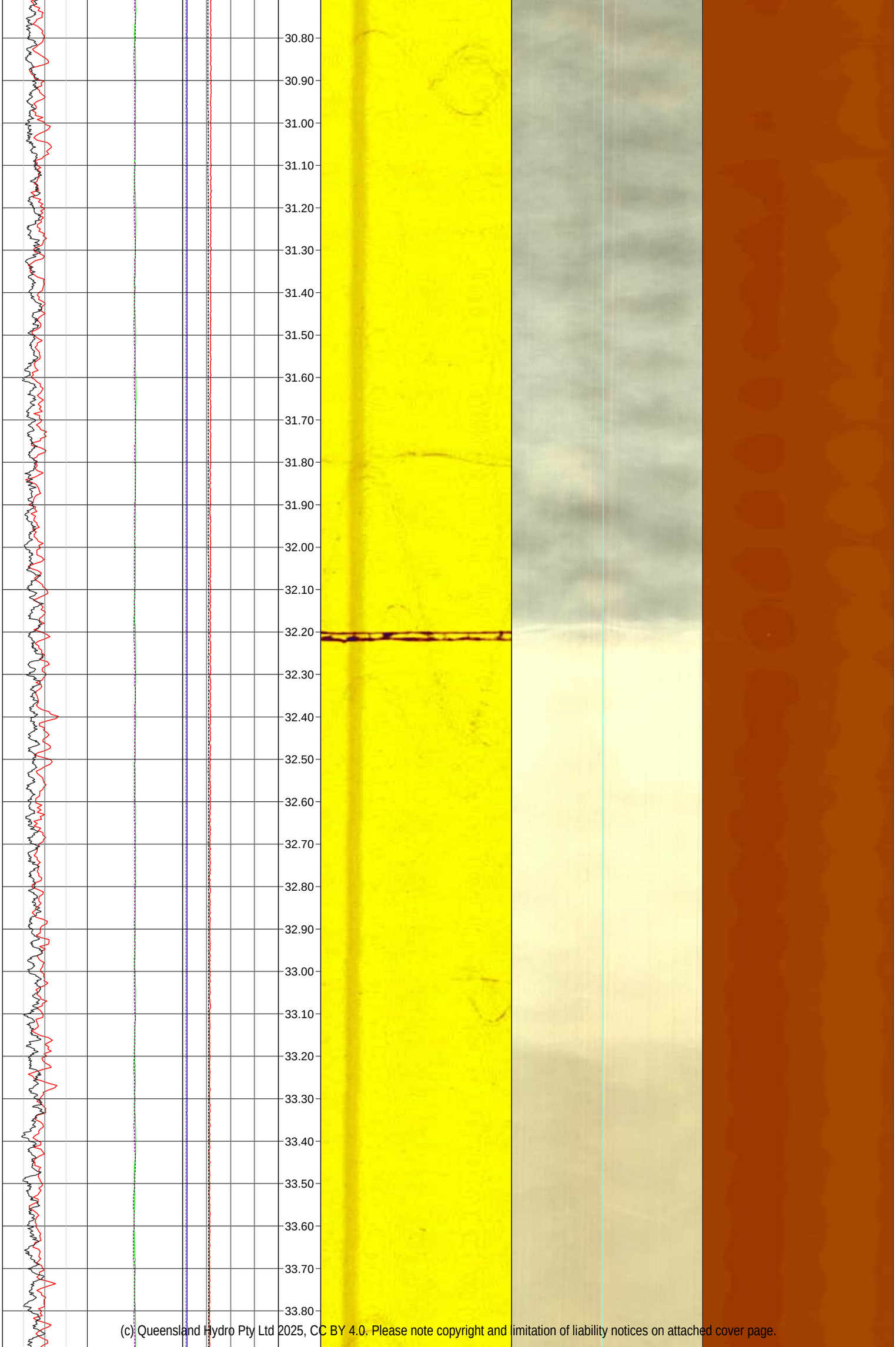


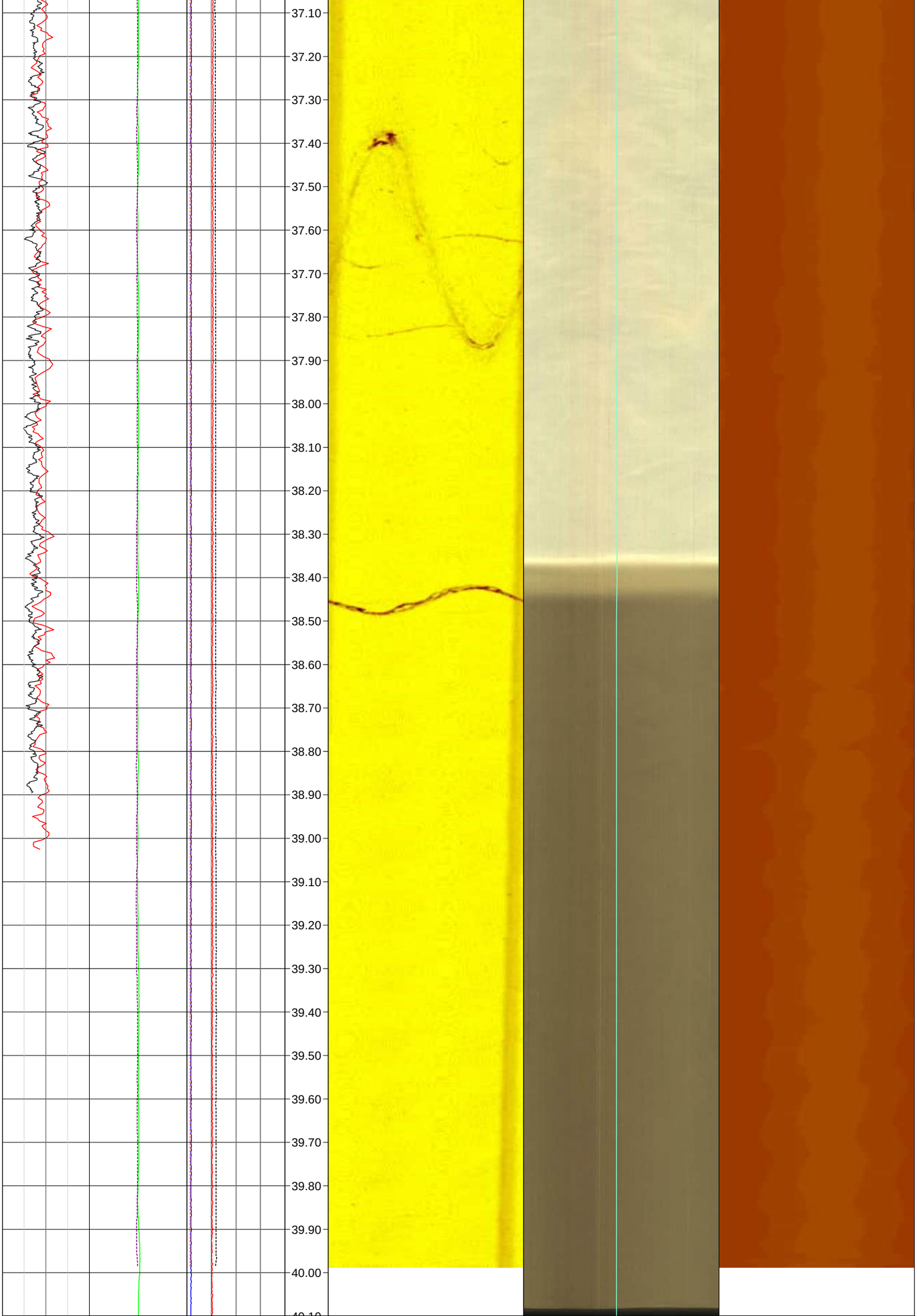


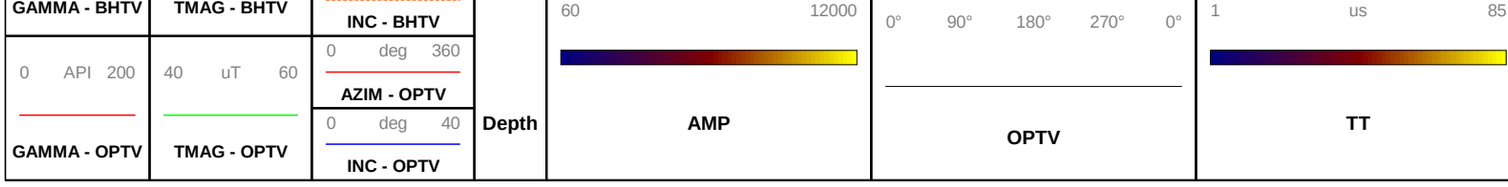












WELL	BQLA_02	**LOCATION**	EUNGELLA	**DATE**	23/08/23
FIELD	PIONEER-BURDEKIN	**DRILL DEPTH**	40.23m	**ENGINEER**	DTH

3-ARM LOG

BQLA_02

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BQLA_02	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BQLA_02
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	23-08-2023			RECORDED BY	DTH		
TIME	10-49			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	40.23m			RIG NUMBER			
DEPTH-LOGGER	40.20m			TOOL TYPE	6074A		
BIT SIZE	96mm			TOOL SERIAL NO.	2796		
CASING TYPE	STEEL			EASTING	7660828		
CASING ID	101mm			NORTHING	659527		
CASING BOTTOM	12m			SAMPLE INT.	.10m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	11m			SOURCE TYPE		SOURCE ID	

LOGGER COMMENTS:

1.

2.

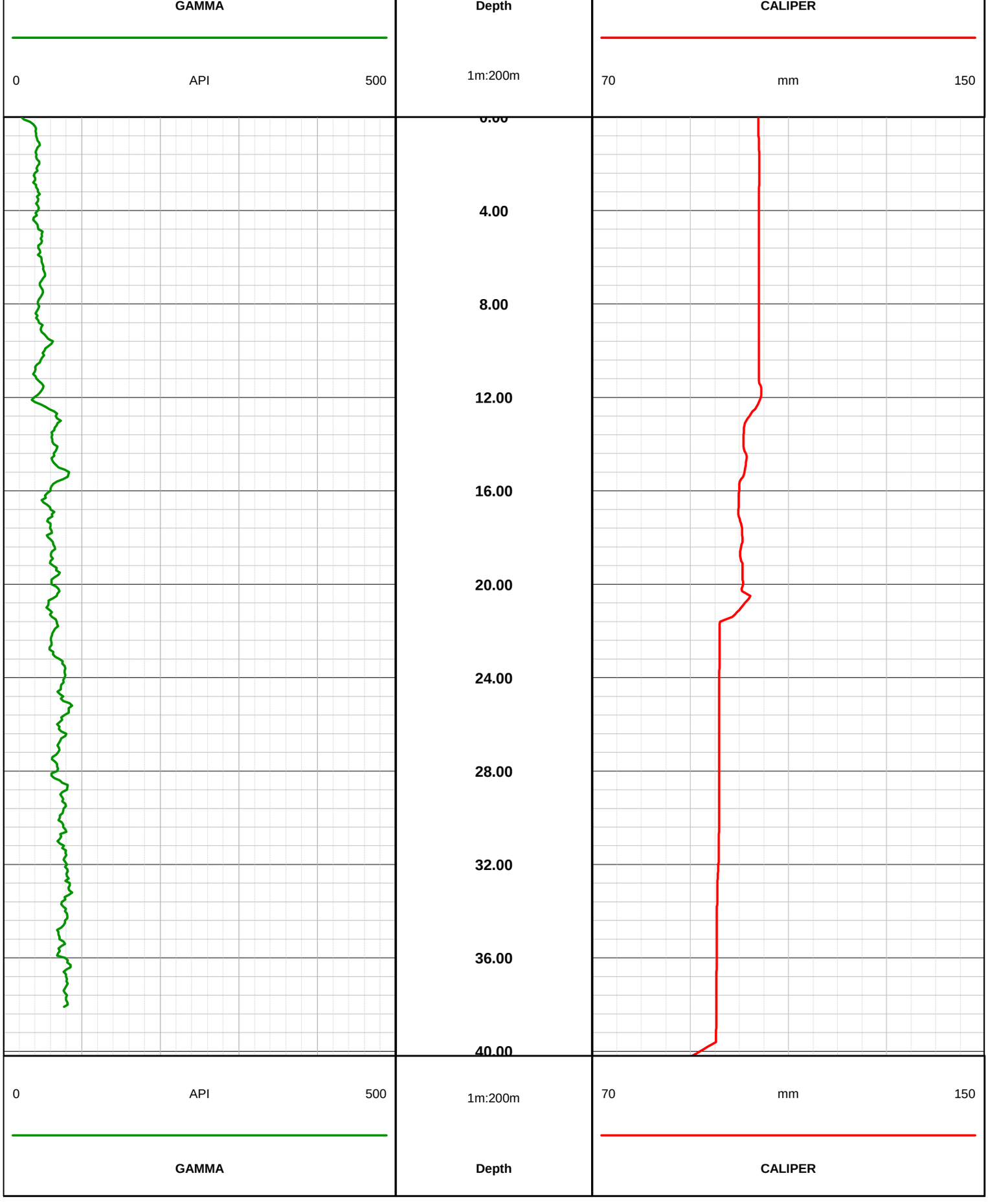
3.

MNEMONICS

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

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

MULTI-RES LOG

BQLA_02

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BQLA_02	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BQLA_02
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	23-08-2023			RECORDED BY	DTH		
TIME	10-49			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	40.23m			RIG NUMBER			
DEPTH-LOGGER	40.20m			TOOL TYPE	9057A		
BIT SIZE	96mm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			EASTING	7660828		
CASING ID	101mm			NORTHING	659527		
CASING BOTTOM	12m			SAMPLE INT.	.10m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	11m			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

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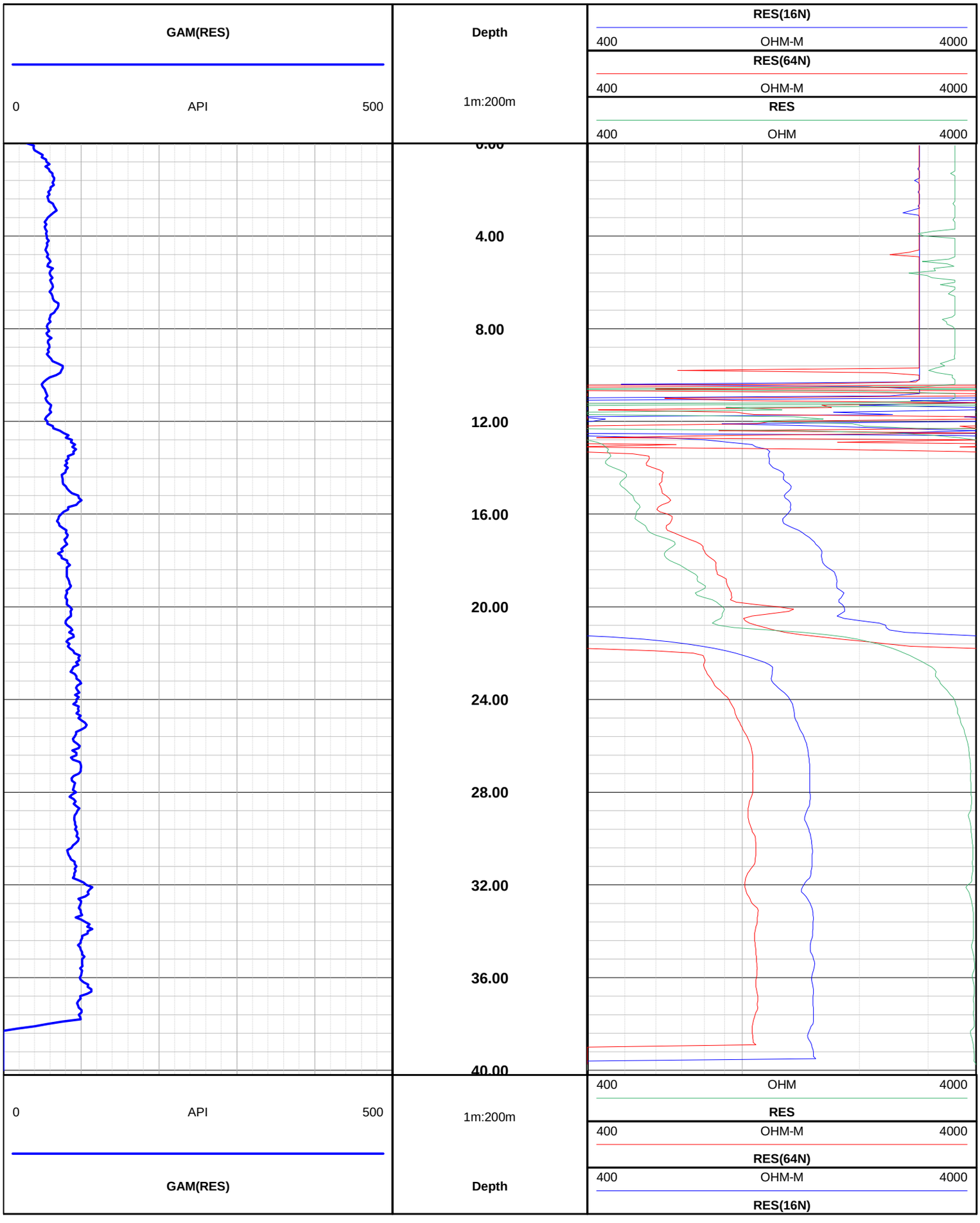
DEPTH SCALE 1:200



DEPTH SCALE 1:200

VERTICALITY ANALYSIS

BQLA_02

COMPANY	SMEC (QLD HYDRO)	**FIELD**	PIONEER-BURDEKIN	**STATE**	QLD
WELL	BQLA_02	**LOCATION**	EUNGELLA	**COUNTRY**	AUSTRALIA

LOCATION: EUNGELLA
FIELD: PIONEER-BURDEKIN
STATE: QLD
WELL: BQLA_02
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	23-08-2023			RECORDED BY	DTH		
TIME	11-16			WITNESSED BY			
RUN NUMBER	1			LOGGING UNIT	V013		
DEPTH-DRILLER	40.23m			RIG NUMBER			
DEPTH-LOGGER	40.00m			TOOL TYPE	9057A		
BIT SIZE	96mm			TOOL SERIAL NO.	361		
CASING TYPE	STEEL			EASTING	659527		
CASING OD	101mm			NORTHING	7660828		
CASING BOTTOM	12m			SAMPLE INT.	.10m		
FLUID TYPE	0			LOG DIRECTION	U		
TRUCK CAL NO.	0.09787			FEET OR METER	M		
WATER LEVEL	11m			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	SANG	SANGB	EAST	NORTH	TVD	CDIST	CANGB
m	deg	deg	m	m	m	m	deg
0.00	2.35683	155.833	-999.25	-999.25	0	-999.25	-999.25
1.00	1.50512	346.911	0.00264005	0.0142221	0.999392	0.014465	10.5161
2.00	1.06016	347.285	-0.00288126	0.0333418	1.99919	0.033466	355.061
3.00	0.994123	353.78	-0.00560877	0.0510855	2.99903	0.0513925	353.734
4.00	1.00801	356.135	-0.00674973	0.0680405	3.99889	0.0683745	354.335
5.00	0.95349	358.402	-0.00761094	0.0844753	4.99875	0.0848175	354.852
6.00	0.981856	4.58074	-0.00675015	0.102131	5.99859	0.102354	356.219
7.00	0.982695	4.97089	-0.00589509	0.119497	6.99844	0.119642	357.176
8.00	1.0061	11.0949	-0.00382601	0.136163	7.9983	0.136217	358.39
9.00	1.00486	6.30303	-0.00179533	0.153499	8.99815	0.153509	359.33
10.00	1.05306	5.07247	0.000454769	0.171285	9.99798	0.171286	0.152123
11.00	0.994266	4.79713	0.00193665	0.188831	10.9978	0.188841	0.587604
12.00	1.08842	357.99	0.00225817	0.206025	11.9977	0.206038	0.627972
13.00	1.28644	34.6608	-0.00349532	0.225562	12.9975	0.225589	359.112
14.00	1.18483	87.547	0.0180712	0.228628	13.9972	0.229341	4.51937
15.00	1.23106	90.6854	0.0398933	0.228707	14.997	0.23216	9.89456
16.00	1.16976	91.6613	0.0610603	0.228215	15.9967	0.236242	14.979
17.00	1.21899	91.9066	0.0818873	0.227941	16.9965	0.242203	19.7607
18.00	1.16743	91.9761	0.102767	0.227526	17.9963	0.249659	24.3074

19.00	1.17407	91.3281	0.123411	0.227291	18.9961	0.258634	28.5004
20.00	1.1765	89.6737	0.144048	0.227152	19.9959	0.268976	32.3808
21.00	1.30943	90.9056	0.16556	0.226837	20.9956	0.280829	36.1243
22.00	1.38998	91.9766	0.189265	0.226065	21.9954	0.294833	39.9366
23.00	1.32788	91.0916	0.213205	0.225261	22.9951	0.310159	43.4251
24.00	1.3065	90.2163	0.236059	0.225122	23.9948	0.326196	46.3586
25.00	1.29594	89.2252	0.258758	0.225405	24.9946	0.343167	48.9407
26.00	1.30615	90.7208	0.281517	0.225019	25.9943	0.360396	51.3643
27.00	1.31459	92.2792	0.304421	0.2246	26.994	0.378308	53.5804
28.00	1.32839	91.1515	0.327464	0.22397	27.9938	0.396731	55.6297
29.00	1.34007	92.2651	0.350777	0.223116	28.9935	0.415723	57.5411
30.00	1.36196	92.024	0.374407	0.222062	29.9932	0.435307	59.3277
31.00	1.3593	92.4547	0.397969	0.221169	30.9929	0.455296	60.9371
32.00	1.32106	92.1528	0.421315	0.220012	31.9927	0.475302	62.4263
33.00	1.30448	90.5262	0.444007	0.219872	32.9924	0.495465	63.6554
34.00	1.3041	91.7136	0.46672	0.219549	33.9922	0.515781	64.8073
35.00	1.30877	92.932	0.489579	0.21856	34.9919	0.53615	65.9428
36.00	1.31346	92.6879	0.512516	0.217667	35.9916	0.556823	66.9889
37.00	1.29724	91.3821	0.535371	0.216391	36.9914	0.577449	67.992
38.00	1.30722	91.6244	0.558135	0.215666	37.9911	0.598353	68.8732
39.00	1.31334	92.1558	0.580859	0.214809	38.9909	0.619306	69.705
40.00	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25	-999.25

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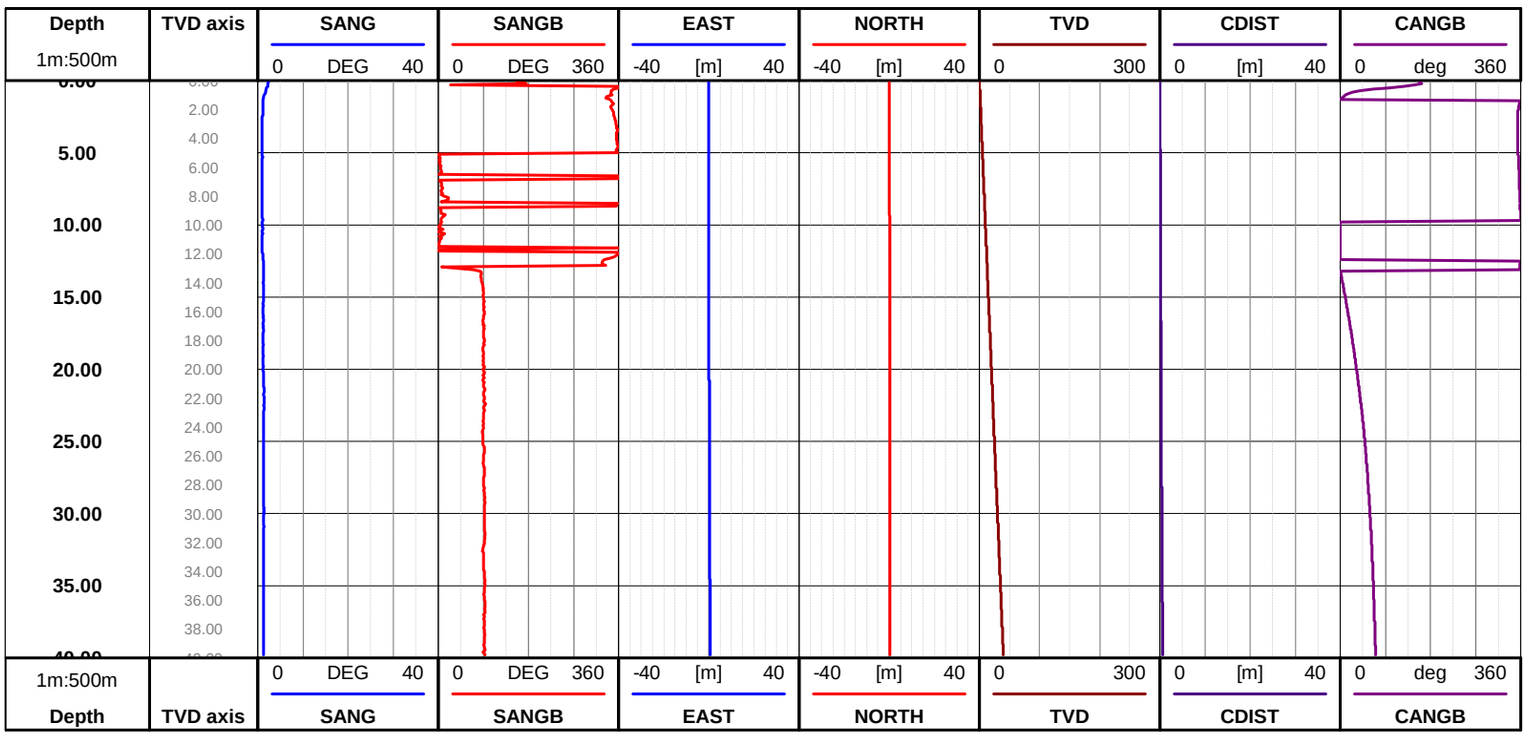

NOTES ON VERTICALITY PLOTS

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