RETTEW

We answer to you.

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Engineers

Environmental Consultants

Surveyors

Landscape Architects

Safety Consultants

February 18, 2025

Mr. Bradford L. Fish
Energy Transfer
100 Green Street
Marcus Hook, PA 19061

RE: Borehole Logging Survey
Residential Well
[redacted]
Washington Crossing, PA
RETTEW Project No. 0963003386

Dear Mr. Fish,

On February 10, 2025, RETTEW completed a geophysical borehole survey at the above-referenced site. The purpose of the survey was to locate and characterize fractures and potential water-bearing zones intersecting the above-referenced residential well. To accomplish these objectives, RETTEW conducted Optical Televiewer, Acoustic Televiewer, Mechanical Caliper, Fluid Temperature, Fluid Conductivity, and Natural Gamma. The procedures and geophysical technics utilized are briefly described in the sections below. A summary of the notable features identified is presented in the “Logging Results” section.

LOGGING EQUIPMENT

RETTEW conducts borehole geophysics and televiewer logging using a Mt. Sopris MX Series winch and SCOUT Pro data acquisition system. This unit records digital data for on-site log playback, reproduction, and field interpretation, as well as post-processing and report presentation. The systems are driven by field PCs running software supplied by the manufacturer for data acquisition, log replay, probe control, probe calibration, and logging environment compensation.

DECONTAMINATION PROCEDURE

Prior to RETTEW’s mobilization to the site, the winch cable and sondes scheduled for use are decontaminated, to ensure the quality of sampling by preventing cross-contamination. The procedure described below was implemented both before and after logging. The equipment used for decontamination is listed below.

- Distilled water
- Seventh Generation solution (mixed with distilled water)
- Stiff-bristle brush
- Manual pump spray bottle
- Heavy duty paper towels
- 5-gallon bucket with lid.

The procedure used for decontamination is listed below.

1. A decontamination area is designated and set-up.
2. Proper personal protective equipment is donned (i.e., nitrile gloves, safety glasses).

3. Sondes are removed from their containers and placed in the decontamination area.
4. Mixed detergent solution is applied to each sonde with a manual pump spray bottle.
5. Sondes are manually wiped down with a paper towel or scrubbed with a stiff bristle brush, depending on the amount of mud or dirt on the sonde.
6. Sondes are rinsed with distilled water and dried with a paper towel.
7. Discarded water is captured in a 5-gallon bucket, which is sealed for proper disposal and not allowed to infiltrate the soil.
8. If a sonde is still visibly contaminated, the process is repeated as necessary.
9. Decontamination of the winch cable is performed during the first deployment of a sonde down a borehole, and on the last retrieval of a sonde, for each borehole.
10. Mixed detergent solution is sprayed on paper towels, and the cable is wiped down on its initial deployment down a borehole.
11. Paper towels are monitored for cleanliness and replaced as necessary.
12. Cable decontamination process is repeated on the final recovery of a sonde, for each borehole.

LOGGING PARAMETERS AND METHODOLOGY

Geophysical well logging in general involves lowering sondes in a borehole and recording parameters that are related to the properties of the adjacent soil or rock, the fluids in the borehole or formation, and/or construction details of the well. There are many tools and techniques that have been developed to provide specific information in different environments and constructions of drilled holes. The data collected can define the nature and extent of geologic formations and formation fluids and can be used to provide correlation between holes.

The sondes used for this survey are described below. Note that RETTEW personnel test them for proper function and recalibrate periodically, as necessary. This is essential to the proper acquisition of downhole data and the ability to relate the data from one borehole to another.

OPTICAL TELEVIEWER

The borehole optical televiewer (OPTV) provides a high-resolution digital optical scan of the interior of a borehole using visible wavelength light. From the accurately scaled, continuous image it is possible to identify the depth and character of features such as fractures, bedding planes, veins, solution openings, etc. It is possible to calculate the strike, dip, and aperture of planar features. The OPTV operates by using a high-resolution color downhole camera, which views a reflection of the borehole walls in a hyperbolic correction mirror. At successive depth increments of 0.5 mm, rings of pixels corresponding to circular scans of the borehole wall are acquired from the probe and stacked into a continuous image. The image is rectangular – representing the interior of a cylinder that has been sliced open and rolled out flat. The image is oriented to north, based on data from three magnetometers and accelerometers in the sonde. Note that the use of magnetometers for orientation leads to image distortion in steel-cased holes, and within several feet of the base of steel casing in open holes. All OPTV sondes require an open borehole, or one filled with a clear fluid.

ACOUSTIC TELEVIEWER

The high-resolution acoustic televiewer (HRAT) provides a scan or image of the interior of the borehole that is created not by reflected visible wavelength light, but by reflected ultrasound. Since ultrasonic pulses are used, it is possible to record both the amplitude and travel time of each pulse and construct two separate images. The amplitude log is analogous to a visual scan, while the travel time data are affected primarily by the local diameter of the borehole (i.e., the larger the bore, the later the arrival of the reflected pulse), and therefore can supplement or replace a caliper log. The main advantage of the HRAT probe is that it can be used in larger boreholes than optical tools, and in holes with turbid or particle-loaded fluids that would be opaque to optical methods.

The HRAT operates by using a fixed acoustic transducer and a rotating acoustic mirror capable of focusing on the borehole wall at any distance from the probe diameter upwards. The acoustic transducer is focused based on the borehole diameter, and impedance-matched to the borehole fluid, to provide optimum image resolution and reflected amplitude. Mirror rotation speed (i.e., circumferential resolution), sampling rate (i.e., depth resolution), signal gain (i.e., amplitude image contrast), and recording time gate (i.e., travel time image contrast) are all variable and under operator control to provide the best image possible under borehole-specific conditions.

Planar features intersecting a cylindrical borehole appear sinusoidal on the flattened cylindrical image. The azimuth of the peak/trough of the sinusoid, and the amplitude of the sinusoid, can be measured and used to calculate the strike and dip (see **Appendix A**) of such features. Based on their visual character, planar features on the HRAT (and OPTV- see above) logs are categorized on the log sheets as various types of geologic interface (fractures, bedding planes, foliation, etc.). Once sinusoids are fit to the structures, they are classified/color-coded according to Planer Feature Characterization (see **Appendix B**) and then corrected for borehole tilt. Data are subsequently corrected for declination using NOAA's "Estimated Value of Magnetic Declination" online calculator for each well location.

Tables listing the depth, aperture, strike, dip, and type of feature are included for each well. Based on their visual character, planar features are categorized as various types of geologic interface (fractures, bedding planes, foliation, etc.). Feature apertures are listed in tenths of an inch. An aperture of zero for an open fracture simply means that while it appears to be a continuous open feature, the opening is smaller than the line thickness on the log (~0.019 inches).

Please note that feature measurements present within five feet of the bottom of a steel casing may be distorted due to metallic interference with the internal magnetometer. Note also that it has been the experience of RETTEW that the aperture of a feature is not always a strong indicator of its water-producing potential. Thin, discrete features sometimes produce as much or more water than wide, open fractures or fracture zones.

MECHANICAL CALIPER

Caliper measurements represent the average diameter of the borehole, or well, at a given depth. The caliper tool collects and transmits the data from three spring-loaded arms as the tool is lifted upwards through the borehole. The caliper tool is used to locate solution openings or fractures (where the borehole is typically enlarged due either to the presence of natural openings, or to plucking of broken rock by the drill bit), and to determine the length of casing intervals (as evident from small changes in casing diameter, or the small enlargements at threaded junctions, or narrowing due to the bead at welded junctions).

Caliper logs are collected by calibrating the downhole tool with a measuring template, lowering the tool to the base of the well, remotely opening the arms, and then logging the open borehole and casing diameter in an upward direction. Caliper logs are acquired with a logging speed of no more than 12 feet per minute (fpm).

FLUID TEMPERATURE

Fluid temperature logs provide the temperature of the air or fluid in a borehole as a function of depth. Temperature logs can indicate where water is entering or leaving a borehole – and thereby disturbing the normal geothermal gradient. Deviations, offsets, or changes in the slope of the temperature log can be used to locate zones of water movement within the borehole. Temperature logs must be run in wells that have been allowed to fully equilibrate to the local geothermal gradient following any prior drilling, construction, pumping, or sampling. During a temperature survey, data accuracy is ensured by maintaining a downward logging speed of approximately 10 fpm. This provides an adequate time buffer to allow sensors to respond to minor temperature changes.

FLUID CONDUCTIVITY

Fluid conductivity logs provide a continuous measurement of the electrical conductivity of the borehole fluid- i.e., zero in air or hydrocarbons, greater than zero in water. In water, electrical conductivity is mostly a function of electrolytic content. Water with very low dissolved solid concentrations will yield low fluid conductivity, while water containing a high level of dissolved solids will be proportionally more conductive. Fluid conductivity logs often deflect where water-producing features are transmitting water into or out of the well (since the well water may have a differing electrolytic chemistry than the formation water). The fluid conductivity log is usually collected simultaneously with the temperature log – since for both, data from a fully equilibrated water column is required.

NATURAL GAMMA

Gamma logs are one of the most widely used geophysical logs in groundwater applications. They are used primarily to identify changes in lithology – specifically, the relative amounts of clay in various sedimentary units.

A gamma log provides a record of the total natural gamma radiation detected within a given energy range. In water-bearing rocks and sediments that are not contaminated by artificial radioisotopes, the most significant naturally occurring, gamma-emitting radioisotopes are potassium-40 and the daughter products of the uranium and thorium decay series. If gamma-emitting artificial radioisotopes have been introduced by humans into the groundwater system, they will also produce part of the radiation measured.

The amplitude of gamma-log deflections is affected by any borehole condition that alters the density of the material through which gamma photons must pass, or the length of the travel path. The bedding of a gamma-emitting formation must be thick to obtain a quantitative value, since the detector will be affected by the radiation from the formation as the tool approaches and passes the bed. Although increases in borehole diameter, or the presence of steel casing, will decrease the recorded gamma count, it is possible to collect usable information in both cased and open portions of the borehole using the gamma sonde. The presence of potassium-rich (and therefore gamma-emitting) bentonite clay commonly used in well construction will generally produce high gamma count peaks on a natural gamma log. RETTEW has natural gamma detectors on many sondes, and comparison of the multiple gamma logs collected for any given well logging program are used to ensure that the depths of differing logs are not erroneously shifted. Therefore, the gamma log presented for any well may have been collected simultaneously with any of the other logs from the same well.

LOGGING RESULTS

The logging results for the well are presented on the enclosed digital logs and tables are briefly summarized below.

Note that since analysis of borehole geophysical logs can be quite subjective, and the level of detail is dependent upon the specific goals of the geologist, the analysis below by RETTEW covers the major features of each log – as well as some possibly minor features – to serve as examples (or guides) for further interpretation by geologists familiar with the site, local geology, and/or project goals. In general, logs may display deviations (i.e., "spikes" where the parameter deviates from, and then returns to, "background" level), offsets (changes in background level), or slope changes. Any of these could be considered significant in certain situations, or when compared to correlating features at the same depth on other logs.

[redacted]-Residential Well

NOTABLE FEATURES

- The total depth of the well was measured at approximately 141.0 feet below "top of casing" (TOC).
- The depth to water was measured at 28.9 feet below TOC at the beginning of the survey.
- The diameter of the casing at the surface was measured to be nominally 6 inches, and the bottom of the casing was located at approximately 29.8 feet below TOC.
- The caliper log showed notable enlargements due to fracturing centered near 32.0, 45.5, 67.5, 79.0, and 131.5 feet below TOC.
- The fluid conductivity was consistent throughout most of the well but exhibited a notable increase from 132.0 feet below TOC through the bottom of the borehole.
- The fluid temperature was consistent throughout the borehole.
- The natural gamma log varied uniformly throughout the well.
- Planar features were recognizable on the acoustic and optical televiewer logs. The depth, strike, dip, aperture, and feature type are listed on the logs – as well as on the accompanying table.

LIMITATIONS

The survey described above was completed using standard and/or routinely accepted practices of the geophysical industry, and the equipment employed represents, in RETTEW's professional opinion, the best available technology. RETTEW does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen site-specific conditions. We will notify you of such limitations or conditions when they are identifiable.

We have enjoyed and appreciated this opportunity to have worked with you. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Robert J. Krause, PG
Senior Geophysicist

Quality Assurance/Control:

Matthew T. Bruckner, PG
Regional Director

Enclosures
Residential Well – Geophysical Logs and Planar Features
Appendix A: Planar Feature Orientation Parameters
Appendix B: Planar Feature Characterization

Z:\Shared\Projects\09630\0963003386 - SL - Washington Crossing Well Complaints\GP\Borehole Logging\[redacted]\deliverables\[redacted] Borehole Logging Report 2025-02-18.docx

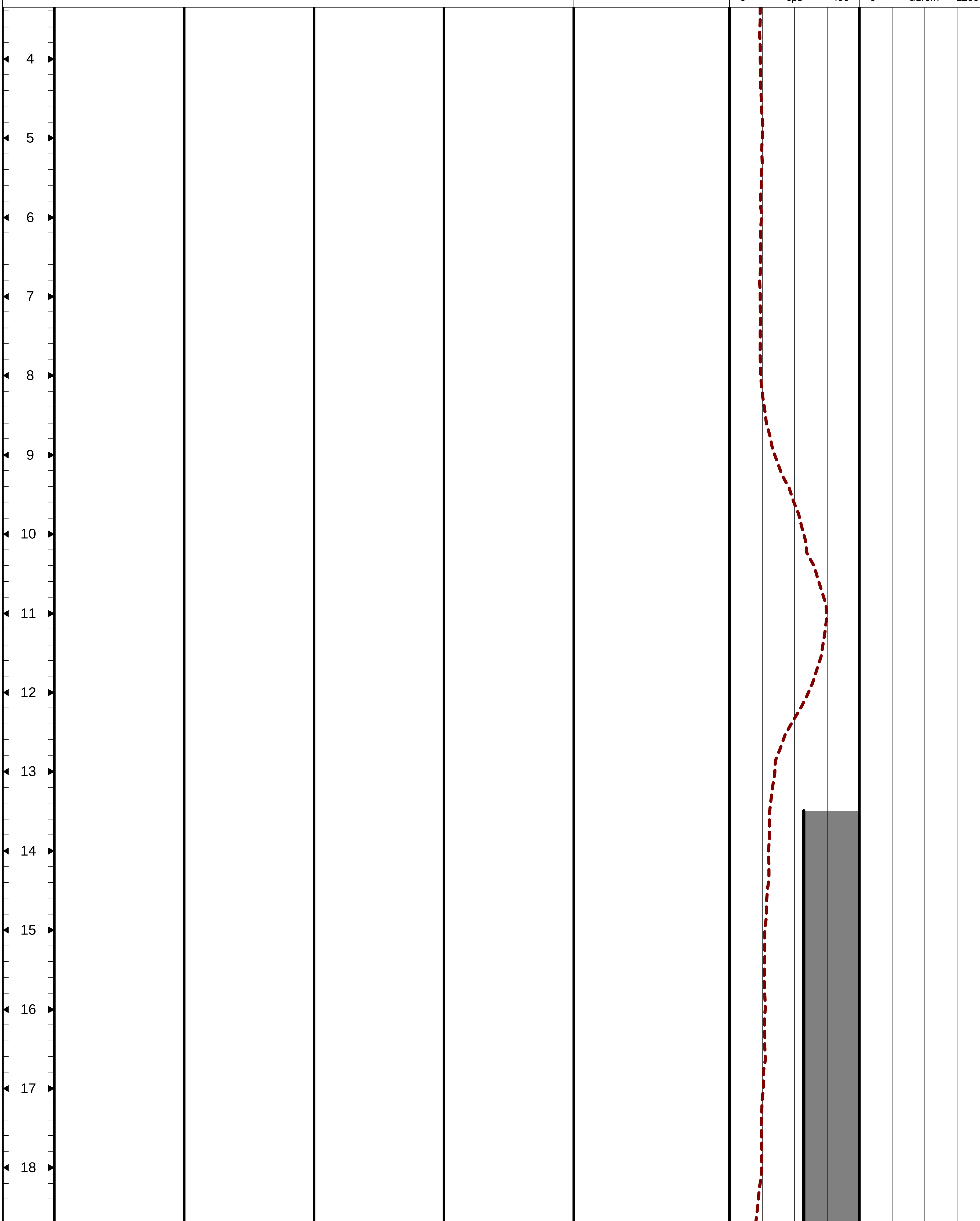
Rettew Field Services	WELL ID	Logging Date: 02/10/2025
Geophysical Logging Program	Residential Well	Logging Datum: Top of Casing
		BOC: 29.8 DTW: 28.9 TD: 141.0

Site Name: [redacted] **Client:** *Sunoco Pipeline LP*

Location: *Washington Crossing, PA* **Project No.:** *0963003386*

Revision Date: *02/12/2025*

Depth 1ft:20ft	Acoustic Travel Time 0° 90° 180° 270° 0°	Acoustic Amplitude 0° 90° 180° 270° 0°	Optical Televiewer 0° 90° 180° 270° 0°	Televiewer Features 0° 90° 180° 270° 0°	Feature Characteristics	Mechanical Caliper 5 Inches 7	Temp 5 'C 15
					Strike and Dip (degrees) Aperture (inches) Inferred Type	GR 0 cps 400	Cond 0 uS/cm 1200



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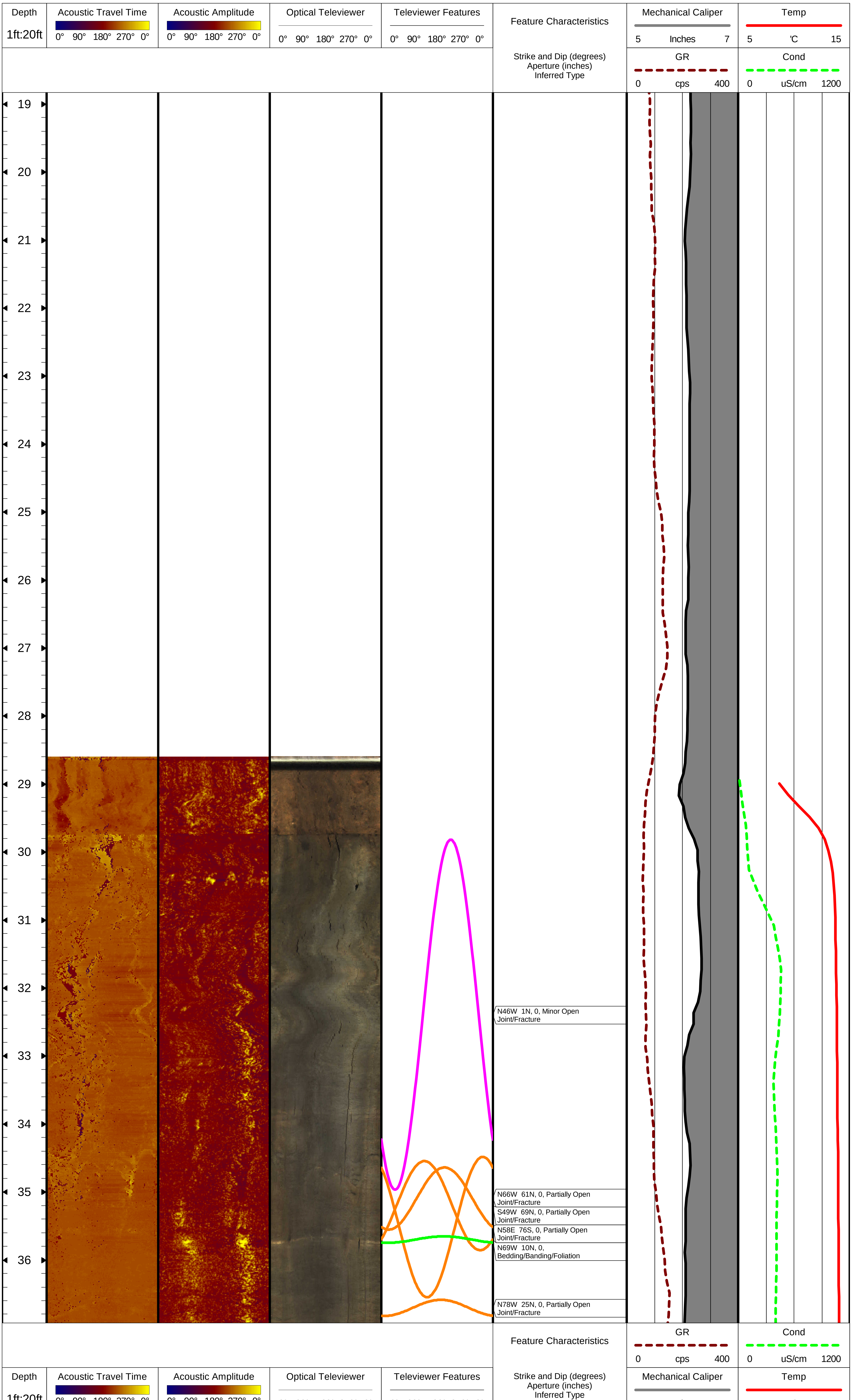
Depth 1ft:20ft	Acoustic Travel Time 0° 90° 180° 270° 0°	Acoustic Amplitude 0° 90° 180° 270° 0°	Optical Televiewer 0° 90° 180° 270° 0°	Televiewer Features 0° 90° 180° 270° 0°	Strike and Dip (degrees) Aperture (inches) Inferred Type	Mechanical Caliper 5 Inches 7	Temp 5 'C 15



Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Feature Characteristics
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
GR
0 cps 400
Temp
5 'C 15
Cond
0 uS/cm 1200
19
20
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35
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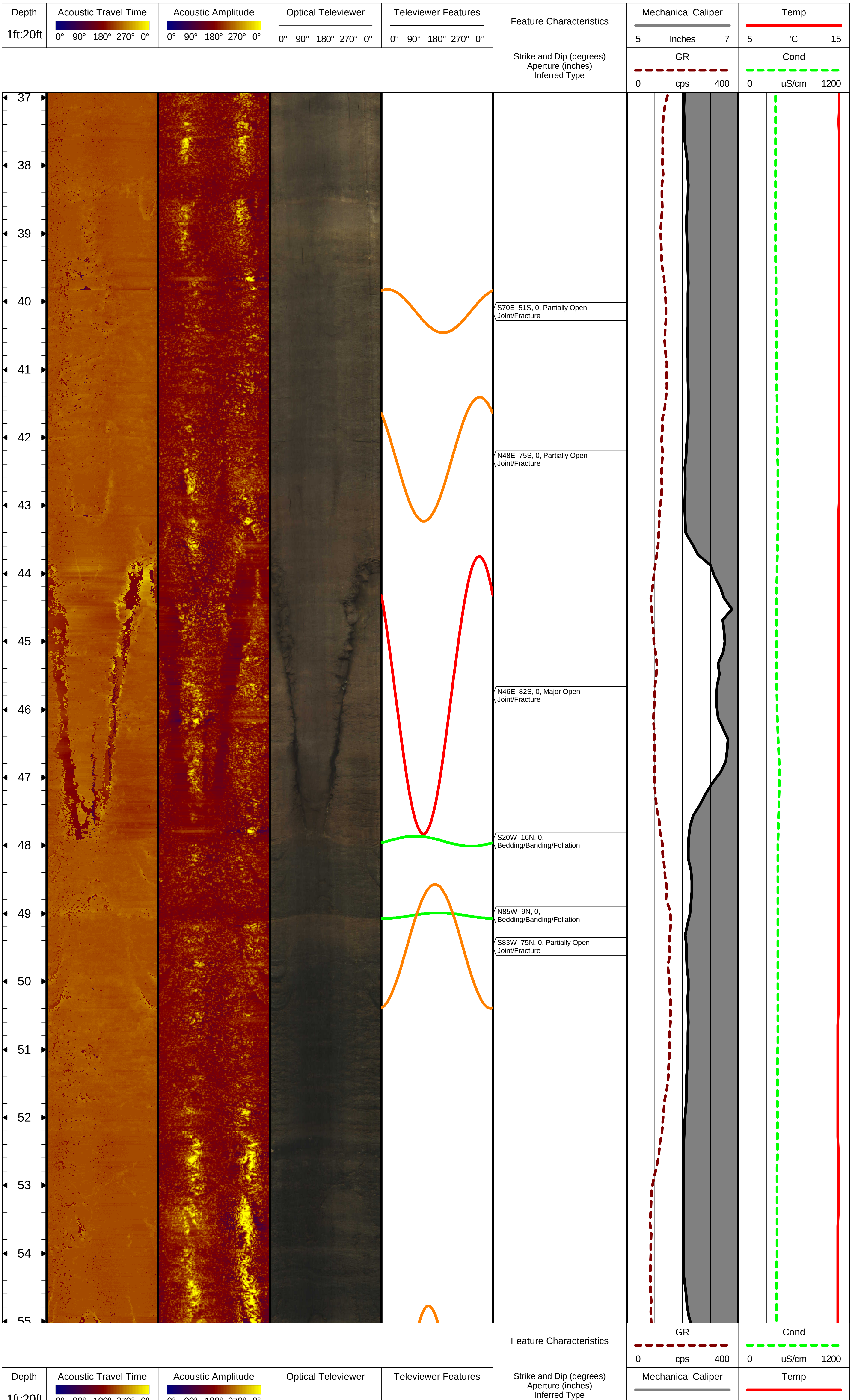
N46W 1N, 0, Minor Open
Joint/Fracture
N66W 61N, 0, Partially Open
Joint/Fracture
S49W 69N, 0, Partially Open
Joint/Fracture
N58E 76S, 0, Partially Open
Joint/Fracture
N69W 10N, 0,
Bedding/Banding/Foliation
N78W 25N, 0, Partially Open
Joint/Fracture
Feature Characteristics
GR
0 cps 400
Cond
0 uS/cm 1200
Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
Temp
5 'C 15



Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Feature Characteristics
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
GR
0 cps 400
Temp
5 'C 15
Cond
0 uS/cm 1200
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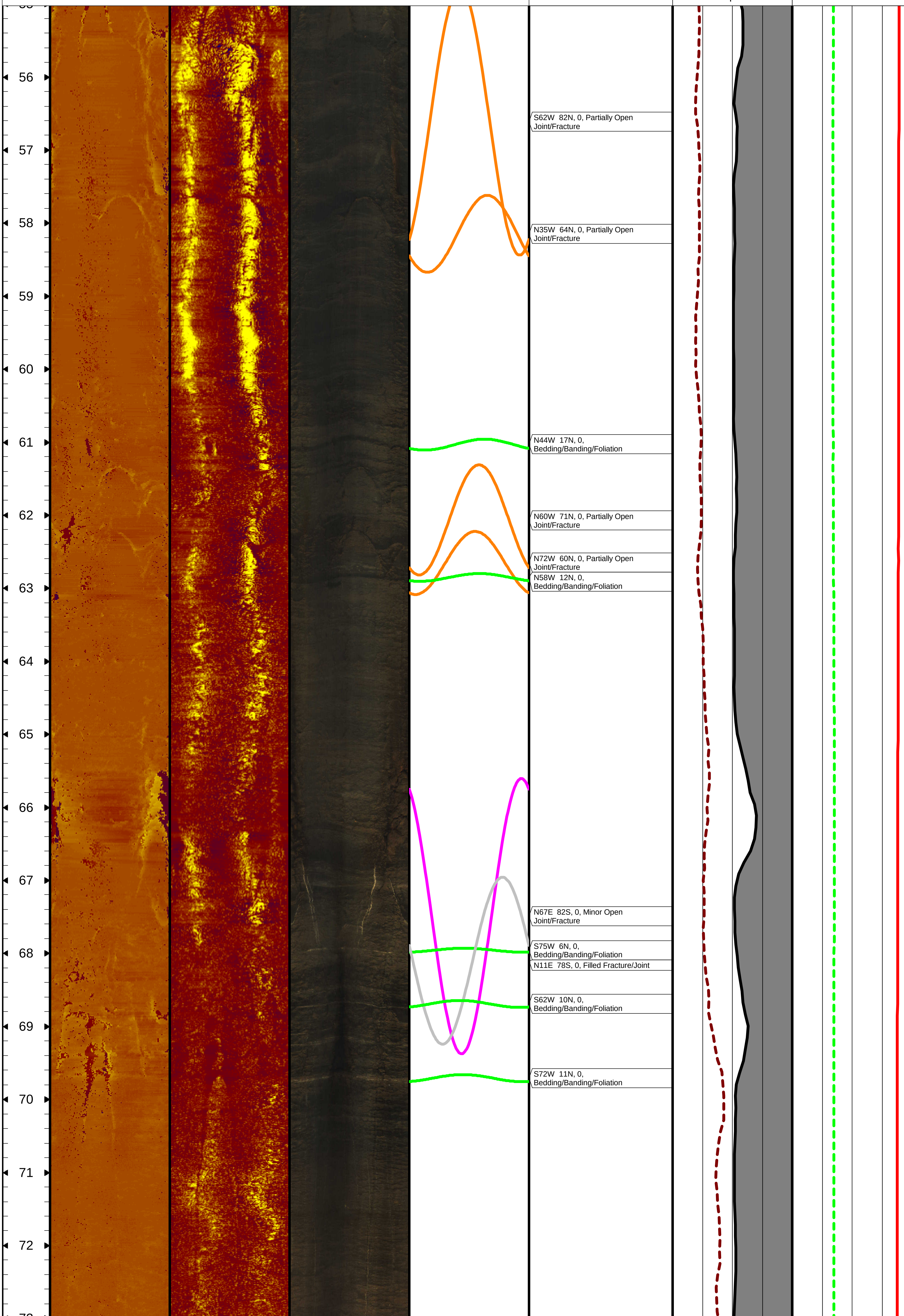
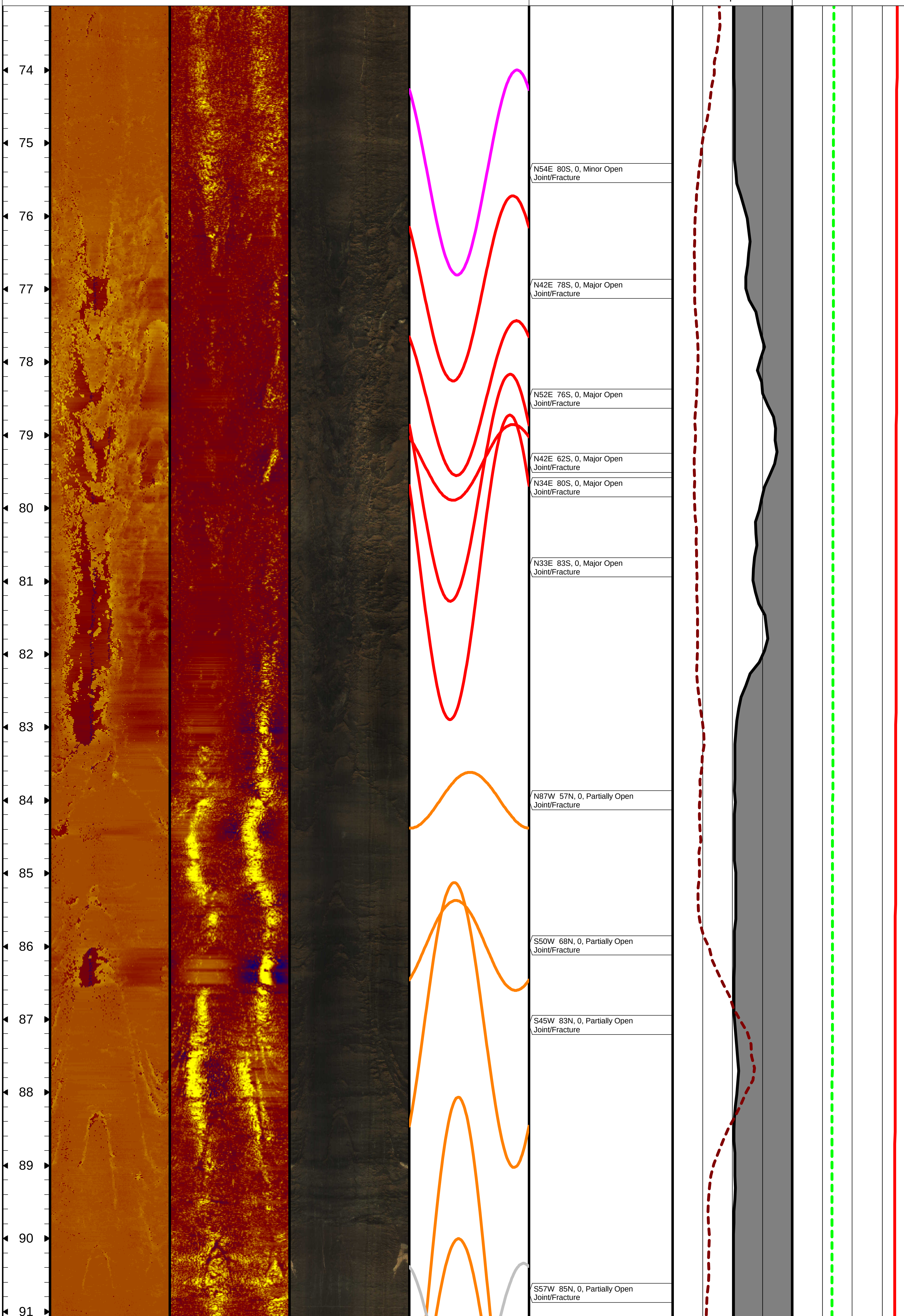
55
S70E 51S, 0, Partially Open Joint/Fracture
N48E 75S, 0, Partially Open Joint/Fracture
N46E 82S, 0, Major Open Joint/Fracture
S20W 16N, 0, Bedding/Banding/Foliation
N85W 9N, 0, Bedding/Banding/Foliation
S83W 75N, 0, Partially Open Joint/Fracture

Depth	Acoustic Travel Time	Acoustic Amplitude	Optical Televiewer	Televiewer Features	Feature Characteristics	Mechanical Caliper	Temp
1ft:20ft	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	Strike and Dip (degrees) Aperture (inches) Inferred Type	5 Inches 7	5 'C 15
						GR 0 cps 400	Cond 0 uS/cm 1200



					Feature Characteristics	GR 0 cps 400	Cond 0 uS/cm 1200
Depth	Acoustic Travel Time	Acoustic Amplitude	Optical Televiewer	Televiewer Features	Strike and Dip (degrees) Aperture (inches) Inferred Type	Mechanical Caliper	Temp
1ft:20ft	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°		5 Inches 7	5 'C 15

Depth	Acoustic Travel Time	Acoustic Amplitude	Optical Televiewer	Televiewer Features	Feature Characteristics	Mechanical Caliper	Temp
1ft:20ft	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°		5 Inches 7	5 'C 15
					Strike and Dip (degrees) Aperture (inches) Inferred Type	GR 0 cps 400	Cond 0 uS/cm 1200



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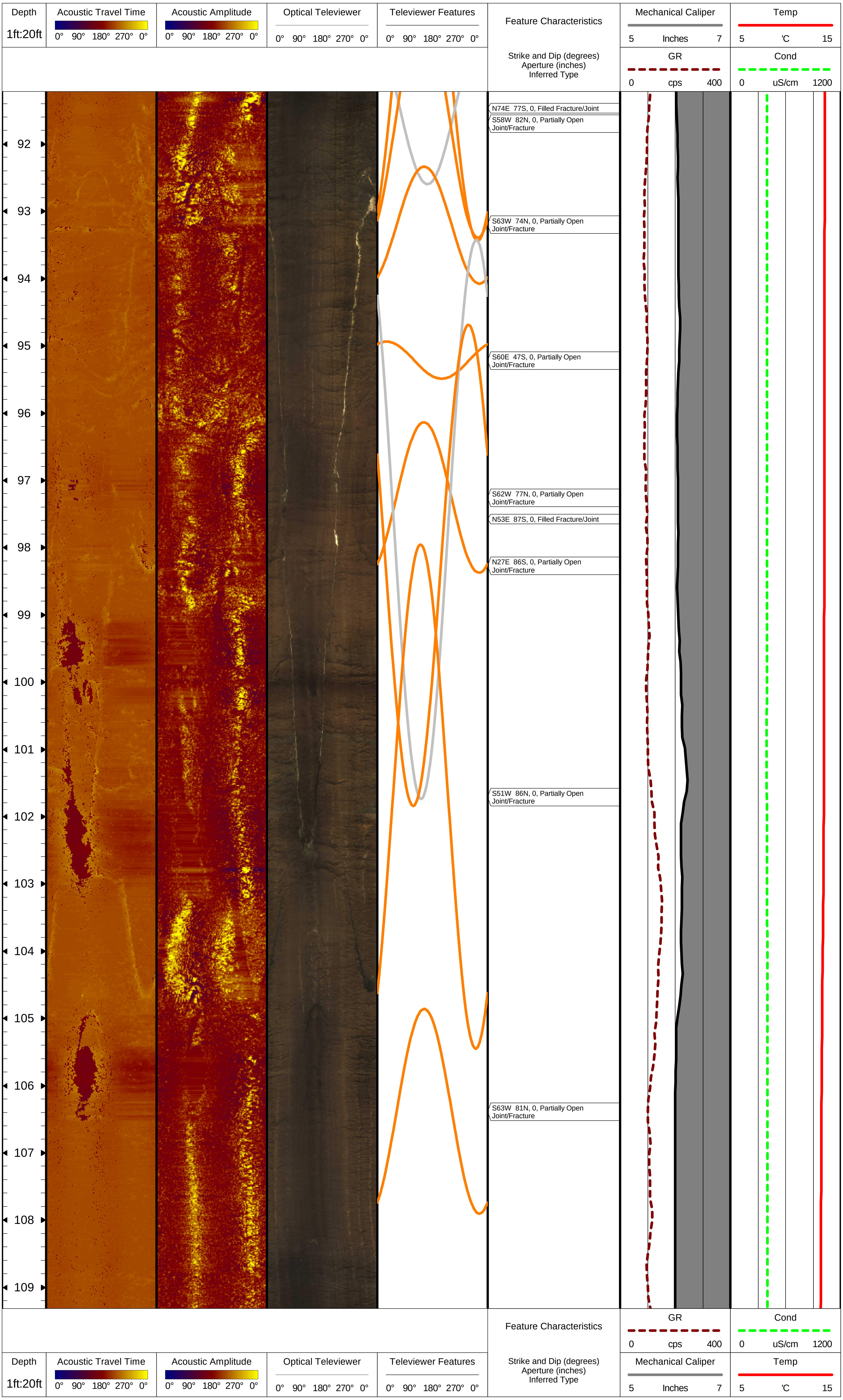
Depth 1ft:20ft	Acoustic Travel Time 0° 90° 180° 270° 0°	Acoustic Amplitude 0° 90° 180° 270° 0°	Optical Televiewer 0° 90° 180° 270° 0°	Televiewer Features 0° 90° 180° 270° 0°	Strike and Dip (degrees) Aperture (inches) Inferred Type	Mechanical Caliper 5 Inches 7	Temp 5 'C 15


Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Feature Characteristics
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
GR
0 cps 400
Temp
5 'C 15
Cond
0 uS/cm 1200
92
93
94
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100
101
102
103
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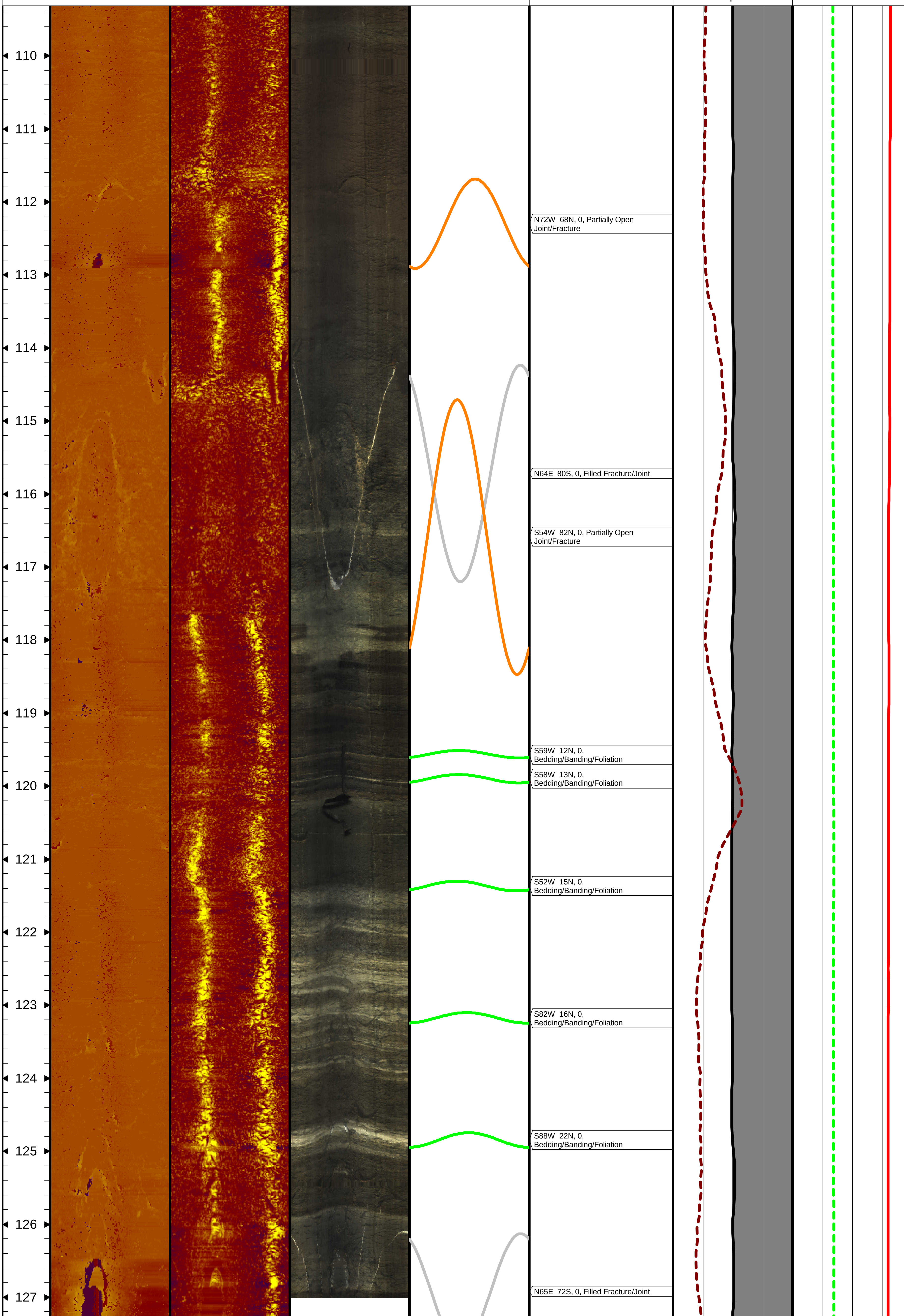
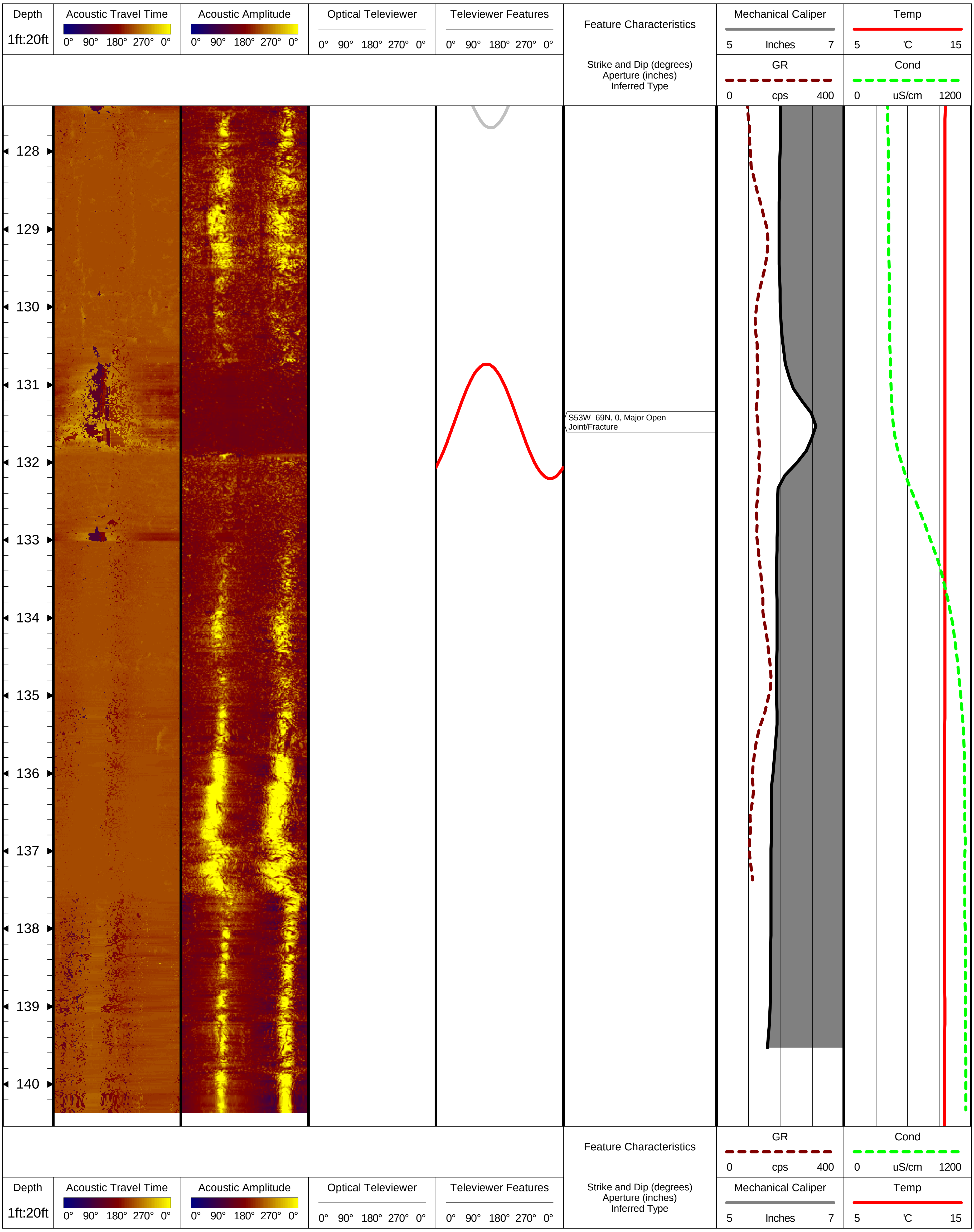
105
106
107
108
109
N74E 77S, 0, Filled Fracture/Joint
S58W 82N, 0, Partially Open Joint/Fracture
S63W 74N, 0, Partially Open Joint/Fracture
S60E 47S, 0, Partially Open Joint/Fracture
S62W 77N, 0, Partially Open Joint/Fracture
N53E 87S, 0, Filled Fracture/Joint
N27E 86S, 0, Partially Open Joint/Fracture
S51W 86N, 0, Partially Open Joint/Fracture
S63W 81N, 0, Partially Open Joint/Fracture
Feature Characteristics
GR
0 cps 400
Cond
0 uS/cm 1200
Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
Temp
5 'C 15

Depth	Acoustic Travel Time	Acoustic Amplitude	Optical Televiewer	Televiewer Features	Feature Characteristics	Mechanical Caliper	Temp
1ft:20ft	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°	0° 90° 180° 270° 0°		5 Inches 7	5 'C 15
					Strike and Dip (degrees) Aperture (inches) Inferred Type	GR 0 cps 400	Cond 0 uS/cm 1200



					Feature Characteristics	GR 0 cps 400	Cond 0 uS/cm 1200
Depth 1ft:20ft	Acoustic Travel Time 0° 90° 180° 270° 0°	Acoustic Amplitude 0° 90° 180° 270° 0°	Optical Televiewer 0° 90° 180° 270° 0°	Televiewer Features 0° 90° 180° 270° 0°	Strike and Dip (degrees) Aperture (inches) Inferred Type	Mechanical Caliper 5 Inches 7	Temp 5 'C 15


Depth
1ft:20ft
Acoustic Travel Time
0° 90° 180° 270° 0°
Acoustic Amplitude
0° 90° 180° 270° 0°
Optical Televiewer
0° 90° 180° 270° 0°
Televiewer Features
0° 90° 180° 270° 0°
Feature Characteristics
Strike and Dip (degrees)
Aperture (inches)
Inferred Type
Mechanical Caliper
5 Inches 7
Temp
5 'C 15
GR
0 cps 400
Cond
0 uS/cm 1200
128
129
130
131
132
133
134
135
136
137
138
139
140
S53W 69N, 0, Major Open Joint/Fracture

Residential Well
Planar Feature Table

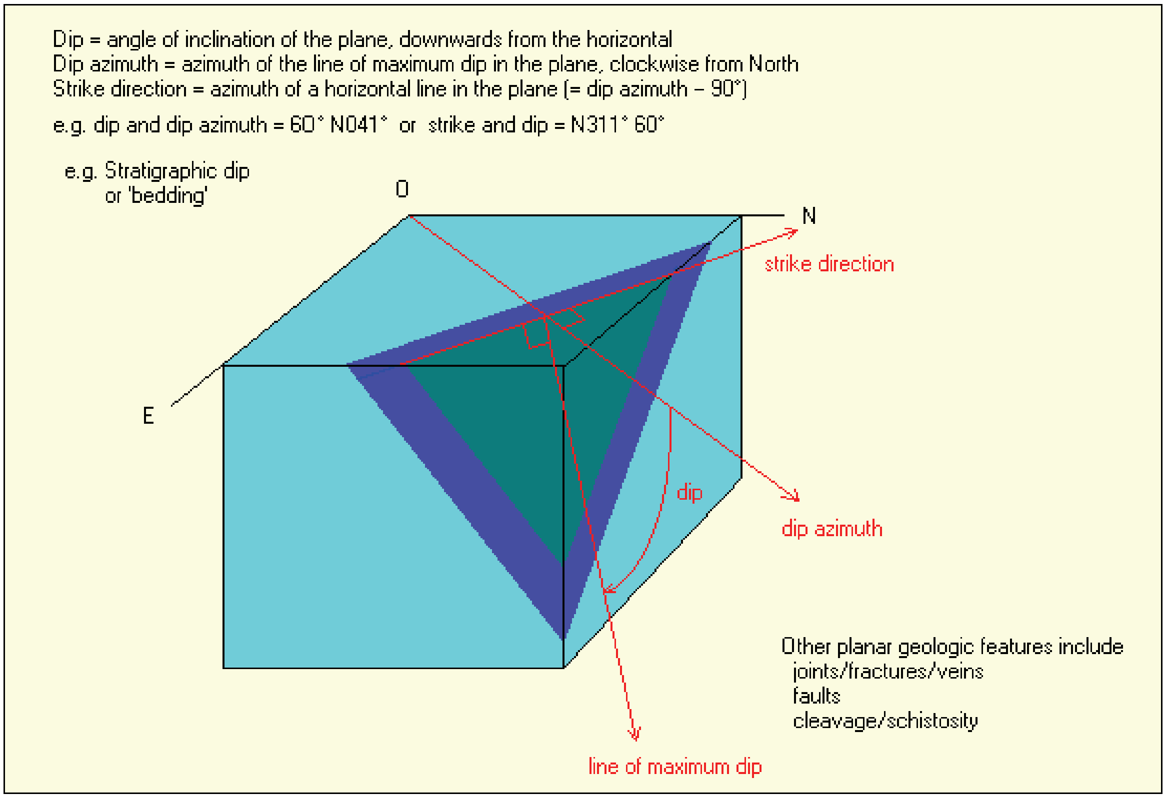
Project No.:	0963003386	**Client:**	Sunoco Pipeline LP
Site Name:	[redacted]	**Logging Date:**	02/10/2025
Location:	Washington Crossing, PA	**Revision Date:**	02/12/2025

Depth	Aperture (in.)	Dip Azimuth (deg.)	Strike (deg.)	Dip (deg.)	Feature Type
32.4	0.0	44	N46W	1N	Minor Open Joint/Fracture
35.1	0.0	24	N66W	61N	Partially Open Joint/Fracture
35.2	0.0	319	S49W	69N	Partially Open Joint/Fracture
35.5	0.0	148	N58E	76S	Partially Open Joint/Fracture
35.7	0.0	21	N69W	10N	Bedding/Banding/Foliation
36.7	0.0	12	N78W	25N	Partially Open Joint/Fracture
40.2	0.0	200	S70E	51S	Partially Open Joint/Fracture
42.3	0.0	138	N48E	75S	Partially Open Joint/Fracture
45.8	0.0	136	N46E	82S	Major Open Joint/Fracture
47.9	0.0	290	S20W	16N	Bedding/Banding/Foliation
49.0	0.0	5	N85W	9N	Bedding/Banding/Foliation
49.5	0.0	353	S83W	75N	Partially Open Joint/Fracture
56.6	0.0	332	S62W	82N	Partially Open Joint/Fracture
58.2	0.0	55	N35W	64N	Partially Open Joint/Fracture
61.0	0.0	46	N44W	17N	Bedding/Banding/Foliation
62.1	0.0	30	N60W	71N	Partially Open Joint/Fracture
62.7	0.0	18	N72W	60N	Partially Open Joint/Fracture
62.9	0.0	32	N58W	12N	Bedding/Banding/Foliation
67.5	0.0	157	N67E	82S	Minor Open Joint/Fracture
68.0	0.0	345	S75W	6N	Bedding/Banding/Foliation
68.1	0.0	101	N11E	78S	Filled Fracture/Joint
68.7	0.0	332	S62W	10N	Bedding/Banding/Foliation
69.7	0.0	342	S72W	11N	Bedding/Banding/Foliation
75.4	0.0	144	N54E	80S	Minor Open Joint/Fracture
77.0	0.0	132	N42E	78S	Major Open Joint/Fracture
78.5	0.0	142	N52E	76S	Major Open Joint/Fracture
79.4	0.0	132	N42E	62S	Major Open Joint/Fracture
79.7	0.0	124	N34E	80S	Major Open Joint/Fracture
80.8	0.0	123	N33E	83S	Major Open Joint/Fracture
84.0	0.0	3	N87W	57N	Partially Open Joint/Fracture
86.0	0.0	320	S50W	68N	Partially Open Joint/Fracture
87.1	0.0	315	S45W	83N	Partially Open Joint/Fracture
90.8	0.0	327	S57W	85N	Partially Open Joint/Fracture
91.5	0.0	164	N74E	77S	Filled Fracture/Joint
91.7	0.0	328	S58W	82N	Partially Open Joint/Fracture
93.2	0.0	333	S63W	74N	Partially Open Joint/Fracture
95.2	0.0	210	S60E	47S	Partially Open Joint/Fracture
97.3	0.0	332	S62W	77N	Partially Open Joint/Fracture
97.6	0.0	143	N53E	87S	Filled Fracture/Joint
98.3	0.0	117	N27E	86S	Partially Open Joint/Fracture
101.7	0.0	321	S51W	86N	Partially Open Joint/Fracture
106.4	0.0	333	S63W	81N	Partially Open Joint/Fracture
112.3	0.0	18	N72W	68N	Partially Open Joint/Fracture
115.7	0.0	154	N64E	80S	Filled Fracture/Joint
116.6	0.0	324	S54W	82N	Partially Open Joint/Fracture
119.6	0.0	329	S59W	12N	Bedding/Banding/Foliation
119.9	0.0	328	S58W	13N	Bedding/Banding/Foliation
121.4	0.0	322	S52W	15N	Bedding/Banding/Foliation
123.2	0.0	352	S82W	16N	Bedding/Banding/Foliation
124.9	0.0	358	S88W	22N	Bedding/Banding/Foliation
126.9	0.0	155	N65E	72S	Filled Fracture/Joint
131.5	0.0	323	S53W	69N	Major Open Joint/Fracture

APPENDIX A

Planar Feature Orientations Parameters

Planar Feature Orientation Parameters



APPENDIX B

Planar Feature Characterization

Planar Feature Characterization

- ▲ Broken Zone/Undifferentiated
- ● Major Open Joint/Fracture
- ● Minor Open Joint/Fracture
- ● Partially Open Joint/Fracture
- ● Filled Fracture/Joint
- ● Bedding/Banding/Foliation