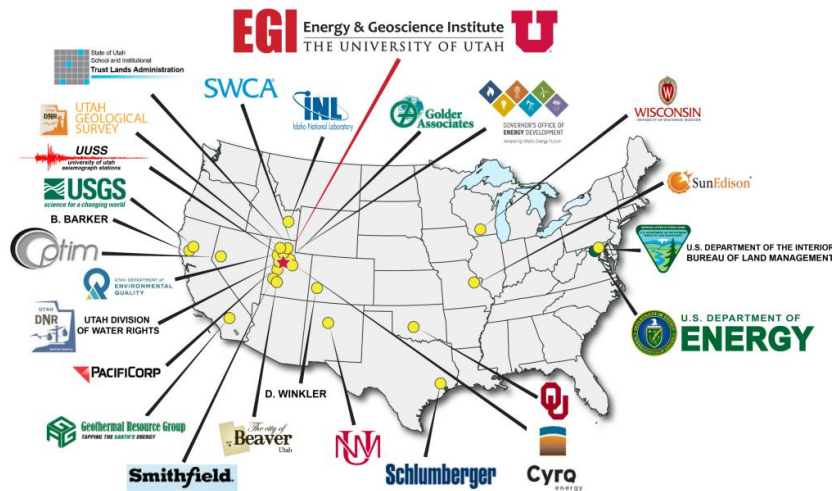


End of Well Report

Seismic Monitoring Wells

78-32



Prepared by:

Geothermal Resource Group, Inc.

for

University of Utah (UofU)



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Prepared By:	Sam Abraham	Vice President – Operations (GRG)
	Mary Mann	Project Geologist (GRG)
Reviewed By:	Ernesto Rivas	Senior Drilling Engineer (GRG)
	W. M. Rickard	President (GRG)
Approved By:		





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Summary

Well 78-32, drilled vertically to a depth of 3280 ft., is the intermediate seismic monitoring well of the exploration program in the Utah Frontier Observatory for Research in Geothermal Energy (FORGE) Enhanced Geothermal System (EGS) prospect area. The project is administered by the U.S. Department of Energy (DOE) and managed by the University of Utah (U of U). As part of the activities for the FORGE project and based on discussions with DOE and others, the University of Utah drilled 78-32 (one of 2) seismic monitoring hole to host seismic monitoring instruments to collect data during injection in Well 58-32. This wellbore will be used to monitor the seismic signatures during testing and injection.

Achieved Well Objectives

The achieved objectives for monitoring hole 78-32 were:

- Drilled and completed the seismic monitoring well to 3280 ft MD GL with hole below the alluvium/granite contact (contact found at 2615')
- Cemented in fiberoptic monitoring cable on outside of 5-1/2" casing to 3237'
- Carried out aquifer testing at ~1000 ft
- Wellbore and surface equipment prepared to monitor the seismic signatures during testing and injection.
- 78-32 monitoring hole was drilled toward the southeastern portion of the FORGE footprint (Figure 1)

Health and Safety Program

The health and safety of all personal, and maintaining a clean, non-hazardous work environment (HSE), were the top priority during drilling and testing operations. The objective was to comply with the safety and environmental standards of the U of U.

On location, the project HSE plan was implemented, including:

- Daily safety meetings were held prior to each shift, addressing the importance of proper and safety conscious crew behavior
- Operation specific safety meetings with all personnel involved to identify safety risks and relevant precautions prior to specific tasks such as casing running, cementing, and logging
- Clear identification of muster areas at the location and clear lines communication for all personnel

No LTIs were reported during operations, no environmental hazards or any environmental impact were observed and there were no major or catastrophic service quality incidents.





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Well Data

All depth measurements are referred to the rotary Kelly bushing (RKB), which is 5.70 ft above ground level.

Area:	Milford, Utah
Field:	FORGE, Utah
Operator:	University of Utah
Drilling Rig:	Hydro Resources Schramm T200XD # 10031
Well Name:	78-32
Drilling Project Manager:	Geothermal Resource Group
Well Type:	Intermediate depth monitoring well
Wellhead Location:	Lat/Long: 38.500182, -112.883229 UTM E 335485.6, N 4263156.3 Elevation: 5509.5 ft ASL
Coordinate Reference System:	WGS84 UTM Zone 12
Rotary Table Height (ft):	5.70 ft above GL.
Total Depth (ft):	3,280 ft.

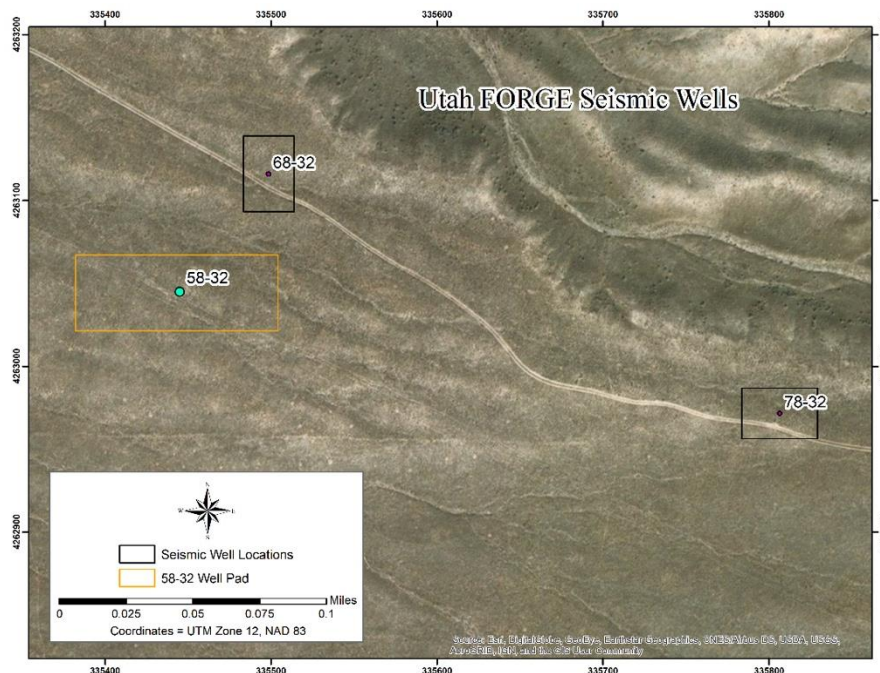


Figure 1: Drilling locations, monitoring wells 68-32 and 78-32 and treatment well 58-32





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Casing Properties and Well Profile

The casing program for the intermediate depth hole are shown in Table 1 and the as-built well profile is shown Figure 2.

Section	Hole Size (")	Casing Size (")	Specifications	Nominal ID / Drift ID / Coupling OD (")	Setting Depth (ft)	Remarks
Conductor	24	14	Welded	13.25	69	Pre-set, with a dry hole digger and cemented in place
Surface	12.25	9.625	36#, J-55, LTC	8.921/ 8.765/ 10.625	704	Cemented in place to surface
Production	8.75	5.5	17#, K-55, BTC	5.00/ 4.767/ 6.050	3269	Cemented in place to surface

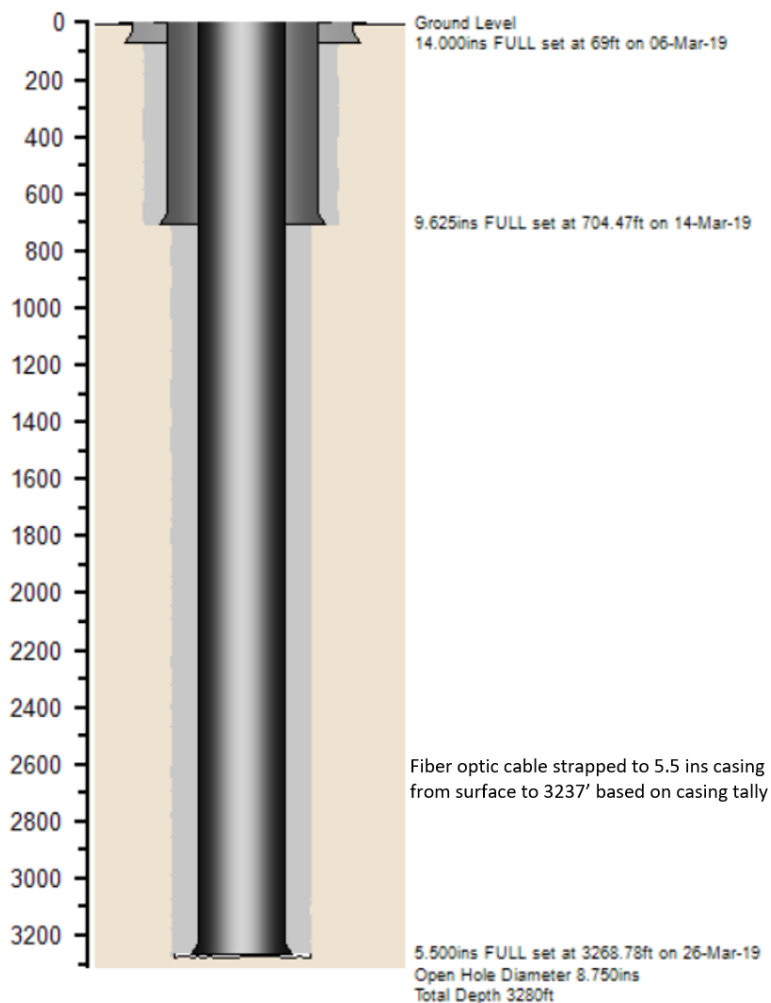


Figure 2: 78-32 wellbore as built.





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Drilling Summary (Intermediate Depth well 78-32)

University of Utah had obtained the necessary permit from Utah Division of Water Rights for drilling and rig mobilization and demobilization, and the necessary environmental clearance for drilling of 78-32. Operations were conducted in daylight hours only.

Conductor (preset)

The road to the rig was graded by Rollins Construction and two 500 bbl baker tanks were spotted on location. The conductor drilling rig was contracted by University of Utah, it arrived on location at 19:00 hours on 4 March 2019. The conductor was set at 69 ft (from GL) in a 24” hole drilled with conductor drilling rig on 5 March and cemented in place using a tremie pipe and concrete pump truck to surface with 6.5 cubic yards with 50% excess volume.

Rig mobilization and Rig up

Hydro Resources rig #10031 (model:Schramm T200xd Portable Top Head drilling rig) was contracted by the University of Utah, on a turnkey contract to drill and install the surface casing at 700 ft on the 3000 ft well and drill out to 1000 ft changing to a footage rate for drilling from 1000 ft to the total depth. The rig was mobilized on 2 March and rigged on 78-32 well on 13 March after completing the drilling of well 68-32.

12-1/4” Hole Section and 9-5/8” Casing

A pre-spud meeting was held on 13 March at 11:00 hours and drilling began at 12:00 hours. After circulating to condition the mud, a new PDC bit was used to drill 12-1/4” hole from 69 ft to 716 ft in 12 hours with one 12-1/4” bit run and full returns, using a fresh water, low solids non-dispersed mud system. At the hole TD, the well was conditioned, and a single shot directional survey was performed (inclination was 1.8 deg at 700 ft). The hole was circulated clean prior to running 18 joints of 9-5/8” casing to 706 ft. The safety meeting was held, the cementing company ProPetro hooked up the cementing lines and the cementing head with the wiper plug. Pumped 20 bbls of cement flush with green dye, cemented with 33.5 bbls of 13.5 ppg of lead cement and 28.7 bbls of 15.8 ppg Class G cement slurry and displaced with 48.3 bbls of water, with full returns, no cement to surface. Cement in place at 1500 hours. After waiting on cement, a string line was run and tagged top of cement at 34 ft RKB. A secondary cement job of 3.5 bbls of 15.5 ppg of Portland Type 2 cement was performed to bring cement to surface. Once this was completed, the 9-5/8” casing was cut off and the wellhead and BOPE for drilling of the next section was installed. An 11” 3M single gate BOPE was nipped up and function tested. Then the rig mast was raised and pinned in place. The casing, wellhead and BOPE were tested to 700 psi and witnessed by the Utah Department of Water Resources inspector.

8-3/4” Hole Section and 5-1/2” Casing

On 15 March, after waiting on cement, an 8-3/4” PDC bit and BHA assembly were run in the hole and tagged cement at 590 ft. Hard cement was cleaned to 716 ft, then drilled new formation from 716 ft to 1000 ft with full returns. At this depth the hole was circulated clean and changed over to fresh water in preparation for a flow test. A single shot deviation survey was performed at 980 ft, showing an inclination was 4 degrees.





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The 8-3/4” bit and BHA were laid down and open-ended drill pipe was run back in the hole to 500 ft and the hole was unloaded, then the drill pipe was run in the hole to 900 ft and an air lift procedure was performed with a steady yield of 200 gpm. A recovery test showed a constant fluid level at 545 ft. Pulled out of hole with open ended drill pipe.

The next day, the 8-3/4” bit and BHA was run in the hole to recommence drilling. Drilling rate was kept at a constant, measured rate in attempt to straighten the hole (timed drilling) and several single shot deviation surveys were performed. Drilling from 1000 to 1267 ft was completed with full returns using a fresh water, low solids, non-dispersed mud system. Deviation survey at 1267 ft was 3.7 degrees. From 1267 ft to 1867 ft lost circulation material (LCM) was added to combat slight losses. Time drilled to 2617 ft before pulling out to change bits (granite contact detected). A deviation survey at 2400 ft recorded 4.7 degrees. A new 8-3/4” tri cone bit was used to drill from 2617 ft to 2923 ft with full returns. Another new 8-3/4” tricone bit was used to drill from 2923 ft to 3077 ft, with the deviation survey at 3057 ft showing 2 degrees inclination. The bit was changed due to low rate of penetration and drilled from 3077 ft to 3280 ft. Then the BHA was again pulled out of hole due to poor ROP. At the surface it was found that the bit and bottom hole stabilizer were left in the hole (a total length of material left in hole was 6 ft). It was decided to terminate the hole at this depth as the objectives of drilling 3000’ and below the alluvium/granite contact had been achieved.

After completion of drilling 74 joints of 5-1/2” casing were run with Silixa fiber optic cable strapped on from below coupling on the float collar and float shoe set at 3268ft. The fiber optic cable was successfully tested. ProPetro rigged up the cementing lines and pumped 271 bbls of 12.5 ppg cement and displaced with 75.4 bbls of water, bumped plug at 18:33 hours on 26 March and had cement returns to surface. While waiting on cement preparations were made to rig down and move off location. The Hydro Resources rig crew performed a secondary cement job to bring cement to surface from 68 ft. A permanent wellhead was installed consisting of a 6” 2M with a 3” threaded shooting flange and a 3” threaded crown valve (Figure 3). The rigging down was completed on 28 March 28. The Silixa fiber optic crew performed a splice on their cable reel and left remaining cable at surface ready for hooking up to monitoring equipment (Figure 4).





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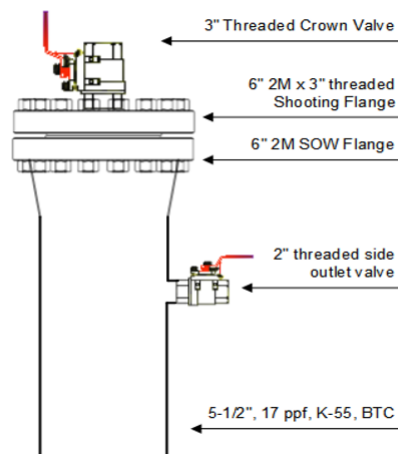


Figure 3: Wellhead installed at 78-32.

Cementing

The surface 9-5/8" casing was cemented with Portland cement without fly ash and Class G Cement for the 5-1/2" casing. The primary cementing job on 9-5/8" casing was done by ProPetro and the secondary top up cement job was performed by Hydro Resources. The primary cementing job on 5-1/2" casing was done by ProPetro and the secondary top up cement job was performed by Hydro Resources. On 17 April 2019, Schlumberger ran a Gamma Ray – CCL Log in the well 78-32 to a depth of 3280 ft.





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Figure 4: Completed 78-32 wellbore with fiber optic cable at surface.

Mudlog

Ryan Gall at the UGS collected the cutting samples every 10 feet and prepared the final lithologic log shown in the following pages for the well 78-32. The alluvium/granite contact was shown at ~2615’.





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Utah Geological Survey Lithologic Log

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Well Location: Beaver County, UT

UTM: x 335782.1 m, y 4262994.0 m NAD 83 Zone 12 N

N _____ ft, E _____ ft from _____ Corner, Sec _____, T _____ N S R _____ E W, SLBM USM

Start Date 3/13/2019 Completion Date 3/26/2019 Driller T. Curtis, Hydro Resources

Borehole Diameter <u>17 1/2"</u> from <u>0</u> to <u>60</u>	Casing Type & Diameter <u>13 3/8"</u> from <u>0</u> to <u>60</u>
<u>12 1/4"</u> from <u>60</u> to <u>716</u>	<u>9 5/8"</u> , 36 ppf, J-55 LTC from <u>60</u> to <u>716</u>
<u>8 3/4"</u> from <u>716</u> to <u>3280</u>	<u>8.75"</u> , 17 ppf, K-55 BTC from <u>716</u> to <u>3280</u>

Screen Type & Diameter _____ from _____ to _____ Ground Elevation: 1700.51' NAVD88

Logged By: R. Gall

Water Level Information Static Water Level <u>537'</u> Water Level Date <u>3/16/2019</u> Measured From <u>Ground lvl</u>	<table border="0"> <tr> <td> Gravel</td> <td>ang - angular</td> <td>qtz - quartz</td> </tr> <tr> <td> Coarse & medium sand</td> <td>cly - clay</td> <td>sbang - subangular</td> </tr> <tr> <td> Fine and very fine sand</td> <td>crs - coarse</td> <td>sbrnd - subrounded</td> </tr> <tr> <td> Clay and silt</td> <td>f - fine</td> <td>slt - silt</td> </tr> <tr> <td> Rhyolite</td> <td>fldspr - feldspar</td> <td>snd - sand</td> </tr> <tr> <td> Granite</td> <td>grvl - gravel</td> <td>tr - trace</td> </tr> <tr> <td> Diorite</td> <td>m - medium</td> <td>vf - very fine</td> </tr> </table>	Gravel	ang - angular	qtz - quartz	Coarse & medium sand	cly - clay	sbang - subangular	Fine and very fine sand	crs - coarse	sbrnd - subrounded	Clay and silt	f - fine	slt - silt	Rhyolite	fldspr - feldspar	snd - sand	Granite	grvl - gravel	tr - trace	Diorite	m - medium	vf - very fine
Gravel	ang - angular	qtz - quartz																				
Coarse & medium sand	cly - clay	sbang - subangular																				
Fine and very fine sand	crs - coarse	sbrnd - subrounded																				
Clay and silt	f - fine	slt - silt																				
Rhyolite	fldspr - feldspar	snd - sand																				
Granite	grvl - gravel	tr - trace																				
Diorite	m - medium	vf - very fine																				

DEPTH (FT)	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
10 20 30 40 50 60 70 80 90		Spud @ 0600 hrs 3/13/2019	0-60- No samples collected. All sand and gravel, unless otherwise noted, is dominantly felsic (>85% quartz and k-feldspar) with minor mafic grains (amphibole and biotite). 60-70- 30% ang-sbang grvl. 45% ang-sbang crs snd. 25% sbrnd f-vf snd. Subordinate cly. 70-80- 50% ang-sbang grvl. 30% ang-sbang crs snd. 20% sbrnd f snd. Subordinate cly. 80-90- 5% ang-sbang grvl. 15% ang-sbang crs snd. 80% sbrnd f snd. Subordinate cly. 90-100- Tr grvl. 50% ang-sbang crs snd. 30% sbang m sand. 20% sbrnd f-vf snd. Subordinate cly.





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
110			100-110- 5% ang-sbang grvl. 30% ang-sbang crs snd. 65% sbrnd f snd. Subordinate cly.
120			110-120- 5% ang-sbang grvl. 10% ang-sbang crs snd. 10% sbang m snd. 75% sbrnd f snd. Subordinate cly.
130			120-130- Tr grvl. 35% ang-sbang crs snd. 15% ang-sbang m snd. 50% sbrnd f snd. Subordinate cly.
140			130-140- 5% ang grvl. 20% ang-sbang crs snd. 60% sbang-sbrnd m snd. 15% sbrnd f snd. Subordinate cly.
150			140-150- 5% ang grvl. 50% ang-sbang crs snd. 20% ang-sbang m snd. 25% sbrnd f snd. Subordinate cly.
160			150-160- 5% ang grvl. 60% ang-sbang crs snd. 10% sbang m snd. 25% f sbrnd snd. Subordinate cly.
170			160-170- 5% ang grvl. 55% ang-sbang crs snd. 25% sbang m snd. 15% f sbrnd snd. Subordinate cly.
180			170-180- 90% ang-sbang grvl. 10% sbang-sbrnd m-f snd. Subordinate cly.
190			180-190- 15% ang grvl. 10% ang crs snd. 10% m sbang snd. 65% sbrnd f snd. Subordinate cly.
200			190-200- 10% ang-sbang grvl. 40% ang-sbang crs snd. 30% ang-sbang m snd. 20% sbrnd f-vf snd. Subordinate cly.
210		200' @ 1345 hrs 3/13/2019	200-210- 40% ang grvl. 35% ang crs snd. 10% sbang m snd. 15% sbang-sbrnd vf-f snd. Subordinate cly.
220			210-220- 5% ang grvl. 20% ang-sbang crs snd. 5% sbang m snd. 70% sbrnd f-vf snd. Subordinate cly.
230			220-230- 40% ang grvl. 40% ang crs snd. 20% sbang m-f snd. Subordinate cly.
240			230-240- 15% ang grvl. 30% crs ang snd. 35% ang-sbang m snd. 20% vf-f sbrnd snd. Subordinate cly.
250			240-250- 10% ang grvl. 30% ang crs snd. 25% sbang m snd. 35% sbrnd vf-f snd. Subordinate cly.
260			250-260- 20% ang grvl. 30% ang crs snd. 20% ang-sbang m snd. 30% ang-sbrnd vf-f snd. Subordinate cly.
270			260-270- 35% ang grvl. 15% ang crs snd. 10% ang-sbang m snd. 40% ang-sbrnd vf-f snd. Subordinate cly.
280			270-280- Tr grvl. 5% ang crs snd. 95% sbang-sbrnd vf-f snd. Subordinate cly.
290			280-290- Tr grvl. 15% crs ang snd. 85% sbang-sbrnd vf-f snd. Subordinate cly.
			290-300- 20% ang grvl. 15% ang crs snd. 15% sbang m snd. 40% sbang-sbrnd vf-f snd. Subordinate cly.





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
310		300' @ 1515 hrs 3/13/2019	300-310- No sample.
320		Rig maintenance 320' @ 1600 hrs 3/13/2019	310-320- 5% ang grvl. 60% ang crs snd. 15% sbang m snd. 20% sbang-sbrnd f-vf snd. Subordinate cly.
330			320-330- 55% ang grvl. 15% ang crs snd. 10% sbang m snd. 20% sbang m-f snd. Subordinate cly.
340			330-340- 90% ang grvl. 10% sbang m-f snd. Subordinate cly.
350			340-350- 10% ang grvl. 85% ang crs snd. 5% ang-sbrnd m-f snd. Subordinate cly.
360			350-360- 30% ang grvl. 30% ang crs snd. 20% sbang m snd. 20% sbang-sbrnd f-vf snd. Subordinate cly.
370			360-370- 90% ang grvl. 10% ang crs snd. Significant red cly.
380			370-380- Tr grvl. 30% ang crs snd. 5% ang m snd. 65% sbang- sbrnd f-vf snd. Subordinate cly.
390			380-390- 40% ang grvl. 10% ang m snd. 50% sbang-sbrnd f-vf snd. Subordinate cly.
400			390-400- 40% ang crs snd. 10% ang m snd. 50% sbang-sbrnd f-vf snd. Subordinate cly.
410		400' @ 1815 hrs 3/13/2019	400-410- 5% ang grvl. 25% ang crs snd. 70% sbrnd f snd. Subordinate cly.
420			410-420- Tr grvl. 5% ang crs snd. 5% ang-sbang m snd. 90% sbrnd f snd. Subordinate cly.
430			420-430- 10% ang grvl. 70% crs ang snd. 10% sbang m snd. 10% sbrnd f-vf snd. Subordinate cly.
440			430-440- 25% ang grvl. 45% ang crs snd. 20% sbang m snd. 10% sbrnd f-vf snd. Subordinate cly.
450			440-450- 30% ang grvl. 50% ang crs snd. 20% sbang-sbrnd m-f snd. Subordinate cly.
460			450-460- Tr grvl. 15% ang crs snd. 15% ang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.
470			460-470- 70% crs ang snd. 15% sbang m snd. 15% sbrnd f-vf snd. Subordinate cly.
480			470-480- 5% ang grvl. 45% ang crs snd. 30% sbang m snd. 20% sbrnd f-vf snd. Subordinate cly.
490			480-490- 5% ang grvl. 45% ang crs snd. 30% sbang m snd. 20% sbrnd f-vf snd. Subordinate cly.





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510			500-510- Tr grvl. 5% ang crs snd. 30% ang-sband m snd. 20% ang-sbang f-vf snd. Significant orange cly.
520			510-520- 5% ang grvl. 60% ang crs snd. 25% ang-sbang m snd. 10% sbang-sbrnd f-vf snd. Subordinate cly.
530			520-530- Tr grvl. 40% crs ang snd. 20% ang m snd. 40% sbang-sbrnd vf-f snd. Subordinate cly.
540			530-540- 5% ang grvl. 35% ang crs sand. 40% ang-sbang m snd. 20% sbang-sbrnd f-vf snd. Subordinate cly.
550			540-550- 5% ang grvl. 40% ang crs sand. 25% ang-sbang m snd. 30% sbang-sbrnd f-vf snd. Subordinate cly.
560			550-560- 40% ang grvl. 40% ang crs snd. 20% ang-sbang m-f snd. Subordinate cly.
570			560-570- Tr grvl. 25% ang crs snd. 35% ang-sbang m snd. 40% sbrnd f-vf snd. Subordinate cly.
580			570-580- Tr grvl. 50% crs ang snd. 30% ang-sbang m snd. 10% sbang vf snd. Subordinate cly.
590			580-590- 10% ang grvl. 35% ang crs snd. 40% sbang m snd. 15% sbang f-vf snd. Subordinate cly.
600			590-600- 15% ang grvl. 60% crs ang snd. 20% sbang m snd. 5% sbang f-vf snd. Subordinate cly.
610			600-610-Tr grvl. 15% ang crs snd. 20% sbang m snd. 65% sbang-sbrnd f-vf snd. Subordinate cly.
620			610-620- 5% ang grvl. 10% ang crs snd. 20% sbang m snd. 65% sbang-sbrnd vf-f snd. Subordinate cly.
630			620-630- 5% ang grvl. 40% ang crs snd. 15% sbang m snd. 40% sbang-sbrnd snd. Subordinate cly.
640			630-640- Tr grvl. 20% ang crs snd. 10% sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.
650			640-650- Tr grvl. 20% ang crs snd. 10% sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.
660			650-660- 5% ang grvl. 25% ang crs snd. 15% sbang m snd. 55% sbrnd-sbang f-vf snd. Subordinate cly.
670			660-670- 20% ang grvl. 20% ang crs snd. 20% sbang m snd. 35% sbang-sbrnd f-vf snd. Abundant red cly.
680			670-680- 30% ang grvl. 15% ang crs snd. 15% sbang m snd. 40% sbang-sbrnd f-vf snd. Subordinate cly.
690			680-690- 5% ang grvl. 25% ang crs snd. 25% sbang m snd. 45% ang-sbrnd f-vf snd. Subordinate cly.
			690-700- Tr grvl. 20% ang crs snd. 5% sbang m snd. 75% sbang sbrnd f-vf snd. Subordinate cly.





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
710		Reached surface casing depth of 716.47' (TD)	700-710- Tr grvl. 10% ang crs snd. 15% ang-sbang m snd. 20% sbang f snd. 55% vf sbang-sbrnd snd. Subordinate cly.
720		True subsurface depth of 701.2' @ 0030 hrs 3/14/2019.	710-716- 5% ang grvl. 15% ang crs snd. 25% ang-sbang m snd. 55% sbang-sbrnd f-vf snd. Subordinate cly.
730		Run casing & cement.	720-730- 20% ang crs snd. 15% ang-sbang m snd. 65% sbang-sbrnd f-vf snd. Subordinate cly.
740		BOP test @ 1100 hrs 3/15/19	730-740- 45% ang crs snd. 20% ang-sbang m snd. 35% sbang-sbrnd f-vf snd. Subordinate cly.
750		Trip in hole @ 1700 hrs	740-750- 40% ang crs snd. 20% ang-sbang m snd. 30% sbang-sbrnd f-vf snd. Subordinate cly.
760		Resume drilling @ 2330 hrs 3/15/2019	750-760- Tr grvl. 55% ang crs snd. 20% ang-sbang m snd. 25% sbang-sbrnd f-vf snd. Abundant cly.
770			760-770- 75% ang crs snd. 20% ang-sbang m snd. 5% sbang f-vf snd. Abundant cly.
780			770-780- 30% ang crs snd. 30% ang-sbang m snd. 40% sbang f-vf snd. Subordinate cly.
790			780-790- 5% ang crs snd. 10% ang-sbang m snd. 85% sbang f-vf snd. Abundant cly.
800			790-800- 25% ang crs snd. 10% ang-sbang snd. 65% ang-sbang f-vf snd. Subordinate cly.
810			800-810- 25% ang crs snd. 35% ang-sbang m snd. 40% ang-sbang f-vf snd. Subordinate cly.
820			810-820- Tr grvl. 5% ang crs snd. 15% ang-sbang m snd. 80% sbang f-vf snd. Subordinate cly.
830			820-830- 15% ang crs snd. 55% ang m snd. 30% sbang f-vf snd. Subordinate cly.
840			830-840- 10% ang crs snd. 10% ang m snd. 80% ang-sbang f-vf snd. Subordinate cly.
850			840-850- Tr grvl. 10% ang crs snd. 15% ang m snd. 75% ang-sbang f-vf snd. Subordinate cly.
860			850-860- Tr grvl. 5% ang crs snd. 10% ang m snd. 85% ang-sbang f-vf snd. Abundant cly.
870			860-870- 15% ang crs snd. 30% ang m snd. 55% sbang f-vf snd. Subordinate cly.
880			870-880- 35% ang crs snd. 45% ang m snd. 20% sbang f-vf snd. Subordinate cly.
890			880-890- Tr grvl. 20% ang crs snd. 30% sbang m snd. 50% sbang f-vf snd. Abundant cly.
			890-900- 10% ang crs snd. 30% ang m snd. 70% sbang f-vf snd. Abundant cly.





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
910			900-910- 10% ang crs snd. 40% ang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
920			910-920- 10% ang crs snd. 45% ang m snd. 45% ang-sbang f-vf snd. Subordinate cly.
930			920-930- 5% ang crs snd. 5% ang m snd. 90% ang-sbang f-vf snd. Subordinate cly.
940			930-940- Tr grvl. 10% ang crs snd. 10% sbang m snd. 80% ang-sbang f-vf snd. Subordinate cly.
950			940-950- 10% ang crs snd. 10% ang m snd. 80% sbang f-vf snd. Abundant cly.
960			950-960- 5% ang crs snd. 10% ang m snd. 85% sbang f-vf snd. Abundant cly.
970			960-970- 10% ang crs snd. 50% ang m snd. 40% ang-sbang f-vf snd. Subordinate cly.
980			970-980- Tr grvl. 20% ang crs snd. 40% ang m snd. 40% sbang f snd. Subordinate cly.
990			980-990- 30% ang crs snd. 45% ang m snd. 25% sbang f-vf snd. Subordinate cly.
1000			990-1000- 25% ang crs snd. 40% ang m snd. 35% sbang f-vf snd. Subordinate cly.
1010		1000' @ 0005 hrs 3/16/2019.	1000-1010- Tr crs snd. 65% ang m snd. 35% ang f snd. Subordinate cly.
1020		Perform airlift 0600-0800 hrs 3/16/2019.	1010-1020- Tr crs snd. 40% ng m snd. 50% ang f snd. Subordinate cly.
1030		Drilling on hold as stabilizers are transported to site and installed to prevent further borehole deviation.	1020-1030- 40% ang m snd. 60% ang f snd. Subordinate cly.
1040			1030-1040- 20% m ang snd. 80% ang f-vf snd. Almost all qtz snd; lacking fldspr like other samples. Subordinate cly.
1050		Resume drilling @ 0900 hrs 3/17/2019	1040-1050- 15% ang crs snd. 15% ang m snd. 70% ang f-vf snd. Subordinate cly.
1060			1050-1060- 10% ang crs snd. 25% ang m snd. 65% ang f-vf snd. Subordinate cly.
1070			1060-1070- 5% ang crs snd. 20% ang m snd. 75% ang-sbang f-vf snd. Subordinate cly.
1080			1070-1080- 10% ang crs snd. 40% ang m snd. 50% ang-sbang f-vf snd. V abundant cly.
1090			1080-1090- 5% ang crs snd. 10% ang m snd. 55% ang-sbang f-vf snd. Subordinate cly.
			1090-1100- 5% ang crs snd. 15% ang m snd. 80% ang-sbang f-vf snd. Subordinate cly.





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1110		1050' @ 1130 hrs 3/17/2019	1100-1110- 10% ang crs snd. 60% ang m snd. 30% ang-sbang f-vf snd. Subordinate cly.
1120			1110-1120- 15% ang crs snd. 20% ang-sbang m snd. 65% ang-sbang f-vf snd. Subordinate cly.
1130			1120-1130- 20% ang crs snd. 35% ang-sbang m snd. 45% sbang f-vf snd. Subordinate cly.
1140			1130-1140- 20% crs ang snd. 40% ang m snd. 40% sbang f snd. Subordinate cly.
1150			1140-1150- 20% ang crs snd. 15% ang-sbang m snd. 65% sbang f-vf snd. Subordinate cly.
1160			1150-1160- 5% ang crs snd. 30% ang-sbang m snd. 65% sbang f-vf snd. Subordinate cly.
1170			1160-1170- 10% ang crs snd. 40% ang m snd. 50% sbang f-vf snd. Subordinate cly.
1180			1170-1180- 5% ang crs snd. 70% ang m snd. 25% sbang f-vf snd. Subordinate cly.
1190			1180-1190- 5% ang crs snd. 25% ang m snd. 70% sbang f-vf snd. Subordinate cly.
1200			1190-1200- 15% ang crs snd. 55% ang m snd. 30% ang-sbang vf-f snd. Subordinate cly.
1210			1200-1210- 15% ang crs snd. 65% ang m snd. 20% sbang f-vf snd. Subordinate clay.
1220			1210-1220- 15% ang crs snd. 60% ang m snd. 25% sbang f-vf snd. Subordinate cly.
1230			1220-1230- 30% ang crs snd. 55% ang m snd. 15% sbang f-vf snd. Subordinate cly.
1240			1230-1240- 10% ang crs snd. 40% ang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
1250			1240-1250- 5% ang crs snd. 40% ang m snd. 55% ang-sbang f-vf snd. Subordinate cly.
1260			1250-1260- 15% ang crs snd. 35% ang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
1270			1260-1270- 20% ang crs snd. 60% ang m snd. 20% ang-sbang f-vf snd. Subordinate cly.
1280			1270-1280- 25% ang-sbang crs snd. 40% ang-sbang m snd. 35% ang-sbang f-vf snd. Subordinate cly.
1290			1280-1290- 30% ang crs snd. 40% ang m snd. 30% ang-sbang f-vf snd. Subordinate cly.
1290	1290-1300- 30% ang crs snd. 30% ang m snd. 40% ang-sbang f-vf snd. Subordinate cly.		





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1310			1300-1310- 5% ang crs snd. 30% ang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
1320			1310-1320- 15% ang m snd. 85% sbang-ang f-vf snd. Subordinate cly.
1330			1320-1330- 30% ang crs snd. 25% ang m snd. 45% ang-sbang f-vf snd. Subordinate cly.
1340			1330-1340- 15% ang crs snd. 30% ang m snd. 55% ang-sbang f-vf snd. Subordinate cly.
1350			1340-1350- 10% ang crs snd. 30% ang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
1360		1350' @ 1520 hrs 3/17/2019	1350-1360- 15% ang crs snd. 30% ang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
1370			1360-1370- 5% ang crs snd. 55% ang m snd. 40% ang-sbang f-vf snd. Subordinate cly.
1380			1370-1380- 10% ang crs snd. 55% ang m snd. 35% ang-sbang f-vf snd. Subordinate cly.
1390			1380-1390- 10% ang crs snd. 50% ang m snd. 40% ang-sbang f-vf snd. Subordinate cly.
1400			1390-1400- 10% ang crs snd. 50% ang m snd. 40% sbang f-vf snd. Mostly qtz snd (lacking fldspr) and minor mylonated mafic grains. Subordinate cly.
1410			1400-1410- 25% ang crs snd. 25% ang m snd. 50% ang f-vf snd. Subordinate cly.
1420			1410-1420- Tr crs snd. 50% ang m snd. 50% sbang f snd. Subordinate cly.
1430			1420-1430- 15% ang crs snd. 30% ang m snd. 55% sbang f snd. Subordinate cly.
1440			1430-1440- 5% ang crs snd. 95% ang-sbang f-vf snd. Subordinate cly.
1450		1450' @ 1750 hrs 3/17/2019	1440-1450- 10% ang crs snd. 40% ang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
1460			1450-1460- 15% ang m snd. 85% ang-sbang f-vf snd. Subordinate cly.
1470			1460-1470- 65% ang m snd. 35% ang-sbang f-vf snd. Subordinate cly.
1480			1470-1480- Tr ang crs snd. 35% ang m snd. 65% ang-sbang f-vf snd. Subordinate cly.
1490			1480-1490- Tr crs snd. 15% ang-sbang m snd. 85% ang-sbrnd f-vf snd. Abundant cly.
			1490-1500- 60% ang m snd. 40% sbang f-vf snd. Subordinate cly.





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
1510			1500-1510- 35% ang-sbang m snd. 65% sbang f-vf snd. Subordinate cly.
1520			1510-1520- 5% ang m snd. 95% sbang-sbrnd f-vf snd. Abundant cly.
1530			1520-1530- 45% ang-sbang m snd. 55% sbang-sbrnd f-vf snd. Subordinate cly.
1540			1530-1540- 10% ang-sbang m snd. 90% sbang f-vf snd. Subordinate cly.
1550			1540-1550- 15% ang-sbang m snd. 85% sbang f-vf snd. Subordinate cly.
1560			1550-1560- 5% ang-sbang m snd. 95% sbang f-vf snd. Abundant cly.
1570			1560-1570- Tr m snd. 100% sbang f-vf snd. Abundant cly.
1580			1570-1580- Tr m snd. 5% sbang f snd. 95% sbang vf snd. Abundant cly.
1590			1580-1590- Tr m snd. 5% sbang f snd. 95% sbang-sbrnd vf snd. Abundant cly.
1600			1590-1600- Tr m snd. 50% sbang f snd. 50% sbang-sbrnd vf snd. Subordinate cly.
1610			1600-1630 (one sample)- 5% f sbang-sbrnd snd. 95% sbrnd vf snd. Abundant cly.
1620			
1630			1630-1640- 5% sbang-sbrnd f snd. 95% sbrnd vf snd. Abundant cly.
1640			1640-1650- 5% ang m snd. 50% sbang-sbrnd f snd. 45% sbrnd vf snd. Subordinate cly.
1650			1650-1660- 15% ang crs snd. 45% ang-sbang m snd. 40% sbrnd f-vf snd. Subordinate cly.
1660			1660-1670- 5% ang crs snd. 40% ang-sbang m snd. 55% sbang-sbrnd f-vf snd. Subordinate cly.
1670			1670-1680- Tr crs snd. 50% sbang-sbrnd m snd. 50% sbang-sbrnd f-vf snd. Subordinate cly.
1680			1680-1690- Tr crs snd. 30% m sbang-sbrnd snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.
1690			1690-1700- Tr crs snd. 40% sbang-sbrnd m snd. 60% sbang-sbrnd f-vf snd. Subordinate cly.





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1710		1700' @ 0800 hrs 3/18/2019	1700-1710- 30% sbang m snd. 70% sbrnd-sbang snd. Subordinate cly.	
1720			1710-1720- 5% sbang m snd. 95% sbang-sbrnd f-vf snd. Subordinate cly.	
1730			1720-1730- Tr crs snd. 10% m ang snd. 90% sbang-sbrnd f-vf snd. Subordinate cly.	
1740			1730-1740- 20% ang crs snd. 30% ang-sbang m snd. 50% sbang-sbrnd snd. Subordinate cly.	
1750			1740-1750- 30% ang-sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.	
1760			1750-1760- Tr crs snd. 20% ang-sbang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.	
1770			1760-1770- Tr crs snd. 20% ang-sbang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.	
1780			1770-1780- Tr crs snd. 25% ang-sbang m snd. 75% sbang-sbrnd f-vf snd. Subordinate cly.	
1790			1780' @ 1215 hrs 3/18/2019	1780-1790- Tr crs snd. 25% ang-sbang m snd. 75% sbang-sbrnd f-vf snd. Subordinate cly.
1800				1790-1800- Tr crs snd. 30% ang-sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.
1810	1800-1810- Tr crs snd. 30% ang-sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.			
1820	1810-1820- Tr crs snd. 25% ang-sbang m snd. 75% sbang-sbrnd f-vf snd. Subordinate cly.			
1830	1840' @ 1430 hrs 3/18/2019	1820-1830- 25% ang-sbang m snd. 75% sbang-sbrnd snd. Subordinate cly.		
1840		1830-1840- Tr crs snd. 10% ang m snd. 90% sbang-sbrnd f-vf snd. Subordinate cly.		
1850		1840-1850- 30% ang-sbang m snd. 70% sbang-sbrnd f-vf snd. Subordinate cly.		
1860		1850-1860- 20% ang-sbang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.		
1870	1880' @ 1630 hrs 3/18/2019	1860-1870- Tr crs snd. 15% ang-sbang m snd. 85% sbang-sbrnd f-vf snd. Subordinate cly.		
1880		1870-1880- Tr crs snd. 15% ang-sbang m snd. 85% sbang-sbrnd f-vf snd. Subordinate cly.		
1890		1880-1890- Tr crs mylonated gray-black-white grains. 20% ang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.		
			1890-1900- 30% ang m snd. 70% sbang f-vf snd. Subordinate cly.	





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1910			1900-1910- 5% ang crs snd. 25% ang m snd. 75% sbang f-vf snd. Subordinate cly.
1920			1910-1920- 5% ang crs snd. 35% ang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
1930			1920-1930- Tr mafic crs snd. 30% ang m snd. 70% sbang f-vf snd. Subordinate cly.
1940			1930-1940- Tr crs snd. 5% ang-sbang m snd. 95% sbang snd. Abundant cly.
1950			1940-1950- Tr crs snd. 10% ang-sbang m snd. 90% sbang-sbrnd f-vf snd. Subordinate cly.
1960			1950-1960- 5% ang-sbang m snd. 10% ang-sbang f snd. 85% sbrnd vf snd. Abundant cly.
1970			1960-1970- 10% ang m snd. 90% sbang-sbrnd f-vf snd. Subordinate cly.
1980			1970-1980- 5% ang m snd. 85% sbang-sbrnd f-vf snd. Abundant cly.
1990			1980-1990- Tr crs snd. 15% ang m snd. 85% sbang-sbrnd f-vf snd. Subordinate cly.
2000			1990-2000- 10% ang-sbang m snd. 10% sbang f snd. 80% sbang-sbrnd vf snd. Subordinate cly.
2010			2000-2010- 20% ang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.
2020			2010-2020- 5% ang-sbang m snd. 10% sbang-sbrnd f snd. 85% sbang-sbrnd vf snd. Abundant cly.
2030			2020-2030- Tr crs snd. 5% ang-sbang m snd. 5% sbang f snd. 90% ang-sbrnd snd. Abundant cly.
2040			2030-2040- 5% ang-sbang m snd. 5% sbang-sbrnd f snd. 90% ang-sbrnd snd. Abundant cly.
2050			2040-2050- Tr crs snd. 5% ang-sbang m snd. 5% sbang-sbrnd f snd. 90% ang-sbang vf snd. Abundant cly.
2060			2050-2060- Tr m snd. 5% ang-sbang f snd. 95% sbang-sbrnd vf snd. Abundant cly.
2070			2060-2070- Tr m snd. 10% ang-sbang f snd. 95% sbang-sbrnd vf snd. Significant cly.
2080			2070-2080- 25% sbang f snd. 75% sgang-sbrnd vf snd. Significant cly.
2090			2080-2090- Tr mafic crs snd. 20% ang m snd. 80% sbang f-vf snd. Significant cly.
			2090-2100- 5% ang m snd. 95% sbang-sbrnd vf snd. Abundant cly.





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2110			2100-2110- Tr mafic crs snd. 5% sbang m-f snd. 95% sbang-sbrnd vf snd. Abundant cly.
2120			2110-2120- 5% sbang-sbrnd m-f snd. 95% sbang-sbrnd vf snd. Abundant cly.
2130			2120-2130- 35% ang m snd. 75% sbang-sbrnd f-vf snd. Significant cly.
2140			2130-2140- 20% ang m snd. 80% sbang-sbrnd snd. Significant cly.
2150			2140-2150- 15% ang m snd. 85% sbang-sbrnd f-vf snd. Significant cly.
2160			2150-2160- 5% ang m snd. 95% sbang-sbrnd f-vf snd. Subordinate cly.
2170			2160-2170- Tr crs snd. 5% ang-sbang m snd. 95% sbang-sbrnd f-vf snd. Abundant cly.
2180			2170-2180- 10% ang m snd. 90% sbang-sbrnd f-vf snd. Abundant cly.
2190			2180-2190- 10% ang-sbang m snd. 90% sbrnd f-vf snd. Significant cly.
2200			2190-2200- 5% sbang m snd; abundant dark grains. 95% ang-sbang f-vf snd. Abundant cly.
2210			2200-2210- 15% sbang-sbrnd m snd. 85% sbang-sbrnd f-vf snd. Abundant cly.
2220			2210-2220- 5% sbang m-f snd. 95% ang-sbrnd snd. Abundant cly.
2230			2220-2230- 15% sbang m snd. 85% sbang-sbrnd f-vf snd. Significant cly.
2240			2230-2240- 25% ang m snd. 75% ang-sbang f-vf snd. Subordinate cly.
2250			2240-2250- Tr crs snd. 40% ang m snd. 60% sbang-sbrnd f-vf snd. Subordinate cly.
2260			2250-2260- Tr crs snd. 45% ang m snd. 55% sbang-sbrnd f-vf snd. Subordinate cly.
2270			2260-2270- 15% ang m snd. 85% ang-sbang f-vf snd. Abundant cly.
2280			2270-2280- Tr crs snd. 20% ang m snd. 80% sbang-sbrnd f-vf snd. Subordinate cly.
2290			2280-2290- 10% ang m snd. 90% sbang f-vf snd. Abundant cly.
			2290-2300- 25% ang m snd. 75% sbang-sbrnd f-vf snd. Subordinate cly.





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2310		2300' @ 0845 hrs 3/19/2019	2300-2310- Tr crs snd. 15% ang-sbang m snd. 85% sbang f-vf snd. Subordinate cly.
2320			2310-2320- Tr crs snd. 40% ang-sbang m snd. 60% ang-sbrnd f-vf snd. Subordinate cly.
2330			2320-2330- 5% ang crs snd. 40% ang-sbang m snd. 55% sbang f-vf snd. Subordinate cly.
2340			2330-2340- 10% ang crs snd; abundant mafic grains. 30% ang-sbang m snd. 60% sbang f-vf snd. Subordinate cly.
2350			2340-2350- 5% ang crs snd. 45% ang-sbang m snd. 50% sbang f-vf snd. Subordinate cly.
2360			2350-2360- 5% ang crs snd. 15% ang-sbang m snd. 80% sbang f-vf snd. Subordinate cly.
2370		2370' @ 1230 hrs 3/19/2019	2360-2370- Tr crs snd. 10% ang-sbang m snd. 90% ang-sbang f-vf snd. Subordinate cly.
2380			2370-2380- Tr crs snd. 15% ang-sbang m snd. 85% ang-sbrnd f-vf snd. Subordinate cly.
2390			2380-2390- Tr crs snd. 15% ang-sbang m snd. 85% ang-sbang f-vf snd. Subordinate cly.
2400			2390-2400- Tr crs snd. 30% ang-sbang m snd. 70% ang-sbang f-vf snd. Subordinate cly.
2410			2400-2410- Tr crs snd. 40% ang-sbang m snd. 60% ang-sbang f-vf snd. Subordiante cly.
2420			2410-2420- 40% ang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
2430			2420-2430- Tr crs snd. 50% ang-sbang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
2440			2430-2440- Tr crs snd. 40% ang-sbang m snd. 60% ang-sbang f-vf snd. Subordinate cly.
2450		2450' @ 1530 hrs 3/19/2019	2440-2450- Tr crs snd. 50% ang-sbang m snd. 50% ang-sbang f-vf snd. Subordinate cly.
2460			2450-2460- Tr crs snd. 20% ang-sbang m snd. 80% ang-sbang f-vf snd. Subordinate cly.
2470			2460-2470- Tr crs snd. 15% ang-sbang m snd. 85% ang-sbang f-vf snd. Subordinate cly.
2480		2470' @ 1715 hrs Switch out survey wire @ 1730 hrs 3/19/2019	2470-2480- 5% ang-sbang m snd. 95% sbang-sbrnd f-vf snd. Significant cly.
2490			2480-2490- 20% ang-sbang m snd. 80% sbang-sbrnd f-vf snd. Significant cly.
			2490-2500- 10% ang-sbang m snd. 90% sbang-sbrnd f-vf snd. Significant cly.





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2500			2500-2510- No sample.
2510			2510-2520- 15% ang-sbang m snd. 85% sbang-sbrnd f-vf snd. Subordinate cly.
2520			2520-2530- No sample.
2530			2530-2540- 5% ang-sbang m snd. 95% sbang-sbrnd f-vf snd. Subordinate cly.
2540			2540-2550- Tr m snd. 100% sbrnd f-vf snd. Liquid-rich sample, very abundant cly and slt.
2550			2550-2560- 10% ang m snd. 90% sbang-sbrnd f-vf snd. Subordinate cly.
2560			2560-2570- "Liquid sample" - 100% sbrnd vf snd, slt, cly.
2570			2570-2580- "Liquid sample" - 100% sbrnd vf snd, slt, cly.
2580			2580-2590- "Liquid sample" - 100% sbrnd vf snd, slt, cly.
2590			2590-2600- No sample.
2600			2600-2610- No sample.
2610			2610-2620- 5% rhyolite. 95%+ granite (<1% mafic grains).
2620		2617' @ 0730 hrs Trip out of hole to swap out bit. 3/20/2019	2620-2630- Tr rhyolite. 100% granite (<1% mafic grains).
2630		Trip in hole @ 1600 hrs 3/20/2019	2630-2640- Granite (<1% mafic grains).
2640			2640-2650- Granite (<1% mafic grains).
2650			2650-2660- Granite (<1% mafic grains).
2660			2660-2670- Granite (<1% mafic grains).
2670			2670-2680- Granite (<1% mafic grains).
2680			2680-2690- Granite (<1% mafic grains).
2690			2690-2700- Granite (<1% mafic grains).





Prepared by: GRG	EOWR		
Verified by:	Seismic Monitoring Well	Final	Page 25 of 28
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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
2710	[Lithology pattern: small vertical dashes]		2700-2710- Granite (<1% mafic grains).
2720			2710-2720- Granite (<1% mafic grains).
2730			2720-2730- Granite (<1% mafic grains).
2740			2730-2740- Granite (<1% mafic grains).
2750			2740-2750- Granite (<1% mafic grains).
2760			2750-2760- Granite (<1% mafic grains).
2770			2760-2770- Granite (<1% mafic grains).
2780			2770-2780- Granite (<1% mafic grains).
2790			2780-2790- Granite (<1% mafic grains).
2800			2790-2800- Granite (<1% mafic grains).
2810			2800-2810- Granite (<1% mafic grains).
2820			2810-2820- Granite (<1% mafic grains).
2830			2820-2830- Granite (<1% mafic grains).
2840			2830-2840- Granite (<1% mafic grains).
2850			2840-2850- Granite (<1% mafic grains).
2860			2850-2860- Granite (<1% mafic grains).
2870			2860-2870- Granite (<1% mafic grains).
2880		2870-2880- Granite (<1% mafic grains).	
2890		2880-2890- Granite (<1% mafic grains).	
			2890-2900- Granite (<1% mafic grains).





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DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
2910		2920' @ 0700 hrs. Trip out of hole, swap bits and work on mud pump. 3/22/2019	2900-2910- Granite (<1% mafic grains).
			2910-2920- Granite (<1% mafic grains).
2920			2920-2930- Granite (<1% mafic grains).
			2930-2940- Granite (<1% mafic grains).
2930			2940-2950- Granite (<1% mafic grains).
			2950-2960- Granite (<1% mafic grains).
2940			2960-2970- Granite (<1% mafic grains).
			2970-2980- Granite (<1% mafic grains).
2950			2980-2990- Granite (<1% mafic grains).
			2990-3000- Granite (<1% mafic grains).
2960			3000-3010- Granite (<1% mafic grains).
			3010-3020 Granite (<1% mafic grains).
2970			3020-3030- Granite (<1% mafic grains).
			3030-3040- Granite (<1% mafic grains).
2980			3040-3050- Granite (<1% mafic grains).
	3050-3060- Granite (<1% mafic grains).		
2990	3060-3070- Granite (15% mafic grains).		
	3070-3080- Granodiorite (40% mafic grains).		
3000	3080-3090- Granodiorite (45% mafic grains).		
	3090-3100- Granodiorite (65% mafic grains).		
3010			
3020			
3030			
3040			
3050			
3060			
3070			
3080			
3090			





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Well ID: 78-32		Page 17 of 17	
DEPTH	LITHOLOGY	DRILLING NOTES	LITHOLOGY DESCRIPTION
3110	[Patterned Lithology]		3100-3110- Diorite (75% mafic grains).
3120			3110-3120- Diorite (85%+ mafic grains).
3130			3120-3130- Diorite (85%+ mafic grains).
3140			3130-3140- Diorite (85%+ mafic grains).
3150			3140-3150- Diorite (85%+ mafic grains).
3160			3150-3160- Diorite (85%+ mafic grains).
3170			3160-3170- Diorite (85%+ mafic grains).
3180			3170-3180- Diorite (85%+ mafic grains).
3190			3180-3190- Diorite (85%+ mafic grains).
3200			3190-3200- Diorite (85%+ mafic grains).
3210			3200-3210- Diorite (85%+ mafic grains).
3220			3210-3220- Diorite (85%+ mafic grains).
3230			3220-3230- Diorite (85%+ mafic grains).
3240			3230-3240- Diorite (85%+ mafic grains).
3250			3240-3250- Diorite (85%+ mafic grains).
3260			3250-3260- Diorite (85%+ mafic grains).
3270			3260-3270- Diorite (85%+ mafic grains).
3280		3270-3280- Diorite (85%+ mafic grains).	
		Bit issues and slow drilling, end of hole called 3280' @ 0800 hrs 3/25/2019	





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Appendices

1. Daily Drilling Reports
2. Operations Activity Detail Report
3. Operations Time Graph
4. Days versus Depth graph
5. Bit reports
6. BHAs
7. Casing reports
8. Deviation Surveys
9. Schlumberger CBL log





Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 1

Report For 13-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 700	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 700	Last Casing: 14.000 at 69	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 13.375 at 60		---	---	---
Hole Made (ft) / Hrs: 700 / 12.0	Last BOP Test:		Totals: ---		
Average ROP (ft/hr): 58.33	Next BOP Test:		Well Cost (\$): ---		
Drilling Days (act./plan): 1/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 1/0	Days On Location: 1		
Current Ops: Drill to 716' with full returns. Circulate to clean hole. Run survey @ 700' Inc. 1.8*. Pulled out of hole to rig up and run 9 5/8" casing. ...					
Planned Ops: Finish pulling out of the hole and run and cement 9-5/8" casing.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Randy Baldwin/ Virgil Welch, Roger		Tel No.:	
Comments:					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	5:00	5.00	69	1-01	Rig up equipment. Weld on flange for rotating head assembly on conductor. Set DC's and drill pipe on racks.	
5:00	6:00	1.00	69	3-34-3	Pick up drilling assembly. Make up New 12-1/4" PDC, xo and dc's.	
6:00	11:00	5.00	69	1-01	Complete rig up and testing of rig equipment for spud.	
11:00	11:30	0.50	69	4-98	Held pre spud safety meeting.	
11:30	12:00	0.50	69	10-5-1	Condition mud and circulate. Washed from 60' to 69'.	
12:00	0:00	12.00	700	3-2-1	Spud well at 12:00 hrs at 69'. Drill from 69' to 700'. with full returns. WOB 3000, RPM 70, SPP 700 psi, SPM 60, GPM 450 Surveys #1 at 300', Inc 0.9*, #2 at 500', Inc 0.9*.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF				
1	1	REED	BBK	12.250	20	20	20	20	631	12	52.6	3,000	65	6,500	8.70	450	500	78	48	13	159
DepthOut: 716		Cutter:Inner/Outer: 1/1			Dull:Maj/Oth: NO/NO			WearLoc: A		Brgs: X		Gauge: 0		Pull:							

BHA - No. 1 - BIT, BS, 15 DC, XO = 454.50

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
13-Mar-19 18:00	8.70	41														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
69-700	52.0 / 75.0	2,000	65		450	88.2	85.0	700	No Mud Log Information for this report.						

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft						
No Inventory Records for this report.						Med:	1st Aid:	Surveys							
						Accident		MD	Inc.	Azim.	TVD	NS	EW		
						Description:		300	0.9	0	300	0	0		
						Oper: 3	Cont: 8	Serv: 0	Othr: 0	500	0.9	0	500	3	0
						Total Personnel: 11	Hours: 0								

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Snowing and Vis.: 1 Temp: 40 Pressure: 29.63 Wind: 21 Gusts: 25



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 2

Report For 14-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 716	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 716	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 16 / 0.5	Last BOP Test:		Totals: ---		
Average ROP (ft/hr): 32.0	Next BOP Test:		Well Cost (\$): ---		
Drilling Days (act./plan): 2/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 2/0	Days On Location: 2		
Current Ops: Cutoff 9 5/8" casing and laid down. Lay over mast. Cut off conductor pipe with rotating head. Cutoff and Dress 9.625" casing. Weld ...					
Planned Ops: Complete Nipple up. Function and test BOP's Make up 8 3/4" assembly, Clean out cement. Test shoe track. Drill 8.75" new hole. ...					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Roger Almond		Tel No.:	
Comments:					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	0:30	0.50	716	3-2-1	Drill from 700' to 716' with full returns. WOB 3000, RPM 70, SPP 700 psi, SPM 60,	...
0:30	2:00	1.50	716	4-5-1	Circulate hole clean and condition for 9 5/8" casing.	
2:00	2:30	0.50	716	3-58	Run Survey @ 700' Inc. 1.8 deg.	
2:30	4:30	2.00	716	10-6-4	Pull out of the hole and lay down BHA.	
4:30	8:00	3.50	716	4-56	Rig up to run casing. Held safety meeting.	
8:00	14:30	6.50	716	4-12-1	Run 18 joints (706') of 9-5/8" 36# J-55, LT&C casing as per casing program. Rigged	...
14:30	15:30	1.00	716	5-12-2	Held safety meeting. Hooked up cement lines and cement head with wiper plug.	...
15:30	0:00	8.50	716	6-13	WOC. Ran a string line and tagged top of cement at estimated 34'. Ran a 20' joint of	...

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF			
1	1	REED	BBK	12.250	20	20	20	20	647	12.5	51.8	2,000	70	8.70	450	700	78	48	13	159
DepthOut: 716		Cutter:Inner/Outer: 1/1			Dull:Maj/Oth: NO/NO			WearLoc: A		Brgs: X		Gauge: 0		Pull:						

BHA - No. 1 - BIT, BS, 15 DC, XO = 454.50

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp	In/Out
No Mud Records for this report.																		

Drilling Parameters

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.
700-716	52.0	52.0	2,000	70		450	88.2	85.0	700

Mud Log

Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
No Mud Log Information for this report.						

Inventory

Item	Used	Invent.	Item	Used	Invent.
No Inventory Records for this report.					

Safety Information

LTI:	Days Since:
Med:	1st Aid:
Accident Description:	
Oper: 2	Cont: 8
Serv: 0	Othr: 0
Total Personnel: 10	
Hours: 0	

Environment

Cum. Water Hauled: 0.000 acre-ft

Surveys

MD	Inc.	Azim.	TVD	NS	EW
700	1.8	0	700	8	0

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Partly cloudy Vis.: 10 Temp: 34 Pressure: 30.41 Wind: 7 Gusts: 10



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 3

Report For 15-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 1000	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 1000	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 284 / 2.75	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 103.27	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 3/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 3/0	Days On Location: 3		
Current Ops: Circulated and pumped 142 bbls of fresh water to change over hole. Survey at 1,000' , Inc 4*. Pulled out of hole. Break bit and xo. ...					
Planned Ops: Circulate and water back well. Pull out to run in hole with open ended pipe. Stage in and unload well with Air. Check and record well ...					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Roger Almond		Tel No.:	
Comments: Hydro Resources are providing all measurements from Ground Level. Made an attempt to convert to KB measurements but its not					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	0:30	0.50	716	6-35	Cut off 9-5/8" casing and remove 13-3/8" rotating head.	
0:30	1:00	0.50	716	6-35	Lay over mast.	
1:00	4:00	3.00	716	6-35	Make final cut on 9-5/8" casing and weld on well head.	
4:00	11:00	7.00	716	6-35	Nipple up 11" 3M single gate BOP. Function test accumulator. Raise Mast and pin in place.	
11:00	11:30	0.50	716	6-35	Test casing, well head and BOP to 700 PSI and witnessed by Jim Goddard with DWR. Test Approved	
11:30	18:00	6.50	716	1-01	Fabricate discharge line, prepare to drill 8-3/4" hole.	
18:00	19:30	1.50	716	11-6-3	RIH w/ 8-3/4" bit and BHA assembly. Tag cement at 590'.	
19:30	21:15	1.75	716	6-28	Clean out cement from 590' to 716'. tagged wiper plug and float collar at 624'. Had hard cement though to shoe. WOB 2000, RPM 70, SPP 700 psi, SPM 60, GPM 450.	
21:15	0:00	2.75	900	3-2-1	Drill from 716' to 1,000' with full returns. WOB 3000, RPM 70, SPP 700 psi, SPM 60, GPM 450.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF	
2	1	BAKER DS616M	8.750	20 20 20 20	284	2.75	103.3	3,000	70		8.80	450	700	78	48	13	161
DepthOut: 1,000		Cutter:Inner/Outer: 1/1			Dull:Maj/Oth: NO/NO			WearLoc: A	Brgs: X	Gauge: 0	Pull: OTH						

BHA - No. 2 - BIT, BS, 15 DC, XO = 453.56

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
15-Mar-19 22:00	8.80	53														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
716-1000	94.0 / 94.0	2,000	70		450	213.9	195.9	700	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft							
No Inventory Records for this report.						Med:	1st Aid:	Surveys								
						Accident Description:		MD	Inc.	Azim.	TVD	NS	EW			
						Oper: 2	Cont: 8	Serv: 1	Othr: 0	980	4	0	980	22	0	
						Total Personnel: 11	Hours: 0									

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Skies Vis.: 10 Temp: 43 Pressure: 30.33 Wind: 9 Gusts: 11



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 4

Report For 16-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 1000	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 1000	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 0 / 0.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr):	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 4/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 4/0	Days On Location: 4		
Current Ops: Serviced mud pump and tighten mud pump lines. POH to surface. Pick up stabilizer and placed above the bit. Tripped into hole to ...					
Planned Ops: Wait on stabilizers to arrive. Unload and make up tools. Run into the hole with BHA. Drill 8-3/4" hole to TD.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Roger Almond		Tel No.:	
Comments: Airlifted @ 980' had steady yield of 200 gpm					

3 records not printed

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
1:30	3:00	1.50	1,000	10-6-4	POH and break off bit.	
3:00	5:00	2.00	1,000	11-6-3	RIH with open ended drill pipe to 500'.	
5:00	5:30	0.50	1,000	STIM	Air lift @ 500' / unload hole.	
5:30	6:00	0.50	1,000	11-6-3	RIH to 980' with open ended drill pipe.	
6:00	8:00	2.00	1,000	STIM	Airlift @ 980' had steady yield of 200 gpm +.	
8:00	10:00	2.00	1,000	STIM	Conducted recovery test. fluid level @ 545' throughout test.	
10:00	11:30	1.50	1,000	10-6-4	POH with open ended drill pipe.	
11:30	21:00	9.50	1,000	10-32	Waiting on stabilizers to be delivered before commence drilling.	X
21:00	22:00	1.00	1,000	10-343	Unload stabilizers. Make up BHA assembly.	
22:00	22:30	0.50	1,000	10-6-1	RIH with DC's.	
22:30	23:00	0.50	1,000	10-6-3	RIH with DP to 693'.	
23:00	0:00	1.00	1,000	10-5-1	Conditioned mud and leveled rig. Tighten belts on mud pump.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF
2 1	BAKER	DS616M	8.750	20 20 20 20	518	5.75	90.1	4,000	70		8.80	450	700	78	48	13 161
DepthOut: 1,000		Cutter:Inner/Outer: 1/1			Dull:Maj/Oth: NO/NO		WearLoc: A	Brgs: X	Gauge: 0	Pull: OTH						
2 2	BAKER	DS616M	8.750	20 20 20 20												
DepthOut: 2,617		Cutter:Inner/Outer: 3/3			Dull:Maj/Oth: NO/NO		WearLoc: A	Brgs: X	Gauge: 0	Pull: FM						
BHA - No. 3 - BIT, BS, DC, STAB, DC, STAB, 13 DC, XO = 461.31																

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
16-Mar-19 12:00	8.70	37														/ /	/

Drilling Parameters

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.
No Drilling Parameters Records for this report.									

Mud Log

Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
No Mud Log Information for this report.					

Inventory

Item	Used	Invent.	Item	Used	Invent.
No Inventory Records for this report.					

Safety Information

LTI:	Days Since:
Med:	1st Aid:
Accident Description:	
Oper: 2	Cont: 8
Serv: 0	Oth: 0
Total Personnel: 10	
Hours: 0	

Environment

Cum. Water Hauled:	0.000	acre-ft
---------------------------	-------	---------

Rig/Weather Information

Equipment Problems:						
Location Condition:						
Transport Status:						
Sky: Clear Skies	Vis.: 10	Temp: 48	Pressure: 30.21	Wind: 10	Gusts: 10	



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 5

Report For 17-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 1550	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 1546	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 550 / 12.5	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 44.0	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 5/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 5/0	Days On Location: 5		
Current Ops: Time drill 8-3/4" hole from 1,550' to 1,597' with full returns. Survey @ 1,550', 4 deg. Time drill 8-3/4" hole from 1,597' to 1,610' with ...					
Planned Ops: Drill new 8-3/4" hole to TD. Prepare to run 5" casing with fiber optics cable attached and cement in place.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Roger Almond		Tel No.:	

Comments:

2 records not printed

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
2:00	3:00	1.00	1,000	10-6-3	RIH to 700'	
3:00	9:00	6.00	1,000	WASH	Reaming hole from 700' to 1,000' in attempt to straighten hole	
9:00	9:30	0.50	1,000	3-58	Survey @ 990', 4 deg	
9:30	12:00	2.50	1,180	3-2-1	Time drill new 8-3/4" hole from 1,000' to 1,180'. with full returns. WOB 2000, RPM ...	
12:00	12:30	0.50	1,180	3-58	Survey @ 1,150', 3.9 deg	
12:30	14:30	2.00	1,297	3-2-1	Time Drill 8-3/4" hole from 1,180' to 1,297' with full returns. WOB 2000, RPM 70, ...	
14:30	15:00	0.50	1,297	3-58	Survey @ 1,267', 3.7 deg	
15:00	16:30	1.50	1,417	3-2-1	Time Drill 8-3/4" hole from 1,297' to 1,417' with full returns. WOB 1000, RPM 90, SPP ...	
16:30	17:00	0.50	1,417	3-58	Survey @ 1,387', 4 deg	
17:00	21:00	4.00	1,530	3-2-1	Time drill 8-3/4" hole from 1,417' to 1,537' with full returns. WOB 1000, RPM 90, SPP ...	
21:00	21:30	0.50	1,537	3-58	Survey @ 1,537', 4 deg.	
21:30	0:00	2.50	1,550	3-2-1	Time drill 8-3/4" hole from 1,537' to 1,550' with full returns. WOB 1000, RPM 90, SPP ...	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF
2	2	BAKER DS616M	8.750	20 20 20 20	550	12.5	44.0	1,500	90		8.90	450	600	78	49	13	163
DepthOut: 2,617		Cutter:Inner/Outer: 3/3			Dull:Maj/Oth: NO/NO			WearLoc: A		Brgs: X		Gauge: 0		Pull: FM			

BHA - No. 4 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
17-Mar-19 22:00	8.90	37														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
1000-1550	44.0 /	1,000	90		450	213.9	195.9	650	No Mud Log Information for this report.						

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft								
No Inventory Records for this report.						Med:	1st Aid:	Surveys (1 not shown)									
						Accident		MD	Inc.	Azim.	TVD	NS	EW				
						Description:		1267	3.7	0	1266	41	0				
						Oper: 2 Cont: 8 Serv: 0 Othr: 0		1387	4	0	1386	50	0				
						Total Personnel: 10 Hours: 0		1417	4	0	1416	52	0				
								1537	4	0	1535	60	0				

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Skies Vis.: 10 Temp: 55 Pressure: 30.14 Wind: 7 Gusts: 7



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 6

Report For 18-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 2077	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 2072	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 527 / 22.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 23.95	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 6/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 6/0	Days On Location: 6		
Current Ops: Time drill 8-3/4" hole from 2,077' to 2,205' with full returns.					
Planned Ops: Drill new 8-3/4" hole to TD. Prepare to run 5-1/2" casing with fiber optics cable attached and cement in place.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Roger Almond		Tel No.:	
Comments: Started using some LCM at 1,867' in case of some small losses.					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	2:00	2.00	1,597	3-2-1	Time drill 8-3/4" hole from 1,550' to 1,597' with full returns and no hole issues	
2:00	2:30	0.50	1,597	3-58	Survey @ 1,550', 4 deg	
2:30	7:30	5.00	1,687	3-2-1	Time drill 8-3/4" hole from 1,597' to 1,687' with full returns and no hole issues	
7:30	8:00	0.50	1,687	3-58	Survey @ 1,650', 4.1 deg	
8:00	12:00	4.00	1,777	3-2-1	Time drill 8-3/4" hole from 1,687' to 1,777' with full returns and no hole issues	
12:00	12:30	0.50	1,777	3-58	Survey @ 1,747', 3.7 deg	
12:30	15:00	2.50	1,867	3-2-1	Time drill 8-3/4" hole from 1,777' to 1,867', notice small amount of losses too small to measure, start adding LCM	
15:00	15:30	0.50	1,867	SERV	Service rig	
15:30	0:00	8.50	2,077	3-2-1	Time drill 8-3/4" hole from 1,867' to 2,077'.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4				Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF
2	2	BAKER DS616M	8.750	20	20	20	20	1,077	34.5	31.2	8,000	90		8.90	450	800	78	49	13	163
DepthOut: 2,617		Cutter:Inner/Outer: 3/3			Dull:Maj/Oth: NO/NO			WearLoc: A		Brgs: X		Gauge: 0		Pull: FM						

BHA - No. 4 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
18-Mar-19 22:00	8.90	41														/ /	/

Drilling Parameters

Mud Log

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
1550-2077	24.0	30.0	8,000	90		450	213.9	195.9	800	No Mud Log Information for this report.						

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000	acre-ft	
No Inventory Records for this report.						Med:	1st Aid:				
						Accident Description:					
						Oper: 2	Cont: 8	Serv: 0	Othr: 0		
						Total Personnel: 10	Hours: 0				

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Skies Vis.: 7 Temp: 53 Pressure: 30.11 Wind: 7 Gusts: 7



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 7

Report For 19-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 2545	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 2540	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 468 / 22.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 21.27	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 7/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 7/0	Days On Location: 7		
Current Ops: Time Drilling @ 2,587 keeping hole straight					
Planned Ops: Continue drilling 8-3/4" hole to total depth.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments:					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	6:00	6.00	2,277	3-2-1	Time drill 8-3/4" hole from 2,077' to 2,227' with full returns	
6:00	6:30	0.50	2,227	4-98	Held Safety meeting	
6:30	17:00	10.50	2,400	3-2-1	Time Drill 8-3/4" hole from 2,227' to 2,437' with full returns	
17:00	17:30	0.50	2,437	8-8	Service Rig and spool on new survey line	
17:30	18:00	0.50	2,437	3-58	Survey @ 2,400 4.7 deg 105.3F	
18:00	22:00	4.00	2,530	3-2-1	Drilled 8-3/4" hole from 2,437' to 2,530'	
22:00	22:30	0.50	2,530	3-58	Surveyed @ 2,500' 4.5 deg 113.7F	
22:30	0:00	1.50	2,545	3-2-1	Drilled from 2,530' to 2,545' w/ 2K	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF
2	2	BAKER DS616M	8.750	20 20 20 20	1,545	56.5	27.3	4	45		8.80	450	1,000	78	48	13 161
DepthOut: 2,617		Cutter:Inner/Outer: 3/3			Dull:Maj/Oth: NO/NO			WearLoc: A		Brgs: X	Gauge: 0	Pull: FM				

BHA - No. 4 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
19-Mar-19 19:00	8.80	38														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
2077-2545	21.3 / 23.0	2	45		450	213.9	195.9	10000	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000	acre-ft	
No Inventory Records for this report.						Med:	1st Aid:				
						Accident Description:					
						Oper: 2	Cont: 8	Serv: 0	Othr: 0		
						Total Personnel: 10	Hours: 0				

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

No Weather Information for this report.



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 8

Report For 20-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 2643	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 2638	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 98 / 10.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 9.8	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 8/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 8/0	Days On Location: 8		
Current Ops: Drilling ahead with 8-3/4 @2,700' @ 05:30 hrs maintaining hole straight					
Planned Ops: Drill 8-3/4" hole to 3,325' and run 5-1/2" casing.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments:					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	7:30	7.50	2,617	3-2-1	Time Drill 8-3/4" hole from 2,545' to 2,617' with 2-4K , 450 GPM, 1,000 PSI 45 RPM	
7:30	8:00	0.50	2,617	3-58	Survey on bottom @ 2,617' 4.5 deg	
8:00	16:00	8.00	2,617	10-6-4	POH for bit change, no drag or hole problems.	
16:00	17:00	1.00	2,617	3-34-3	Change bit	
17:00	21:00	4.00	2,617	10-6-3	RIH with 8-3/4" tri-cone button bit with 8-5/8" near bit stab & 8-1/4" stab @ 90'	
21:00	23:30	2.50	2,643	3-2-1	Drill 8-3/4" hole from 2,617 to 2,643 w/ 8K WOB 450 GPM 1,000 PSI 50 RPM w/ full returns	
23:30	0:00	0.50	2,643	3-58	Survey @ 2,640' 4.3 deg	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4				Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF
2	2	BAKER DS616M	8.750	20	20	20	20	1,571	64	24.5	4	45		9.20	450	1,000	78	51	13	168
DepthOut: 2,617		Cutter:Inner/Outer: 3/3		Dull:Maj/Oth: NO/NO		WearLoc: A		Brgs: X		Gauge: 0		Pull: FM								
3	1	HTC tri-cone	8.750	16	16	16		72	2.5	28.8			9.20	450	1,000	245	494	130	525	
DepthOut: 2,923		Cutter:Inner/Outer: 2/3		Dull:Maj/Oth: CT/WT		WearLoc: A		Brgs: 5		Gauge: 1		Pull: HR								
BHA - No. 5 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96																				

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
20-Mar-19 22:30	9.20	42														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
2617-2643	10.0 / 12.0	8	45		450	213.9	144.1	1000	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft				
No Inventory Records for this report.						Med:	1st Aid:	Surveys					
						Accident Description:		MD	Inc.	Azim.	TVD	NS	EW
								2640	4.3	0	2635	141	0

Rig/Weather Information

Equipment Problems:
Location Condition:
Transport Status:
No Weather Information for this report.



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 9

Report For 21-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 2894	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 2889	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 251 / 23.25	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 10.8	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 9/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 9/0	Days On Location: 9		
Current Ops: Repairing mud pump, Drilled 8 3/4" to 2923' at 04:30 hrs.					
Planned Ops: Drill 8 3/4" hole with bit number 3 to 30 hrs total drilling hours, pull out of hole, change bits, Drill to TD with new bit.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments:					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	13:00	13.00	2,793	3-2-1	Drilling 8-3/4" hole w/ 8-15K WOB, 60 RPM, 450 GPM w/ Full returns. Estimated top of granite @ 2700'	
13:00	13:30	0.50	2,793	3-58	Survey @ 2763, 4 deg	
13:30	22:45	9.25	2,884	3-2-1	Drilling 8 3/4" hole with 8-15K WOB, 60-50 RPM, 450 GPM, 1000 PSI, full returns.	
22:45	23:00	0.25	2,884	3-58	Survey @ 2880', 4.2 deg	
23:00	0:00	1.00	2,894	3-2-1	Drilling 8 3/4" hole with 8-15K WOB, 60 RPM, 450 GPM 1000 PSI	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF					
3	1	HTC	tri-cone	8.750	16	16	16		323	25.5	12.7	20,000	55		9.20	450	1,000	245	494	130	525
DepthOut:		2,923		Cutter:Inner/Outer:		2/3		Dull:Maj/Oth:		CT/WT		WearLoc:	A	Brgs:	5	Gauge:	1	Pull:		HR	

BHA - No. 5 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
21-Mar-19 22:00	9.20	40														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
2643-2894	10.0 / 12.0	2000	50		450	213.9	144.1	1000	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft						
No Inventory Records for this report.						Med:	1st Aid:	Surveys							
						Accident Description:		MD	Inc.	Azim.	TVD	NS	EW		
						Oper: 2	Cont: 8	Serv: 0	Othr: 0	2763	4	0	2758	150	0
						Total Personnel: 10	Hours: 0		2880	4.2	0	2875	159	0	

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Vis.: 10 Temp: 38 Pressure: Wind: 8 Gusts: 15



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 10

Report For 22-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 2966	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 2890	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 72 / 9.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 8.0	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 10/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 10/0	Days On Location: 10		
Current Ops: Drilling ahead 8 3/4" hole 2994' at 05:30 hrs with full returns					
Planned Ops: Continue drilling 8 3/4" hole to TD					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments: Last Survey 2973' ; 4.7 degrees					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	4:30	4.50	2,923	3-2-1	Drill 8 3/4" hole from 2894' to 2923' with 8-20 K WOB, 60 RPM, 450 GPM, 1000 PSI., Full mud returns	
4:30	8:00	3.50	2,923	8-8	Work on Mud Pump	
8:00	13:00	5.00	2,923	10-6-4	Pull out of hole with bit #3 from 2923' to surface	
13:00	14:00	1.00	2,923	10-343	Change bit to new 8 3/4" button bit #4	
14:00	19:30	5.50	2,923	10-6-3	Run in hole with 8 3/4" button bit #4 from surface to 2923'	
19:30	0:00	4.50	2,966	3-2-1	Drill 8 3/4" hole from 2923' to 2966' with 20 K WOB, 60 RPM, 450 GPM, 1000 PSI with full mud returns. Mud wt. 9.2, Vis. 40	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF	
3 1	HTC	tri-cone	8.750	16 16 16	352	30.	11.6	18,000	55		9.20	450	1,000	245	494	130	525
DepthOut: 2,923		Cutter:Inner/Outer: 2/3			Dull:Maj/Oth: CT/WT		WearLoc: A		Brgs: 5	Gauge: 1	Pull: HR						
4 1	HTC	TRI con	8.750	20 20 20	43	4.5	9.6	20,000	60		9.20	450	1,000	157	203	53	336
DepthOut: 3,077		Cutter:Inner/Outer: 7/7			Dull:Maj/Oth: WT/FC		WearLoc: A		Brgs: 7	Gauge: 4	Pull: PR						
BHA - No. 6 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96																	

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
22-Mar-19 22:00	9.20	40														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
2894-2923	6.5 / 8.0	10,000	55		450	213.9	182.1	1000	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000	acre-ft	
No Inventory Records for this report.						Med:	1st Aid:				
						Accident Description:					
						Oper: 2	Cont: 8	Serv: 0	Othr: 0		
						Total Personnel: 10	Hours: 0				

Rig/Weather Information

Equipment Problems:										
Location Condition:										
Transport Status:										
Sky: Clear/ partly	Vis.: 8	Temp: 45	Pressure: 30.12	Wind: 8	Gusts: 15					



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 11

Report For 23-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---
Measured Depth (ft): 3073	Working Interest:	Wellbore: Original Wellbore	AFE No. AFE (\$) Actual (\$)
Vertical Depth (ft): 3067	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	--- --- ---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		--- --- ---
Hole Made (ft) / Hrs: 107 / 24.0	Last BOP Test: 15-Mar-19		Totals: --- ---
Average ROP (ft/hr): 4.46	Next BOP Test: 30-Mar-19		Well Cost (\$): ---
Drilling Days (act./plan): 11/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 11/0	Days On Location: 11
Current Ops: Pulling out of hole for bit change due to hours on bit.			
Planned Ops: Change bits, Drill to 3,333' TD			
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown	
Comments: Will be running one more bit		Tel No.: ...	

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	0:00	24.00	3,073	3-2-1	Drill 8-3/4" hole from 2,966' to 3,073' w/ 15K WOB, 65 RPM, 450 GPM, 1,000 PSI	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF			
4	1	HTC	TRI con	8.750	20	20	20	150	28.5	5.3	15	65	9.20	450	1,000	157	203	53	336
DepthOut: 3,077		Cutter:Inner/Outer: 7/7			Dull:Maj/Oth: WT/FC			WearLoc: A	Brgs: 7	Gauge: 4	Pull: PR								

BHA - No. 6 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
23-Mar-19 22:00	9.20	40														/ /	/

Drilling Parameters

Mud Log

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
2966-3073	5.1 / 6.0	15	60		450	213.9	144.1	1000	No Mud Log Information for this report.					

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft							
No Inventory Records for this report.						Med:	1st Aid:	Surveys								
						Accident Description:		MD	Inc.	Azim.	TVD	NS	EW			
						Oper: 2	Cont: 7	Serv: 0	Othr: 0	3063	2	0	3057	169	0	
						Total Personnel:	9	Hours:	0	3213	2.5	0	3207	174	0	

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Vis.: 10 Temp: 45 Pressure: 29.98 Wind: 10 Gusts: 16



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 12

Report For 24-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 3213	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 3208	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 140 / 11.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 12.73	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 12/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 12/0	Days On Location: 12		
Current Ops: Drilling ahead 8-3/4" hole from 3,273' at 05:30 hrs.					
Planned Ops: Drill ahead 8-3/4" hole to TD, 3,325', circulate hole clean, POOH, rig up, run 5-1/2" casing with fiber optic cable.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments: Survey at 3,213' 2.5 degrees.					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	1:30	1.50	3,077	3-2-1	Drill 8-3/4" hole from ,3073' to 3,077' with 15K WOB, 65 RPM, 450 GPM and 1,000 PSI	
1:30	2:00	0.50	3,077	3-58	Survey @ 3,057', 2 deg	
2:00	7:30	5.50	3,077	10-6-4	POH with bit #4 and experienced no over pull or hole issues	
7:30	8:00	0.50	3,077	3-34-3	Break off bit #4 and make up bit #5	
8:00	12:00	4.00	3,077	10-6-3	RIH to 2,977'	
12:00	14:00	2.00	3,077	REAM	Safety Ream from 2,977' to bottom	
14:00	23:30	9.50	3,213	3-2-1	Drill 8-3/4" hole from 3,077' to 3,213' with 20 K WOB, 65 RPM, 450 GPM, 1,000 PSI with full mud returns.	
23:30	0:00	0.50	3,213	3-58	Survey@ 3,213', 2.5 deg	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF		
4	1	HTC	TRI con	8.750	20	20	20	154	30	5.1	15,000	65	9.20	450	1,000	157	203	53	336
DepthOut: 3,077		Cutter:Inner/Outer: 7/7			Dull:Maj/Oth: WT/FC			WearLoc: A	Brgs: 7	Gauge: 4	Pull: PR								
5	1	HTC	GX30	8.750	20	20	20	140	10	14.0	20,000	65	9.30	450	1,000	157	205	54	340
DepthOut: 3,280		Cutter:Inner/Outer: /			Dull:Maj/Oth: /			WearLoc:	Brgs:	Gauge:	Pull: LIH								
BHA - No. 7 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96																			

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
24-Mar-19 20:00	9.40	38														/ /	/

Drilling Parameters

Mud Log

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
3073-3077	2.7	/ 2.7	10,000	65		450	213.9	144.1	1000	No Mud Log Information for this report.						
3077-3213	14.0	/ 14.0	20,000	65		450	213.9	182.1	1000							

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000	acre-ft	
No Inventory Records for this report.						Med:	1st Aid:				
						Accident Description:					
						Oper: 2	Cont: 6	Serv: 0	Oth: 0		
						Total Personnel: 8	Hours: 0				

Rig/Weather Information

Equipment Problems:										
Location Condition:										
Transport Status:										
Sky: Clear	Vis.: 10	Temp: 55	Pressure: 30.12	Wind: 6	Gusts: 8					



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 13

Report For 25-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 3280	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 3275	Last Casing: 9.625 at 704	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing: 5.500 at 3,000		---	---	---
Hole Made (ft) / Hrs: 67 / 7.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr): 9.57	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 13/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 13/0	Days On Location: 13		
Current Ops: Running 5-1/2" K55 casing with fiber optic on joint number 33 at 06:00 hrs.					
Planned Ops: Continue run in hole with 5-1/2" casing with fiber optic to setting depth of 3,274', cement casing in place.					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments: Will deploy recorders in 68-32 today					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	6:30	6.50	3,280	3-2-1	Drilled 8-3/4" hole from 3,213' to 3,280' with 22K WOB, 65 RPM, 450 GPM and 1,000 ...	
6:30	7:00	0.50	3,280	3-2-1	Drill rate dropped from 12'/hr to 0'/hr, Driller concerned bit had lost a cone or he had ...	
7:00	8:00	1.00	3,280	11-5-1	Circulate and condition mud	
8:00	11:00	3.00	3,280	10-6-4	POH with drill pipe to 2,200'	
11:00	11:15	0.25	3,280	3-58	Ran survey tool down drill pipe and stacked out @ 2,200' indicating the bit was on the ...	
11:15	15:30	4.25	3,280	10-6-4	POH from 2,200' to surface, left bit and bottom hole stab in hole. 6' total, decesion ...	
15:30	21:45	6.25	3,280	4-56	Rig up to run casing	
21:45	22:00	0.25	3,280	4-98	Safety meeting on casing running and fiber optic cable installation with casing, ...	
22:00	0:00	2.00	3,280	4-12-1	Pick up and run in hole 5-1/2" 30' shoe joint with float shoe, Install float collar with ...	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF		
5	1	HTC	GX30	8.750	20	20	20	207	17	12.2	22	65	9.20	450	1,000	157	203	53	336
DepthOut: 3,280		Cutter:Inner/Outer: /			Dull:Maj/Oth: /			WearLoc:		Brgs:		Gauge:		Pull: LIH					

BHA - No. 7 - BIT, STAB, DC, STAB, DC, STAB, 13 DC, XO = 464.96

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
No Mud Records for this report.																	

Drilling Parameters

Mud Log

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.	Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
3213-3280	10.4	14.0	22	65		450	213.9	144.1	1000	No Mud Log Information for this report.						
3280-3280	0.0	0.0	22	65		450	213.9	144.1								

Inventory

Safety Information

Environment

Item	Used	Invent.	Item	Used	Invent.	LTI:	Days Since:	Cum. Water Hauled:	0.000	acre-ft	
No Inventory Records for this report.						Med:	1st Aid:				
						Accident Description:					
						Oper: 2	Cont: 6	Serv: 0	Othr: 0		
						Total Personnel: 8	Hours: 0				

Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear Vis.: 10 Temp: 55 Pressure: 30.05 Wind: 7 Gusts: 10



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 14

Report For 26-Mar-19

Operator:	University of Utah	Rig:	#10031	Spud Date:	13-Mar-19	Daily Cost / Mud (\$):	---		
Measured Depth (ft):	3280	Working Interest:		Wellbore:	Original Wellbore	AFE No.	AFE (\$)	Actual (\$)	
Vertical Depth (ft):	3275	Last Casing:	5.500 at 3,269	RKB Elevation (ft):	5.70	---	---	---	---
Proposed TD (ft):	3000	Next Casing:				---	---	---	---
Hole Made (ft) / Hrs:	0 / 0.0	Last BOP Test:	15-Mar-19			Totals:	---	---	---
Average ROP (ft/hr):		Next BOP Test:	30-Mar-19			Well Cost (\$):	---		
Drilling Days (act./plan):	14/0	Flat Days (act./plan):	0/0	Total Days (act./plan):	14/0	Days On Location:	14		

Current Ops: Waiting on cement. Crews to return at daylight.

Planned Ops: Rig crews to begin rig down operation at daylight.

Toolpusher: Tyler Curtis, Kollin Mellott

Supervisors: Virgil Welch, Monty Keown

Tel No.:

Comments: CIP 18:33 hrs. with full returns to surface. NOTE: Shoe of 5.5" was 3,268' below ground level, Float Collar was 2' long from 3,234-

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	15:00	15.00	3,280	4-12-1	Ran 74 joints (3274.78') of 5-1/2", 17#, K-55, Buttres casing with float shoe @ 3,268', float collar @ 3,234' and 6' stick up above ground level with fiber optic strapped to casing.	
15:00	15:30	0.50	3,280	4-12-1	Test Fiber Optics, all good	
15:30	17:00	1.50	3,280	10-5-1	Circulate casing while rigging down fiber optic operation and rigging up cementers	
17:00	18:30	1.50	3,280	5-12-2	Cement casing by positive displacement with 271 bbls of 12.5 ppg cement, 75.4 bbls displacement, bump plug with 1,500 psi at 18:33, cement returns to surface of 59 bbls.	
18:30	0:00	5.50	3,280	6-13	Wait on cement. Sound top of cement at 20:00 hrs, 15' from top of rotary. Continue wait on cement to 00:00 hrs.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow Press	J.Vel	P.Drp	HHP	JIF
--------	------	-------	------	----------	------	-----	-----	-----	-----	------	-------	------------	-------	-------	-----	-----

No Bit Information for this report.

BHA - None

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
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No Mud Records for this report.

Drilling Parameters

Depth	ROP Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.
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No Drilling Parameters Records for this report.

Mud Log

Depth	Gas:Back	Max	Conn	Trip	Pore Pres.
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No Mud Log Information for this report.

Inventory

Item	Used	Invent.	Item	Used	Invent.
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No Inventory Records for this report.

Safety Information

LTI:	Days Since:
Med:	1st Aid:
Accident Description:	
Oper: 2	Cont: 6
Serv: 0	Othr: 0
Total Personnel: 8	Hours: 0

Environment

Cum. Water Hauled:	0.000	acre-ft
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Rig/Weather Information

Equipment Problems:

Location Condition:

Transport Status:

Sky: Clear	Vis.: 10	Temp: 52	Pressure: 30.12	Wind: 18	Gusts: 25
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Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 15

Report For 27-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 3280	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 3275	Last Casing: 5.500 at 3,269	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing:		---	---	---
Hole Made (ft) / Hrs: 0 / 0.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr):	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 15/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 15/0	Days On Location: 15		
Current Ops: Waiting on Daylight					
Planned Ops: Lay down rig, complete rig down, top off well, move equipment to staging area. Install well head onto 5-1/2" casing, secure well. ...					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Virgil Welch, Monty Keown		Tel No.:	
Comments: Contractor estimates rig down will be complete by Friday 29 March, by 17:00 hrs.					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	7:00	7.00	3,280	WOD	Waiting on daylight. Crews working on daylight only	
7:00	18:00	11.00	3,280	RIGD	Crew rigging down equipment, cleaned and moved mud pit, load out drill pipe and drill collars, position trailers at lay down area. Clean equipment, begin cleaning site, back fill pit behind mud tank. pressure wash mud pump, prepare to remove from site. Fiber optic crew complete splice on their cable reel. Telemetry construction complete at (68-32) monitor well. installing signal tower at site.	
18:00	0:00	6.00	3,280	WOD	Waiting on daylight. Crews working daylight only	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF
No Bit Information for this report.																	
BHA - None																	

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp In/Out
No Mud Records for this report.																	

Drilling Parameters

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.
No Drilling Parameters Records for this report.									

Mud Log

Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
No Mud Log Information for this report.						

Inventory

Item	Used	Invent.	Item	Used	Invent.
No Inventory Records for this report.					

Safety Information		Environment	
LTI:	Days Since:	Cum. Water Hauled:	0.000 acre-ft
Med:	1st Aid:		
Accident Description:			
Oper: 2	Cont: 6	Serv: 4	Othr: 0
Total Personnel: 12		Hours: 0	

Rig/Weather Information

Equipment Problems:					
Location Condition:					
Transport Status:					
Sky: Clear	Vis.: 10	Temp: 54	Pressure: 30.06	Wind: 15	Gusts: 24



Daily Drilling Report

Well ID: Forge 78-32

Job ID: Original

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Report No: 16

Report For 28-Mar-19

Operator: University of Utah	Rig: #10031	Spud Date: 13-Mar-19	Daily Cost / Mud (\$): ---		
Measured Depth (ft): 3280	Working Interest:	Wellbore: Original Wellbore	AFE No.	AFE (\$)	Actual (\$)
Vertical Depth (ft): 3275	Last Casing: 5.500 at 3,269	RKB Elevation (ft): 5.70	---	---	---
Proposed TD (ft): 3000	Next Casing:		---	---	---
Hole Made (ft) / Hrs: 0 / 0.0	Last BOP Test: 15-Mar-19		Totals: ---		
Average ROP (ft/hr):	Next BOP Test: 30-Mar-19		Well Cost (\$): ---		
Drilling Days (act./plan): 16/0	Flat Days (act./plan): 0/0	Total Days (act./plan): 16/0	Days On Location: 16		
Current Ops: Waiting on daylight at 06:00 hrs					
Planned Ops: Continue rig equipment removal from 78-32 well pad. Weld production flange to 5-1/2" casing install flange and valve. Complete ...					
Toolpusher: Tyler Curtis, Kollin Mellott		Supervisors: Monty Keown, Virgil Welch		Tel No.:	
Comments: NOTE: Shoe of 5.5" was 3,268' below ground level, Float Collar was 2' long from 3,234-3,236, Top of phone					

Operations Summary

From	To	Elapsed	End MD(ft)	Code	Operations Description	Non-Prod
0:00	7:00	7.00	3,280	WOD	Wait on daylight, crews working daylight only	
7:00	19:00	12.00	3,280	RIGD	Crews continue to rig down equipment, move drill rig from site to staging area, load out mud pump, transport off site, transport 2- pipe trailers off site, perform top cement job, with 1 yard ready mix batch sand grout. fill to surface from 68'. Back drag drill site, house keeping on site with trash pick up. 1 Truck arrive at 19:00 hours to pick up load of drill collars.	
19:00	0:00	5.00	3,280	WOD	Wait on daylight, crews working daylight only.	

Bit/BHA Information

No/Run	Make	Model	Diam	Jets 1-4	Dist	Hrs	ROP	WOB	RPM	Torq	MudWt	Flow	Press	J.Vel	P.Drp	HHP	JIF
No Bit Information for this report.																	
BHA - None																	

Mud Reports

Date/Time	Dens.	Vis.	PV	YP	Filt.	Cake	pH	Solids	Oil	Water	Sand	LGS	Cl	Ca	CaCl	Gels	Temp	In/Out
No Mud Records for this report.																		

Drilling Parameters

Depth	ROP	Av/Mx	WOB	RPM	Torque	Flow	AV:DC	AV:DP	Press.
No Drilling Parameters Records for this report.									

Mud Log

Depth	Gas:Back	Max	Conn	Trip	Pore	Pres.
No Mud Log Information for this report.						

Inventory

Item	Used	Invent.	Item	Used	Invent.
No Inventory Records for this report.					

Safety Information

LTI:	Days Since:
Med:	1st Aid:
Accident No accidents injuries or	
Description: safety issues	
Oper: 1	Cont: 5
Serv: 3	Othr: 0
Total Personnel: 9	
Hours: 0	

Environment

Cum. Water Hauled:	0.000	acre-ft
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Rig/Weather Information

Equipment Problems:						
Location Condition:						
Transport Status:						
Sky: Clear	Vis.: 10	Temp: 52	Pressure: 30.03	Wind: 18	Gusts: 23	



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 68-32		Well Name: 68-32	
Report No: 13	Date: 26-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	AFE \$
MD / TVD (ft):	1000 / 1000		Actual \$
Hole Drilled/Average ROP:	/	Totals:	0
Drilling Days:	4	Well Non-AFE Cost \$:	597,820
Wellbore:	Original Wellbore	Well Total Cost \$:	597,820
Proposed TD (ft):	1000		
Last BOP Test:			
Working Interest:			
Sup(s): Randy Baldwin, Roger Almond	Eng(s): Rivas	Tel #:	
Current Operations: Project completed			
Planned Operations: Hook up surface receivers			
Mngmt Summary: Dump 1 each 50# sack of swimming pool sand in dry well, changed instrument springs due to tight fit, Ran..			
Comments: Prior to 3/26 operation ran 1.5" PVC to wiper plug and blew 5.5" dry NOTE; Casing tally shows Top of float..			
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 1	Date: 13-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	AFE \$
MD / TVD (ft):	700 / 700		Actual \$
Hole Drilled/Average ROP:	700 / 58.3	Totals:	0
Drilling Days:	1	Well Non-AFE Cost \$:	6,487
Wellbore:	Original Wellbore	Well Total Cost \$:	6,487
Proposed TD (ft):	3000		
Last BOP Test:			
Working Interest:			
Sup(s): Randy Baldwin/ Virgil Welch, Roger Al	Eng(s): Rivas	Tel #:	
Current Operations: Drill to 716' with full returns. Circulate to clean hole. Run survey @ 700' Inc. 1.8*. Pulled out of hole to rig ...			
Planned Operations: Finish pulling out of the hole and run and cement 9-5/8" casing.			
Mngmt Summary: Rigged up equipment. Welded on flange for rotating head assembly on conductor. Set DC's and drill pipe ...			



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 2	Date: 14-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	716 / 716	Totals:	0
Hole Drilled/Average ROP:	16 / 32.0	Well Non-AFE Cost \$:	10,889
Drilling Days:	2	Well Total Cost \$:	10,889
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:			
Working Interest:			
Sup(s):	Virgil Welch, Roger Almond	Eng(s):	Rivas
Current Operations:	Cutoff 9 5/8" casing and laid down. Lay over mast. Cut off conductor pipe with rotating head. Cutoff and ...		
Planned Operations:	Complete Nipple up. Function and test BOP's Make up 8 3/4" assembly, Clean out cement. Test shoe ...		
Mngmt Summary:	Drilled from 700' to 716' with full returns. Circulated hole cleaned and conditioned for 9 5/8" casing. Ran ...		
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 3	Date: 15-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	1000 / 1000	Totals:	0
Hole Drilled/Average ROP:	284 / 103.3	Well Non-AFE Cost \$:	466,002
Drilling Days:	3	Well Total Cost \$:	466,002
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Roger Almond	Eng(s):	Rivas
Current Operations:	Circulated and pumped 142 bbls of fresh water to change over hole. Survey at 1,000' , Inc 4". Pulled out of..		
Planned Operations:	Circulate and water back well. Pull out to run in hole with open ended pipe. Stage in and unload well with ...		
Mngmt Summary:	Cut off 9-5/8" casing and removed 13-3/8" rotating head. Laid over mast. Made final cut on 9-5/8" casing ...		
Comments:	Hydro Resources are providing all measurements from Ground Level. Made an attempt to convert to KB ...		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 4	Date: 16-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	1000 / 1000	Totals:	0
Hole Drilled/Average ROP:	0 /	Well Non-AFE Cost \$:	470,800
Drilling Days:	4	Well Total Cost \$:	470,800
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Roger Almond	Eng(s):	Rivas
Current Operations:	Serviced mud pump and tighten mud pump lines. POH to surface. Pick up stabilizer and placed above the...		
Planned Operations:	Wait on stabilizers to arrive. Unload and make up tools. Run into the hole with BHA. Drill 8-3/4" hole to TD...		
Mngmt Summary:	Circulated hole clean before change over to water. Ran survey @ 980' 4 deg. Changed over to fresh ...		
Comments:	Airlifted @ 980' had steady yield of 200 gpm ...		

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 5	Date: 17-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	1550 / 1546	Totals:	0
Hole Drilled/Average ROP:	550 / 44.0	Well Non-AFE Cost \$:	550,187
Drilling Days:	5	Well Total Cost \$:	550,187
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Roger Almond	Eng(s):	Rivas
Current Operations:	Time drill 8-3/4" hole from 1,550' to 1,597' with full returns. Survey @ 1,550', 4 deg. Time drill 8-3/4" hole ...		
Planned Operations:	Drill new 8-3/4" hole to TD. Prepare to run 5" casing with fiber optics cable attached and cement in place. ...		
Mngmt Summary:	Serviced mud pump, tighten mud pump lines, POH and added a bottom hole stabilizer, RIH to 700', ...		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 6	Date: 18-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	2077 / 2072	Totals:	0
Hole Drilled/Average ROP:	527 / 24.0	Well Non-AFE Cost \$:	626,087
Drilling Days:	6	Well Total Cost \$:	626,087
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Roger Almond	Eng(s):	Rivas
Current Operations:	Time drill 8-3/4" hole from 2,077' to 2,205' with full returns.		
Planned Operations:	Drill new 8-3/4" hole to TD. Prepare to run 5-1/2" casing with fiber optics cable attached and cement in ...		
Mngmt Summary:	Time Drilled 8-3/4" hole from 1,550' to 1,597' with full returns and no hole issues, Surveyed @ 1,550', 4 ...		
Comments:	Started using some LCM at 1,867' in case of some small losses.		
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 7	Date: 19-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	2545 / 2540	Totals:	0
Hole Drilled/Average ROP:	468 / 21.3	Well Non-AFE Cost \$:	696,085
Drilling Days:	7	Well Total Cost \$:	696,085
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Time Drilling @ 2,587 keeping hole straight		
Planned Operations:	Continue drilling 8-3/4" hole to total depth.		
Mngmt Summary:	Time drill 8-3/4" hole from 2,077' to 2,227' with full returns, Held Safety meeting, Time drill 8-3/4" hole from..		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 8	Date: 20-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	2643 / 2638	Totals:	0
Hole Drilled/Average ROP:	98 / 9.8	Well Non-AFE Cost \$:	714,458
Drilling Days:	8	Well Total Cost \$:	714,458
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Drilling ahead with 8-3/4" @2,700' @ 05:30 hrs maintaining hole straight		
Planned Operations:	Drill 8-3/4" hole to 3,325' and run 5-1/2" casing.		
Mngmt Summary:	Time drill 8-3/4" hole from 2,545' to 2,617' with 2-4K , 450 GPM, 1,000 PSI 45 RPM, Survey on bottom @ ...		
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 9	Date: 21-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	2894 / 2889	Totals:	0
Hole Drilled/Average ROP:	251 / 10.8	Well Non-AFE Cost \$:	753,486
Drilling Days:	9	Well Total Cost \$:	753,486
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Repairing mud pump, Drilled 8 3/4" to 2923' at 04:30 hrs.		
Planned Operations:	Drill 8 3/4" hole with bit number 3 to 30 hrs total drilling hours, pull out of hole, change bits, Drill to TD with...		
Mngmt Summary:	Drilling 8-3/4" hole w/ 8-15K WOB, 60 RPM, 450 GPM w/ Full returns. Estimated top of granite @ ...		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 10	Date: 22-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	2966 / 2890	Totals:	0
Hole Drilled/Average ROP:	72 / 8.0	Well Non-AFE Cost \$:	768,099
Drilling Days:	10	Well Total Cost \$:	768,099
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Drilling ahead 8 3/4" hole 2994' at 05:30 hrs with full returns		
Planned Operations:	Continue drilling 8 3/4" hole to TD		
Mngmt Summary:	Drill 8 3/4" hole from 2894' to 2923' with 8-20 K WOB, 60 RPM, 450 GPM, 1000 PSI., Full mud returns, ...		
Comments:	Last Survey 2973' ; 4.7 degrees		

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 11	Date: 23-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	3073 / 3067	Totals:	0
Hole Drilled/Average ROP:	107 / 4.5	Well Non-AFE Cost \$:	786,937
Drilling Days:	11	Well Total Cost \$:	786,937
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Pulling out of hole for bit change due to hours on bit.		
Planned Operations:	Change bits, Drill to 3,333' TD		
Mngmt Summary:	Drill 8-3/4" hole from 2,966' to 3,073' with 15K WOB, 65 RPM, 450 GPM, 1,000 PSI		
Comments:	Will be running one more bit		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 12	Date: 24-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	3213 / 3208	Totals:	0
Hole Drilled/Average ROP:	140 / 12.7	Well Non-AFE Cost \$:	810,480
Drilling Days:	12	Well Total Cost \$:	810,480
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Drilling ahead 8-3/4" hole from 3,273' at 05:30 hrs.		
Planned Operations:	Drill ahead 8-3/4" hole to TD, 3,325', circulate hole clean, POOH, rig up, run 5-1/2" casing with fiber optic ...		
Mngmt Summary:	Drill 8-3/4" hole from 3,073' to 3,077' with 15K WOB, 65 RPM, 450 GPM and 1,000 PSI, Survey @ 3,057',...		
Comments:	Survey at 3,213' 2.5 degrees.		
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 13	Date: 25-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	3280 / 3275	Totals:	0
Hole Drilled/Average ROP:	67 / 9.6	Well Non-AFE Cost \$:	824,668
Drilling Days:	13	Well Total Cost \$:	824,668
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Running 5-1/2" K55 casing with fiber optic on joint number 33 at 06:00 hrs.		
Planned Operations:	Continue run in hole with 5-1/2" casing with fiber optic to setting depth of 3,274', cement casing in place. ...		
Mngmt Summary:	Drilled 8-3/4" hole from 3,213' to 3,280' with 22K WOB, 65 RPM, 450 GPM and 1,000 PSI with full returns,...		
Comments:	Will deploy recorders in 68-32 today		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 14	Date: 26-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	AFE \$
MD / TVD (ft):	3280 / 3275		Actual \$
Hole Drilled/Average ROP:	0 /	Totals:	0
Drilling Days:	14	Well Non-AFE Cost \$:	829,061
Wellbore:	Original Wellbore	Well Total Cost \$:	829,061
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Waiting on cement. Crews to return at daylight.		
Planned Operations:	Rig crews to begin rig down operation at daylight.		
Mngmt Summary:	Ran 74 joints (3274.78') of 5-1/2", 17#, K-55, Buttress Casing with float shoe @ 3,268', float collar @ ...		
Comments:	CIP 18:33 hrs. with full returns to surface. NOTE: Shoe of 5.5" was 3,268' below ground level, Float Collar...		
Well ID: Forge 78-32		Well Name: 78-32	
Report No: 15	Date: 27-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	AFE \$
MD / TVD (ft):	3280 / 3275		Actual \$
Hole Drilled/Average ROP:	0 /	Totals:	0
Drilling Days:	15	Well Non-AFE Cost \$:	833,454
Wellbore:	Original Wellbore	Well Total Cost \$:	833,454
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Virgil Welch, Monty Keown	Eng(s):	Rivas
Current Operations:	Waiting on Daylight		
Planned Operations:	Lay down rig, complete rig down, top off well, move equipment to staging area. Install well head onto 5- ...		
Mngmt Summary:	Crews began rig down operation, site cleaning, signal telemetry, installation ongoing with monitor well ...		
Comments:	Contractor estimates rig down will be complete by Friday 29 March, by 17:00 hrs.		



Daily Well Summary Report

GRG

Report Date for Period 13-Mar-19 to 28-Mar-19

Well ID: Forge 78-32		Well Name: 78-32	
Report No: 16	Date: 28-Mar-19	Rig Name: #10031	
Operator:	University of Utah	Daily Cost/Mud Cost \$:	0 / 0
Field:		AFE No.	Name
API No:	NA	Non-AFE	
MD / TVD (ft):	3280 / 3275	Totals:	0
Hole Drilled/Average ROP:	0 /	Well Non-AFE Cost \$:	837,847
Drilling Days:	16	Well Total Cost \$:	837,847
Wellbore:	Original Wellbore		
Proposed TD (ft):	3000		
Last BOP Test:	15-Mar-19		
Working Interest:			
Sup(s):	Monty Keown, Virgil Welch	Eng(s):	Rivas
Tel #:			
Current Operations:	Waiting on daylight at 06:00 hrs		
Planned Operations:	Continue rig equipment removal from 78-32 well pad. Weld production flange to 5-1/2" casing install ...		
Mngmt Summary:	Crews continue to rig down equipment, move drill rig from site to staging area, load out mud pump, ...		
Comments:	NOTE: Shoe of 5.5" was 3,268' below ground level, Float Collar was 2' long from 3,234-3,236, Top of ...		



Operations Time Graph

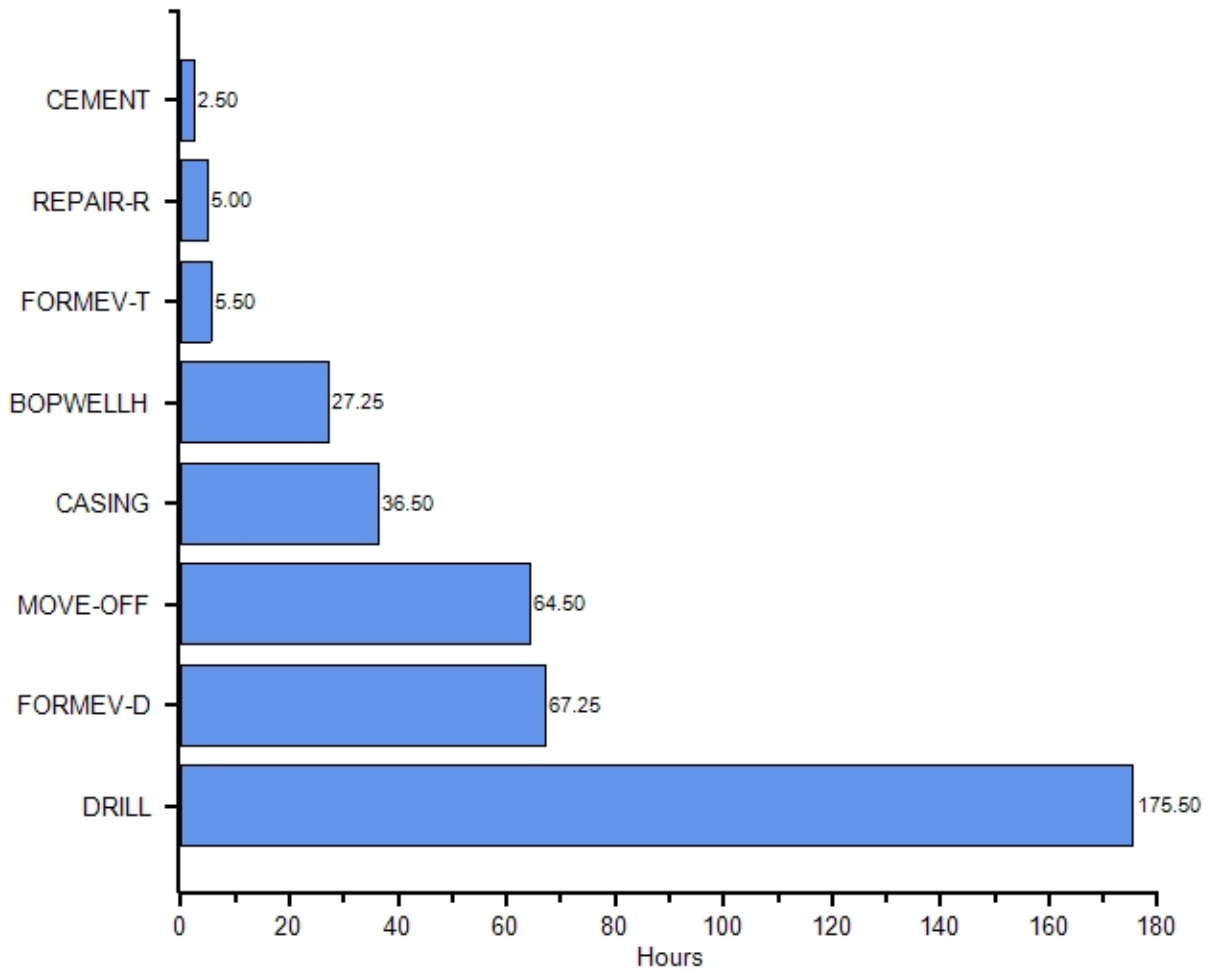
Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Operations Analysis Type: Analysis by Group Totals



Operations Time Details

Description	Time (hrs)	%
DRILL	175.50	45.7%
FORMEV-D	67.25	17.5%
MOVE-OFF	64.50	16.8%
CASING	36.50	9.5%
BOPWELLH	27.25	7.1%
FORMEV-T	5.50	1.4%
REPAIR-R	5.00	1.3%
CEMENT	2.50	0.7%

Total Time: 384.00 hrs



Days vs Depth

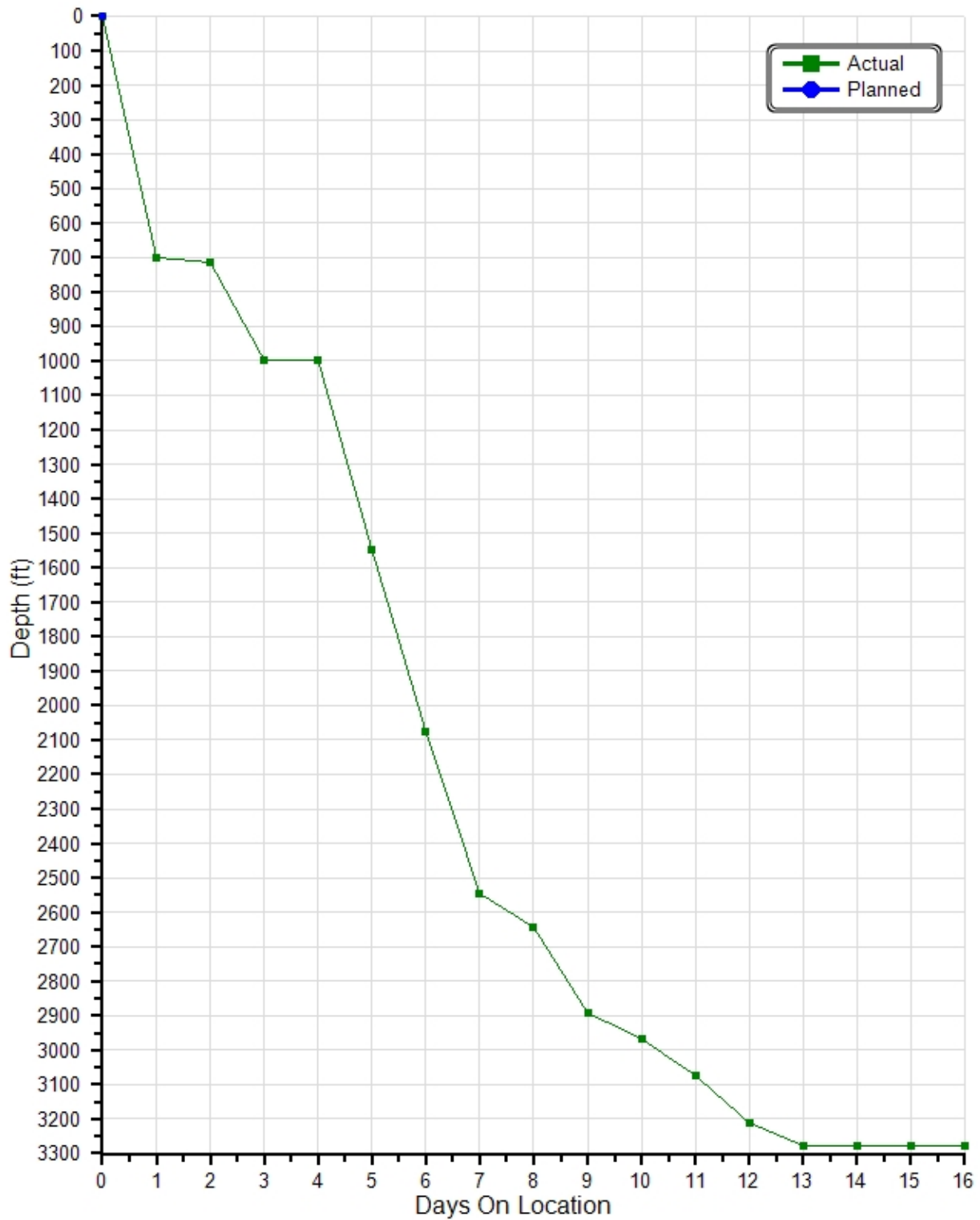
Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Wellbore: All Wellbores





Bit Summary Report
Well ID: Forge 78-32

GRG
Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Run No	Diam	Manuf.	Model	Serial No	Nozzles - 1/32 in	TFA	Depth - ft		Hole Made	Hrs	ROP	WOB	RPM	Flow	MWt	Grading		
							In	Out								In	Out	Major

Well ID: Forge 78-32																													
1	1	12.250	REED	BBK	10070122	20	20	20	20	20	1.841	13-Mar-19 12:00	69	716	647	12.0	53.9	2000	450	8.70	1	1	NO	A	X	0	NO		
											Report No: 1	Date: 13-Mar-19				631	12.0	52.6	3000	65	450	8.70	Jet Vel:	78.4	P. Drop:	47.9			
											Report No: 2	Date: 14-Mar-19				16	0.5	51.8	2000	70	450	8.70	Jet Vel:	78.4	P. Drop:	47.9			
2	1	8.750	BAKER	DS616M AC1A220225	20	20	20	20	20	20	1.841	15-Mar-19 18:00	716	1000	284	2.8	103.3	4000	70	450	8.80	1	1	NO	A	X	0	NO	OTH

Bit Comments: Used from 68-32

Bit Run Comments: Used bit from 68-32 well Pulled out for airlift flow test.

											Report No: 3	Date: 15-Mar-19				284	2.8	103.3	3000	70	450	8.80	Jet Vel:	78.4	P. Drop:	48.4				
											Report No: 4	Date: 16-Mar-19				234	3.0	90.1	4000	70	450	8.80	Jet Vel:	78.4	P. Drop:	48.4				
2	2	8.750	BAKER	DS616M AC1A220225	20	20	20	20	20	20	1.841	16-Mar-19 21:00	1000	2617	1617	64.0	24.5	4	450	9.20	3	3	NO	A	X	0	NO	FM		
											Report No: 4	Date: 16-Mar-19											Jet Vel:		P. Drop:					
											Report No: 5	Date: 17-Mar-19				550	12.5	44.0	1500	90	450	8.90	Jet Vel:	78.4	P. Drop:	49				
											Report No: 6	Date: 18-Mar-19				527	22.0	31.2	8000	90	450	8.90	Jet Vel:	78.4	P. Drop:	49				
											Report No: 7	Date: 19-Mar-19				468	22.0	27.3	4	450	8.80	Jet Vel:	78.4	P. Drop:	48.4					
											Report No: 8	Date: 20-Mar-19				26	7.5	24.5	4	450	9.20	Jet Vel:	78.4	P. Drop:	50.6					
3	1	8.750	HTC	tri-cone	102255	16	16	16				0.589	20-Mar-19 21:00	2617	2923	306	30.3	10.1	18000	55	450	9.20	2	3	CT	A	5	1	WT	HR
											Report No: 8	Date: 20-Mar-19				72	2.5	28.8			450	9.20	Jet Vel:	245.1	P. Drop:	494.4				
											Report No: 9	Date: 21-Mar-19				251	23.0	12.7	20000	55	450	9.20	Jet Vel:	245.1	P. Drop:	494.4				
											Report No: 10	Date: 22-Mar-19				29	4.5	11.6	18000	55	450	9.20	Jet Vel:	245.1	P. Drop:	494.4				
4	1	8.750	HTC	TRI cone	XYZ	20	20	20				0.920	22-Mar-19 13:00	2923	3077	154	30.0	5.1	15	65	450	9.20	7	7	WT	A	7	4	FC	PR
											Report No: 10	Date: 22-Mar-19				43	4.5	9.6	20000	60	450	9.20	Jet Vel:	156.9	P. Drop:	202.5				
											Report No: 11	Date: 23-Mar-19				107	24.0	5.3	15	65	450	9.20	Jet Vel:	156.9	P. Drop:	202.5				
											Report No: 12	Date: 24-Mar-19				4	1.5	5.1	15000	65	450	9.20	Jet Vel:	156.9	P. Drop:	202.5				
5	1	8.750	HTC	GX30		20	20	20				0.920	24-Mar-19 08:30	3077	3280	203	17.0	12.2	22	65	450	9.20								LIH

Bit Comments: Lost in Hole

Bit Run Comments: Bit lost in hole with bottom stabilizer 3280'

											Report No: 12	Date: 24-Mar-19				140	10.0	14.0	20000	65	450	9.30	Jet Vel:	156.9	P. Drop:	204.7		
											Report No: 13	Date: 25-Mar-19				67	7.0	12.2	22	65	450	9.20	Jet Vel:	156.9	P. Drop:	202.5		



BHA Graphical Report


Well ID: Forge 78-32

GRG


Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT


BHA No:	2	BHA Length (ft):	453.56	Date In:	15-Mar-19 18:00	Depth In (ft):	716
				Date Out:	16-Mar-19 00:00	Depth Out (ft):	1,000



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig
454 ft from top to Bit



DC, 15 joints, Length: 450 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
452 ft from top to Bit



BS, Length: 1 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
2 ft from top to Bit



BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
PDC
S/No: A220225
1 ft from top to Bit



BHA Graphical Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

BHA No:	3	BHA Length (ft):	461.31	Date In:	16-Mar-19 21:00	Depth In (ft):	1,000
				Date Out:	17-Mar-19 12:30	Depth Out (ft):	700



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig

DC, 13 joints, Length: 390 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
460 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
S/No: DHS
70 ft from top to Bit

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
66 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
32 ft from top to Bit

BS, Length: 1 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig

BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
PDC
S/No: A220225
1 ft from top to Bit



BHA Graphical Report

GRG

Well ID: Forge 78-32

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

BHA No:	4	BHA Length (ft):	464.96	Date In:	17-Mar-19 03:00	Depth In (ft):	1,000
				Date Out:	20-Mar-19 13:00	Depth Out (ft):	2,617



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig



DC, 13 joints, Length: 390 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
464 ft from top to Bit



STAB, Length: 4 ft
5.000 ins
S/No: DHS
74 ft from top to Bit



DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
70 ft from top to Bit



STAB, Length: 4 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS



DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
36 ft from top to Bit



STAB, Length: 5 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS



BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
PDC
S/No: A220225
1 ft from top to Bit



BHA Graphical Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

BHA No:	5	BHA Length (ft):	464.96	Date In:	20-Mar-19 14:00	Depth In (ft):	2,617
				Date Out:	22-Mar-19 13:00	Depth Out (ft):	2,923



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig



DC, 13 joints, Length: 390 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
464 ft from top to Bit



STAB, Length: 4 ft
5.000 ins
S/No: DHS
74 ft from top to Bit



DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
70 ft from top to Bit



STAB, Length: 4 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS



DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
36 ft from top to Bit



STAB, Length: 5 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS



BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
tri cone button
S/No: 102255
1 ft from top to Bit



BHA Graphical Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

BHA No:	6	BHA Length (ft):	464.96	Date In:	22-Mar-19 14:00	Depth In (ft):	2,923
				Date Out:	24-Mar-19 07:30	Depth Out (ft):	3,077



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig

DC, 13 joints, Length: 390 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
464 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
S/No: DHS
74 ft from top to Bit

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
70 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
36 ft from top to Bit

STAB, Length: 5 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS

BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
tri cone button
S/No: XYZ
1 ft from top to Bit



BHA Graphical Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

BHA No:	7	BHA Length (ft):	464.96	Date In:	24-Mar-19 08:30	Depth In (ft):	3,077
				Date Out:	25-Mar-19 15:30	Depth Out (ft):	3,280



XO, Length: 1 ft
5.000 ins
Top Thread 3.5IF
S/No: Rig

DC, 13 joints, Length: 390 ft
5.000 ins
Top Thread 4.5IF
15 DCs.
S/No: Rig
464 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
S/No: DHS
74 ft from top to Bit

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
70 ft from top to Bit

STAB, Length: 4 ft
5.000 ins
Top Thread 4.5IF
S/No: DHS

DC, Length: 30 ft
5.000 ins
Top Thread 4.5IF
S/No: Rig
36 ft from top to Bit

STAB, Length: 5 ft
5.000 ins
Top Thread 4.5IF
Left in hole

BIT, Length: 1 ft
8.750 ins
Top Thread 4.5REG
tri cone button, Left in hole
S/No: ABC
1 ft from top to Bit



Casing Information Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Casing Information

Run Date/Time:	14-Mar-19 13:30	Leak Off Test (lbs/gal):	
Well Section:	SURF	String Type:	FULL
String Top MD (ft):	-2.00	String Top TVD (ft):	0.00
Casing Shoe MD (ft):	704.47	Casing Shoe TVD (ft):	704.00
String Nominal OD (ins):	9.625	String Nominal ID (ins):	8.921
Bit Diameter (ins):	12.250	Avg. Open Hole Diam. (ins):	12.250
Centralizers: No:	8	Manufacturer/Type:	Bow
Depths:	690, 650, 551, 475, 396, 319, 239, 162		
Hanger Type:		Manufacturer:	
Comments:	Transferred from Casing Tally Detail on 15-Mar-19 05:17		

String Component Details

No. Items	Item Type	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque (ft lbs)
16	JOINT	624.63	9.625	8.921	36.0	J-55	LTC	
1	FLOAT	2.50	9.625	8.921	36.0	J-55	LTC	
2	JOINT	76.84	9.625	8.921	36.0	J-55	LTC	
1	SHOE	2.50	9.625	8.921	36.0	J-55	LTC	
Total Items:	20	706.47						



Casing Information Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Casing Information

Run Date/Time:	26-Mar-19 16:00	Leak Off Test (lbs/gal):	
Well Section:	PROD	String Type:	FULL
String Top MD (ft):	-6.00	String Top TVD (ft):	
Casing Shoe MD (ft):	3,268.78	Casing Shoe TVD (ft):	
String Nominal OD (ins):	5.500	String Nominal ID (ins):	5.000
Bit Diameter (ins):	8.750	Avg. Open Hole Diam. (ins):	8.750
Centralizers: No:	74	Manufacturer/Type:	BOW
Depths:	1 on each joint of casing at mid body		
Hanger Type:		Manufacturer:	
Comments:	Transferred from Casing Tally Detail on 27-Mar-19 04:25		

String Component Details

No. Items	Item Type	Length (ft)	O.D.(ins)	I.D. (ins)	Weight (lbs)	Grade	Connection	Torque (ft lbs)
1	SHOE	2.00	5.500	5.000	17.0	OTHER	BUTT	
1	JOINT	30.00	5.500	5.000	17.0	K-55	BUTT	
1	FLOAT	2.00	5.500	5.000	17.0	OTHER	BUTT	
73	JOINT	3,240.78	5.500	5.000	17.0	K-55	BUTT	
Total Items:	76	3,274.78						



Directional Survey Report

Well ID: Forge 78-32

GRG

Well Name: 78-32

Sect: 26 Town: 26S Rng: 9W County: Beaver State: UT

Survey Type	Meas. Depth (ft)	Inc. (deg)	Azimuth (deg)	TVD (ft)	Coordinates		Closure (ft)	Vertical Section (ft)	Dog Leg Severity (deg/100)
					N-S (ft)	E-W (ft)			
Wellbore: Original Wellbore		Plane of Vertical Section: 0							
** Tieln	300.0	0.90	0	300.0	0.0	0.0	0.0	0.0	
MSS	500.0	0.90	0	500.0	3.1	0.0	3.1	3.1	0.000
MSS	700.0	1.80	0	699.9	7.9	0.0	7.9	7.9	0.450
MSS	980.0	4.00	0	979.5	22.0	0.0	22.0	22.0	0.786
MSS	1,150.0	3.90	0	1,149.1	33.7	0.0	33.7	33.7	0.059
MSS	1,267.0	3.70	0	1,265.9	41.5	0.0	41.5	41.5	0.171
MSS	1,387.0	4.00	0	1,385.6	49.5	0.0	49.5	49.5	0.250
MSS	1,417.0	4.00	0	1,415.5	51.6	0.0	51.6	51.6	0.000
MSS	1,537.0	4.00	0	1,535.2	60.0	0.0	60.0	60.0	0.000
MSS	1,550.0	4.00	0	1,548.2	60.9	0.0	60.9	60.9	0.000
MSS	1,650.0	4.10	0	1,648.0	68.0	0.0	68.0	68.0	0.100
MSS	1,747.0	3.70	0	1,744.7	74.6	0.0	74.6	74.6	0.412
MSS	2,400.0	4.70	0	2,396.0	122.4	0.0	122.4	122.4	0.153
MSS	2,500.0	4.50	0	2,495.7	130.4	0.0	130.4	130.4	0.200
MSS	2,617.0	4.50	0	2,612.3	139.6	0.0	139.6	139.6	0.000
MSS	2,640.0	4.30	0	2,635.2	141.4	0.0	141.4	141.4	0.870
MSS	2,763.0	4.00	0	2,757.9	150.3	0.0	150.3	150.3	0.244
MSS	2,880.0	4.20	0	2,874.6	158.6	0.0	158.6	158.6	0.171
MSS	3,063.0	2.00	0	3,057.3	168.5	0.0	168.5	168.5	1.202
MSS	3,213.0	2.50	0	3,207.2	174.4	0.0	174.4	174.4	0.333

Calculations using Minimum Curvature Method

Company: University of Utah

Well: 78-32

Field: None

County: Beaver

State: Utah

CBL VDL

Cement Evaluation

Gamma Ray - CCL Log

Beaver
None
78-32
University of Utah

Location:		Elev.:	K.B.
Permanent Datum:	Ground Level		
Log Measured From:	Ground Level	0.00 ft	5536.00 ft
Drilling Measured From:	Ground Level		above Perm.Datum
API Serial No.	Section:	Longitude:	Latitude:
		-112.88320 degrees	38.500182 degrees

Logging Date	17-Apr-2019
Run Number	ONE
Depth Driller	3272.00 ft
Schlumberger Depth	3228.00 ft
Bottom Log Interval	3228.00 ft
Top Log Interval	10.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	0.00 ft
To	3228.00 ft
Casing/Tubing Size	5.5 in
Weight	17 lbm/ft
Grade	N/A
From	0.00 ft
To	3272.00 ft
Max Recorded Temperatures	226.82 degF
Logger on Bottom	17-Apr-2019 11:27:00
Unit Number	9102
Recorded By	Alan Moreno
Witnessed By	Virgil Welch

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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5. Borehole Size/Casing/Tubing Record
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8. ONE 5 Inch Main Pass
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 - 8.2 Software Version
 - 8.3 Composite Summary
 - 8.4 Log (Sonic CBL with VDL)
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9. ONE 2 Inch Main Pass
 - 9.1 Integration Summary
 - 9.2 Software Version
 - 9.3 Composite Summary

9.4 Log (Sonic CBL with VDL)

9.5 Parameter Listing

10. ONE 5 Inch Repeat Analysis

10.1 Composite Summary

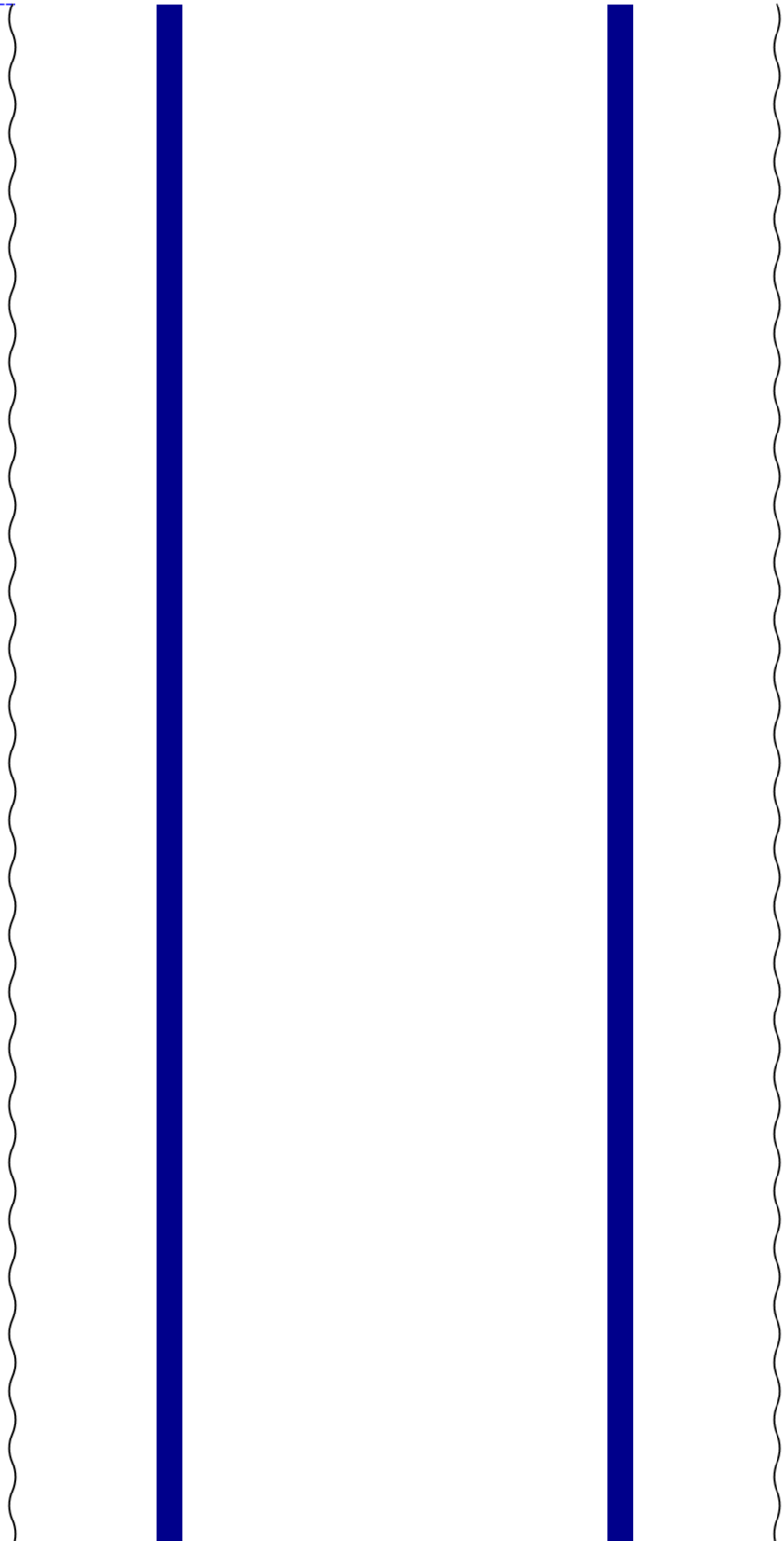
10.2 Log (Sonic CBL with VDL RA)

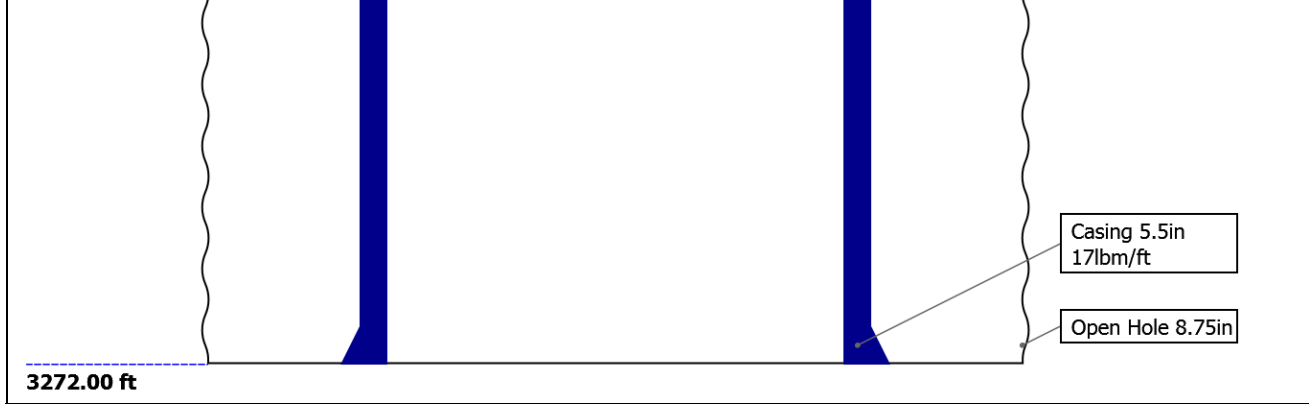
11. Tail

Well Sketch

Driller Depth

0.00 ft



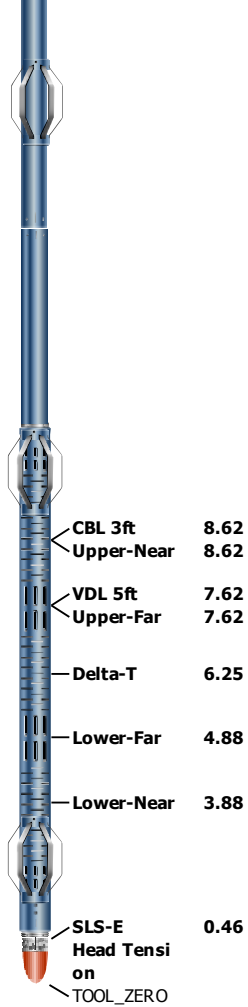


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	3272					
Bottom Logger (ft)	3228					
Casing						
Size (in)	5.5					
Weight (lbm/ft)	17					
Inner Diameter (in)	4.892					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	3272					
Bottom Logger (ft)	3272					

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks
Equip name LEH-QT LEH-QT	Length 36.58	MP name	Offset	Toolstring ran as per tool sketch.
				DSLTL centralized with two 3 5/8 GEMCOS and one 3 3/8 GEMCO
				Max Recorded Temperature 226.82 deg F @ 2950'
CAL-YA:213 CAL-YA:213	33.1			Main log from 10' to TD.
		CCL	32.31	Repeat pass from 3000' to 3200'
DTC-H:9486 ECH-KC DTC-H:9486	29.6			Thank you for using Schlumberger!
		CTEM HV	28.7 0.00	
		TelStatus ToolStatus	26.6 26.6	
SGT-N:9747 SGH-K SGC-TB:9747 SGD-TAA	26.6			
		GR	25.68	
DSLTL-H:8049 ESL-KL	21.1			



BNS-STD **0.46**

Lengths are in ft
 Maximum Outer Diameter = 6.250 in
 Line: Sensor Location, Value: Gating Offset
 All measurements are relative to TOOL_ZERO

Depth Summary

	ONE		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		
Logging Cable			
Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		

Conveyance Type	Wireline	Land
-----------------	----------	------

ONE:Depth Control Parameters	Depth Control Remarks
Log Sequence	First Log In the Well
Rig Up Length At Surface	All Schlumberger depth control procedures followed.
Rig Up Length At Bottom	IDw used as primary depth control device.
Rig Up Length Correction	Z-Chart used as secondary depth control device.
Stretch Correction	
Tool Zero Check At Surface	

ONE

5 Inch Main Pass

Software Version	
Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

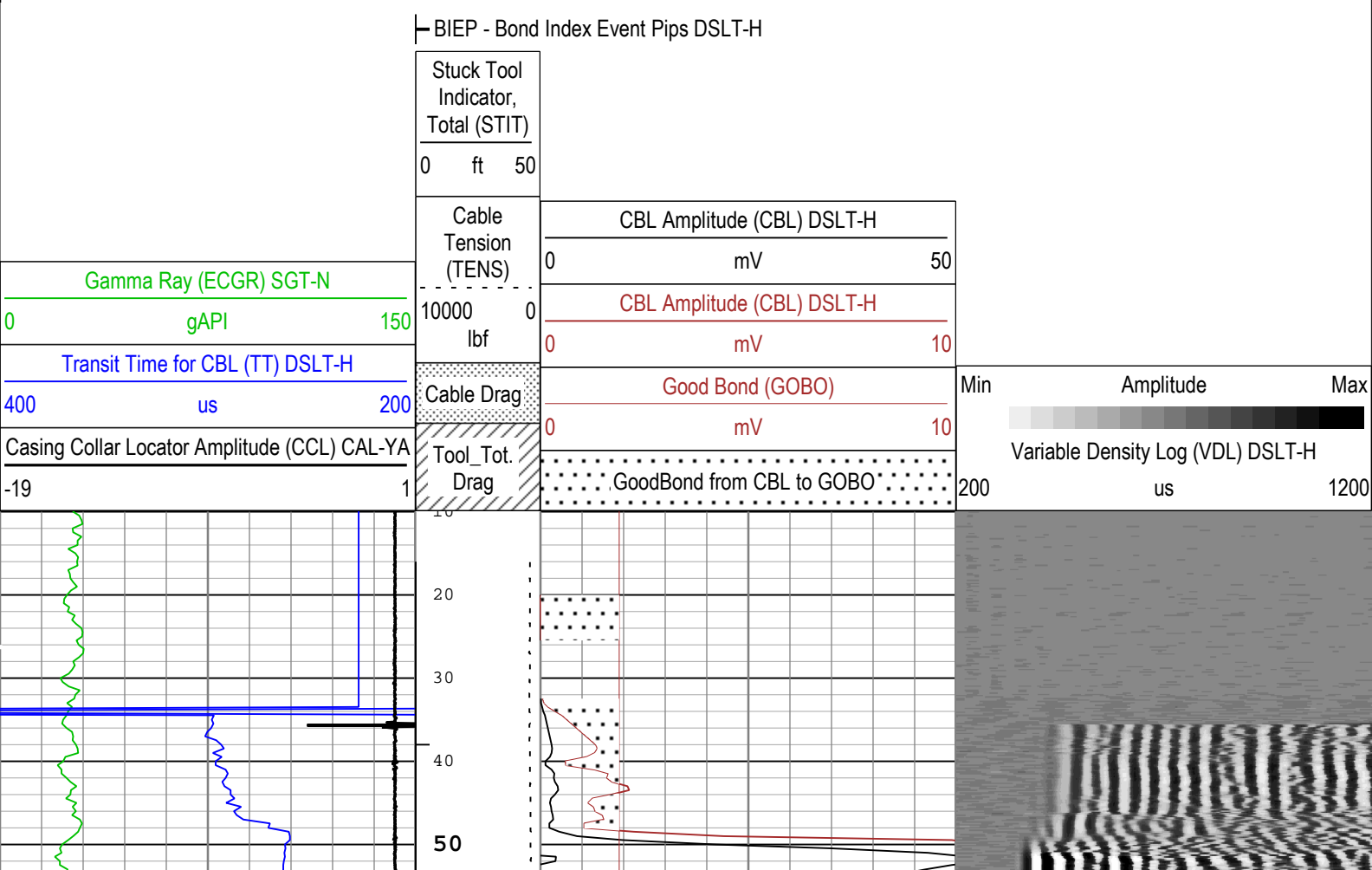
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Main[3]:Up	Up	15.94 ft	3229.82 ft	17-Apr-2019 11:46:27 AM	17-Apr-2019 12:50:12 PM	ON	0.91 ft	No

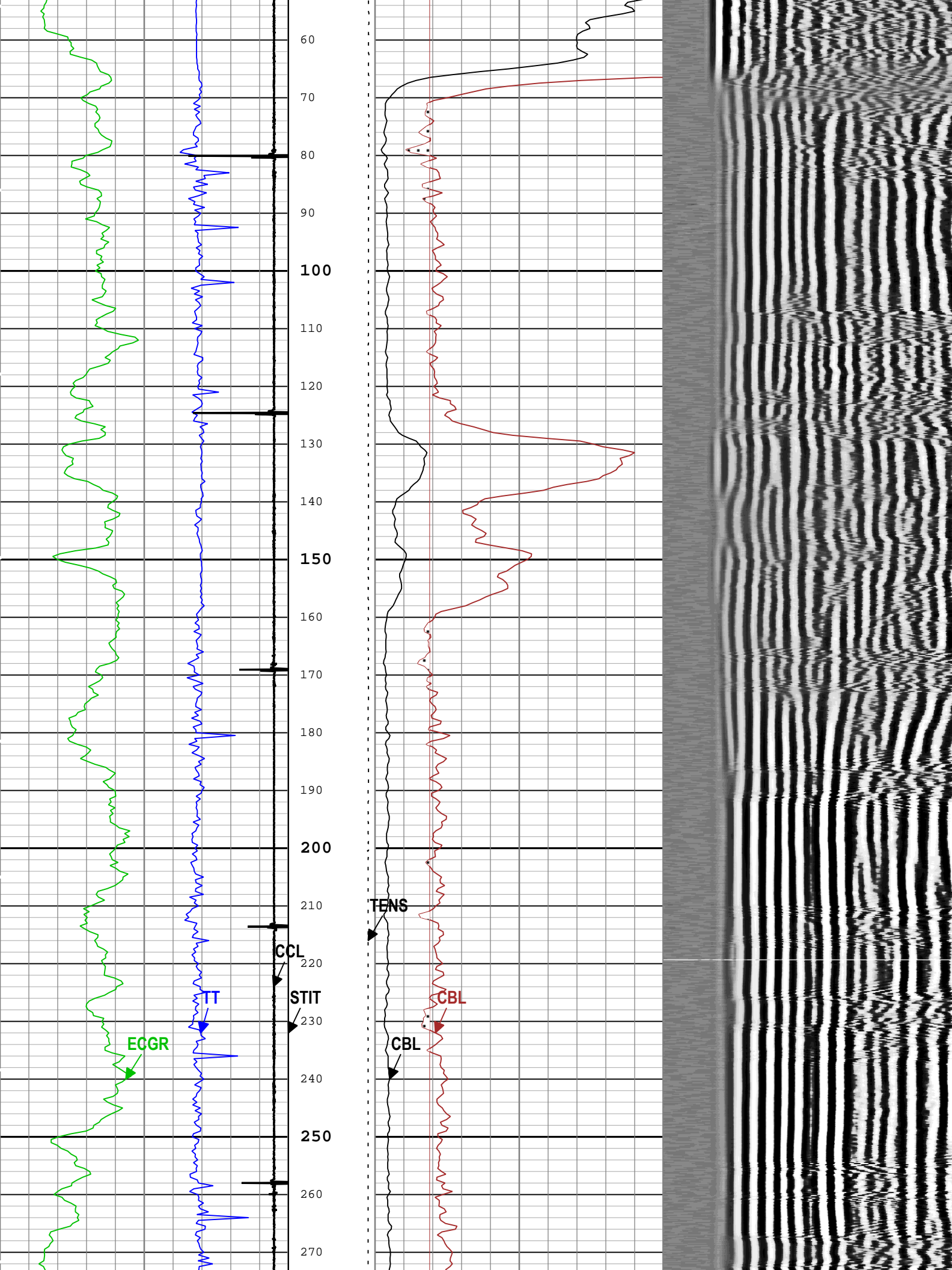
All depths are referenced to toolstring zero

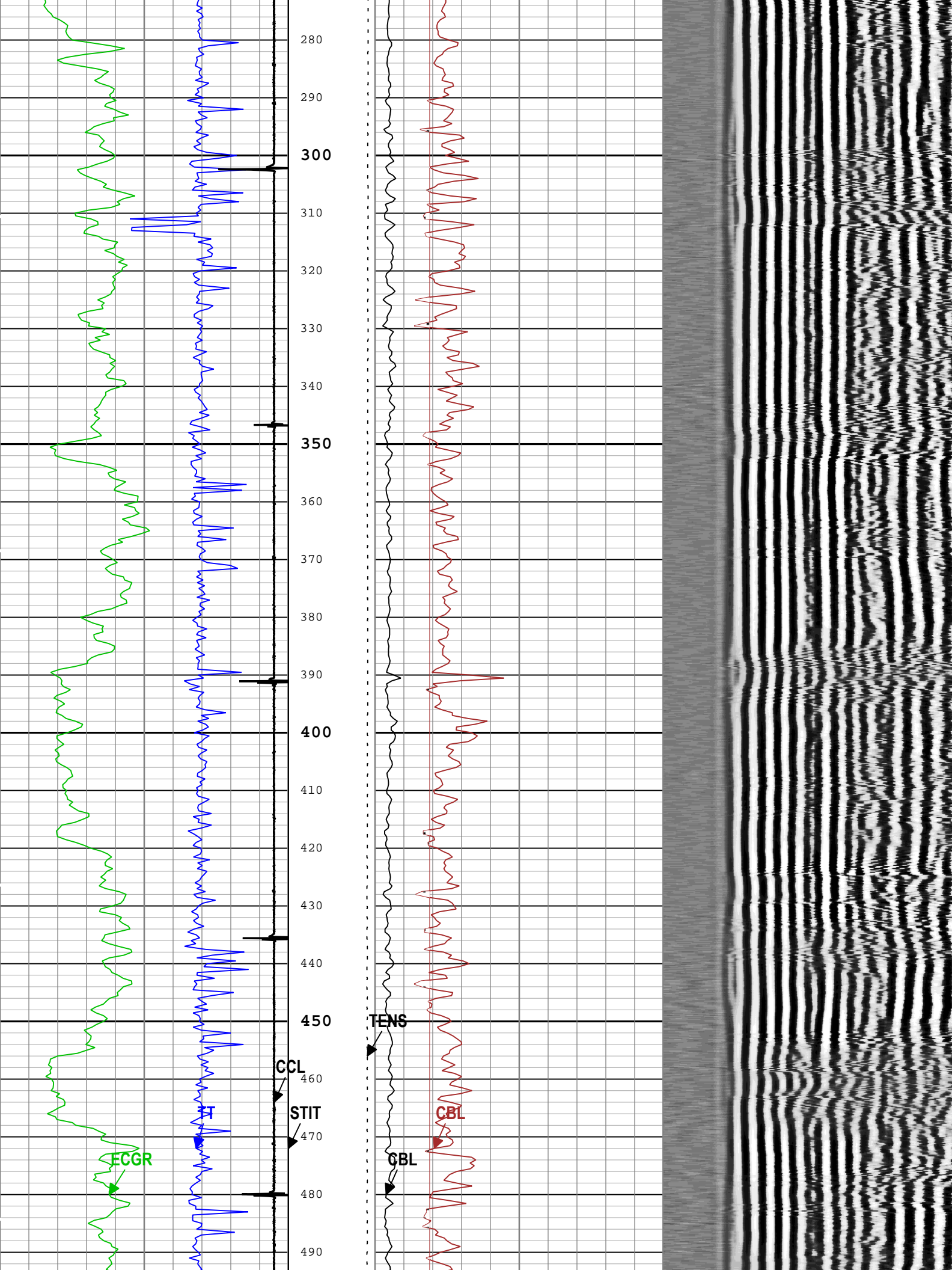
Log	Company:University of Utah Well:78-32 ONE: Main[3]:Up:S005
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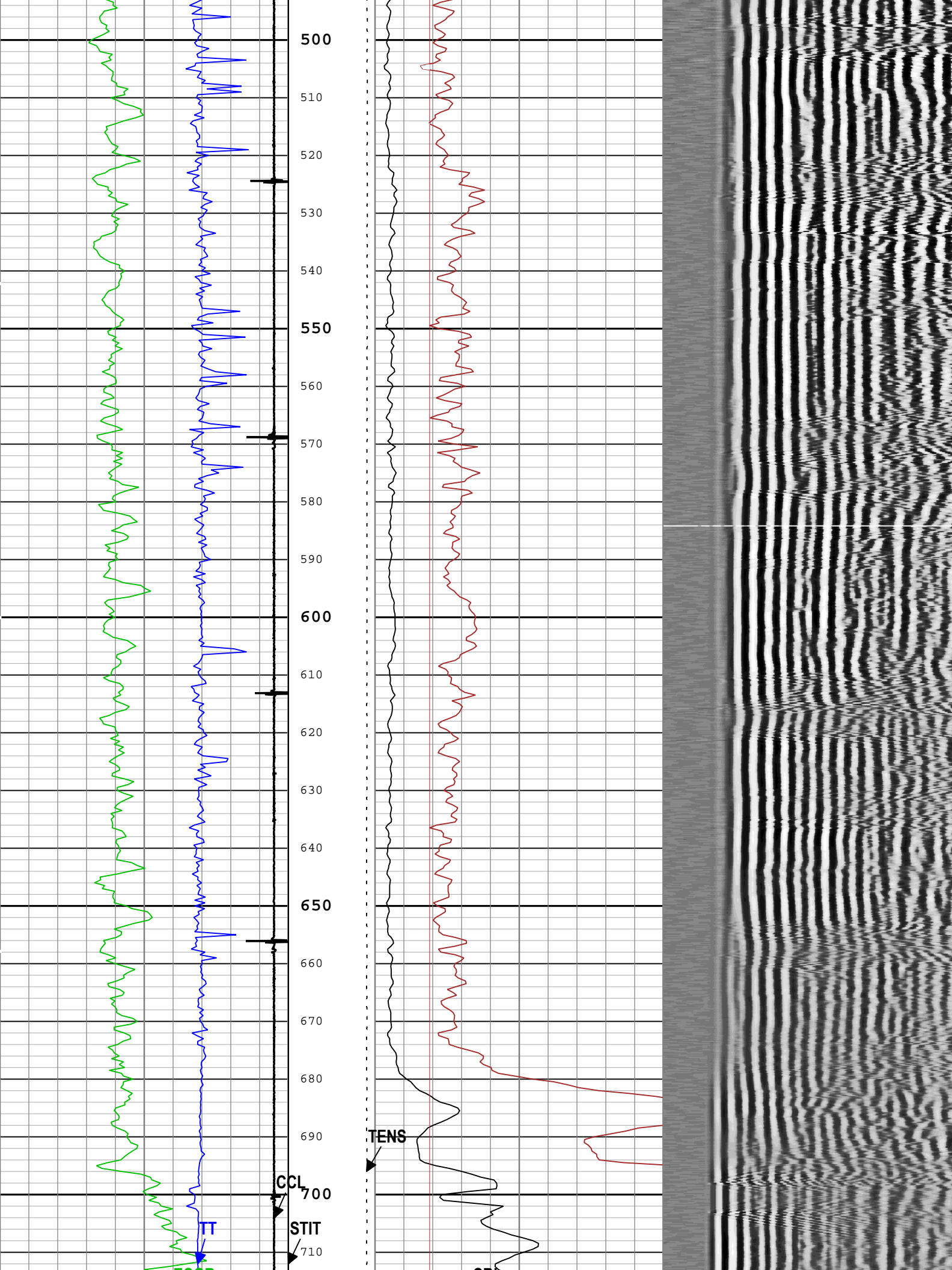
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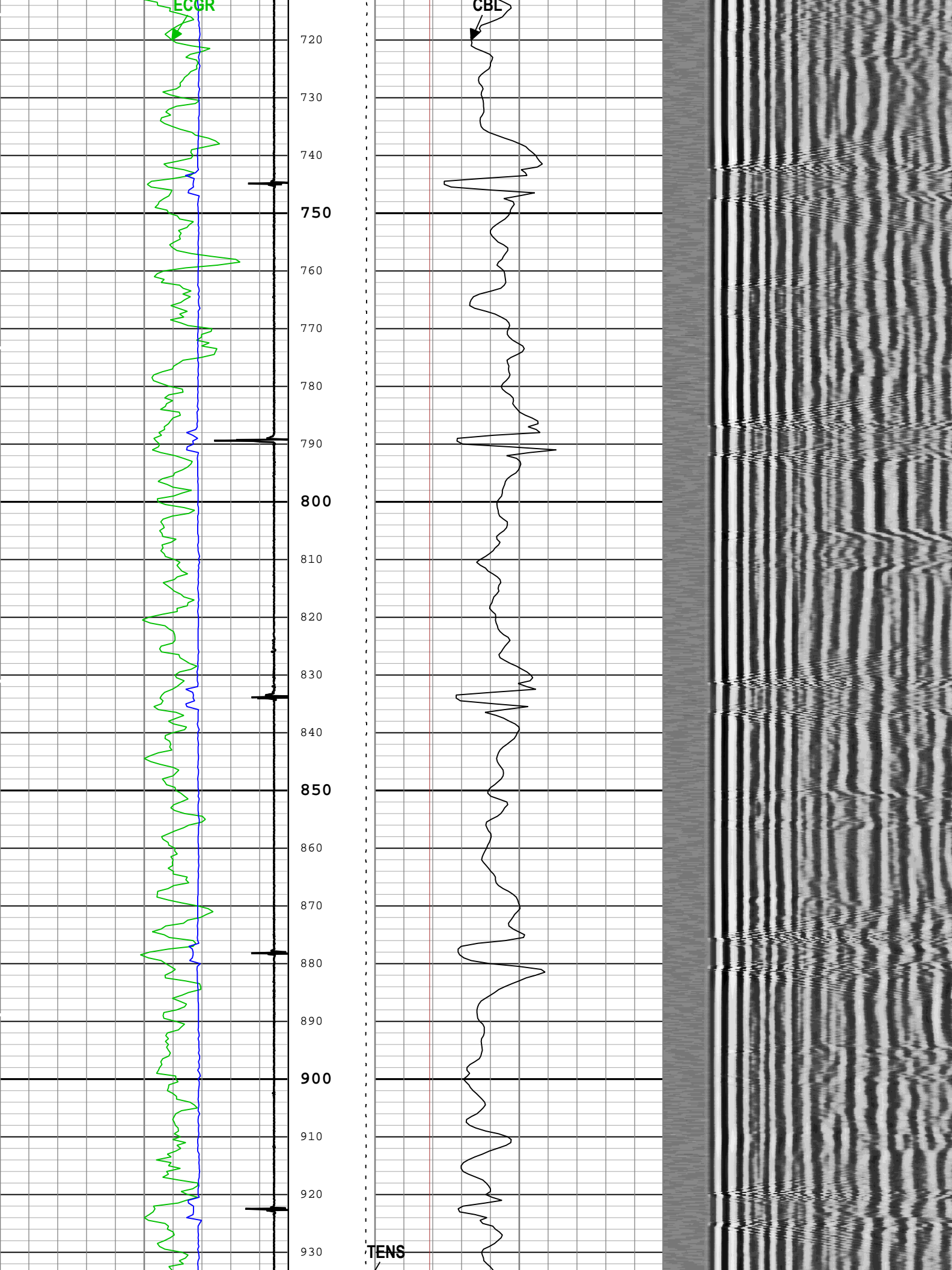
TIME_1900 - Time Marked every 60.00 (s)

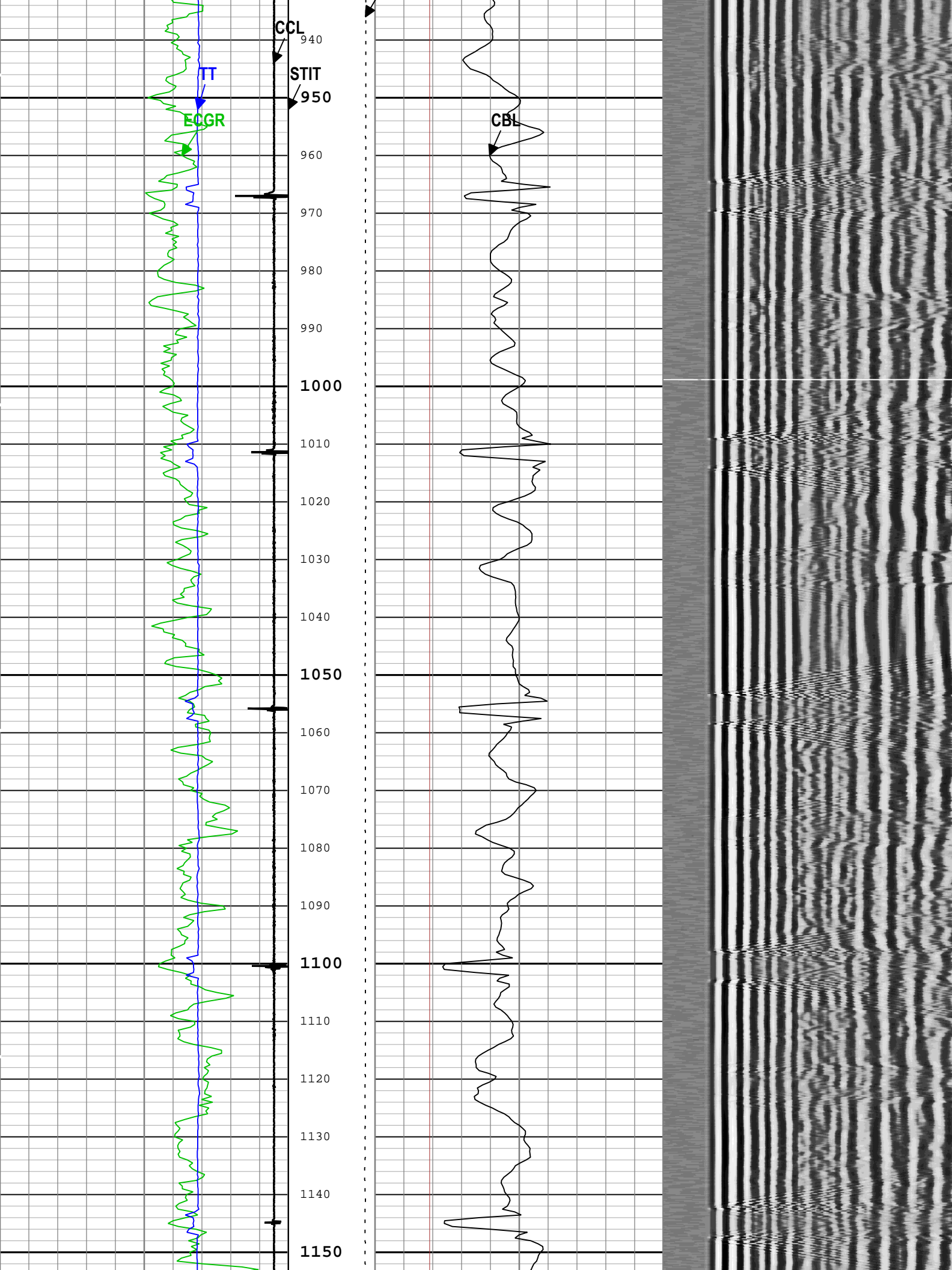


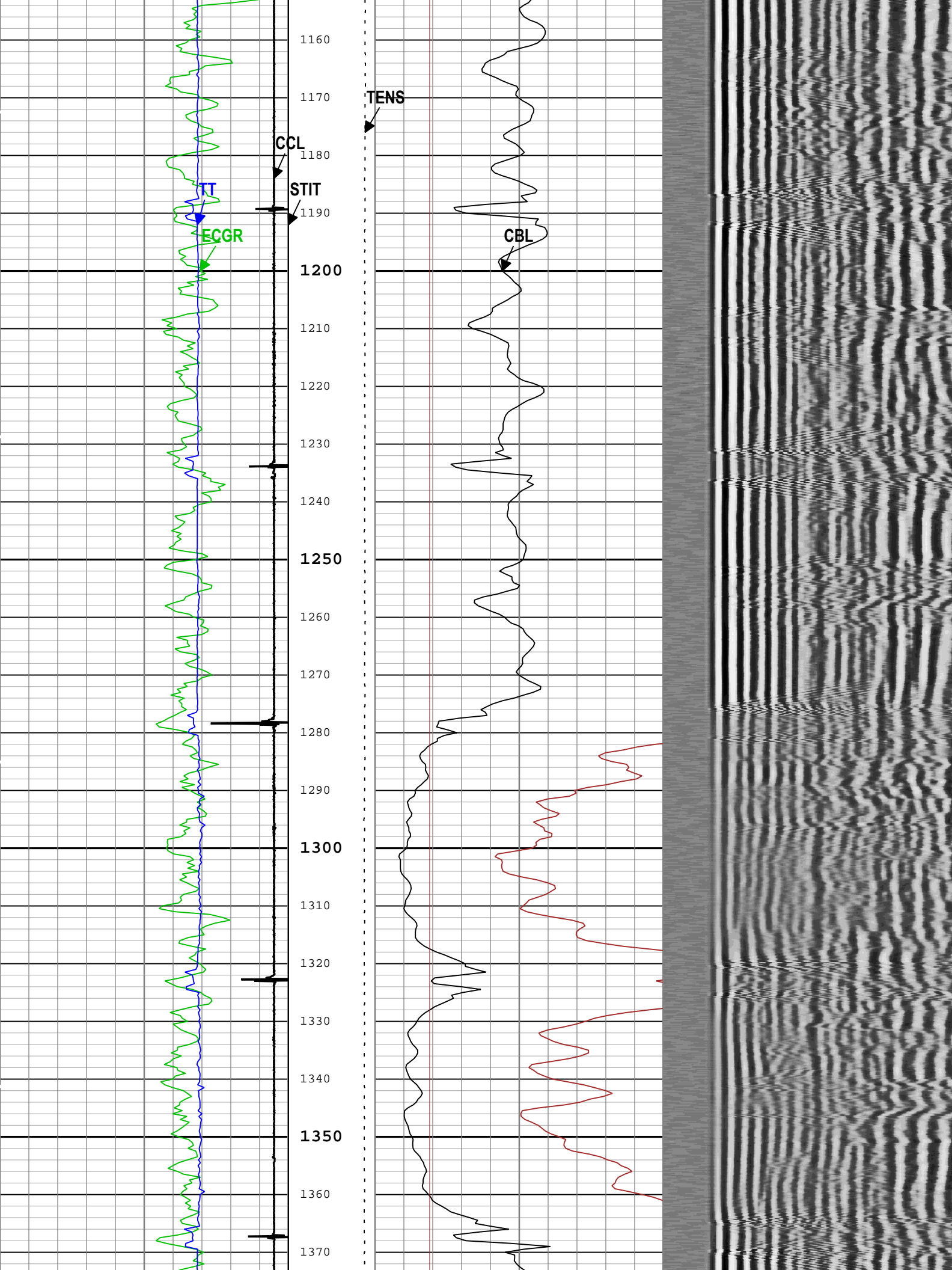


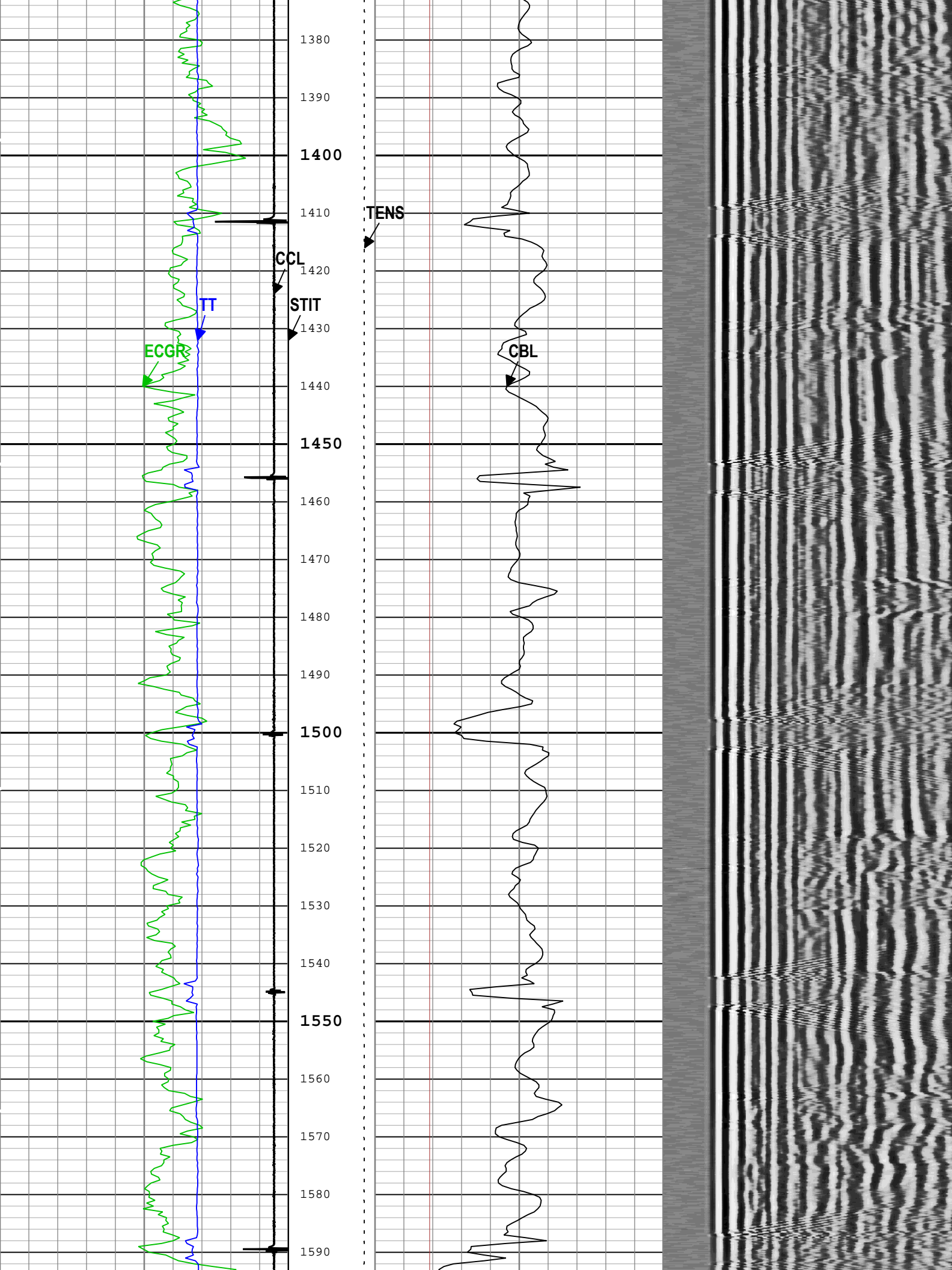


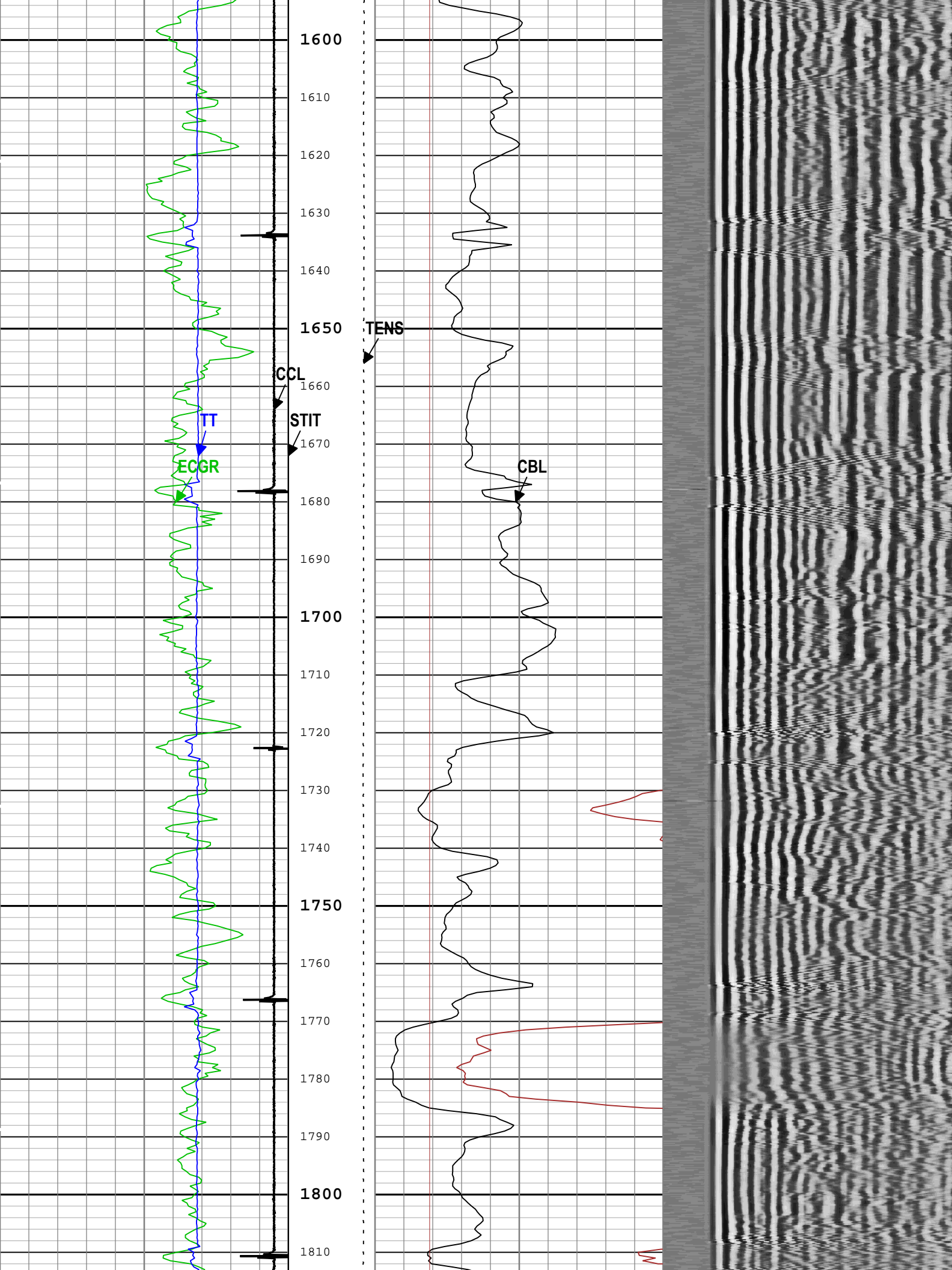


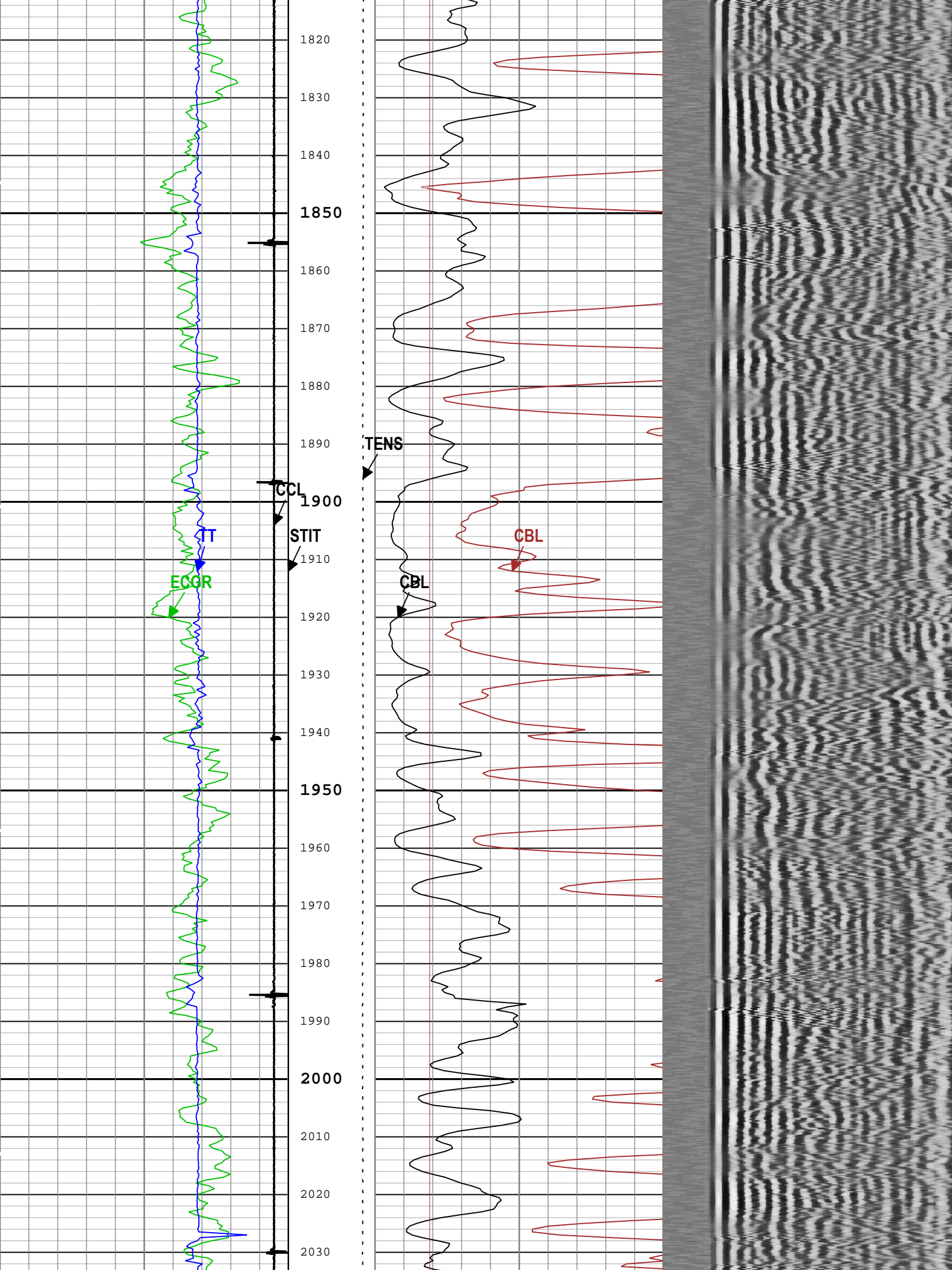


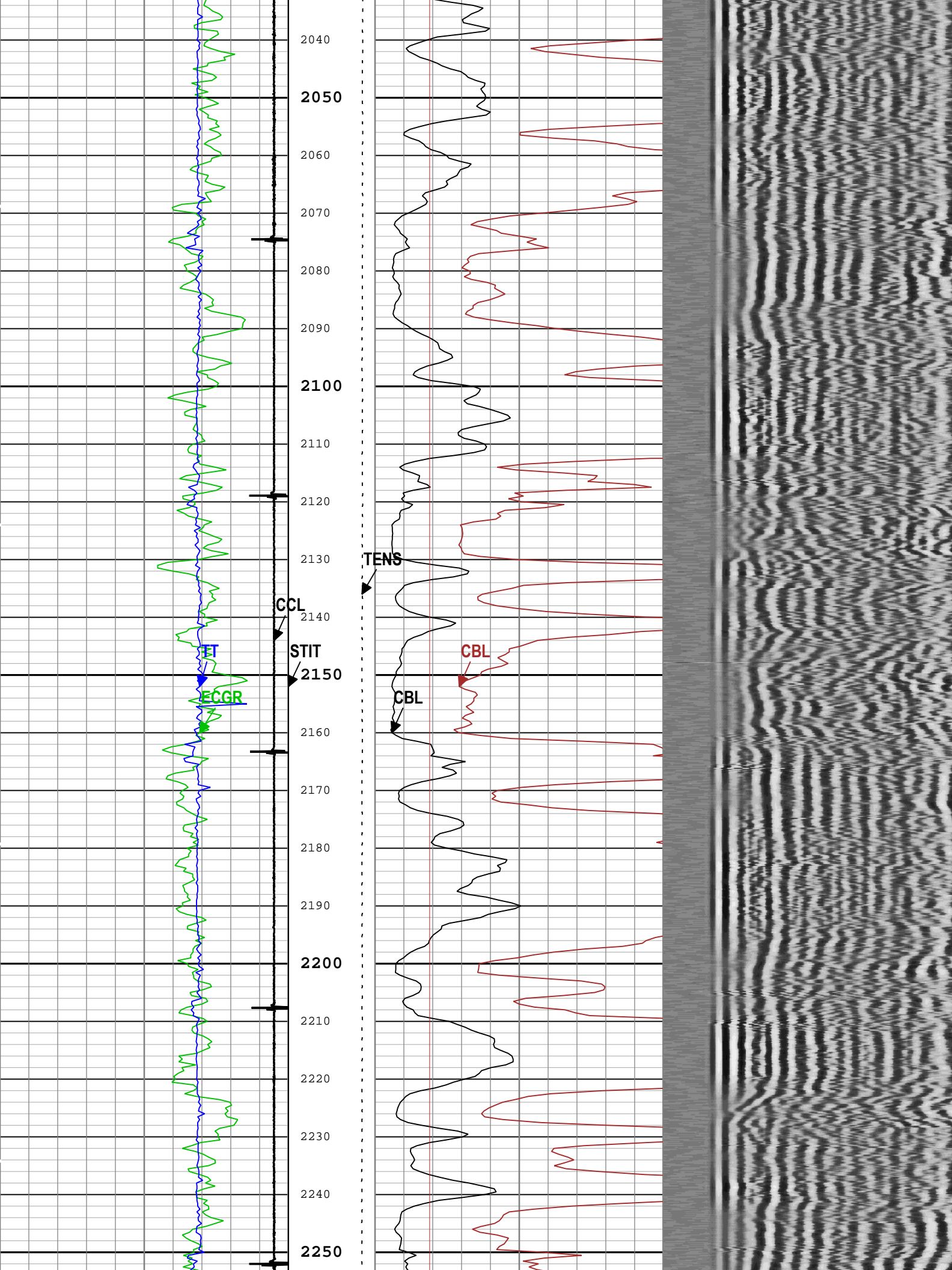


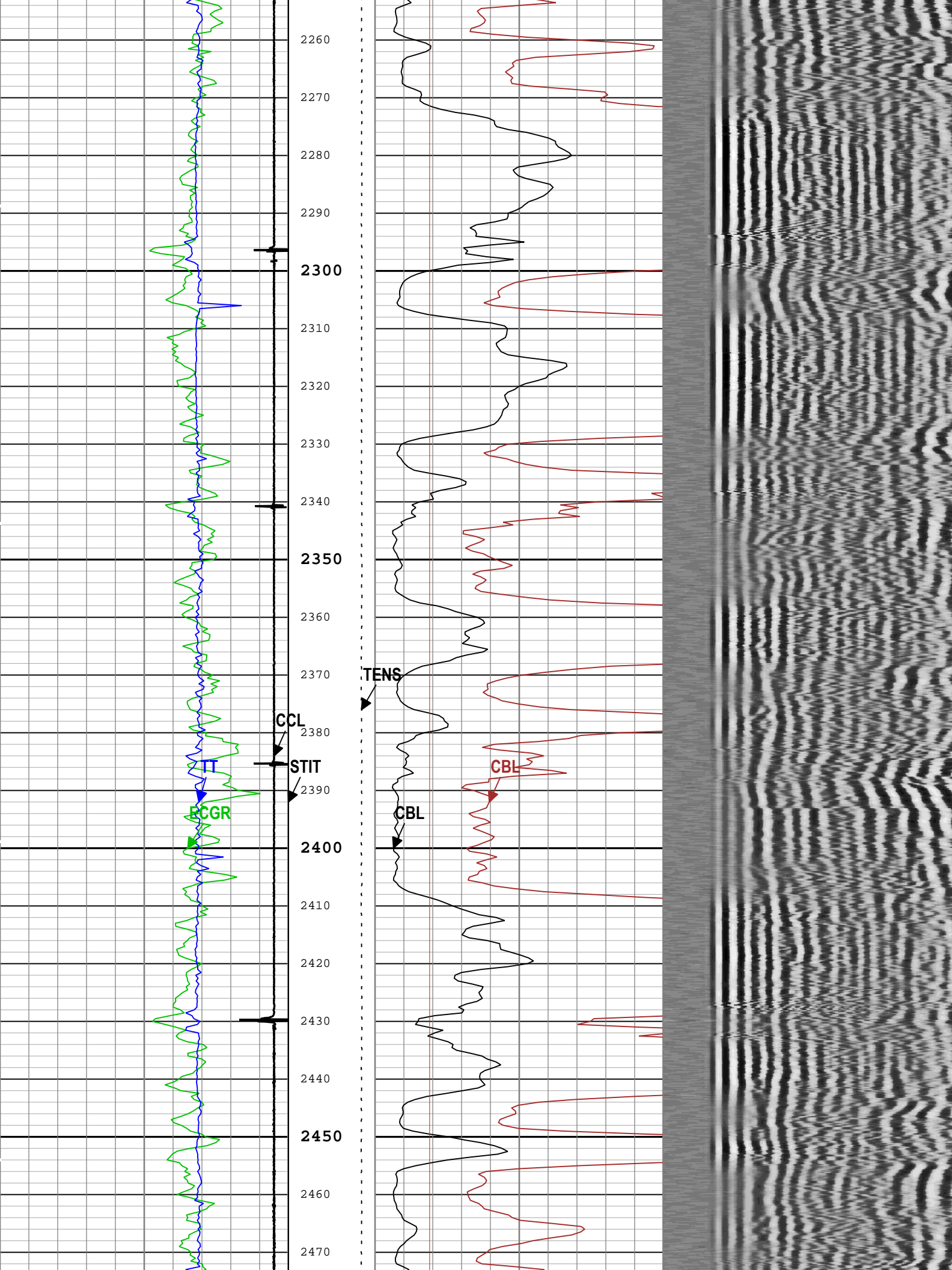


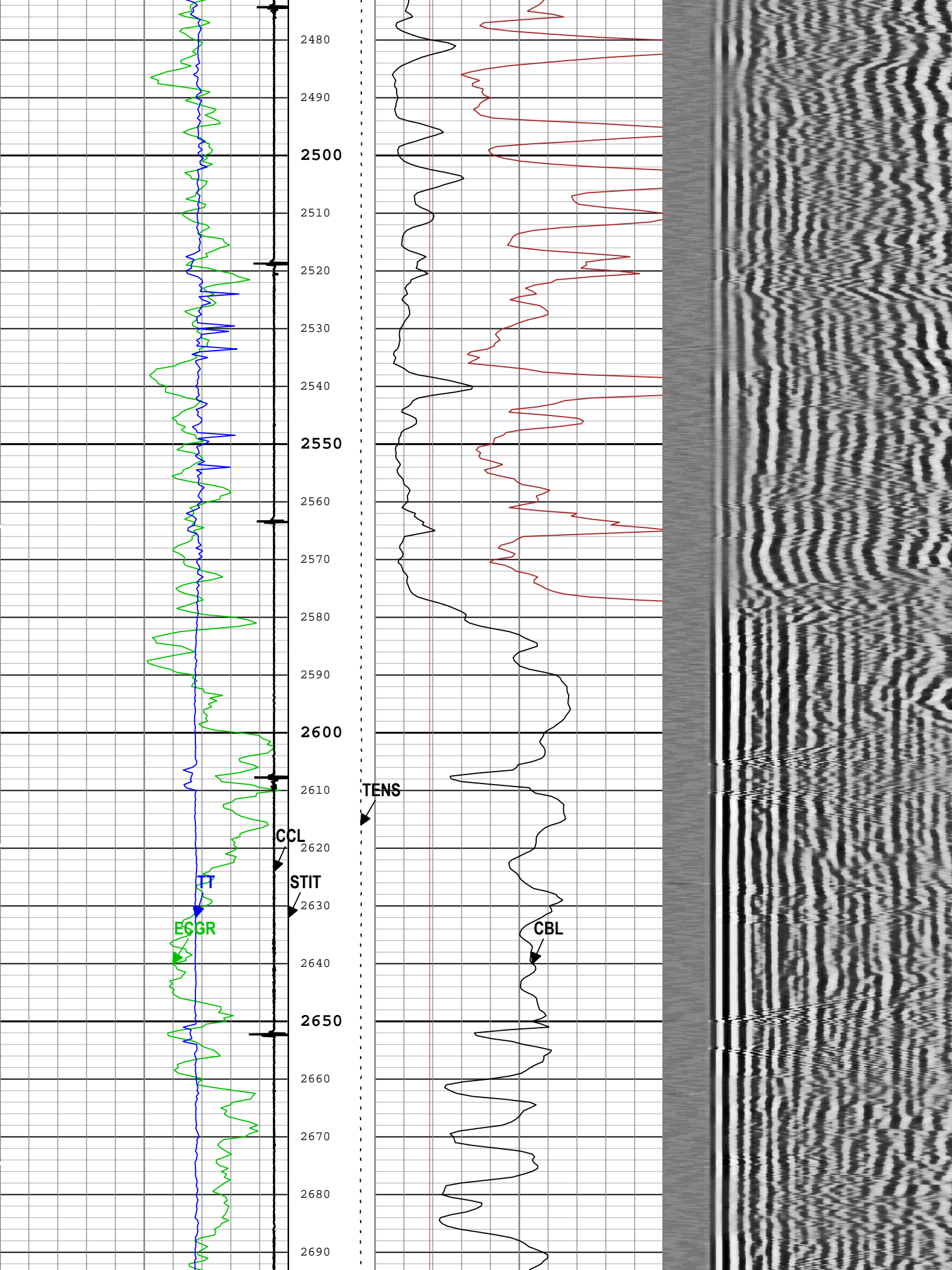


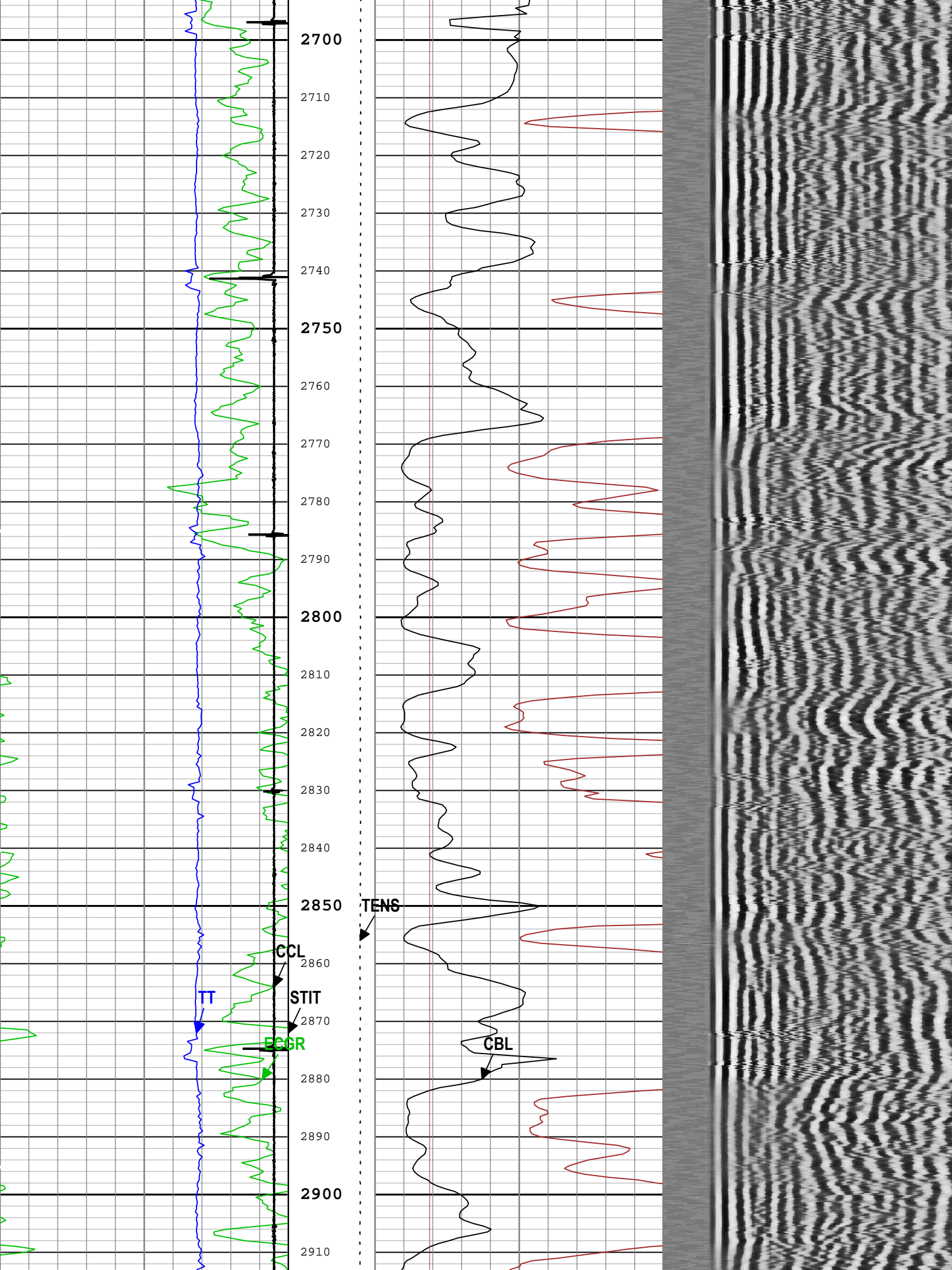


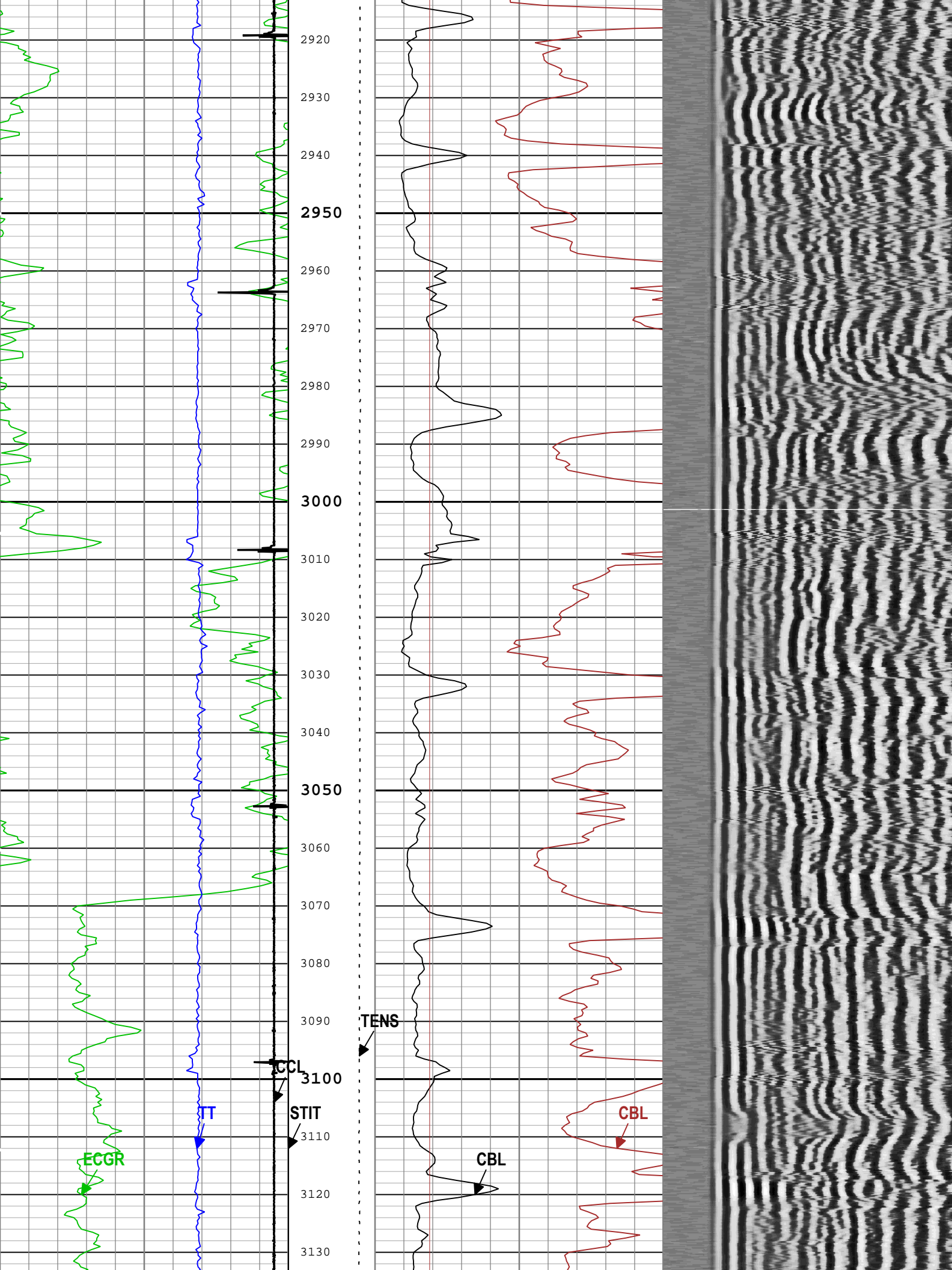


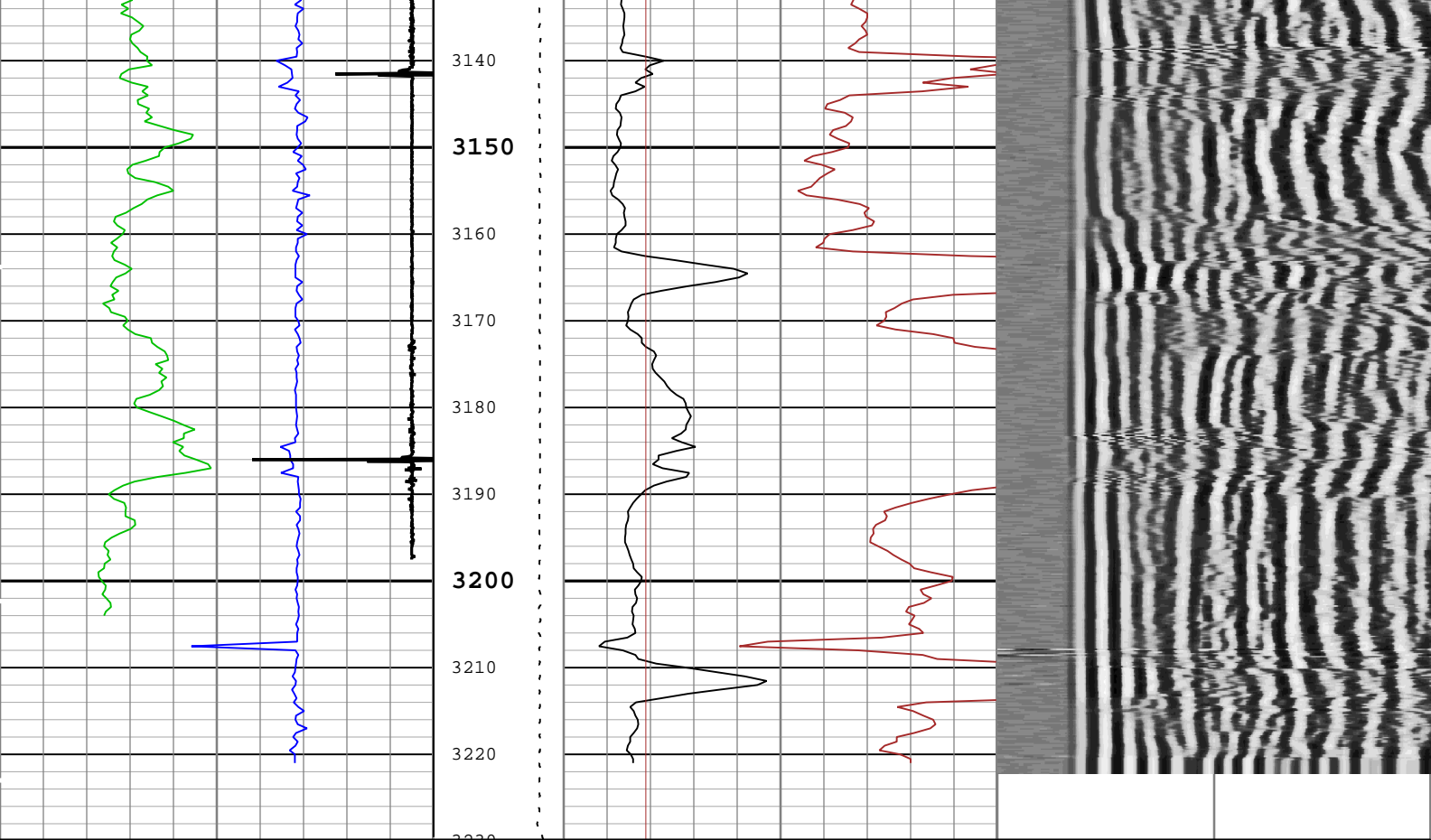












Gamma Ray (ECGR) SGT-N 0 gAPI 150	Stuck Tool Indicator, Total (STIT) 0 ft 50	CBL Amplitude (CBL) DSLT-H 0 mV 50	Min Amplitude Max
Transit Time for CBL (TT) DSLT-H 400 us 200	Cable Tension (TENS) 10000 lbf 0	CBL Amplitude (CBL) DSLT-H 0 mV 10	Variable Density Log (VDL) DSLT-H 200 us 1200
Casing Collar Locator Amplitude (CCL) CAL-YA -19 1	Cable Drag Tool_Tot. Drag	Good Bond (GOBO) 0 mV 10	
	BIEP - Bond Index Event Pips DSLT-H	GoodBond from CBL to GOBO	

TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Apr-2019 13:42:20

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.75	in
CBLG	CBL Gate Width	DSL-T-H	74	us
CBLO	Casing Bottom (Logger)	WLSESSION	3272	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSL-T-H	71	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA	1	
CDEN	Cement Density	SGT-N	2	g/cm3

DETE	Delta-T Detection	DSL-T-H	E1	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSL-T-H	1.89	mV
MAHTR	Manual High Threshold Reference for first arrival detection	DSL-T-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSL-T-H	13.94	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSL-T-H	4.75	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSL-T-H	100	
MSA	Minimum Sonic Amplitude	DSL-T-H	0.76	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSL-T-H	0.76	mV
NMSG	Near Minimum Sliding Gate	DSL-T-H	229	us
SGAD	Sliding Gate Status	DSL-T-H	Off	
SGDT	Sliding Gate Delta-T	DSL-T-H	57	us/ft
TD	Total Measured Depth	Borehole	3228	ft

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
MODE	DSL-T Acquisition Mode	DSL-T-H	CBL	
RATE	DSL-T Firing Rate	DSL-T-H	15 Hz	
DTFS	DSL-T Telemetry Frame Size	DSL-T-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
SGAI	Selectable Acquisition Gain	DSL-T-H	x1	

ONE

2 Inch Main Pass

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Main[3]:Up	Up	15.94 ft	3229.82 ft	17-Apr-2019 11:46:27 AM	17-Apr-2019 12:50:12 PM	ON	0.91 ft	No

All depths are referenced to toolstring zero

Log

Company: University of Utah Well: 78-32

ONE: Main[3]:Up:S005

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Apr-2019 13:42:37

TIME_1900 - Time Marked every 60.00 (s)

└─ BIEP - Bond Index Event Pips DSL-T-H

Stuck Tool Indicator, Total (STIT)

0 ft 50

Cable Tension (TENS)

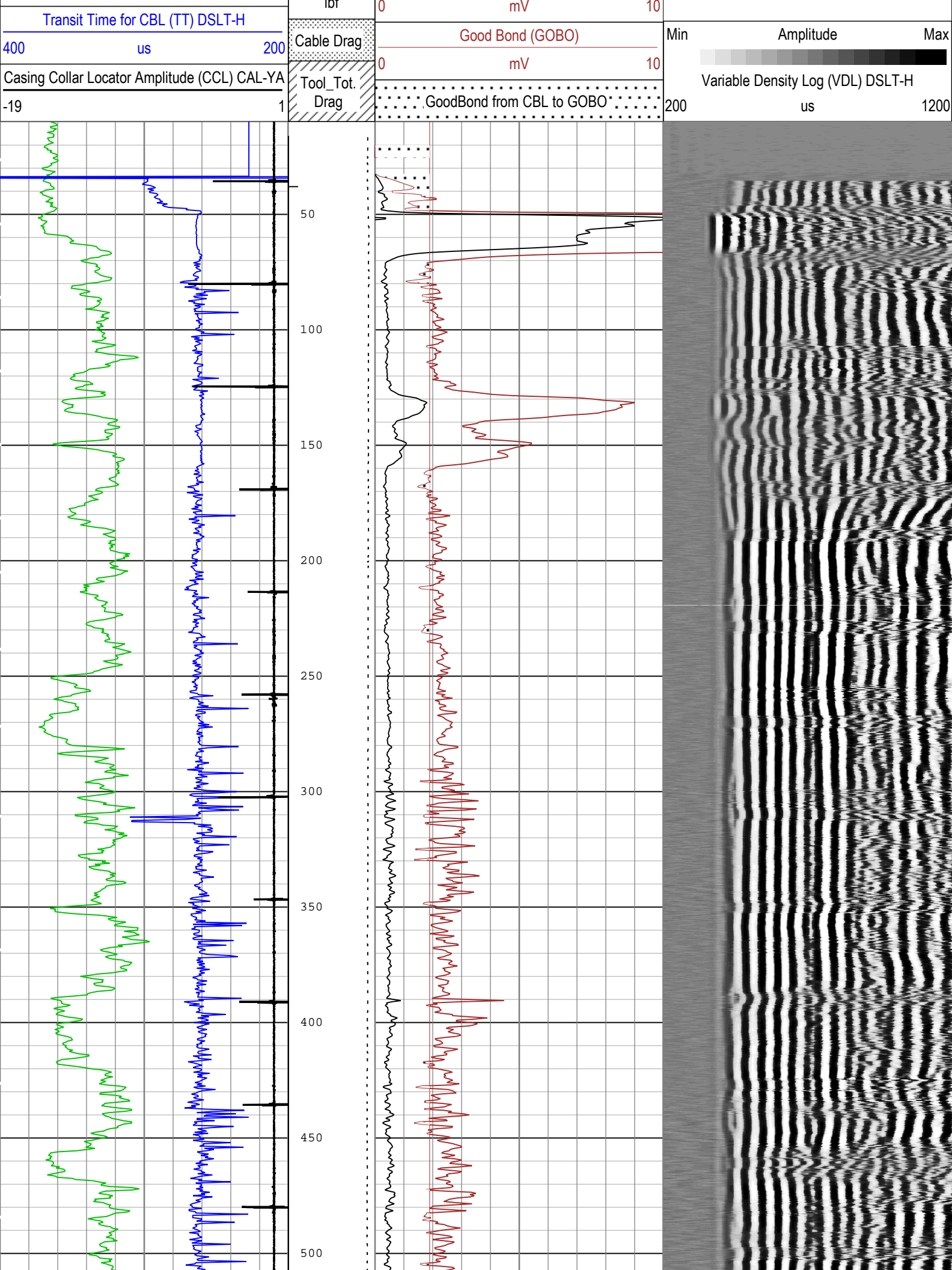
CBL Amplitude (CBL) DSL-T-H	0	mV	50
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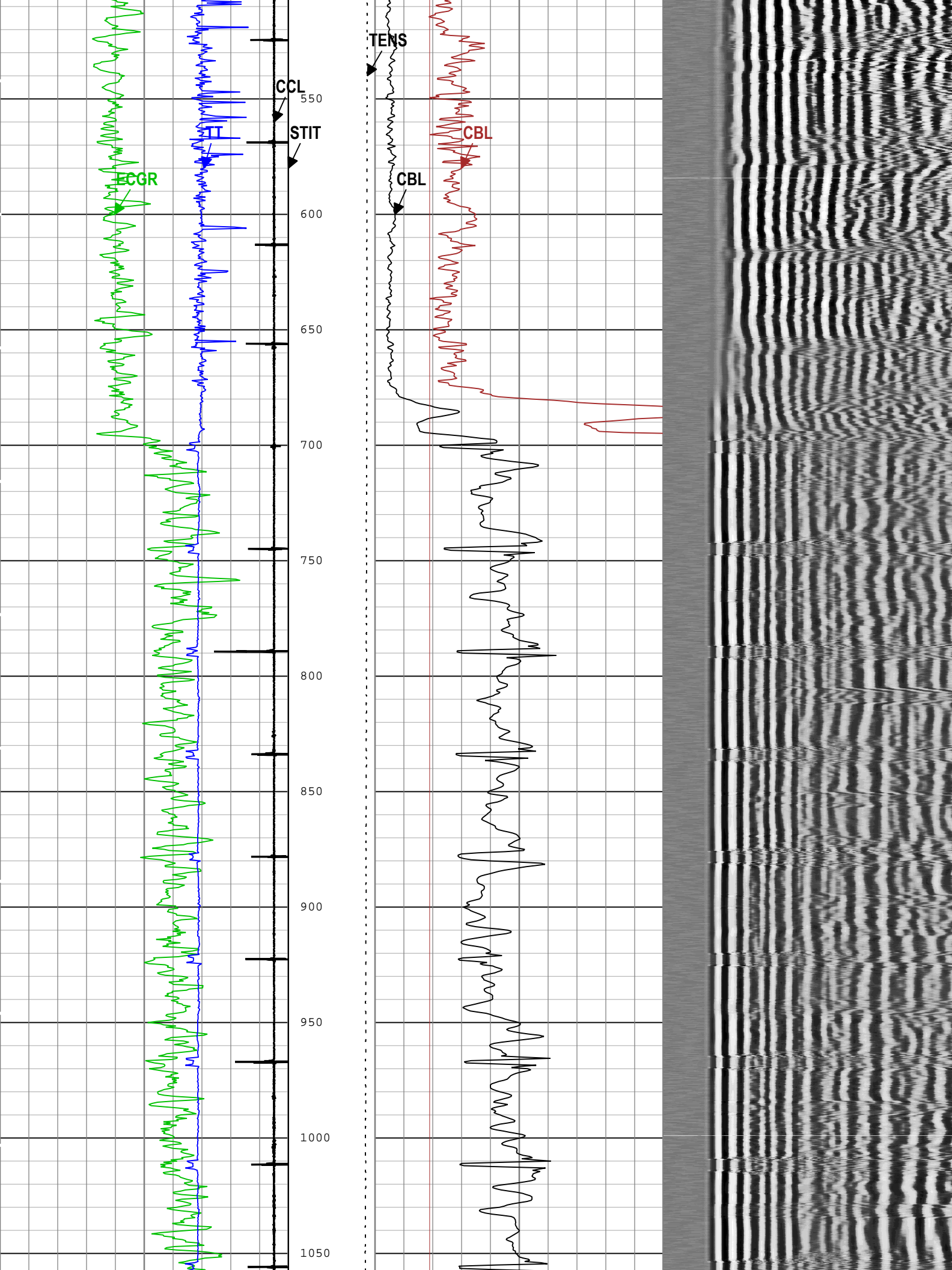
Gamma Ray (ECGR) SGT-N

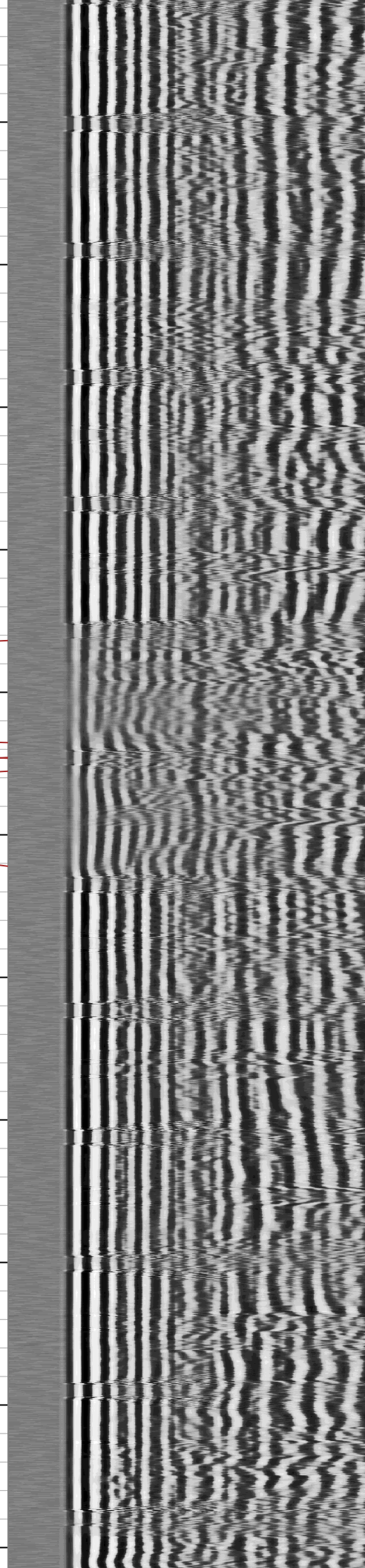
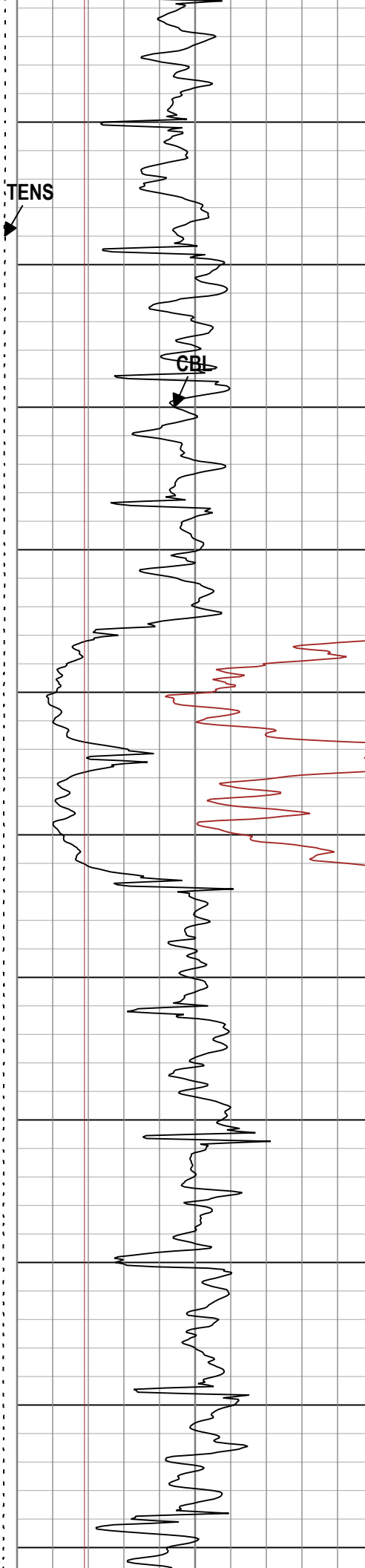
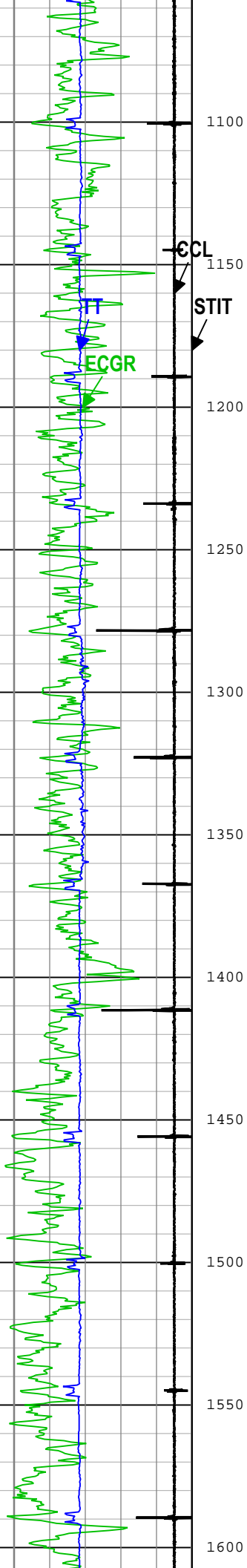
0 gAPI 150

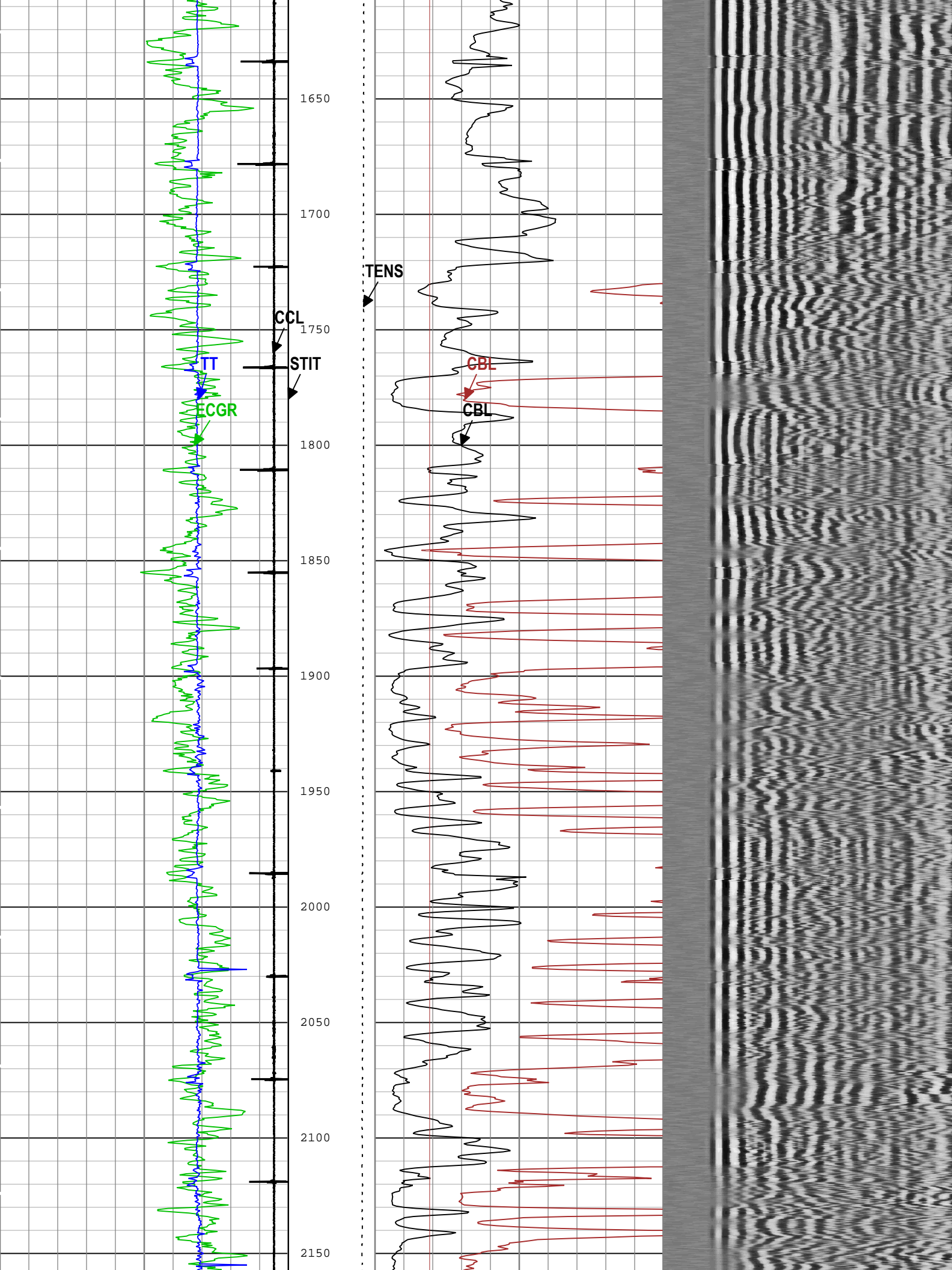
10000	0
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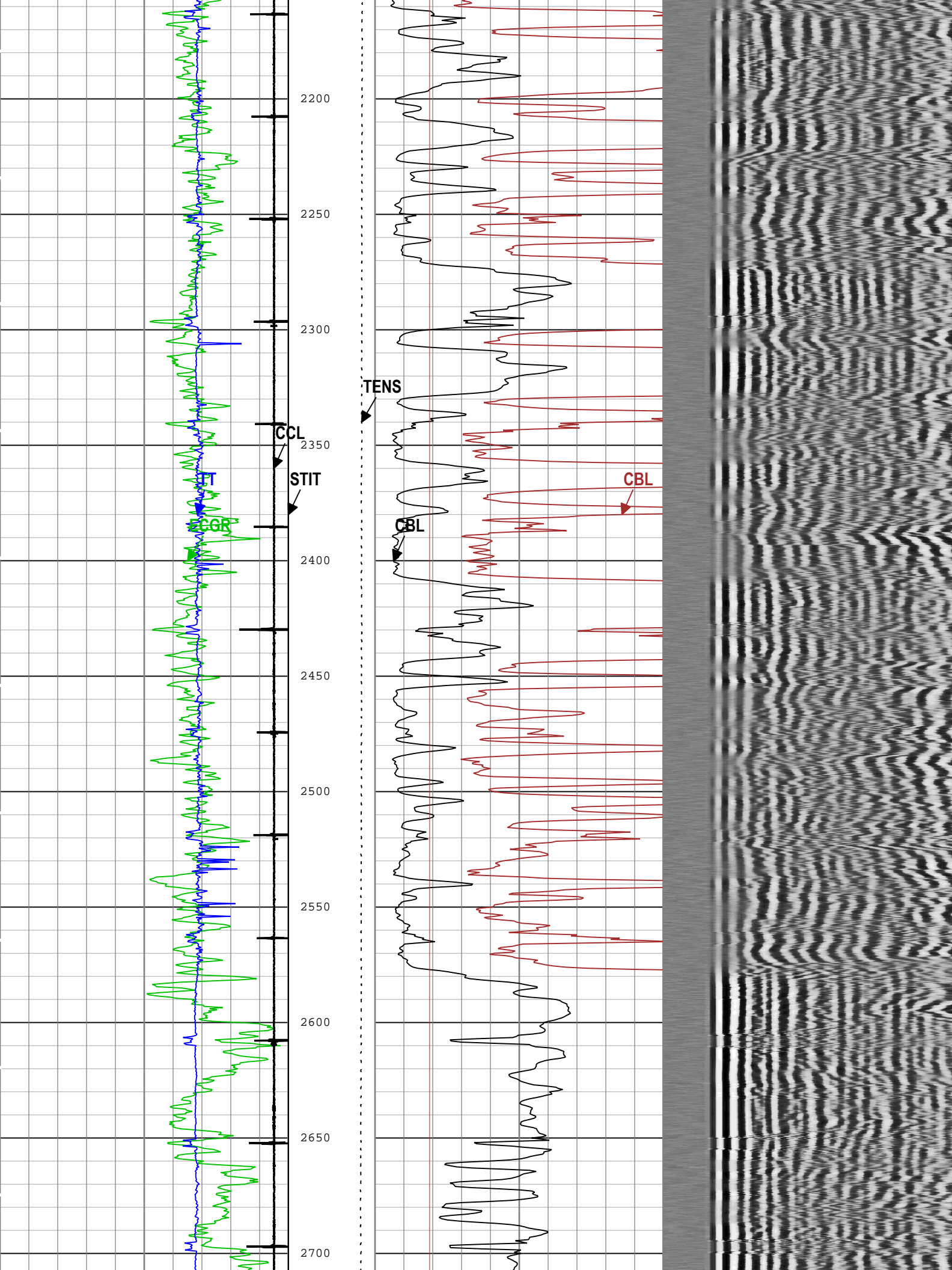
CBL Amplitude (CBL) DSL-T-H

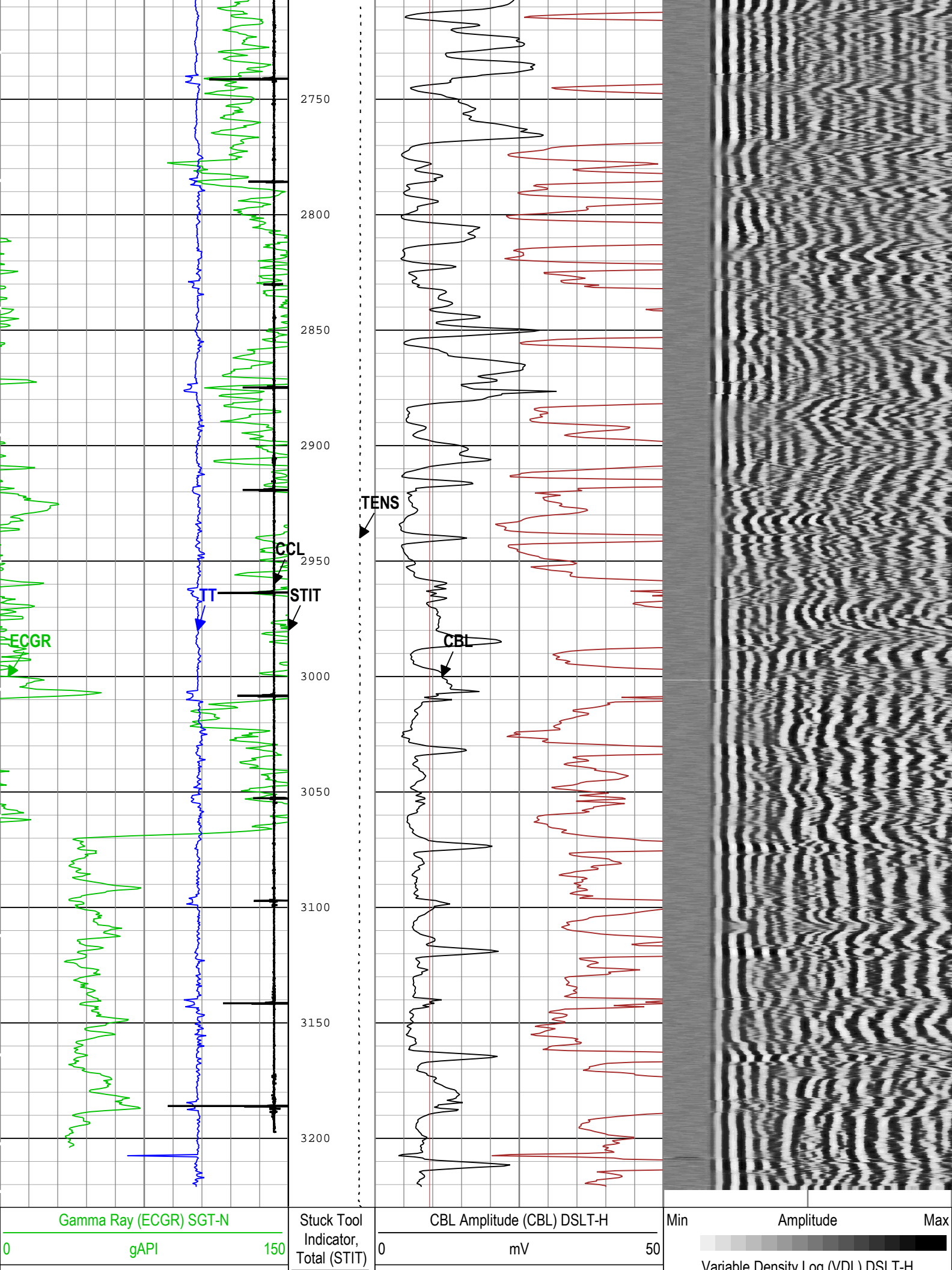


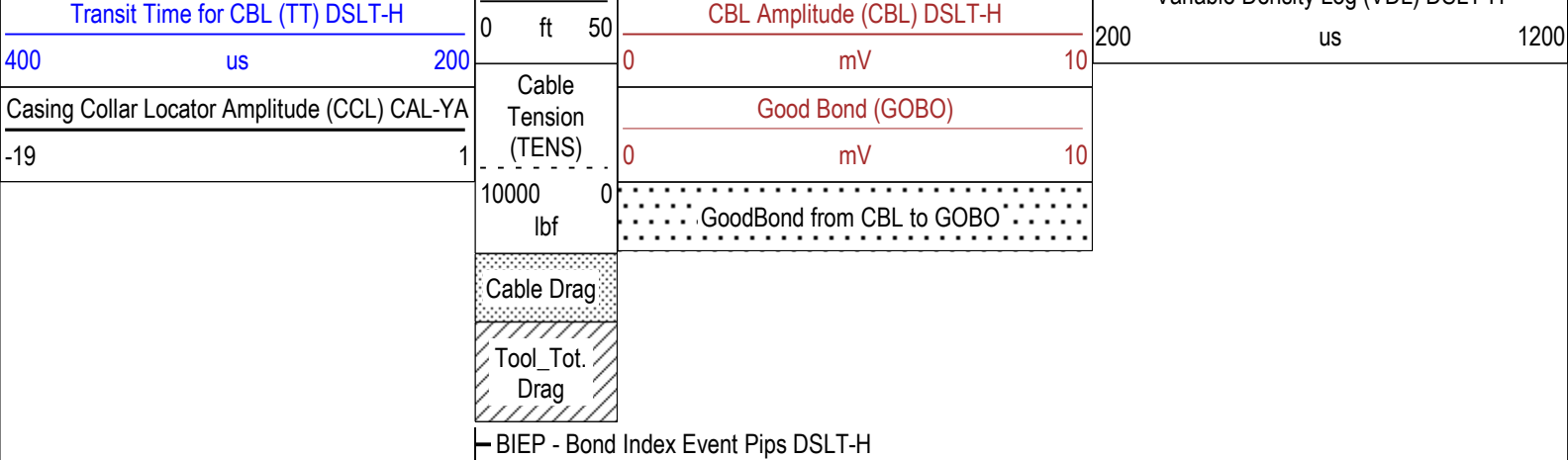












TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Apr-2019 13:42:37

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BAR(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.75	in
CBLG	CBL Gate Width	DSLTH	74	us
CBLO	Casing Bottom (Logger)	WLSESSION	3272	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	71	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA	1	
CDEN	Cement Density	SGT-N	2	g/cm3
DETE	Delta-T Detection	DSLTH	E1	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLTH	1.89	mV
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLTH	13.94	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLTH	4.75	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLTH	100	
MSA	Minimum Sonic Amplitude	DSLTH	0.76	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLTH	0.76	mV
NMSG	Near Minimum Sliding Gate	DSLTH	229	us
SGAD	Sliding Gate Status	DSLTH	Off	
SGDT	Sliding Gate Delta-T	DSLTH	57	us/ft
TD	Total Measured Depth	Borehole	3228	ft

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
MODE	DSLTH Acquisition Mode	DSLTH	CBL	
RATE	DSLTH Firing Rate	DSLTH	15 Hz	
DTFS	DSLTH Telemetry Frame Size	DSLTH	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
SGAI	Selectable Acquisition Gain	DSLTH	x1	

5 Inch Repeat Analysis

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Repeat[2]:Up	Up	2979.31 ft	3234.88 ft	17-Apr-2019 11:36:57 AM	17-Apr-2019 11:43:06 AM	ON	1.08 ft	No
ONE	Main[3]:Up	Up	15.94 ft	3229.82 ft	17-Apr-2019 11:46:27 AM	17-Apr-2019 12:50:12 PM	ON	0.91 ft	No

All depths are referenced to toolstring zero

Log

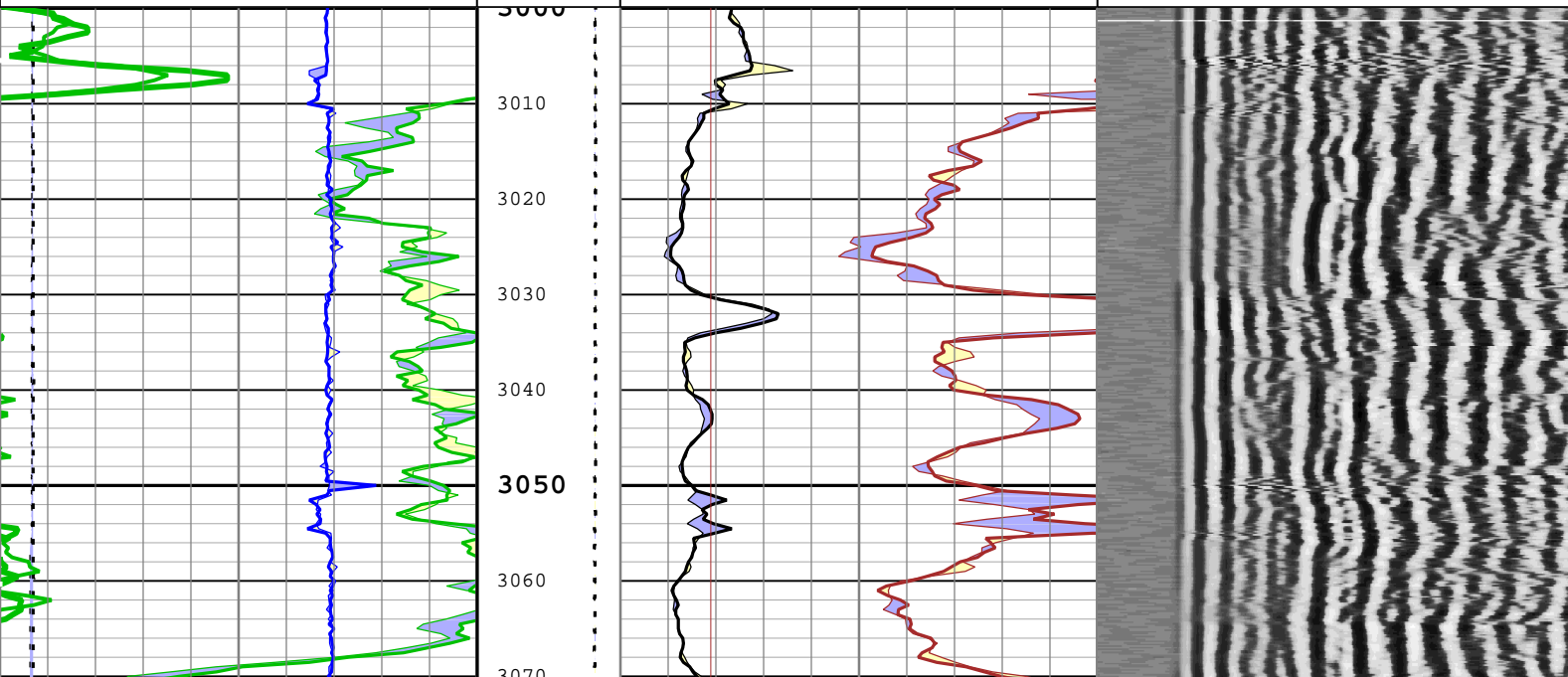
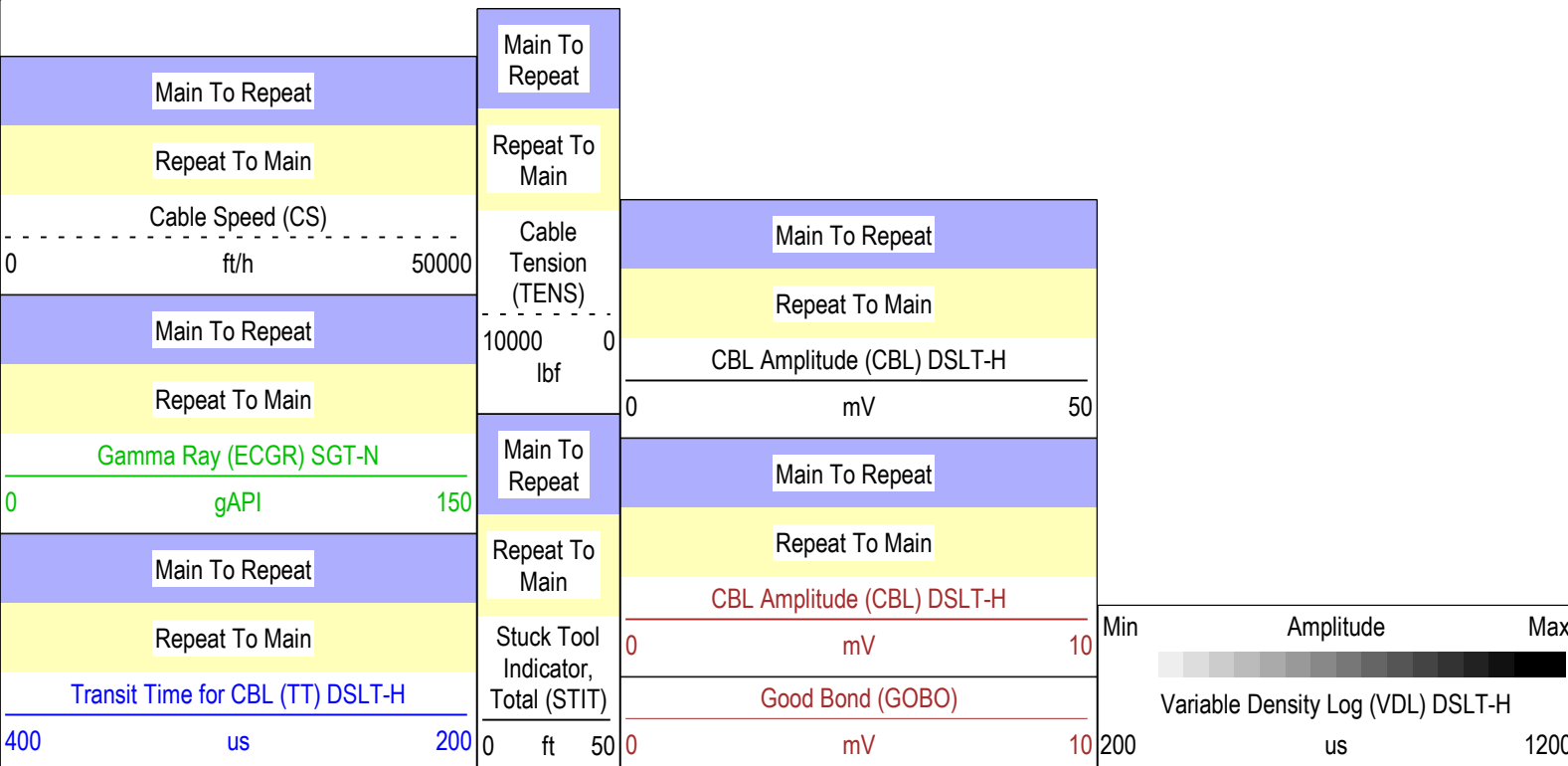
Company: University of Utah Well: 78-32

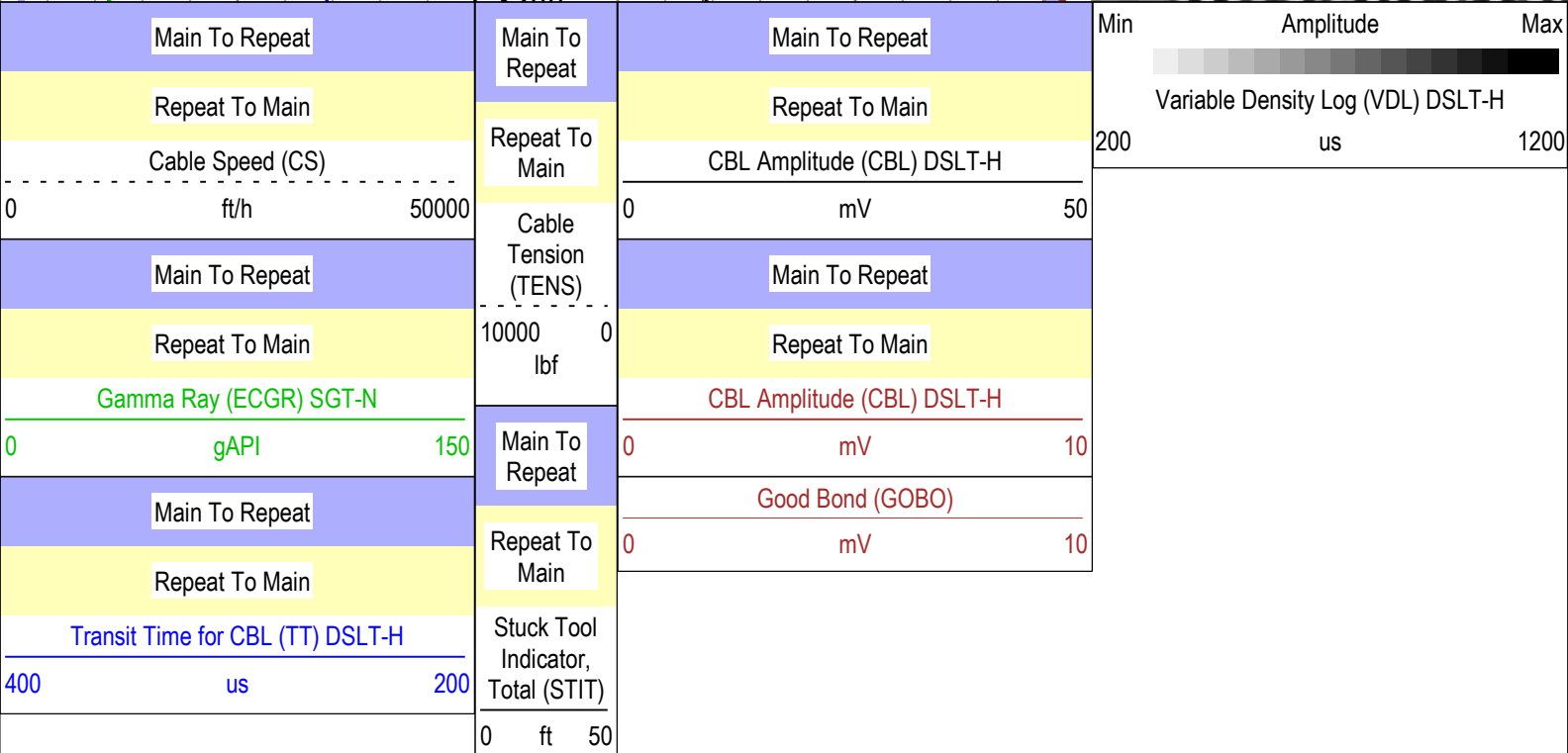
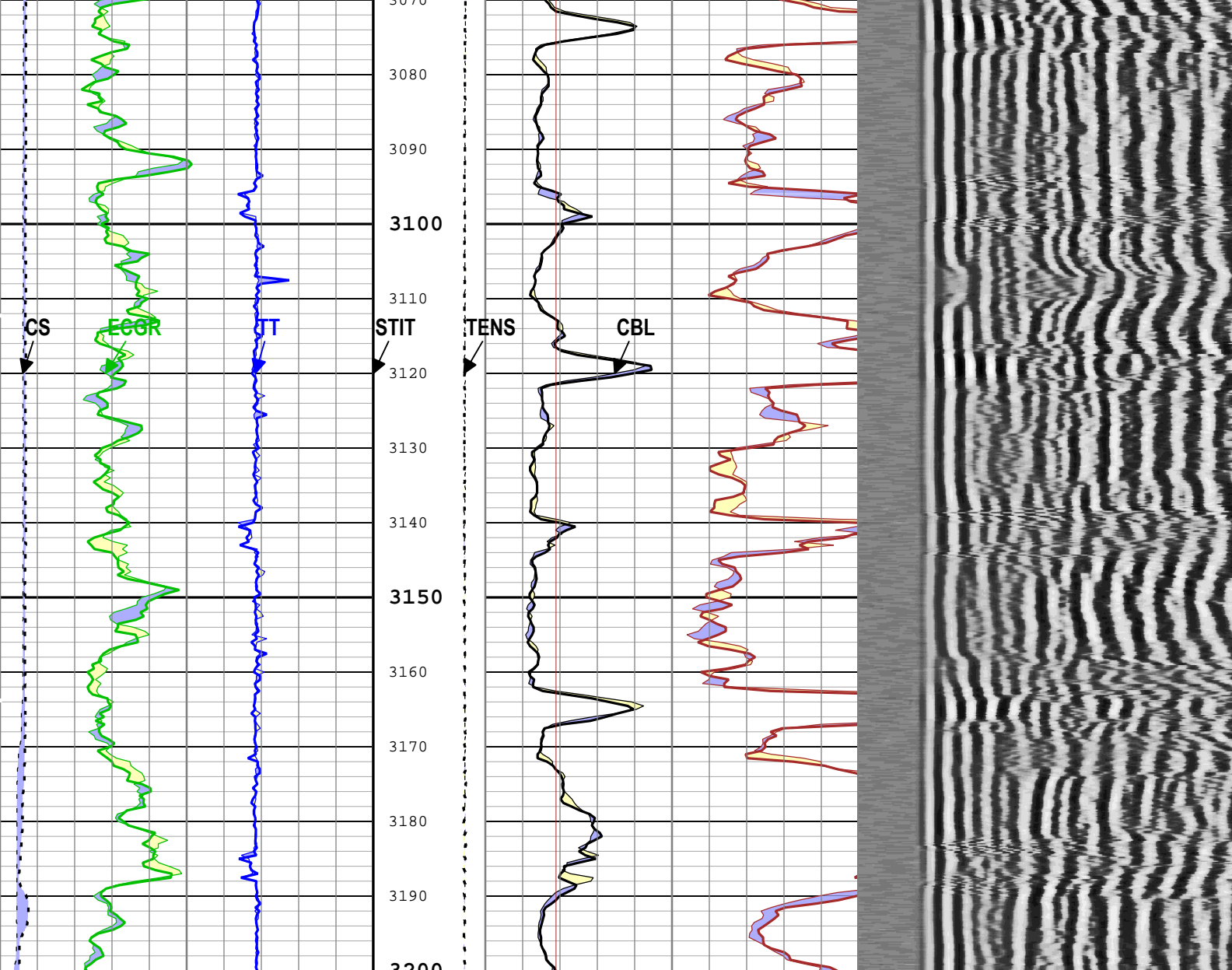
ONE: Main[3]:Up:S005

Description: CBL_VDL Format: Log (Sonic CBL with VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Apr-2019 13:42:49

— BIEP - Bond Index Event Pips DSLT-H

TIME_1900 - Time Marked every 60.00 (s)





TIME_1900 - Time Marked every 60.00 (s)

— BIEP - Bond Index Event Pips DSLT-H

Company:	University of Utah	Schlumberger
Well:	78-32	
Field:	None	
County:	Beaver	
State:	Utah	

CBL VDL
Cement Evaluation
Gamma Ray - CCL Log