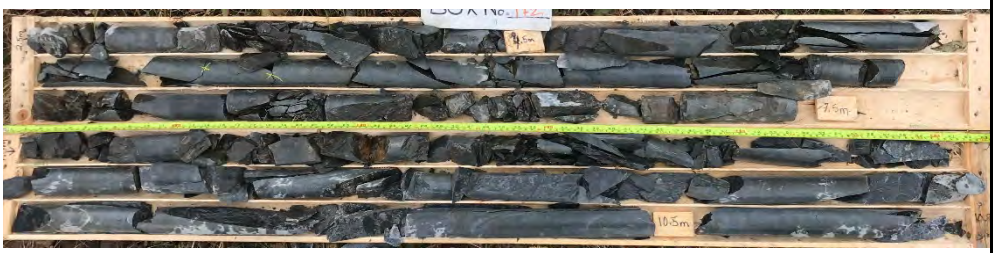
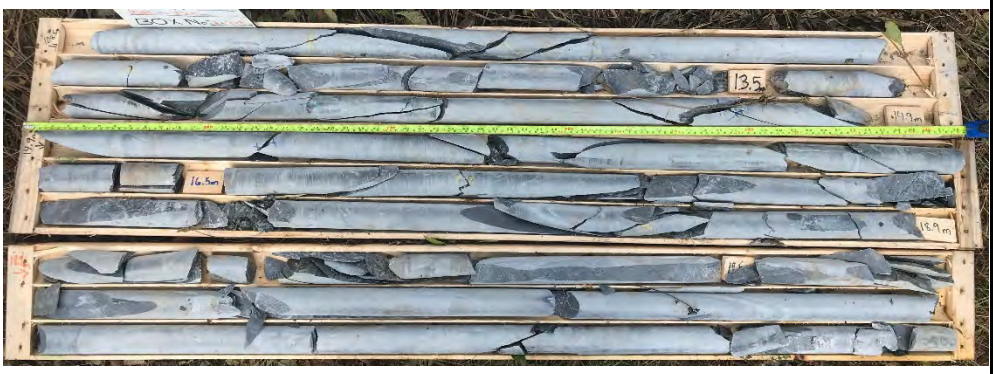
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 99	
Borehole ID: BH21-08	
Depth from (m): 2.52	
Depth to (m): 10.85	
Core Runs: 1-4	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 100	
Borehole ID: BH21-08	
Depth from (m): 2.52	
Depth to (m): 10.85	
Core Runs: 1-4	
Core Photograph Condition: Wet	
Comments:	

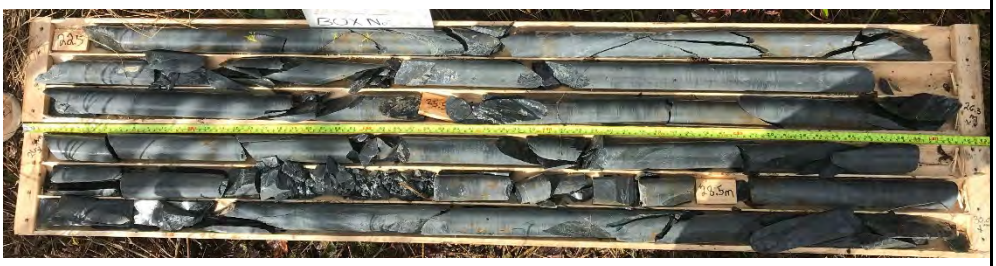
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 101	
Borehole ID: BH21-08	
Depth from (m): 10.85	
Depth to (m): 22.50	
Core Runs: 4-7	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 102	
Borehole ID: BH21-08	
Depth from (m): 10.85	
Depth to (m): 22.50	
Core Runs: 4-7	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 103	
Borehole ID: BH21-08	
Depth from (m): 22.50	
Depth to (m): 30.06	
Core Runs: 8-10	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 104	
Borehole ID: BH21-08	
Depth from (m): 22.50	
Depth to (m): 30.06	
Core Runs: 8-10	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 105	
Borehole ID: BH21-08	
Depth from (m): 30.06	
Depth to (m): 40.50	
Core Runs: 10-13	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 106	
Borehole ID: BH21-08	
Depth from (m): 30.06	
Depth to (m): 40.50	
Core Runs: 10-13	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 107	
Borehole ID: BH21-09	
Depth from (m): 7.30	
Depth to (m): 20.23	
Core Runs: 1-5	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 108	
Borehole ID: BH21-09	
Depth from (m): 7.30	
Depth to (m): 20.23	
Core Runs: 1-5	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 109	No Picture
Borehole ID: BH21-09	
Depth from (m): 20.23	
Depth to (m): 33.20	
Core Runs: 5-9	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 110	
Borehole ID: BH21-09	
Depth from (m): 20.23	
Depth to (m): 33.20	
Core Runs: 5-9	
Core Photograph Condition: Wet	
Comments:	

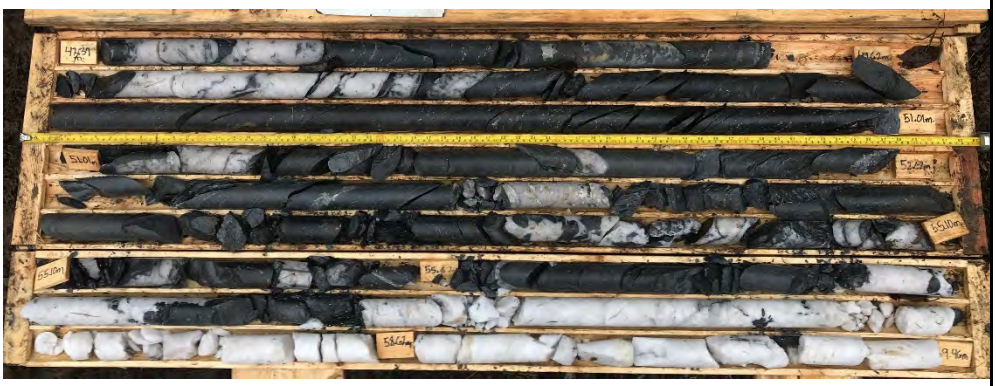
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 111	No Picture
Borehole ID: BH21-09	
Depth from (m): 33..20	
Depth to (m): 47.39	
Core Runs: 9-14	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 112	
Borehole ID: BH21-09	
Depth from (m): 33.20	
Depth to (m): 47.39	
Core Runs: 9-14	
Core Photograph Condition: Wet	
Comments:	

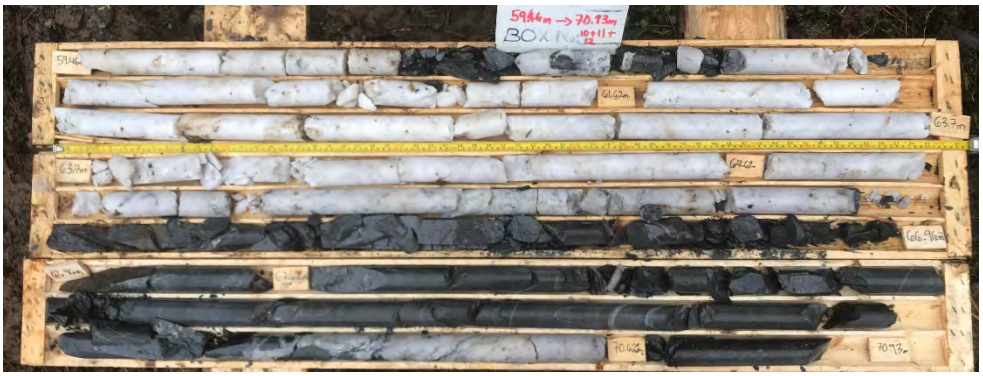
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 113	No Picture
Borehole ID: BH21-09	
Depth from (m): 47.39	
Depth to (m): 59.46	
Core Runs: 14-18	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 114	
Borehole ID: BH21-09	
Depth from (m): 47.39	
Depth to (m): 59.46	
Core Runs: 14-18	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 115	No Picture
Borehole ID: BH21-09	
Depth from (m): 59.46	
Depth to (m): 70.93	
Core Runs: 18-22	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 116	
Borehole ID: BH21-09	
Depth from (m): 59.46	
Depth to (m): 70.93	
Core Runs: 18-22	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 117	No Picture
Borehole ID: BH21-09	
Depth from (m): 70.93	
Depth to (m): 82.62	
Core Runs: 22-25	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 118	
Borehole ID: BH21-09	
Depth from (m): 70.93	
Depth to (m): 82.62	
Core Runs: 22-25	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 119	
Borehole ID: BH21-09	
Depth from (m): 82.62	
Depth to (m): 94.41	
Core Runs: 26-29	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 120	No Picture
Borehole ID: BH21-09	
Depth from (m): 82.62	
Depth to (m): 94.41	
Core Runs: 26-29	
Core Photograph Condition: Wet	
Comments:	

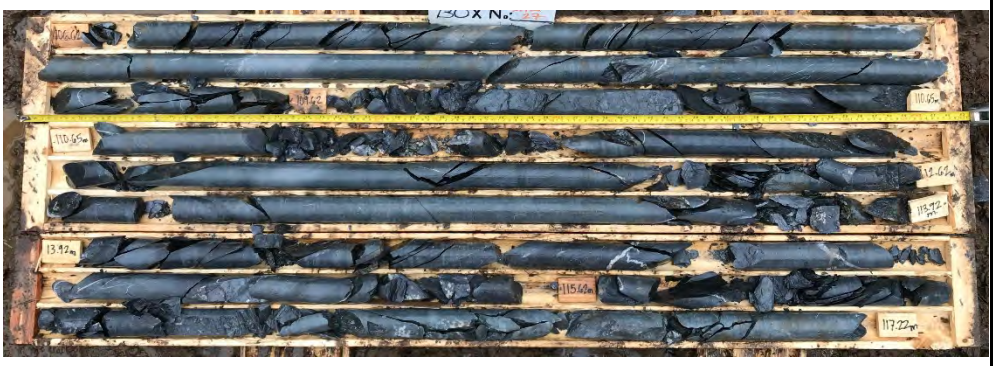
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 121	No Picture
Borehole ID: BH21-09	
Depth from (m): 94.41	
Depth to (m): 106.62	
Core Runs: 29-33	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 122	
Borehole ID: BH21-09	
Depth from (m): 94.41	
Depth to (m): 106.62	
Core Runs: 29-33	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 123	No Picture
Borehole ID: BH21-09	
Depth from (m): 106.62	
Depth to (m): 117.20	
Core Runs: 34-37	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 124	
Borehole ID: BH21-09	
Depth from (m): 106.62	
Depth to (m): 117.20	
Core Runs: 34-37	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 125	No Picture
Borehole ID: BH21-09	
Depth from (m): 117.20	
Depth to (m): 120.80	
Core Runs: 37-38	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 126	
Borehole ID: BH21-09	
Depth from (m): 117.20	
Depth to (m): 120.80	
Core Runs: 37-38	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 127	
Borehole ID: BH21-10	
Depth from (m): 2.90	
Depth to (m): 11.20	
Core Runs: 1-4	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 128	
Borehole ID: BH21-10	
Depth from (m): 2.90	
Depth to (m): 11.20	
Core Runs: 1-4	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 129	
Borehole ID: BH21-10	
Depth from (m): 11.20	
Depth to (m): 19.80	
Core Runs: 4-7	
Core Photograph Condition: Dry	
Comments:	

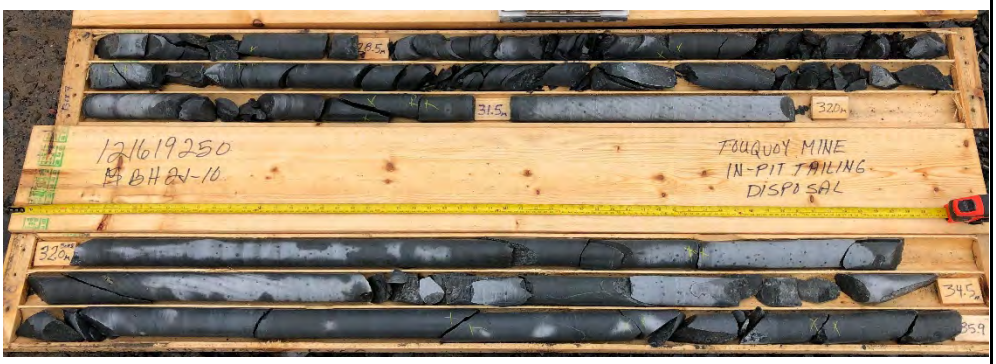
Photograph ID: 130	
Borehole ID: BH21-10	
Depth from (m): 11.20	
Depth to (m): 19.80	
Core Runs: 4-7	
Core Photograph Condition: Wet	
Comments:	

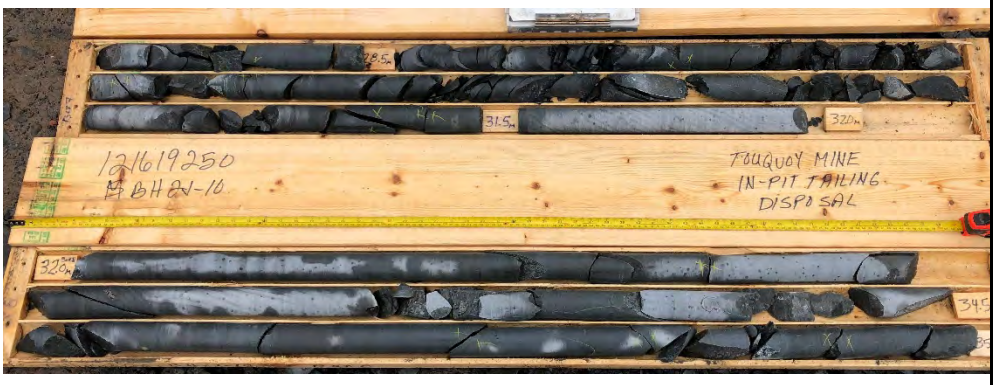
Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 131	
Borehole ID: BH21-10	
Depth from (m): 19.80	
Depth to (m): 28.10	
Core Runs: 7-9	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 132	
Borehole ID: BH21-10	
Depth from (m): 19.80	
Depth to (m): 28.10	
Core Runs: 7-9	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 133	
Borehole ID: BH21-10	
Depth from (m): 28.10	
Depth to (m): 35.90	
Core Runs: 9-12	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 134	
Borehole ID: BH21-10	
Depth from (m): 28.10	
Depth to (m): 35.90	
Core Runs: 9-12	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 135	
Borehole ID: BH21-10	
Depth from (m): 35.90	
Depth to (m): 49.50	
Core Runs: 12-16	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 136	No Picture
Borehole ID: BH21-10	
Depth from (m): 35.90	
Depth to (m): 49.50	
Core Runs: 12-16	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 137	
Borehole ID: BH21-10	
Depth from (m): 49.50	
Depth to (m): 60.50	
Core Runs: 17-20	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 138	No Picture
Borehole ID: BH21-10	
Depth from (m): 49.50	
Depth to (m): 60.50	
Core Runs: 27-20	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 139	No Picture
Borehole ID: BH21-11	
Depth from (m): 5.50	
Depth to (m): 10.55	
Core Runs: 1-2	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 140	
Borehole ID: BH21-11	
Depth from (m): 5.50	
Depth to (m): 10.55	
Core Runs: 1-2	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 141	No Picture
Borehole ID: BH21-11	
Depth from (m): 10.55	
Depth to (m): 14.10	
Core Runs: 3-4	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 142	
Borehole ID: BH21-11	
Depth from (m): 10.55	
Depth to (m): 14.10	
Core Runs: 3-4	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 143	
Borehole ID: BH21-11	
Depth from (m): 14.10	
Depth to (m): 19.85	
Core Runs: 4-6	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 144	No Picture
Borehole ID: BH21-11	
Depth from (m): 14.10	
Depth to (m): 19.85	
Core Runs: 4-6	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 145	
Borehole ID: BH21-11	
Depth from (m): 19.85	
Depth to (m): 23.95	
Core Runs: 6-7	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 146	No Picture
Borehole ID: BH21-11	
Depth from (m): 19.85	
Depth to (m): 23.95	
Core Runs: 6-7	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 147	No Picture
Borehole ID: BH21-11	
Depth from (m): 23.95	
Depth to (m): 27.50	
Core Runs: 7-8	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 148	
Borehole ID: BH21-11	
Depth from (m): 23.95	
Depth to (m): 27.50	
Core Runs: 7-8	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 149	No Picture
Borehole ID: BH21-11	
Depth from (m): 27.50	
Depth to (m): 31.55	
Core Runs: 8-9	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 150	
Borehole ID: BH21-11	
Depth from (m): 27.50	
Depth to (m): 31.55	
Core Runs: 8-9	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 151	
Borehole ID: BH21-11	
Depth from (m): 31.55	
Depth to (m): 39.80	
Core Runs: 9-12	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 152	
Borehole ID: BH21-11	
Depth from (m): 31.55	
Depth to (m): 39.80	
Core Runs: 9-12	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 153	
Borehole ID: BH21-11	
Depth from (m): 39.80	
Depth to (m): 46.55	
Core Runs: 12-14	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 154	
Borehole ID: BH21-11	
Depth from (m): 39.80	
Depth to (m): 46.55	
Core Runs: 12-14	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 155	
Borehole ID: BH21-11	
Depth from (m): 46.55	
Depth to (m): 54.00	
Core Runs: 15-17	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 156	
Borehole ID: BH21-11	
Depth from (m): 46.55	
Depth to (m): 54.00	
Core Runs: 15-17	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 157	
Borehole ID: BH21-11	
Depth from (m): 54.00	
Depth to (m): 61.55	
Core Runs: 17-19	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 158	
Borehole ID: BH21-11	
Depth from (m): 54.00	
Depth to (m): 61.55	
Core Runs: 17-19	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 159	
Borehole ID: BH21-12	
Depth from (m): 3.64	
Depth to (m): 10.47	
Core Runs: 1-3	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 160	
Borehole ID: BH21-12	
Depth from (m): 3.64	
Depth to (m): 10.47	
Core Runs: 1-3	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 161	
Borehole ID: BH21-12	
Depth from (m): 10.47	
Depth to (m): 22.36	
Core Runs: 3-6	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 162	
Borehole ID: BH21-12	
Depth from (m): 10.47	
Depth to (m): 22.36	
Core Runs: 3-6	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 163	
Borehole ID: BH21-12	
Depth from (m): 22.36	
Depth to (m): 29.10	
Core Runs: 6-9	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 164	
Borehole ID: BH21-12	
Depth from (m): 22.36	
Depth to (m): 29.10	
Core Runs: 6-9	
Core Photograph Condition: Wet	
Comments:	

Client:	**Atlantic Mining NS Inc.**	**Project:**	**In-Pit Tailings Disposal Invest.**
Site Name:	**Touquoy Gold Project**	**Site Location:**	**Middle Musquodobit, NS**

Photograph ID: 165	No Picture
Borehole ID: BH21-12	
Depth from (m): 29.10	
Depth to (m): 41.06	
Core Runs: 9-13	
Core Photograph Condition: Dry	
Comments:	

Photograph ID: 166	
Borehole ID: BH21-12	
Depth from (m): 29.10	
Depth to (m): 41.06	
Core Runs: 9-13	
Core Photograph Condition: Wet	
Comments:	

C.4 PACKER TEST ANALYSIS REPORTS

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	4.11 to 11.91 m bgs
Test Date	October 20, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	4.75	4.11
Bottom of test interval	13.75	11.91
Static water level	2.56	2.22
Bedrock	4.4	3.81
Midpoint of test interval	9.25	8.01

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	5.48	8.21	10.95	8.21	5.48
0	0.943	1.022	1.152	1.268	1.351
1	0.947	1.032	1.165	1.275	1.355
2	0.95	1.041	1.179	1.284	1.359
3	0.96	1.05	1.191	1.291	1.369
4	0.972	1.059	1.2	1.3	1.37
5	0.98	1.069	1.21	1.309	1.377
6	0.99	1.08	1.222	1.318	1.383
7	0.997	1.088	1.23	1.325	1.39
8	1.0035	1.097	1.241	1.333	1.395
9	1.007	1.105	1.25	1.342	1.403
10					

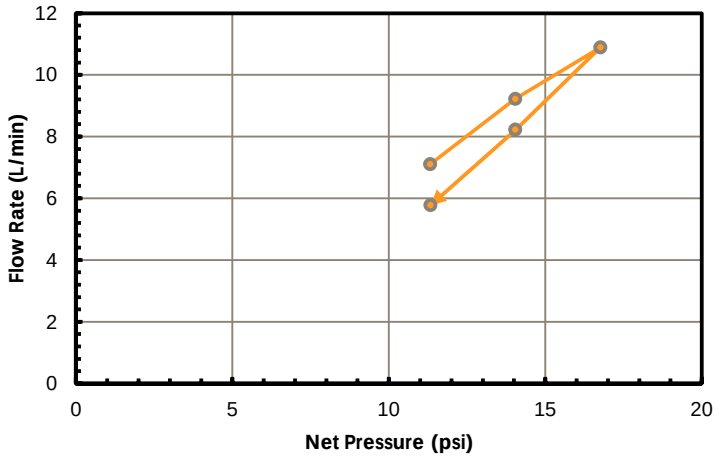
Flow rates during pressure steps:

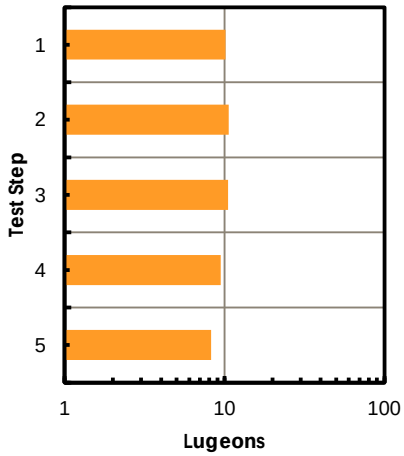
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	4.00	10.00	13.00	7.00	4.00
2	3.00	9.00	14.00	9.00	4.00
3	10.00	9.00	12.00	7.00	10.00
4	12.00	9.00	9.00	9.00	1.00
5	8.00	10.00	10.00	9.00	7.00
6	10.00	11.00	12.00	9.00	6.00
7	7.00	8.00	8.00	7.00	7.00
8	6.50	9.00	11.00	8.00	5.00
9	3.50	8.00	9.00	9.00	8.00
10					
Average Q (L/min)	**7.11**	**9.22**	**10.89**	**8.22**	**5.78**
Pf (psi)	2.56E-02	4.31E-02	6.00E-02	3.42E-02	1.69E-02
Pnet (psi)	11.3	14.0	16.8	14.0	11.3
K (m/min)	8.6E-05	9.0E-05	8.9E-05	8.1E-05	7.0E-05
K (m/sec)	1.4E-06	1.5E-06	1.5E-06	1.3E-06	1.2E-06
Lugeons	10.1	10.6	10.5	9.4	8.2

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	4.11 to 11.91 m bgs
Analysis Date	October 20, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	9.77
Hydraulic Conductivity	1.4E-06 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	11.93 to 19.73 m bgs
Test Date	October 20, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	13.78	11.93
Bottom of test interval	22.78	19.73
Static water level	2.56	2.22
Bedrock	4.4	3.81
Midpoint of test interval	18.28	15.83

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	11.9	17.9	23	17.9	11.9
0	1.413	1.414	1.416	1.42	1.423
1	1.413	1.414	1.416	1.42	1.423
2	1.413	1.4145	1.4165	1.42	1.4235
3	1.413	1.4145	1.4165	1.4205	1.4235
4	1.4135	1.415	1.417	1.4205	1.424
5	1.4135	1.415	1.4175	1.421	1.424
6	1.4135	1.415	1.418	1.4215	1.4245
7	1.4135	1.415	1.418	1.4215	1.425
8	1.4135	1.415	1.418	1.422	1.425
9	1.4135	1.4155	1.4185	1.422	1.425
10					

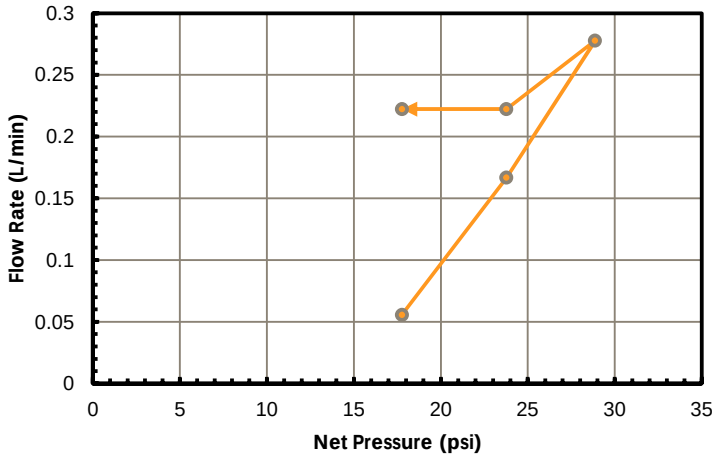
Flow rates during pressure steps:

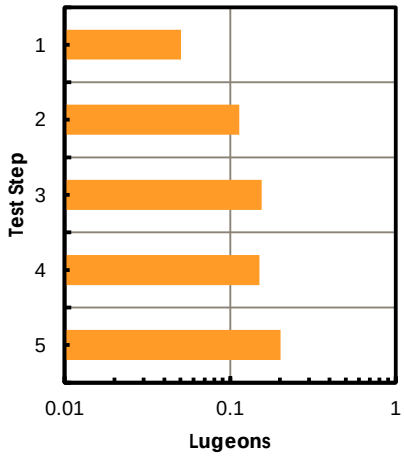
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.50	0.50	0.00	0.50
3	0.00	0.00	0.00	0.50	0.00
4	0.50	0.50	0.50	0.00	0.50
5	0.00	0.00	0.50	0.50	0.00
6	0.00	0.00	0.50	0.50	0.50
7	0.00	0.00	0.00	0.00	0.50
8	0.00	0.00	0.00	0.50	0.00
9	0.00	0.50	0.50	0.00	0.00
10					
Average Q (L/min)	**0.06**	**0.17**	**0.28**	**0.22**	**0.22**
Pf (psi)	1.56E-06	1.41E-05	3.91E-05	2.50E-05	2.50E-05
Pnet (psi)	17.8	23.8	28.9	23.8	17.8
K (m/min)	4.3E-07	9.7E-07	1.3E-06	1.3E-06	1.7E-06
K (m/sec)	7.2E-09	1.6E-08	2.2E-08	2.1E-08	2.9E-08
Lugeons	0.05	0.11	0.16	0.15	0.20

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	11.93 to 19.73 m bgs
Analysis Date	October 21, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Wash-out
Lugeon	0.20
Hydraulic Conductivity	2.9E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	19.73 to 27.52 m bgs
Test Date	October 21, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	22.78	19.73
Bottom of test interval	31.78	27.52
Static water level	2.44	2.11
Bedrock	4.4	3.81
Midpoint of test interval	27.28	23.63

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	18.29	27.5	36.7	27.5	18.29
0	1.43	1.438	1.444	1.45	1.458
1	1.43	1.438	1.4445	1.4505	1.4585
2	1.4305	1.439	1.445	1.4515	1.459
3	1.431	1.4395	1.446	1.4525	1.4595
4	1.432	1.44	1.4465	1.453	1.46
5	1.433	1.441	1.447	1.454	1.4605
6	1.434	1.442	1.448	1.4545	1.461
7	1.4345	1.443	1.4485	1.455	1.462
8	1.435	1.4435	1.449	1.4555	1.4625
9	1.436		1.4495	1.456	1.463
10					

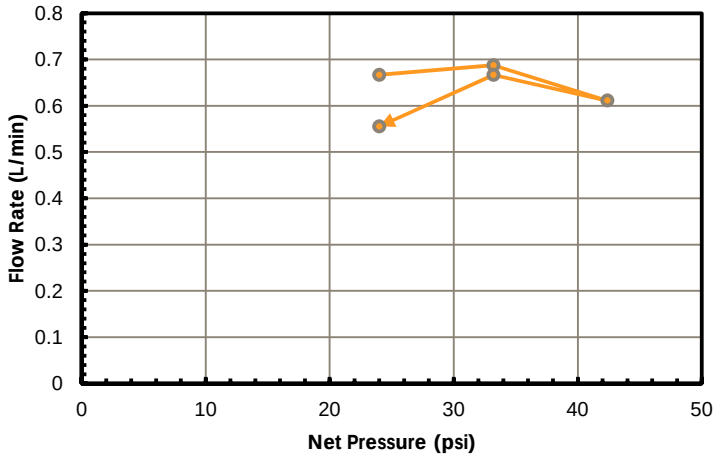
Flow rates during pressure steps:

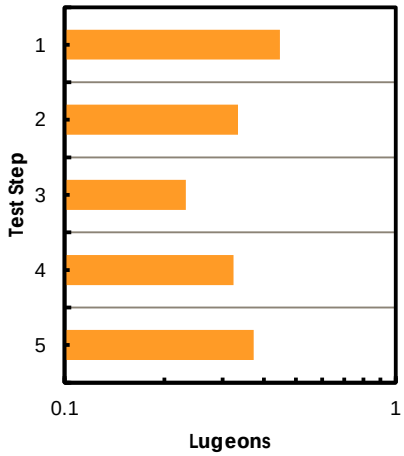
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.50	0.50
2	0.50	1.00	0.50	1.00	0.50
3	0.50	0.50	1.00	1.00	0.50
4	1.00	0.50	0.50	0.50	0.50
5	1.00	1.00	0.50	1.00	0.50
6	1.00	1.00	1.00	0.50	0.50
7	0.50	1.00	0.50	0.50	1.00
8	0.50	0.50	0.50	0.50	0.50
9	1.00		0.50	0.50	0.50
10					
Average Q (L/min)	**0.67**	**0.69**	**0.61**	**0.67**	**0.56**
Pf (psi)	2.25E-04	2.39E-04	1.89E-04	2.25E-04	1.56E-04
Pnet (psi)	24.0	33.2	42.4	33.2	24.0
K (m/min)	3.8E-06	2.8E-06	2.0E-06	2.8E-06	3.2E-06
K (m/sec)	6.4E-08	4.7E-08	3.3E-08	4.6E-08	5.3E-08
Lugeons	0.45	0.33	0.23	0.32	0.37

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	19.73 to 27.52 m bgs
Analysis Date	October 22, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Turbulent
Lugeon	0.33
Hydraulic Conductivity	4.7E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	27.5 to 35.29 m bgs
Test Date	October 21, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	31.75	27.5
Bottom of test interval	40.75	35.29
Static water level	2.44	2.11
Bedrock	4.4	3.81
Midpoint of test interval	36.25	31.39

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	24	37	49	37	24
0	1.4685	1.4685	1.4685	1.47	1.4705
1	1.4685	1.4685	1.469	1.47	1.4705
2	1.4685	1.4685	1.469	1.47	1.471
3	1.4685	1.4685	1.469	1.47	1.471
4	1.4685	1.4685	1.4695	1.47	1.471
5	1.4685	1.4685	1.4695	1.4705	1.471
6	1.4685	1.4685	1.4695	1.4705	1.471
7	1.4685	1.4685	1.47	1.4705	1.471
8	1.4685	1.4685	1.47	1.4705	1.471
9	1.4685	1.4685	1.47	1.4705	1.471
10					

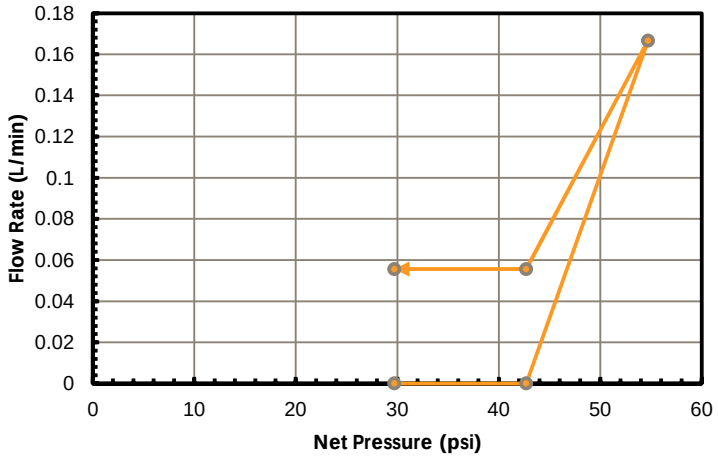
Flow rates during pressure steps:

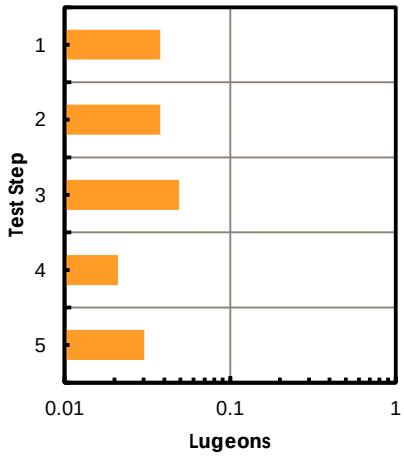
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.00	0.00	0.00	0.50
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.50	0.00	0.00
5	0.00	0.00	0.00	0.50	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.50	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.17**	**0.06**	**0.06**
Pf (psi)	0.00E+00	0.00E+00	1.41E-05	1.56E-06	1.56E-06
Pnet (psi)	29.7	42.7	54.7	42.7	29.7
K (m/min)	0.0E+00	0.0E+00	4.2E-07	1.8E-07	2.6E-07
K (m/sec)	5.4E-09	5.4E-09	7.0E-09	3.0E-09	4.3E-09
Lugeons	0.038	0.038	0.049	0.021	0.030

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	27.5 to 35.29 m bgs
Analysis Date	October 22, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.04
Hydraulic Conductivity	5.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take during first and second pressure step.

Upper bound hydraulic conductivity estimate of 5.4×10^{-9} m/s assuming no take at 37 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	37
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	42.7
K (m/min)	3.2E-07
K (m/sec)	5.4E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	35.32 to 43.11 m bgs
Test Date	October 21, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	40.78	35.32
Bottom of test interval	49.78	43.11
Static water level	2.44	2.11
Bedrock	4.4	3.81
Midpoint of test interval	45.28	39.21

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	30.8	46.8	61.69	46.8	30.8
0	1.4705	1.4705	1.4705	1.472	1.4725
1	1.4705	1.4705	1.4705	1.472	1.4725
2	1.4705	1.4705	1.4705	1.472	1.4725
3	1.4705	1.4705	1.471	1.472	1.4725
4	1.4705	1.4705	1.471	1.472	1.473
5	1.4705	1.4705	1.471	1.4725	1.473
6	1.4705	1.4705	1.471	1.4725	1.473
7	1.4705	1.4705	1.4715	1.4725	1.473
8	1.4705	1.4705	1.4715	1.4725	1.473
9	1.4705	1.4705	1.472	1.4725	1.473
10					

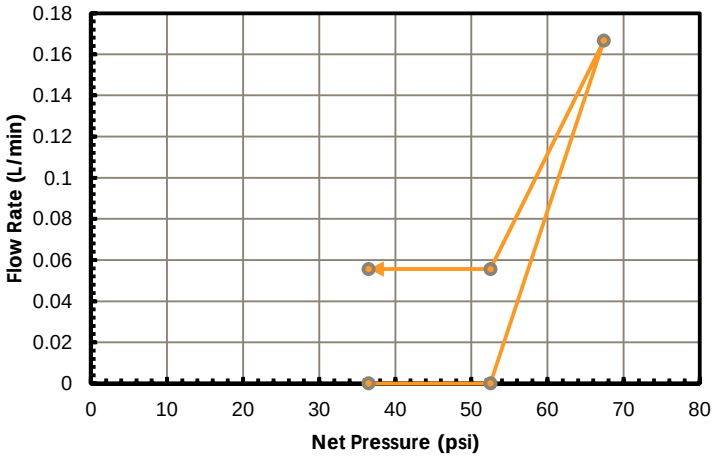
Flow rates during pressure steps:

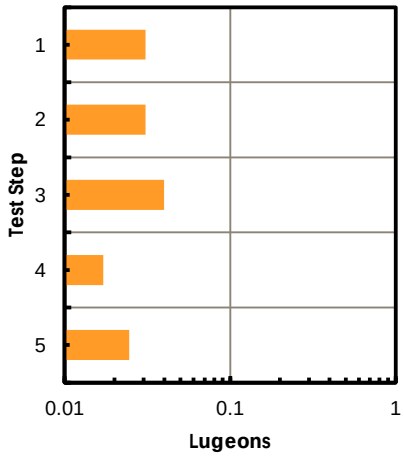
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.00	0.00	0.00	0.00	0.50
5	0.00	0.00	0.00	0.50	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.50	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.50	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.17**	**0.06**	**0.06**
Pf (psi)	0.00E+00	0.00E+00	1.41E-05	1.56E-06	1.56E-06
Pnet (psi)	36.5	52.5	67.4	52.5	36.5
K (m/min)	0.0E+00	0.0E+00	3.4E-07	1.5E-07	2.1E-07
K (m/sec)	4.4E-09	4.4E-09	5.7E-09	2.4E-09	3.5E-09
Lugeons	0.031	0.031	0.040	0.017	0.025

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	35.32 to 43.11 m bgs
Analysis Date	October 22, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.03
Hydraulic Conductivity	4.1E-09 m/s

Comments

Nitrogen packer system used for testing.

No take during first and second pressure step.

Upper bound hydraulic conductivity estimate of 4.4×10^{-9} m/s assuming no take at 46.8 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	46.8
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	52.5
K (m/min)	2.6E-07
K (m/sec)	4.4E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	43.11 to 52.83 m bgs
Test Date	October 22, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	11.2

Depths (m bgs)	Measured	Vertical
Top of test interval	49.78	43.11
Bottom of test interval	61	52.83
Static water level	2.59	2.24
Bedrock	4.4	3.81
Midpoint of test interval	55.39	47.97

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	38	57	75	57	38
0	1.482	1.4865	1.4935	1.5055	1.52
1	1.4825	1.4875	1.494	1.5065	1.5205
2	1.4825	1.4885	1.495	1.5075	1.521
3	1.483	1.489	1.4965	1.508	1.522
4	1.4835	1.489	1.497	1.5085	1.5225
5	1.4845	1.489	1.498	1.5095	1.523
6	1.485	1.4895	1.499	1.51	1.524
7	1.485	1.4905	1.5005	1.5105	1.525
8	1.4855	1.4915	1.502	1.5115	1.526
9	1.486	1.4925	1.5035	1.5125	1.527
10					

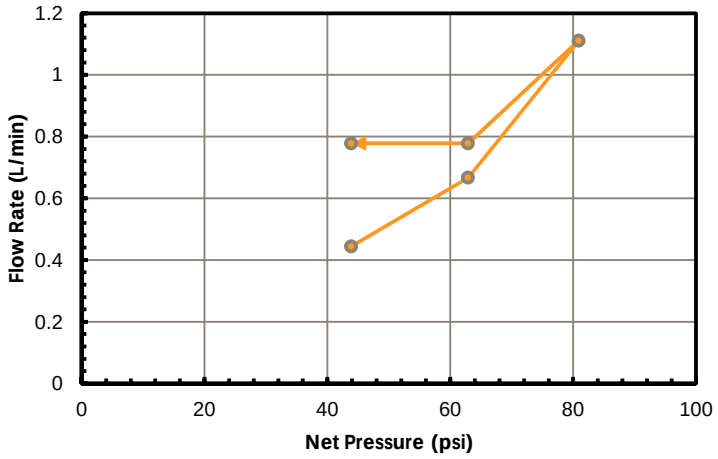
Flow rates during pressure steps:

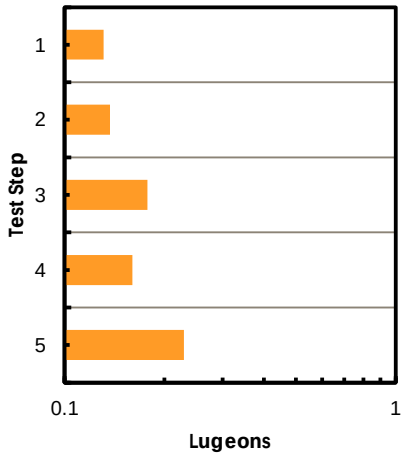
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	1.00	0.50	1.00	0.50
2	0.00	1.00	1.00	1.00	0.50
3	0.50	0.50	1.50	0.50	1.00
4	0.50	0.00	0.50	0.50	0.50
5	1.00	0.00	1.00	1.00	0.50
6	0.50	0.50	1.00	0.50	1.00
7	0.00	1.00	1.50	0.50	1.00
8	0.50	1.00	1.50	1.00	1.00
9	0.50	1.00	1.50	1.00	1.00
10					
Average Q (L/min)	**0.44**	**0.67**	**1.11**	**0.78**	**0.78**
Pf (psi)	1.00E-04	2.25E-04	6.25E-04	3.06E-04	3.06E-04
Pnet (psi)	43.9	62.9	80.9	62.9	43.9
K (m/min)	1.2E-06	1.2E-06	1.6E-06	1.4E-06	2.0E-06
K (m/sec)	1.9E-08	2.0E-08	2.6E-08	2.4E-08	3.4E-08
Lugeons	0.13	0.14	0.18	0.16	0.23

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	43.11 to 52.83 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.17
Hydraulic Conductivity	2.5E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	8.66 to 51.96 m bgs
Test Date	October 22, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.905
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	50.0

Depths (m bgs)	Measured	Vertical
Top of test interval	10	8.66
Bottom of test interval	60	51.96
Static water level	2.59	2.24
Bedrock	4.4	3.81
Midpoint of test interval	35	30.31

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	1.525	1.53	1.536	1.545	1.552
1	1.525	1.53	1.5365	1.545	1.5525
2	1.525	1.5305	1.5367	1.5455	1.553
3	1.525	1.531	1.538	1.546	1.5535
4	1.525	1.5315	1.539	1.5465	1.554
5	1.5255	1.532	1.541	1.547	1.554
6	1.526	1.533	1.5415	1.5475	1.5545
7	1.5265	1.534	1.542	1.549	1.555
8	1.5265	1.5345	1.5425	1.5505	1.5555
9	1.5265	1.5355	1.544	1.551	1.5555
10	1.5275	1.536	1.545		1.556

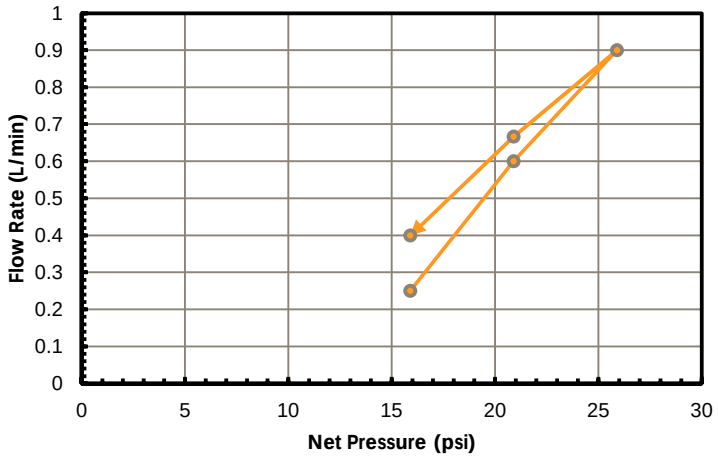
Flow rates during pressure steps:

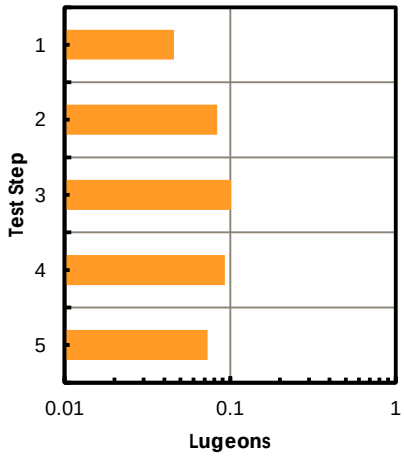
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.50
2	0.00	0.50	0.20	0.50	0.50
3	0.00	0.50	1.30	0.50	0.50
4	0.00	0.50	1.00	0.50	0.50
5	0.50	0.50	2.00	0.50	0.00
6	0.50	1.00	0.50	0.50	0.50
7	0.50	1.00	0.50	1.50	0.50
8	0.00	0.50	0.50	1.50	0.50
9	0.00	1.00	1.50	0.50	0.00
10	1.00	0.50	1.00		0.50
Average Q (L/min)	**0.25**	**0.60**	**0.90**	**0.67**	**0.40**
Pf (psi)	3.16E-05	1.82E-04	4.10E-04	2.25E-04	8.10E-05
Pnet (psi)	15.9	20.9	25.9	20.9	15.9
K (m/min)	5.1E-07	9.3E-07	1.1E-06	1.0E-06	8.2E-07
K (m/sec)	8.5E-09	1.6E-08	1.9E-08	1.7E-08	1.4E-08
Lugeons	0.046	0.083	0.101	0.093	0.073

Project	Touquoy In-Pit Disposal
Borehole	BH21-01
Test Interval	8.66 to 51.96 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.08
Hydraulic Conductivity	1.5E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	6.57 to 14.37 m bgs
Test Date	October 25, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	7.59	6.57
Bottom of test interval	16.59	14.37
Static water level	2.38	2.06
Bedrock	5.63	4.88
Midpoint of test interval	12.09	10.47

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	8.1	12	16.11	12	8.1
0	1.88	1.884	1.8885	1.892	1.8955
1	1.8805	1.8845	1.8885	1.8925	1.896
2	1.881	1.885	1.889	1.8925	1.8965
3	1.8815	1.885	1.889	1.8925	1.897
4	1.8815	1.8855	1.889	1.893	1.8975
5	1.882	1.8855	1.8895	1.8935	1.898
6	1.8825	1.886	1.89	1.894	1.8985
7	1.8825	1.8865	1.8905	1.8945	1.899
8	1.883	1.887	1.891	1.895	1.899
9	1.883	1.888	1.8915	1.895	1.8995
10	1.8835	1.8885	1.892	1.8955	1.9005

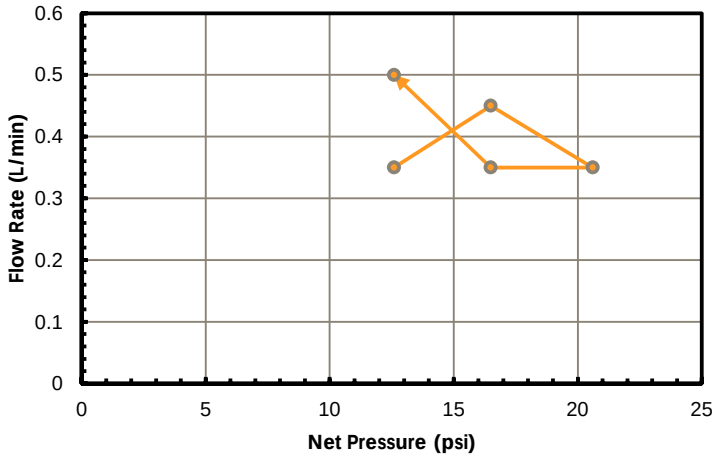
Flow rates during pressure steps:

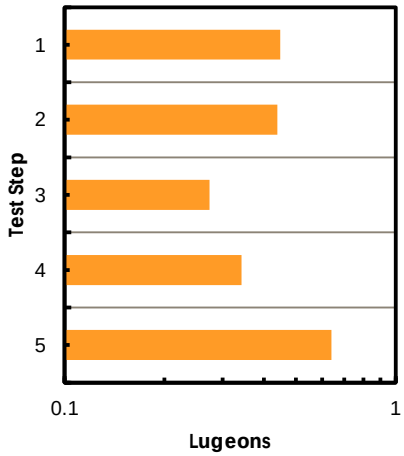
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.50	0.00	0.50	0.50
2	0.50	0.50	0.50	0.00	0.50
3	0.50	0.00	0.00	0.00	0.50
4	0.00	0.50	0.00	0.50	0.50
5	0.50	0.00	0.50	0.50	0.50
6	0.50	0.50	0.50	0.50	0.50
7	0.00	0.50	0.50	0.50	0.50
8	0.50	0.50	0.50	0.50	0.00
9	0.00	1.00	0.50	0.00	0.50
10	0.50	0.50	0.50	0.50	1.00
Average Q (L/min)	**0.35**	**0.45**	**0.35**	**0.35**	**0.50**
Pf (psi)	6.20E-05	1.03E-04	6.20E-05	6.20E-05	1.27E-04
Pnet (psi)	12.6	16.5	20.6	16.5	12.6
K (m/min)	3.8E-06	3.8E-06	2.3E-06	2.9E-06	5.5E-06
K (m/sec)	6.4E-08	6.3E-08	3.9E-08	4.9E-08	9.1E-08
Lugeons	0.45	0.44	0.27	0.34	0.64

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	6.57 to 14.37 m bgs
Analysis Date	October 26, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Turbulent
Lugeon	0.39
Hydraulic Conductivity	5.6E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	14.37 to 22.16 m bgs
Test Date	October 25, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	16.59	14.37
Bottom of test interval	25.59	22.16
Static water level	2.50	2.16
Bedrock	5.63	4.88
Midpoint of test interval	21.09	18.26

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	14.5	22	28.97	22	14.5
0	1.902	1.906	1.9115	1.9165	1.921
1	1.903	1.907	1.912	1.917	1.922
2	1.9035	1.908	1.9125	1.918	1.922
3	1.9035	1.9085	1.913	1.9185	1.922
4	1.904	1.909	1.9135	1.9185	1.922
5	1.9045	1.909	1.914	1.919	1.9225
6	1.9045	1.9095	1.915	1.9195	1.923
7	1.905	1.91	1.9155	1.92	1.923
8	1.905	1.9105	1.9155	1.9205	1.9235
9	1.9055	1.911	1.916	1.9205	1.924
10	1.906			1.921	

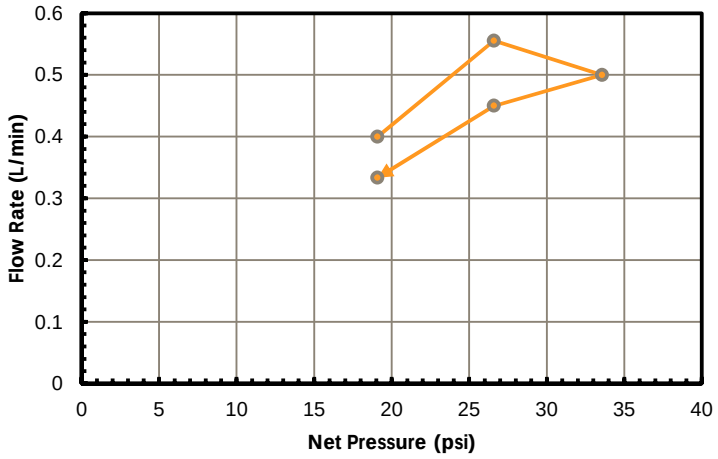
Flow rates during pressure steps:

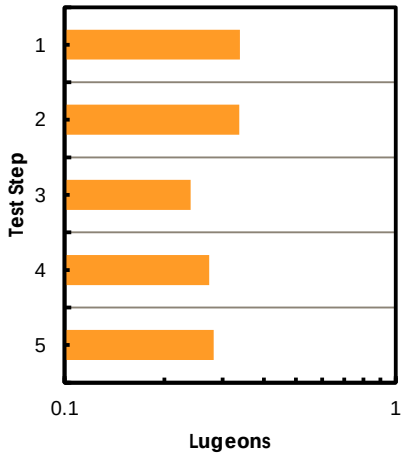
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.00	0.50	0.50	1.00
2	0.50	1.00	0.50	1.00	0.00
3	0.00	0.50	0.50	0.50	0.00
4	0.50	0.50	0.50	0.00	0.00
5	0.50	0.00	0.50	0.50	0.50
6	0.00	0.50	1.00	0.50	0.50
7	0.50	0.50	0.50	0.50	0.00
8	0.00	0.50	0.00	0.50	0.50
9	0.50	0.50	0.50	0.00	0.50
10	0.50			0.50	
Average Q (L/min)	**0.40**	**0.56**	**0.50**	**0.45**	**0.33**
Pf (psi)	8.10E-05	1.56E-04	1.27E-04	1.03E-04	5.62E-05
Pnet (psi)	19.1	26.6	33.6	26.6	19.1
K (m/min)	2.9E-06	2.9E-06	2.1E-06	2.3E-06	2.4E-06
K (m/sec)	4.8E-08	4.8E-08	3.4E-08	3.9E-08	4.0E-08
Lugeons	0.34	0.34	0.24	0.27	0.28

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	14.37 to 22.16 m bgs
Analysis Date	October 26, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Turbulent
Lugeon	0.30
Hydraulic Conductivity	4.3E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	22.16 to 29.96 m bgs
Test Date	October 26, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	25.59	22.16
Bottom of test interval	34.59	29.96
Static water level	2.13	1.85
Bedrock	5.63	4.88
Midpoint of test interval	30.09	26.06

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	20.85	31.25	41.25	31.05	20
0	1.926	1.931	1.935	1.945	1.9515
1	1.9265	1.931	1.935	1.946	1.952
2	1.927	1.9315	1.937	1.947	1.9525
3	1.928	1.932	1.938	1.948	1.953
4	1.9285	1.9325	1.939	1.949	1.9535
5	1.929	1.933	1.94	1.95	1.9535
6	1.929	1.9335	1.9405	1.95	1.954
7	1.9295	1.934	1.9415	1.95	1.954
8	1.93	1.9345	1.942	1.9505	1.9545
9	1.9305	1.935	1.943	1.951	1.9545
10	1.931	1.935	1.944	1.9515	1.955

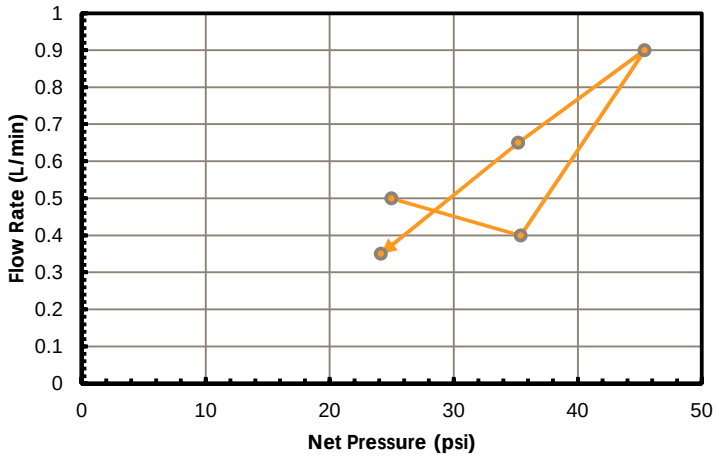
Flow rates during pressure steps:

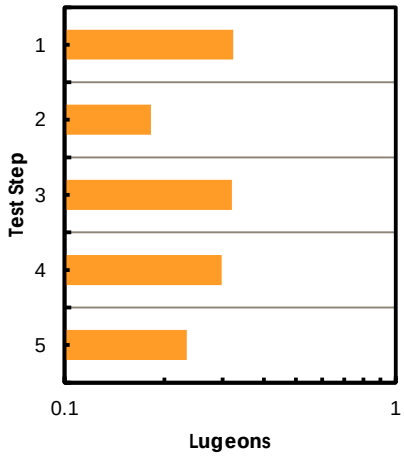
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.00	0.00	1.00	0.50
2	0.50	0.50	2.00	1.00	0.50
3	1.00	0.50	1.00	1.00	0.50
4	0.50	0.50	1.00	1.00	0.50
5	0.50	0.50	1.00	1.00	0.00
6	0.00	0.50	0.50	0.00	0.50
7	0.50	0.50	1.00	0.00	0.00
8	0.50	0.50	0.50	0.50	0.50
9	0.50	0.50	1.00	0.50	0.00
10	0.50	0.00	1.00	0.50	0.50
Average Q (L/min)	**0.50**	**0.40**	**0.90**	**0.65**	**0.35**
Pf (psi)	1.27E-04	8.10E-05	4.10E-04	2.14E-04	6.20E-05
Pnet (psi)	25.0	35.4	45.4	35.2	24.2
K (m/min)	2.8E-06	1.6E-06	2.7E-06	2.5E-06	2.0E-06
K (m/sec)	4.6E-08	2.6E-08	4.5E-08	4.2E-08	3.3E-08
Lugeons	0.32	0.18	0.32	0.30	0.23

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	22.16 to 29.96 m bgs
Analysis Date	October 27, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.27
Hydraulic Conductivity	3.9E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	29.96 to 37.75 m bgs
Test Date	October 26, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	34.59	29.96
Bottom of test interval	43.59	37.75
Static water level	2.13	1.85
Bedrock	5.63	4.88
Midpoint of test interval	39.09	33.85

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	27.15	40.73	54.31	40.73	27.15
0	1.956	1.96	1.965	1.9715	1.9765
1	1.956	1.96	1.9655	1.9715	1.977
2	1.956	1.9605	1.966	1.9725	1.9775
3	1.9565	1.961	1.967	1.973	1.978
4	1.9565	1.9615	1.9675	1.9735	1.978
5	1.957	1.962	1.968	1.974	1.9785
6	1.9575	1.9625	1.969	1.974	1.979
7	1.958	1.963	1.9695	1.9745	1.979
8	1.9585	1.9635	1.97	1.9745	1.979
9	1.959	1.964	1.971	1.9755	1.979
10	1.959	1.9645	1.9715	1.976	1.9795

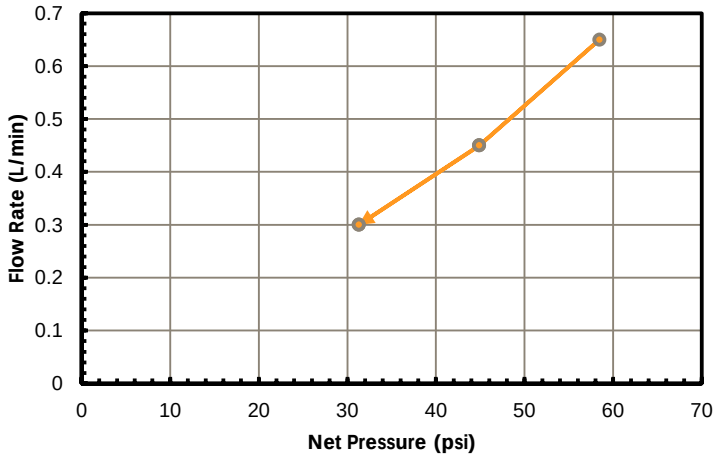
Flow rates during pressure steps:

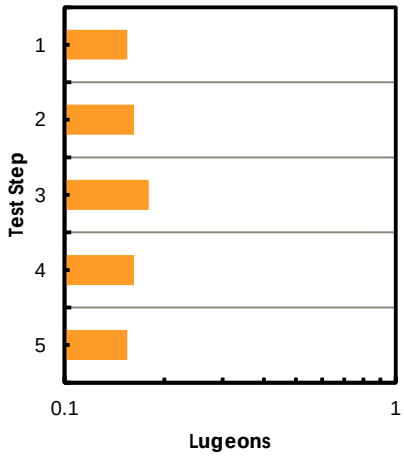
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.50
2	0.00	0.50	0.50	1.00	0.50
3	0.50	0.50	1.00	0.50	0.50
4	0.00	0.50	0.50	0.50	0.00
5	0.50	0.50	0.50	0.50	0.50
6	0.50	0.50	1.00	0.00	0.50
7	0.50	0.50	0.50	0.50	0.00
8	0.50	0.50	0.50	0.00	0.00
9	0.50	0.50	1.00	1.00	0.00
10	0.00	0.50	0.50	0.50	0.50
Average Q (L/min)	**0.30**	**0.45**	**0.65**	**0.45**	**0.30**
Pf (psi)	4.56E-05	1.03E-04	2.14E-04	1.03E-04	4.56E-05
Pnet (psi)	31.3	44.9	58.5	44.9	31.3
K (m/min)	1.3E-06	1.4E-06	1.5E-06	1.4E-06	1.3E-06
K (m/sec)	2.2E-08	2.3E-08	2.6E-08	2.3E-08	2.2E-08
Lugeons	0.15	0.16	0.18	0.16	0.15

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	29.96 to 37.75 m bgs
Analysis Date	October 27, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.16
Hydraulic Conductivity	2.3E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	37.75 to 45.54 m bgs
Test Date	October 26, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	43.59	37.75
Bottom of test interval	52.59	45.54
Static water level	2.13	1.85
Bedrock	5.63	4.88
Midpoint of test interval	48.09	41.65

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	32.99	49.4	67	49.4	32.99
0	1.985	1.994	2.004	2.027	2.048
1	1.9855	1.995	2.006	2.03	2.049
2	1.986	1.996	2.009	2.032	2.05
3	1.988	1.997	2.0105	2.033	2.052
4	1.989	1.998	2.013	2.0355	2.0535
5	1.9895	1.999	2.016	2.037	2.055
6	1.99	1.9995	2.018	2.039	2.057
7	1.991	2	2.02	2.041	2.059
8	1.992	2.001	2.022	2.0425	2.0605
9	1.993	2.002	2.0245	2.044	2.062
10	1.994	2.003	2.026	2.046	2.063

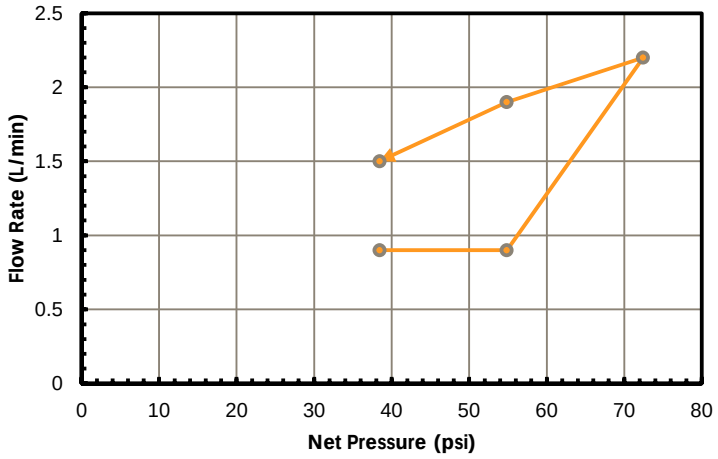
Flow rates during pressure steps:

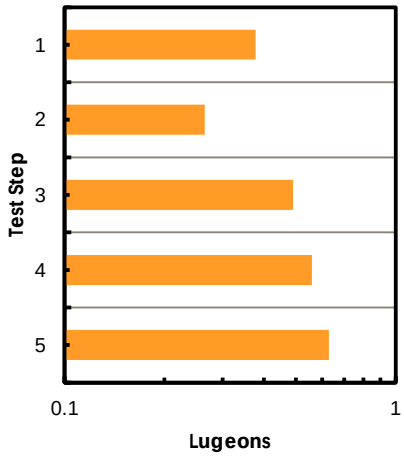
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	1.00	2.00	3.00	1.00
2	0.50	1.00	3.00	2.00	1.00
3	2.00	1.00	1.50	1.00	2.00
4	1.00	1.00	2.50	2.50	1.50
5	0.50	1.00	3.00	1.50	1.50
6	0.50	0.50	2.00	2.00	2.00
7	1.00	0.50	2.00	2.00	2.00
8	1.00	1.00	2.00	1.50	1.50
9	1.00	1.00	2.50	1.50	1.50
10	1.00	1.00	1.50	2.00	1.00
Average Q (L/min)	**0.90**	**0.90**	**2.20**	**1.90**	**1.50**
Pf (psi)	4.10E-04	4.10E-04	2.45E-03	1.83E-03	1.14E-03
Pnet (psi)	38.4	54.9	72.5	54.9	38.4
K (m/min)	3.2E-06	2.3E-06	4.2E-06	4.8E-06	5.4E-06
K (m/sec)	5.4E-08	3.8E-08	7.0E-08	7.9E-08	9.0E-08
Lugeons	0.38	0.26	0.49	0.56	0.63

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	37.75 to 45.54 m bgs
Analysis Date	October 27, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Wash-out
Lugeon	0.63
Hydraulic Conductivity	9.0E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	45.54 to 53.34 m bgs
Test Date	October 30, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	52.59	45.54
Bottom of test interval	61.59	53.34
Static water level	21.42	18.55
Bedrock	5.63	4.88
Midpoint of test interval	57.09	49.44

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39.9	59.9	79.89	59.9	39.9
0	2.065	2.079	2.098	2.1185	2.138
1	2.067	2.08	2.1	2.121	2.14
2	2.068	2.082	2.101	2.123	2.1415
3	2.069	2.084	2.103	2.125	2.1435
4	2.07	2.085	2.104	2.127	2.145
5	2.072	2.087	2.107	2.129	2.146
6	2.073	2.088	2.109	2.132	2.148
7	2.075	2.09	2.111	2.134	2.149
8	2.0755	2.0925	2.114	2.136	2.1505
9	2.077	2.094	2.116	2.137	2.152
10					

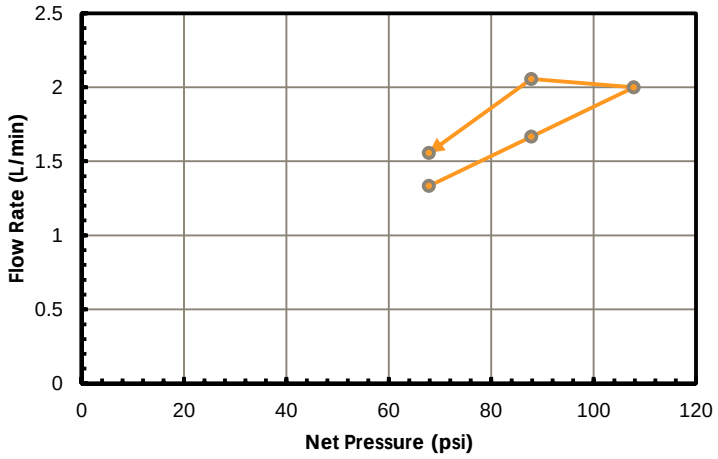
Flow rates during pressure steps:

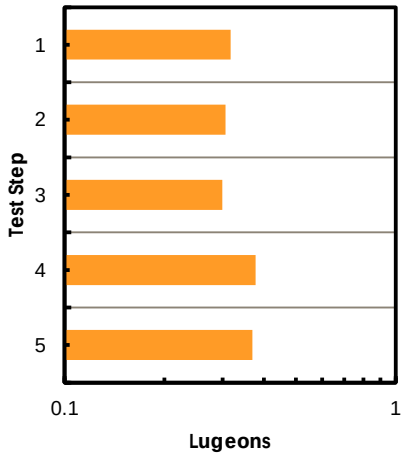
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	2.00	1.00	2.00	2.50	2.00
2	1.00	2.00	1.00	2.00	1.50
3	1.00	2.00	2.00	2.00	2.00
4	1.00	1.00	1.00	2.00	1.50
5	2.00	2.00	3.00	2.00	1.00
6	1.00	1.00	2.00	3.00	2.00
7	2.00	2.00	2.00	2.00	1.00
8	0.50	2.50	3.00	2.00	1.50
9	1.50	1.50	2.00	1.00	1.50
10					
Average Q (L/min)	**1.33**	**1.67**	**2.00**	**2.06**	**1.56**
Pf (psi)	9.00E-04	1.41E-03	2.03E-03	2.14E-03	1.23E-03
Pnet (psi)	67.8	87.8	107.8	87.8	67.8
K (m/min)	2.7E-06	2.6E-06	2.6E-06	3.2E-06	3.2E-06
K (m/sec)	4.5E-08	4.4E-08	4.3E-08	5.4E-08	5.3E-08
Lugeons	0.32	0.31	0.30	0.38	0.37

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	45.54 to 53.34 m bgs
Analysis Date	November 2, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.33
Hydraulic Conductivity	4.8E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	9.17 to 53.34 m bgs
Test Date	October 30, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	51.0

Depths (m bgs)	Measured	Vertical
Top of test interval	10.59	9.17
Bottom of test interval	61.59	53.34
Static water level	5.57	4.82
Bedrock	5.63	4.88
Midpoint of test interval	36.09	31.25

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	2.164	2.182	2.204	2.225	2.241
1	2.165	2.184	2.206	2.2265	2.2425
2	2.167	2.186	2.208	2.227	2.245
3	2.17	2.1885	2.209	2.229	2.2465
4	2.171	2.194	2.211	2.231	2.247
5	2.173	2.195	2.213	2.2325	2.25
6	2.174	2.1965	2.215	2.2345	2.251
7	2.176	2.1975	2.218	2.236	2.253
8	2.178	2.199	2.2195	2.238	2.255
9	2.179	2.201	2.221	2.2395	2.257
10	2.18	2.203	2.2235	2.241	2.2585

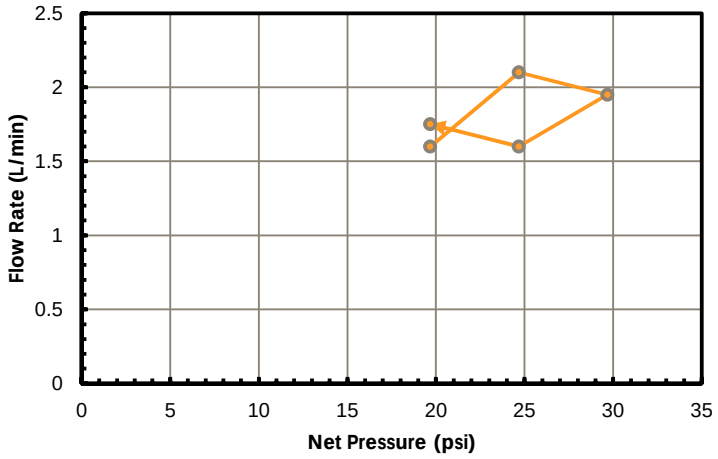
Flow rates during pressure steps:

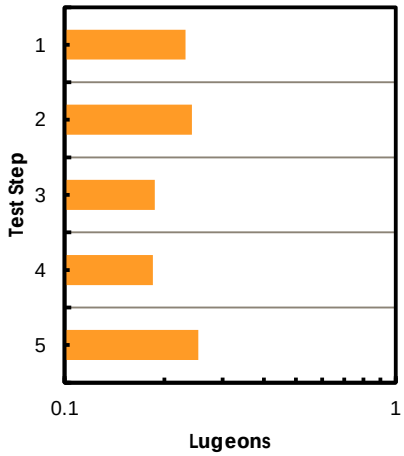
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	2.00	2.00	1.50	1.50
2	2.00	2.00	2.00	0.50	2.50
3	3.00	2.50	1.00	2.00	1.50
4	1.00	5.50	2.00	2.00	0.50
5	2.00	1.00	2.00	1.50	3.00
6	1.00	1.50	2.00	2.00	1.00
7	2.00	1.00	3.00	1.50	2.00
8	2.00	1.50	1.50	2.00	2.00
9	1.00	2.00	1.50	1.50	2.00
10	1.00	2.00	2.50	1.50	1.50
Average Q (L/min)	**1.60**	**2.10**	**1.95**	**1.60**	**1.75**
Pf (psi)	1.30E-03	2.23E-03	1.93E-03	1.30E-03	1.55E-03
Pnet (psi)	19.7	24.7	29.7	24.7	19.7
K (m/min)	2.6E-06	2.7E-06	2.1E-06	2.1E-06	2.8E-06
K (m/sec)	4.3E-08	4.5E-08	3.5E-08	3.5E-08	4.7E-08
Lugeons	0.23	0.24	0.19	0.18	0.25

Project	Touquoy In-Pit Disposal
Borehole	BH21-02
Test Interval	9.17 to 53.34 m bgs
Analysis Date	November 2, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.22
Hydraulic Conductivity	4.1E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	17.06 to 26.06 m bgs
Test Date	November 8, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	17.06	17.06
Bottom of test interval	26.06	26.06
Static water level	13.04	13.04
Bedrock	2.76	2.76
Midpoint of test interval	21.56	21.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	17.34	25.8	34.42	25.8	17.34
0	2.306	2.3285	2.3525	2.3815	2.4005
1	2.309	2.3305	2.356	2.3825	2.403
2	2.311	2.333	2.3595	2.3835	2.405
3	2.313	2.3355	2.3625	2.385	2.407
4	2.3145	2.338	2.365	2.387	2.409
5	2.316	2.34	2.3675	2.389	2.4115
6	2.318	2.342	2.3705	2.391	2.414
7	2.32	2.344	2.373	2.393	2.416
8	2.3215	2.3455	2.376	2.397	2.417
9	2.322	2.348	2.379	2.399	2.419
10					

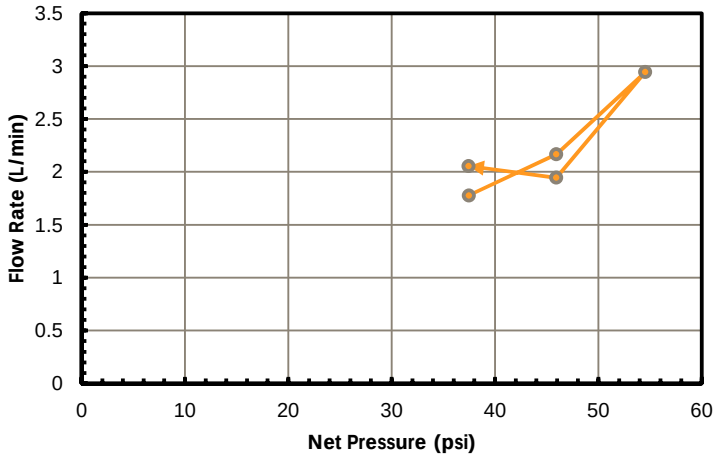
Flow rates during pressure steps:

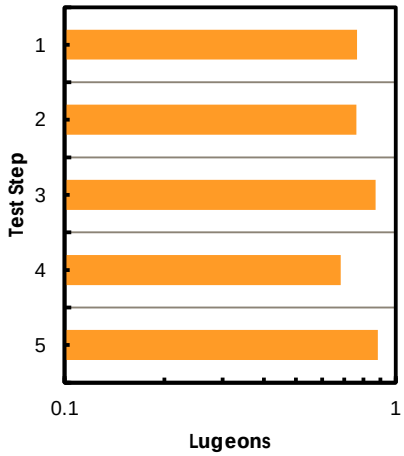
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	3.00	2.00	3.50	1.00	2.50
2	2.00	2.50	3.50	1.00	2.00
3	2.00	2.50	3.00	1.50	2.00
4	1.50	2.50	2.50	2.00	2.00
5	1.50	2.00	2.50	2.00	2.50
6	2.00	2.00	3.00	2.00	2.50
7	2.00	2.00	2.50	2.00	2.00
8	1.50	1.50	3.00	4.00	1.00
9	0.50	2.50	3.00	2.00	2.00
10					
Average Q (L/min)	**1.78**	**2.17**	**2.94**	**1.94**	**2.06**
Pf (psi)	1.60E-03	2.38E-03	4.39E-03	1.91E-03	2.14E-03
Pnet (psi)	37.5	45.9	54.5	45.9	37.5
K (m/min)	6.5E-06	6.5E-06	7.4E-06	5.8E-06	7.6E-06
K (m/sec)	1.1E-07	1.1E-07	1.2E-07	9.7E-08	1.3E-07
Lugeons	0.77	0.76	0.87	0.68	0.88

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	17.06 to 26.06 m bgs
Analysis Date	November 9, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.79
Hydraulic Conductivity	1.1E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	26.06 to 35.06 m bgs
Test Date	November 8, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	26.06	26.06
Bottom of test interval	35.06	35.06
Static water level	13.04	13.04
Bedrock	2.76	2.76
Midpoint of test interval	30.56	30.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	24.6	36.8	49.19	36.8	24.6
0	2.419	2.43	2.4425	2.456	2.466
1	2.42	2.431	2.4445	2.457	2.467
2	2.421	2.433	2.4455	2.4585	2.468
3	2.422	2.434	2.447	2.46	2.469
4	2.423	2.435	2.4485	2.4605	2.47
5	2.424	2.436	2.45	2.461	2.471
6	2.425	2.4375	2.451	2.462	2.472
7	2.4265	2.439	2.452	2.463	2.473
8	2.4275	2.4395	2.453	2.464	2.474
9	2.429	2.4405	2.454	2.4645	2.4745
10	2.43	2.4415	2.4545	2.466	2.4755

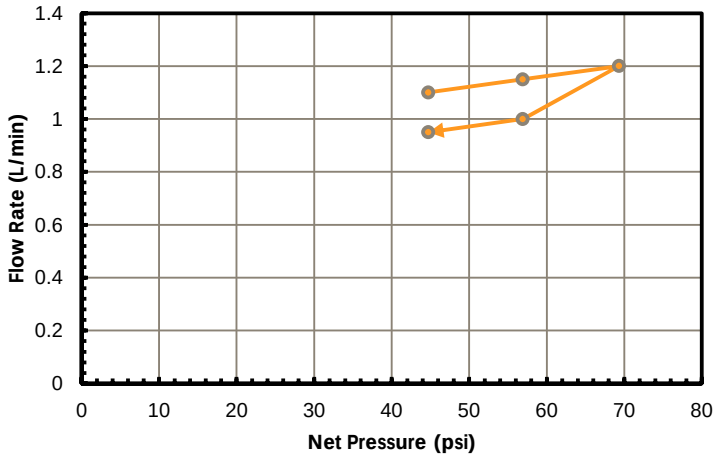
Flow rates during pressure steps:

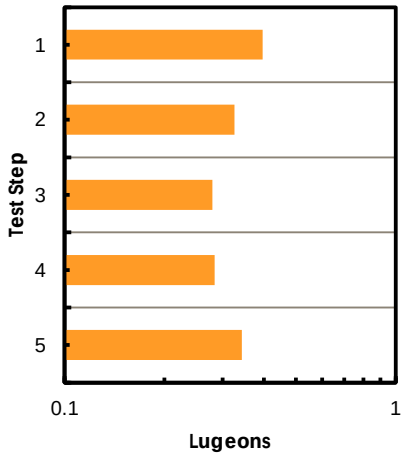
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.00	2.00	1.00	1.00
2	1.00	2.00	1.00	1.50	1.00
3	1.00	1.00	1.50	1.50	1.00
4	1.00	1.00	1.50	0.50	1.00
5	1.00	1.00	1.50	0.50	1.00
6	1.00	1.50	1.00	1.00	1.00
7	1.50	1.50	1.00	1.00	1.00
8	1.00	0.50	1.00	1.00	1.00
9	1.50	1.00	1.00	0.50	0.50
10	1.00	1.00	0.50	1.50	1.00
Average Q (L/min)	**1.10**	**1.15**	**1.20**	**1.00**	**0.95**
Pf (psi)	6.13E-04	6.70E-04	7.29E-04	5.06E-04	4.57E-04
Pnet (psi)	44.7	56.9	69.3	56.9	44.7
K (m/min)	3.4E-06	2.8E-06	2.4E-06	2.4E-06	2.9E-06
K (m/sec)	5.6E-08	4.6E-08	4.0E-08	4.0E-08	4.9E-08
Lugeons	0.40	0.33	0.28	0.28	0.34

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	26.06 to 35.06 m bgs
Analysis Date	November 9, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.33
Hydraulic Conductivity	4.6E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	35.06 to 44.06 m bgs
Test Date	November 12, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	35.06	35.06
Bottom of test interval	44.06	44.06
Static water level	3.50	3.5
Bedrock	2.76	2.76
Midpoint of test interval	39.56	39.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	32	48	64	48	32
0	2.4855	2.49	2.4955	2.502	2.506
1	2.486	2.49	2.496	2.502	2.5065
2	2.4865	2.4905	2.497	2.503	2.507
3	2.487	2.491	2.4975	2.503	2.507
4	2.487	2.492	2.498	2.5035	2.5075
5	2.4875	2.4925	2.499	2.504	2.508
6	2.488	2.493	2.499	2.5045	2.508
7	2.4885	2.4935	2.5	2.505	2.5085
8	2.4885	2.494	2.501	2.505	2.509
9	2.489	2.4945	2.5015	2.5055	2.509
10	2.489	2.495	2.502	2.506	2.5095

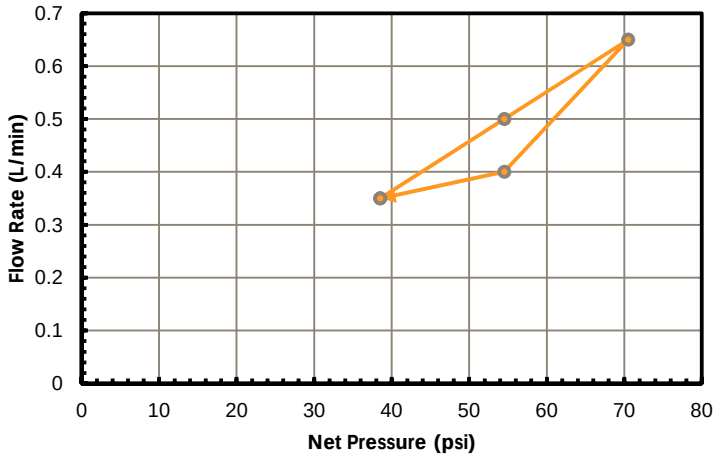
Flow rates during pressure steps:

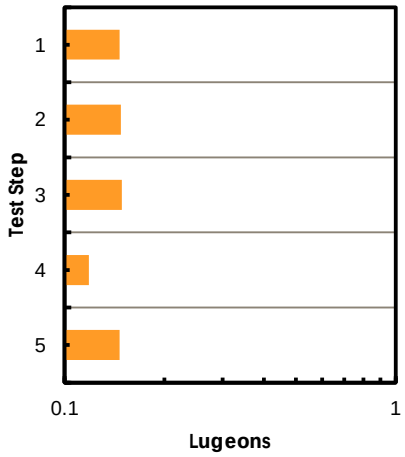
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.00	0.50	0.00	0.50
2	0.50	0.50	1.00	1.00	0.50
3	0.50	0.50	0.50	0.00	0.00
4	0.00	1.00	0.50	0.50	0.50
5	0.50	0.50	1.00	0.50	0.50
6	0.50	0.50	0.00	0.50	0.00
7	0.50	0.50	1.00	0.50	0.50
8	0.00	0.50	1.00	0.00	0.50
9	0.50	0.50	0.50	0.50	0.00
10	0.00	0.50	0.50	0.50	0.50
Average Q (L/min)	**0.35**	**0.50**	**0.65**	**0.40**	**0.35**
Pf (psi)	6.20E-05	1.27E-04	2.14E-04	8.10E-05	6.20E-05
Pnet (psi)	38.5	54.5	70.5	54.5	38.5
K (m/min)	1.2E-06	1.3E-06	1.3E-06	1.0E-06	1.2E-06
K (m/sec)	2.1E-08	2.1E-08	2.1E-08	1.7E-08	2.1E-08
Lugeons	0.15	0.15	0.15	0.12	0.15

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	35.06 to 44.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.14
Hydraulic Conductivity	2.0E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	44.06 to 53.06 m bgs
Test Date	November 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	44.06	44.06
Bottom of test interval	53.06	53.06
Static water level	3.51	3.51
Bedrock	2.76	2.76
Midpoint of test interval	48.56	48.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39.36	59	78.71	59	39.36
0	2.5155	2.5155	2.5155	2.5155	2.5155
1	2.5155	2.5155	2.5155	2.5155	2.5155
2	2.5155	2.5155	2.5155	2.5155	2.5155
3	2.5155	2.5155	2.5155	2.5155	2.5155
4	2.5155	2.5155	2.5155	2.5155	2.5155
5	2.5155	2.5155	2.5155	2.5155	2.5155
6	2.5155	2.5155	2.5155	2.5155	2.5155
7	2.5155	2.5155	2.5155	2.5155	2.5155
8	2.5155	2.5155	2.5155	2.5155	2.5155
9	2.5155	2.5155	2.5155	2.5155	
10					

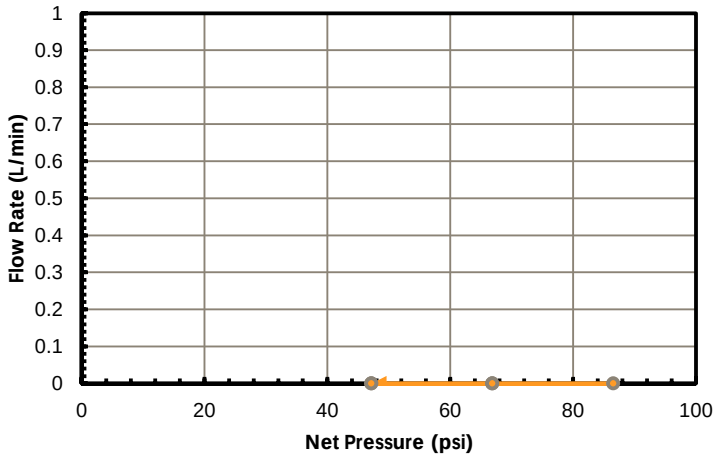
Flow rates during pressure steps:

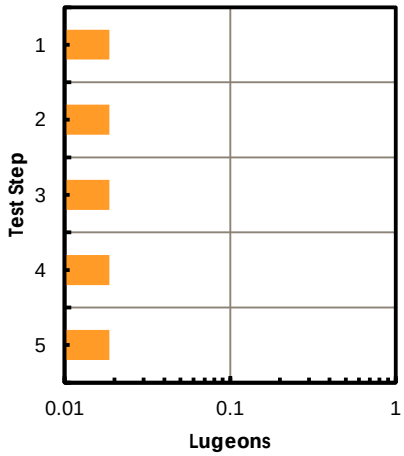
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	47.2	66.8	86.5	66.8	47.2
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	2.7E-09	2.7E-09	2.7E-09	0.0E+00	0.0E+00
Lugeons	0.019	0.019	0.019	0.019	0.019

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	44.06 to 53.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	2.7E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 2.7×10^{-9} m/s assuming no take at 78.71 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	78.71
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	86.5
K (m/min)	1.6E-07
K (m/sec)	2.7E-09
Lugeons	0.019

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	53.06 to 62.06 m bgs
Test Date	November 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	53.06	53.06
Bottom of test interval	62.06	62.06
Static water level	9.32	9.32
Bedrock	2.76	2.76
Midpoint of test interval	57.56	57.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	46.72	70.1	93.44	70.1	46.72
0	2.521	2.524	2.5265	2.501	2.504
1	2.521	2.5245	2.5265	2.501	2.504
2	2.521	2.5245	2.527	2.5015	2.504
3	2.5215	2.5245	2.5275	2.502	2.5045
4	2.522	2.525	2.528	2.502	2.505
5	2.522	2.525	2.5285	2.5025	2.505
6	2.522	2.5255	2.529	2.503	2.5055
7	2.5225	2.526	2.5295	2.503	2.5055
8	2.523	2.526	2.53	2.5035	2.5055
9	2.523	2.5265	2.53	2.5035	2.506
10	2.523	2.5265	2.5305	2.504	2.506

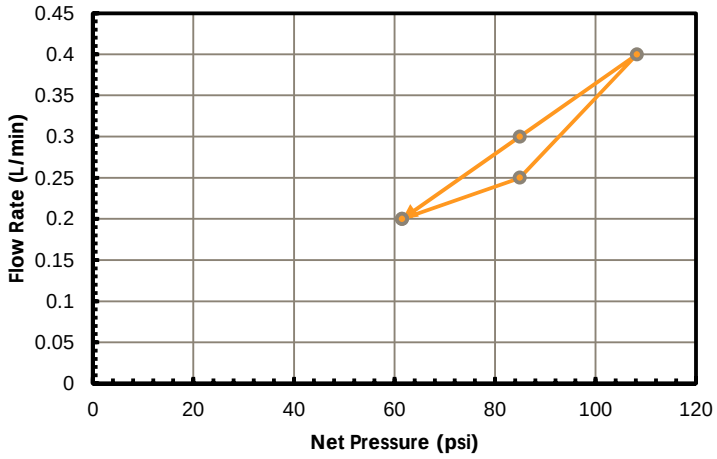
Flow rates during pressure steps:

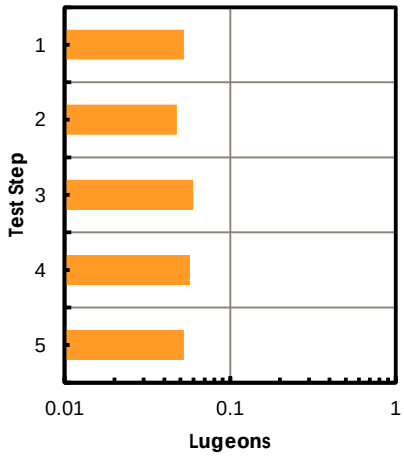
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.00	0.00	0.00
2	0.00	0.00	0.50	0.50	0.00
3	0.50	0.00	0.50	0.50	0.50
4	0.50	0.50	0.50	0.00	0.50
5	0.00	0.00	0.50	0.50	0.00
6	0.00	0.50	0.50	0.50	0.50
7	0.50	0.50	0.50	0.00	0.00
8	0.50	0.00	0.50	0.50	0.00
9	0.00	0.50	0.00	0.00	0.50
10	0.00	0.00	0.50	0.50	0.00
Average Q (L/min)	**0.20**	**0.25**	**0.40**	**0.30**	**0.20**
Pf (psi)	2.03E-05	3.16E-05	8.10E-05	4.56E-05	2.02E-05
Pnet (psi)	61.6	84.9	108.3	84.9	61.6
K (m/min)	4.5E-07	4.1E-07	5.1E-07	4.9E-07	4.5E-07
K (m/sec)	7.5E-09	6.8E-09	8.5E-09	8.1E-09	7.5E-09
Lugeons	0.052	0.047	0.060	0.057	0.052

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	53.06 to 62.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.05
Hydraulic Conductivity	7.6E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	62.06 to 71.06 m bgs
Test Date	November 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	62.06	62.06
Bottom of test interval	71.06	71.06
Static water level	9.32	9.32
Bedrock	2.76	2.76
Midpoint of test interval	66.56	66.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	54	81	108	81	54
0	2.538	2.5385	2.541	2.5445	2.5465
1	2.5385	2.5385	2.541	2.545	2.547
2	2.5385	2.539	2.5415	2.545	2.547
3	2.5385	2.539	2.542	2.545	2.547
4	2.5385	2.539	2.542	2.545	2.547
5	2.5385	2.5395	2.5425	2.5455	2.547
6	2.5385	2.5395	2.543	2.546	2.5475
7	2.5385	2.54	2.543	2.546	2.5475
8	2.5385	2.54	2.5435	2.546	2.548
9	2.5385	2.5405	2.544	2.546	2.548
10	2.5385	2.5405	2.544	2.5465	2.5485

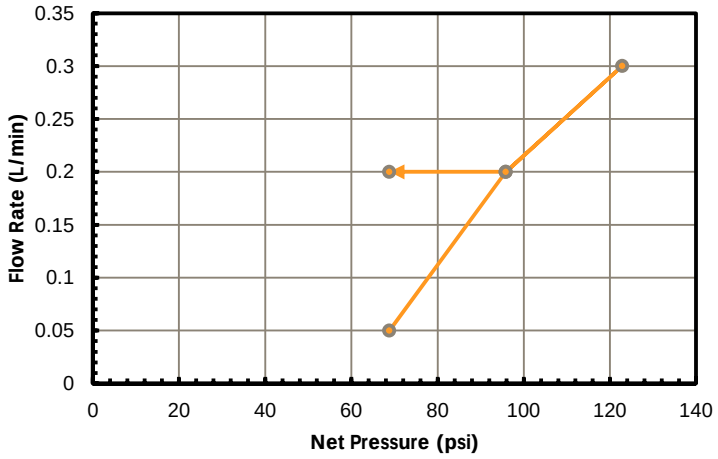
Flow rates during pressure steps:

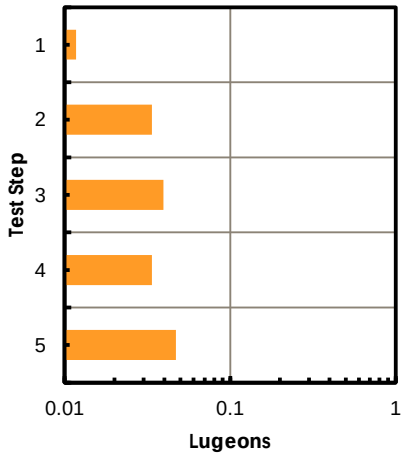
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.00	0.00	0.50	0.50
2	0.00	0.50	0.50	0.00	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.50	0.50	0.50	0.00
6	0.00	0.00	0.50	0.50	0.50
7	0.00	0.50	0.00	0.00	0.00
8	0.00	0.00	0.50	0.00	0.50
9	0.00	0.50	0.50	0.00	0.00
10	0.00	0.00	0.00	0.50	0.50
Average Q (L/min)	**0.05**	**0.20**	**0.30**	**0.20**	**0.20**
Pf (psi)	1.27E-06	2.03E-05	4.56E-05	2.02E-05	2.03E-05
Pnet (psi)	68.8	95.8	122.8	95.8	68.8
K (m/min)	1.0E-07	2.9E-07	3.4E-07	2.9E-07	4.0E-07
K (m/sec)	1.7E-09	4.8E-09	5.6E-09	4.8E-09	6.7E-09
Lugeons	0.012	0.034	0.039	0.034	0.047

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	62.06 to 71.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.03
Hydraulic Conductivity	4.7E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	71.06 to 80.06 m bgs
Test Date	November 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	71.06	71.06
Bottom of test interval	80.06	80.06
Static water level	9.32	9.32
Bedrock	2.76	2.76
Midpoint of test interval	75.56	75.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	61.5	92.25	123	92.25	61.5
0	2.55	2.55	2.5515	2.554	2.556
1	2.55	2.55	2.552	2.554	2.556
2	2.55	2.55	2.552	2.5545	2.5565
3	2.55	2.5505	2.552	2.555	2.5565
4	2.55	2.5505	2.552	2.555	2.557
5	2.55	2.551	2.5525	2.555	2.557
6	2.55	2.551	2.553	2.555	2.557
7	2.55	2.551	2.553	2.555	2.557
8	2.55	2.551	2.5535	2.556	2.557
9	2.55	2.551	2.554	2.556	2.5575
10					

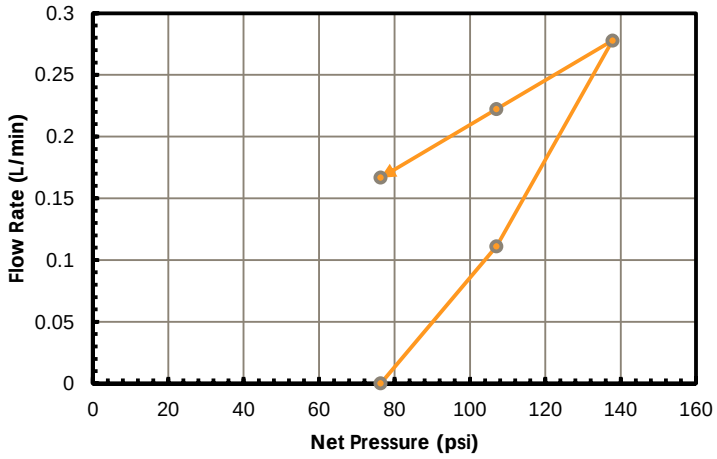
Flow rates during pressure steps:

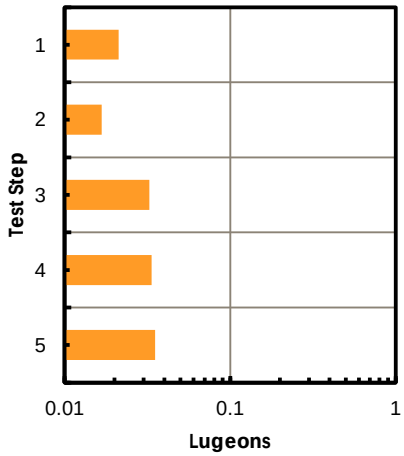
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.00	0.00	0.50	0.50
3	0.00	0.50	0.00	0.50	0.00
4	0.00	0.00	0.00	0.00	0.50
5	0.00	0.50	0.50	0.00	0.00
6	0.00	0.00	0.50	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.50	1.00	0.00
9	0.00	0.00	0.50	0.00	0.50
10					
Average Q (L/min)	**0.00**	**0.11**	**0.28**	**0.22**	**0.17**
Pf (psi)	0.00E+00	6.25E-06	3.91E-05	2.50E-05	1.41E-05
Pnet (psi)	76.3	107.1	137.8	107.1	76.3
K (m/min)	0.0E+00	1.4E-07	2.8E-07	2.9E-07	3.0E-07
K (m/sec)	3.0E-09	2.4E-09	4.6E-09	4.8E-09	5.0E-09
Lugeons	0.021	0.017	0.033	0.033	0.035

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	71.06 to 80.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Wash-out
Lugeon	0.04
Hydraulic Conductivity	5.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take during first pressure step. Upper bound hydraulic conductivity estimate of 3.0×10^{-9} m/s assuming no take at 61.5 psi used in calculation of overall hydraulic conductivity for tested interval.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	61.5
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	76.3
K (m/min)	1.8E-07
K (m/sec)	3.0E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	80.06 to 89.06 m bgs
Test Date	November 14, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	80.06	80.06
Bottom of test interval	89.06	89.06
Static water level	12.56	12.56
Bedrock	2.76	2.76
Midpoint of test interval	84.56	84.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	68.89	96.44	137.77	96.44	68.89
0	2.559	2.559	2.559	2.559	2.559
1	2.559	2.559	2.559	2.559	2.559
2	2.559	2.559	2.559	2.559	2.559
3	2.559	2.559	2.559	2.559	2.559
4	2.559	2.559	2.559	2.559	2.559
5	2.559	2.559	2.559	2.559	2.559
6	2.559	2.559	2.559	2.559	2.559
7	2.559	2.559	2.559	2.559	2.559
8	2.559	2.559	2.559	2.559	2.559
9	2.559	2.559	2.559	2.559	2.559
10					

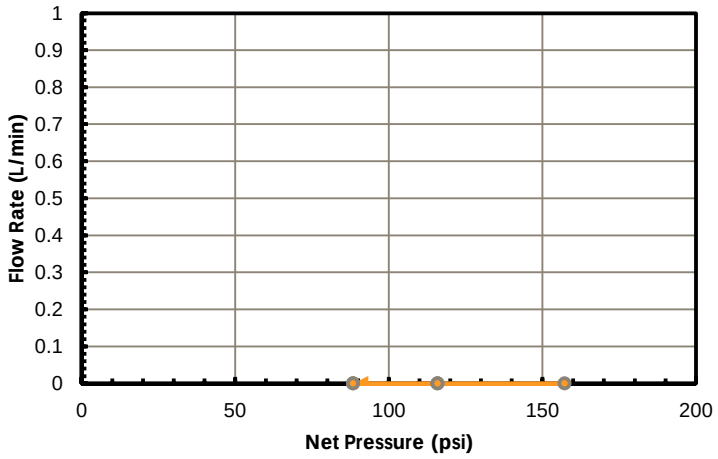
Flow rates during pressure steps:

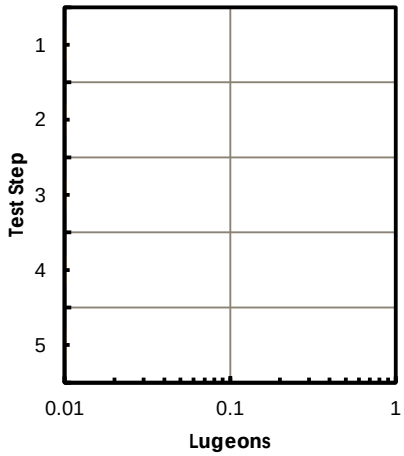
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	88.3	115.9	157.2	115.9	88.3
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	1.5E-09	1.5E-09	1.5E-09	0.0E+00	0.0E+00
Lugeons	0.010	0.010	0.010	0.010	0.010

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	80.06 to 89.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.01
Hydraulic Conductivity	1.5E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 1.5×10^{-9} m/s assuming no take at 137.77 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	137.77
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	157.2
K (m/min)	8.8E-08
K (m/sec)	1.5E-09
Lugeons	0.010

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	89.06 to 98.06 m bgs
Test Date	November 14, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	89.06	89.06
Bottom of test interval	98.06	98.06
Static water level	7.99	7.99
Bedrock	2.76	2.76
Midpoint of test interval	93.56	93.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	76.27	114.4	152.54	114.4	76.27
0	2.5745	2.5765	2.579	2.584	2.587
1	2.5745	2.5765	2.5795	2.584	2.587
2	2.575	2.5765	2.58	2.584	2.587
3	2.575	2.5765	2.5805	2.5845	2.5875
4	2.5755	2.577	2.581	2.5845	2.5875
5	2.5755	2.577	2.5815	2.585	2.588
6	2.576	2.577	2.582	2.585	2.588
7	2.576	2.5775	2.582	2.5855	2.588
8	2.576	2.578	2.5825	2.586	2.588
9	2.576	2.578	2.583	2.5865	2.5885
10	2.576	2.5785	2.5835	2.587	2.5885

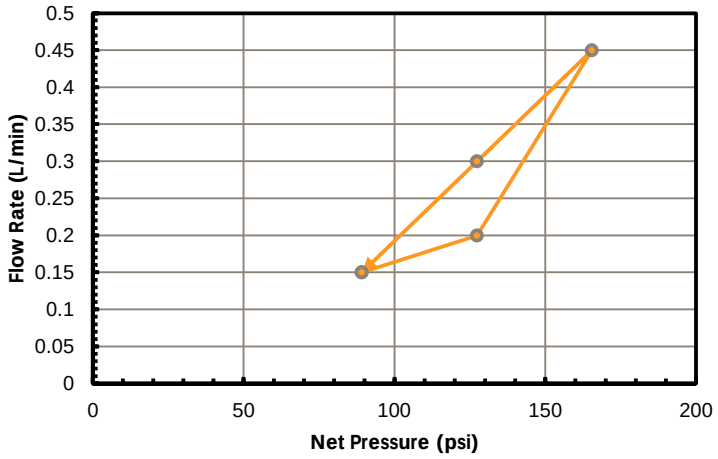
Flow rates during pressure steps:

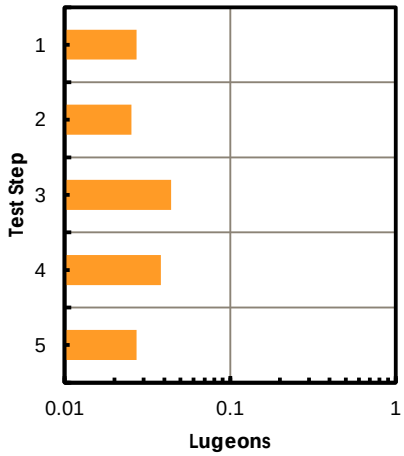
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.50	0.00	0.50	0.00	0.00
3	0.00	0.00	0.50	0.50	0.50
4	0.50	0.50	0.50	0.00	0.00
5	0.00	0.00	0.50	0.50	0.50
6	0.50	0.00	0.50	0.00	0.00
7	0.00	0.50	0.00	0.50	0.00
8	0.00	0.50	0.50	0.50	0.00
9	0.00	0.00	0.50	0.50	0.50
10	0.00	0.50	0.50	0.50	0.00
Average Q (L/min)	**0.15**	**0.20**	**0.45**	**0.30**	**0.15**
Pf (psi)	1.14E-05	2.03E-05	1.03E-04	4.56E-05	1.14E-05
Pnet (psi)	89.2	127.3	165.5	127.3	89.2
K (m/min)	2.3E-07	2.2E-07	3.7E-07	3.2E-07	2.3E-07
K (m/sec)	3.9E-09	3.6E-09	6.2E-09	5.4E-09	3.9E-09
Lugeons	0.027	0.025	0.044	0.038	0.027

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	89.06 to 98.06 m bgs
Analysis Date	November 15, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.03
Hydraulic Conductivity	4.6E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	98.06 to 107.06 m bgs
Test Date	November 15, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	98.06	98.06
Bottom of test interval	107.06	107.06
Static water level	8.57	8.57
Bedrock	2.76	2.76
Midpoint of test interval	102.56	102.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	83.65	125.48	167.3	125.48	83.65
0	2.5925	2.593	2.5965	2.598	2.598
1	2.5925	2.593	2.597	2.598	2.598
2	2.5925	2.593	2.597	2.598	2.598
3	2.5925	2.593	2.597	2.598	2.598
4	2.5925	2.5935	2.597	2.598	2.598
5	2.593	2.5935	2.5975	2.598	2.598
6	2.593	2.5935	2.5975	2.598	2.5985
7	2.593	2.5935	2.598	2.598	2.5985
8	2.593	2.5935	2.598	2.598	2.5985
9	2.593	2.5935	2.598	2.598	2.5985
10					

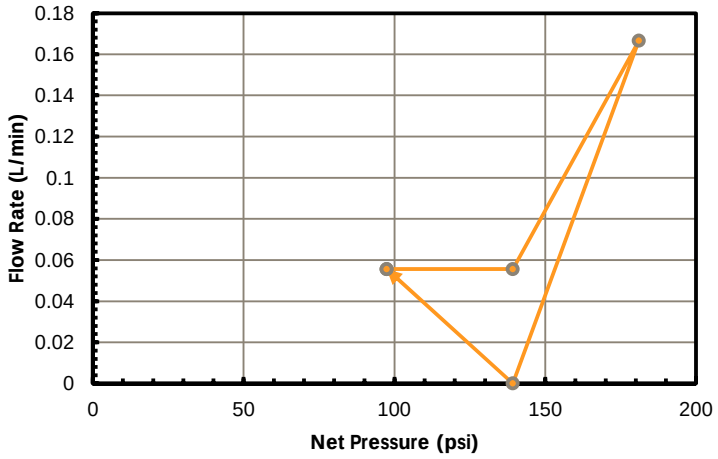
Flow rates during pressure steps:

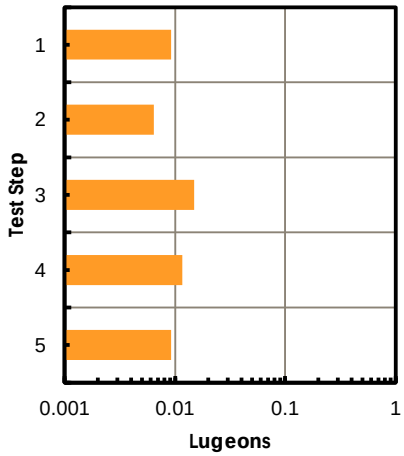
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.50	0.00	0.00	0.00
5	0.50	0.00	0.50	0.00	0.00
6	0.00	0.00	0.00	0.00	0.50
7	0.00	0.00	0.50	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.06**	**0.06**	**0.17**	**0.00**	**0.06**
Pf (psi)	1.56E-06	1.56E-06	1.41E-05	0.00E+00	1.56E-06
Pnet (psi)	97.4	139.2	181.1	139.2	97.4
K (m/min)	7.9E-08	5.5E-08	1.3E-07	0.0E+00	7.9E-08
K (m/sec)	1.3E-09	9.2E-10	2.1E-09	1.6E-09	1.3E-09
Lugeons	0.0092	0.0064	0.0148	0.0116	0.0092

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	98.06 to 107.06 m bgs
Analysis Date	November 16, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.01
Hydraulic Conductivity	1.5E-09 m/s

Comments

Nitrogen packer system used for testing.

No take during fourth pressure step. Upper bound hydraulic conductivity estimate of 1.6×10^{-9} m/s assuming no take at 125.48 psi used in calculation of overall hydraulic conductivity for tested interval.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	125.48
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	139.2
K (m/min)	9.9E-08
K (m/sec)	1.6E-09
Lugeons	0.0116

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	107.06 to 120.15 m bgs
Test Date	November 16, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	13.1

Depths (m bgs)	Measured	Vertical
Top of test interval	107.06	107.06
Bottom of test interval	120.15	120.15
Static water level	7.39	7.39
Bedrock	2.76	2.76
Midpoint of test interval	113.605	113.61

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	92.75	139.1	185.42	139.1	92.75
0	2.6475	2.653	2.659	2.663	2.665
1	2.6475	2.653	2.6595	2.663	2.6655
2	2.6475	2.6535	2.6595	2.6635	2.6655
3	2.6475	2.6535	2.66	2.6635	2.6655
4	2.648	2.654	2.66	2.664	2.666
5	2.6485	2.654	2.6605	2.664	2.666
6	2.649	2.6545	2.6605	2.6645	2.666
7	2.6495	2.655	2.661	2.6645	2.6665
8	2.6495	2.655	2.6615	2.665	2.6665
9	2.6495	2.6555	2.6615	2.665	2.6665
10	2.6495	2.6555	2.662	2.665	2.667

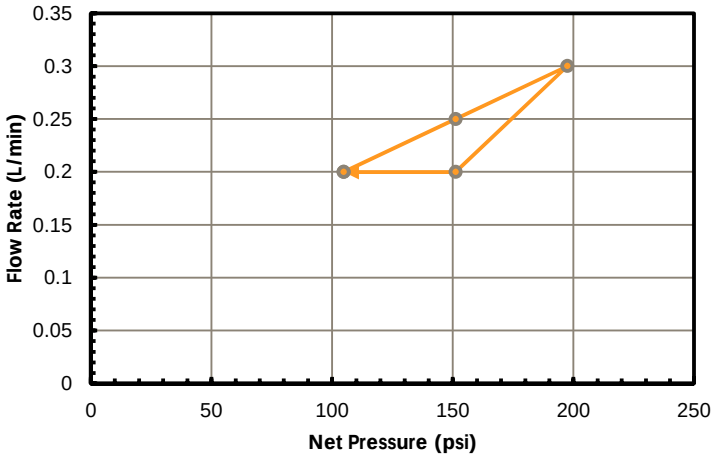
Flow rates during pressure steps:

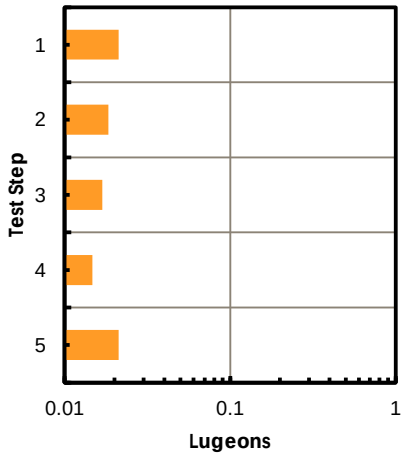
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.50
2	0.00	0.50	0.00	0.50	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.50	0.50	0.00	0.50	0.50
5	0.50	0.00	0.50	0.00	0.00
6	0.50	0.50	0.00	0.50	0.00
7	0.50	0.50	0.50	0.00	0.50
8	0.00	0.00	0.50	0.50	0.00
9	0.00	0.50	0.00	0.00	0.00
10	0.00	0.00	0.50	0.00	0.50
Average Q (L/min)	**0.20**	**0.25**	**0.30**	**0.20**	**0.20**
Pf (psi)	2.03E-05	3.16E-05	4.56E-05	2.03E-05	2.02E-05
Pnet (psi)	104.8	151.2	197.5	151.2	104.8
K (m/min)	1.9E-07	1.7E-07	1.5E-07	1.3E-07	1.9E-07
K (m/sec)	3.2E-09	2.8E-09	2.6E-09	2.2E-09	3.2E-09
Lugeons	0.021	0.018	0.017	0.015	0.021

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	107.06 to 120.15 m bgs
Analysis Date	November 17, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.02
Hydraulic Conductivity	2.8E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	14.05 to 120.15 m bgs
Test Date	November 16, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	106.1

Depths (m bgs)	Measured	Vertical
Top of test interval	14.05	14.05
Bottom of test interval	120.15	120.15
Static water level	7.39	7.39
Bedrock	2.76	2.76
Midpoint of test interval	67.1	67.1

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	2.694	2.71	2.731	2.75	2.767
1	2.695	2.713	2.7325	2.751	2.767
2	2.697	2.714	2.735	2.752	2.768
3	2.699	2.715	2.7375	2.753	2.77
4	2.7	2.717	2.739	2.754	2.771
5	2.702	2.718	2.741	2.7565	2.772
6	2.704	2.72	2.742	2.758	2.773
7	2.706	2.722	2.744	2.76	2.774
8	2.708	2.724	2.746	2.763	2.775
9	2.7085	2.726	2.748	2.765	2.7765
10	2.71	2.728	2.749	2.767	2.7775

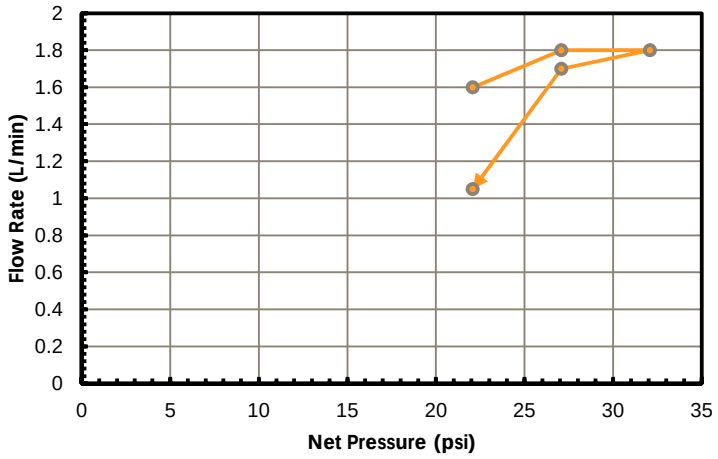
Flow rates during pressure steps:

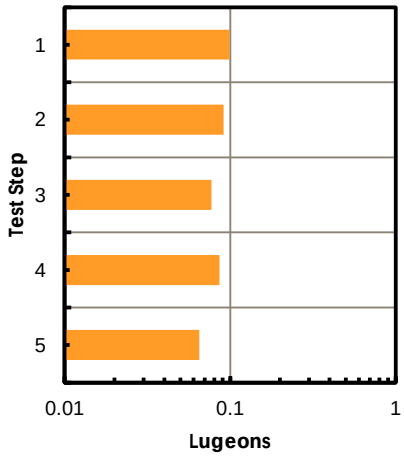
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	3.00	1.50	1.00	0.00
2	2.00	1.00	2.50	1.00	1.00
3	2.00	1.00	2.50	1.00	2.00
4	1.00	2.00	1.50	1.00	1.00
5	2.00	1.00	2.00	2.50	1.00
6	2.00	2.00	1.00	1.50	1.00
7	2.00	2.00	2.00	2.00	1.00
8	2.00	2.00	2.00	3.00	1.00
9	0.50	2.00	2.00	2.00	1.50
10	1.50	2.00	1.00	2.00	1.00
Average Q (L/min)	**1.60**	**1.80**	**1.80**	**1.70**	**1.05**
Pf (psi)	1.30E-03	1.64E-03	1.64E-03	1.46E-03	5.58E-04
Pnet (psi)	22.1	27.1	32.1	27.1	22.1
K (m/min)	1.2E-06	1.1E-06	9.5E-07	1.1E-06	8.1E-07
K (m/sec)	2.0E-08	1.9E-08	1.6E-08	1.8E-08	1.3E-08
Lugeons	0.099	0.091	0.077	0.086	0.065

Project	Touquoy In-Pit Disposal
Borehole	BH21-03
Test Interval	14.05 to 120.15 m bgs
Analysis Date	November 17, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.08
Hydraulic Conductivity	1.7E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	5.33 to 12.82 m bgs
Test Date	October 4, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.7

Depths (m bgs)	Measured	Vertical
Top of test interval	6.15	5.33
Bottom of test interval	14.8	12.82
Static water level	1.73	1.5
Bedrock	0	0
Midpoint of test interval	10.475	9.07

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	6.5	9.8	13.07	9.8	6.5
0	0.34	0.341	0.342	0.343	0.344
1	0.34	0.342	0.342	0.343	0.344
2	0.341	0.342	0.342	0.344	0.344
3	0.341	0.342	0.343	0.344	0.344
4	0.341	0.342	0.343	0.344	0.344
5					
6					
7					
8					
9					
10					

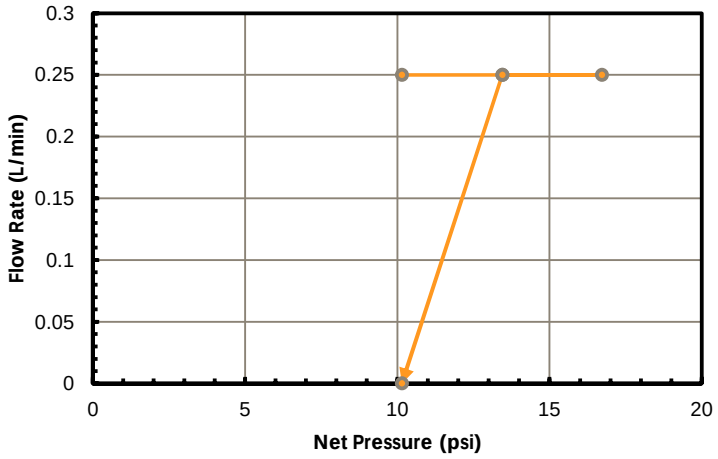
Flow rates during pressure steps:

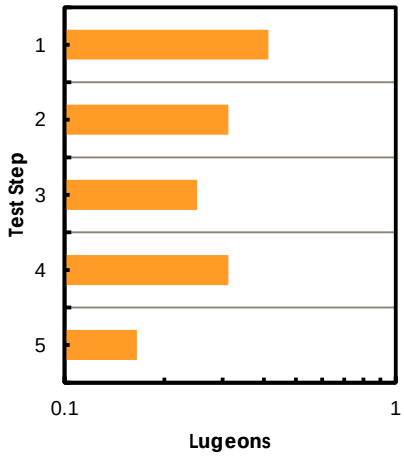
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	1.00	0.00	0.00	0.00
2	1.00	0.00	0.00	1.00	0.00
3	0.00	0.00	1.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.25**	**0.25**	**0.25**	**0.25**	**0.00**
Pf (psi)	3.16E-05	3.16E-05	3.16E-05	3.16E-05	0.00E+00
Pnet (psi)	10.2	13.5	16.7	13.5	10.2
K (m/min)	3.5E-06	2.6E-06	2.1E-06	2.6E-06	0.0E+00
K (m/sec)	5.8E-08	4.4E-08	3.5E-08	4.4E-08	2.3E-08
Lugeons	0.41	0.31	0.25	0.31	0.17

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	5.33 to 12.82 m bgs
Analysis Date	October 6, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.29
Hydraulic Conductivity	4.1E-08 m/s

Comments

Nitrogen packer system used for testing.

No take at fifth pressure step, upper bound hydraulic conductivity estimate of 2.3×10^{-8} m/s at a pressure of 6.5 psi used in estimate of hydraulic conductivity.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	6.5
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	10.2
K (m/min)	1.4E-06
K (m/sec)	2.3E-08
Lugeons	0.17

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	13.12 to 20.26 m bgs
Test Date	October 4, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.219
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	15.15	13.12
Bottom of test interval	23.4	20.26
Static water level	0.41	0.35
Bedrock	0	0
Midpoint of test interval	19.275	16.69

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	27.2	40.8	54.4	40.8	27.2
0	678950	678950	678950	678950	678950
1	678950	678950	678950	678950	678950
2	678950	678950	678950	678950	678950
3	678950	678950	678950	678950	678950
4	678950	678950	678950	678950	678950
5					
6					
7					
8					
9					
10					

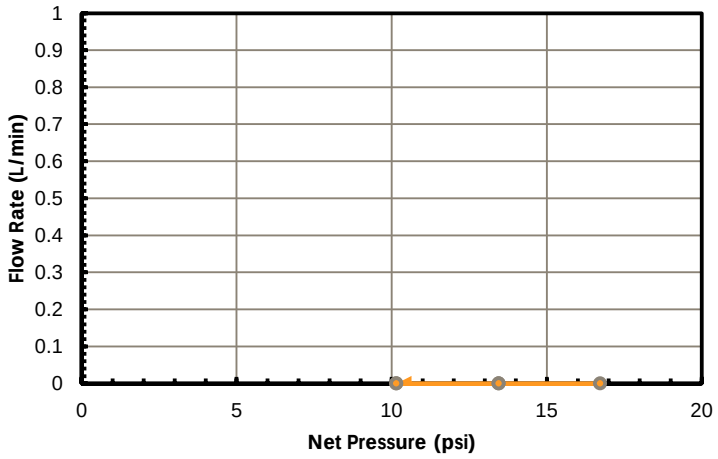
Flow rates during pressure steps:

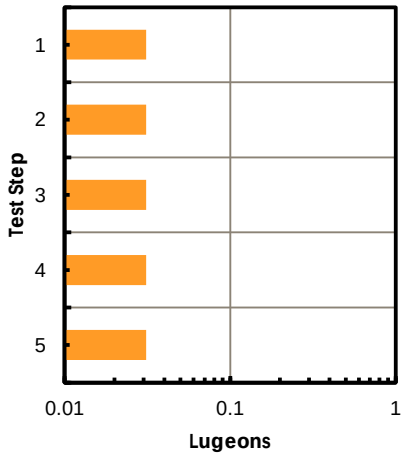
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	29.4	43.0	56.6	43.0	29.4
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	4.3E-09	4.3E-09	4.3E-09	4.3E-09	4.3E-09
Lugeons	0.031	0.031	0.031	0.031	0.031

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	13.12 to 20.26 m bgs
Analysis Date	October 6, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	4.3E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 4.3×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	54.4
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	56.6
K (m/min)	2.6E-07
K (m/sec)	4.3E-09
Lugeons	0.031

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	20.91 to 28.06 m bgs
Test Date	October 5, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.143
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	24.15	20.91
Bottom of test interval	32.4	28.06
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	28.275	24.49

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	19.3	28.9	38.57	28.9	19.3
0	678955	678955	678955	678955	678955
1	678955	678955	678955	678955	678955
2	678955	678955	678955	678955	678956
3	678955	678955	678955	678955	678956
4	678955	678955	678955	678955	678956
5					
6					
7					
8					
9					
10					

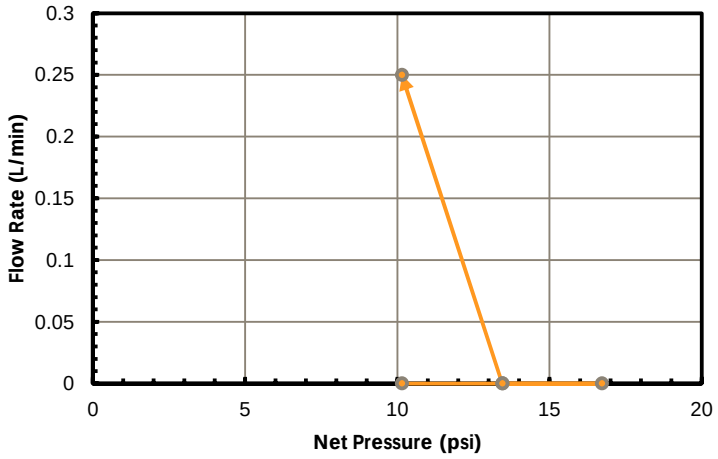
Flow rates during pressure steps:

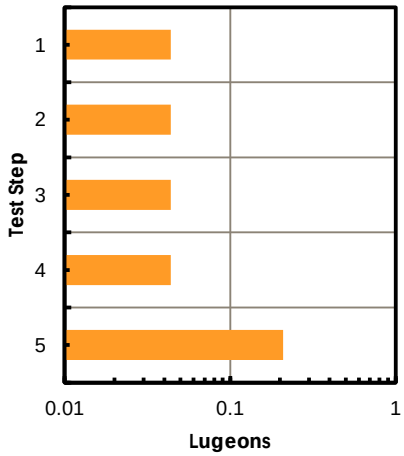
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	1.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.25**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-05
Pnet (psi)	21.0	30.6	40.3	30.6	21.0
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-06
K (m/sec)	6.1E-09	6.1E-09	6.1E-09	6.1E-09	2.9E-08
Lugeons	0.044	0.044	0.044	0.044	0.209

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	20.91 to 28.06 m bgs
Analysis Date	October 6, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.04
Hydraulic Conductivity	6.1E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 6.1×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	38.57
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	40.3
K (m/min)	3.7E-07
K (m/sec)	6.1E-09
Lugeons	0.044

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	26.98 to 35.85 m bgs
Test Date	October 5, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.143
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	10.3

Depths (m bgs)	Measured	Vertical
Top of test interval	31.15	26.98
Bottom of test interval	41.4	35.85
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	36.275	31.42

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	25	37.4	49.92	37.4	25
0	678957	678957	678957	678957	678957
1	678957	678957	678957	678957	678957
2	678957	678957	678957	678957	678957
3	678957	678957	678957	678957	678957
4	678957	678957	678957	678957	678957
5					
6					
7					
8					
9					
10					

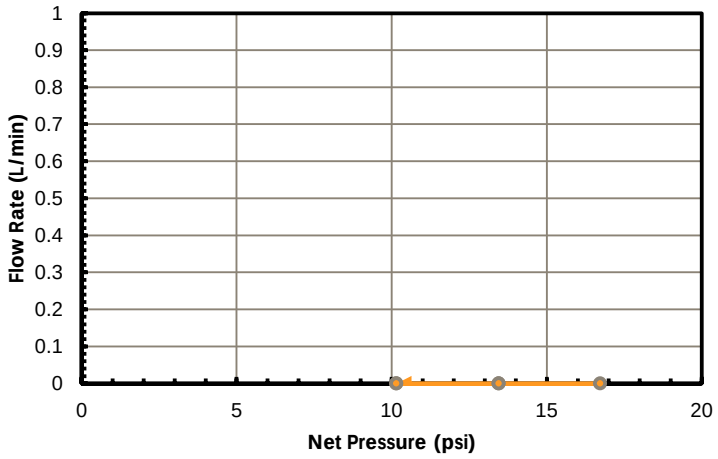
Flow rates during pressure steps:

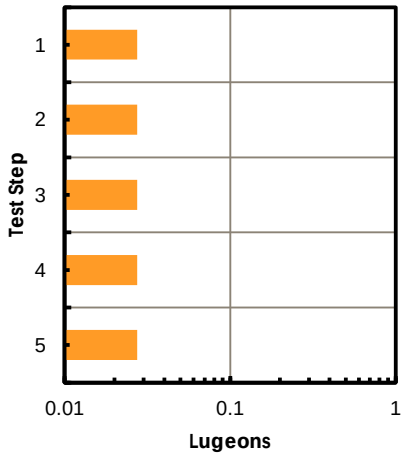
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	26.7	39.1	51.6	39.1	26.7
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	4.0E-09	4.0E-09	4.0E-09	4.0E-09	4.0E-09
Lugeons	0.027	0.027	0.027	0.027	0.027

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	26.98 to 35.85 m bgs
Analysis Date	October 6, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	4.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 4.0×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	49.92
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	51.6
K (m/min)	2.4E-07
K (m/sec)	4.0E-09
Lugeons	0.027

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	34.77 to 43.65 m bgs
Test Date	October 5, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.143
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	10.3

Depths (m bgs)	Measured	Vertical
Top of test interval	40.15	34.77
Bottom of test interval	50.4	43.65
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	45.275	39.21

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	31.3	47	62.67	47	31.3
0	678958	678958	678958	678958	678958
1	678958	678958	678958	678958	678958
2	678958	678958	678958	678958	678958
3	678958	678958	678958	678958	678958
4	678958	678958	678958	678958	678958
5					
6					
7					
8					
9					
10					

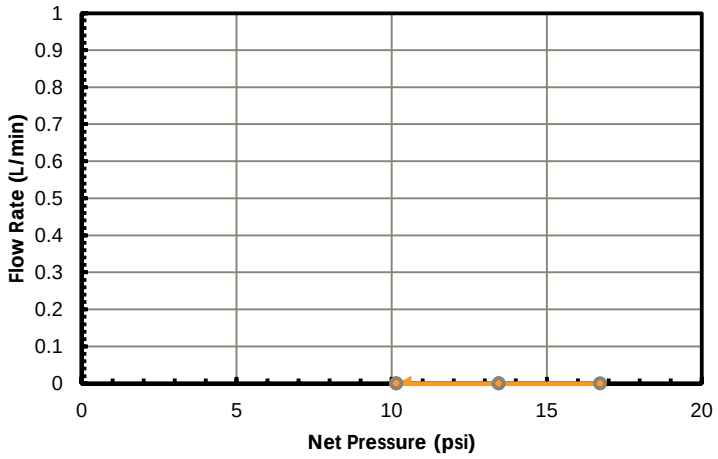
Flow rates during pressure steps:

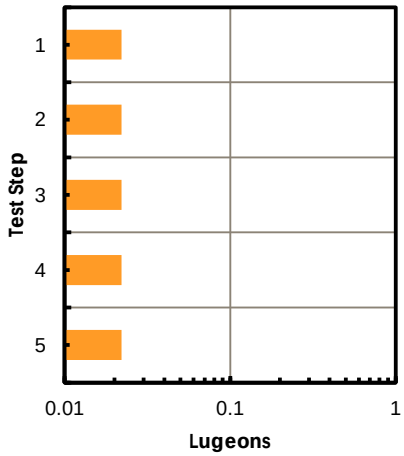
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	33.0	48.7	64.4	48.7	33.0
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	3.2E-09	3.2E-09	3.2E-09	3.2E-09	3.2E-09
Lugeons	0.022	0.022	0.022	0.022	0.022

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	34.77 to 43.65 m bgs
Analysis Date	October 6, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	3.2E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 3.2×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	62.67
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	64.4
K (m/min)	1.9E-07
K (m/sec)	3.2E-09
Lugeons	0.022

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	44.3 to 52.31 m bgs
Test Date	October 6, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.991
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.3

Depths (m bgs)	Measured	Vertical
Top of test interval	51.15	44.3
Bottom of test interval	60.4	52.31
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	55.775	48.3

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	38.2	58.4	77.84	58.4	38.2
0	678961	678961	678961	678961	678961
1	678961	678961	678961	678961	678961
2	678961	678961	678961	678961	678961
3	678961	678961	678961	678961	678961
4	678961	678961	678961	678961	678961
5					
6					
7					
8					
9					
10					

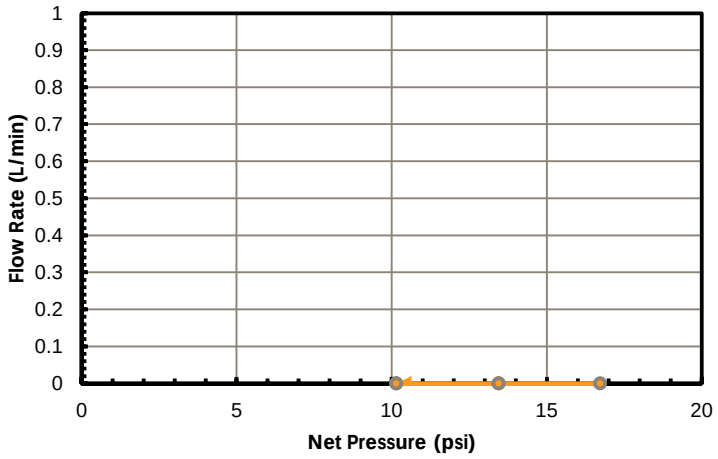
Flow rates during pressure steps:

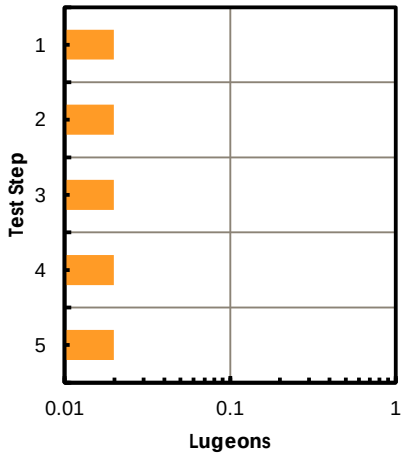
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	39.7	59.9	79.4	59.9	39.7
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	2.8E-09	2.8E-09	2.8E-09	2.8E-09	2.8E-09
Lugeons	0.020	0.020	0.020	0.020	0.020

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	44.3 to 52.31 m bgs
Analysis Date	October 7, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	2.8E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 2.8×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	77.84
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	79.4
K (m/min)	1.7E-07
K (m/sec)	2.8E-09
Lugeons	0.020

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	26.63 to 52.31 m bgs
Test Date	October 6, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.991
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	29.7

Depths (m bgs)	Measured	Vertical
Top of test interval	30.75	26.63
Bottom of test interval	60.4	52.31
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	45.575	39.47

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	25	37.5	50	37.5	25
0	678979	678979	678979	678979	678979
1	678979	678979	678979	678979	678979
2	678979	678979	678979	678979	678979
3	678979	678979	678979	678979	678979
4	678979	678979	678979	678979	678979
5					
6					
7					
8					
9					
10					

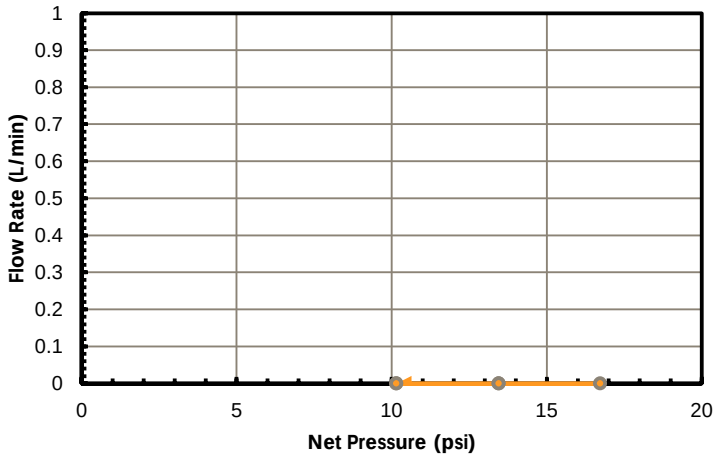
Flow rates during pressure steps:

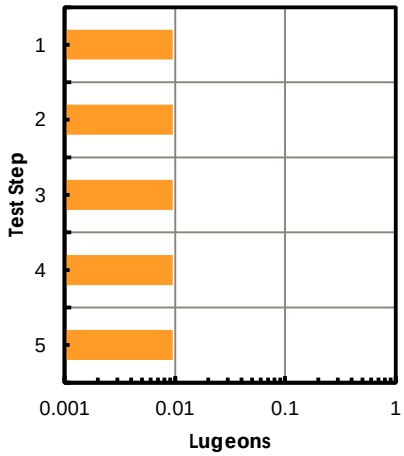
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	26.5	39.0	51.5	39.0	26.5
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	1.6E-09	1.6E-09	1.6E-09	1.6E-09	1.6E-09
Lugeons	0.010	0.010	0.010	0.010	0.010

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	26.63 to 52.31 m bgs
Analysis Date	October 7, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.01
Hydraulic Conductivity	1.6E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 1.6×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	50
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	51.5
K (m/min)	9.9E-08
K (m/sec)	1.6E-09
Lugeons	0.010

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	13.64 to 51.96 m bgs
Test Date	October 6, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.991
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	44.3

Depths (m bgs)	Measured	Vertical
Top of test interval	15.75	13.64
Bottom of test interval	60	51.96
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	37.875	32.8

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	8.5	12.75	17	12.75	8.5
0	678982	678982	678982	678983	678983
1	678982	678982	678983	678983	678983
2	678982	678982	678983	678983	678983
3	678982	678982	678983	678983	678983
4	678982	678982	678983	678983	678983
5					
6					
7					
8					
9					
10					

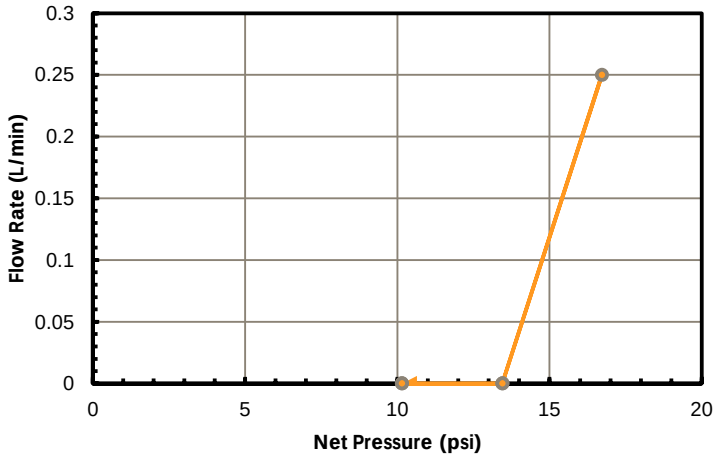
Flow rates during pressure steps:

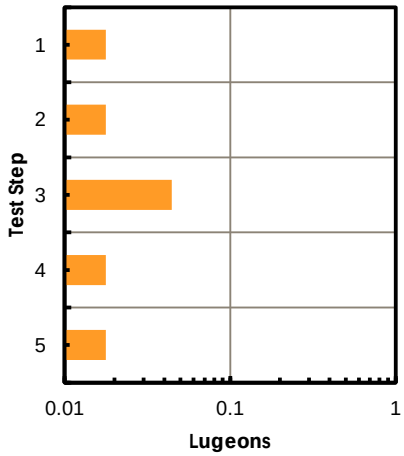
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	1.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.25**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	3.16E-05	0.00E+00	0.00E+00
Pnet (psi)	10.0	14.3	18.5	14.3	10.0
K (m/min)	0.0E+00	0.0E+00	4.9E-07	0.0E+00	0.0E+00
K (m/sec)	3.3E-09	3.3E-09	8.1E-09	3.3E-09	3.3E-09
Lugeons	0.018	0.018	0.044	0.018	0.018

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	13.64 to 51.96 m bgs
Analysis Date	October 7, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	3.3E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 3.3×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	17
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	18.5
K (m/min)	2.0E-07
K (m/sec)	3.3E-09
Lugeons	0.018

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	3.25 to 51.96 m bgs
Test Date	October 6, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	56.3

Depths (m bgs)	Measured	Vertical
Top of test interval	3.75	3.25
Bottom of test interval	60	51.96
Static water level	0.08	0.07
Bedrock	0	0
Midpoint of test interval	31.875	27.6

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	3.5	5.25	7	5.25	3.5
0	679011	679011	679011	679011	679011
1	679011	679011	679011	679011	679011
2	679011	679011	679011	679011	679011
3	679011	679011	679011	679011	679011
4	679011	679011	679011	679011	679011
5					
6					
7					
8					
9					
10					

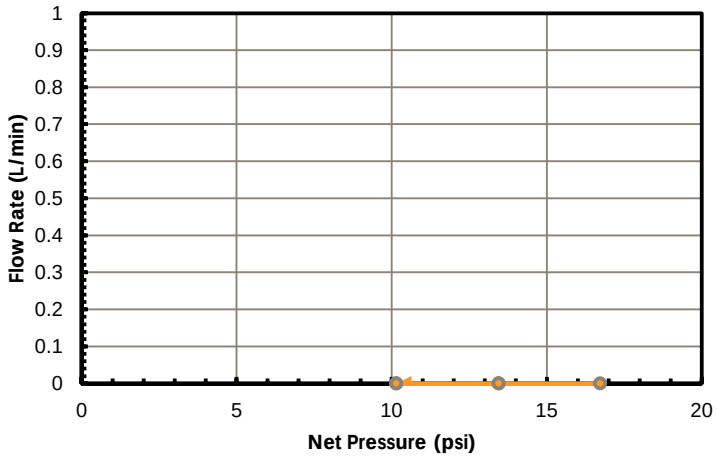
Flow rates during pressure steps:

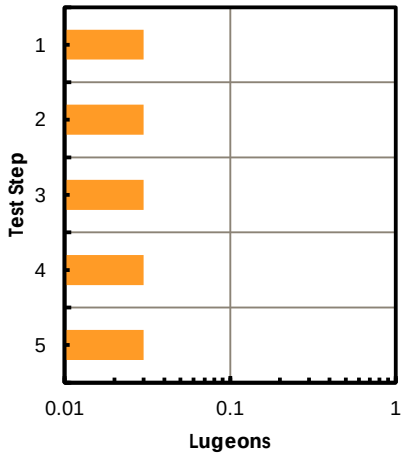
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	5.1	6.9	8.6	6.9	5.1
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	5.7E-09	5.7E-09	5.7E-09	5.7E-09	5.7E-09
Lugeons	0.030	0.030	0.030	0.030	0.030

Project	Touquoy In-Pit Disposal
Borehole	BH21-04
Test Interval	3.25 to 51.96 m bgs
Analysis Date	October 7, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	5.7E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 5.7×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	7
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	8.6
K (m/min)	3.4E-07
K (m/sec)	5.7E-09
Lugeons	0.030

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	6.43 to 14.23 m bgs
Test Date	November 2, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	7.43	6.43
Bottom of test interval	16.43	14.23
Static water level	3.08	2.67
Bedrock	5.6	4.85
Midpoint of test interval	11.93	10.33

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	7.33	11	14.66	11	7.33
0	2.26	2.26	2.2605	2.261	2.261
1	2.26	2.26	2.2605	2.261	2.261
2	2.26	2.26	2.2605	2.261	2.2615
3	2.26	2.26	2.2605	2.261	2.2615
4	2.26	2.2605	2.2605	2.261	2.262
5	2.26	2.2605	2.2605	2.261	2.262
6	2.26	2.2605	2.2605	2.261	2.262
7	2.26	2.2605	2.2605	2.261	2.262
8	2.26	2.2605	2.2605	2.261	2.262
9	2.26	2.2605	2.2605	2.261	2.262
10	2.26	2.2605	2.261	2.261	2.262

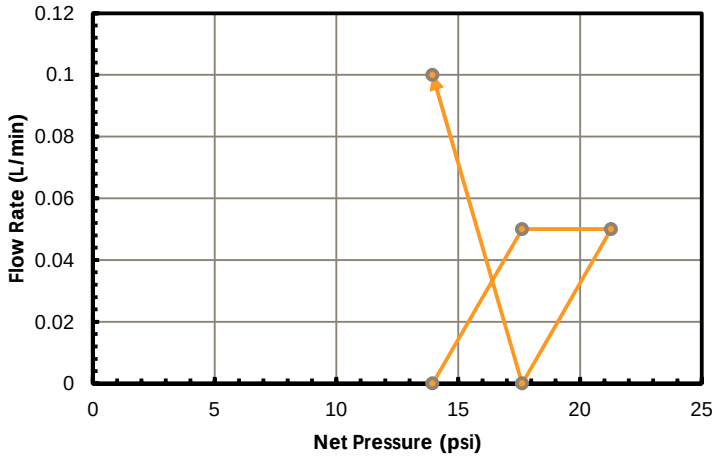
Flow rates during pressure steps:

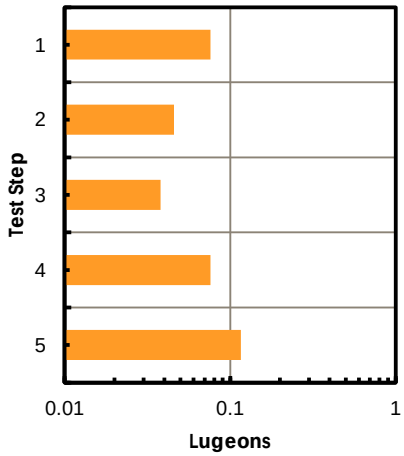
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.50
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.50	0.00	0.00	0.50
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.50	0.00	0.00
Average Q (L/min)	**0.00**	**0.05**	**0.05**	**0.00**	**0.10**
Pf (psi)	0.00E+00	1.27E-06	1.27E-06	0.00E+00	5.06E-06
Pnet (psi)	14.0	17.6	21.3	17.6	14.0
K (m/min)	0.0E+00	3.9E-07	3.2E-07	0.0E+00	9.9E-07
K (m/sec)	1.1E-08	6.5E-09	5.4E-09	1.1E-08	1.6E-08
Lugeons	0.076	0.046	0.038	0.076	0.116

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	6.43 to 14.23 m bgs
Analysis Date	November 3, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.08
Hydraulic Conductivity	1.1E-08 m/s

Comments

Nitrogen packer system used for testing.

Generally no take at tested pressures, upper bound estimate of hydraulic conductivity of 1.1×10^{-8} m/s at 14.66 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	14.66
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	21.3
K (m/min)	6.5E-07
K (m/sec)	1.1E-08
Lugeons	0.1

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	14.23 to 22.02 m bgs
Test Date	November 3, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	16.43	14.23
Bottom of test interval	25.43	22.02
Static water level	2.88	2.5
Bedrock	5.6	4.85
Midpoint of test interval	20.93	18.13

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	14.36	21.56	28.71	21.56	14.36
0	2.268	2.268	2.268	2.268	2.268
1	2.268	2.268	2.268	2.268	2.268
2	2.268	2.268	2.268	2.268	2.268
3	2.268	2.268	2.268	2.268	2.268
4	2.268	2.268	2.268	2.268	2.268
5	2.268	2.268	2.268	2.268	2.268
6	2.268	2.268	2.268	2.268	2.268
7	2.268	2.268	2.268	2.268	2.268
8	2.268	2.268	2.268	2.268	2.268
9	2.268	2.268	2.268	2.268	2.268
10					

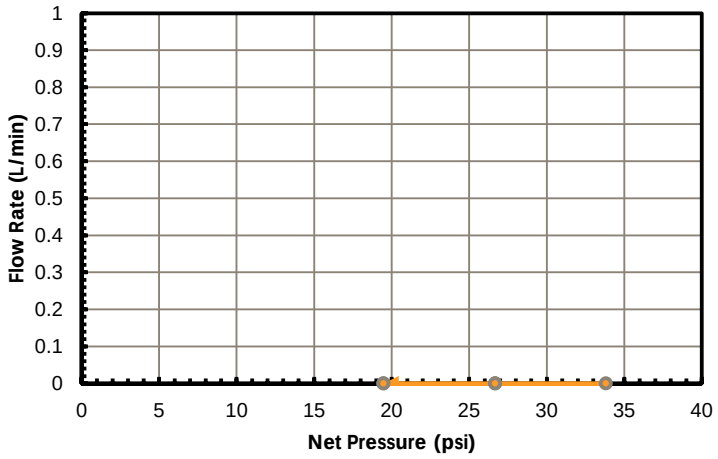
Flow rates during pressure steps:

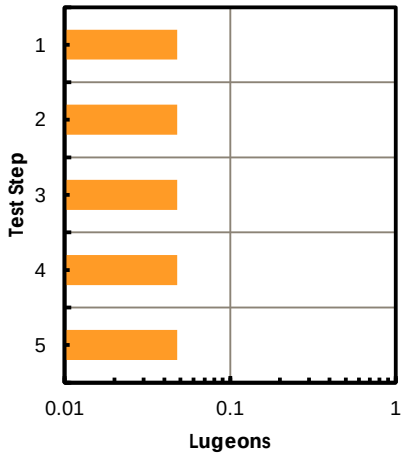
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	19.5	26.7	33.8	26.7	19.5
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	6.8E-09	6.8E-09	6.8E-09	6.8E-09	6.8E-09
Lugeons	0.048	0.048	0.048	0.048	0.048

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	14.23 to 22.02 m bgs
Analysis Date	November 4, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.05
Hydraulic Conductivity	6.8E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressures, upper bound estimate of hydraulic conductivity of 6.8×10^{-9} m/s at 28.71 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	28.71
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	33.8
K (m/min)	4.1E-07
K (m/sec)	6.8E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	22.02 to 29.82 m bgs
Test Date	November 3, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	25.43	22.02
Bottom of test interval	34.43	29.82
Static water level	2.88	2.5
Bedrock	5.6	4.85
Midpoint of test interval	29.93	25.92

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	20.75	31.11	41	31.11	20.75
0	2.268	2.268	2.268	2.268	2.268
1	2.268	2.268	2.268	2.268	2.268
2	2.268	2.268	2.268	2.268	2.268
3	2.268	2.268	2.268	2.268	2.268
4	2.268	2.268	2.268	2.268	2.268
5	2.268	2.268	2.268	2.268	2.268
6	2.268	2.268	2.268	2.268	2.268
7	2.268	2.268	2.268	2.268	2.268
8	2.268	2.268	2.268	2.268	2.268
9	2.268	2.268	2.268	2.268	2.268
10					

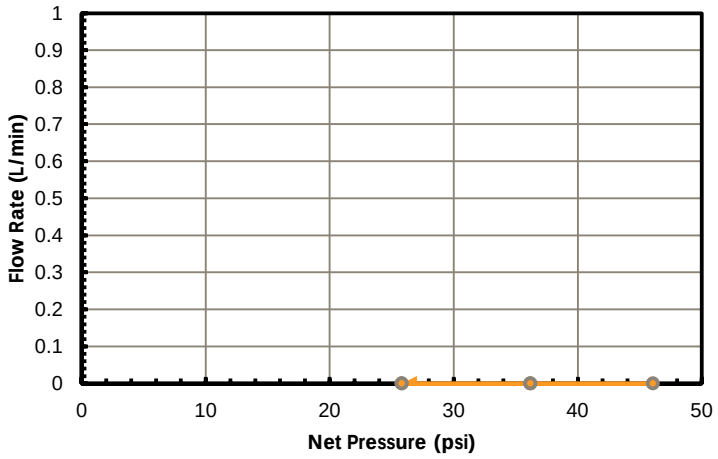
Flow rates during pressure steps:

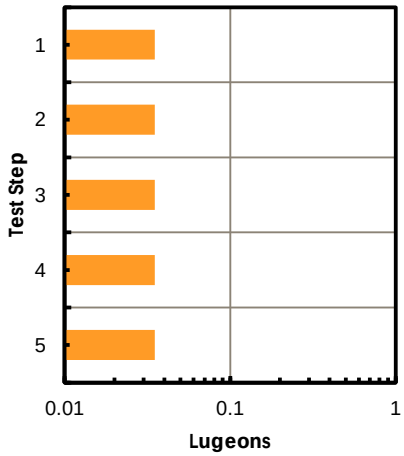
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	25.8	36.2	46.1	36.2	25.8
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	5.0E-09	5.0E-09	5.0E-09	5.0E-09	5.0E-09
Lugeons	0.035	0.035	0.035	0.035	0.035

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	22.02 to 29.82 m bgs
Analysis Date	November 4, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	5.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressures, upper bound estimate of hydraulic conductivity of 5.0×10^{-9} m/s at 41 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	41
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	46.1
K (m/min)	3.0E-07
K (m/sec)	5.0E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	29.82 to 37.61 m bgs
Test Date	November 3, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	34.43	29.82
Bottom of test interval	43.43	37.61
Static water level	2.88	2.5
Bedrock	5.6	4.85
Midpoint of test interval	38.93	33.71

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	27.16	40.74	54.32	40.74	27.16
0	2.2705	2.2705	2.271	2.2715	2.2715
1	2.2705	2.2705	2.271	2.2715	2.2715
2	2.2705	2.2705	2.271	2.2715	2.2715
3	2.2705	2.2705	2.2715	2.2715	2.2715
4	2.2705	2.2705	2.2715	2.2715	2.2715
5	2.2705	2.271	2.2715	2.2715	2.2715
6	2.2705	2.271	2.2715	2.2715	2.2715
7	2.2705	2.271	2.2715	2.2715	2.2715
8	2.2705	2.271	2.2715	2.2715	2.2715
9	2.2705	2.271	2.2715	2.2715	2.2715
10					

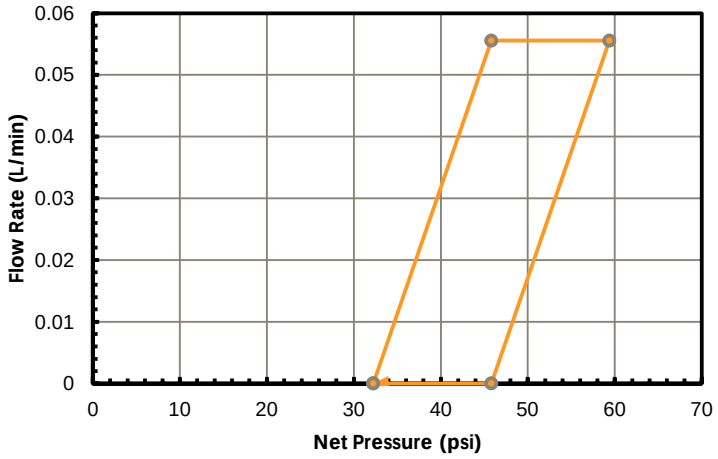
Flow rates during pressure steps:

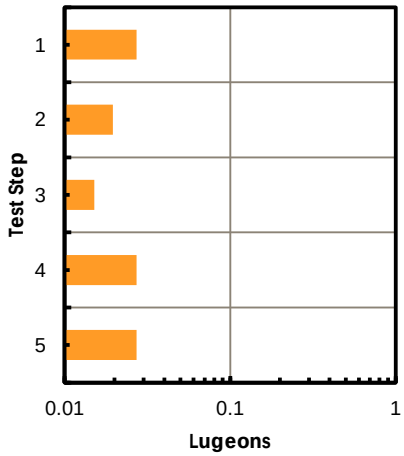
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.50	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.06**	**0.06**	**0.00**	**0.00**
Pf (psi)	0.00E+00	1.56E-06	1.56E-06	0.00E+00	0.00E+00
Pnet (psi)	32.2	45.8	59.4	45.8	32.2
K (m/min)	0.0E+00	1.7E-07	1.3E-07	0.0E+00	0.0E+00
K (m/sec)	3.9E-09	2.8E-09	2.1E-09	3.9E-09	3.9E-09
Lugeons	0.027	0.020	0.015	0.027	0.027

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	29.82 to 37.61 m bgs
Analysis Date	November 4, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	3.9E-09 m/s

Comments

Nitrogen packer system used for testing.

Generally, no take at tested pressures, upper bound estimate of hydraulic conductivity of 3.9×10^{-9} m/s at 54.32 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	54.32
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	59.4
K (m/min)	2.3E-07
K (m/sec)	3.9E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	37.61 to 45.41 m bgs
Test Date	November 4, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	43.43	37.61
Bottom of test interval	52.43	45.41
Static water level	2.77	2.4
Bedrock	5.6	4.85
Midpoint of test interval	47.93	41.51

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	32.9	49.35	65.8	49.35	32.9
0	2.2715	2.2715	2.2715	2.2715	2.2715
1	2.2715	2.2715	2.2715	2.2715	2.2715
2	2.2715	2.2715	2.2715	2.2715	2.2715
3	2.2715	2.2715	2.2715	2.2715	2.2715
4	2.2715	2.2715	2.2715	2.2715	2.2715
5	2.2715	2.2715	2.2715	2.2715	2.2715
6	2.2715	2.2715	2.2715	2.2715	2.2715
7	2.2715	2.2715	2.2715	2.2715	2.2715
8	2.2715	2.2715	2.2715	2.2715	2.2715
9	2.2715	2.2715	2.2715	2.2715	2.2715
10					

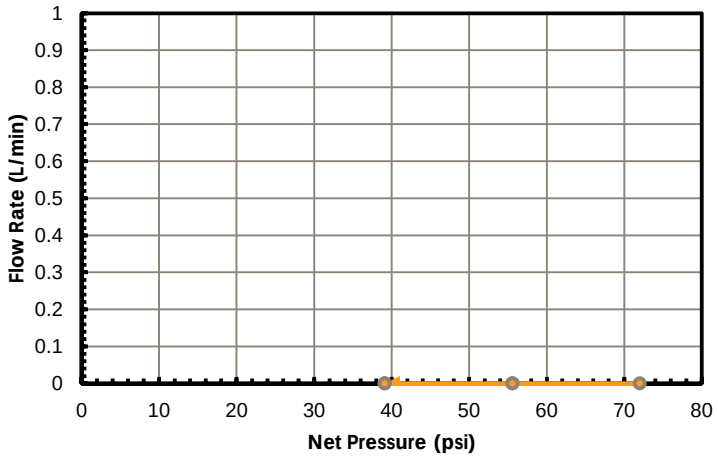
Flow rates during pressure steps:

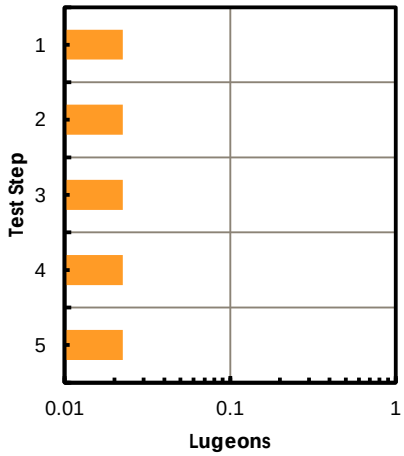
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	39.1	55.6	72.0	55.6	39.1
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	3.2E-09	3.2E-09	3.2E-09	3.2E-09	3.2E-09
Lugeons	0.022	0.022	0.022	0.022	0.022

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	37.61 to 45.41 m bgs
Analysis Date	November 5, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	3.2E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressures, upper bound estimate of hydraulic conductivity of 3.2×10^{-9} m/s at 65.8 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	65.8
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	72.0
K (m/min)	1.9E-07
K (m/sec)	3.2E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	45.41 to 53.2 m bgs
Test Date	November 4, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	52.43	45.41
Bottom of test interval	61.43	53.2
Static water level	2.77	2.4
Bedrock	5.6	4.85
Midpoint of test interval	56.93	49.3

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39.95	59.92	79.89	59.92	39.95
0	2.272	2.272	2.272	2.274	2.2745
1	2.272	2.272	2.272	2.274	2.2745
2	2.272	2.272	2.272	2.2745	2.2745
3	2.272	2.272	2.2725	2.2745	2.2745
4	2.272	2.272	2.2725	2.2745	2.2745
5	2.272	2.272	2.2725	2.2745	2.2745
6	2.272	2.272	2.2725	2.2745	2.2745
7	2.272	2.272	2.273	2.2745	2.2745
8	2.272	2.272	2.273	2.2745	2.2745
9	2.272	2.272	2.274	2.2745	2.2745
10					

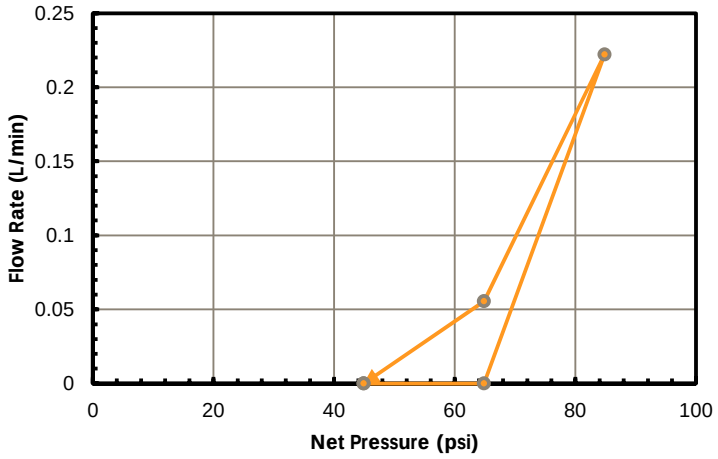
Flow rates during pressure steps:

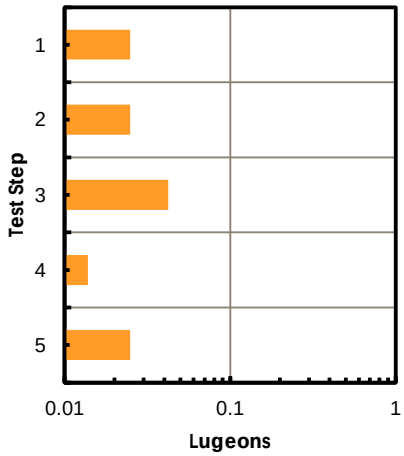
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.50	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.50	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	1.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.22**	**0.06**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	2.50E-05	1.56E-06	0.00E+00
Pnet (psi)	44.9	64.9	84.8	64.9	44.9
K (m/min)	0.0E+00	0.0E+00	3.6E-07	1.2E-07	0.0E+00
K (m/sec)	3.5E-09	3.5E-09	6.0E-09	2.0E-09	3.5E-09
Lugeons	0.025	0.025	0.042	0.014	0.025

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	45.41 to 53.2 m bgs
Analysis Date	November 5, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.03
Hydraulic Conductivity	3.7E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at steps 1, 2, 5 of tested pressures, upper bound estimate of hydraulic conductivity of 3.5x10^{-9} m/s at 59.92 psi for no take intervals used in calculation.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	59.92
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	64.9
K (m/min)	2.1E-07
K (m/sec)	3.5E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	9.03 to 53.2 m bgs
Test Date	November 4, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	51.0

Depths (m bgs)	Measured	Vertical
Top of test interval	10.43	9.03
Bottom of test interval	61.43	53.2
Static water level	2.77	2.4
Bedrock	5.6	4.85
Midpoint of test interval	35.93	31.12

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	2.2745	2.2745	2.2745	2.2745	2.275
1	2.2745	2.2745	2.2745	2.275	2.275
2	2.2745	2.2745	2.2745	2.275	2.275
3	2.2745	2.2745	2.2745	2.275	2.2755
4	2.2745	2.2745	2.2745	2.275	2.2755
5	2.2745	2.2745	2.2745	2.275	2.2755
6	2.2745	2.2745	2.2745	2.275	2.2755
7	2.2745	2.2745	2.2745	2.275	2.2755
8	2.2745	2.2745	2.2745	2.275	2.276
9	2.2745	2.2745	2.2745	2.275	2.276
10					

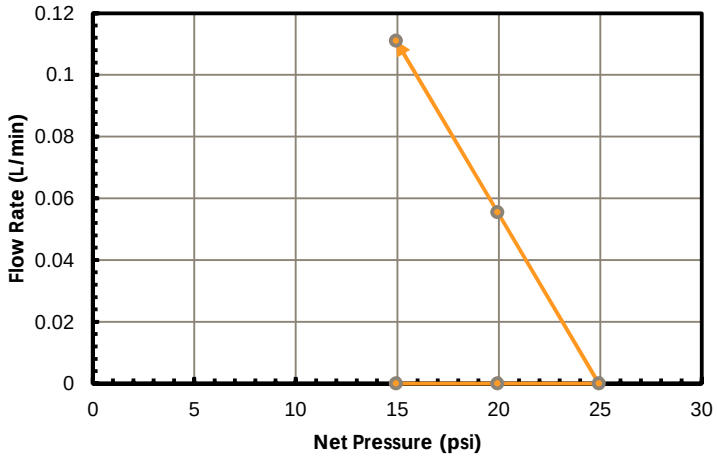
Flow rates during pressure steps:

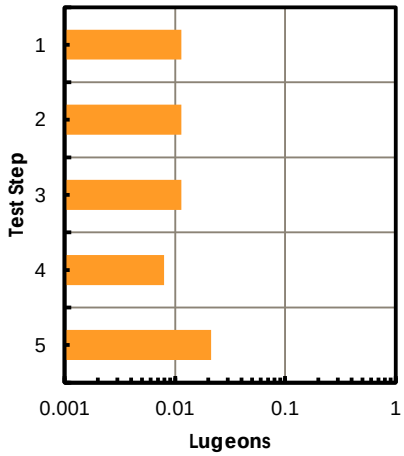
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.50	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.50
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.50
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.06**	**0.11**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	1.56E-06	6.25E-06
Pnet (psi)	14.9	19.9	24.9	19.9	14.9
K (m/min)	0.0E+00	0.0E+00	0.0E+00	8.9E-08	2.4E-07
K (m/sec)	2.1E-09	2.1E-09	2.1E-09	1.5E-09	4.0E-09
Lugeons	0.011	0.011	0.011	0.008	0.021

Project	Touquoy In-Pit Disposal
Borehole	BH21-05
Test Interval	9.03 to 53.2 m bgs
Analysis Date	November 5, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.01
Hydraulic Conductivity	2.1E-09 m/s

Comments

Nitrogen packer system used for testing.

Generally, no take at tested pressures, upper bound estimate of hydraulic conductivity of 2.1×10^{-9} m/s at 20 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	20
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	24.9
K (m/min)	1.3E-07
K (m/sec)	2.1E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	8.8 to 17.05 m bgs
Test Date	October 7, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	8.8	8.8
Bottom of test interval	17.05	17.05
Static water level	0.37	0.37
Bedrock	5.8	5.8
Midpoint of test interval	12.925	12.93

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	9.8	14.7	19.64	14.7	9.8
0	679149	679149	679150	679150	679151
1	679149	679149	679150	679151	679151
2	679149	679149	679150	679151	679151
3	679149	679149	679150	679151	679151
4	679149	679150	679150	679151	679151
5					
6					
7					
8					
9					
10					

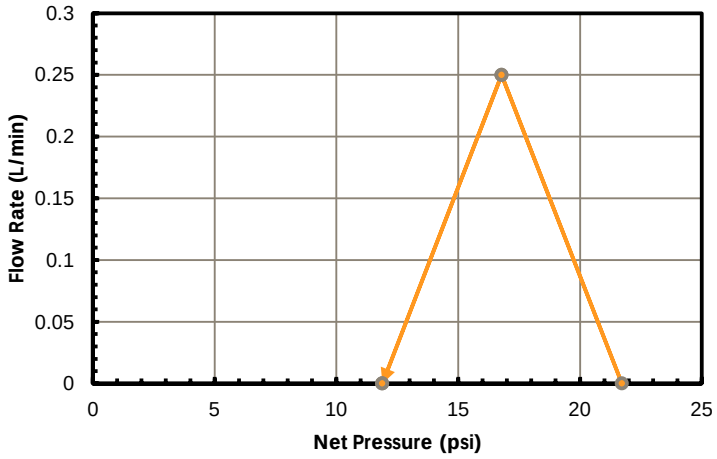
Flow rates during pressure steps:

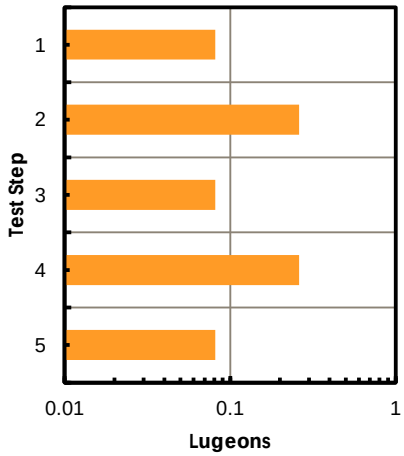
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	1.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	1.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.25**	**0.00**	**0.25**	**0.00**
Pf (psi)	0.00E+00	3.16E-05	0.00E+00	3.16E-05	0.00E+00
Pnet (psi)	11.9	16.8	21.7	16.8	11.9
K (m/min)	0.0E+00	2.2E-06	0.0E+00	2.2E-06	0.0E+00
K (m/sec)	1.1E-08	3.7E-08	1.1E-08	3.7E-08	1.1E-08
Lugeons	0.081	0.262	0.081	0.262	0.081

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	8.8 to 17.05 m bgs
Analysis Date	October 8, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.08
Hydraulic Conductivity	1.1E-08 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 1.1×10^{-8} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	19.64
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	21.7
K (m/min)	6.8E-07
K (m/sec)	1.1E-08
Lugeons	0.081

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	17.8 to 26.05 m bgs
Test Date	October 7, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.011
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	17.8	17.8
Bottom of test interval	26.05	26.05
Static water level	0.36	0.36
Bedrock	5.8	5.8
Midpoint of test interval	21.925	21.93

Flow Meter Volume Readings during pressure steps:

(L)	Gauge Pressure (psi)				
Time (minutes)	16.6	24.8	33.1	24.8	16.6
0	679155	679157	679161	679167	679169
1	679155	679159	679163	679168	679169
2	679155	679160	679164	679168	679169
3	679156	679160	679165	679168	679170
4	679156	679160	679166	679169	679171
5					
6					
7					
8					
9					
10					

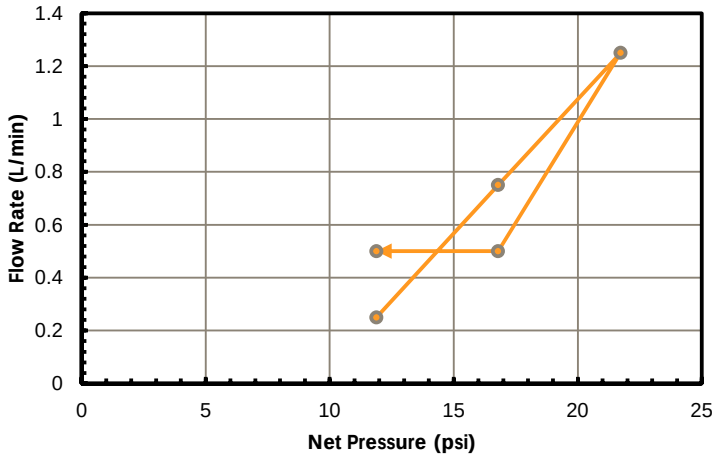
Flow rates during pressure steps:

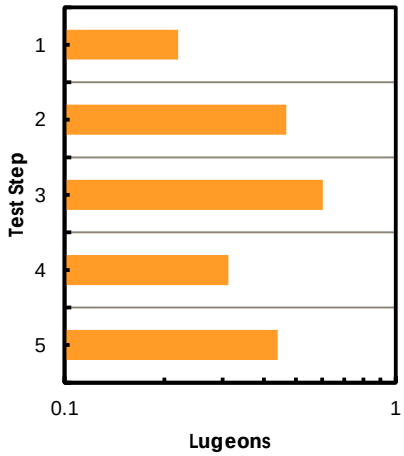
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	2.00	2.00	1.00	0.00
2	0.00	1.00	1.00	0.00	0.00
3	1.00	0.00	1.00	0.00	1.00
4	0.00	0.00	1.00	1.00	1.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.25**	**0.75**	**1.25**	**0.50**	**0.50**
Pf (psi)	3.16E-05	2.85E-04	7.91E-04	1.27E-04	1.27E-04
Pnet (psi)	20.0	28.2	36.5	28.2	20.0
K (m/min)	1.8E-06	3.9E-06	5.1E-06	2.6E-06	3.7E-06
K (m/sec)	3.1E-08	6.6E-08	8.4E-08	4.4E-08	6.2E-08
Lugeons	0.22	0.47	0.60	0.31	0.44

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	17.8 to 26.05 m bgs
Analysis Date	October 8, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.41
Hydraulic Conductivity	5.7E-08 m/s

Comments

Nitrogen packer system used for testing

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	26.08 to 35.05 m bgs
Test Date	October 8, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.981
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	26.08	26.08
Bottom of test interval	35.05	35.05
Static water level	0.38	0.38
Bedrock	5.8	5.8
Midpoint of test interval	30.565	30.57

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	24	36	47.9	36	24
0	0.618	0.618	0.618	0.619	0.62
1	0.618	0.618	0.619	0.619	0.62
2	0.618	0.618	0.619	0.619	0.62
3	0.618	0.618	0.619	0.62	0.62
4	0.618	0.618	0.619	0.62	0.62
5					
6					
7					
8					
9					
10					

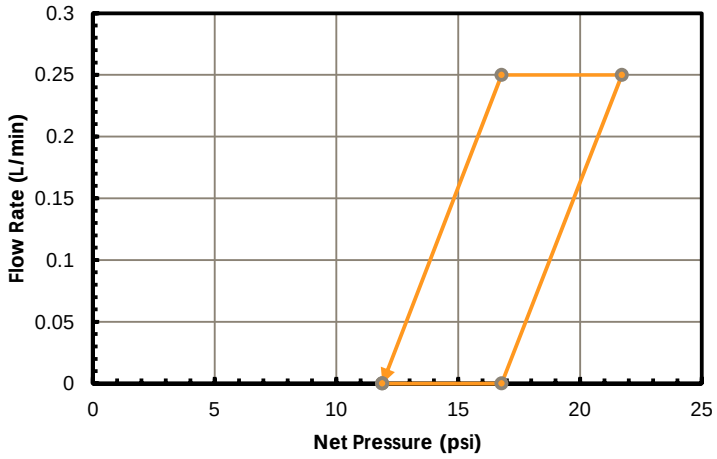
Flow rates during pressure steps:

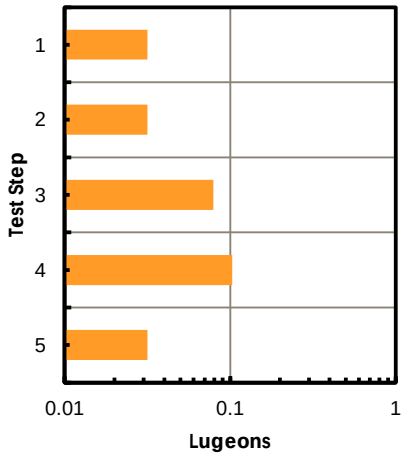
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	1.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	1.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.25**	**0.25**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	3.16E-05	3.16E-05	0.00E+00
Pnet (psi)	27.4	39.4	51.3	39.4	27.4
K (m/min)	0.0E+00	0.0E+00	6.7E-07	8.8E-07	0.0E+00
K (m/sec)	4.5E-09	4.5E-09	1.1E-08	1.5E-08	4.5E-09
Lugeons	0.032	0.032	0.079	0.103	0.032

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	26.08 to 35.05 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	4.5E-09 m/s

Comments

Nitrogen packer system used for testing.

Limited flow interpreted as no take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 4.5×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	47.9
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	51.3
K (m/min)	2.7E-07
K (m/sec)	4.5E-09
Lugeons	0.032

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	35.8 to 44.05 m bgs
Test Date	October 9, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.829
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	35.8	35.8
Bottom of test interval	44.05	44.05
Static water level	1.60	1.6
Bedrock	5.8	5.8
Midpoint of test interval	39.925	39.93

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	31	46	62	46	31
0	0.623	0.636	0.661	0.687	0.705
1	0.625	0.6385	0.664	0.689	0.706
2	0.627	0.641	0.667	0.691	0.707
3	0.629	0.644	0.669	0.693	0.708
4	0.631	0.6465	0.6715	0.695	0.709
5		0.649	0.6745	0.6965	
6			0.6775	0.698	
7			0.68	0.7	
8				0.702	
9					
10					

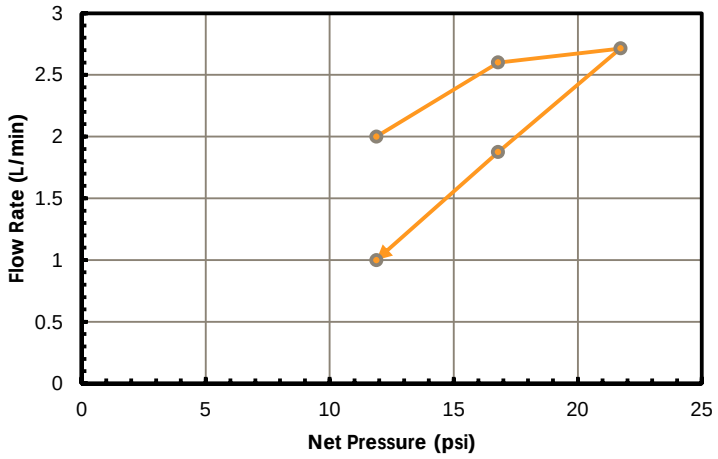
Flow rates during pressure steps:

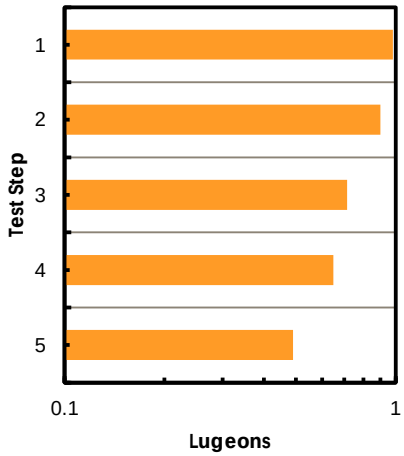
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	2.00	2.50	3.00	2.00	1.00
2	2.00	2.50	3.00	2.00	1.00
3	2.00	3.00	2.00	2.00	1.00
4	2.00	2.50	2.50	2.00	1.00
5		2.50	3.00	1.50	
6			3.00	1.50	
7			2.50	2.00	
8				2.00	
9					
10					
Average Q (L/min)	**2.00**	**2.60**	**2.71**	**1.87**	**1.00**
Pf (psi)	2.03E-03	3.42E-03	3.73E-03	1.78E-03	5.06E-04
Pnet (psi)	35.9	50.9	66.9	50.9	35.9
K (m/min)	8.2E-06	7.6E-06	6.0E-06	5.4E-06	4.1E-06
K (m/sec)	1.4E-07	1.3E-07	1.0E-07	9.1E-08	6.9E-08
Lugeons	1.0	0.90	0.71	0.65	0.49

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	35.8 to 44.05 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Void Filling
Lugeon	0.49
Hydraulic Conductivity	6.9E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	44.8 to 53.05 m bgs
Test Date	October 9, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.829
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	44.8	44.8
Bottom of test interval	53.05	53.05
Static water level	1.60	1.6
Bedrock	5.8	5.8
Midpoint of test interval	48.925	48.93

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39	58	77	58	39
0	0.713	0.719	0.7245	0.727	0.73
1	0.714	0.7195	0.725	0.7275	0.73
2	0.7145	0.72	0.7255	0.7275	0.73
3	0.7155	0.721	0.726	0.728	0.7305
4	0.716	0.7215	0.7265	0.728	0.731
5	0.7165	0.722		0.7285	0.731
6	0.717			0.729	0.731
7				0.729	
8					
9					
10					

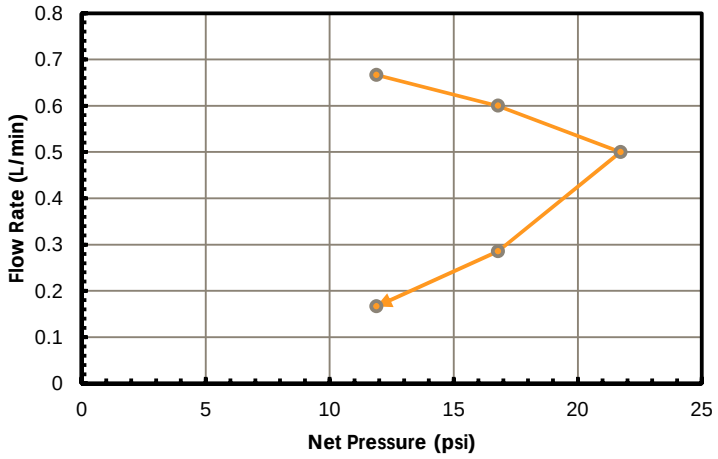
Flow rates during pressure steps:

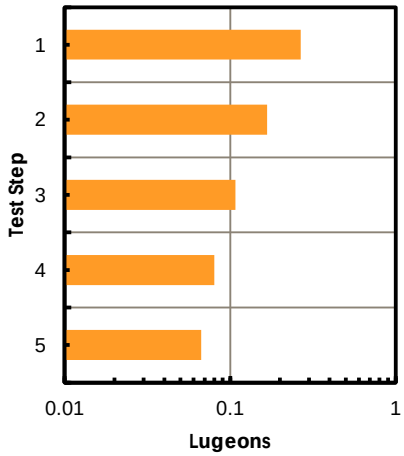
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	0.50	0.50	0.50	0.00
2	0.50	0.50	0.50	0.00	0.00
3	1.00	1.00	0.50	0.50	0.50
4	0.50	0.50	0.50	0.00	0.50
5	0.50	0.50		0.50	0.00
6	0.50			0.50	0.00
7				0.00	
8					
9					
10					
Average Q (L/min)	**0.67**	**0.60**	**0.50**	**0.29**	**0.17**
Pf (psi)	2.25E-04	1.82E-04	1.27E-04	4.13E-05	1.41E-05
Pnet (psi)	43.9	62.9	81.9	62.9	43.9
K (m/min)	2.2E-06	1.4E-06	9.0E-07	6.7E-07	5.6E-07
K (m/sec)	3.7E-08	2.4E-08	1.5E-08	1.1E-08	9.4E-09
Lugeons	0.27	0.17	0.11	0.08	0.07

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	44.8 to 53.05 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Void Filling
Lugeon	0.07
Hydraulic Conductivity	9.4E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	53.8 to 60.05 m bgs
Test Date	October 9, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.829
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	6.3

Depths (m bgs)	Measured	Vertical
Top of test interval	53.8	53.8
Bottom of test interval	60.05	60.05
Static water level	1.60	1.6
Bedrock	5.8	5.8
Midpoint of test interval	56.925	56.93

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	46	68	91	68	46
0	0.7555	0.756	0.756	0.756	0.756
1	0.7555	0.756	0.756	0.756	0.756
2	0.7555	0.756	0.756	0.756	0.756
3	0.7555	0.756	0.756	0.756	0.756
4	0.7555	0.756	0.756	0.756	0.756
5					
6					
7					
8					
9					
10					

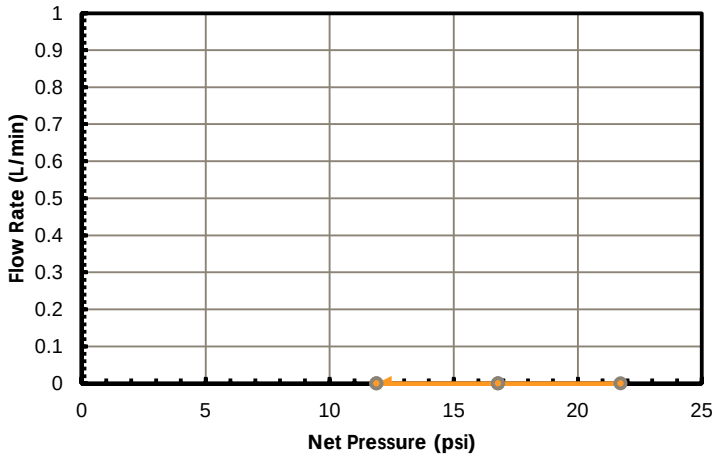
Flow rates during pressure steps:

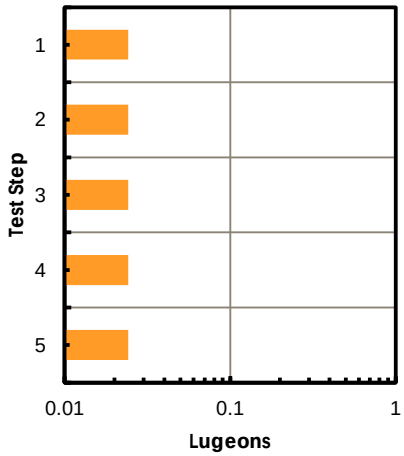
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	50.9	72.9	95.9	72.9	50.9
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	3.2E-09	3.2E-09	3.2E-09	3.2E-09	3.2E-09
Lugeons	0.024	0.024	0.024	0.024	0.024

Project	Touquoy In-Pit Disposal
Borehole	BH21-06
Test Interval	53.8 to 60.05 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	3.2E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 3.2×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	91
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	95.9
K (m/min)	1.9E-07
K (m/sec)	3.2E-09
Lugeons	0.024

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	8.23 to 14.55 m bgs
Test Date	September 26, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.965
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	7.3

Depths (m bgs)	Measured	Vertical
Top of test interval	9.5	8.23
Bottom of test interval	16.8	14.55
Static water level	1.96	1.69
Bedrock	8.61	7.46
Midpoint of test interval	13.15	11.39

Flow Meter Volume Readings during pressure steps:

(m³)	Gauge Pressure (psi)				
Time (minutes)	9	13.5	18	13.5	9
0	0.028	0.039	0.048	0.056	0.062
1	0.029	0.04	0.049	0.057	0.0625
2	0.0295	0.0415	0.05	0.0575	0.063
3	0.03	0.0415	0.051	0.058	0.0635
4	0.031	0.042	0.052	0.059	0.064
5	0.0315	0.043	0.053	0.06	
6	0.032	0.044		0.0605	
7				0.061	
8					
9					
10					

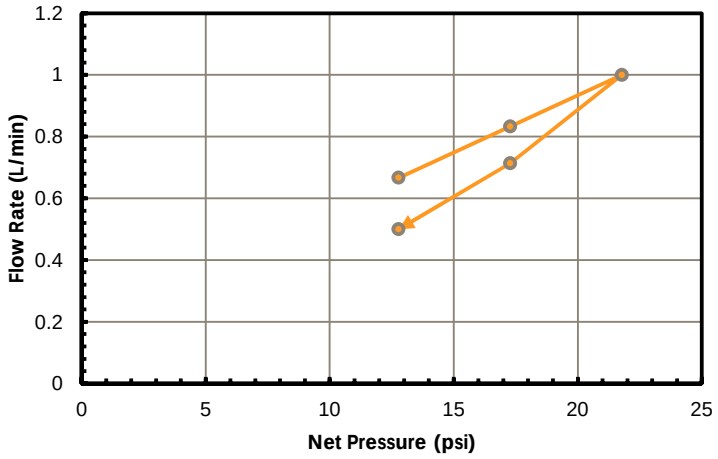
Flow rates during pressure steps:

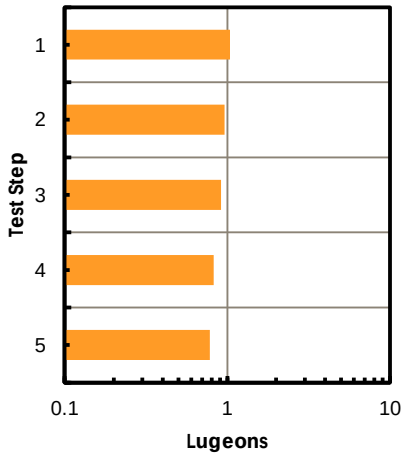
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.00	1.00	1.00	0.50
2	0.50	1.50	1.00	0.50	0.50
3	0.50	0.00	1.00	0.50	0.50
4	1.00	0.50	1.00	1.00	0.50
5	0.50	1.00	1.00	1.00	
6	0.50	1.00		0.50	
7				0.50	
8					
9					
10					
Average Q (L/min)	**0.67**	**0.83**	**1.00**	**0.71**	**0.50**
Pf (psi)	2.25E-04	3.52E-04	5.06E-04	2.58E-04	1.27E-04
Pnet (psi)	12.8	17.3	21.8	17.3	12.8
K (m/min)	8.5E-06	7.9E-06	7.5E-06	6.7E-06	6.4E-06
K (m/sec)	1.4E-07	1.3E-07	1.2E-07	1.1E-07	1.1E-07
Lugeons	1.04	0.96	0.91	0.82	0.78

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	8.23 to 14.55 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.90
Hydraulic Conductivity	1.2E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	15.11 to 22.34 m bgs
Test Date	September 26, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.965
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.4

Depths (m bgs)	Measured	Vertical
Top of test interval	17.45	15.11
Bottom of test interval	25.8	22.34
Static water level	1.96	1.69
Bedrock	8.61	7.46
Midpoint of test interval	21.625	18.73

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	15	23	30	23	15
0	0.071	0.084	0.098	0.109	0.112
1	0.072	0.0855	0.099	0.1095	0.1125
2	0.0735	0.087	0.1	0.11	0.113
3	0.075	0.0885	0.1015	0.1105	0.113
4	0.076	0.0895	0.1025	0.111	0.1135
5	0.077	0.091	0.104		0.1135
6			0.105		
7					
8					
9					
10					

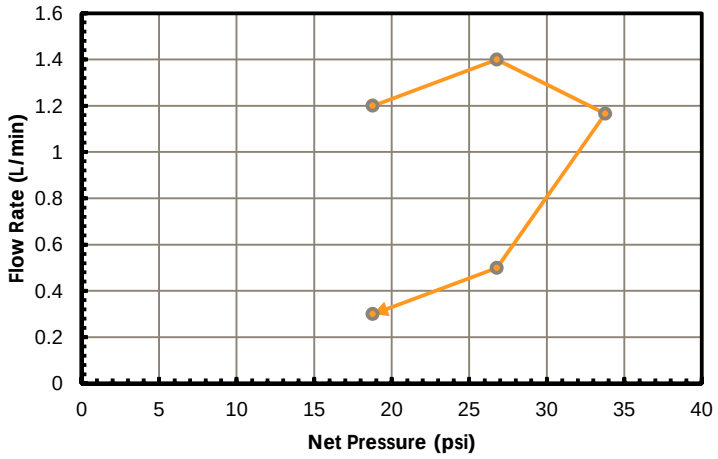
Flow rates during pressure steps:

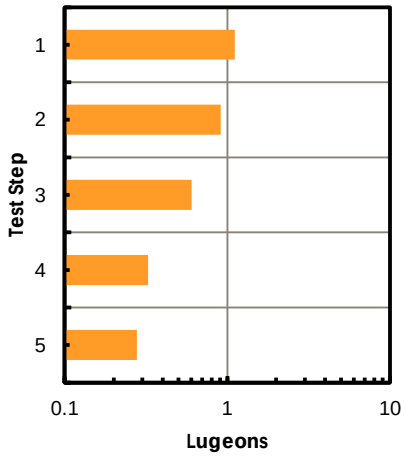
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.50	1.00	0.50	0.50
2	1.50	1.50	1.00	0.50	0.50
3	1.50	1.50	1.50	0.50	0.00
4	1.00	1.00	1.00	0.50	0.50
5	1.00	1.50	1.50		0.00
6			1.00		
7					
8					
9					
10					
Average Q (L/min)	**1.20**	**1.40**	**1.17**	**0.50**	**0.30**
Pf (psi)	7.29E-04	9.92E-04	6.89E-04	1.27E-04	4.56E-05
Pnet (psi)	18.8	26.8	33.8	26.8	18.8
K (m/min)	9.4E-06	7.7E-06	5.1E-06	2.7E-06	2.3E-06
K (m/sec)	1.6E-07	1.3E-07	8.4E-08	4.6E-08	3.9E-08
Lugeons	1.11	0.91	0.60	0.32	0.28

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	15.11 to 22.34 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Void Filling
Lugeon	0.28
Hydraulic Conductivity	3.9E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	22.91 to 30.14 m bgs
Test Date	September 26, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.965
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.4

Depths (m bgs)	Measured	Vertical
Top of test interval	26.45	22.91
Bottom of test interval	34.8	30.14
Static water level	1.96	1.69
Bedrock	8.61	7.46
Midpoint of test interval	30.625	26.52

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	21	31.5	42	31.5	21
0	0.151	0.156	0.162	0.169	0.171
1	0.1515	0.157	0.163	0.169	0.171
2	0.152	0.158	0.164	0.1695	0.171
3	0.153	0.1585	0.165	0.17	0.171
4	0.153	0.1595	0.1655	0.1705	0.171
5	0.1535	0.16	0.166		
6	0.154	0.1605	0.167		
7			0.168		
8					
9					
10					

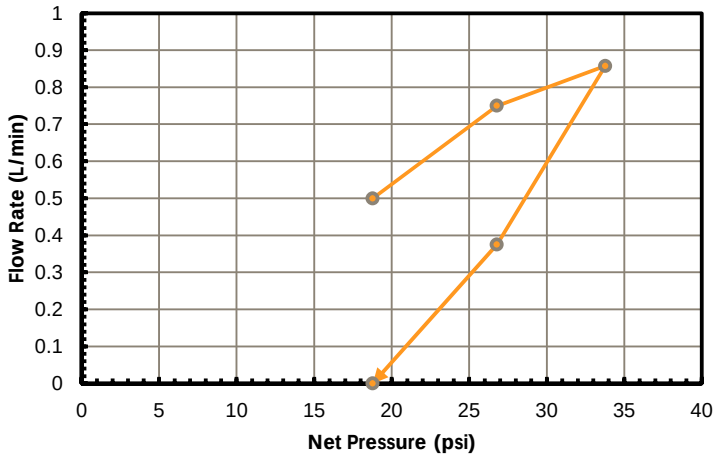
Flow rates during pressure steps:

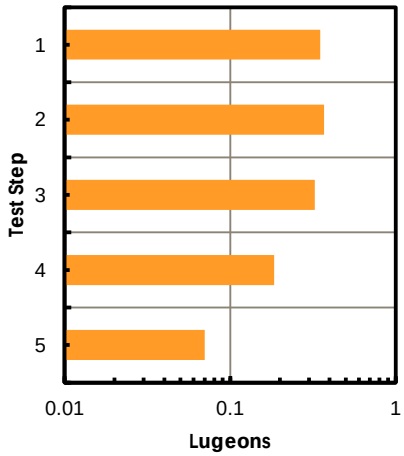
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	1.00	1.00	0.00	0.00
2	0.50	1.00	1.00	0.50	0.00
3	1.00	0.50	1.00	0.50	0.00
4	0.00	1.00	0.50	0.50	0.00
5	0.50	0.50	0.50		
6	0.50	0.50	1.00		
7			1.00		
8					
9					
10					
Average Q (L/min)	**0.50**	**0.75**	**0.86**	**0.38**	**0.00**
Pf (psi)	1.27E-04	2.85E-04	3.72E-04	7.12E-05	0.00E+00
Pnet (psi)	24.8	35.3	45.8	35.3	24.8
K (m/min)	3.0E-06	3.1E-06	2.7E-06	1.6E-06	0.0E+00
K (m/sec)	4.9E-08	5.2E-08	4.6E-08	2.6E-08	9.8E-09
Lugeons	0.35	0.37	0.33	0.18	0.07

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	22.91 to 30.14 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.260
Hydraulic Conductivity	3.6E-08 m/s

Comments

Nitrogen packer system used for testing.

No take during fifth pressure step.

Upper bound hydraulic conductivity estimate of 9.8×10^{-9} m/s assuming no take at 21 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	21
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	24.8
K (m/min)	5.9E-07
K (m/sec)	9.8E-09
Lugeons	0.1

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	30.66 to 35.33 m bgs
Test Date	September 26, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.965
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	5.4

Depths (m bgs)	Measured	Vertical
Top of test interval	35.4	30.66
Bottom of test interval	40.8	35.33
Static water level	1.96	1.69
Bedrock	8.61	7.46
Midpoint of test interval	38.1	33

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	26	39	52	39	26
0	0.171	0.174	0.178	0.181	0.183
1	0.171	0.174	0.1785	0.181	0.183
2	0.171	0.174	0.179	0.181	0.183
3	0.171	0.175	0.1795	0.182	0.183
4	0.171	0.175	0.18	0.182	0.183
5		0.175			
6					
7					
8					
9					
10					

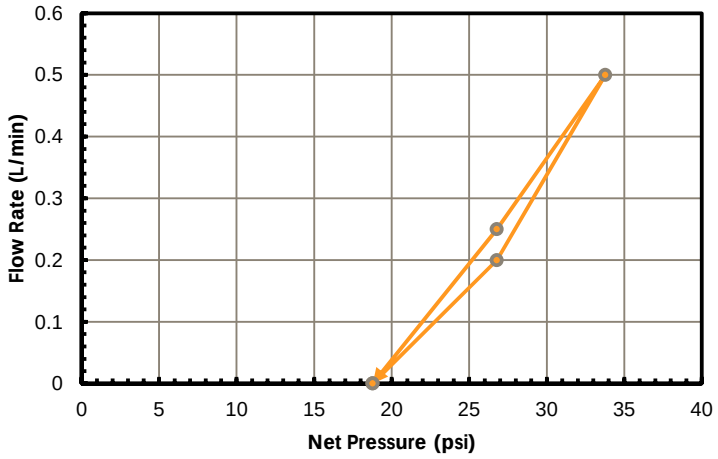
Flow rates during pressure steps:

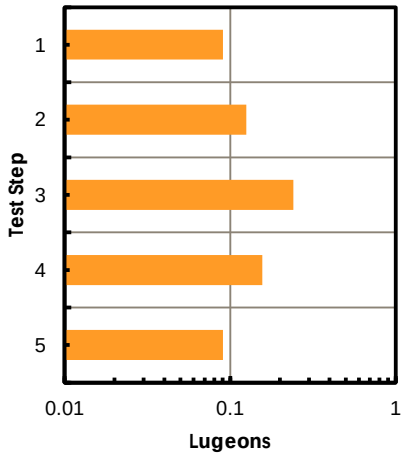
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.00	0.50	0.00	0.00
3	0.00	1.00	0.50	1.00	0.00
4	0.00	0.00	0.50	0.00	0.00
5		0.00			
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.20**	**0.50**	**0.25**	**0.00**
Pf (psi)	0.00E+00	2.03E-05	1.27E-04	3.16E-05	0.00E+00
Pnet (psi)	29.8	42.8	55.8	42.8	29.8
K (m/min)	0.0E+00	9.7E-07	1.9E-06	1.2E-06	0.0E+00
K (m/sec)	1.2E-08	1.6E-08	3.1E-08	2.0E-08	1.2E-08
Lugeons	0.09	0.13	0.24	0.16	0.09

Project	Touquoy In-Pit Disposal
Borehole	BH21-07
Test Interval	30.66 to 35.33 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.14
Hydraulic Conductivity	1.8E-08 m/s

Comments

Nitrogen packer system used for testing.

No take on first and fifth pressure step. Estimated upper bound hydraulic conductivity of 1.2×10^{-8} m/s assuming no take at 26 psi used in calculations.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	26
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	29.8
K (m/min)	7.0E-07
K (m/sec)	1.2E-08
Lugeons	0.1

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	3.9 to 11.69 m bgs
Test Date	October 17, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.134
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	4.5	3.9
Bottom of test interval	13.5	11.69
Static water level	1.89	1.64
Bedrock	2.52	2.18
Midpoint of test interval	9	7.79

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	5.14	7.8	10.28	7.8	5.14
0	0.809	0.8115	0.8165	0.825	0.8325
1	0.809	0.812	0.817	0.8255	0.833
2	0.8095	0.812	0.818	0.826	0.833
3	0.8095	0.8125	0.8185	0.8265	0.833
4	0.8095	0.813	0.819	0.8275	0.8335
5	0.81	0.814	0.82	0.828	0.834
6	0.811	0.8145	0.8215	0.8285	0.8345
7	0.8115	0.8145	0.822	0.8295	0.8345
8	0.8115	0.815	0.823	0.83	0.835
9	0.8115	0.816	0.8245	0.8315	0.8355
10					

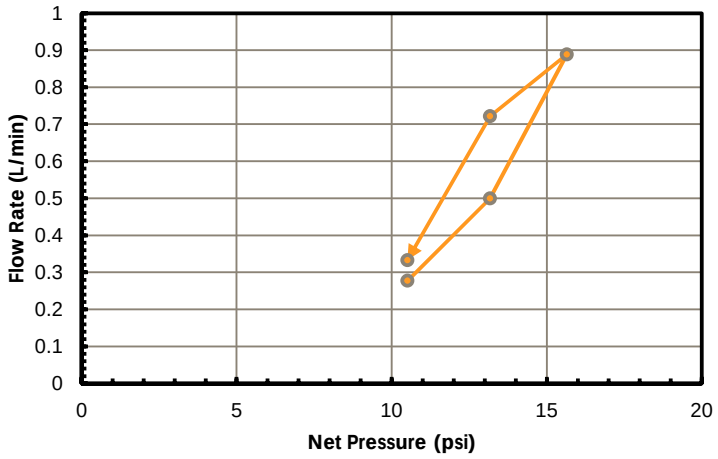
Flow rates during pressure steps:

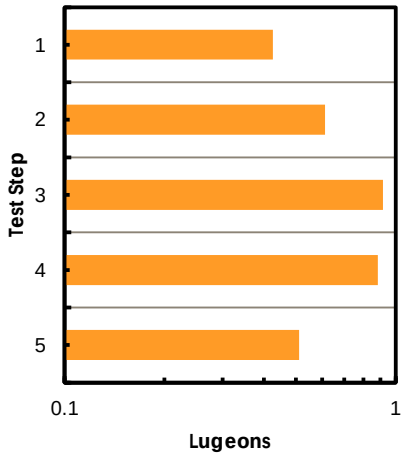
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.50	0.50
2	0.50	0.00	1.00	0.50	0.00
3	0.00	0.50	0.50	0.50	0.00
4	0.00	0.50	0.50	1.00	0.50
5	0.50	1.00	1.00	0.50	0.50
6	1.00	0.50	1.50	0.50	0.50
7	0.50	0.00	0.50	1.00	0.00
8	0.00	0.50	1.00	0.50	0.50
9	0.00	1.00	1.50	1.50	0.50
10					
Average Q (L/min)	**0.28**	**0.50**	**0.89**	**0.72**	**0.33**
Pf (psi)	3.91E-05	1.27E-04	4.00E-04	2.64E-04	5.63E-05
Pnet (psi)	10.5	13.2	15.7	13.2	10.5
K (m/min)	3.6E-06	5.2E-06	7.8E-06	7.5E-06	4.4E-06
K (m/sec)	6.1E-08	8.7E-08	1.3E-07	1.3E-07	7.3E-08
Lugeons	0.43	0.61	0.92	0.88	0.51

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	3.9 to 11.69 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Dilation
Lugeon	0.61
Hydraulic Conductivity	8.7E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	5.4
K (m/min)	2.6E-06
K (m/sec)	4.3E-08
Lugeons	0.3

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	12.34 to 19.49 m bgs
Test Date	October 18, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.134
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	14.25	12.34
Bottom of test interval	22.5	19.49
Static water level	1.90	1.64
Bedrock	2.52	2.18
Midpoint of test interval	18.375	15.91

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	11.55	17.33	23.1	17.33	11.55
0	0.857	0.857	0.857	0.857	0.857
1	0.857	0.857	0.857	0.857	0.857
2	0.857	0.857	0.857	0.857	0.857
3	0.857	0.857	0.857	0.857	0.857
4	0.857	0.857	0.857	0.857	0.857
5	0.857	0.857	0.857	0.857	0.857
6	0.857	0.857	0.857	0.857	0.857
7	0.857	0.857	0.857	0.857	0.857
8	0.857	0.857	0.857	0.857	0.857
9	0.857	0.857	0.857	0.857	0.857
10					

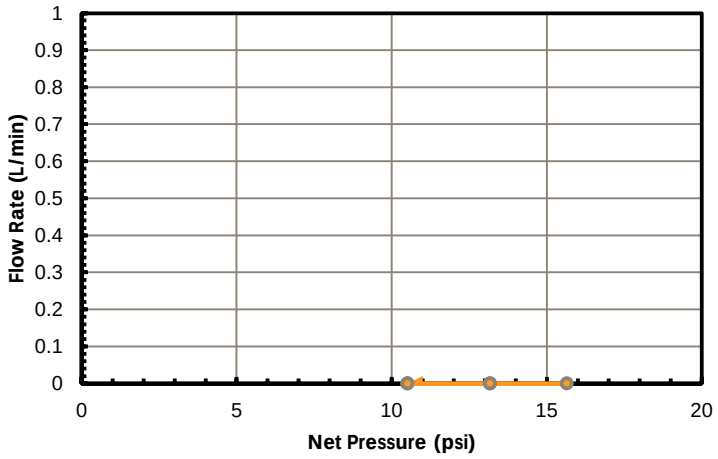
Flow rates during pressure steps:

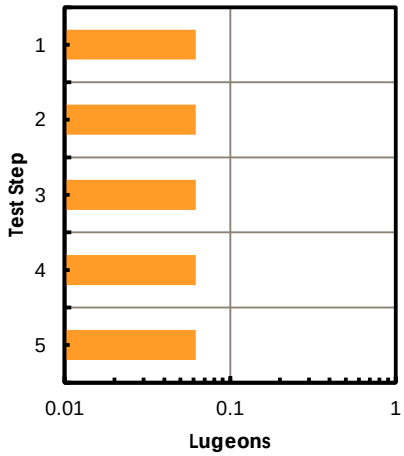
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pnet (psi)	16.9	22.7	28.5	22.7	16.9
K (m/min)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
K (m/sec)	8.7E-09	8.7E-09	8.7E-09	8.7E-09	8.7E-09
Lugeons	0.062	0.062	0.062	0.062	0.062

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	12.34 to 19.49 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.06
Hydraulic Conductivity	8.7E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 8.7×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	23.1
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	28.5
K (m/min)	5.2E-07
K (m/sec)	8.7E-09
Lugeons	0.062

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	20.14 to 27.28 m bgs
Test Date	October 18, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.134
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	23.25	20.14
Bottom of test interval	31.5	27.28
Static water level	1.90	1.64
Bedrock	2.52	2.18
Midpoint of test interval	27.375	23.71

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	17.9	26.9	35.86	26.9	17.9
0	0.857	0.858	0.8605	0.8645	0.867
1	0.857	0.8585	0.861	0.865	0.867
2	0.857	0.8585	0.8615	0.865	0.8675
3	0.8575	0.859	0.862	0.865	0.8675
4	0.8575	0.859	0.8625	0.8655	0.868
5	0.8575	0.8595	0.863	0.8655	0.868
6	0.8575	0.8595	0.8635	0.866	0.8685
7	0.8575	0.86	0.864	0.8665	0.8685
8	0.8575	0.86	0.8645	0.8665	0.8685
9	0.858	0.8605	0.8645	0.867	0.869
10					

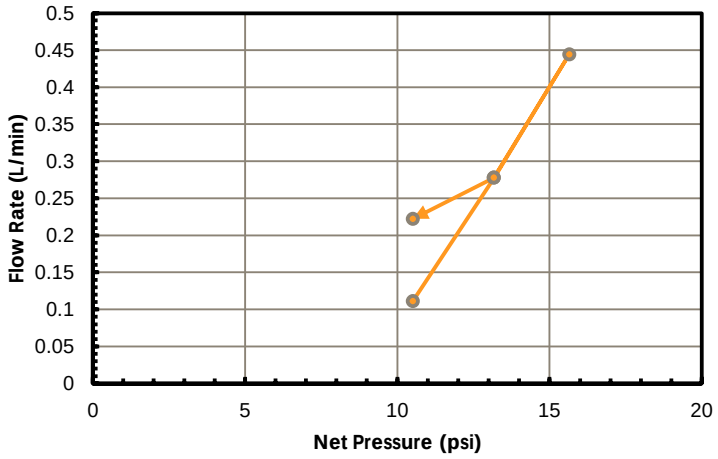
Flow rates during pressure steps:

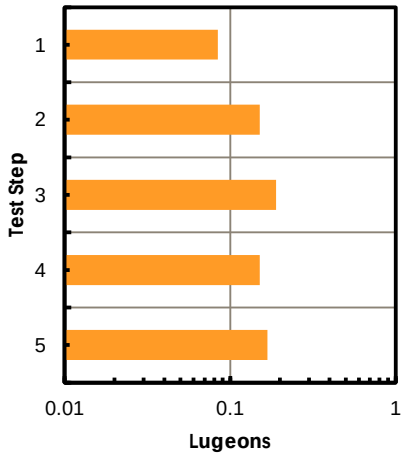
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.50	0.00
2	0.00	0.00	0.50	0.00	0.50
3	0.50	0.50	0.50	0.00	0.00
4	0.00	0.00	0.50	0.50	0.50
5	0.00	0.50	0.50	0.00	0.00
6	0.00	0.00	0.50	0.50	0.50
7	0.00	0.50	0.50	0.50	0.00
8	0.00	0.00	0.50	0.00	0.00
9	0.50	0.50	0.00	0.50	0.50
10					
Average Q (L/min)	**0.11**	**0.28**	**0.44**	**0.28**	**0.22**
Pf (psi)	6.25E-06	3.91E-05	1.00E-04	3.91E-05	2.50E-05
Pnet (psi)	23.3	32.3	41.2	32.3	23.3
K (m/min)	7.1E-07	1.3E-06	1.6E-06	1.3E-06	1.4E-06
K (m/sec)	1.2E-08	2.1E-08	2.7E-08	2.1E-08	2.4E-08
Lugeons	0.08	0.15	0.19	0.15	0.17

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	20.14 to 27.28 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.15
Hydraulic Conductivity	2.1E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	5.4
K (m/min)	2.8E-06
K (m/sec)	4.6E-08
Lugeons	0.3

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	27.28 to 35.07 m bgs
Test Date	October 19, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.134
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	31.5	27.28
Bottom of test interval	40.5	35.07
Static water level	1.90	1.64
Bedrock	2.52	2.18
Midpoint of test interval	36	31.18

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	24.3	36.44	48.59	36.44	24.3
0	0.8725	0.874	0.8755	0.878	0.879
1	0.8725	0.874	0.876	0.878	0.879
2	0.873	0.874	0.876	0.878	0.879
3	0.873	0.8745	0.876	0.878	0.879
4	0.873	0.8745	0.8765	0.878	0.879
5	0.873	0.8745	0.877	0.8785	0.8795
6	0.873	0.875	0.877	0.8785	0.8795
7	0.873	0.875	0.877	0.8785	0.8795
8	0.873	0.875	0.8775	0.879	0.8795
9	0.8735	0.875	0.8775	0.879	0.88
10					

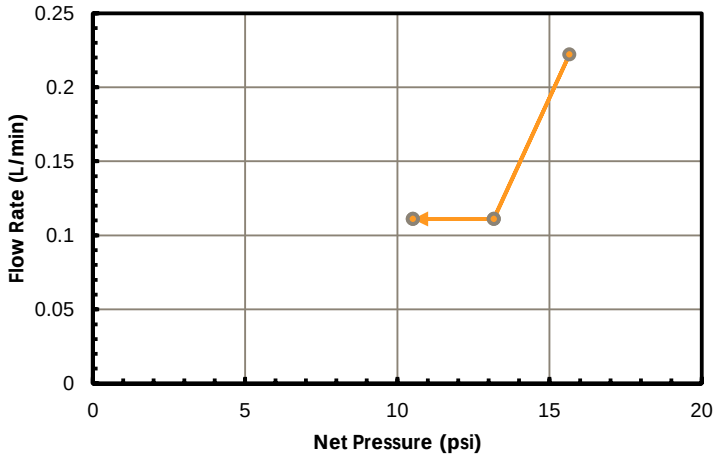
Flow rates during pressure steps:

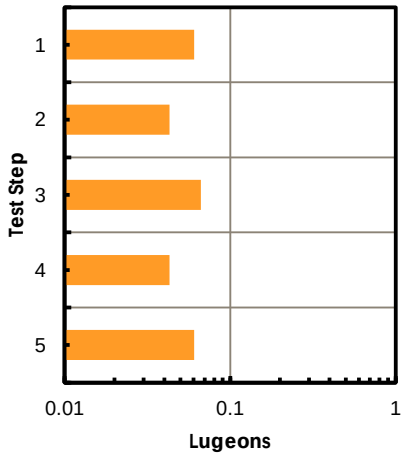
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.50	0.00	0.00	0.00	0.00
3	0.00	0.50	0.00	0.00	0.00
4	0.00	0.00	0.50	0.00	0.00
5	0.00	0.00	0.50	0.50	0.50
6	0.00	0.50	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.50	0.50	0.00
9	0.50	0.00	0.00	0.00	0.50
10					
Average Q (L/min)	**0.11**	**0.11**	**0.22**	**0.11**	**0.11**
Pf (psi)	6.25E-06	6.25E-06	2.50E-05	6.25E-06	6.25E-06
Pnet (psi)	29.7	41.8	54.0	41.8	29.7
K (m/min)	5.2E-07	3.7E-07	5.7E-07	3.7E-07	5.2E-07
K (m/sec)	8.6E-09	6.1E-09	9.4E-09	6.1E-09	8.6E-09
Lugeons	0.060	0.043	0.066	0.043	0.060

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	27.28 to 35.07 m bgs
Analysis Date	October 20, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Dilation
Lugeon	0.05
Hydraulic Conductivity	7.3E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	5.4
K (m/min)	2.6E-06
K (m/sec)	4.3E-08
Lugeons	0.3

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	8.66 to 34.64 m bgs
Test Date	October 19, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	2.134
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	30.0

Depths (m bgs)	Measured	Vertical
Top of test interval	10	8.66
Bottom of test interval	40	34.64
Static water level	1.90	1.64
Bedrock	2.52	2.18
Midpoint of test interval	25	21.65

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	0.88	0.8815	0.8835	0.887	0.888
1	0.88	0.8815	0.884	0.887	0.888
2	0.88	0.882	0.884	0.887	0.888
3	0.88	0.8825	0.8845	0.8875	0.8885
4	0.88	0.883	0.8845	0.8875	0.8885
5	0.8805	0.883	0.885	0.8875	0.8885
6	0.8805	0.883	0.885	0.888	0.889
7	0.8805	0.883	0.885	0.888	0.889
8	0.881	0.8835	0.886	0.888	0.889
9	0.8815	0.8835	0.8865	0.888	0.889
10					

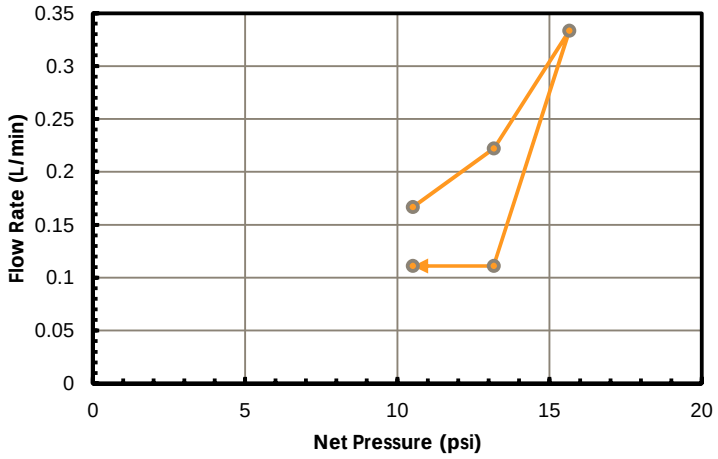
Flow rates during pressure steps:

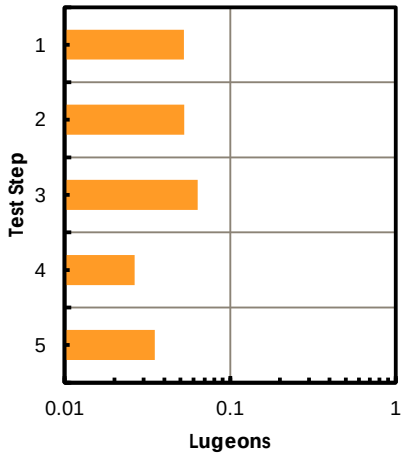
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.50	0.00	0.00	0.00
3	0.00	0.50	0.50	0.50	0.50
4	0.00	0.50	0.00	0.00	0.00
5	0.50	0.00	0.50	0.00	0.00
6	0.00	0.00	0.00	0.50	0.50
7	0.00	0.00	0.00	0.00	0.00
8	0.50	0.50	1.00	0.00	0.00
9	0.50	0.00	0.50	0.00	0.00
10					
Average Q (L/min)	**0.17**	**0.22**	**0.33**	**0.11**	**0.11**
Pf (psi)	1.41E-05	2.50E-05	5.63E-05	6.25E-06	6.25E-06
Pnet (psi)	15.4	20.4	25.4	20.4	15.4
K (m/min)	5.5E-07	5.5E-07	6.6E-07	2.7E-07	3.6E-07
K (m/sec)	9.1E-09	9.2E-09	1.1E-08	4.6E-09	6.1E-09
Lugeons	0.052	0.053	0.064	0.026	0.035

Project	Touquoy In-Pit Disposal
Borehole	BH21-08
Test Interval	8.66 to 34.64 m bgs
Analysis Date	October 20, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.05
Hydraulic Conductivity	8.0E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	5.4
K (m/min)	9.4E-07
K (m/sec)	1.6E-08
Lugeons	0.1

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	9.2 to 16.99 m bgs
Test Date	November 16, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	10.62	9.2
Bottom of test interval	19.62	16.99
Static water level	4.48	3.88
Bedrock	7.3	6.32
Midpoint of test interval	15.12	13.09

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10.22	15.33	20.44	15.33	10.22
0	2.784	2.7955	2.809	2.824	2.8385
1	2.785	2.797	2.811	2.826	2.839
2	2.786	2.798	2.8125	2.8275	2.8395
3	2.787	2.799	2.814	2.829	2.84
4	2.788	2.8005	2.816	2.83	2.841
5	2.789	2.8015	2.817	2.8315	2.842
6	2.79	2.803	2.818	2.833	2.8435
7	2.791	2.804	2.8195	2.8345	2.845
8	2.792	2.805	2.821	2.8355	2.847
9	2.793	2.8065	2.822	2.837	2.848
10	2.794	2.808	2.8235	2.838	2.8505

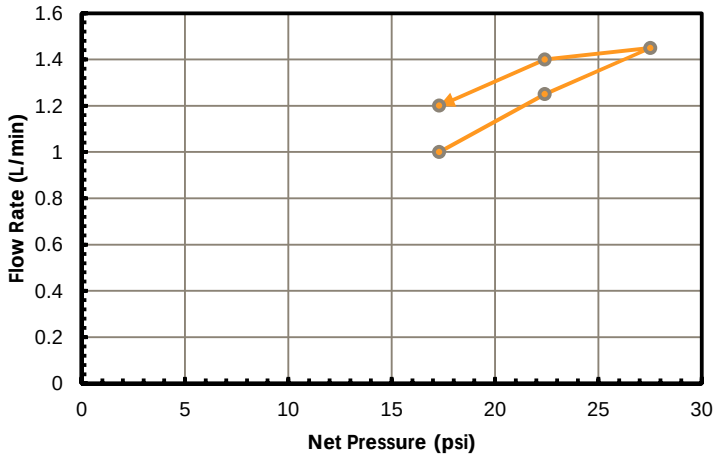
Flow rates during pressure steps:

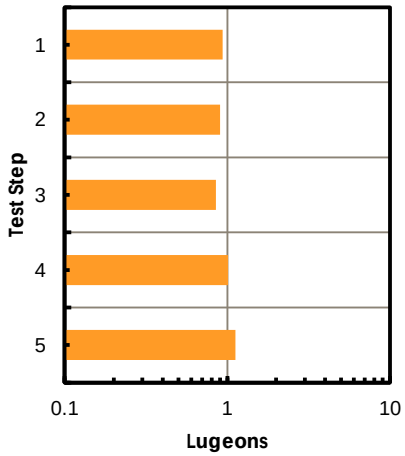
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.50	2.00	2.00	0.50
2	1.00	1.00	1.50	1.50	0.50
3	1.00	1.00	1.50	1.50	0.50
4	1.00	1.50	2.00	1.00	1.00
5	1.00	1.00	1.00	1.50	1.00
6	1.00	1.50	1.00	1.50	1.50
7	1.00	1.00	1.50	1.50	1.50
8	1.00	1.00	1.50	1.00	2.00
9	1.00	1.50	1.00	1.50	1.00
10	1.00	1.50	1.50	1.00	2.50
Average Q (L/min)	**1.00**	**1.25**	**1.45**	**1.40**	**1.20**
Pf (psi)	5.06E-04	7.91E-04	1.06E-03	9.92E-04	7.29E-04
Pnet (psi)	17.3	22.4	27.5	22.4	17.3
K (m/min)	8.0E-06	7.7E-06	7.3E-06	8.6E-06	9.5E-06
K (m/sec)	1.3E-07	1.3E-07	1.2E-07	1.4E-07	1.6E-07
Lugeons	0.93	0.90	0.85	1.01	1.12

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	9.2 to 16.99 m bgs
Analysis Date	November 18, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.96
Hydraulic Conductivity	1.4E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	16.99 to 24.79 m bgs
Test Date	November 16, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	19.62	16.99
Bottom of test interval	28.62	24.79
Static water level	4.48	3.88
Bedrock	7.3	6.32
Midpoint of test interval	24.12	20.89

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	16.6	24.9	33.23	24.9	16.6
0	2.8475	2.8475	2.849	2.851	2.852
1	2.8475	2.8475	2.849	2.851	2.852
2	2.8475	2.848	2.8495	2.851	2.852
3	2.8475	2.848	2.8495	2.851	2.852
4	2.8475	2.8485	2.8495	2.851	2.852
5	2.8475	2.8485	2.85	2.851	2.852
6	2.8475	2.849	2.85	2.8515	2.852
7	2.8475	2.849	2.85	2.8515	2.852
8	2.8475	2.849	2.8505	2.852	2.852
9	2.8475	2.849	2.8505	2.852	2.852
10	2.8475	2.849	2.851	2.852	2.852

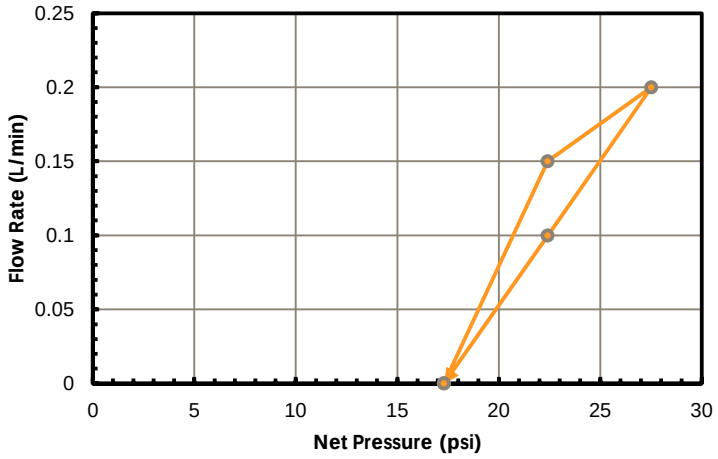
Flow rates during pressure steps:

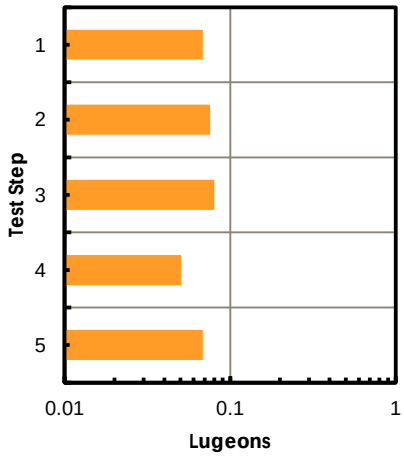
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.50	0.50	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.50	0.00	0.00	0.00
5	0.00	0.00	0.50	0.00	0.00
6	0.00	0.50	0.00	0.50	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.50	0.50	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.50	0.00	0.00
Average Q (L/min)	**0.00**	**0.15**	**0.20**	**0.10**	**0.00**
Pf (psi)	0.00E+00	1.14E-05	2.02E-05	5.06E-06	0.00E+00
Pnet (psi)	23.7	32.0	40.3	32.0	23.7
K (m/min)	0.0E+00	6.5E-07	6.8E-07	4.3E-07	0.0E+00
K (m/sec)	9.7E-09	1.1E-08	1.1E-08	7.2E-09	9.7E-09
Lugeons	0.068	0.076	0.080	0.050	0.068

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	16.99 to 24.79 m bgs
Analysis Date	November 18, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.07
Hydraulic Conductivity	9.7E-09 m/s

Comments

Nitrogen packer system used for testing.

No take on first and fifth pressure step. Upper bound estimate of hydraulic conductivity of 9.7×10^{-9} m/s at 16.6 psi used for first and fifth pressure step in calculation of hydraulic conductivity.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	16.6
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	23.7
K (m/min)	5.8E-07
K (m/sec)	9.7E-09
Lugeons	0.07

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	24.79 to 32.58 m bgs
Test Date	November 18, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	28.62	24.79
Bottom of test interval	37.62	32.58
Static water level	5.73	4.96
Bedrock	7.3	6.32
Midpoint of test interval	33.12	28.68

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	23	34.5	46	34.5	23
0	2.858	2.862	2.8705	2.8825	2.892
1	2.859	2.8635	2.872	2.8835	2.8925
2	2.8595	2.8645	2.873	2.8845	2.893
3	2.8595	2.865	2.874	2.885	2.8935
4	2.86	2.8655	2.875	2.886	2.8945
5	2.86	2.866	2.8765	2.887	2.8955
6	2.8605	2.8665	2.878	2.888	2.8965
7	2.861	2.8675	2.879	2.889	2.8975
8	2.8615	2.868	2.88	2.89	2.898
9	2.8615	2.869	2.881	2.891	2.8985
10	2.862	2.8695	2.882	2.892	2.8995

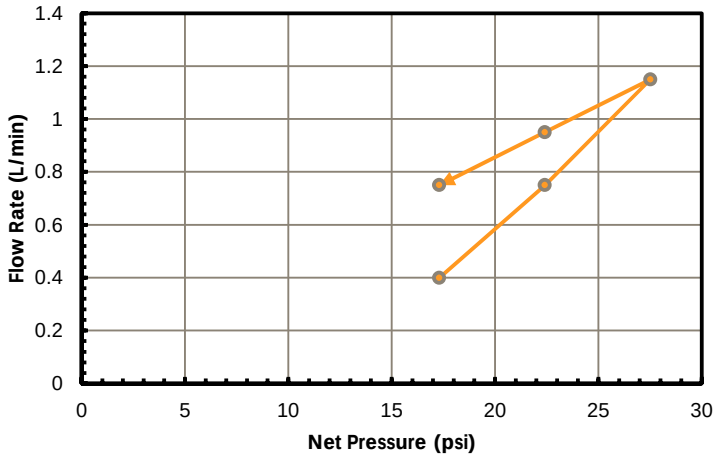
Flow rates during pressure steps:

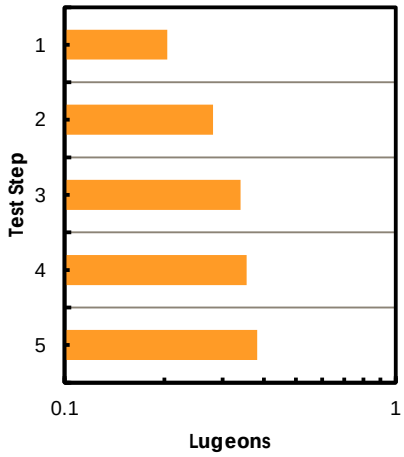
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	1.50	1.50	1.00	0.50
2	0.50	1.00	1.00	1.00	0.50
3	0.00	0.50	1.00	0.50	0.50
4	0.50	0.50	1.00	1.00	1.00
5	0.00	0.50	1.50	1.00	1.00
6	0.50	0.50	1.50	1.00	1.00
7	0.50	1.00	1.00	1.00	1.00
8	0.50	0.50	1.00	1.00	0.50
9	0.00	1.00	1.00	1.00	0.50
10	0.50	0.50	1.00	1.00	1.00
Average Q (L/min)	**0.40**	**0.75**	**1.15**	**0.95**	**0.75**
Pf (psi)	8.10E-05	2.85E-04	6.70E-04	4.57E-04	2.85E-04
Pnet (psi)	31.6	43.1	54.6	43.1	31.6
K (m/min)	1.7E-06	2.4E-06	2.9E-06	3.0E-06	3.3E-06
K (m/sec)	2.9E-08	4.0E-08	4.8E-08	5.1E-08	5.4E-08
Lugeons	0.20	0.28	0.34	0.36	0.38

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	24.79 to 32.58 m bgs
Analysis Date	November 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.31
Hydraulic Conductivity	4.4E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	46
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	54.6
K (m/min)	2.5E-07
K (m/sec)	4.2E-09
Lugeons	0.03

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	32.58 to 40.37 m bgs
Test Date	November 18, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	37.62	32.58
Bottom of test interval	46.62	40.37
Static water level	5.73	4.96
Bedrock	7.3	6.32
Midpoint of test interval	42.12	36.48

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	29.1	44.1	58.8	44.1	29.1
0	2.899	2.899	2.899	2.9	2.901
1	2.899	2.899	2.899	2.9	2.901
2	2.899	2.899	2.899	2.9	2.901
3	2.899	2.899	2.899	2.9	2.901
4	2.899	2.899	2.899	2.9	2.901
5	2.899	2.899	2.899	2.9	2.901
6	2.899	2.899	2.8995	2.9	2.901
7	2.899	2.899	2.8995	2.9	2.901
8	2.899	2.899	2.9	2.9005	2.901
9	2.899	2.899	2.9	2.9005	2.901
10	2.899	2.899	2.9	2.901	2.901

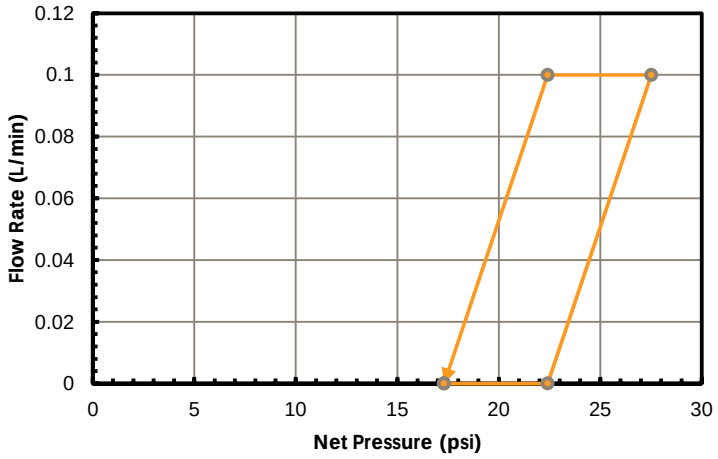
Flow rates during pressure steps:

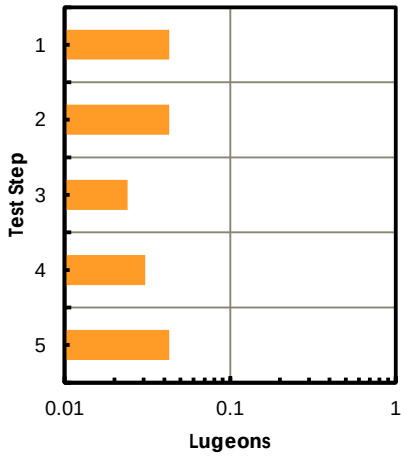
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.50	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.50	0.50	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.50	0.00
Average Q (L/min)	**0.00**	**0.00**	**0.10**	**0.10**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	5.06E-06	5.06E-06	0.00E+00
Pnet (psi)	37.7	52.7	67.4	52.7	37.7
K (m/min)	0.0E+00	0.0E+00	2.0E-07	2.6E-07	0.0E+00
K (m/sec)	6.1E-09	6.1E-09	3.4E-09	4.4E-09	6.1E-09
Lugeons	0.043	0.043	0.024	0.031	0.043

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	32.58 to 40.37 m bgs
Analysis Date	November 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.04
Hydraulic Conductivity	6.1E-09 m/s

Comments

Nitrogen packer system used for testing.

Generally no take, upper bound hydraulic conductivity estimate of 6.1×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	29.1
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	37.7
K (m/min)	3.6E-07
K (m/sec)	6.1E-09
Lugeons	0.04

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	40.37 to 48.17 m bgs
Test Date	November 23, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	46.62	40.37
Bottom of test interval	55.62	48.17
Static water level	23.15	20.05
Bedrock	7.3	6.32
Midpoint of test interval	51.12	44.27

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)					
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

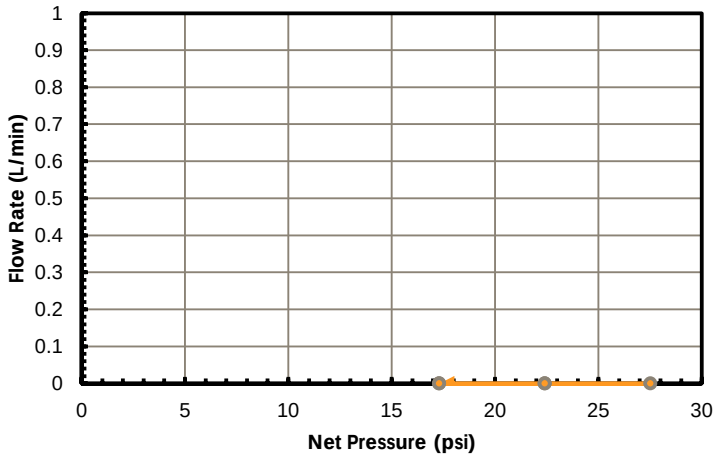
Flow rates during pressure steps:

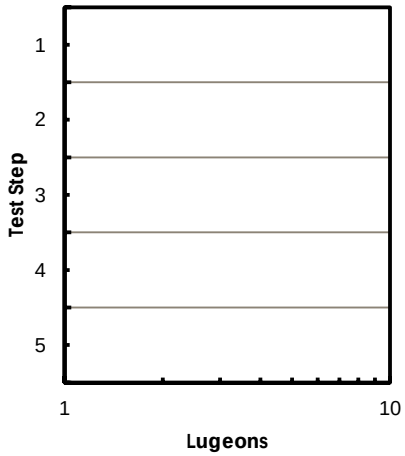
Elapsed Time (Minutes)	Flow Rate (L/min)				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Average Q (L/min)					
Pf (psi)					
Pnet (psi)					
K (m/min)					
K (m/sec)					
Lugeons					

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	40.37 to 48.17 m bgs
Analysis Date	November 24, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	
Lugeon	#N/A
Hydraulic Conductivity	#N/A m/s

Comments

Nitrogen packer system used for testing.

Unable to complete packer test as unable to keep pressure on gauge.

Flow rate down hole estimated at 50 L/min, attempt at packer testing stopped after 7 min.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	48.17 to 55.96 m bgs
Test Date	November 23, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	55.62	48.17
Bottom of test interval	64.62	55.96
Static water level	22.75	19.7
Bedrock	7.3	6.32
Midpoint of test interval	60.12	52.07

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	42.19	63.28	84.38	63.28	42.19
0	3.079	3.184	3.34	3.545	3.7
1	3.09	3.1965	3.357	3.56	3.71
2	3.1	3.204	3.377	3.578	3.719
3	3.11	3.22	3.397	3.595	3.727
4	3.121	3.2325	3.415	3.609	3.736
5	3.13	3.243	3.433	3.625	3.746
6	3.1395	3.254	3.45	3.64	3.755
7	3.148	3.266	3.47	3.655	3.765
8	3.158	3.277	3.4915	3.673	3.774
9	3.166	3.291	3.509	3.685	3.784
10	3.175	3.303	3.53	3.698	3.793

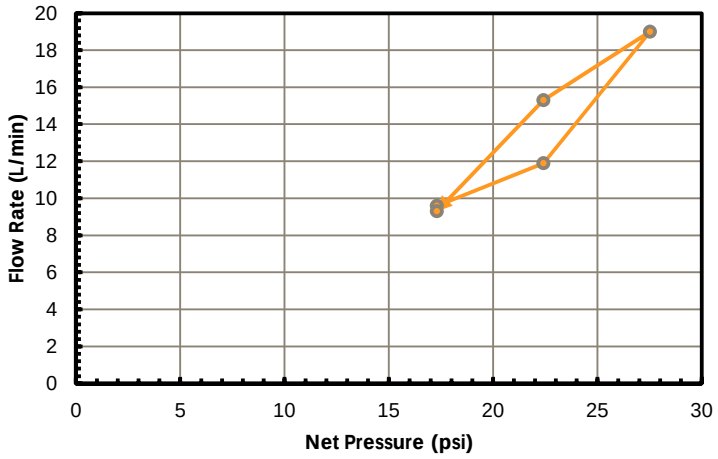
Flow rates during pressure steps:

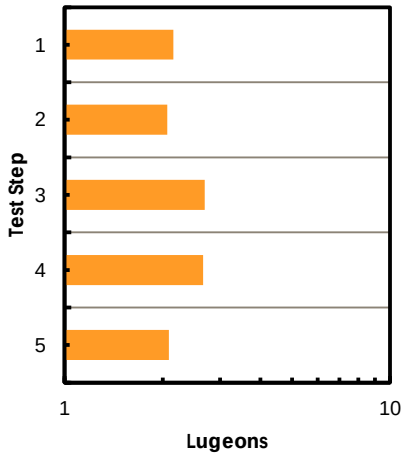
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	11.00	12.50	17.00	15.00	10.00
2	10.00	7.50	20.00	18.00	9.00
3	10.00	16.00	20.00	17.00	8.00
4	11.00	12.50	18.00	14.00	9.00
5	9.00	10.50	18.00	16.00	10.00
6	9.50	11.00	17.00	15.00	9.00
7	8.50	12.00	20.00	15.00	10.00
8	10.00	11.00	21.50	18.00	9.00
9	8.00	14.00	17.50	12.00	10.00
10	9.00	12.00	21.00	13.00	9.00
Average Q (L/min)	**9.60**	**11.90**	**19.00**	**15.30**	**9.30**
Pf (psi)	4.67E-02	7.17E-02	1.83E-01	1.19E-01	4.38E-02
Pnet (psi)	71.8	92.8	113.8	92.8	71.8
K (m/min)	1.8E-05	1.8E-05	2.3E-05	2.3E-05	1.8E-05
K (m/sec)	3.1E-07	2.9E-07	3.8E-07	3.8E-07	3.0E-07
Lugeons	2.16	2.07	2.69	2.66	2.09

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	48.17 to 55.96 m bgs
Analysis Date	November 24, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	2.33
Hydraulic Conductivity	3.3E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	55.96 to 63.76 m bgs
Test Date	November 24, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	64.62	55.96
Bottom of test interval	73.62	63.76
Static water level	19.90	17.23
Bedrock	7.3	6.32
Midpoint of test interval	69.12	59.86

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	48.59	72.88	97.17	72.88	48.59
0	3.792	3.7925	3.793	3.794	3.794
1	3.792	3.7925	3.793	3.794	3.794
2	3.792	3.7925	3.793	3.794	3.794
3	3.792	3.7925	3.7935	3.794	3.794
4	3.792	3.7925	3.7935	3.794	3.794
5	3.792	3.7925	3.7935	3.794	3.7945
6	3.792	3.793	3.7935	3.794	3.7945
7	3.792	3.793	3.7935	3.794	3.7945
8	3.792	3.793	3.7935	3.794	3.7945
9	3.792	3.793	3.794	3.794	3.7945
10	3.792	3.793	3.794	3.794	3.7945

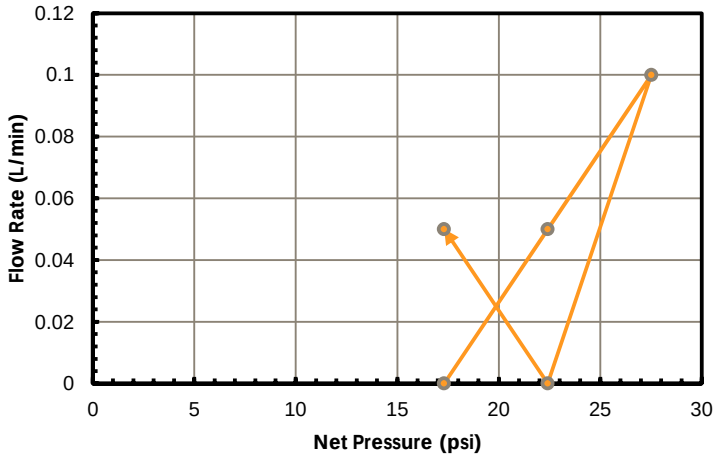
Flow rates during pressure steps:

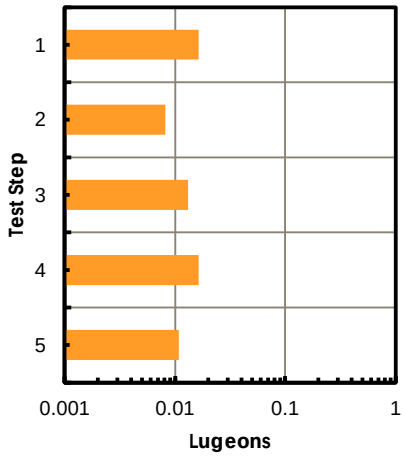
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.50	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.50
6	0.00	0.50	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.50	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
Average Q (L/min)	**0.00**	**0.05**	**0.10**	**0.00**	**0.05**
Pf (psi)	0.00E+00	1.27E-06	5.06E-06	0.00E+00	1.27E-06
Pnet (psi)	74.7	99.0	123.3	99.0	74.7
K (m/min)	0.0E+00	7.0E-08	1.1E-07	0.0E+00	9.2E-08
K (m/sec)	2.3E-09	1.2E-09	1.9E-09	2.3E-09	1.5E-09
Lugeons	0.016	0.008	0.013	0.016	0.011

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	55.96 to 63.76 m bgs
Analysis Date	November 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	2.3E-09 m/s

Comments

Nitrogen packer system used for testing.

Generally no take at tested intervals, conservative upper bound hydraulic conductivity estimate of 2.3×10^{-9} m/s based on maximum test pressure of 97.17 psi.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	72.88
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	99.0
K (m/min)	1.4E-07
K (m/sec)	2.3E-09
Lugeons	0.02

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	63.76 to 71.55 m bgs
Test Date	November 24, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	73.62	63.76
Bottom of test interval	82.62	71.55
Static water level	19.90	17.23
Bedrock	7.3	6.32
Midpoint of test interval	78.12	67.65

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	54.97	82.46	109.94	82.46	54.97
0	3.795	3.7975	3.803	3.308	3.3105
1	3.795	3.798	3.804	3.308	3.3105
2	3.795	3.7985	3.8045	3.3085	3.3105
3	3.795	3.799	3.805	3.3085	3.311
4	3.795	3.8	3.8055	3.309	3.311
5	3.795	3.8005	3.806	3.309	3.311
6	3.795	3.8005	3.8065	3.3095	3.311
7	3.795	3.801	3.807	3.31	3.311
8	3.7955	3.8015	3.8075	3.31	3.311
9	3.7955	3.802	3.8075	3.31	3.3115
10	3.796	3.8025	3.808	3.3105	3.3115

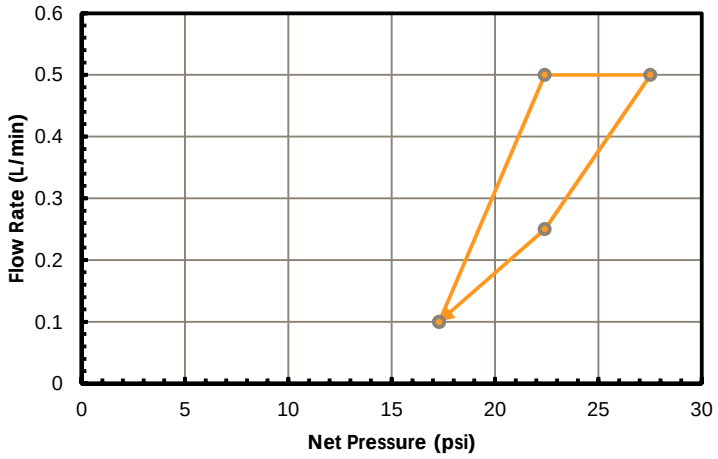
Flow rates during pressure steps:

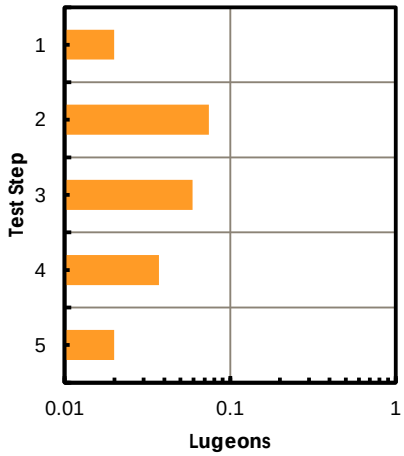
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	1.00	0.00	0.00
2	0.00	0.50	0.50	0.50	0.00
3	0.00	0.50	0.50	0.00	0.50
4	0.00	1.00	0.50	0.50	0.00
5	0.00	0.50	0.50	0.00	0.00
6	0.00	0.00	0.50	0.50	0.00
7	0.00	0.50	0.50	0.50	0.00
8	0.50	0.50	0.50	0.00	0.00
9	0.00	0.50	0.00	0.00	0.50
10	0.50	0.50	0.50	0.50	0.00
Average Q (L/min)	**0.10**	**0.50**	**0.50**	**0.25**	**0.10**
Pf (psi)	5.06E-06	1.27E-04	1.27E-04	3.16E-05	5.06E-06
Pnet (psi)	81.1	108.6	136.0	108.6	81.1
K (m/min)	1.7E-07	6.3E-07	5.1E-07	3.2E-07	1.7E-07
K (m/sec)	2.8E-09	1.1E-08	8.4E-09	5.3E-09	2.8E-09
Lugeons	0.020	0.074	0.059	0.037	0.020

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	63.76 to 71.55 m bgs
Analysis Date	November 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.04
Hydraulic Conductivity	6.0E-09 m/s

Comments

Nitrogen packer system used for testing.

Response behaviour conservatively interpreted as laminar.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	71.55 to 79.35 m bgs
Test Date	November 25, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	82.62	71.55
Bottom of test interval	91.62	79.35
Static water level	19.55	16.93
Bedrock	7.3	6.32
Midpoint of test interval	87.12	75.45

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	61.37	92.1	122.74	92.1	61.37
0	3.8185	3.82	3.822	3.8245	3.826
1	3.8185	3.8205	3.8225	3.8245	3.826
2	3.8185	3.8205	3.823	3.825	3.826
3	3.819	3.821	3.823	3.825	3.8265
4	3.819	3.821	3.823	3.825	3.8265
5	3.819	3.821	3.8235	3.8255	3.827
6	3.8195	3.8215	3.8235	3.8255	3.827
7	3.8195	3.8215	3.824	3.8255	3.827
8	3.8195	3.822	3.824	3.826	3.827
9	3.8195	3.822	3.824	3.826	3.827
10	3.82	3.822	3.8245	3.826	3.827

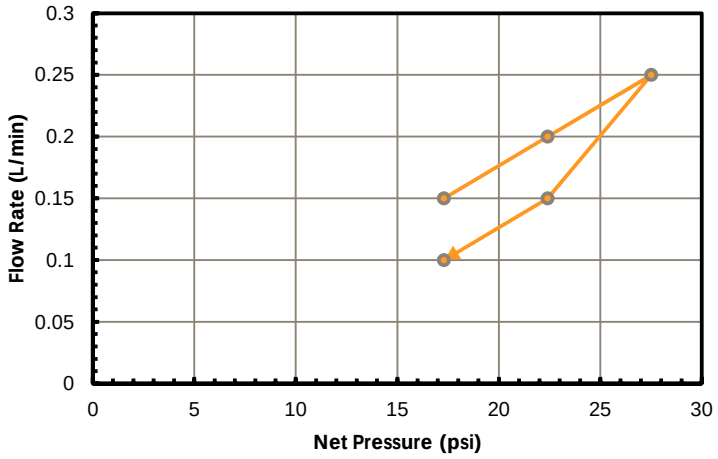
Flow rates during pressure steps:

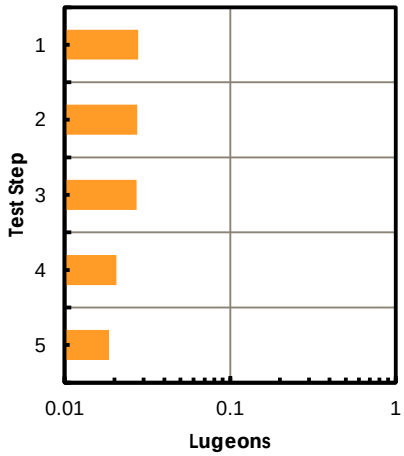
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.00	0.00
2	0.00	0.00	0.50	0.50	0.00
3	0.50	0.50	0.00	0.00	0.50
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.50	0.50	0.50
6	0.50	0.50	0.00	0.00	0.00
7	0.00	0.00	0.50	0.00	0.00
8	0.00	0.50	0.00	0.50	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.50	0.00	0.50	0.00	0.00
Average Q (L/min)	**0.15**	**0.20**	**0.25**	**0.15**	**0.10**
Pf (psi)	1.14E-05	2.03E-05	3.16E-05	1.14E-05	5.06E-06
Pnet (psi)	87.0	117.8	148.4	117.8	87.0
K (m/min)	2.4E-07	2.3E-07	2.3E-07	1.8E-07	1.6E-07
K (m/sec)	4.0E-09	3.9E-09	3.9E-09	2.9E-09	2.6E-09
Lugeons	0.028	0.027	0.027	0.021	0.019

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	71.55 to 79.35 m bgs
Analysis Date	November 26, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.02
Hydraulic Conductivity	3.5E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	79.35 to 87.14 m bgs
Test Date	November 25, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	91.62	79.35
Bottom of test interval	100.62	87.14
Static water level	19.55	16.93
Bedrock	7.3	6.32
Midpoint of test interval	96.12	83.24

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	67.77	101.66	135.54	101.66	67.77
0	3.8295	3.834	3.839	3.845	3.85
1	3.83	3.8345	3.8395	3.845	3.85
2	3.8305	3.835	3.841	3.8455	3.8505
3	3.8315	3.835	3.8415	3.8455	3.8505
4	3.8315	3.8355	3.8425	3.846	3.851
5	3.832	3.836	3.843	3.847	3.8515
6	3.832	3.8365	3.843	3.848	3.8515
7	3.832	3.837	3.8435	3.8485	3.852
8	3.8325	3.837	3.844	3.849	3.8525
9	3.8325	3.8375	3.8445	3.8495	3.853
10	3.833	3.838	3.845	3.85	3.853

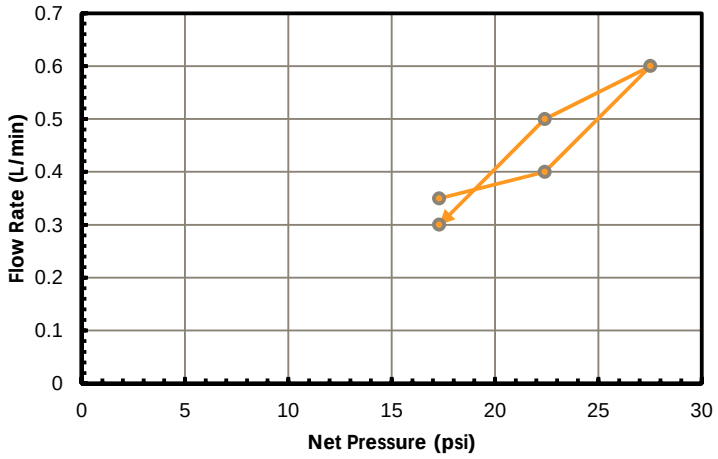
Flow rates during pressure steps:

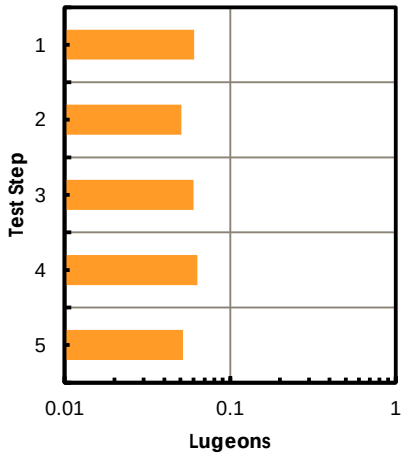
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.50	0.50	0.00	0.00
2	0.50	0.50	1.50	0.50	0.50
3	1.00	0.00	0.50	0.00	0.00
4	0.00	0.50	1.00	0.50	0.50
5	0.50	0.50	0.50	1.00	0.50
6	0.00	0.50	0.00	1.00	0.00
7	0.00	0.50	0.50	0.50	0.50
8	0.50	0.00	0.50	0.50	0.50
9	0.00	0.50	0.50	0.50	0.50
10	0.50	0.50	0.50	0.50	0.00
Average Q (L/min)	**0.35**	**0.40**	**0.60**	**0.50**	**0.30**
Pf (psi)	6.20E-05	8.10E-05	1.82E-04	1.27E-04	4.56E-05
Pnet (psi)	93.4	127.3	161.2	127.3	93.4
K (m/min)	5.2E-07	4.3E-07	5.1E-07	5.4E-07	4.4E-07
K (m/sec)	8.6E-09	7.2E-09	8.5E-09	9.0E-09	7.4E-09
Lugeons	0.060	0.051	0.060	0.063	0.052

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	79.35 to 87.14 m bgs
Analysis Date	November 26, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.06
Hydraulic Conductivity	8.1E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	87.14 to 94.93 m bgs
Test Date	November 26, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	100.62	87.14
Bottom of test interval	109.62	94.93
Static water level	19.56	16.94
Bedrock	7.3	6.32
Midpoint of test interval	105.12	91.04

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	74.2	111.23	148.3	111.23	74.2
0	3.9	3.9025	3.9065	3.9085	3.943
1	3.9005	3.903	3.9065	3.9085	3.943
2	3.9005	3.903	3.9065	3.9085	3.943
3	3.901	3.903	3.907	3.9085	3.943
4	3.901	3.9035	3.907	3.9085	3.9435
5	3.9015	3.9035	3.907	3.9085	3.9435
6	3.9015	3.9035	3.907	3.909	3.9435
7	3.902	3.904	3.907	3.909	3.9435
8	3.902	3.904	3.9075	3.909	3.9435
9	3.902	3.904	3.908	3.909	3.9435
10	3.902	3.9045	3.9085	3.909	3.944

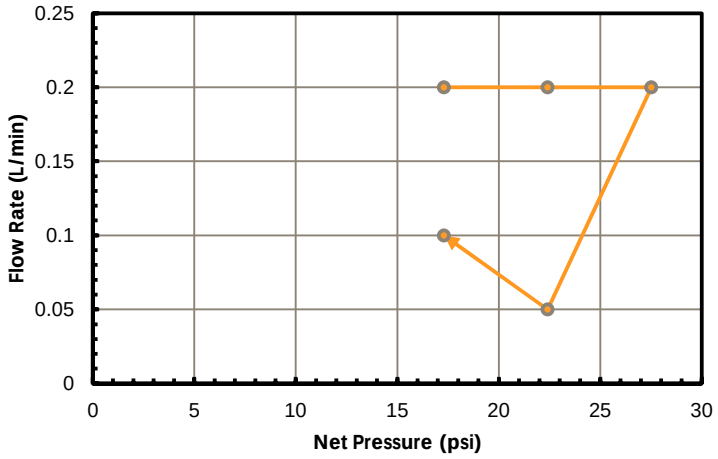
Flow rates during pressure steps:

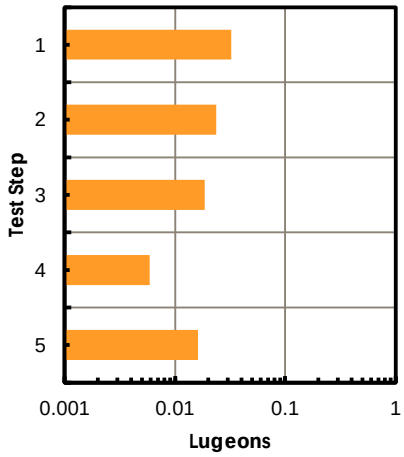
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	0.50	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.50	0.00	0.50	0.00	0.00
4	0.00	0.50	0.00	0.00	0.50
5	0.50	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.50	0.00
7	0.50	0.50	0.00	0.00	0.00
8	0.00	0.00	0.50	0.00	0.00
9	0.00	0.00	0.50	0.00	0.00
10	0.00	0.50	0.50	0.00	0.50
Average Q (L/min)	**0.20**	**0.20**	**0.20**	**0.05**	**0.10**
Pf (psi)	2.03E-05	2.03E-05	2.03E-05	1.27E-06	5.06E-06
Pnet (psi)	99.9	136.9	174.0	136.9	99.9
K (m/min)	2.8E-07	2.0E-07	1.6E-07	5.0E-08	1.4E-07
K (m/sec)	4.6E-09	3.4E-09	2.6E-09	8.4E-10	2.3E-09
Lugeons	0.032	0.024	0.019	0.006	0.016

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	87.14 to 94.93 m bgs
Analysis Date	November 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.02
Hydraulic Conductivity	2.7E-09 m/s

Comments

Nitrogen packer system used for testing.

Response behaviour conservatively estimated as laminar.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	94.93 to 104.62 m bgs
Test Date	November 26, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	11.2

Depths (m bgs)	Measured	Vertical
Top of test interval	109.62	94.93
Bottom of test interval	120.8	104.62
Static water level	19.56	16.94
Bedrock	7.3	6.32
Midpoint of test interval	115.21	99.77

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	81.32	123.5	164.65	123.5	81.32
0	4.0005	4.007	4.018	4.0295	4.036
1	4.0005	4.008	4.02	4.03	4.0365
2	4.001	4.009	4.021	4.03	4.0375
3	4.0015	4.0095	4.022	4.0305	4.038
4	4.002	4.0105	4.023	4.031	4.0385
5	4.003	4.0115	4.0245	4.0315	4.0395
6	4.0035	4.012	4.0255	4.032	4.04
7	4.0045	4.0125	4.0265	4.033	4.0405
8	4.0055	4.013	4.027	4.0335	4.041
9	4.0065	4.014	4.028	4.0345	4.0415
10	4.007	4.015	4.029	4.0355	4.042

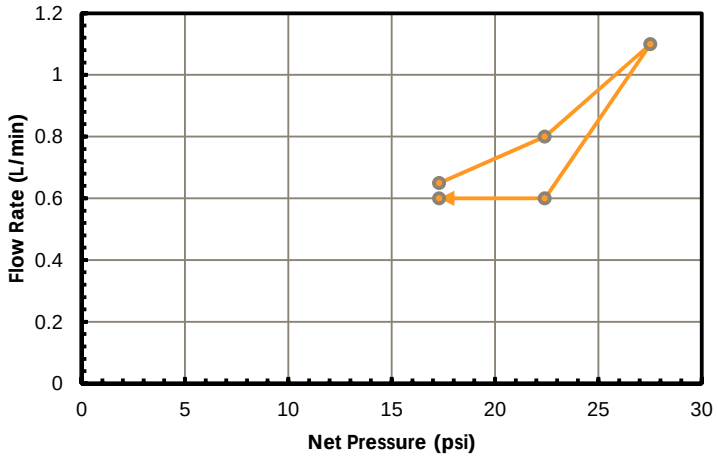
Flow rates during pressure steps:

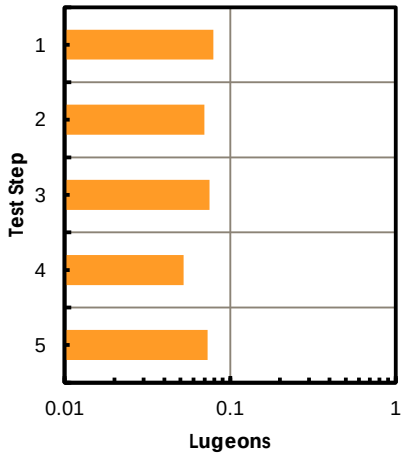
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	1.00	2.00	0.50	0.50
2	0.50	1.00	1.00	0.00	1.00
3	0.50	0.50	1.00	0.50	0.50
4	0.50	1.00	1.00	0.50	0.50
5	1.00	1.00	1.50	0.50	1.00
6	0.50	0.50	1.00	0.50	0.50
7	1.00	0.50	1.00	1.00	0.50
8	1.00	0.50	0.50	0.50	0.50
9	1.00	1.00	1.00	1.00	0.50
10	0.50	1.00	1.00	1.00	0.50
Average Q (L/min)	**0.65**	**0.80**	**1.10**	**0.60**	**0.60**
Pf (psi)	2.14E-04	3.24E-04	6.13E-04	1.82E-04	1.82E-04
Pnet (psi)	107.0	149.2	190.3	149.2	107.0
K (m/min)	7.0E-07	6.2E-07	6.7E-07	4.6E-07	6.5E-07
K (m/sec)	1.2E-08	1.0E-08	1.1E-08	7.7E-09	1.1E-08
Lugeons	0.079	0.070	0.075	0.052	0.073

Project	Touquoy In-Pit Disposal
Borehole	BH21-09
Test Interval	94.93 to 104.62 m bgs
Analysis Date	November 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.07
Hydraulic Conductivity	1.0E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	4.55 to 11.81 m bgs
Test Date	September 28, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.940
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	5.2	4.55
Bottom of test interval	13.5	11.81
Static water level	0.30	0.27
Bedrock	2.90	2.53
Midpoint of test interval	9.35	8.18

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	3	4.5	6		
0	0.185	0.185	0.185		
1	0.185	0.185	0.185		
2	0.185	0.185	0.185		
3	0.185	0.185	0.185		
4	0.185	0.185	0.185		
5					
6					
7					
8					
9					
10					

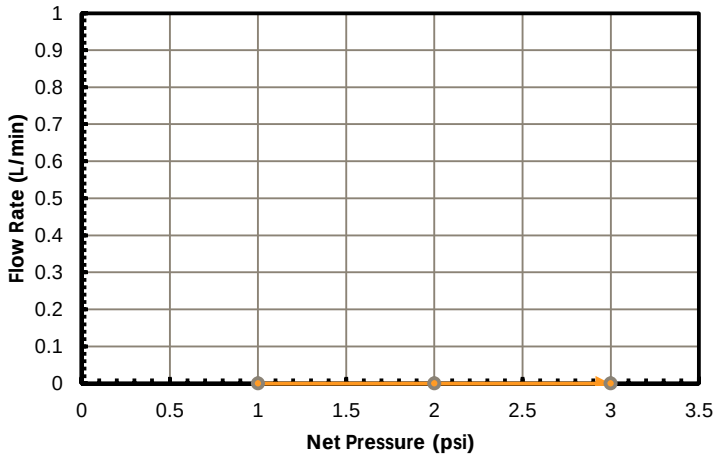
Flow rates during pressure steps:

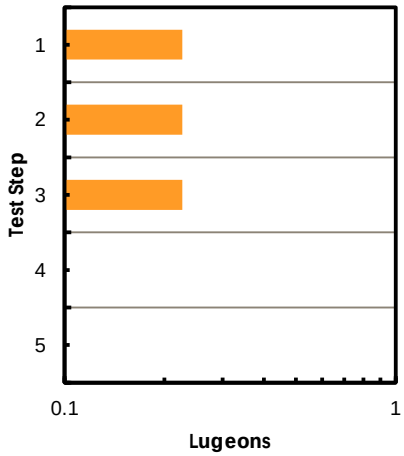
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00		
2	0.00	0.00	0.00		
3	0.00	0.00	0.00		
4	0.00	0.00	0.00		
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**		
Pf (psi)	0.00E+00	0.00E+00	0.00E+00		
Pnet (psi)	4.7	6.2	7.7		
K (m/min)	0.0E+00	0.0E+00	0.0E+00		
K (m/sec)	3.2E-08	3.2E-08	3.2E-08		
Lugeons	0.23	0.23	0.23		

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	4.55 to 11.81 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.23
Hydraulic Conductivity	3.2E-08 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 3.2×10^{-8} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	6
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	7.7
K (m/min)	1.9E-06
K (m/sec)	3.2E-08
Lugeons	0.23

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	12.46 to 19.68 m bgs
Test Date	September 28, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.940
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	14.25	12.46
Bottom of test interval	22.5	19.68
Static water level	0.30	0.27
Bedrock	2.90	2.53
Midpoint of test interval	18.375	16.07

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	14	20		
0	0.2285	0.229	0.2295		
1	0.2285	0.229	0.2295		
2	0.2285	0.229	0.2295		
3	0.2285	0.229	0.2295		
4	0.2285	0.229	0.2295		
5					
6					
7					
8					
9					
10					

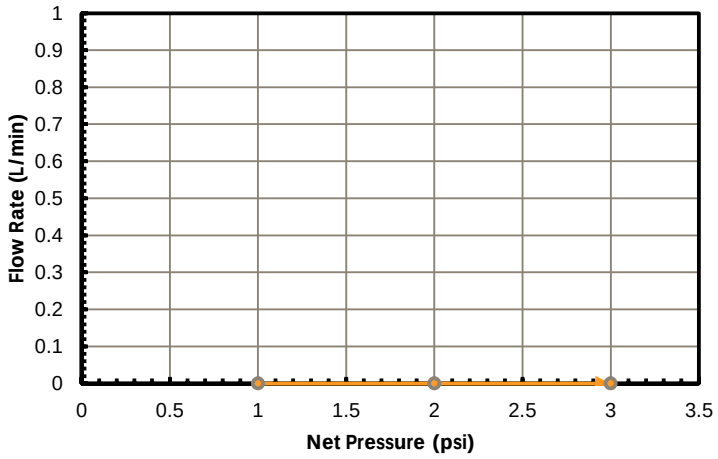
Flow rates during pressure steps:

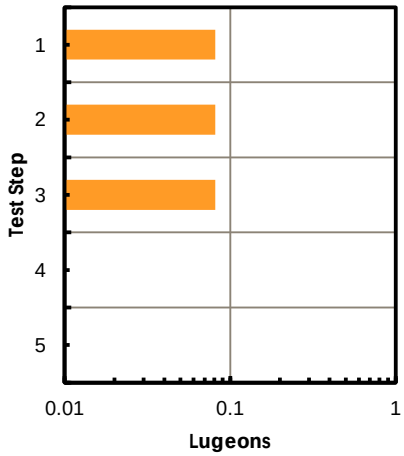
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00		
2	0.00	0.00	0.00		
3	0.00	0.00	0.00		
4	0.00	0.00	0.00		
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**		
Pf (psi)	0.00E+00	0.00E+00	0.00E+00		
Pnet (psi)	11.7	15.7	21.7		
K (m/min)	0.0E+00	0.0E+00	0.0E+00		
K (m/sec)	1.1E-08	1.1E-08	1.1E-08		
Lugeons	0.081	0.081	0.081		

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	12.46 to 19.68 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.08
Hydraulic Conductivity	1.1E-08 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 1.1×10^{-8} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	20
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	21.7
K (m/min)	6.8E-07
K (m/sec)	1.1E-08
Lugeons	0.081

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	21.21 to 27.55 m bgs
Test Date	September 28, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.940
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	7.3

Depths (m bgs)	Measured	Vertical
Top of test interval	24.25	21.21
Bottom of test interval	31.5	27.55
Static water level	0.30	0.27
Bedrock	2.90	2.53
Midpoint of test interval	27.875	24.38

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	16	24	32		
0	0.2315	0.2345	0.236		
1	0.2315	0.2345	0.236		
2	0.2315	0.2345	0.236		
3	0.2315	0.2345	0.236		
4	0.2315	0.2345	0.236		
5					
6					
7					
8					
9					
10					

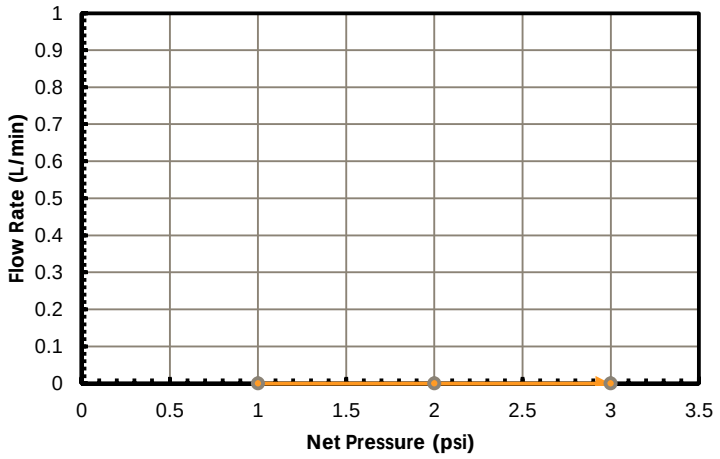
Flow rates during pressure steps:

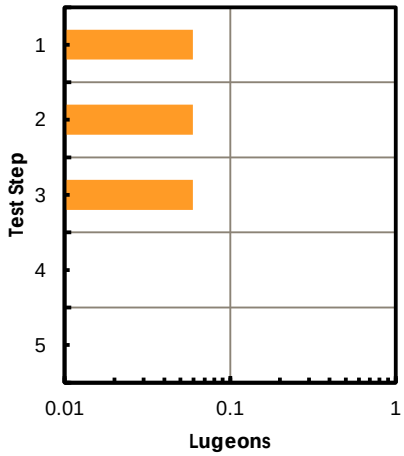
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00		
2	0.00	0.00	0.00		
3	0.00	0.00	0.00		
4	0.00	0.00	0.00		
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.00**		
Pf (psi)	0.00E+00	0.00E+00	0.00E+00		
Pnet (psi)	17.7	25.7	33.7		
K (m/min)	0.0E+00	0.0E+00	0.0E+00		
K (m/sec)	8.1E-09	8.1E-09	8.1E-09		
Lugeons	0.059	0.059	0.059		

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	21.21 to 27.55 m bgs
Analysis Date	September 29, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.06
Hydraulic Conductivity	8.1E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 7.9×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	32
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	33.7
K (m/min)	4.9E-07
K (m/sec)	8.1E-09
Lugeons	0.059

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	28.43 to 35.42 m bgs
Test Date	September 29, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.991
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.0

Depths (m bgs)	Measured	Vertical
Top of test interval	32.5	28.43
Bottom of test interval	40.5	35.42
Static water level	0.26	0.23
Bedrock	2.90	2.53
Midpoint of test interval	36.5	31.92

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	22	33	45	33	22
0	0.024	0.243	0.245	0.252	0.254
1	0.02403	0.2432	0.2454	0.2524	0.2542
2	0.02406	0.2434	0.2458	0.2528	0.2544
3	0.02409	0.2436	0.2462	0.2532	0.2546
4	0.02412	0.2438	0.2466	0.2536	0.2548
5	0.02415	0.244	0.247	0.254	0.255
6			0.2474		
7			0.2478		
8			0.2482		
9			0.2486		
10			0.249		

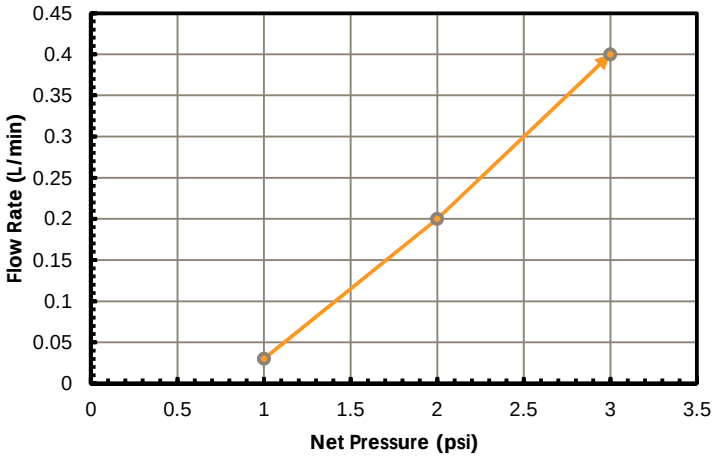
Flow rates during pressure steps:

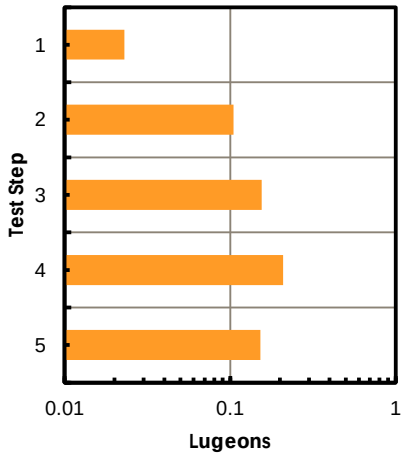
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.03	0.20	0.40	0.40	0.20
2	0.03	0.20	0.40	0.40	0.20
3	0.03	0.20	0.40	0.40	0.20
4	0.03	0.20	0.40	0.40	0.20
5	0.03	0.20	0.40	0.40	0.20
6			0.40		
7			0.40		
8			0.40		
9			0.40		
10			0.40		
Average Q (L/min)	**0.03**	**0.20**	**0.40**	**0.40**	**0.20**
Pf (psi)	4.56E-07	2.03E-05	8.10E-05	8.10E-05	2.02E-05
Pnet (psi)	23.7	34.7	46.7	34.7	23.7
K (m/min)	1.9E-07	8.7E-07	1.3E-06	1.7E-06	1.3E-06
K (m/sec)	3.2E-09	1.5E-08	2.2E-08	2.9E-08	2.1E-08
Lugeons	0.02	0.10	0.16	0.21	0.15

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	28.43 to 35.42 m bgs
Analysis Date	September 30, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.13
Hydraulic Conductivity	1.8E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	1.7
K (m/min)	8.7E-06
K (m/sec)	1.5E-07
Lugeons	1.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	36.25 to 43.29 m bgs
Test Date	September 29, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.940
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.1

Depths (m bgs)	Measured	Vertical
Top of test interval	41.45	36.25
Bottom of test interval	49.5	43.29
Static water level	0.28	0.24
Bedrock	2.90	2.53
Midpoint of test interval	45.475	39.77

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	32	48	64	48	32
0	0.258	0.261	0.266	0.2685	0.2705
1	0.258	0.261	0.2665	0.2685	0.2705
2	0.2585	0.261	0.267	0.2685	0.2705
3	0.259	0.262	0.2675	0.2695	0.271
4	0.259	0.262	0.268	0.2695	0.271
5	0.2595	0.262		0.2695	0.271
6	0.2595	0.263		0.2695	0.2715
7	0.26	0.263		0.2705	
8		0.263			
9		0.264			
10					

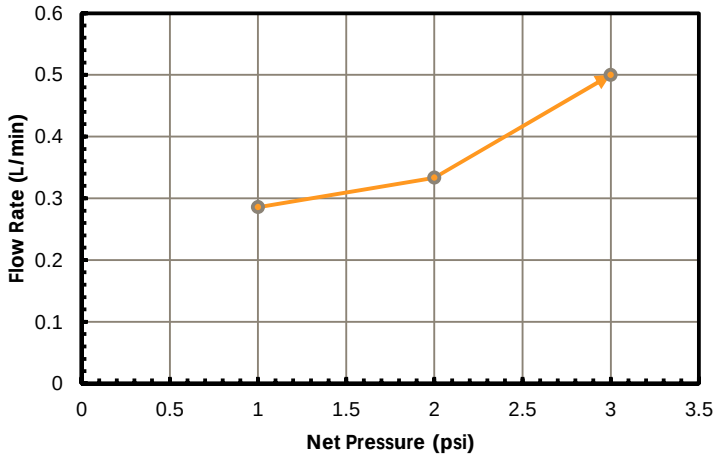
Flow rates during pressure steps:

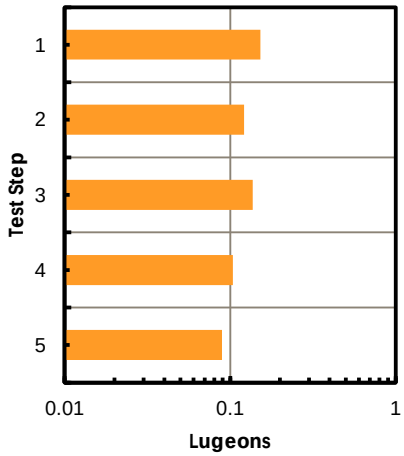
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.50	0.00	0.50	0.00	0.00
3	0.50	1.00	0.50	1.00	0.50
4	0.00	0.00	0.50	0.00	0.00
5	0.50	0.00		0.00	0.00
6	0.00	1.00		0.00	0.50
7	0.50	0.00		1.00	
8		0.00			
9		1.00			
10					
Average Q (L/min)	**0.29**	**0.33**	**0.50**	**0.29**	**0.17**
Pf (psi)	4.13E-05	5.63E-05	1.27E-04	4.13E-05	1.41E-05
Pnet (psi)	33.7	49.7	65.7	49.7	33.7
K (m/min)	1.3E-06	1.0E-06	1.1E-06	8.7E-07	7.5E-07
K (m/sec)	2.1E-08	1.7E-08	1.9E-08	1.4E-08	1.2E-08
Lugeons	0.2	0.1	0.1	0.1	0.1

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	36.25 to 43.29 m bgs
Analysis Date	September 30, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.12
Hydraulic Conductivity	1.7E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	1.7
K (m/min)	9.0E-06
K (m/sec)	1.5E-07
Lugeons	1.1

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	44.12 to 52.91 m bgs
Test Date	September 30, 2021
Test Supervisor	Michel Comeau

Packer Testing

Field Data

General Data	
Gauge Height (m)	0.864
Borehole radius	0.038
Borehole inclination(º)	61
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	10.1

Depths (m bgs)	Measured	Vertical
Top of test interval	50.45	44.12
Bottom of test interval	60.5	52.91
Static water level	0.30	0.27
Bedrock	2.90	2.53
Midpoint of test interval	55.475	48.52

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39	58.7	77.5	58.7	39
0	0.27	0.27	0.2725	0.2775	0.283
1	0.27	0.2701	0.2734	0.2783	0.2833
2	0.27	0.2702	0.2743	0.2791	0.2836
3	0.27	0.2703	0.2752	0.2799	0.2839
4	0.27	0.2704	0.2761	0.2807	0.2842
5		0.2705	0.277	0.2815	0.2845
6					
7					
8					
9					
10					

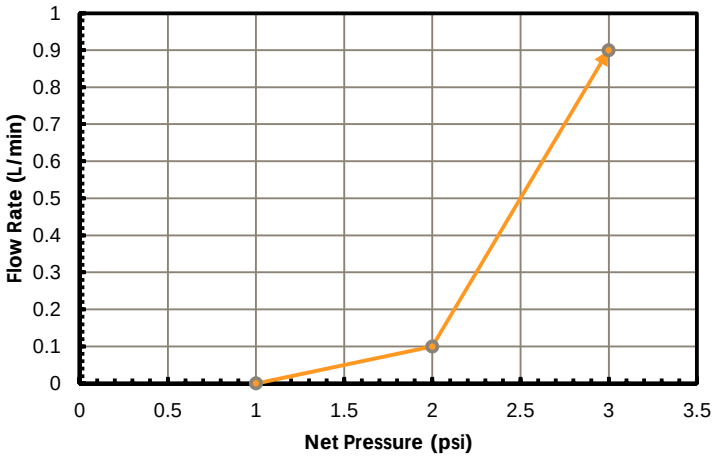
Flow rates during pressure steps:

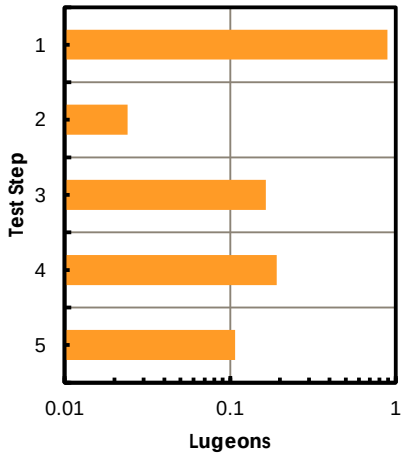
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.10	0.90	0.80	0.30
2	0.00	0.10	0.90	0.80	0.30
3	0.00	0.10	0.90	0.80	0.30
4	0.00	0.10	0.90	0.80	0.30
5	0.00	0.10	0.90	0.80	0.30
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.10**	**0.90**	**0.80**	**0.30**
Pf (psi)	0.00E+00	5.06E-06	4.10E-04	3.24E-04	4.56E-05
Pnet (psi)	40.6	60.3	79.1	60.3	40.6
K (m/min)	0.0E+00	2.1E-07	1.4E-06	1.7E-06	9.3E-07
K (m/sec)	1.3E-07	3.5E-09	2.4E-08	2.8E-08	1.5E-08
Lugeons	0.895	0.024	0.164	0.192	0.107

Project	Touquoy In-Pit Disposal
Borehole	BH21-10
Test Interval	44.12 to 52.91 m bgs
Analysis Date	October 1, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.28
Hydraulic Conductivity	4.0E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	1.6
K (m/min)	7.8E-06
K (m/sec)	1.3E-07
Lugeons	0.895

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	7.19 to 14.33 m bgs
Test Date	October 11, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.016
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	8.3	7.19
Bottom of test interval	16.55	14.33
Static water level	0	0
Bedrock	5.5	4.76
Midpoint of test interval	12.425	10.76

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	8	12	16.4	12	8
0	0.757	0.7585	0.763	0.766	0.7685
1	0.757	0.759	0.7635	0.7665	0.7685
2	0.757	0.7595	0.764	0.767	0.7685
3	0.757	0.76	0.7645	0.7675	0.769
4	0.757	0.76	0.765	0.768	0.769
5	0.7575	0.7605			0.7695
6		0.761			0.77
7		0.7615			0.77
8					0.7705
9					0.7705
10					

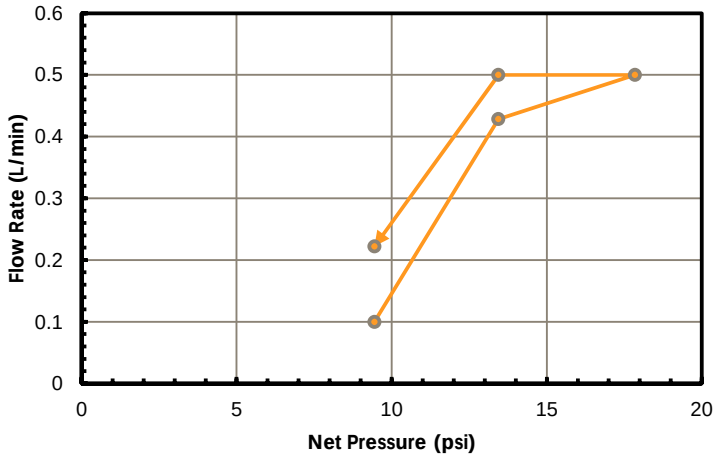
Flow rates during pressure steps:

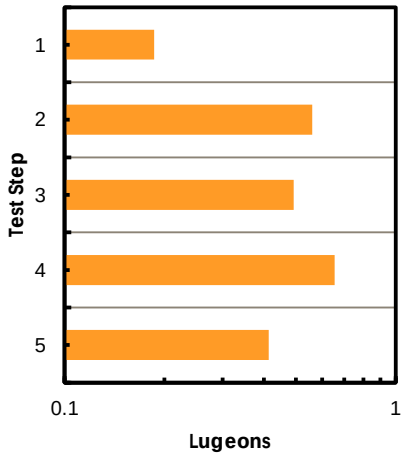
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.50	0.00
2	0.00	0.50	0.50	0.50	0.00
3	0.00	0.50	0.50	0.50	0.50
4	0.00	0.00	0.50	0.50	0.00
5	0.50	0.50			0.50
6		0.50			0.50
7		0.50			0.00
8					0.50
9					0.00
10					
Average Q (L/min)	**0.10**	**0.43**	**0.50**	**0.50**	**0.22**
Pf (psi)	5.06E-06	9.30E-05	1.27E-04	1.27E-04	2.50E-05
Pnet (psi)	9.4	13.4	17.8	13.4	9.4
K (m/min)	1.6E-06	4.7E-06	4.1E-06	5.5E-06	3.5E-06
K (m/sec)	2.6E-08	7.9E-08	6.9E-08	9.2E-08	5.8E-08
Lugeons	0.19	0.56	0.49	0.65	0.41

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	7.19 to 14.33 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Turbulent
Lugeon	0.61
Hydraulic Conductivity	8.5E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	1.4
K (m/min)	1.0E-05
K (m/sec)	1.7E-07
Lugeons	1.2

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	14.98 to 22.13 m bgs
Test Date	October 11, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.930
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	17.3	14.98
Bottom of test interval	25.55	22.13
Static water level	0	0
Bedrock	5.5	4.76
Midpoint of test interval	21.425	18.55

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	14	21	28	21	14
0	0.771	0.775	0.78	0.785	0.7875
1	0.771	0.7755	0.7805	0.7855	0.7875
2	0.771	0.776	0.781	0.786	0.7875
3	0.7715	0.7765	0.7815	0.7865	0.788
4	0.7715	0.777	0.782	0.787	0.788
5	0.772	0.777	0.783	0.7875	0.788
6	0.772	0.7775	0.7835		0.7885
7	0.7725	0.778	0.784		
8	0.7725	0.7785	0.7845		
9	0.773				
10					

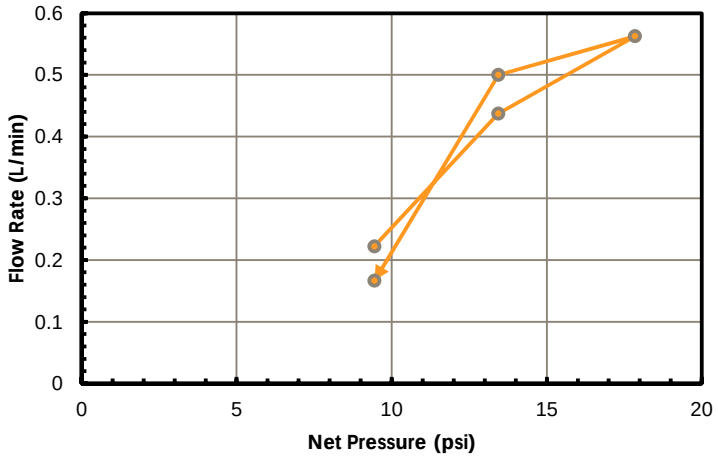
Flow rates during pressure steps:

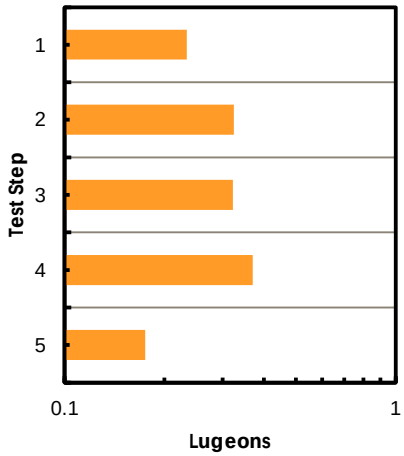
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.50	0.00
2	0.00	0.50	0.50	0.50	0.00
3	0.50	0.50	0.50	0.50	0.50
4	0.00	0.50	0.50	0.50	0.00
5	0.50	0.00	1.00	0.50	0.00
6	0.00	0.50	0.50		0.50
7	0.50	0.50	0.50		
8	0.00	0.50	0.50		
9	0.50				
10					
Average Q (L/min)	**0.22**	**0.44**	**0.56**	**0.50**	**0.17**
Pf (psi)	2.50E-05	9.69E-05	1.60E-04	1.27E-04	1.41E-05
Pnet (psi)	16.7	23.7	30.7	23.7	16.7
K (m/min)	2.0E-06	2.7E-06	2.7E-06	3.1E-06	1.5E-06
K (m/sec)	3.3E-08	4.5E-08	4.5E-08	5.2E-08	2.5E-08
Lugeons	0.23	0.32	0.32	0.37	0.18

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	14.98 to 22.13 m bgs
Analysis Date	October 12, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.28
Hydraulic Conductivity	4.0E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	2.7
K (m/min)	5.4E-06
K (m/sec)	9.0E-08
Lugeons	0.6

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	22.78 to 29.92 m bgs
Test Date	October 11, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.966
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	26.3	22.78
Bottom of test interval	34.55	29.92
Static water level	0.09	0.08
Bedrock	5.5	4.76
Midpoint of test interval	30.425	26.35

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	20.2	30.3	40.4	30.3	20.2
0	0.889	0.889	0.89	0.893	0.894
1	0.889	0.889	0.891	0.893	0.894
2	0.889	0.889	0.891	0.893	0.894
3	0.889	0.89	0.892	0.893	0.894
4	0.889	0.89	0.892	0.893	0.894
5	0.889	0.89	0.893	0.894	0.895
6					
7					
8					
9					
10					

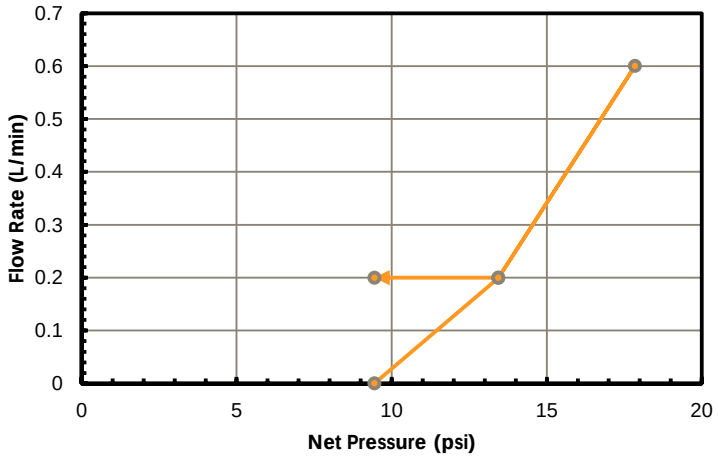
Flow rates during pressure steps:

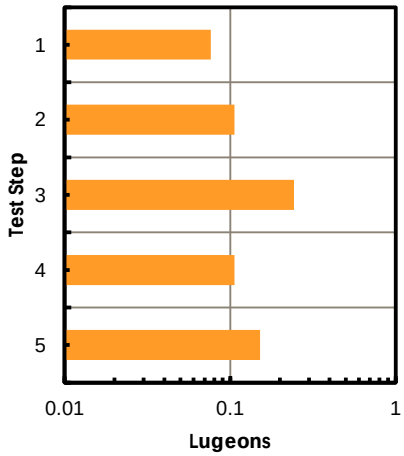
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	1.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	1.00	1.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	1.00	1.00	1.00
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.20**	**0.60**	**0.20**	**0.20**
Pf (psi)	0.00E+00	2.03E-05	1.82E-04	2.03E-05	2.03E-05
Pnet (psi)	23.1	33.2	43.3	33.2	23.1
K (m/min)	0.0E+00	8.9E-07	2.0E-06	8.9E-07	1.3E-06
K (m/sec)	1.1E-08	1.5E-08	3.4E-08	1.5E-08	2.1E-08
Lugeons	0.08	0.11	0.24	0.11	0.15

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	22.78 to 29.92 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.14
Hydraulic Conductivity	1.9E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	20.2
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	23.1
K (m/min)	6.4E-07
K (m/sec)	1.1E-08
Lugeons	0.08

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	30.57 to 37.72 m bgs
Test Date	October 12, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.966
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	35.3	30.57
Bottom of test interval	43.55	37.72
Static water level	0.09	0.08
Bedrock	5.5	4.76
Midpoint of test interval	39.425	34.14

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	26.7	40	53.31	40	26.7
0	0.895	0.895	0.895	0.896	0.896
1	0.895	0.895	0.895	0.896	0.896
2	0.895	0.895	0.8955	0.896	0.896
3	0.895	0.895	0.8955	0.896	0.896
4		0.895	0.8955	0.896	0.896
5					
6					
7					
8					
9					
10					

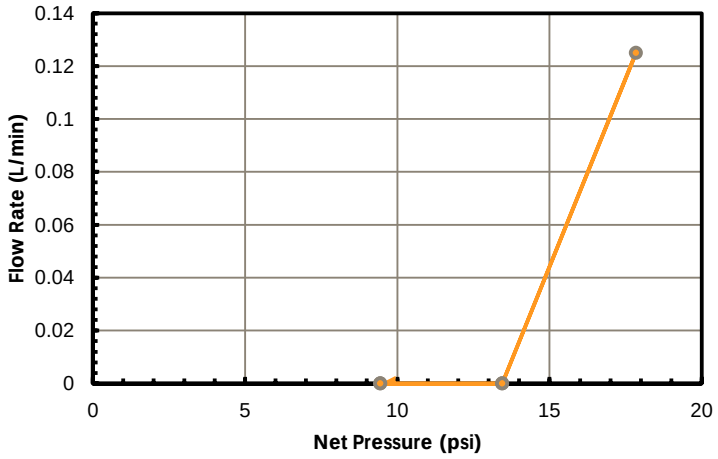
Flow rates during pressure steps:

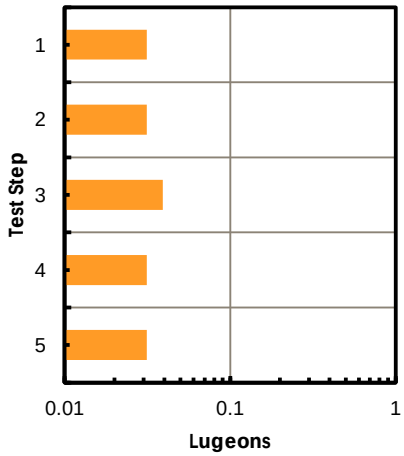
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.50	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4		0.00	0.00	0.00	0.00
5					
6					
7					
8					
9					
10					
Average Q (L/min)	**0.00**	**0.00**	**0.12**	**0.00**	**0.00**
Pf (psi)	0.00E+00	0.00E+00	7.91E-06	0.00E+00	0.00E+00
Pnet (psi)	29.6	42.9	56.2	42.9	29.6
K (m/min)	0.0E+00	0.0E+00	3.3E-07	0.0E+00	0.0E+00
K (m/sec)	4.4E-09	4.4E-09	5.5E-09	4.4E-09	4.4E-09
Lugeons	0.031	0.031	0.039	0.031	0.031

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	30.57 to 37.72 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.03
Hydraulic Conductivity	4.4E-09 m/s

Comments

Nitrogen packer system used for testing.

Generally, no take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 4.4×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	53.31
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	56.2
K (m/min)	2.6E-07
K (m/sec)	4.4E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	38.36 to 48.11 m bgs
Test Date	October 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.951
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	11.3

Depths (m bgs)	Measured	Vertical
Top of test interval	44.3	38.36
Bottom of test interval	55.55	48.11
Static water level	0.09	0.08
Bedrock	5.5	4.76
Midpoint of test interval	49.925	43.24

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	34.05	51	68.1	51	34.05
0	0.7995	0.7995	0.802	0.8045	0.8055
1	0.7995	0.8	0.8025	0.8045	0.8055
2	0.7995	0.8	0.8025	0.8045	0.8055
3	0.7995	0.8005	0.803	0.8045	0.8055
4	0.7995	0.801	0.803	0.805	0.8055
5	0.7995	0.801	0.8035	0.805	0.8055
6	0.7995	0.801	0.804	0.805	0.8056
7	0.7995	0.8015	0.804	0.805	0.8056
8	0.7995	0.802	0.804	0.8055	0.8056
9	0.7995	0.802	0.804	0.8055	0.8056
10	0.7995	0.802	0.8045	0.8055	0.8056

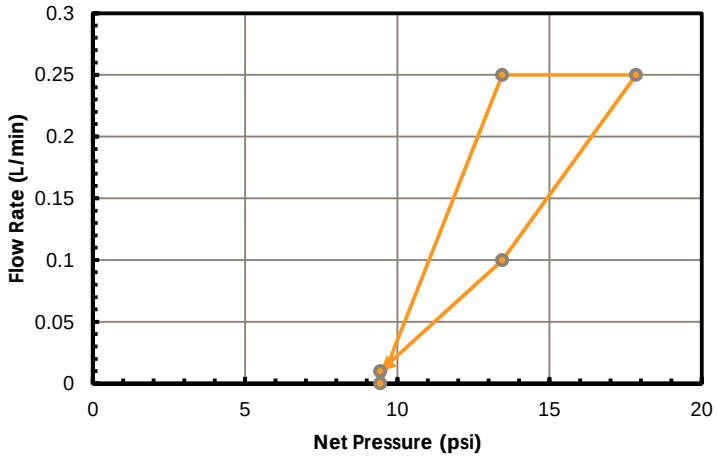
Flow rates during pressure steps:

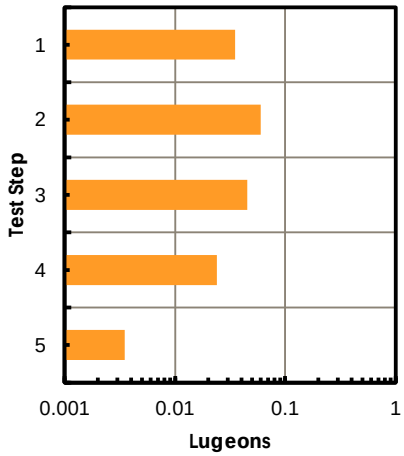
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.50	0.50	0.00	0.00
4	0.00	0.50	0.00	0.50	0.00
5	0.00	0.00	0.50	0.00	0.00
6	0.00	0.00	0.50	0.00	0.10
7	0.00	0.50	0.00	0.00	0.00
8	0.00	0.50	0.00	0.50	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.50	0.00	0.00
Average Q (L/min)	**0.00**	**0.25**	**0.25**	**0.10**	**0.01**
Pf (psi)	0.00E+00	3.16E-05	3.16E-05	5.06E-06	5.06E-08
Pnet (psi)	36.9	53.9	71.0	53.9	36.9
K (m/min)	0.0E+00	5.3E-07	4.0E-07	2.1E-07	3.1E-08
K (m/sec)	5.2E-09	8.9E-09	6.7E-09	3.5E-09	5.2E-10
Lugeons	0.035	0.060	0.045	0.024	0.003

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	38.36 to 48.11 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.03
Hydraulic Conductivity	5.0E-09 m/s

Comments

Nitrogen packer system used for testing.

Response behaviour conservatively chosen as laminar.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	34.05
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	36.9
K (m/min)	3.1E-07
K (m/sec)	5.2E-09
Lugeons	0.03

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	46.16 to 53.3 m bgs
Test Date	October 13, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.951
Borehole radius	0.038
Borehole inclination(º)	60
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	8.3

Depths (m bgs)	Measured	Vertical
Top of test interval	53.3	46.16
Bottom of test interval	61.55	53.3
Static water level	0.09	0.08
Bedrock	5.5	4.76
Midpoint of test interval	57.425	49.73

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	39.4	59.1	78	59.1	39.4
0	0.807	0.807	0.807	0.8075	0.808
1	0.807	0.807	0.807	0.8075	0.808
2	0.807	0.807	0.807	0.8075	0.808
3	0.807	0.807	0.807	0.8075	0.808
4	0.807	0.807	0.8075	0.8075	0.808
5	0.807	0.807	0.8075	0.8075	0.808
6	0.807	0.807	0.8075	0.8075	0.808
7	0.807	0.807	0.8075	0.8075	0.808
8	0.807	0.807	0.8075	0.8075	0.808
9	0.807	0.807	0.8075	0.8075	0.8085
10					

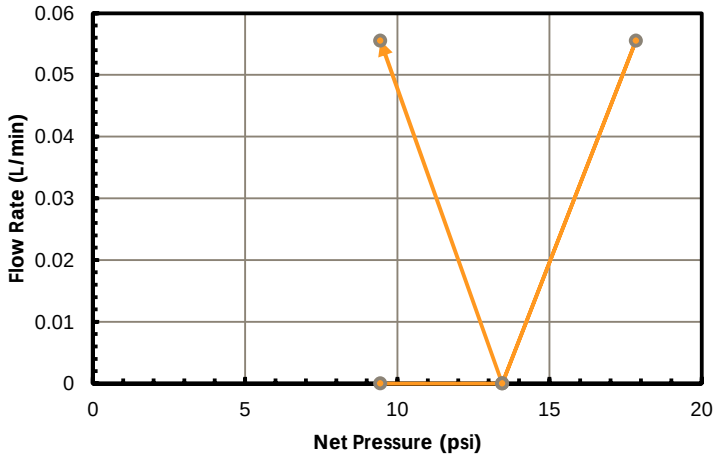
Flow rates during pressure steps:

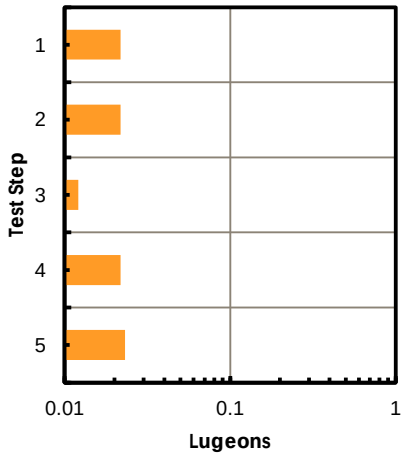
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.50	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.50
10					
Average Q (L/min)	**0.00**	**0.00**	**0.06**	**0.00**	**0.06**
Pf (psi)	0.00E+00	0.00E+00	1.56E-06	0.00E+00	1.56E-06
Pnet (psi)	42.3	62.0	80.9	62.0	42.3
K (m/min)	0.0E+00	0.0E+00	1.0E-07	0.0E+00	1.9E-07
K (m/sec)	3.0E-09	3.0E-09	1.7E-09	3.0E-09	3.2E-09
Lugeons	0.022	0.022	0.012	0.022	0.023

Project	Touquoy In-Pit Disposal
Borehole	BH21-11
Test Interval	46.16 to 53.3 m bgs
Analysis Date	October 19, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	No Take
Lugeon	0.02
Hydraulic Conductivity	3.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take at tested pressure steps.

Upper bound hydraulic conductivity estimate of 3.0×10^{-9} m/s

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	78
Q_{min} (L/min)	0.10
Pf (psi)	0.0000051
Pnet (psi)	80.9
K (m/min)	1.8E-07
K (m/sec)	3.0E-09
Lugeons	0.022

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	5.06 to 14.06 m bgs
Test Date	October 23, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	5.06	5.06
Bottom of test interval	14.06	14.06
Static water level	2.13	2.13
Bedrock	5.06	5.06
Midpoint of test interval	9.56	9.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	6	9	12	9	6
0	1.558	1.5695	1.5885	1.616	1.636
1	1.558	1.572	1.5915	1.618	1.638
2	1.558	1.574	1.594	1.62	1.6385
3	1.559	1.575	1.599	1.623	1.641
4	1.56	1.577	1.602	1.625	1.642
5	1.562	1.579	1.604	1.627	1.643
6	1.563	1.581	1.607	1.629	1.645
7	1.564	1.583	1.61	1.631	1.646
8	1.565	1.585	1.612	1.632	1.6475
9	1.566	1.588	1.615	1.634	1.6485
10	1.567	1.5885	1.616	1.636	1.649

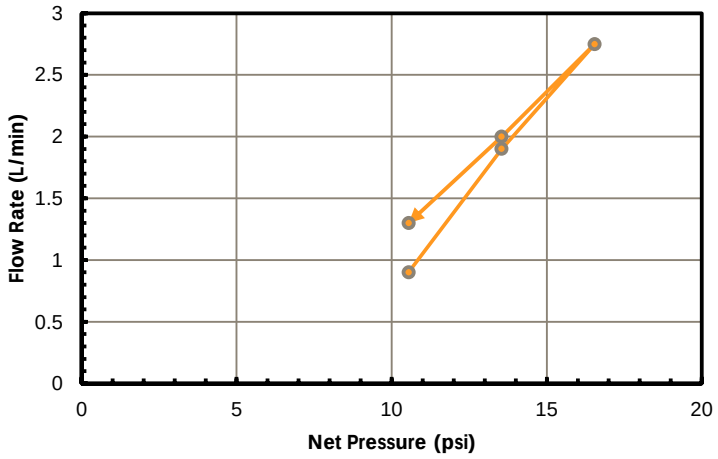
Flow rates during pressure steps:

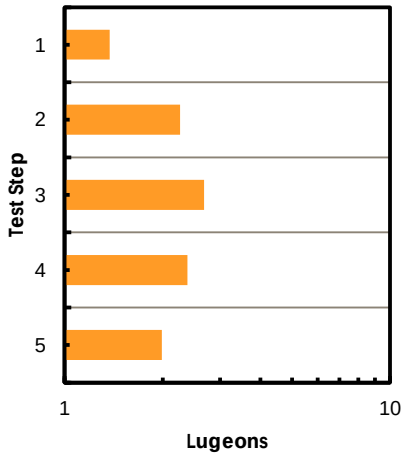
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	2.50	3.00	2.00	2.00
2	0.00	2.00	2.50	2.00	0.50
3	1.00	1.00	5.00	3.00	2.50
4	1.00	2.00	3.00	2.00	1.00
5	2.00	2.00	2.00	2.00	1.00
6	1.00	2.00	3.00	2.00	2.00
7	1.00	2.00	3.00	2.00	1.00
8	1.00	2.00	2.00	1.00	1.50
9	1.00	3.00	3.00	2.00	1.00
10	1.00	0.50	1.00	2.00	0.50
Average Q (L/min)	**0.90**	**1.90**	**2.75**	**2.00**	**1.30**
Pf (psi)	4.10E-04	1.83E-03	3.83E-03	2.02E-03	8.56E-04
Pnet (psi)	10.6	13.5	16.5	13.5	10.6
K (m/min)	1.2E-05	1.9E-05	2.3E-05	2.0E-05	1.7E-05
K (m/sec)	2.0E-07	3.2E-07	3.8E-07	3.4E-07	2.8E-07
Lugeons	1.4	2.3	2.7	2.4	2.0

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	5.06 to 14.06 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	2.14
Hydraulic Conductivity	3.0E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	14.06 to 23.06 m bgs
Test Date	October 22, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.067
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	14.06	14.06
Bottom of test interval	23.06	23.06
Static water level	2.13	2.13
Bedrock	5.06	5.06
Midpoint of test interval	18.56	18.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	14.5	22	29.12	22	14.5
0	1.655	1.672	1.695	1.723	1.743
1	1.656	1.674	1.698	1.724	1.744
2	1.6575	1.676	1.7	1.7255	1.746
3	1.6585	1.6785	1.703	1.7275	1.747
4	1.662	1.6805	1.705	1.73	1.748
5	1.663	1.683	1.707	1.732	1.749
6	1.665	1.685	1.709	1.733	1.75
7	1.666	1.687	1.711	1.735	1.751
8	1.667	1.689	1.715	1.738	1.752
9	1.668	1.691	1.717	1.74	1.752
10	1.6695	1.693	1.719	1.742	1.7525

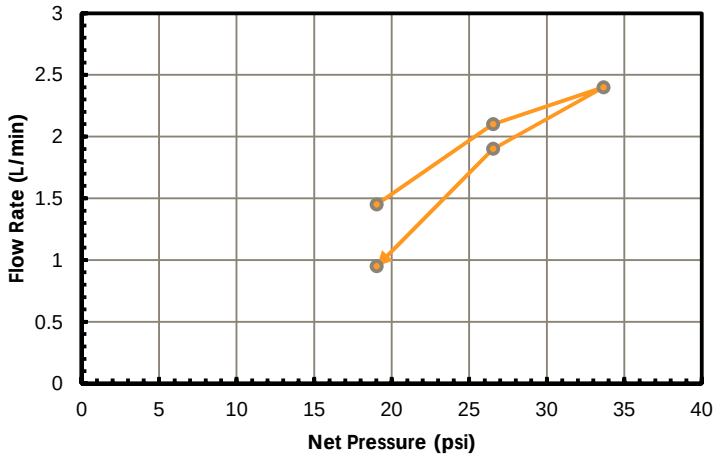
Flow rates during pressure steps:

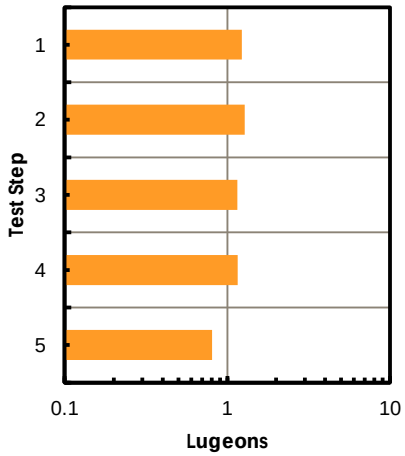
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	1.00	2.00	3.00	1.00	1.00
2	1.50	2.00	2.00	1.50	2.00
3	1.00	2.50	3.00	2.00	1.00
4	3.50	2.00	2.00	2.50	1.00
5	1.00	2.50	2.00	2.00	1.00
6	2.00	2.00	2.00	1.00	1.00
7	1.00	2.00	2.00	2.00	1.00
8	1.00	2.00	4.00	3.00	1.00
9	1.00	2.00	2.00	2.00	0.00
10	1.50	2.00	2.00	2.00	0.50
Average Q (L/min)	**1.45**	**2.10**	**2.40**	**1.90**	**0.95**
Pf (psi)	1.06E-03	2.23E-03	2.92E-03	1.83E-03	4.57E-04
Pnet (psi)	19.1	26.5	33.7	26.5	19.1
K (m/min)	1.0E-05	1.1E-05	9.8E-06	9.9E-06	6.9E-06
K (m/sec)	1.7E-07	1.8E-07	1.6E-07	1.6E-07	1.1E-07
Lugeons	1.2	1.3	1.1	1.2	0.8

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	14.06 to 23.06 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	1.12
Hydraulic Conductivity	1.6E-07 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	23.06 to 32.06 m bgs
Test Date	October 22, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	23.06	23.06
Bottom of test interval	32.06	32.06
Static water level	3.05	3.05
Bedrock	5.06	5.06
Midpoint of test interval	27.56	27.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	22	33	44	33	22
0	1.753	1.7535	1.7535	1.756	1.757
1	1.753	1.7535	1.754	1.756	1.757
2	1.753	1.7535	1.7545	1.756	1.757
3	1.7535	1.7535	1.7545	1.756	1.757
4	1.7535	1.7535	1.7545	1.756	1.757
5	1.7535	1.7535	1.7545	1.7565	1.757
6	1.7535	1.7535	1.7545	1.757	1.757
7	1.7535	1.7535	1.755	1.757	1.7575
8	1.7535	1.7535	1.7555	1.757	1.7575
9	1.7535	1.7535	1.756	1.757	1.7575
10	1.7535	1.7535	1.756	1.757	1.758

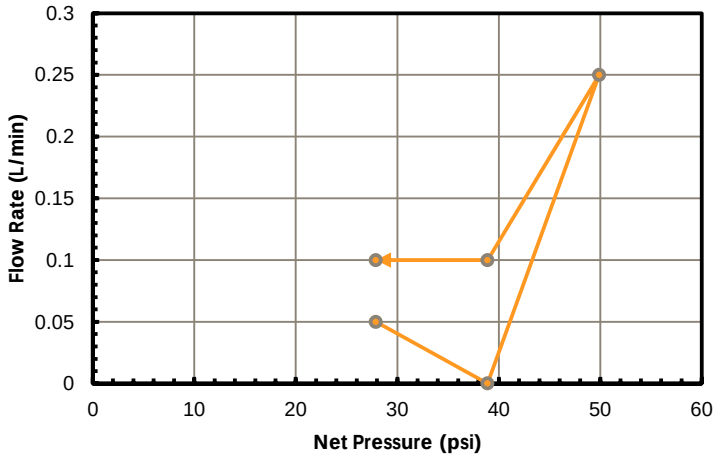
Flow rates during pressure steps:

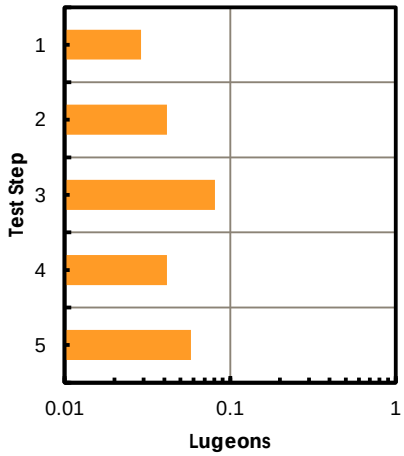
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.00	0.50	0.00	0.00
2	0.00	0.00	0.50	0.00	0.00
3	0.50	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.50	0.00
6	0.00	0.00	0.00	0.50	0.00
7	0.00	0.00	0.50	0.00	0.50
8	0.00	0.00	0.50	0.00	0.00
9	0.00	0.00	0.50	0.00	0.00
10	0.00	0.00	0.00	0.00	0.50
Average Q (L/min)	**0.05**	**0.00**	**0.25**	**0.10**	**0.10**
Pf (psi)	1.27E-06	0.00E+00	3.16E-05	5.06E-06	5.06E-06
Pnet (psi)	27.9	38.9	49.9	38.9	27.9
K (m/min)	2.5E-07	0.0E+00	6.9E-07	3.5E-07	4.9E-07
K (m/sec)	4.1E-09	5.9E-09	1.1E-08	5.9E-09	8.2E-09
Lugeons	0.029	0.041	0.081	0.041	0.058

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	23.06 to 32.06 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Dilation
Lugeon	0.04
Hydraulic Conductivity	6.0E-09 m/s

Comments

Nitrogen packer system used for testing.

No take on second pressure step, upper bound estimate of hydraulic conductivity of 5.9×10^{-9} m/s at 33 psi used in calculation of hydraulic conductivity.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	33
Q_{min} (L/min)	0.10
Pf (psi)	0.0
Pnet (psi)	38.9
K (m/min)	3.5E-07
K (m/sec)	5.9E-09
Lugeons	0.0

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	32.06 to 41.06 m bgs
Test Date	October 24, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	9.0

Depths (m bgs)	Measured	Vertical
Top of test interval	32.06	32.06
Bottom of test interval	41.06	41.06
Static water level	3.29	3.29
Bedrock	5.06	5.06
Midpoint of test interval	36.56	36.56

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	29.52	44.28	59	44.28	29.52
0	1.768	1.769	1.77	1.7725	1.7735
1	1.768	1.7695	1.7705	1.7725	1.7735
2	1.768	1.7695	1.771	1.7725	1.7735
3	1.7685	1.7695	1.771	1.7725	1.774
4	1.7685	1.7695	1.7715	1.773	1.774
5	1.7685	1.7695	1.7715	1.773	1.774
6	1.7685	1.77	1.772	1.773	1.774
7	1.7685	1.77	1.772	1.773	1.774
8	1.769	1.77	1.772	1.7735	1.774
9	1.769	1.77	1.772	1.7735	1.774
10	1.769	1.77	1.7725	1.7735	1.774

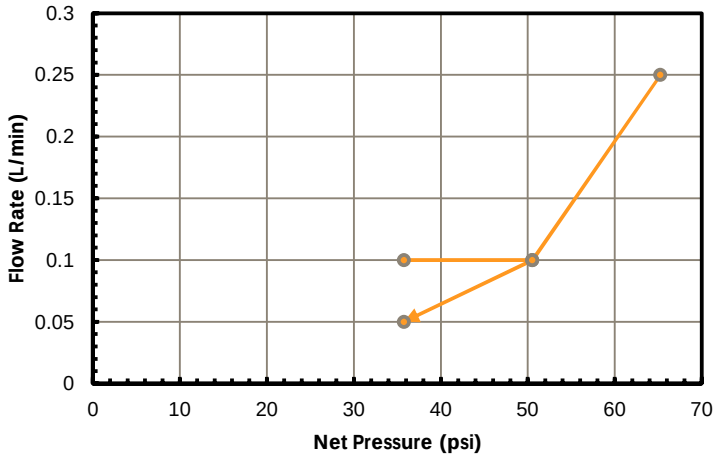
Flow rates during pressure steps:

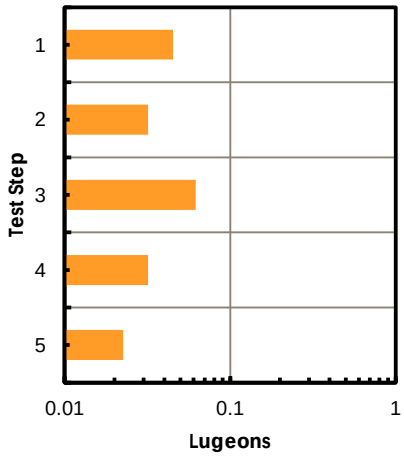
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.00	0.50	0.50	0.00	0.00
2	0.00	0.00	0.50	0.00	0.00
3	0.50	0.00	0.00	0.00	0.50
4	0.00	0.00	0.50	0.50	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.50	0.50	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.50	0.00	0.00	0.50	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.50	0.00	0.00
Average Q (L/min)	**0.10**	**0.10**	**0.25**	**0.10**	**0.05**
Pf (psi)	5.06E-06	5.06E-06	3.16E-05	5.06E-06	1.27E-06
Pnet (psi)	35.8	50.5	65.2	50.5	35.8
K (m/min)	3.8E-07	2.7E-07	5.3E-07	2.7E-07	1.9E-07
K (m/sec)	6.4E-09	4.5E-09	8.8E-09	4.5E-09	3.2E-09
Lugeons	0.045	0.032	0.062	0.032	0.023

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	32.06 to 41.06 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.04
Hydraulic Conductivity	5.5E-09 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	10 to 41.06 m bgs
Test Date	October 24, 2021
Test Supervisor	Sean McOuat

Packer Testing

Field Data

General Data	
Gauge Height (m)	1.097
Borehole radius	0.038
Borehole inclination(º)	90
Fricton Factor [(psi)$^{1/2}$/L/min]	0.023
Test interval length [m]	31.1

Depths (m bgs)	Measured	Vertical
Top of test interval	10	10
Bottom of test interval	41.06	41.06
Static water level	3.29	3.29
Bedrock	5.06	5.06
Midpoint of test interval	25.53	25.53

Flow Meter Volume Readings during pressure steps:

(m^3)	Gauge Pressure (psi)				
Time (minutes)	10	15	20	15	10
0	1.776	1.798	1.821	1.848	1.868
1	1.7765	1.8	1.823	1.849	1.8685
2	1.7795	1.803	1.825	1.85	1.8695
3	1.7815	1.806	1.828	1.8525	1.87
4	1.7835	1.809	1.831	1.855	1.872
5	1.7845	1.811	1.833	1.857	1.8735
6	1.7855	1.813	1.835	1.8595	1.875
7	1.788	1.816	1.837	1.8615	1.877
8	1.789	1.8175	1.839	1.8635	1.878
9	1.791	1.819	1.842	1.865	1.879
10	1.794	1.82	1.845	1.867	1.88

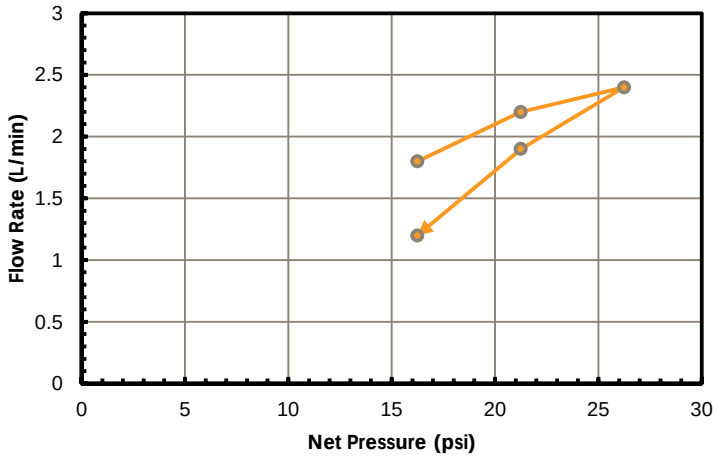
Flow rates during pressure steps:

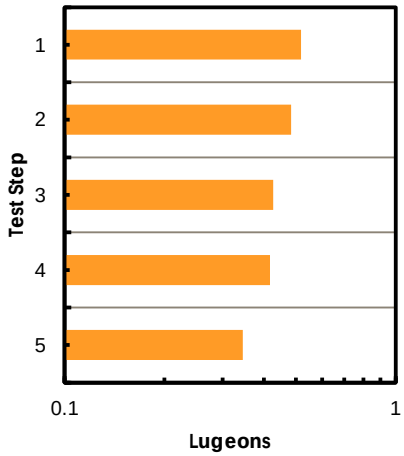
Elapsed Time (Minutes)	**Flow Rate (L/min)**				
1	0.50	2.00	2.00	1.00	0.50
2	3.00	3.00	2.00	1.00	1.00
3	2.00	3.00	3.00	2.50	0.50
4	2.00	3.00	3.00	2.50	2.00
5	1.00	2.00	2.00	2.00	1.50
6	1.00	2.00	2.00	2.50	1.50
7	2.50	3.00	2.00	2.00	2.00
8	1.00	1.50	2.00	2.00	1.00
9	2.00	1.50	3.00	1.50	1.00
10	3.00	1.00	3.00	2.00	1.00
Average Q (L/min)	**1.80**	**2.20**	**2.40**	**1.90**	**1.20**
Pf (psi)	1.64E-03	2.45E-03	2.92E-03	1.83E-03	7.29E-04
Pnet (psi)	16.2	21.2	26.2	21.2	16.2
K (m/min)	5.4E-06	5.1E-06	4.5E-06	4.4E-06	3.6E-06
K (m/sec)	9.0E-08	8.4E-08	7.5E-08	7.3E-08	6.0E-08
Lugeons	0.52	0.48	0.43	0.42	0.35

Project	Touquoy In-Pit Disposal
Borehole	BH21-12
Test Interval	10 to 41.06 m bgs
Analysis Date	October 25, 2021
Analyst	Jaouhar Amine

Packer Testing

Interpretation





Response Behaviour	Laminar
Lugeon	0.44
Hydraulic Conductivity	7.7E-08 m/s

Comments

Nitrogen packer system used for testing.

Top bound estimate of hydraulic conductivity for no-take segments

based on accuracy of gauge and peak test pressure step

P_{max} (psi) with no flow	
Q_{min} (L/min)	
Pf (psi)	
Pnet (psi)	
K (m/min)	
K (m/sec)	
Lugeons	

- based on accuracy of gauge and peak test pressure step

- assuming flow meter reading limit of Q_{min}, maximum pressure step of P_{max} and duration of 5 minutes with no reading.

C.5 HT BOREHOLE SLUG TESTING ANALYSIS REPORTS

TERRANE
GEOSCIENCE INC.

100 – 5435 Portland Place
Halifax, NS, B3K 2Z8
terranegeoscience.com

TO: Paul Deering, P.Eng., P.Geo. (Stantec Consulting Ltd)

FROM: Andrew Guest, P.Eng. (Terrane Geoscience)

REVIEW: Tony Gilman, P.Eng., P.Geo. (Terrane Geoscience)

DATE: February 11, 2022

RE: Downhole Geophysical Investigation Results, Mooseland, Nova Scotia

1.0 INTRODUCTION

Terrane Geoscience Inc (Terrane) has prepared this memorandum for Stantec Consulting Ltd (Stantec) summarizing the results of the recent downhole geophysical surveys completed on the Moose River Gold Mine (Moose River). The purpose of this work was to gather orientation data on geological structures as well as hydrogeological data such as fluid conductivity, fluid temperature, and estimations on borehole flow rates.

This memo describes the data collection methodology and the results of the downhole geophysical surveys.

2.0 METHODOLOGY

Terrane representatives were on site on December 20th through 23rd, 2021. Terrane demobilized for the holiday season and returned to site to complete the field work January 7th, 9th, 10th, 20th - 25th, 2022. Terrane completed downhole geophysical surveys on nine NQ bore holes (Table 1). Survey depths ranged between 38 to 120 m, and totalled 641.7 m. A total of twelve days were spent on site.

Optical imagery was collected using a QL40-OBI optical probe which provides high resolution imagery of the bore hole walls suitable for structure detection, orientation, and characterization.

Acoustic imagery was collected using a QL40-ABI acoustic probe with provides a high resolution “map” of the bore hole walls suitable for structure detection, including amplitude and caliper of the structures.

Caliper data of the borehole wall was collected using a 2PCA-1000 three-arm caliper probe. Data was collected on the caliper for the bore hole from the bottom to surface.

Temperature and conductivity data was collected using a QL40-FTC probe. The probe provides a profile of the temperature and conductivity of the bore hole fluid.

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Halifax, NS, B3K 2Z8
terranegeoscience.com

Flow data was captured using a HFP-2293 heat pulse flow meter. The raw data was collected in MATRIXHEAT™ were flow rates can be estimated depending on the flow conditions in the bore hole at the time of the survey.

3.0 DATA ANALYSIS

Terrane compiled the raw optical and acoustic imagery into a composite log file in WellCAD™ and measured the representative structures observed downhole. Structural data collected included:

Table 3-1 - Optical and Acoustic Televiewer Interpretation

Structure Type	Structural Interpretation Results									
	BH21-01	BH21-02	BH21-03	BH21-04	BH21-05	BH21-09	BH21-10	BH21-11	BH21-12	Total
Bedding	10	4	21	3	1	4	5	2	8	58
Cleavage	4	2	2	-	-	4	-	2	-	14
Fault Major	-	2	-	-	1	5	-	-	-	8
Foliation	-	-	3	-	-	-	1	-	2	6
Joint	51	74	61	78	44	45	104	34	33	524
Open Joint	14	43	13	41	17	64	46	51	18	307
Vein	-	6	23	8	2	15	-	-	-	54
Total	79	131	123	130	65	137	156	89	61	971

For each structure, dip, dip direction, amplitude, and caliper (if applicable) were recorded. Once logging was complete, the data was converted to correct for the azimuth and tilt of the bore hole, as well as the magnetic declination (-16.87°). All feature orientations are reported in true north following standard dip/dip direction convention.

Logs were prepared for each bore hole that show: 1) optical imagery, 2) acoustic imagery, 3) measured structures as 2D traces, 3D planes, and orientation ‘tadpoles, 4) Bore hole caliper, 5) Bore hole fluid temperature, 6) borehole fluid conductivity, and 7) estimates of bore hole fluid flow where evident.

4.0 LIMITATIONS

As stated in the proposal, Terrane is not responsible for the interpretation of the bore hole fluid conductivity nor the interpretation of the flows within the bore hole.

The bore hole fluid flows displayed on the logs are for visualization only and should be considered preliminary. Stantec is responsible to review and conduct their own interpretations of the bore hole fluid flows from the raw data provided by Terrane.

Terrane is not responsible for any 3rd party use or interpretations of the data presented herein.

TERRANE
GEOSCIENCE INC.

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Halifax, NS, B3K 2Z8
terranegeoscience.com

5.0 CLOSURE

We trust that this report meets the needs of Stantec, should you have any questions please do not hesitate to contact us.

Yours sincerely,

Andrew Guest, P.Eng.
Terrane Geoscience Inc.

Client: Stantec Consulting Ltd.

TERRANE GEOSCIENCE INC.

Project: Downhole Geophysical Investigation
Mooseland, Nova Scotia
21-100-H

Area:	Hole ID:
Mooseland	BH21-01

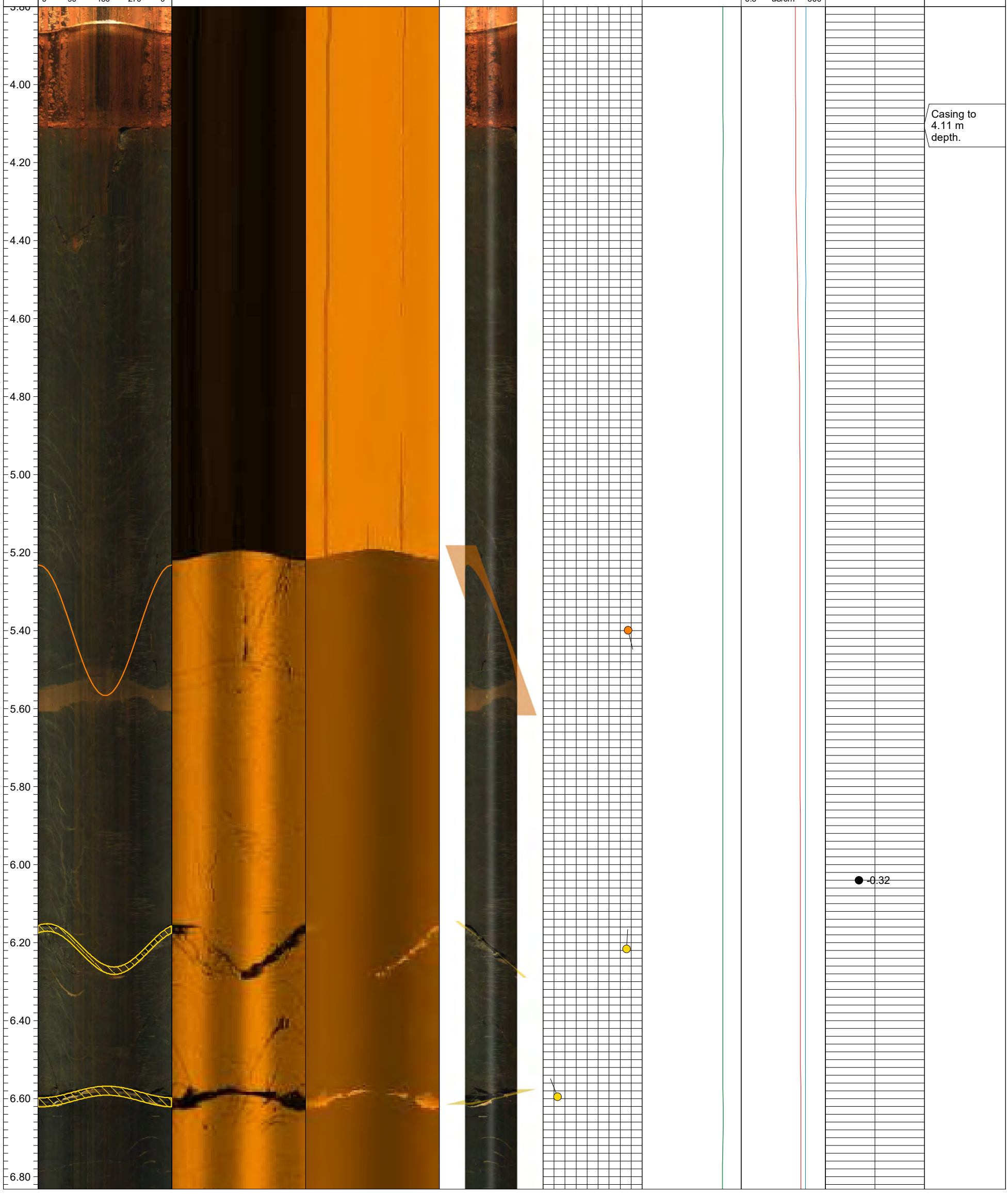
Location:	Azimuth:	Dip:
N: 4981045 E: 504206 Z: 111.272	170	-60

Hole Depth (m):	Log Depth (m):	Logged By:	Logged Date:	Water Level:
60	60	P.Ramlochund	24/01/22	5.5

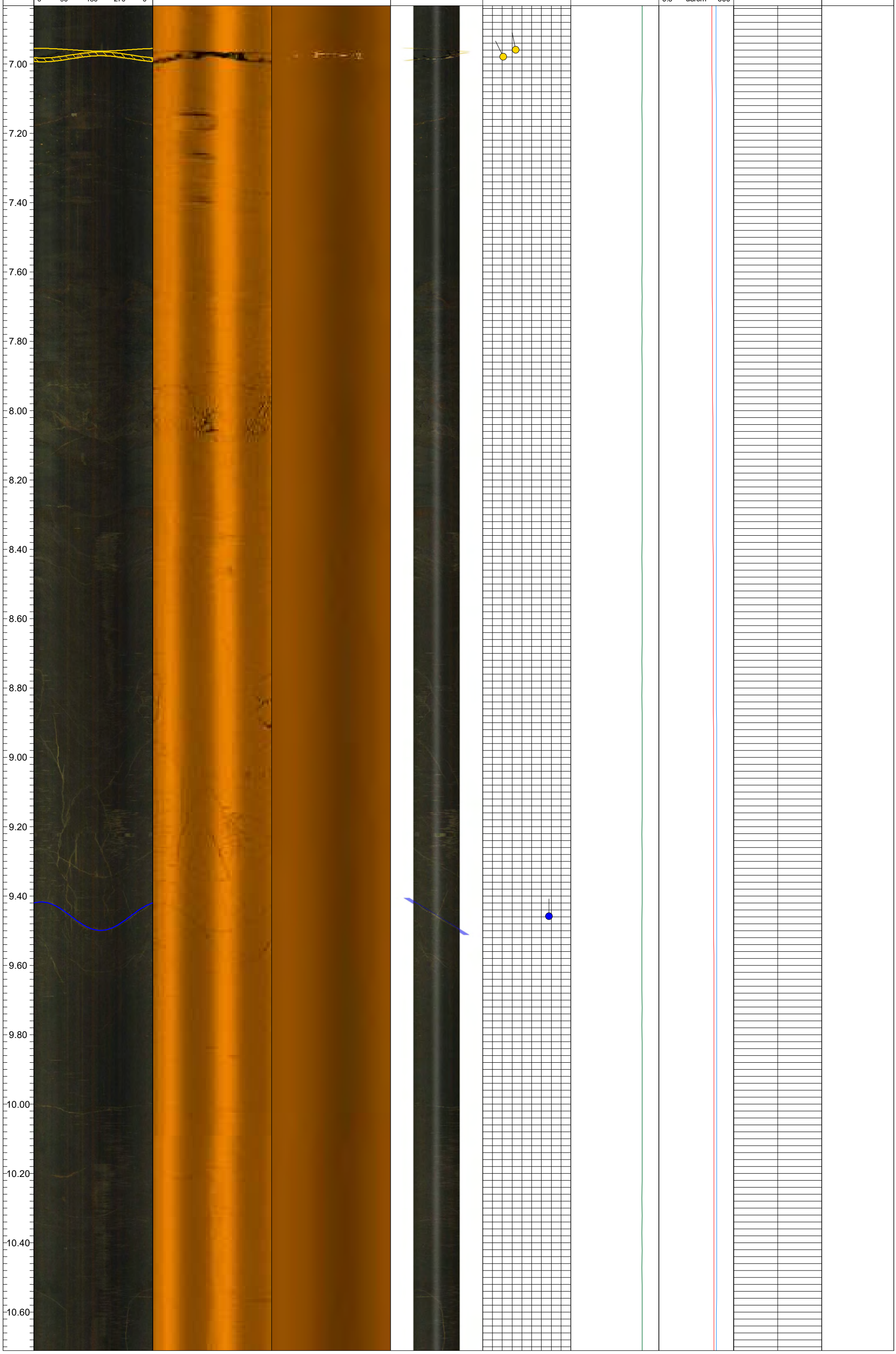
Structure:

- OJT - Open Joint
- JC - Cemented Joint
- JS - Joint
- VN - Vein
- FLT_m - Minor Fault
- FLT_M - Fault Zone
- BD - Bedding
- CL - Cleavage
- SZ - Shear
- FO - Foliation
- FOc - Foliation Closed
- RZ - Rubble Zone
- CNT - Contact
- IAP - Interpreted Axial Plane

Notes:
Ignore conductivity reading above water table.



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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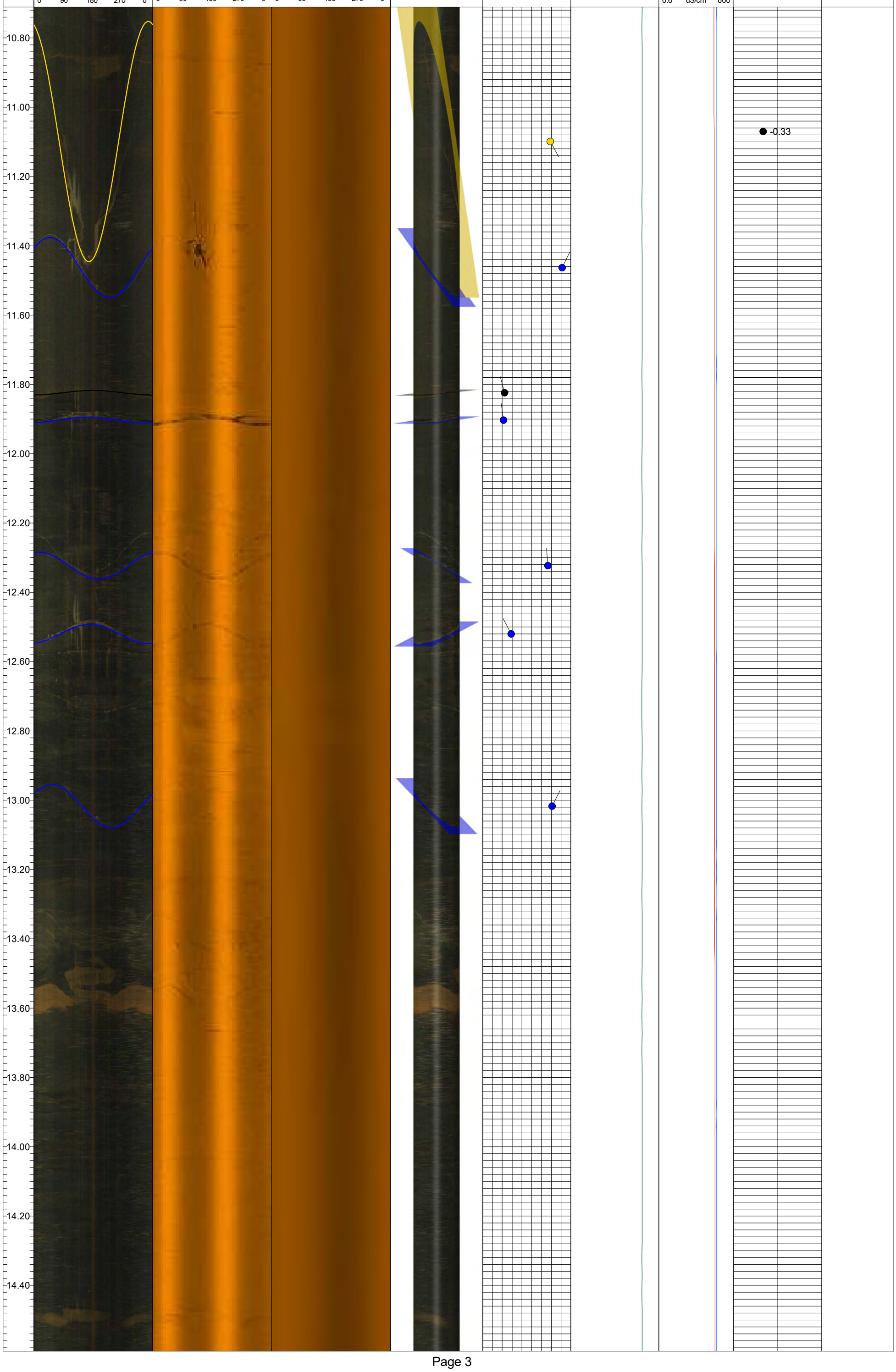
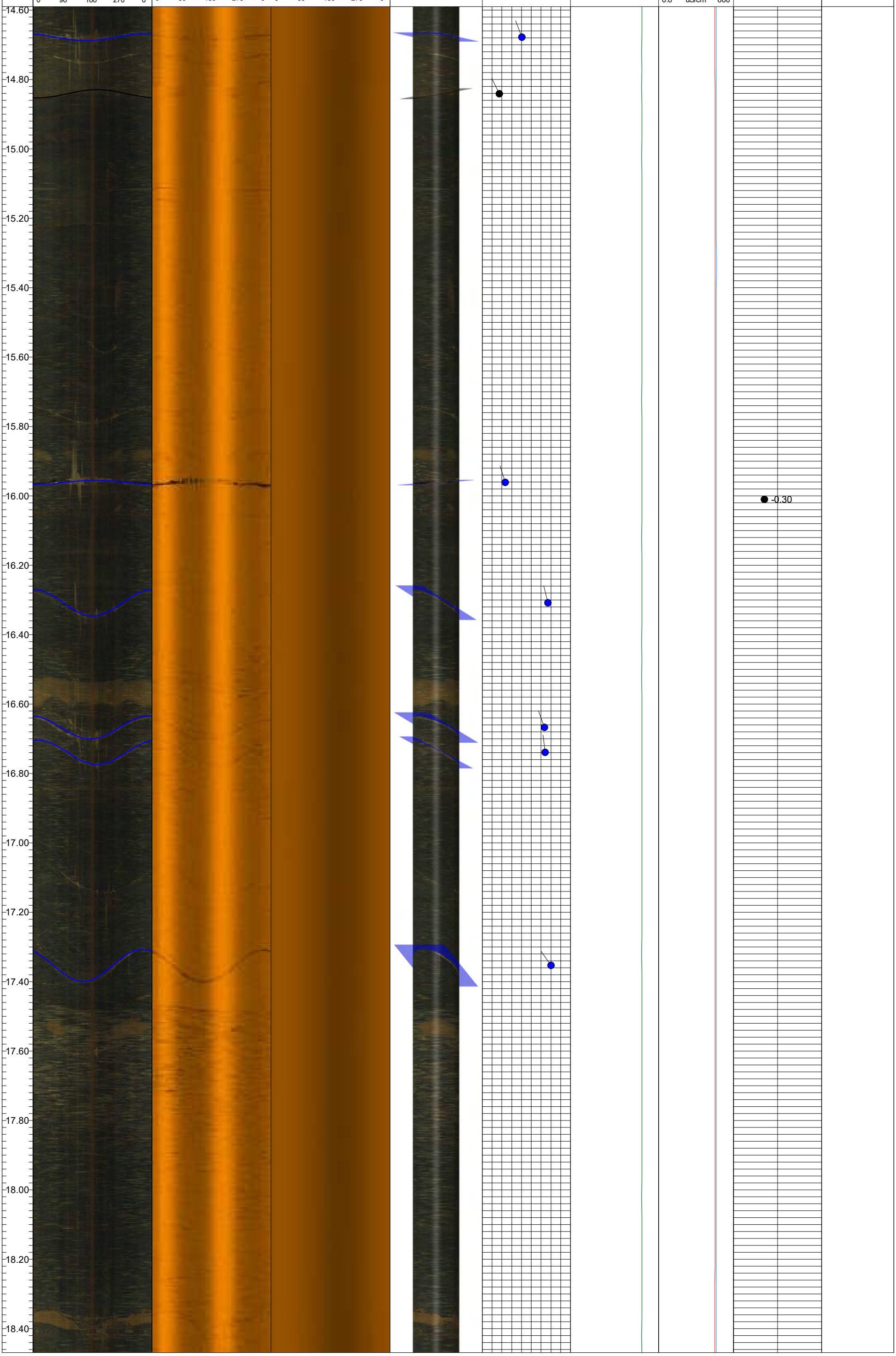
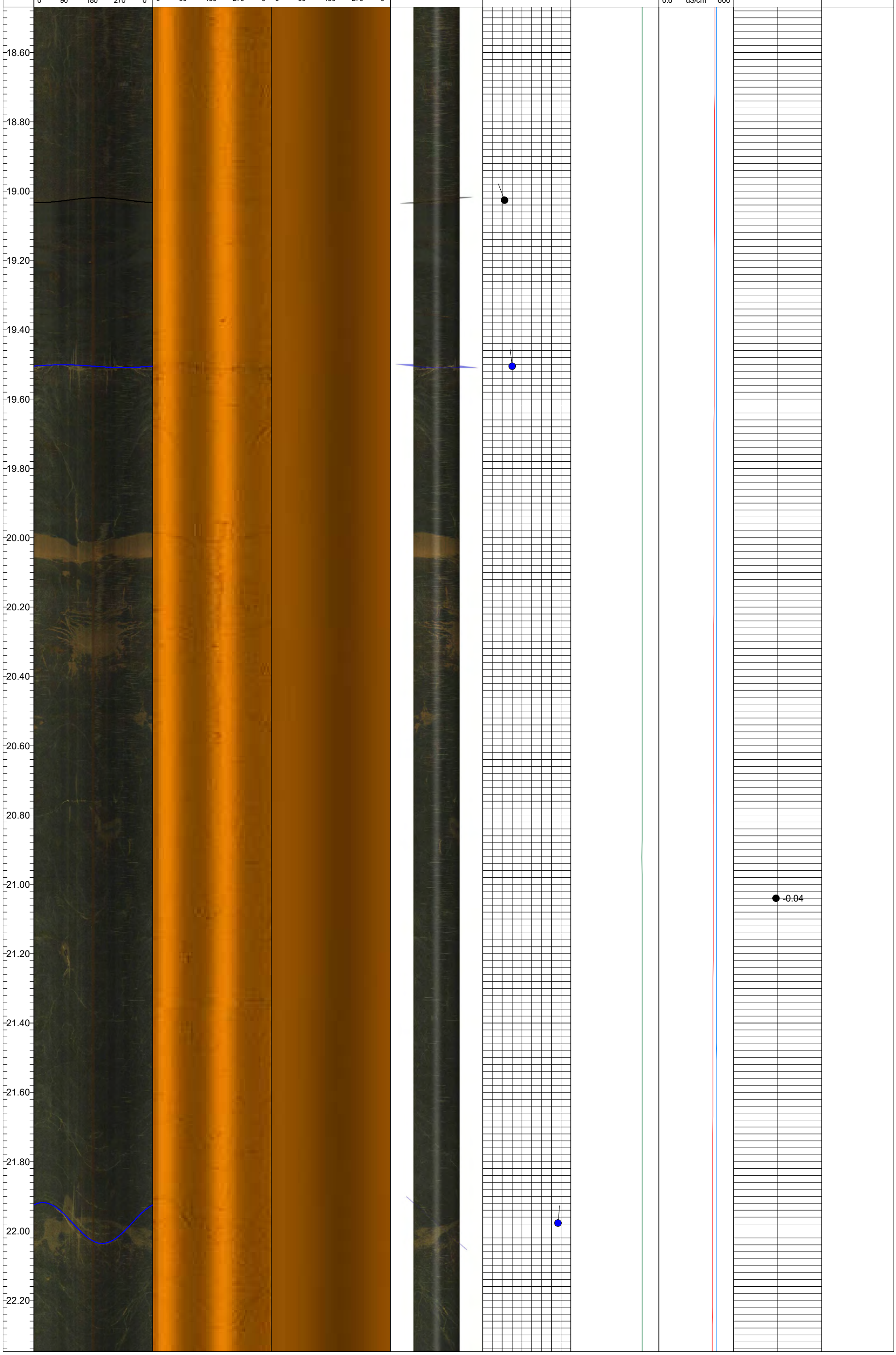


Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1 -0.30	

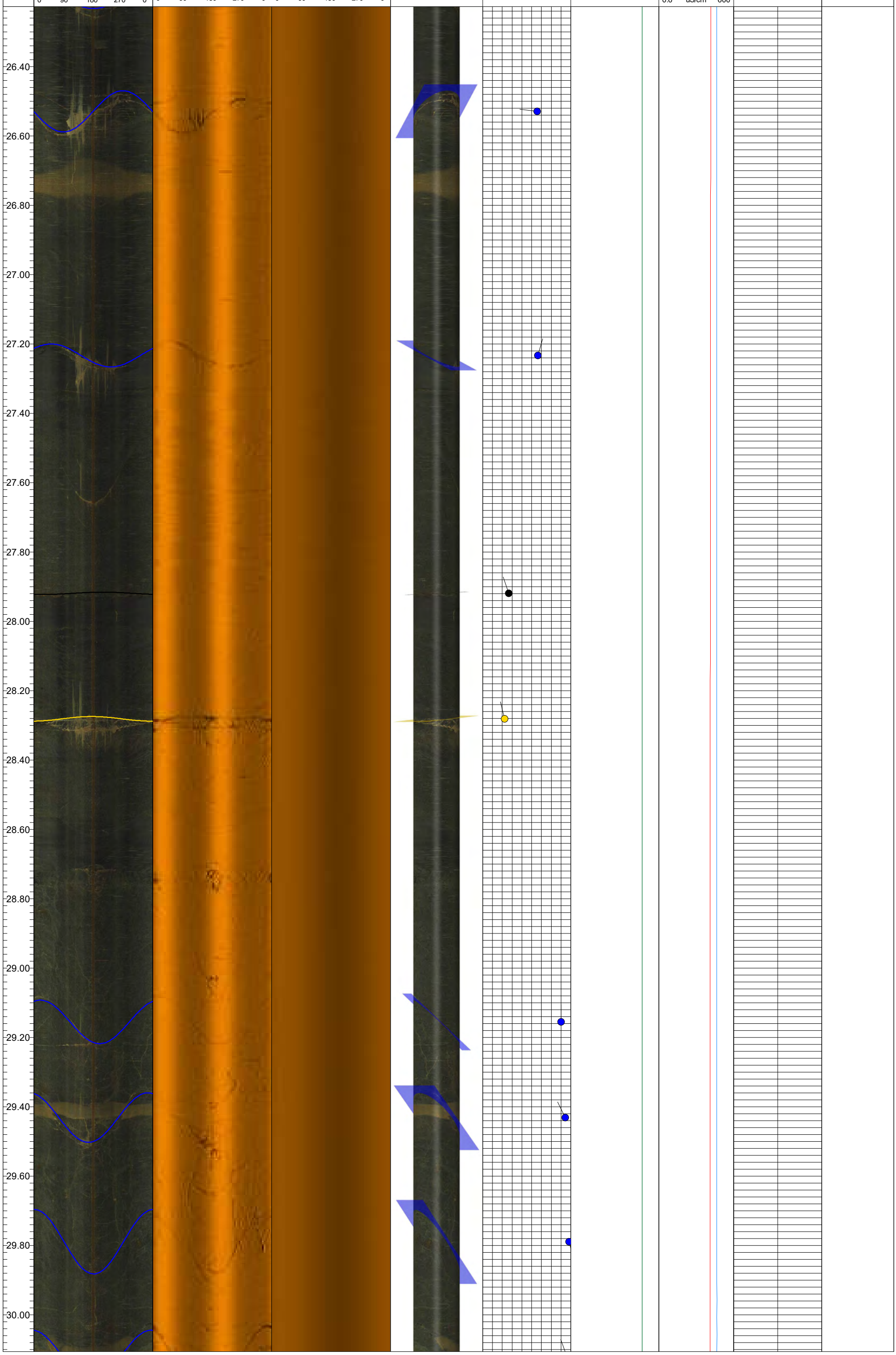


Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	

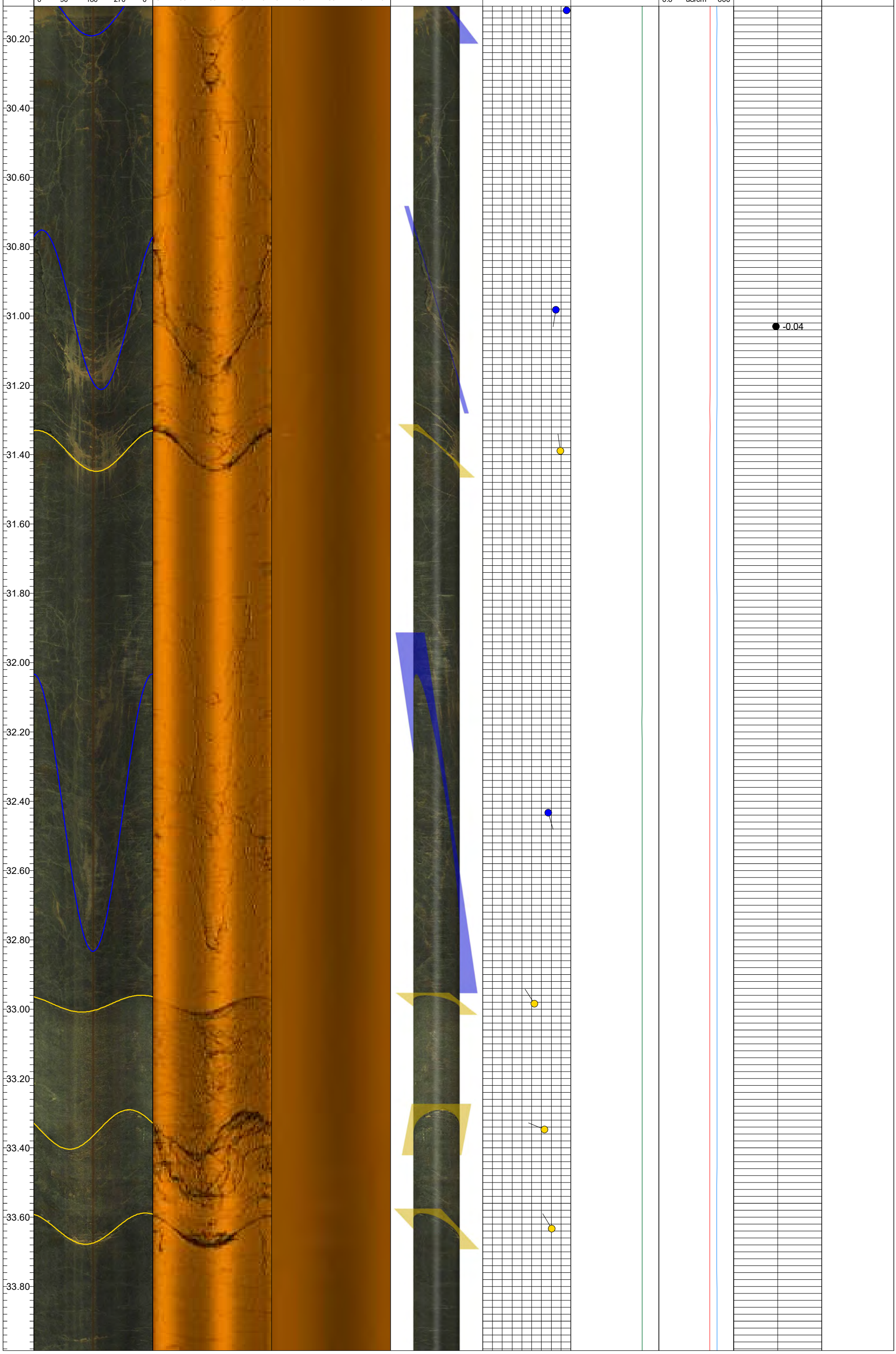


Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	

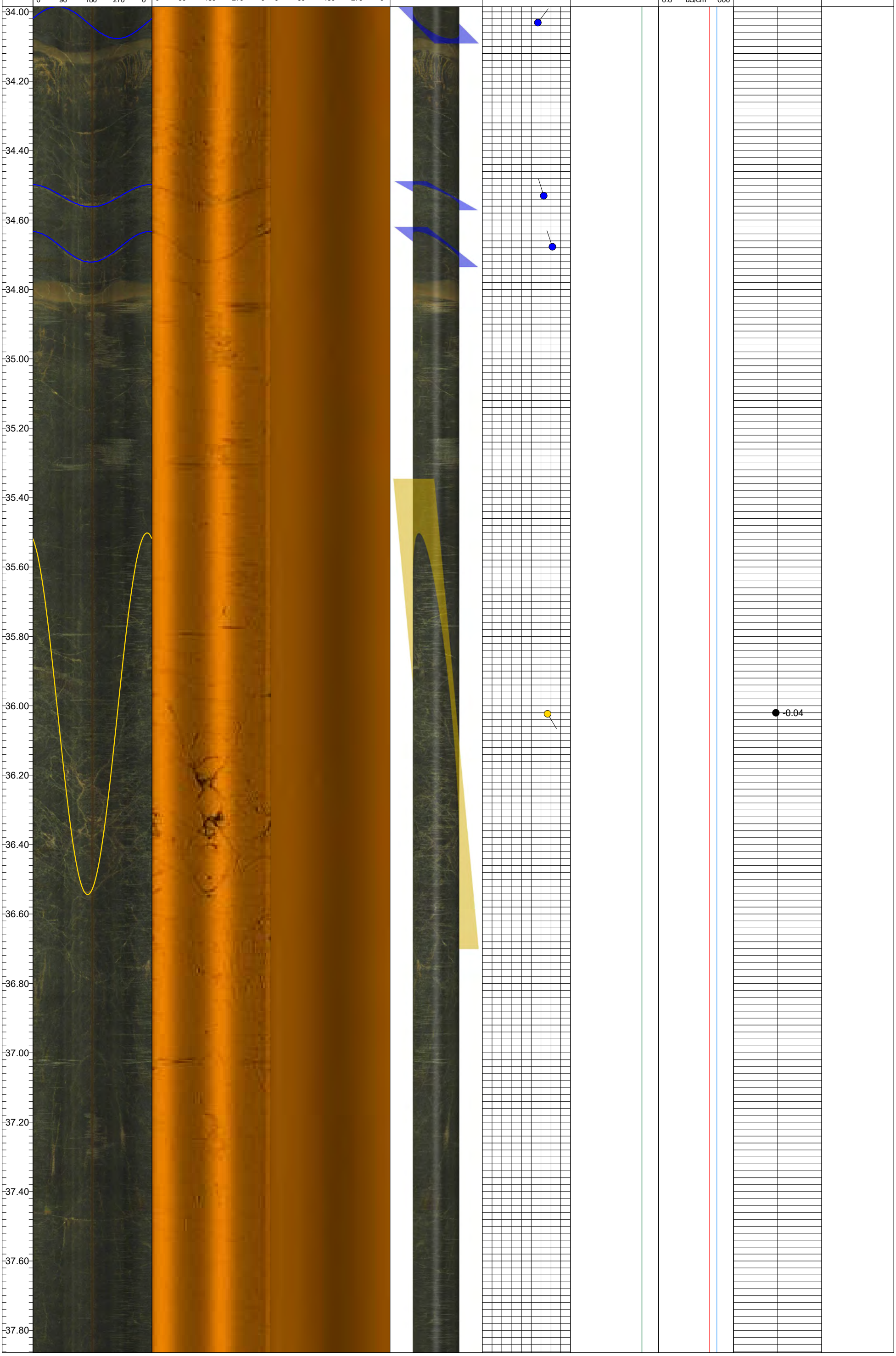
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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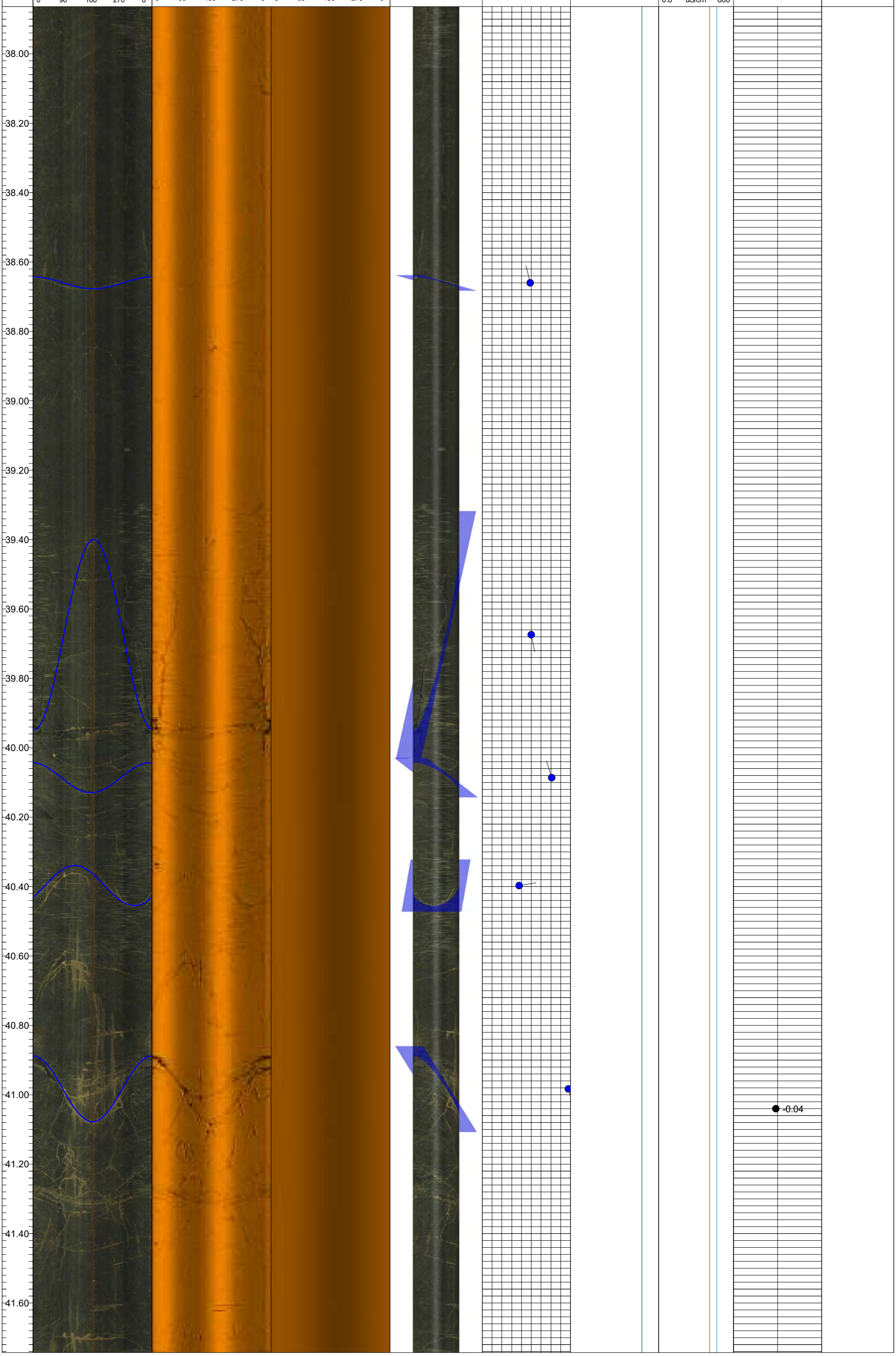
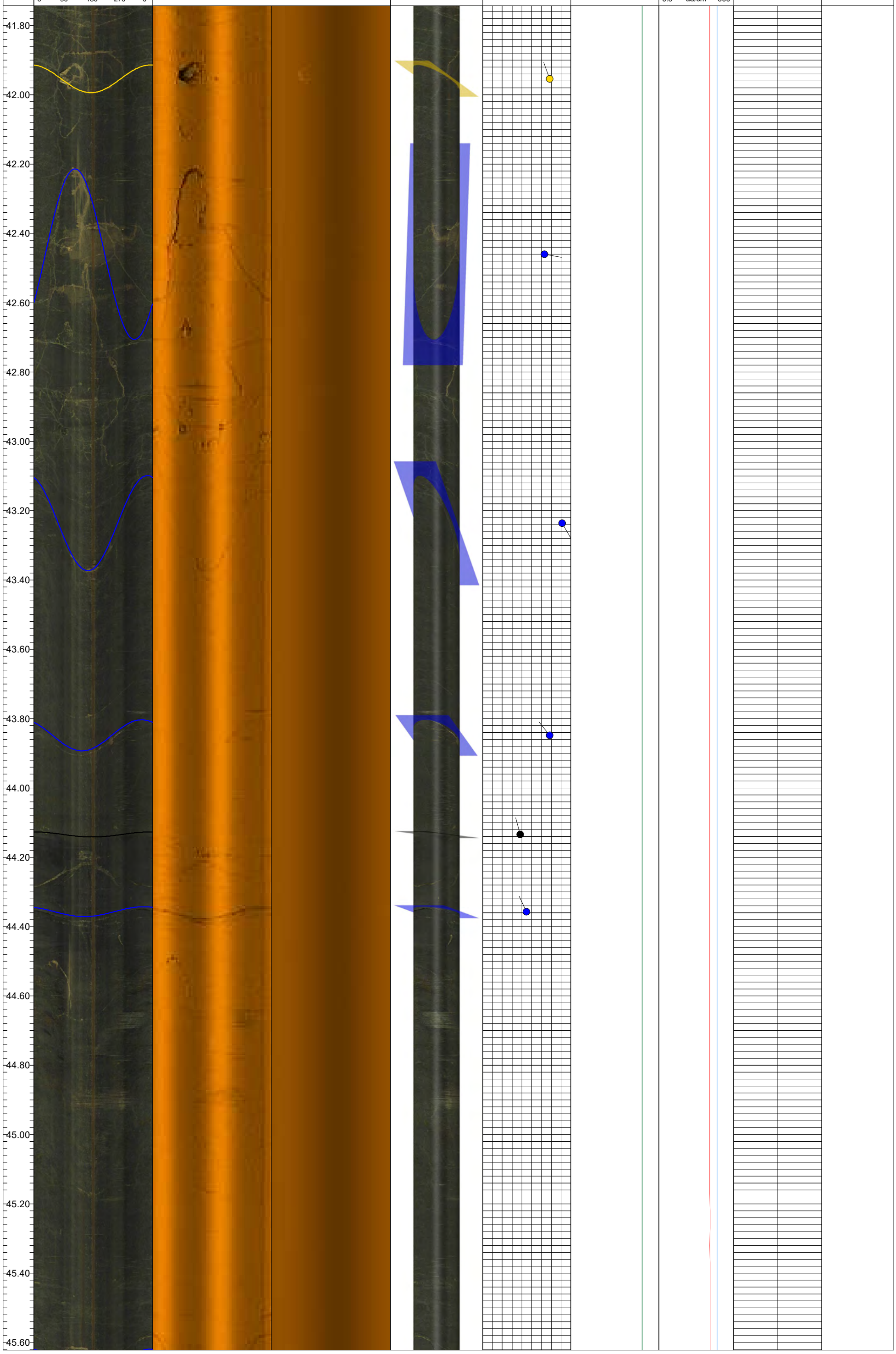
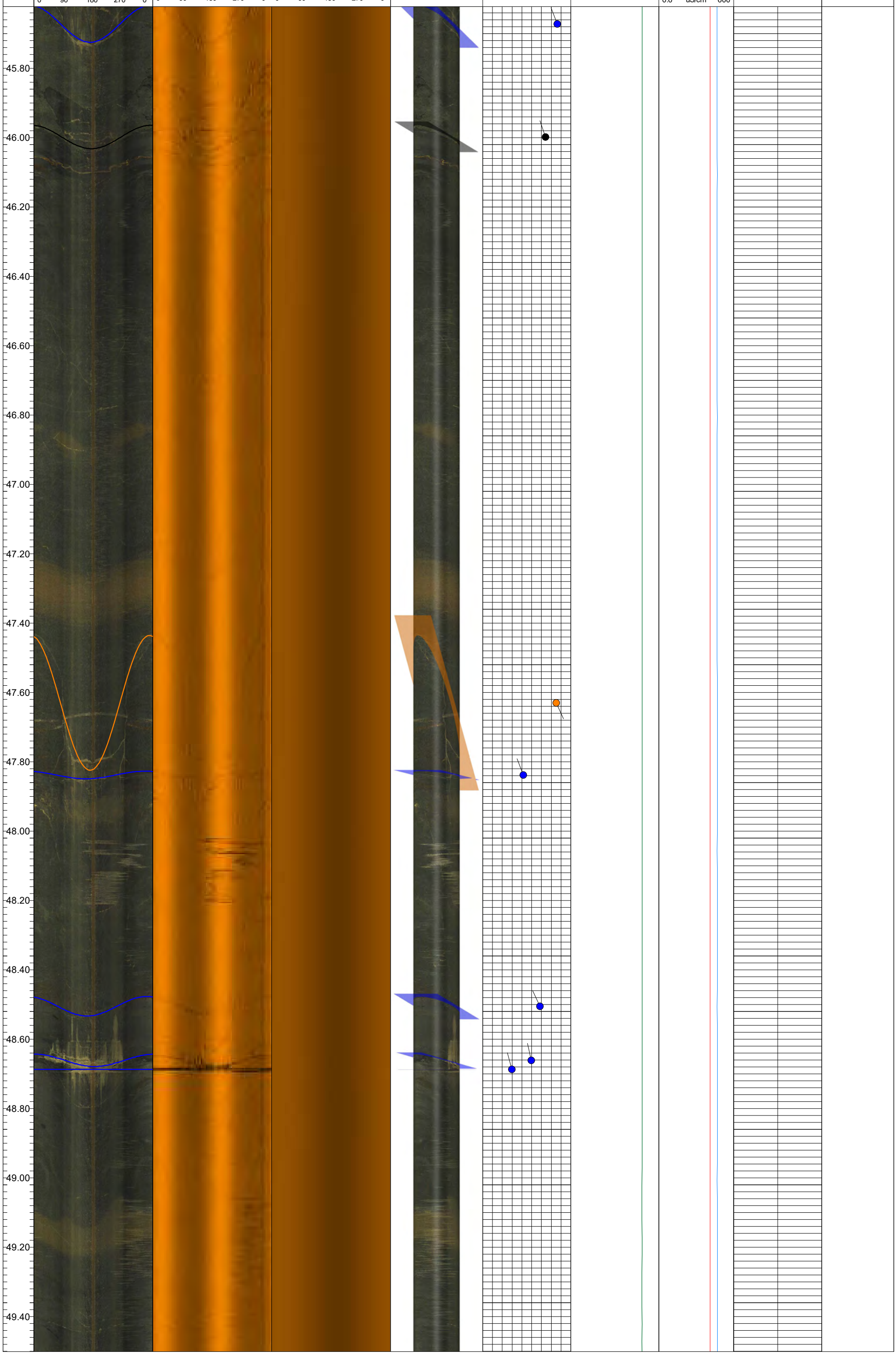


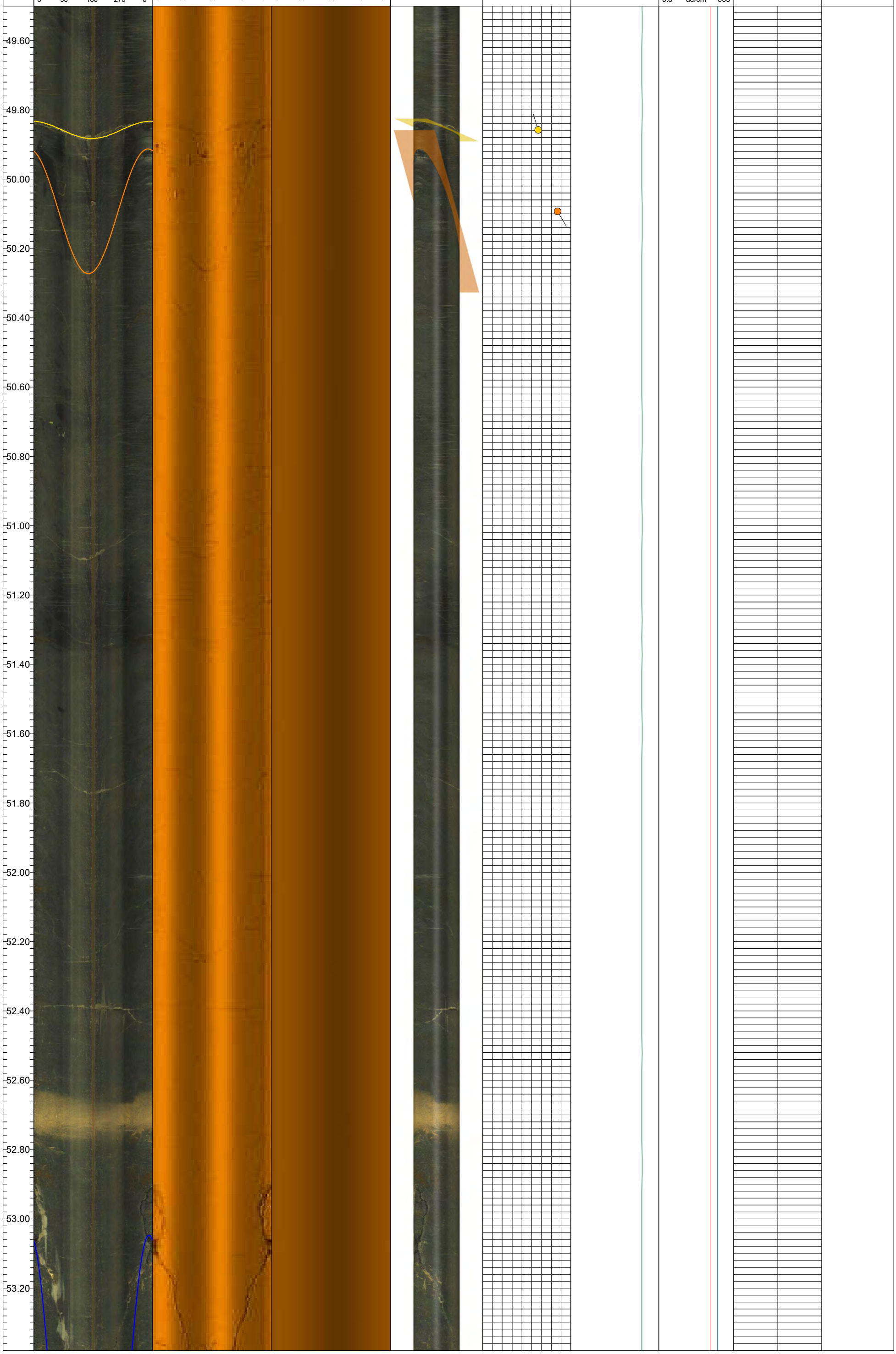
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



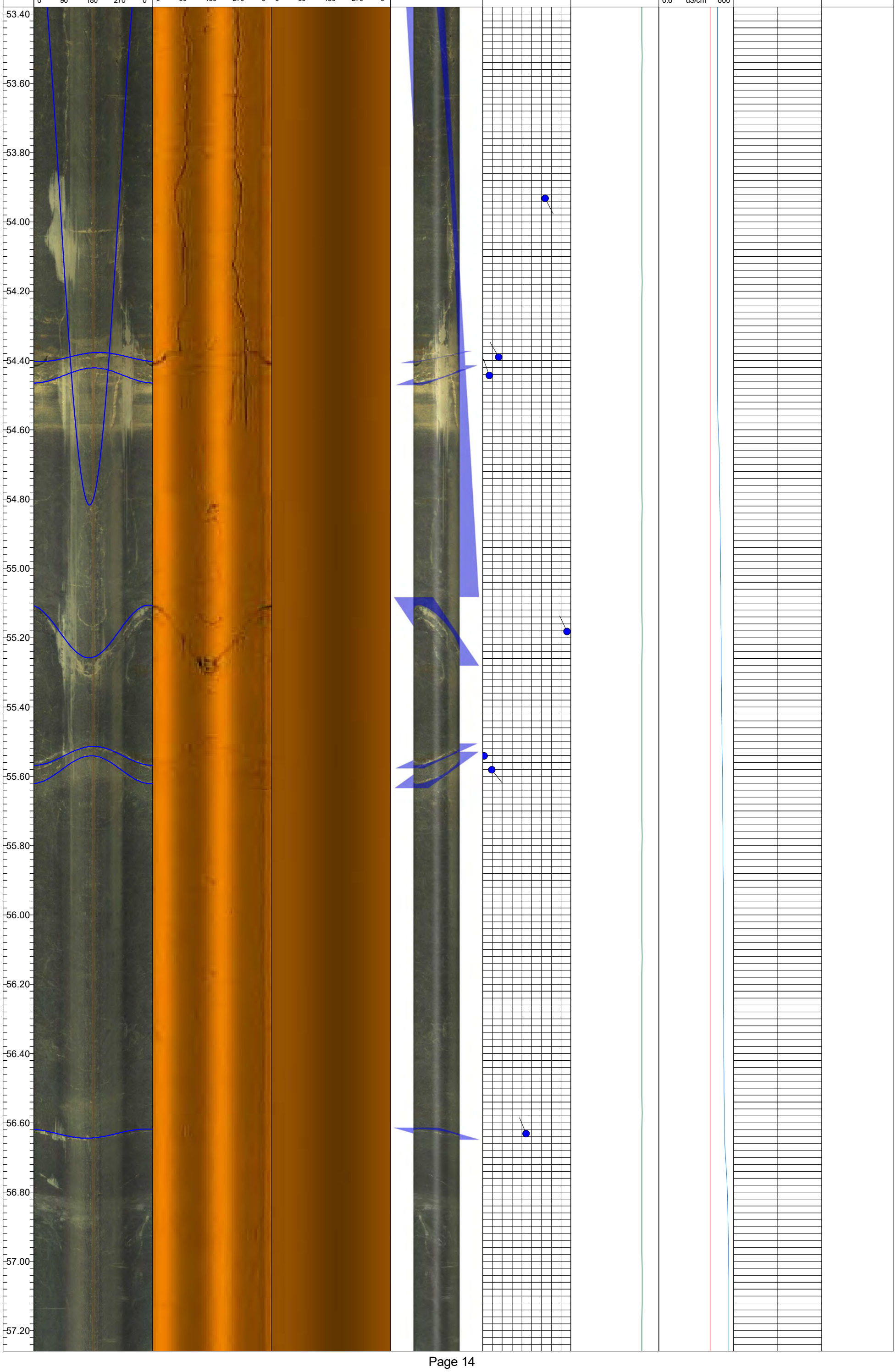
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



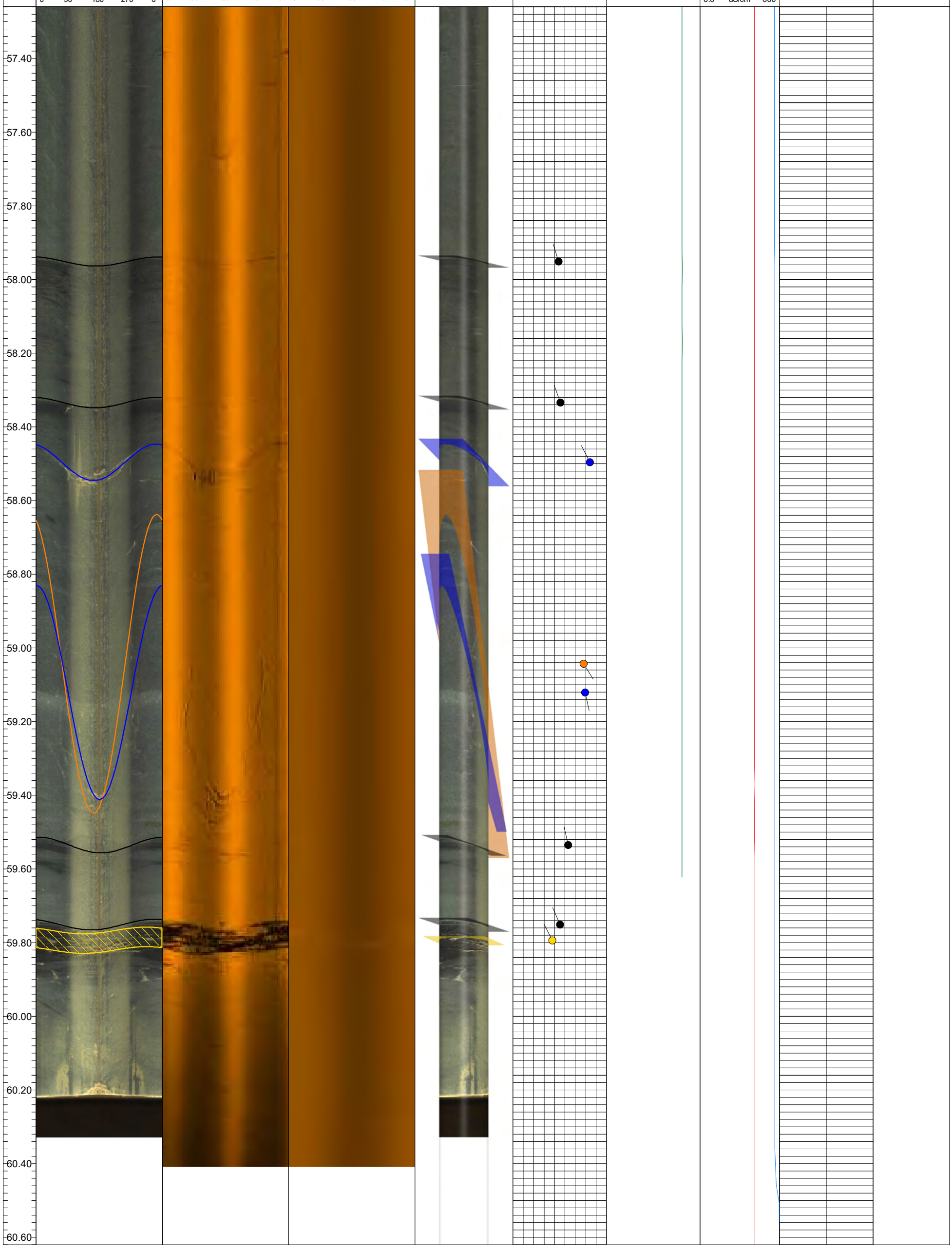
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	298°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Client: Stantec Consulting Ltd.

TERRANE GEOSCIENCE INC.

Project: Downhole Geophysical Investigation
Mooseland, Nova scotia
21-100-H

Area:	Hole ID:
Mooseland	BH21-02

Location:	Azimuth:	Dip:
N: 4980955 E: 504240.75 Z: 109.36	170	-60

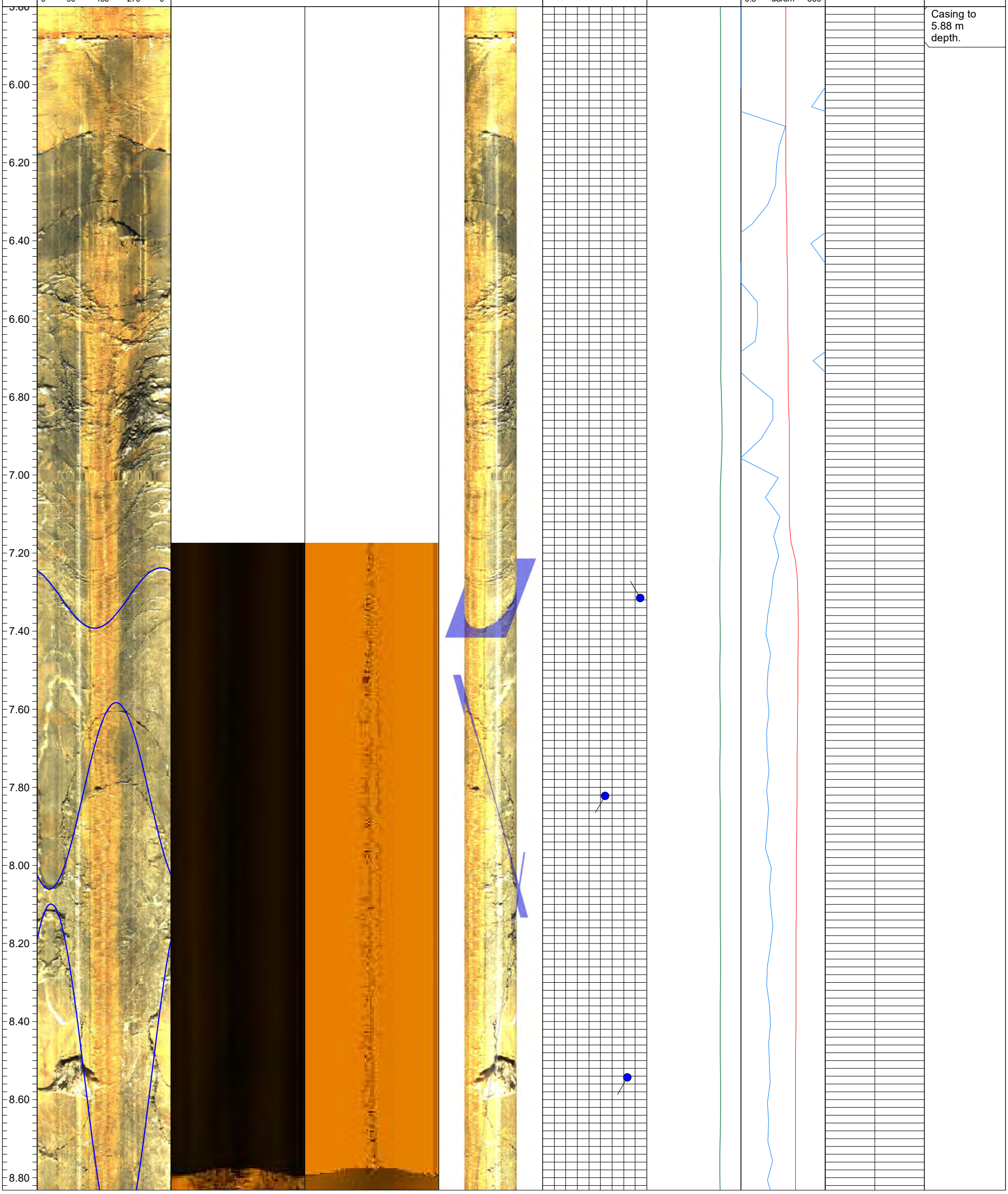
Hole Depth (m):	Log Depth (m):	Logged By:	Logged Date:	Water Level:
60	60	P.Ramlochund	26/01/22	8.45

Structure:

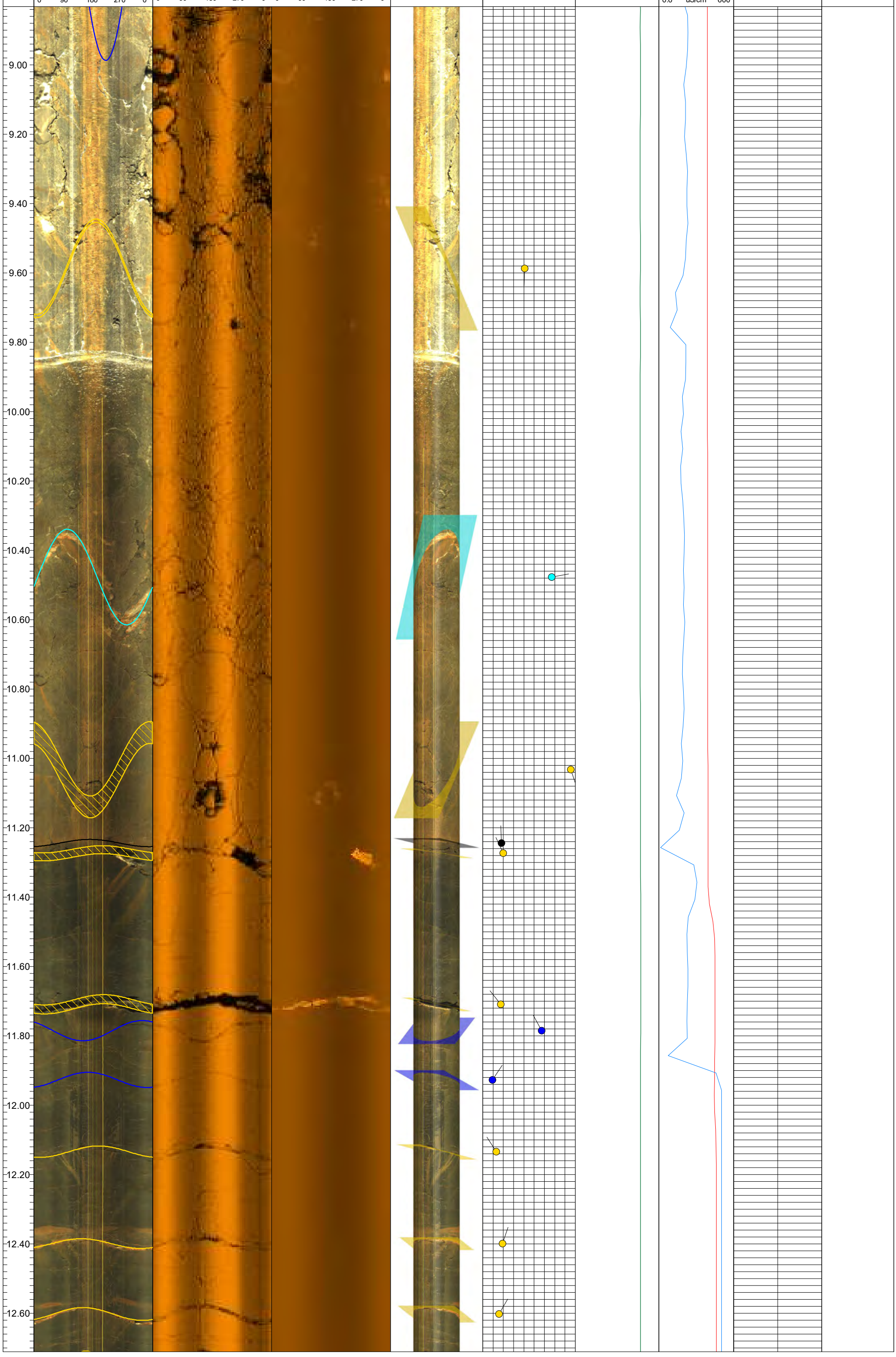
- OJT - Open Joint
- JC - Cemented Joint
- JS - Joint
- VN - Vein
- FLT_m - Minor Fault
- FLT_M - Fault Zone
- BD - Bedding
- CL - Cleavage
- SZ - Shear
- FO - Foliation
- FOc - Foliation Closed
- RZ - Rubble Zone
- CNT - Contact
- IAP - Interpreted Axial Plane

Notes:

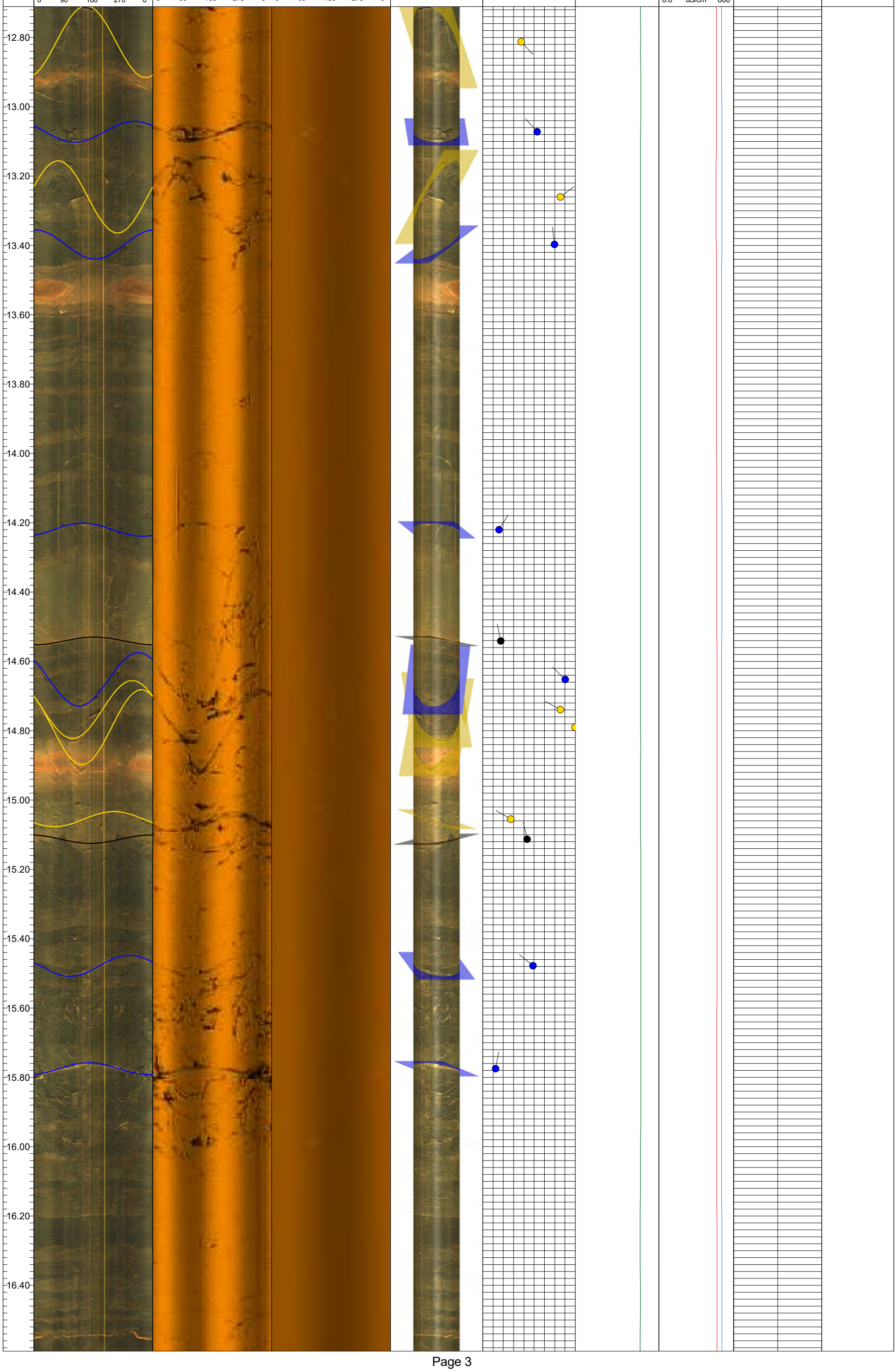
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	Casing to 5.88 m depth.



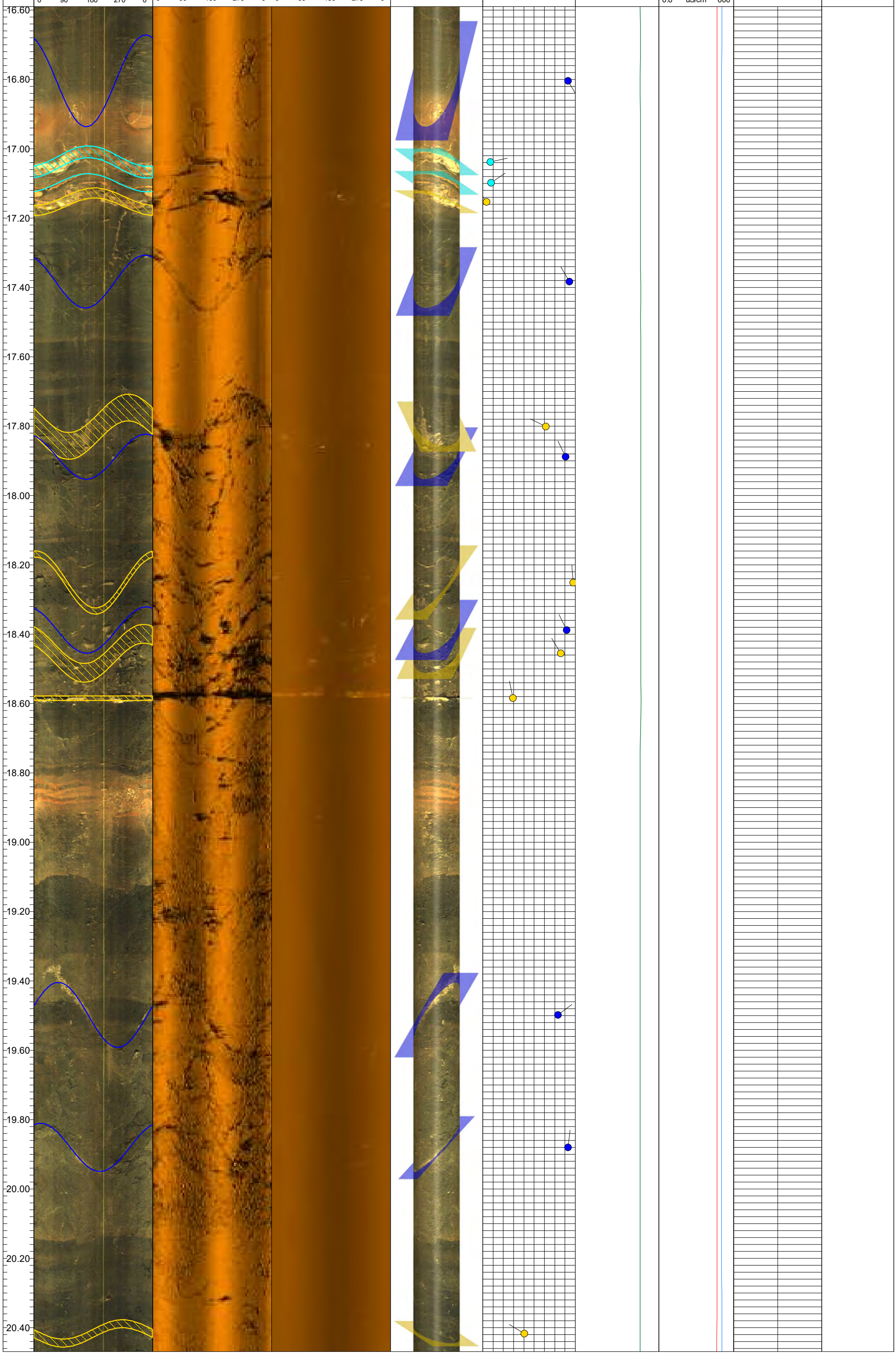
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



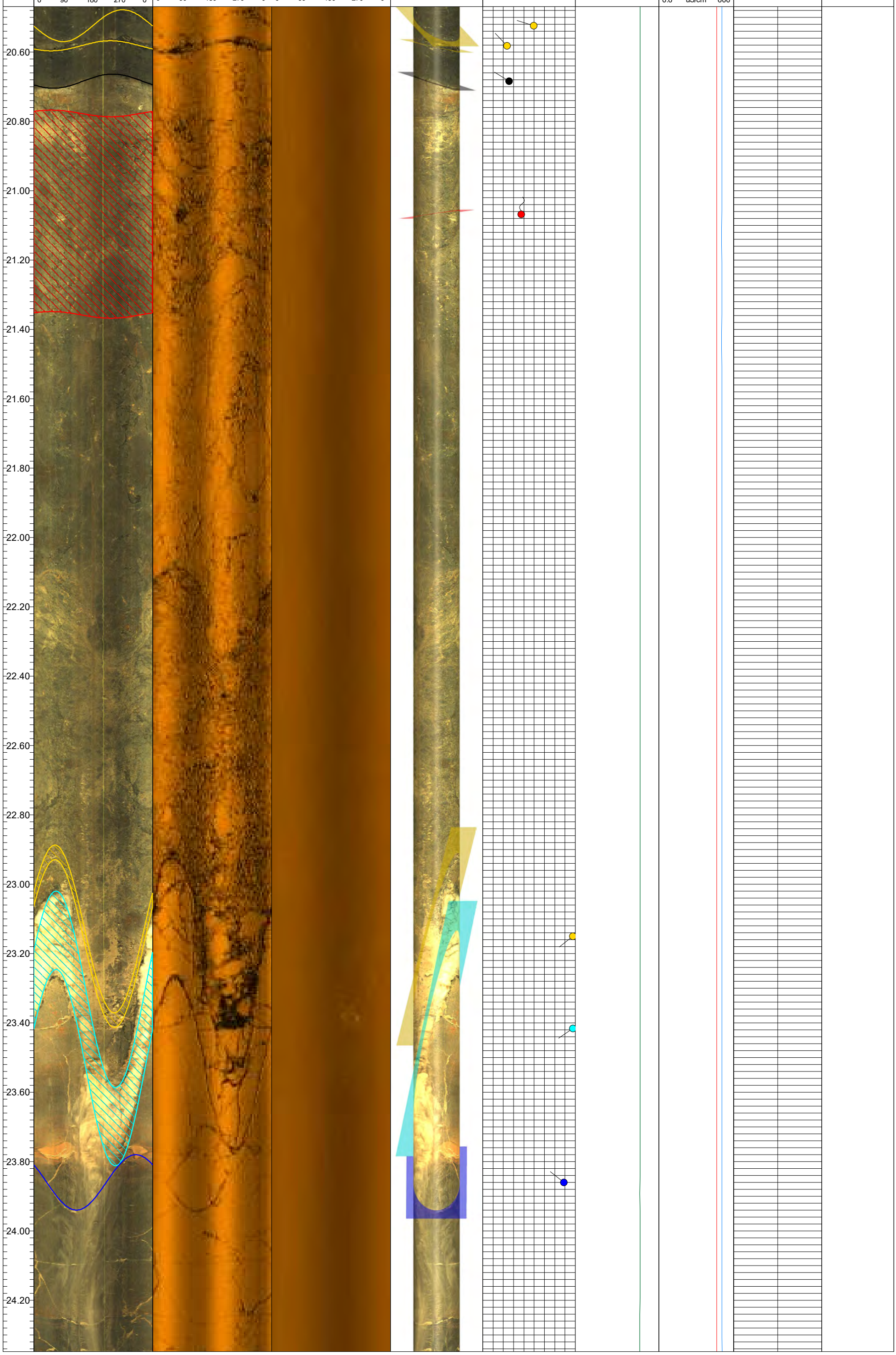
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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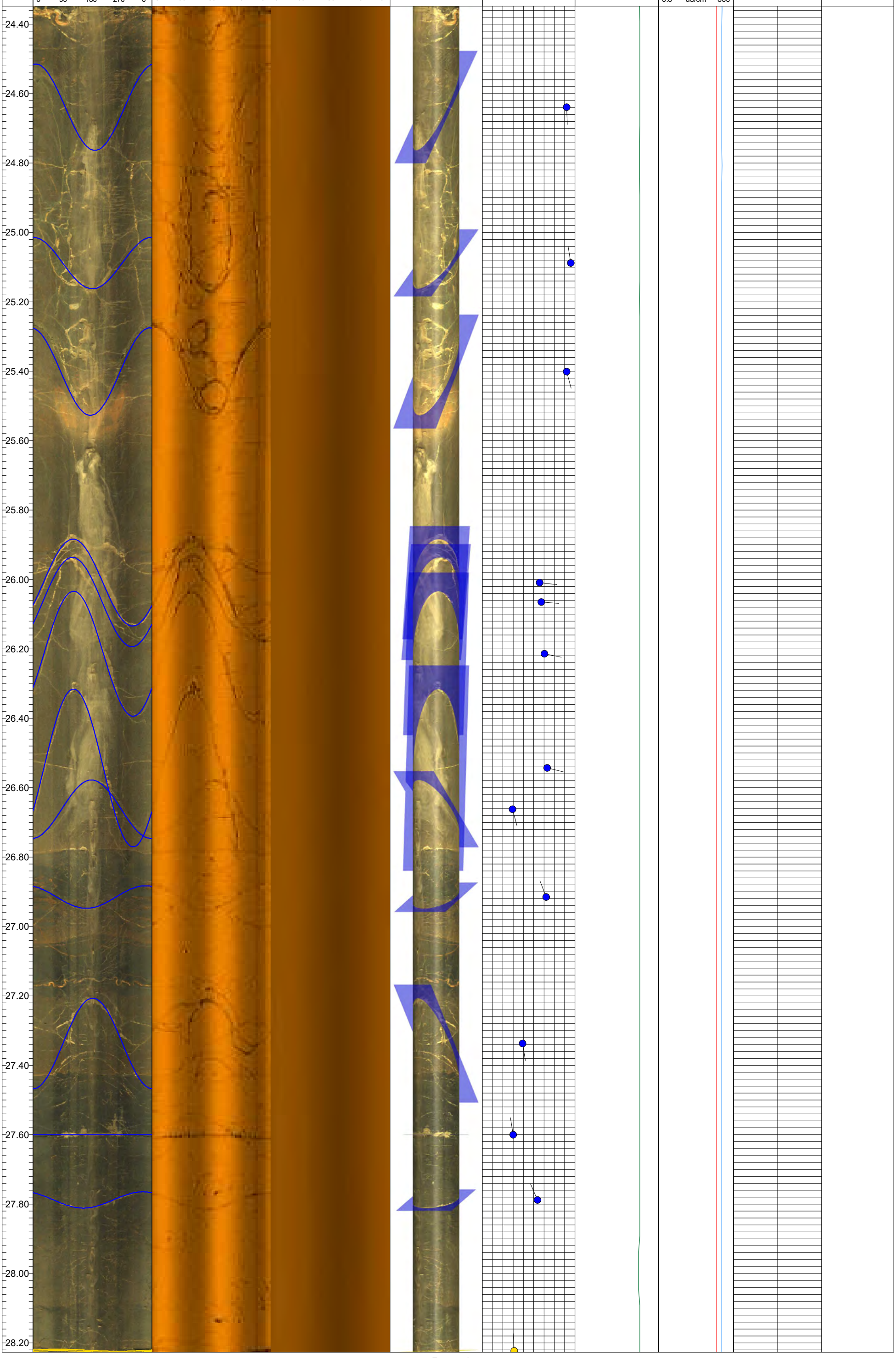

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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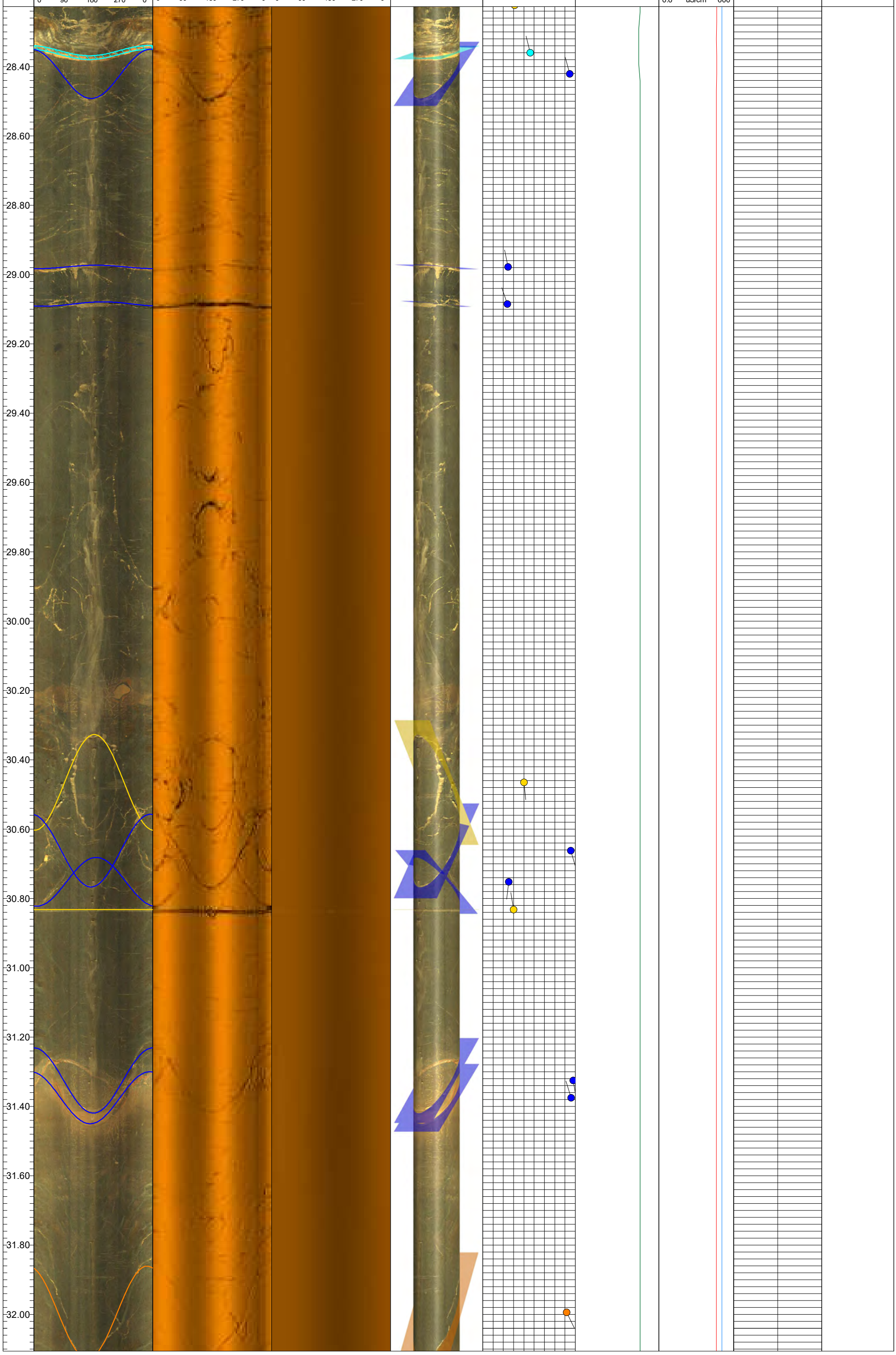

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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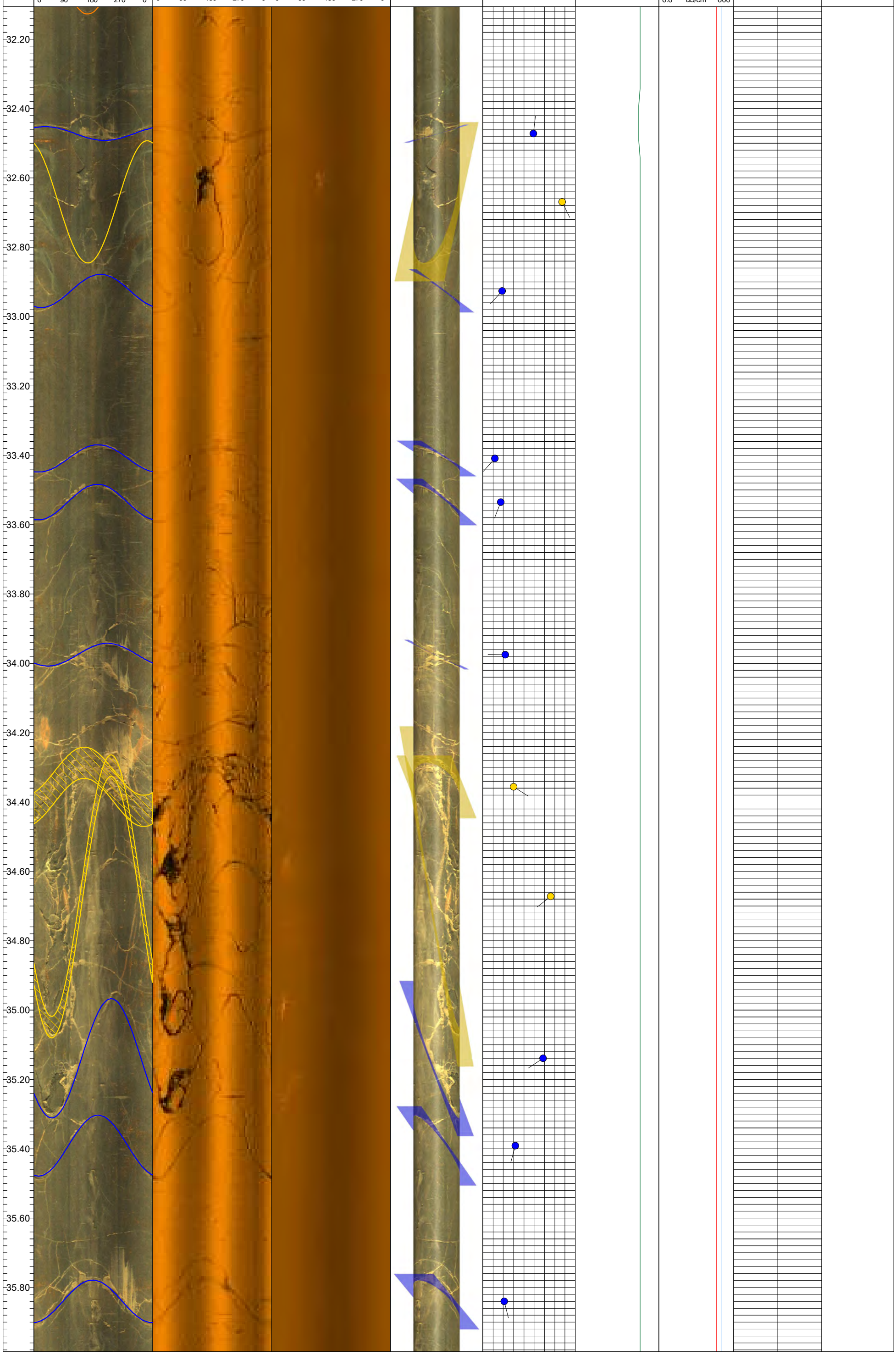

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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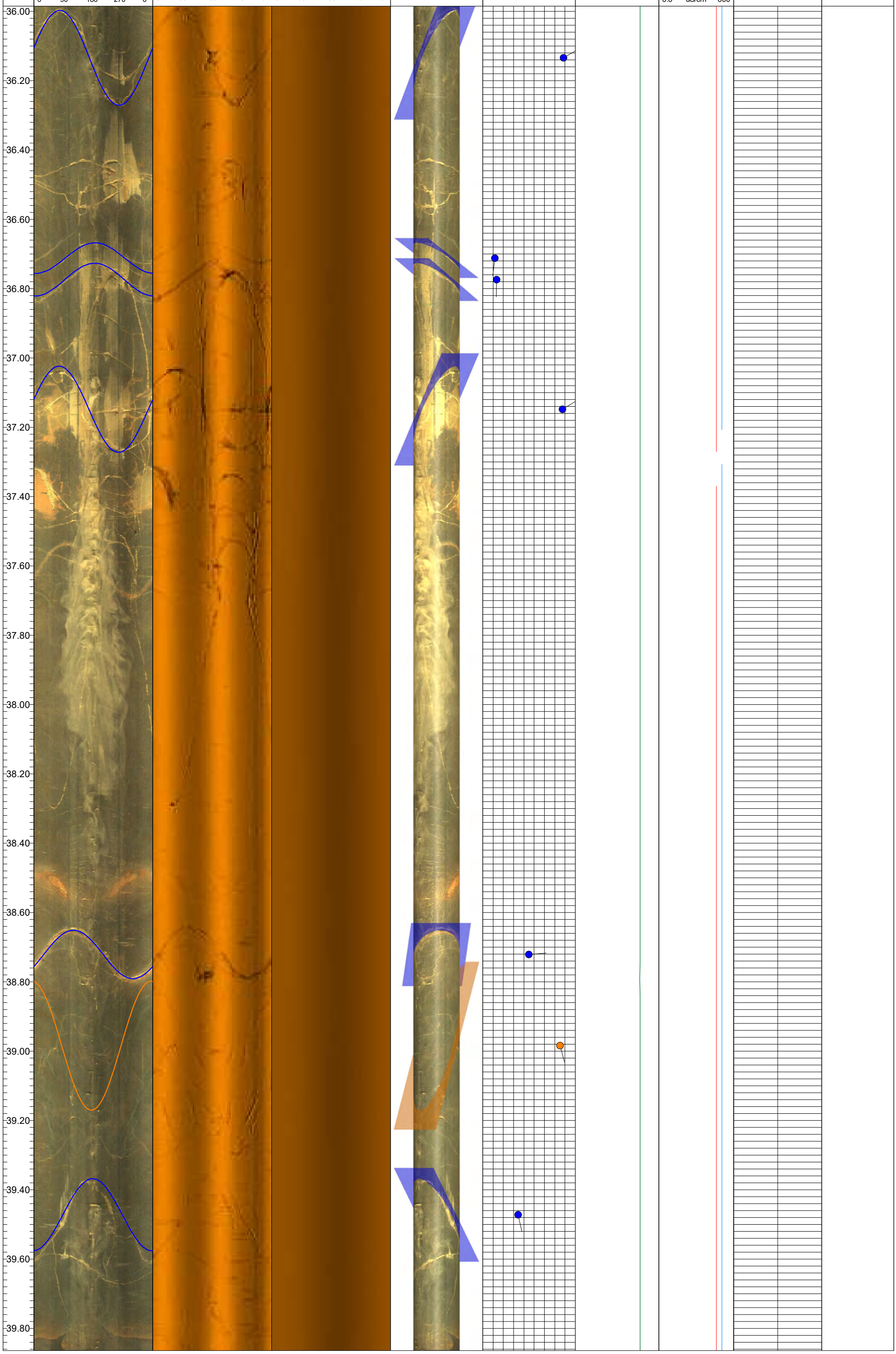

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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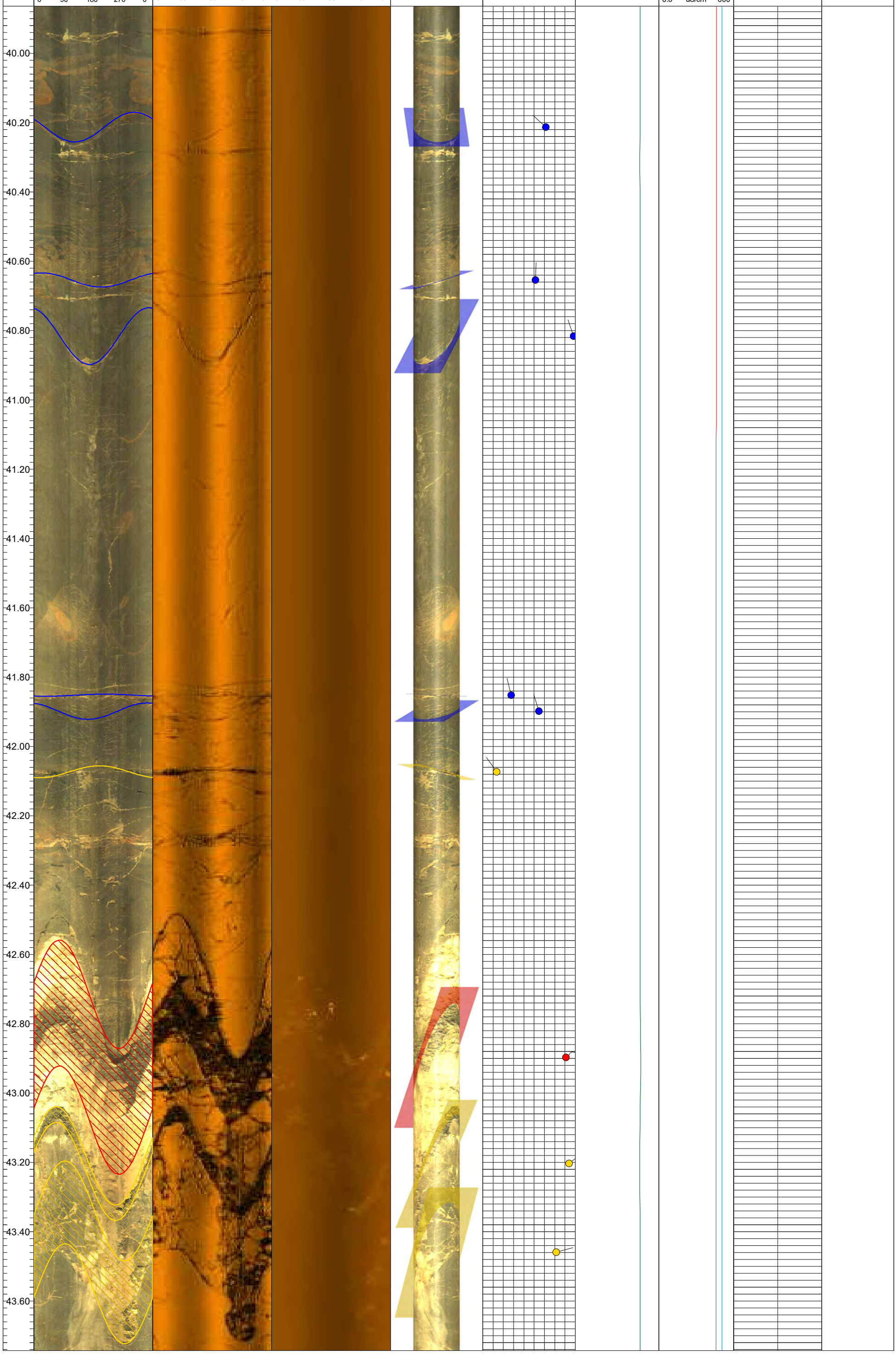

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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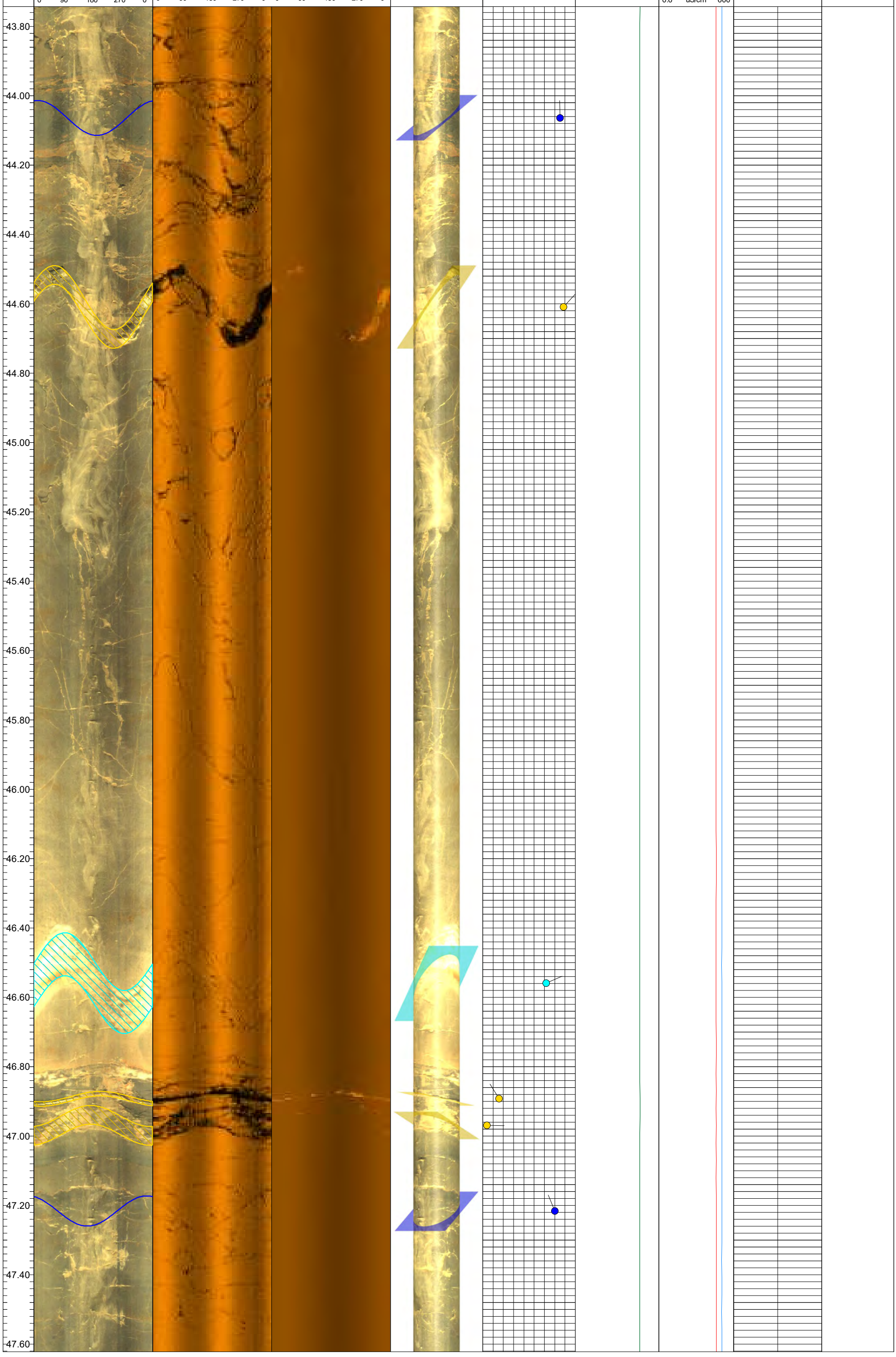
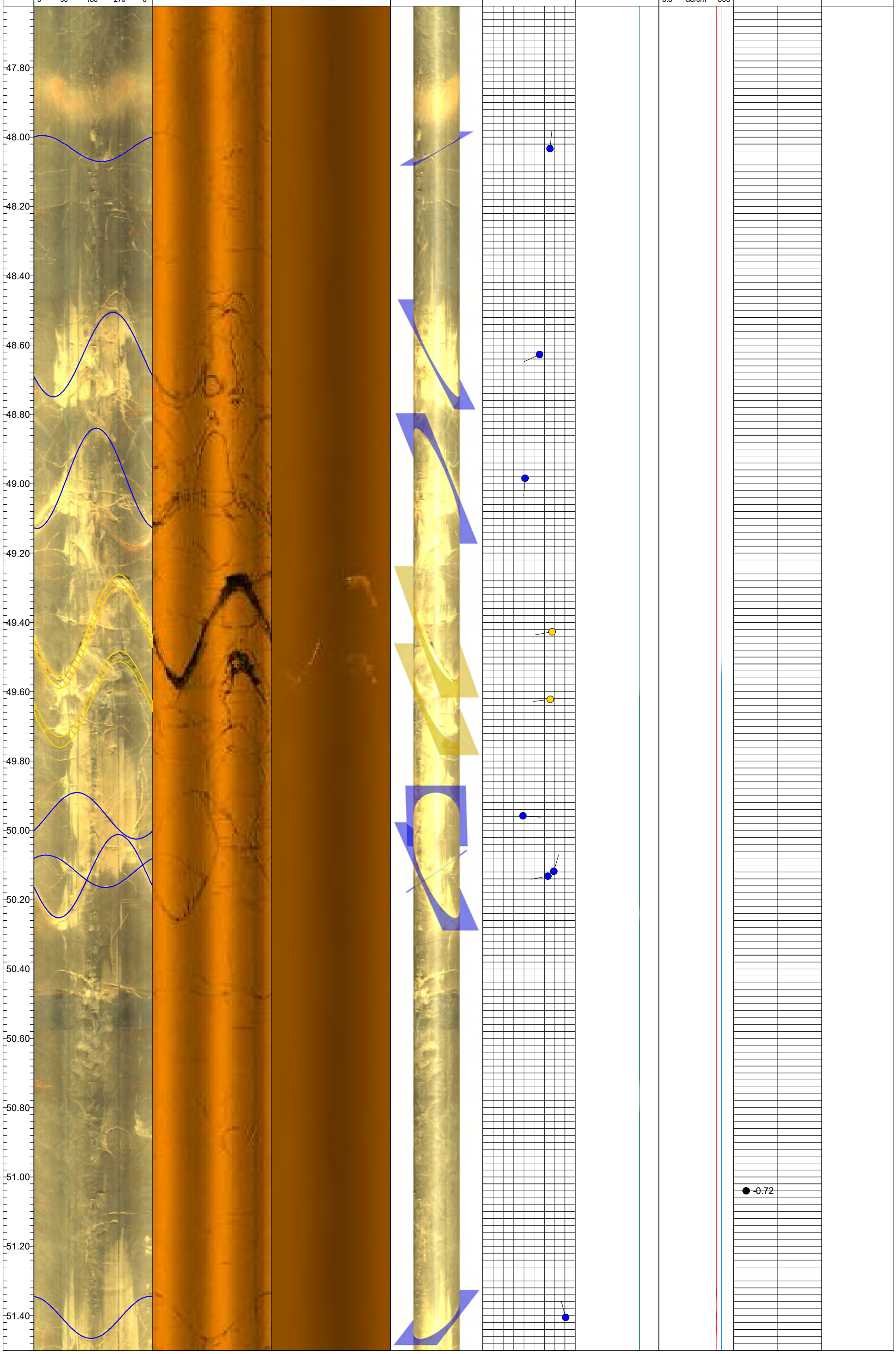


Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	129°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 'C 10 Fluid Conductivity 0.6 uS/cm 600	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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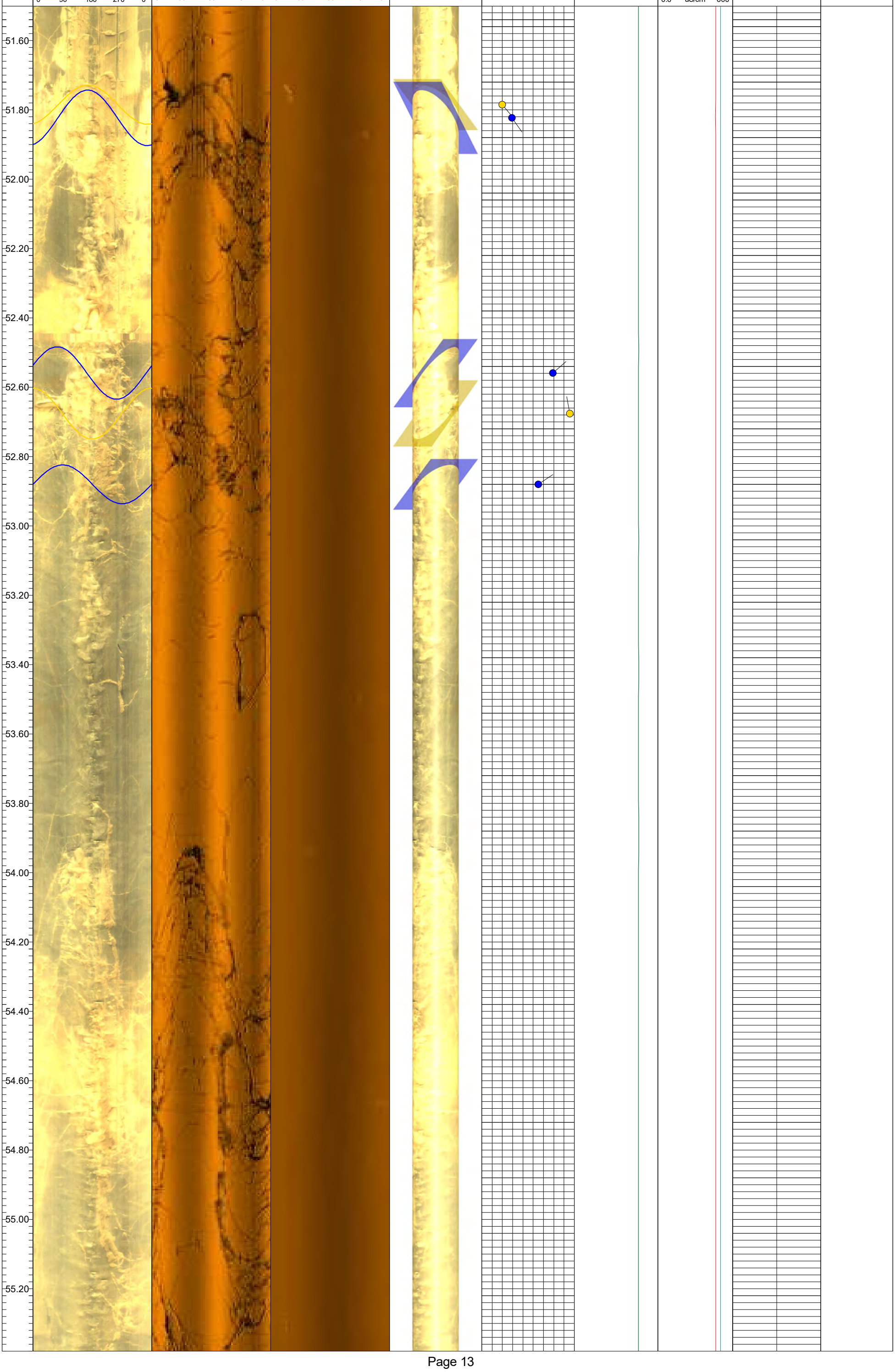

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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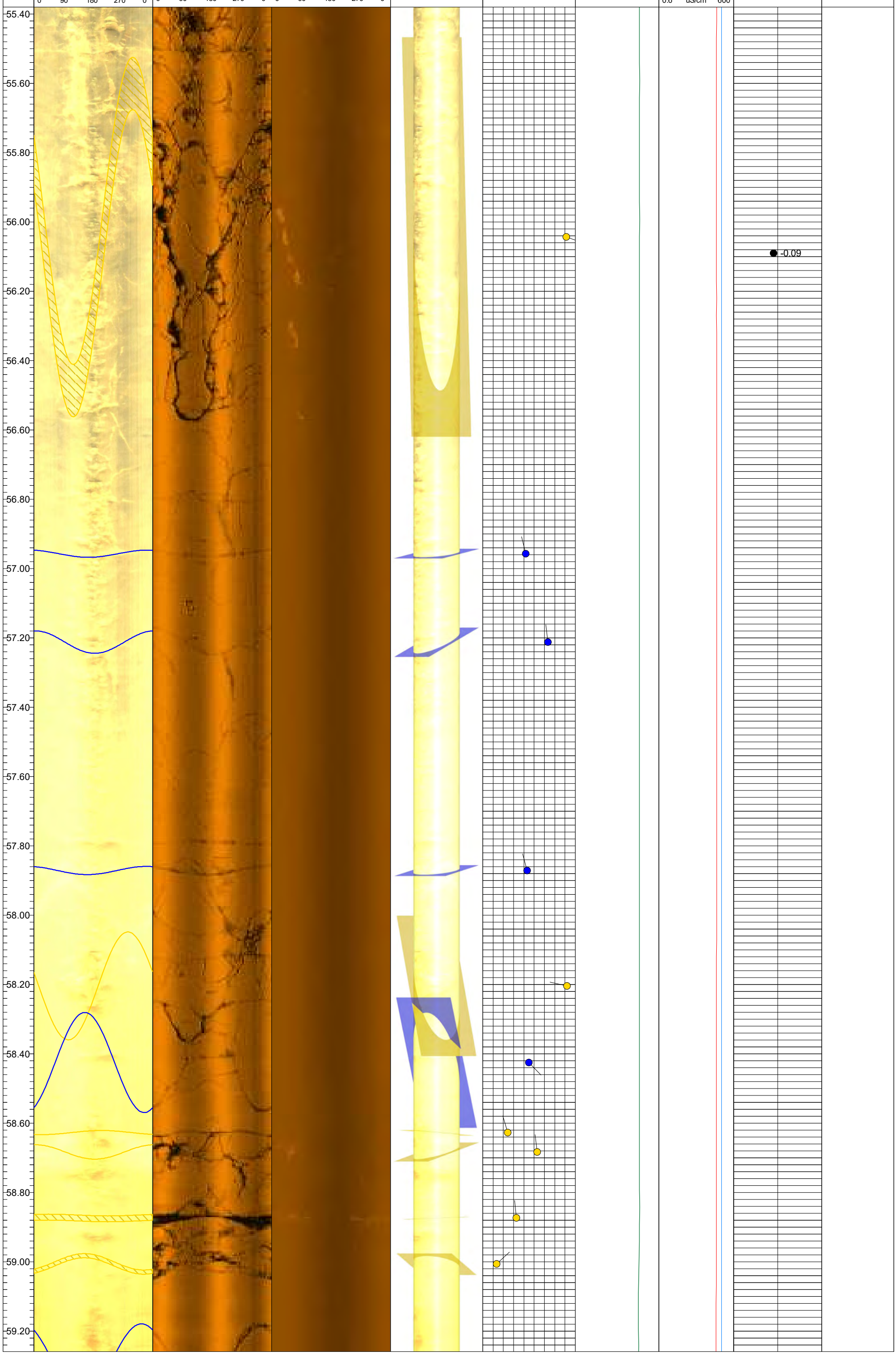
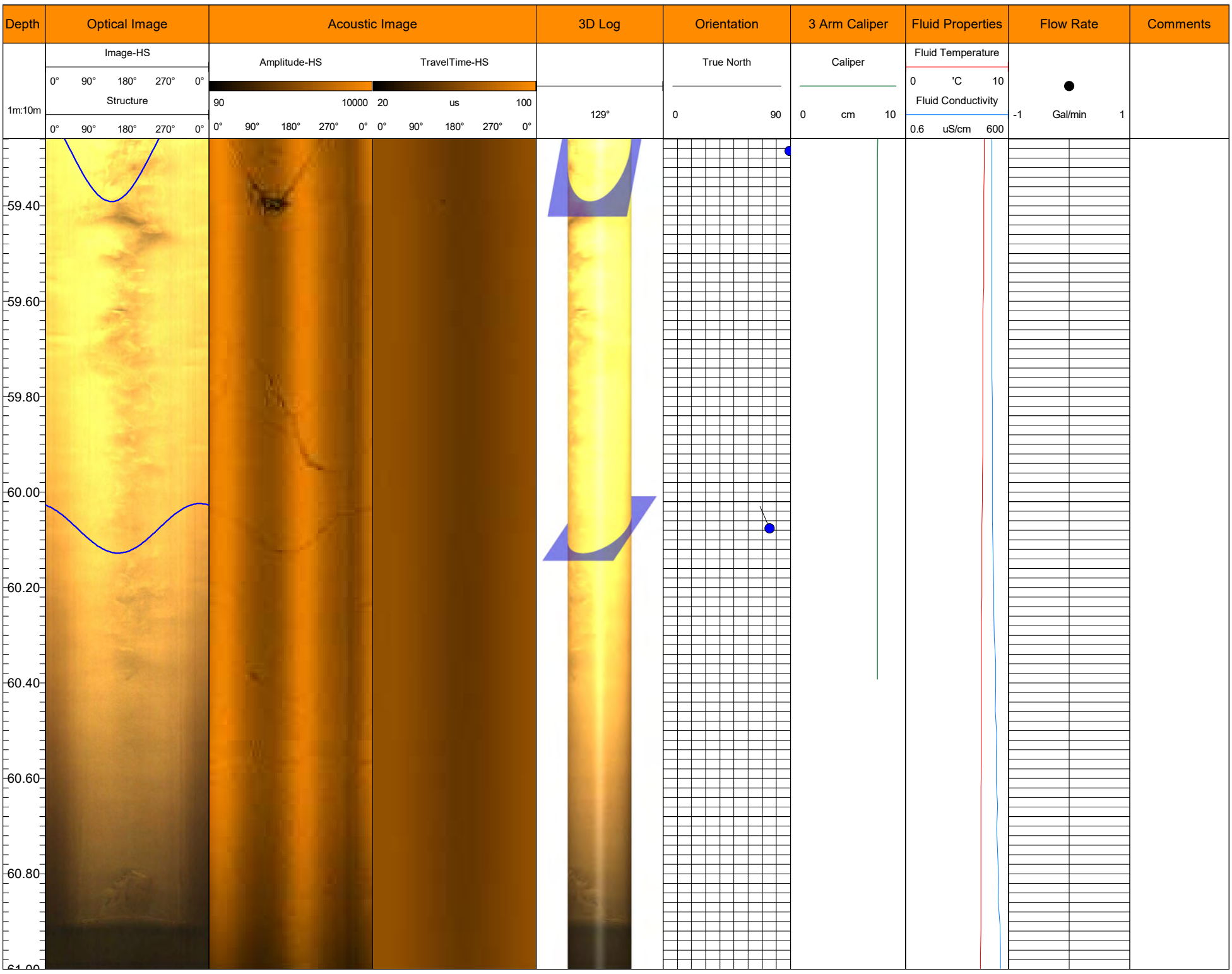



Depth
Optical Image
Acoustic Image
3D Log
Orientation
3 Arm Caliper
Fluid Properties
Flow Rate
Comments
Image-HS
0° 90° 180° 270° 0°
Structure
0° 90° 180° 270° 0°
Amplitude-HS
90 10000
0° 90° 180° 270° 0°
TravelTime-HS
20 us 100
0° 90° 180° 270° 0°
True North
0 90
Caliper
0 cm 10
Fluid Temperature
0 'C 10
Fluid Conductivity
0.6 uS/cm 600
Flow Rate
-1 Gal/min 1
1m:10m
129°
59.40
59.60
59.80
60.00
60.20
60.40
60.60
60.80
61.00

Client: Stantec Consulting Inc.

TERRANE GEOSCIENCE INC.

Project: Downhole Geophysical Investigation
Mooseland, Nova Scotia
21-100-H

Area:	Hole ID:
Mooseland	BH21-03

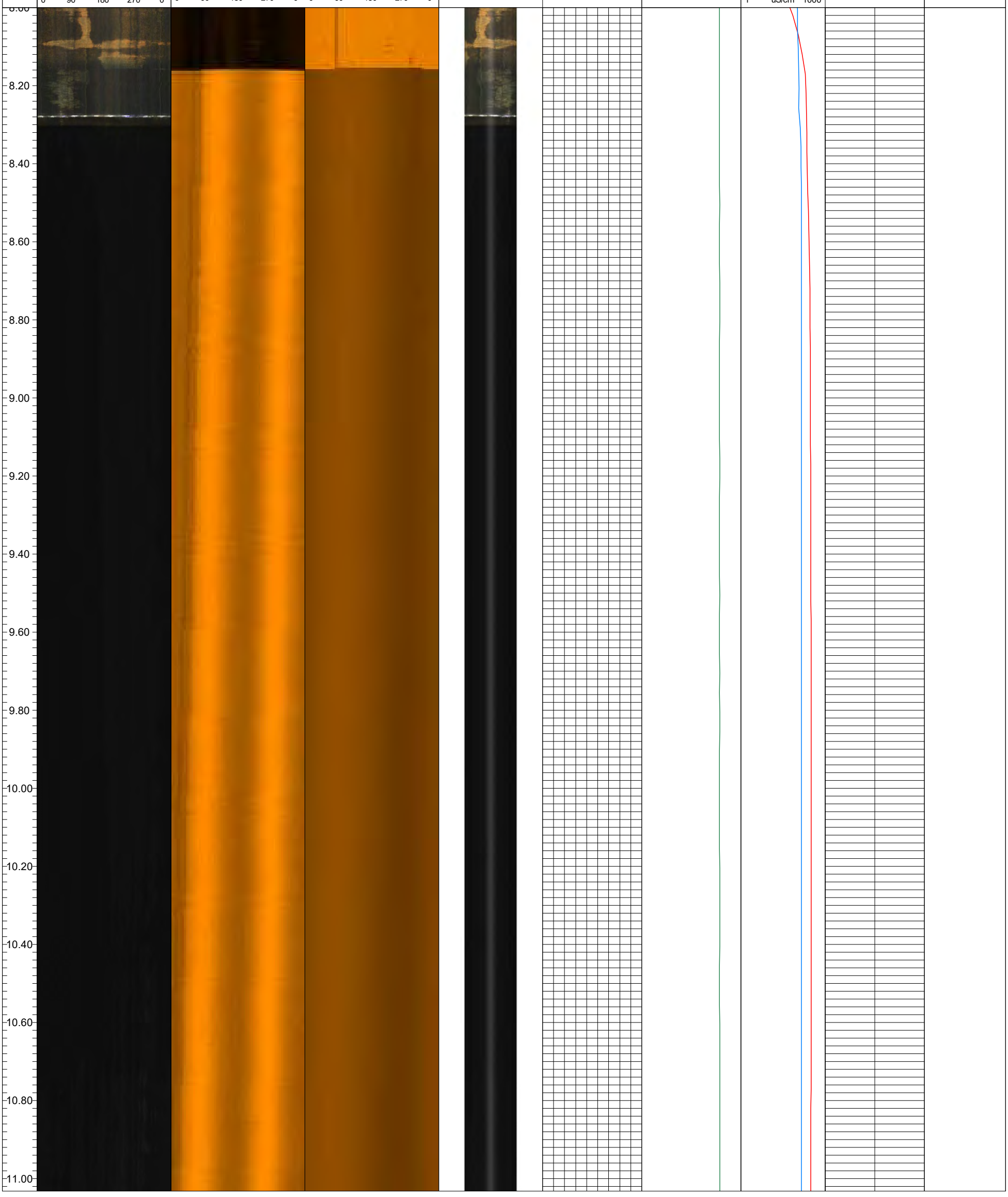
Location:			Azimuth:	Dip:
N: 4980855	E: 504275.35	Z: 113.2	0	-90

Hole Depth (m):	Log Depth (m):	Logged By:	Logged Date:	Water Level:
120	117	P.Ramlochund	28/01/22	8.3 m

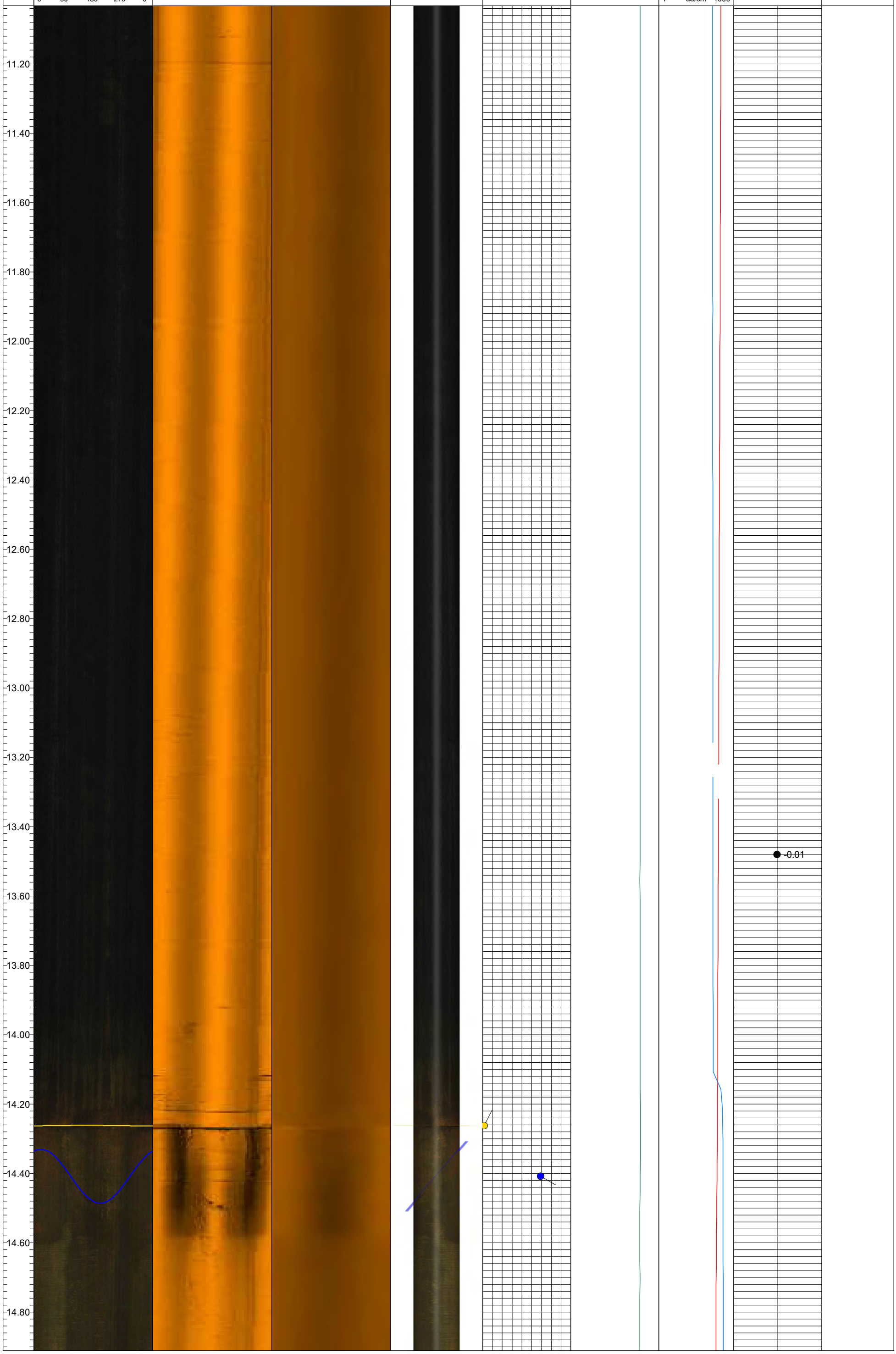
Structure:

- OJT - Open Joint
- JC - Cemented Joint
- JS - Joint
- VN - Vein
- FLT_m - Minor Fault
- FLT_M - Fault Zone
- BD - Bedding
- CL - Cleavage
- SZ - Shear
- FO - Foliation
- FOc - Foliation Closed
- RZ - Rubble Zone
- CNT - Contact
- IAP - Interpreted Axial Plane

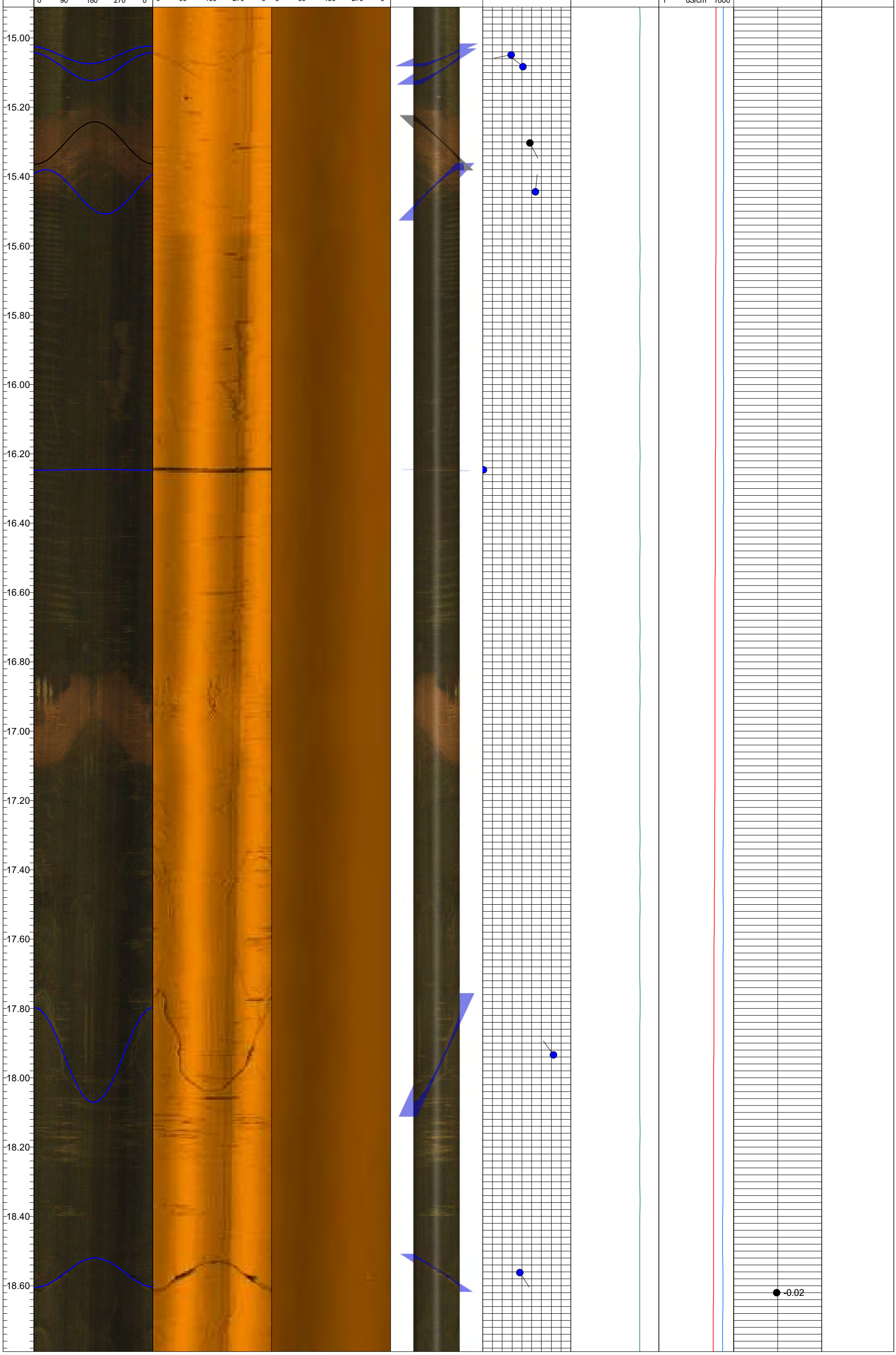
Notes:



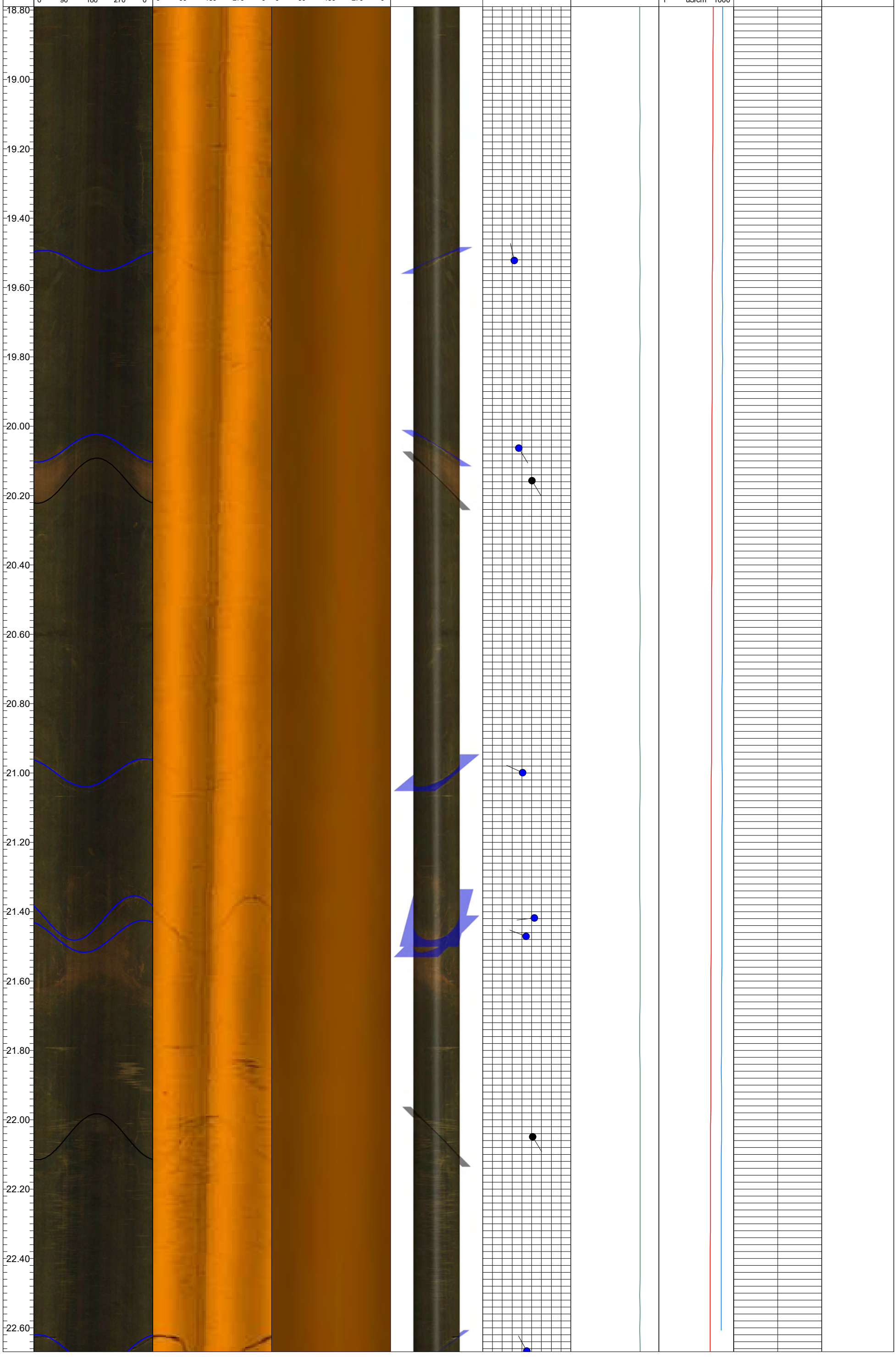
Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	109°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 1 uS/cm 1000	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	109°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 1 uS/cm 1000	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	109°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 1 uS/cm 1000	-1 Gal/min 1	



Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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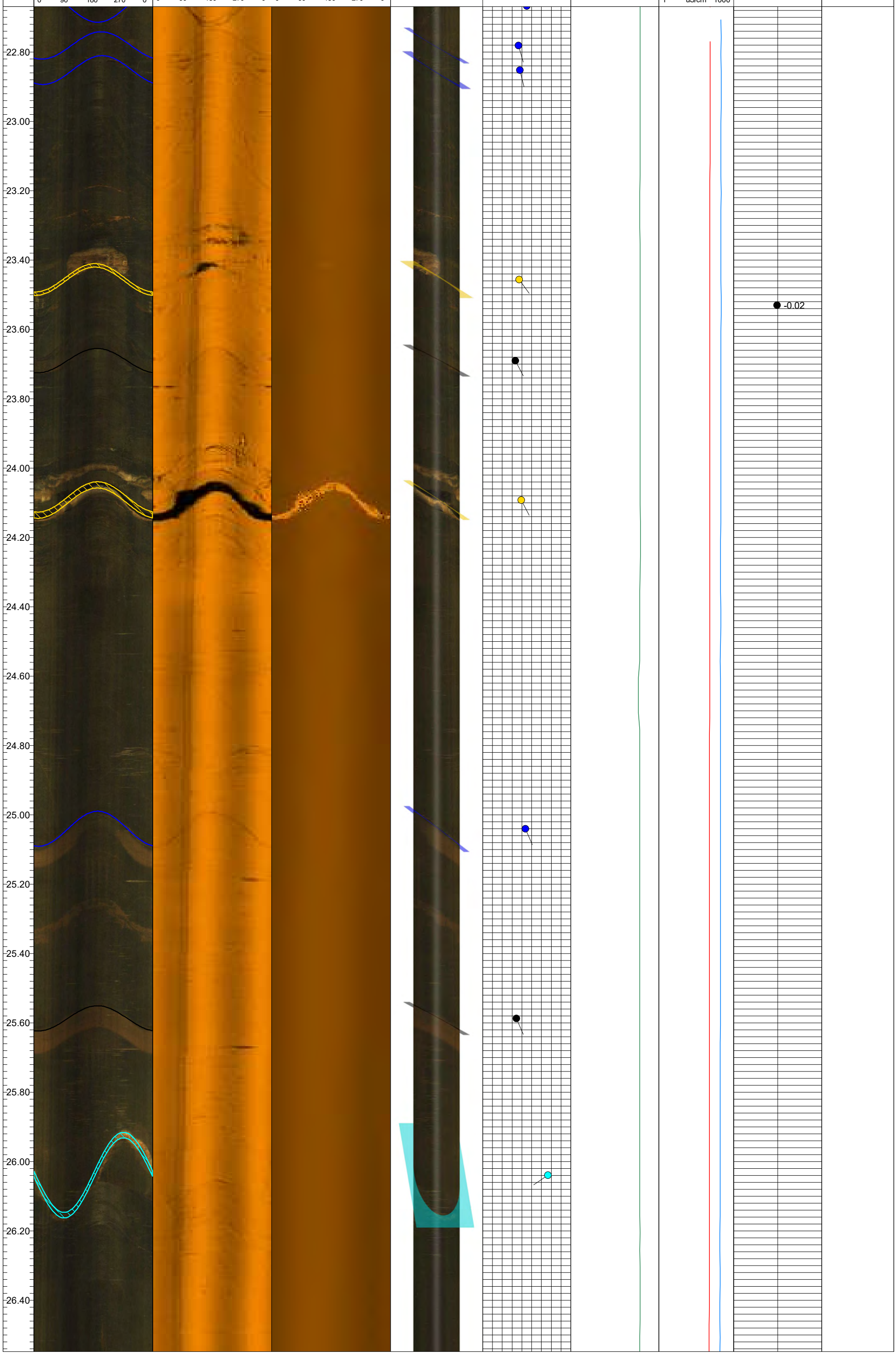

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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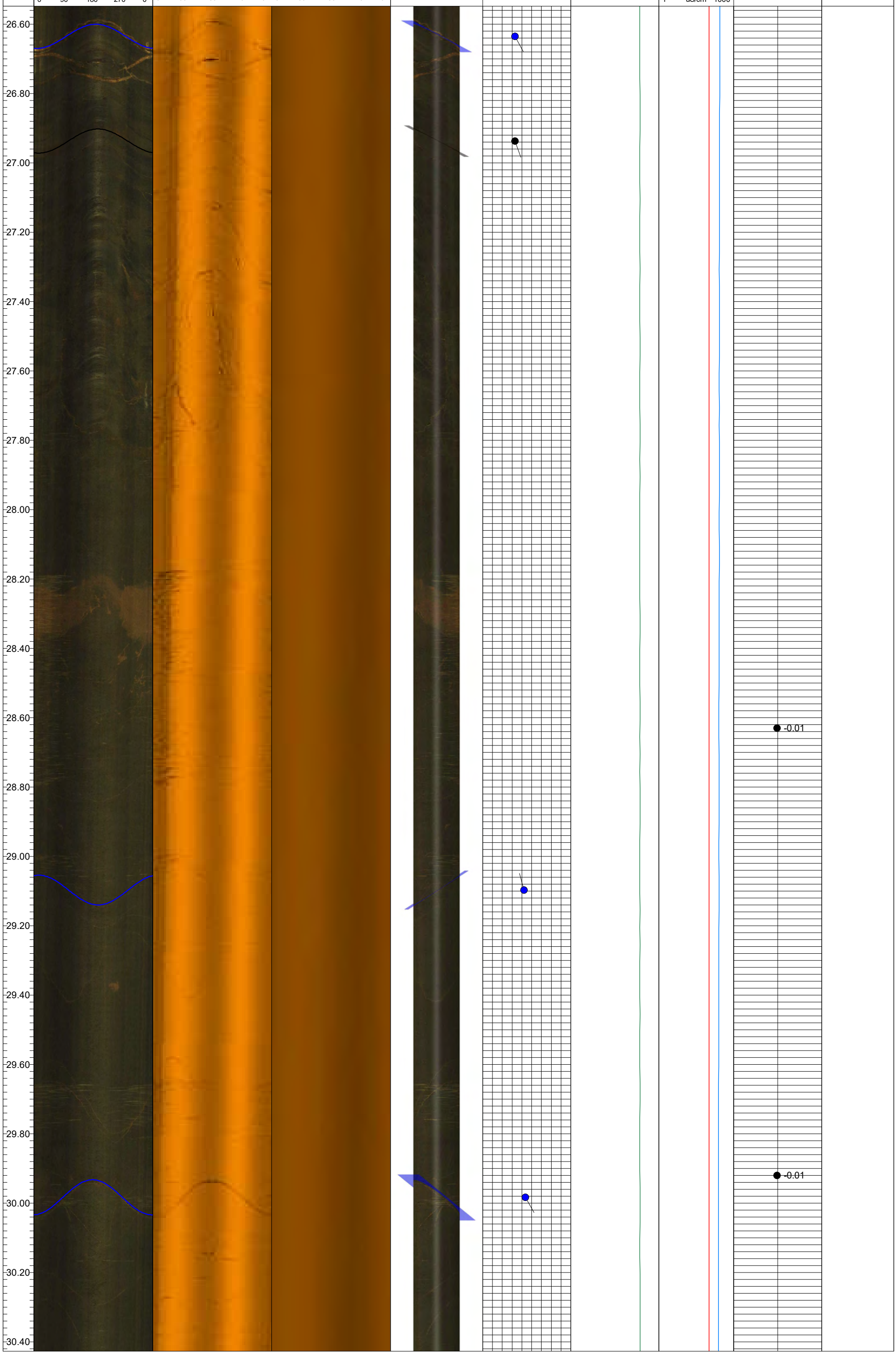

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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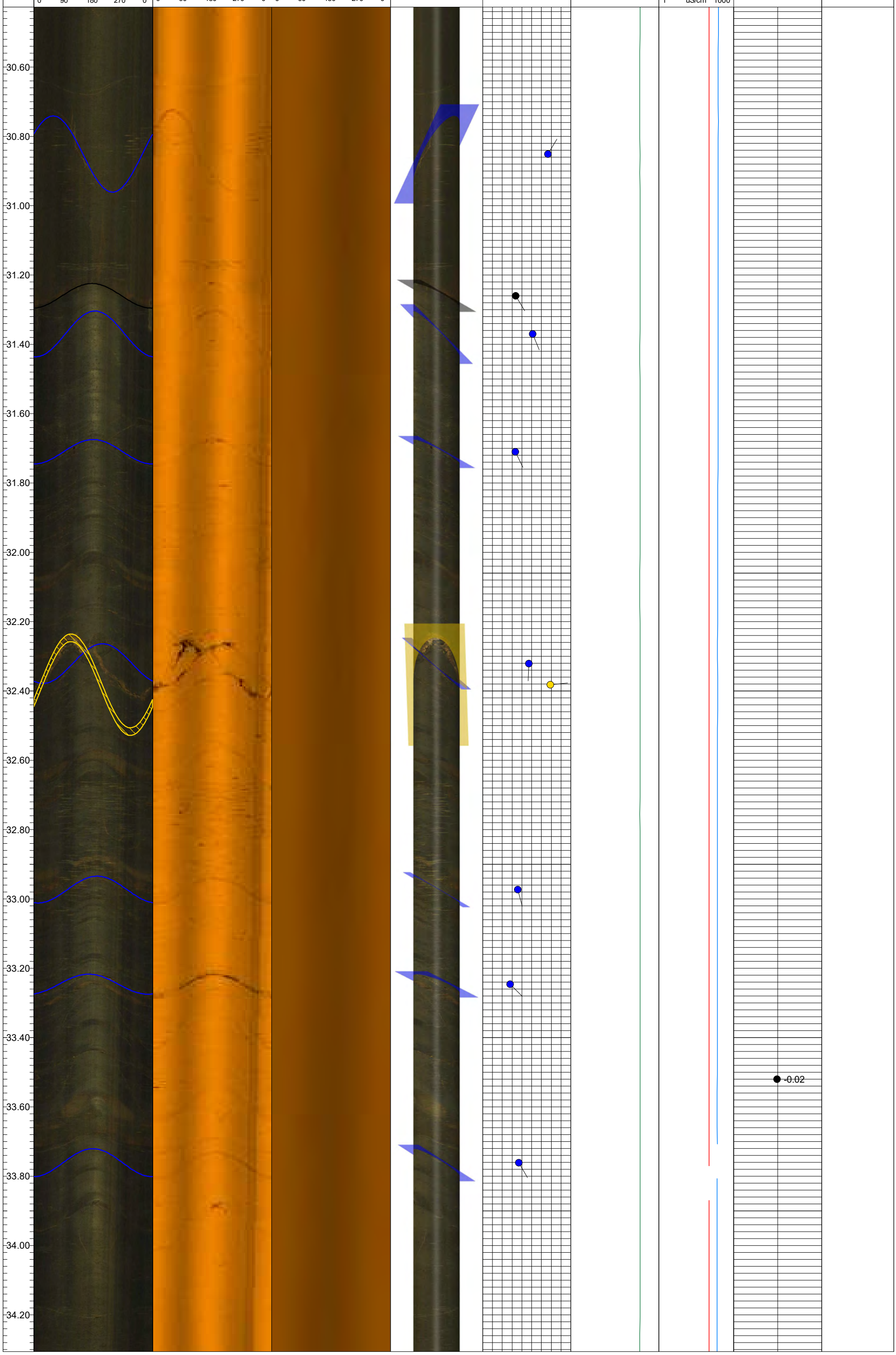

Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
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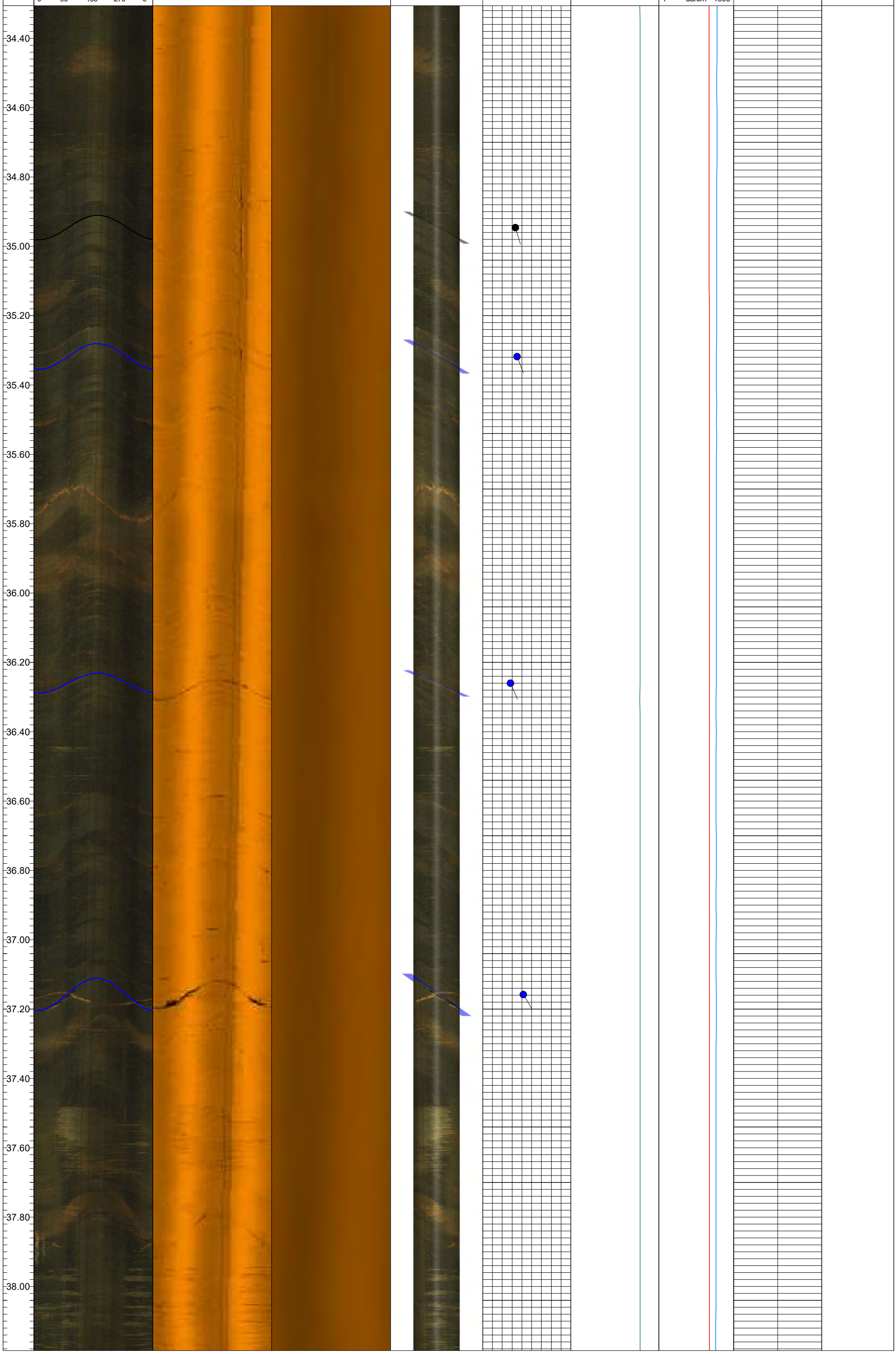
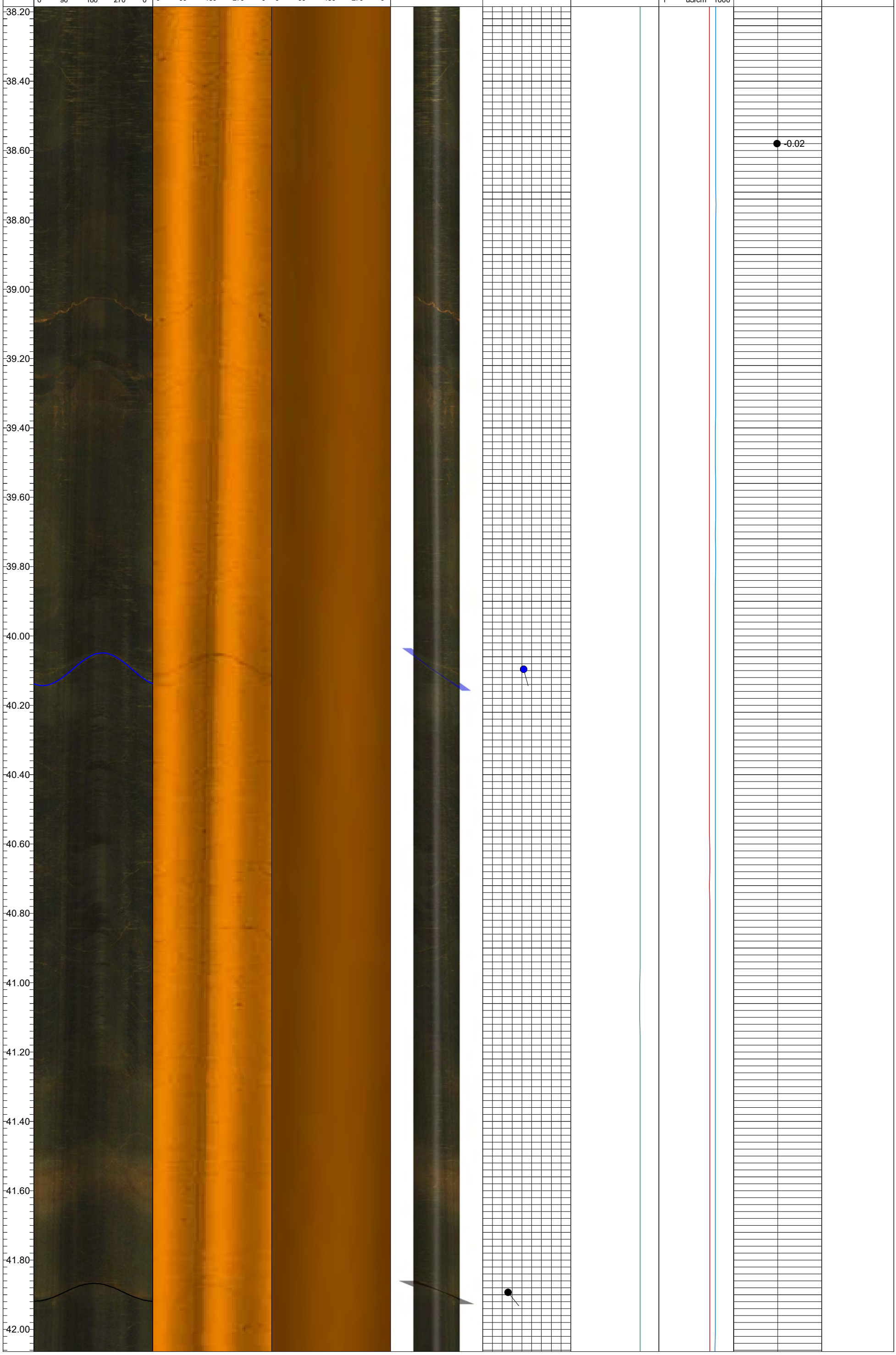


Depth	Optical Image	Acoustic Image	3D Log	Orientation	3 Arm Caliper	Fluid Properties	Flow Rate	Comments
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	109°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 1 uS/cm 1000	-1 Gal/min 1 -0.02	



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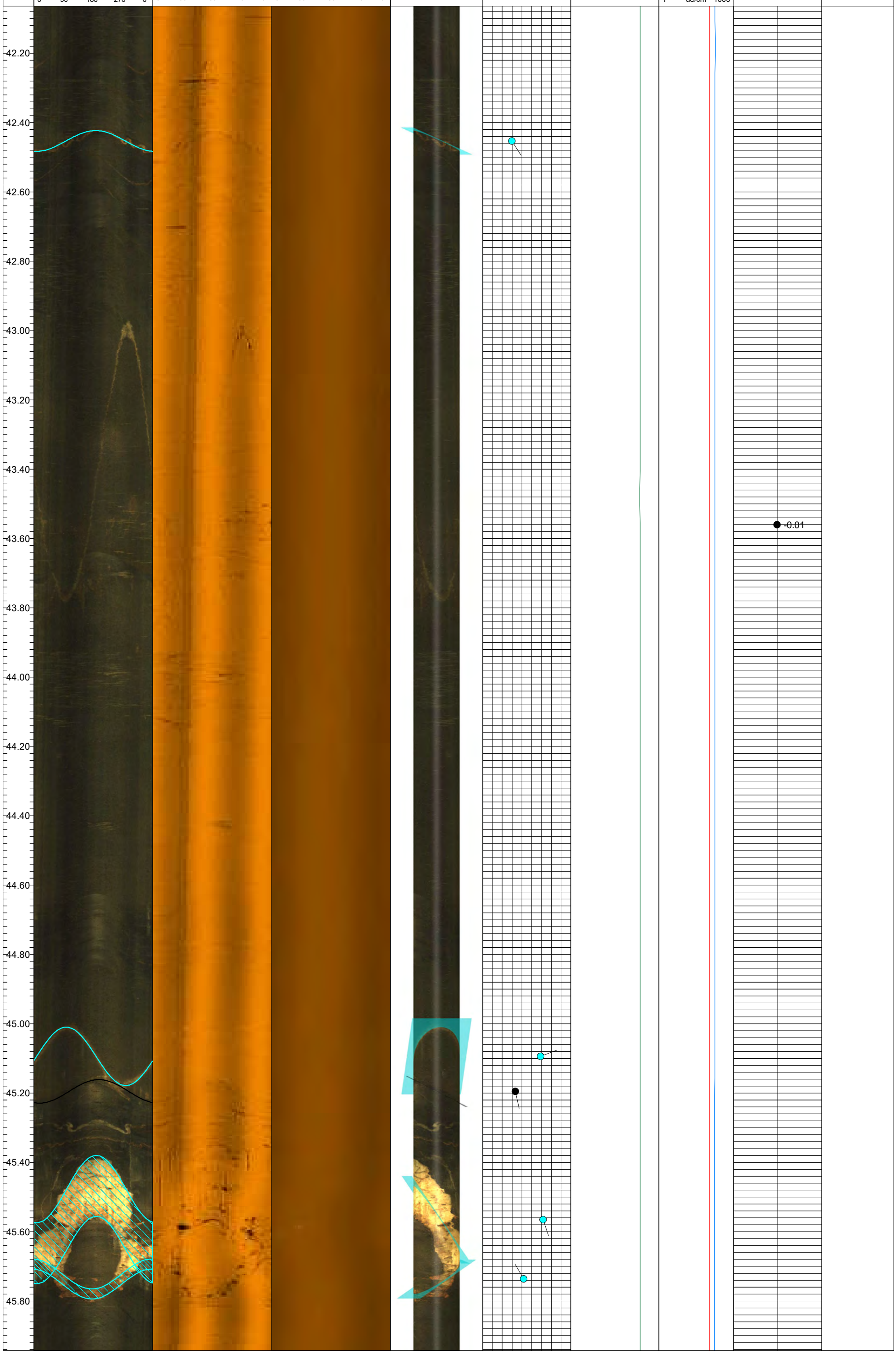
1m:10m	Image-HS 0° 90° 180° 270° 0° Structure 0° 90° 180° 270° 0°	Amplitude-HS 90 10000 0° 90° 180° 270° 0° TravelTime-HS 20 us 100 0° 90° 180° 270° 0°	109°	True North 0 90	Caliper 0 cm 10	Fluid Temperature 0 °C 10 Fluid Conductivity 1 uS/cm 1000	-1 Gal/min 1 -0.01	



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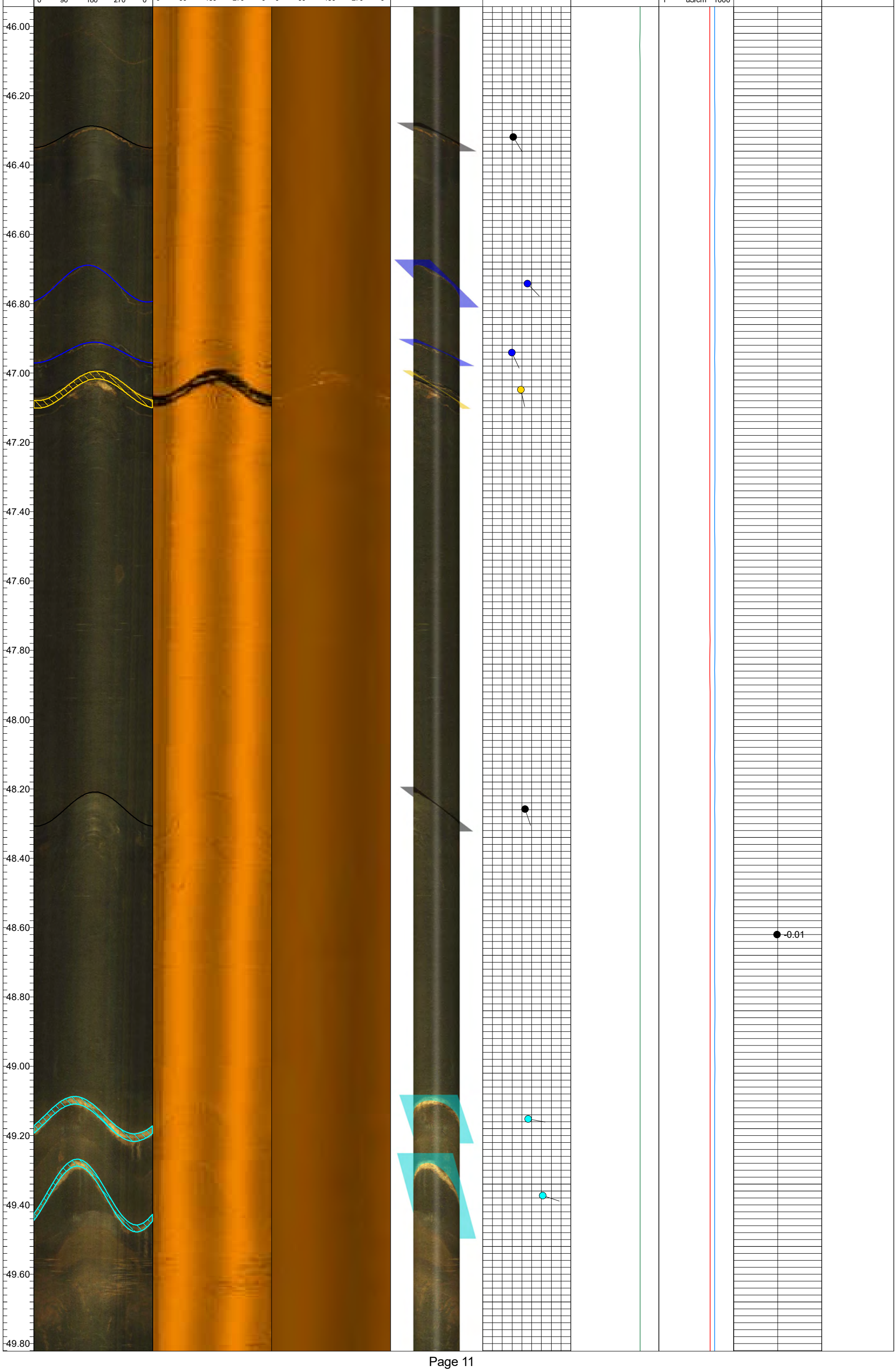

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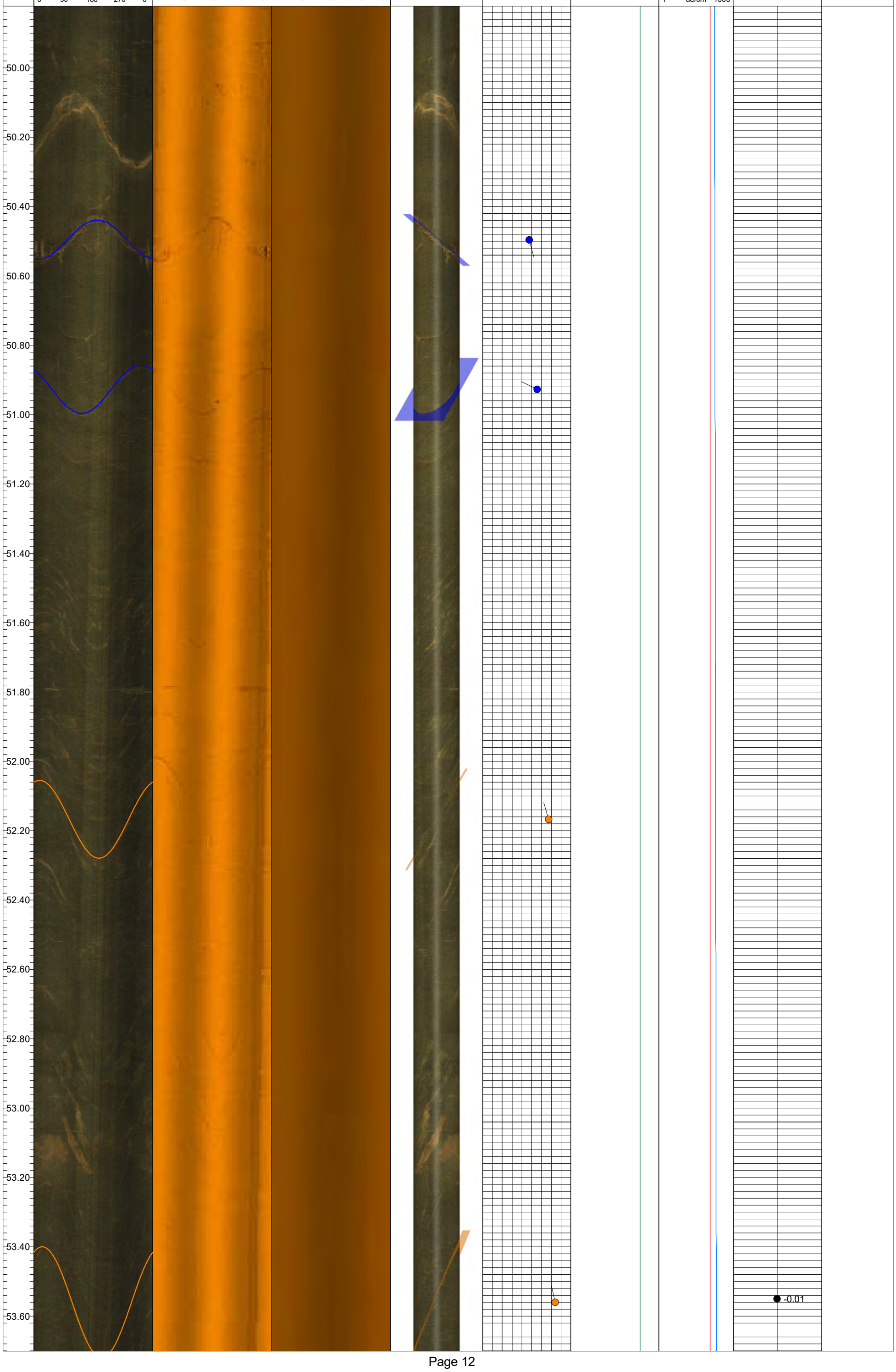

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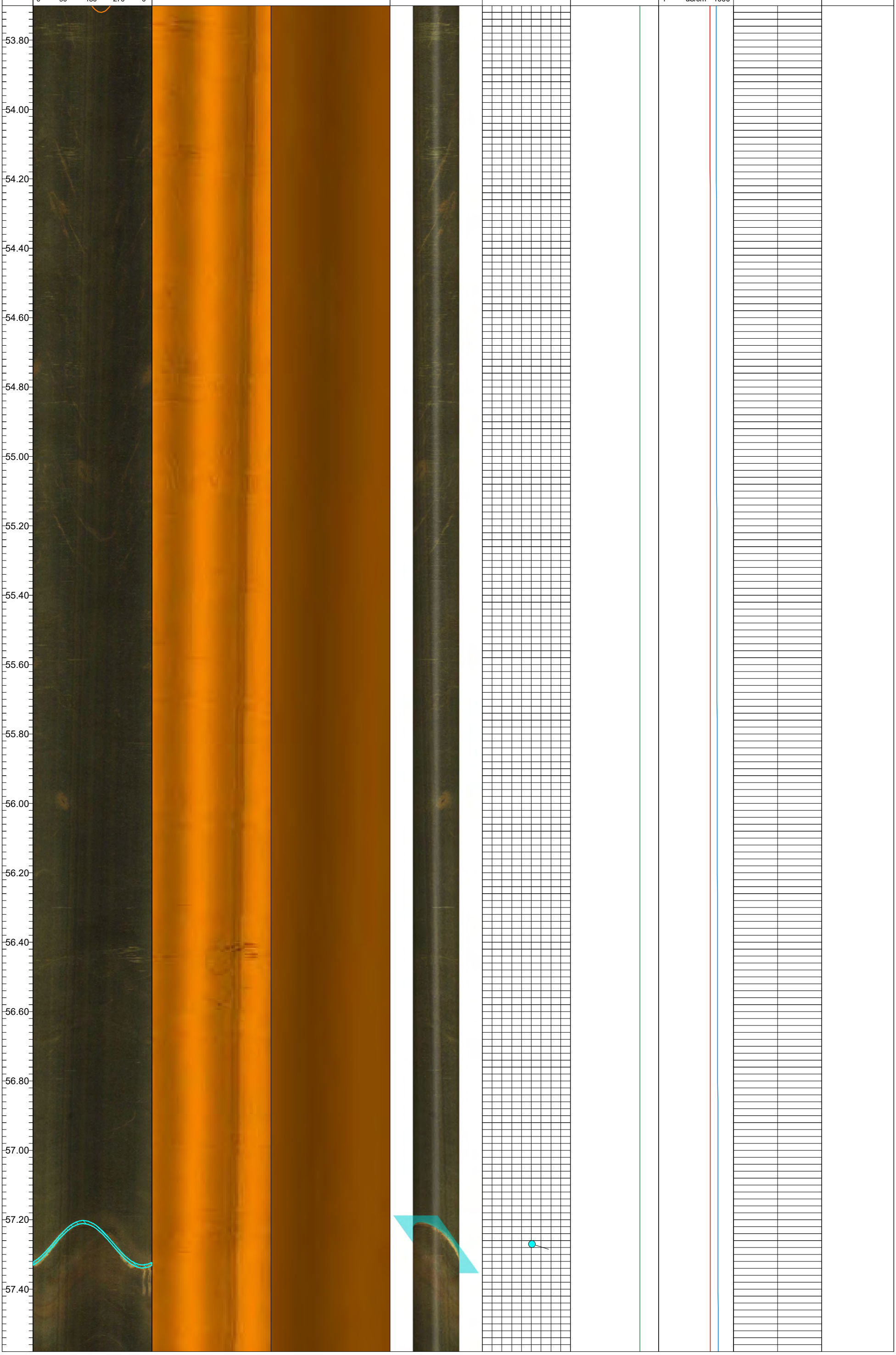

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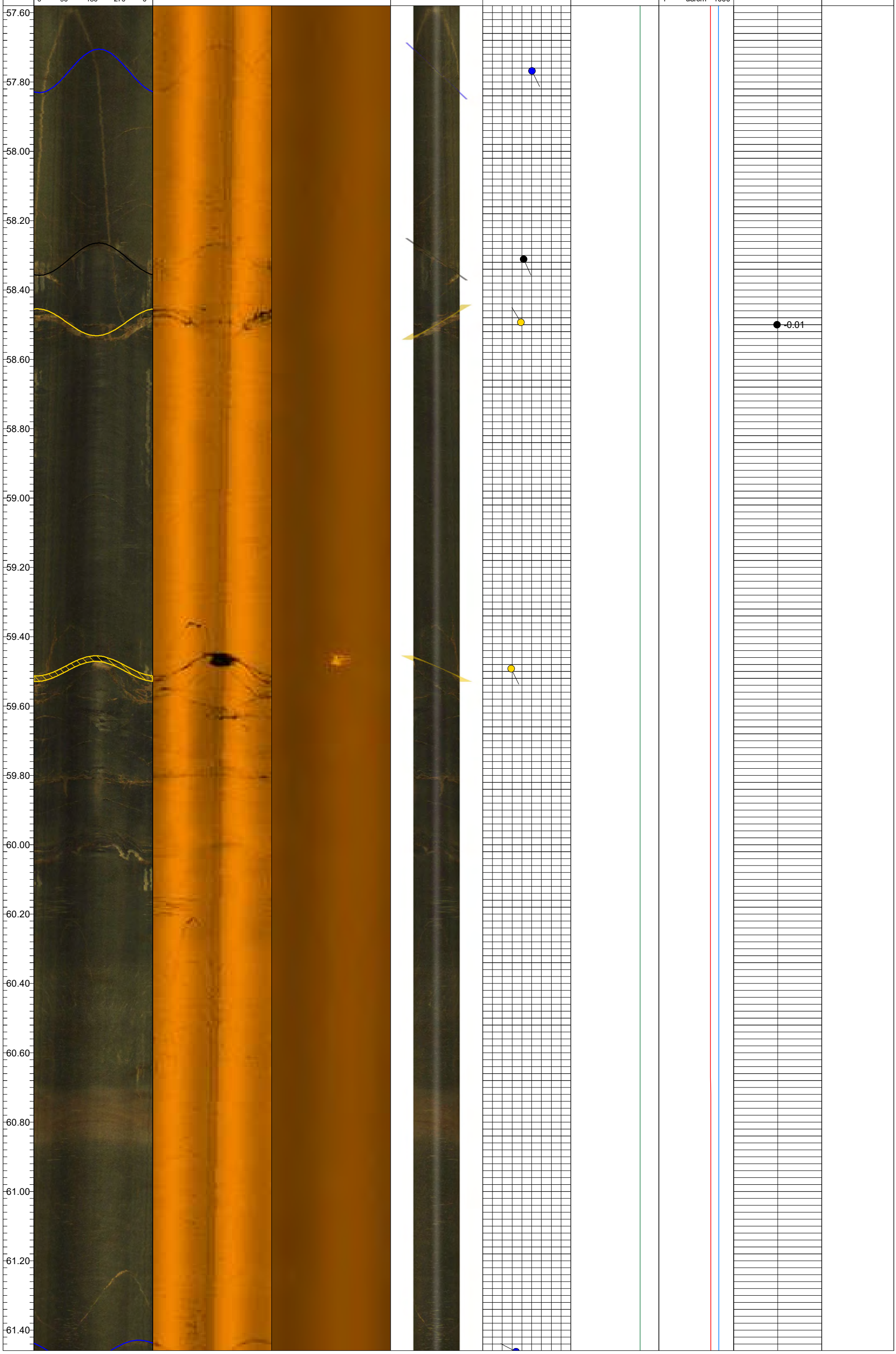

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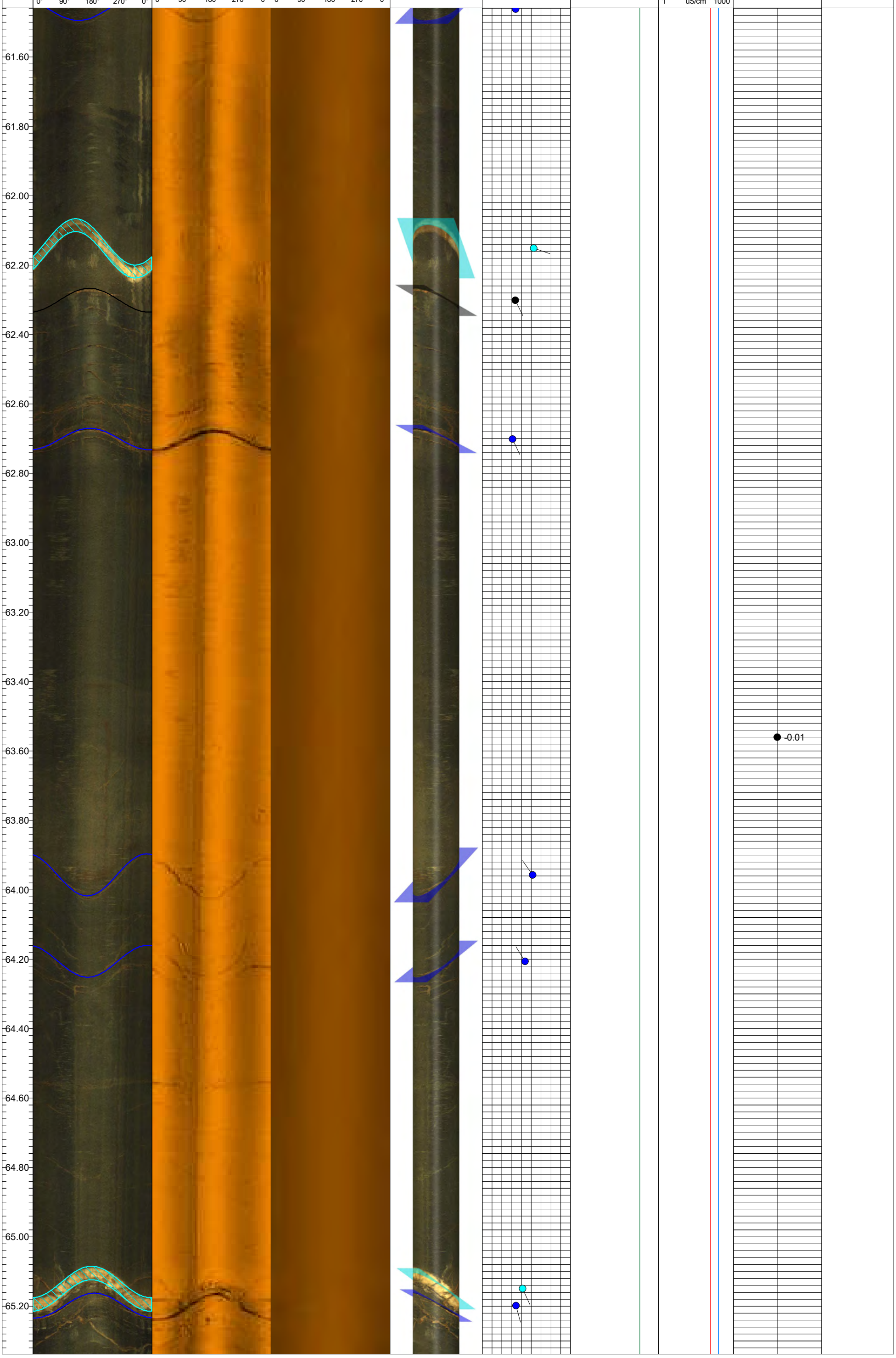

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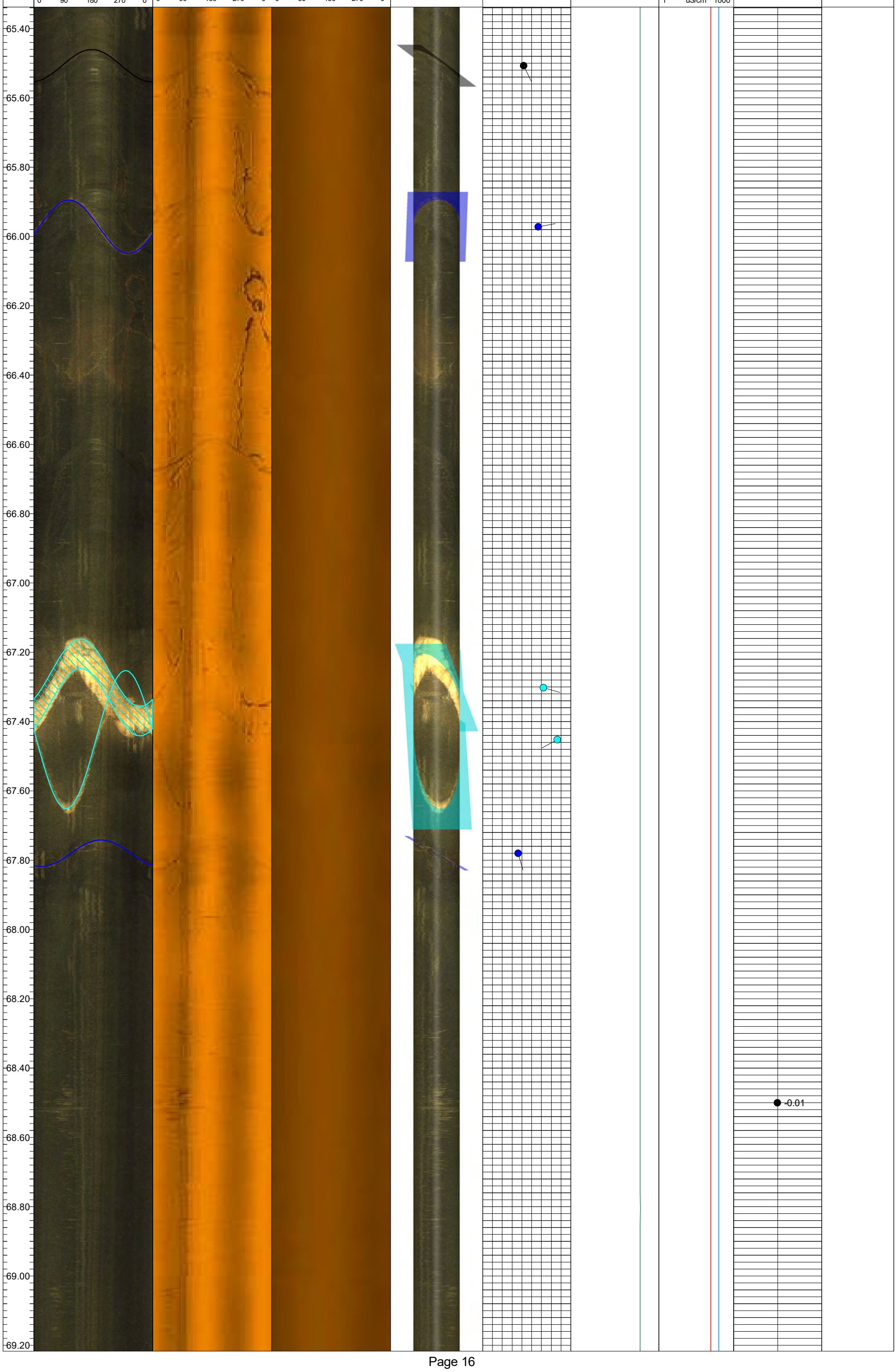

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