Western Wireline

60 Arm Caliper Log

Company	Southern California Gas Company
Well	Porter 26A
Field	Aliso Canyon
County	Los Angeles
State	California
Country	U.S.A.

Company Southern California Gas Company
Well Porter 26A
Field Aliso Canyon
County Los Angeles
State California Country U.S.A.

Location: API # : 04-037-21362-01

SEC 28 TWP 3N RGE 16W

Other Services

Permanent Datum	Ground Level	Elevation	2505 Feet
Log Measured From	12 feet		
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 2517
D.F.
G.L. 2505

Date	31August2016
Run Number	one
Depth Driller	
Depth Logger	7692
Bottom Logged Interval	7692
Top Log Interval	surface
Open Hole Size	
Type Fluid	
Density / Viscosity	
Max. Recorded Temp.	
Estimated Cement Top	
Time Well Ready	7;30
Time Logger on Bottom	9;30
Equipment Number	208
Location	Ventura California
Recorded By	Kai Haughton
Witnessed By	

Borehole Record / Tubing Record

Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	13 3/8		Surface	807ft
Prot. String	8 5/8	36# K-55	Surface	5842ft
Production String	8 5/8	36# N-80	5824ft	7796ft
Liner	4 1/2	11.5#	7687ft	8072ft

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Objective is to log 60MAC for casing inspection.
Log Correlated to Baker Huges 56 arm caliper log Dated 2 August 2016.
Casing Patches Found At 7669-7630, 2378-2531, 5040-5155 with an avarage I.D. of 6.85

Log Variables

DatabaseC:\ProgramData\Warrior\Data\southerncaliforniagasporter26a60mac.db
Dataset field/well/run1/pass3/_vars_

Top - Bottom

BOREID in	BOTTEMP degF	CASEID in	CASEOD in	CASETHCK in	MinAPIWall in	PERFS	RM_MEAS_R Ohm-m
7.875	120	7.825	8.625	0.4	0.35	0	0.1
RM_MEAS_T **degF**	**SRFTEMP** **degF**	**TDEPTH** **ft**					
75	80	0					

Variable Description

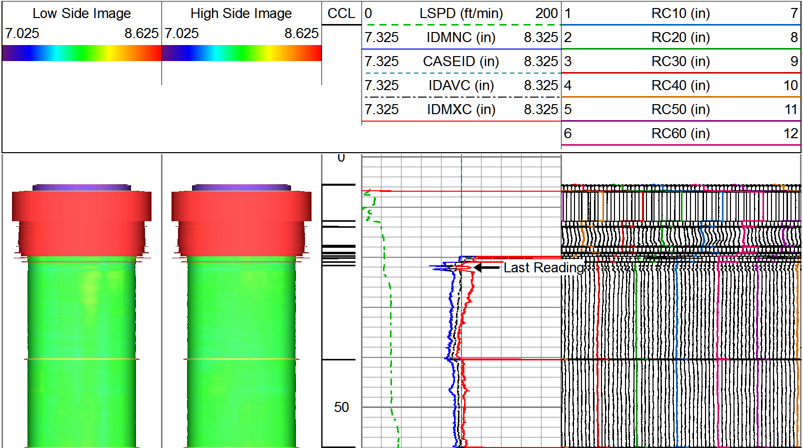
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEID : Casing I.D.
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
MinAPIWall : Minimum API Wall Thickness
PERFS : Perforation Flag
RM_MEAS_R : Mud Resistivity Measured
RM_MEAS_T : Mud Temperature Measured
SRFTEMP : Surface Temperature
TDEPTH : Total Depth

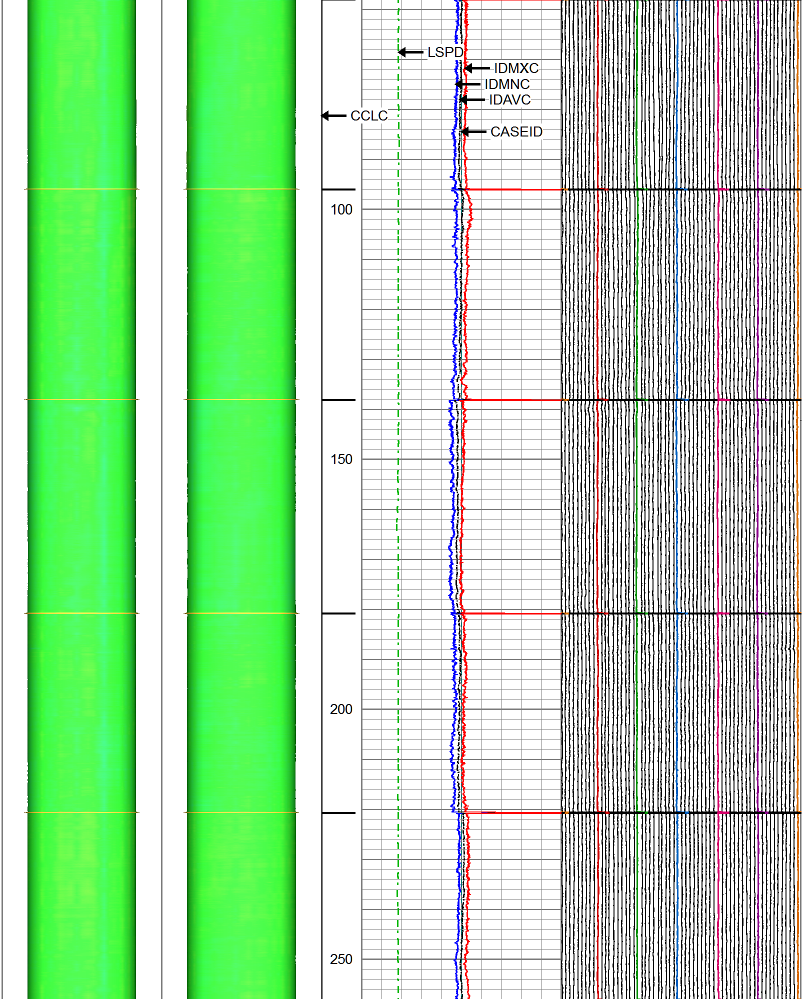
Western Wireline

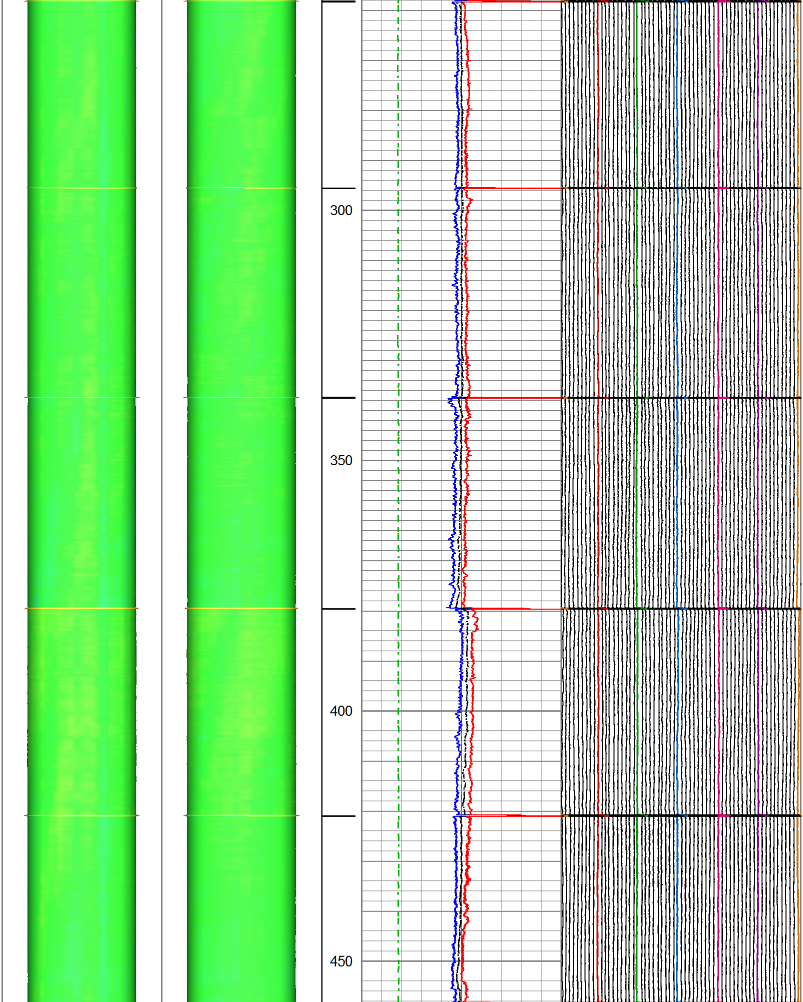
60 Arm Caliper Main Logging Section

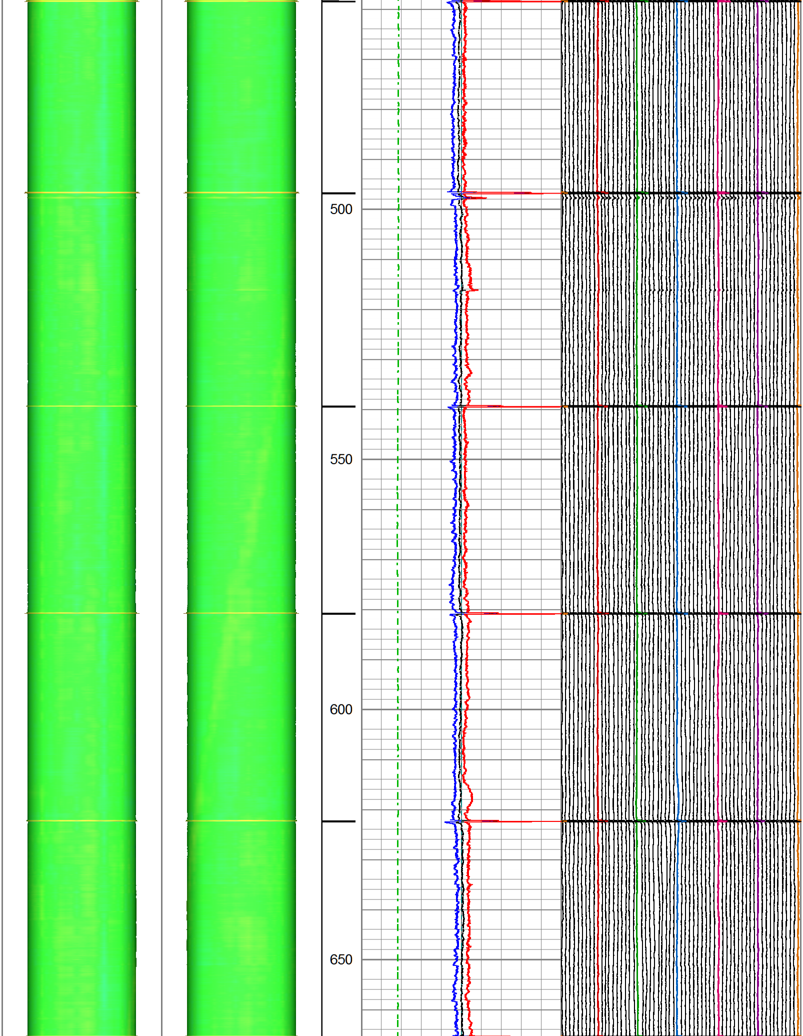
5 Inches = 100 feet

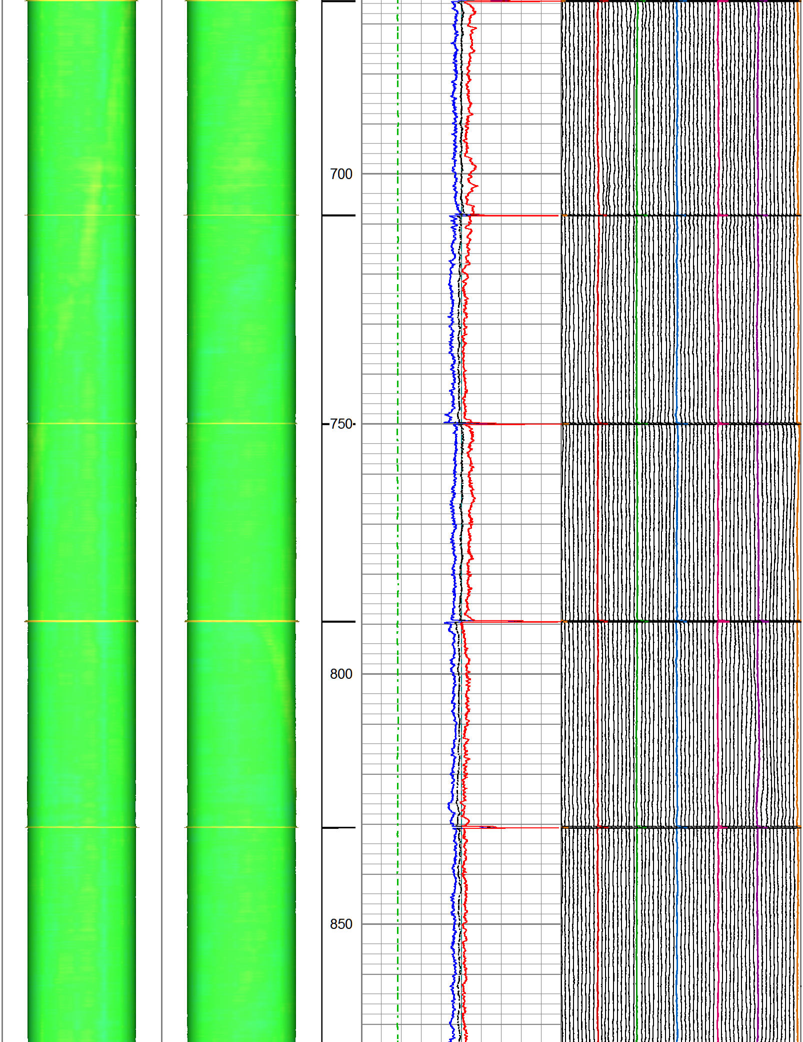
Database File	southerncaliforniagasporter26a60mac.db
Dataset Pathname	gasco/26a/3/3.5
Presentation Format	1B9A7C~1
Dataset Creation	Wed Aug 31 13:33:19 2016
Charted by	Depth in Feet scaled 1:240

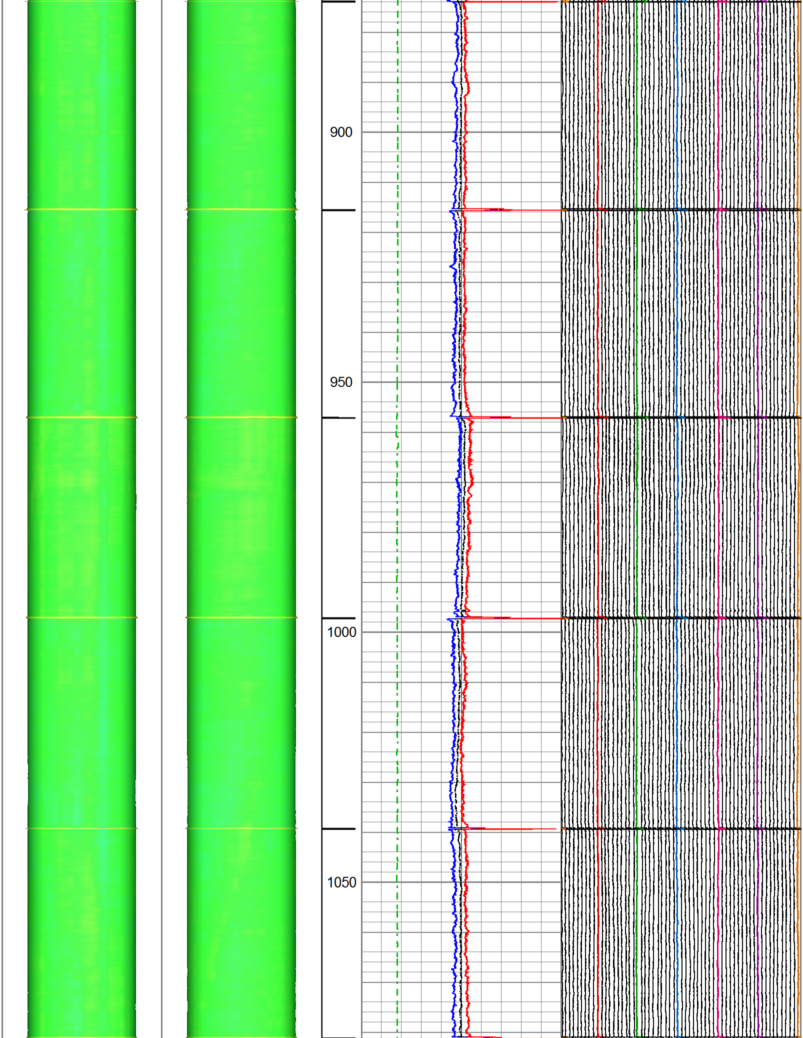


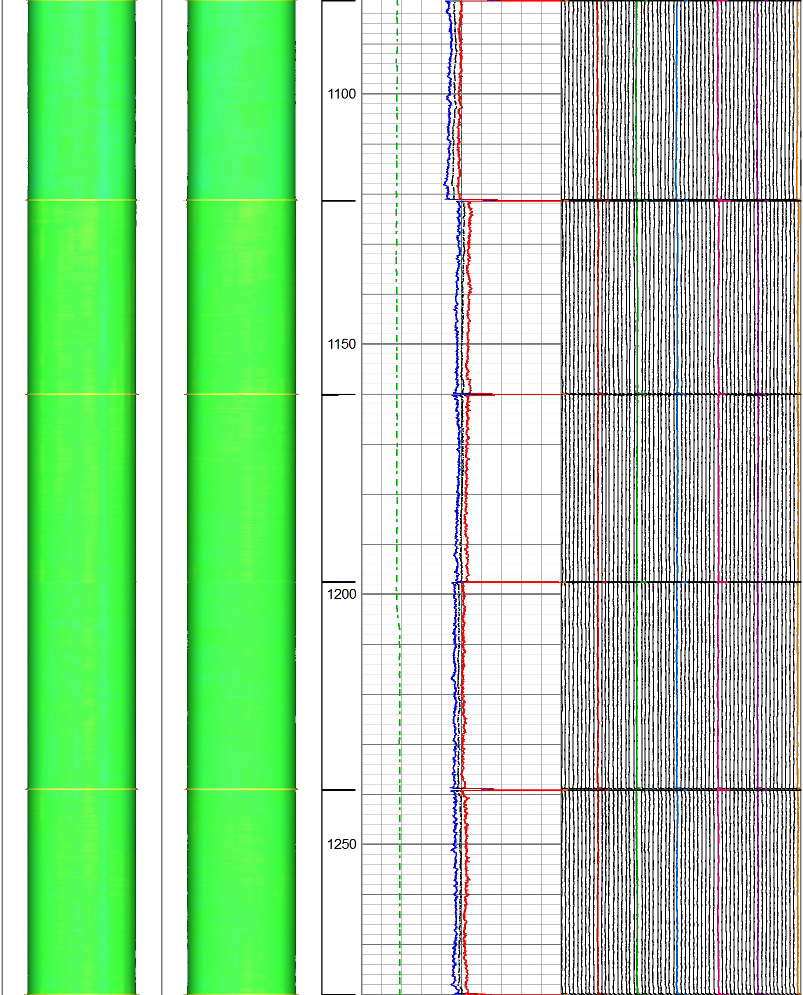


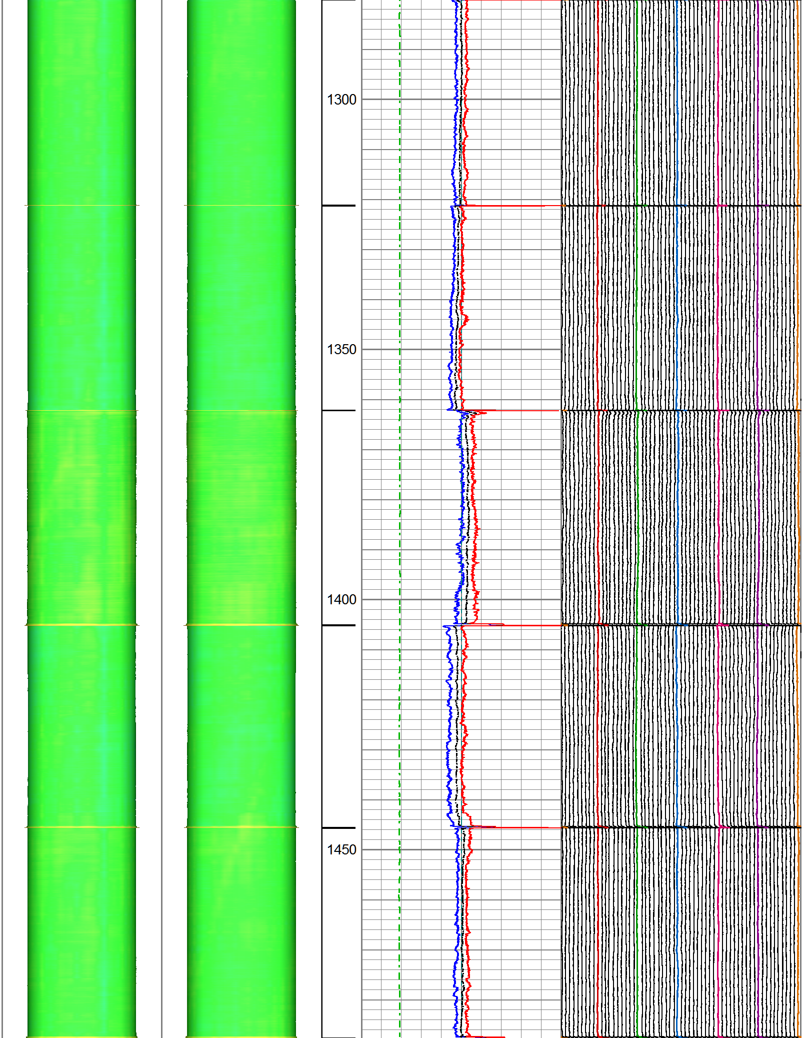


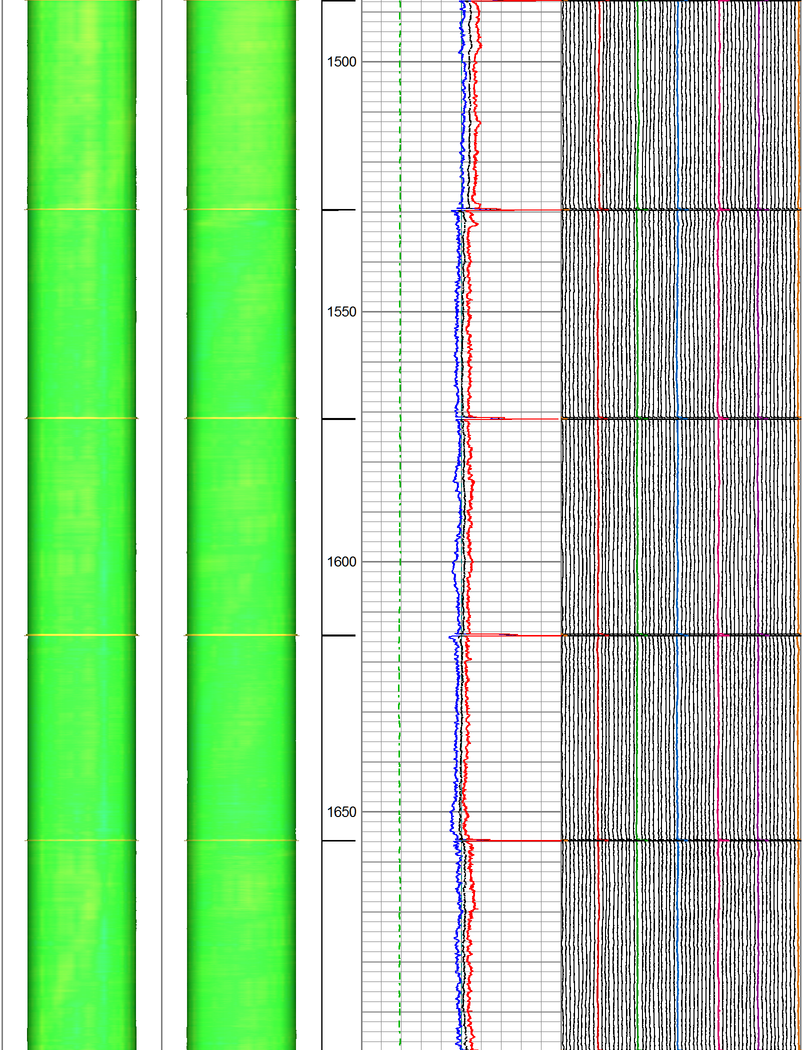


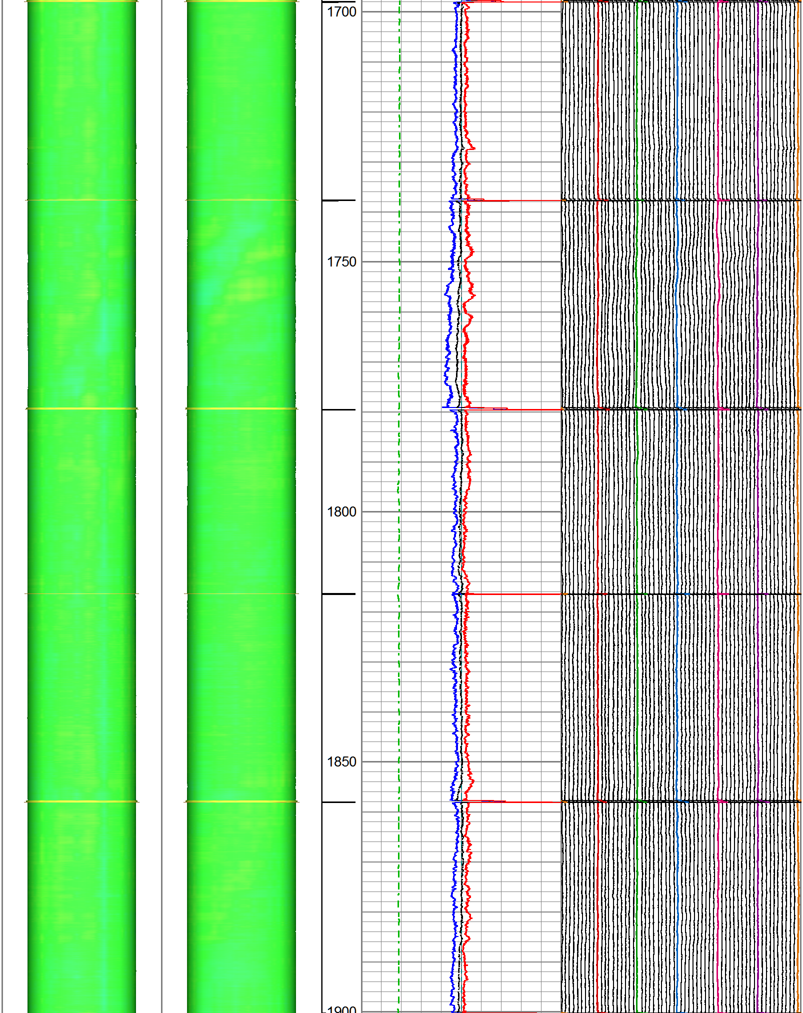


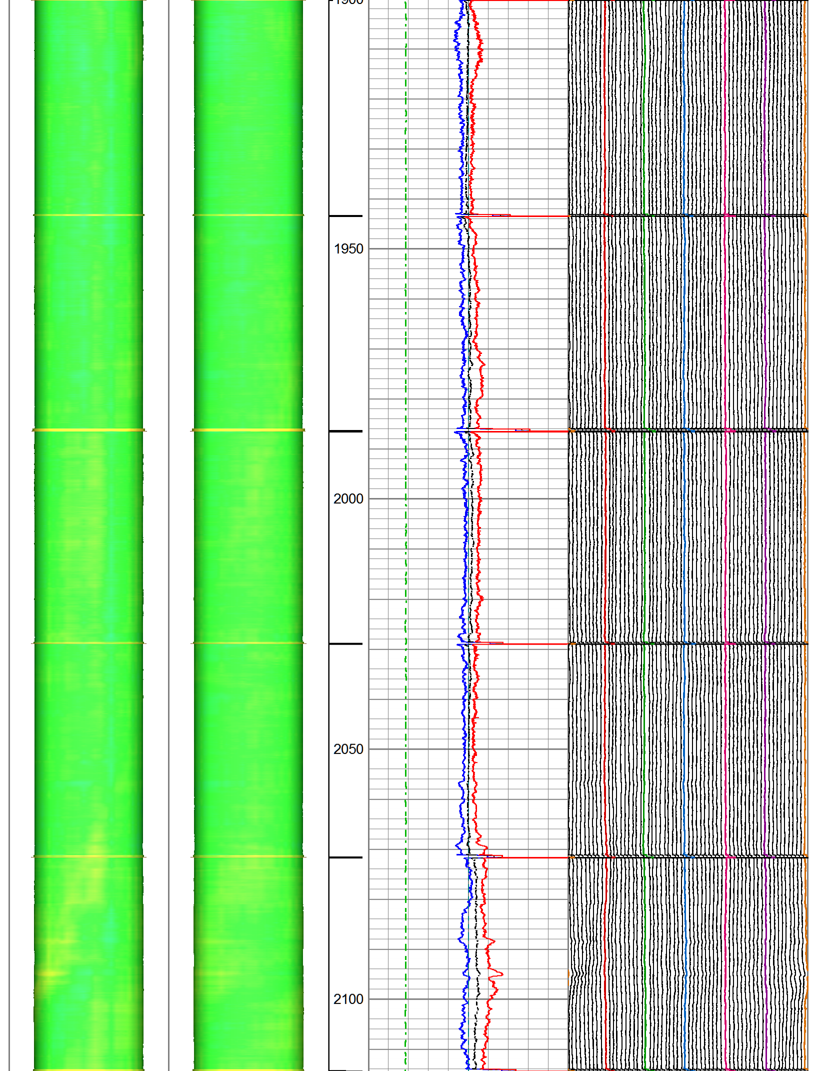


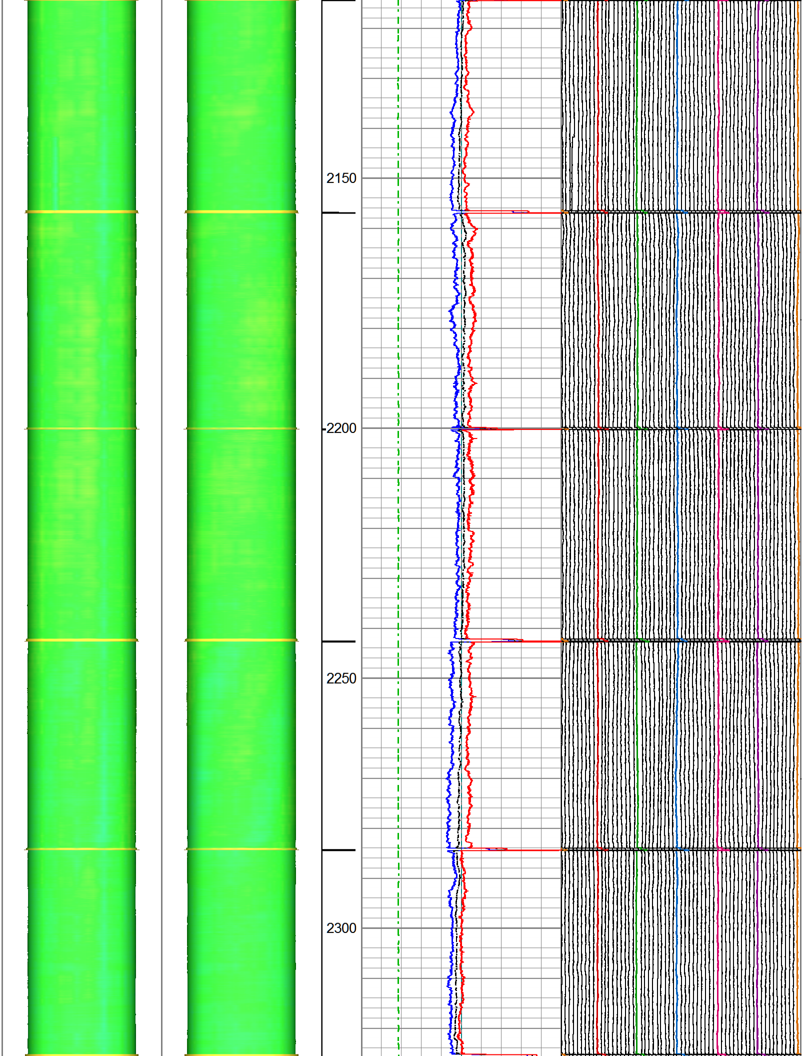


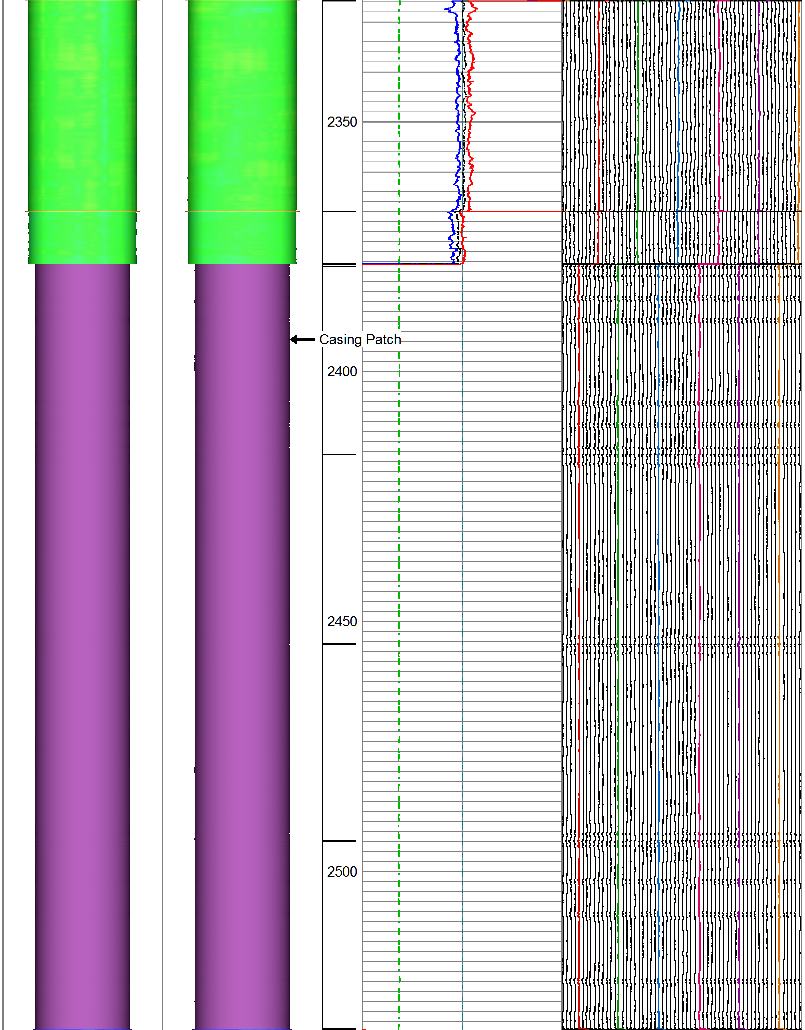


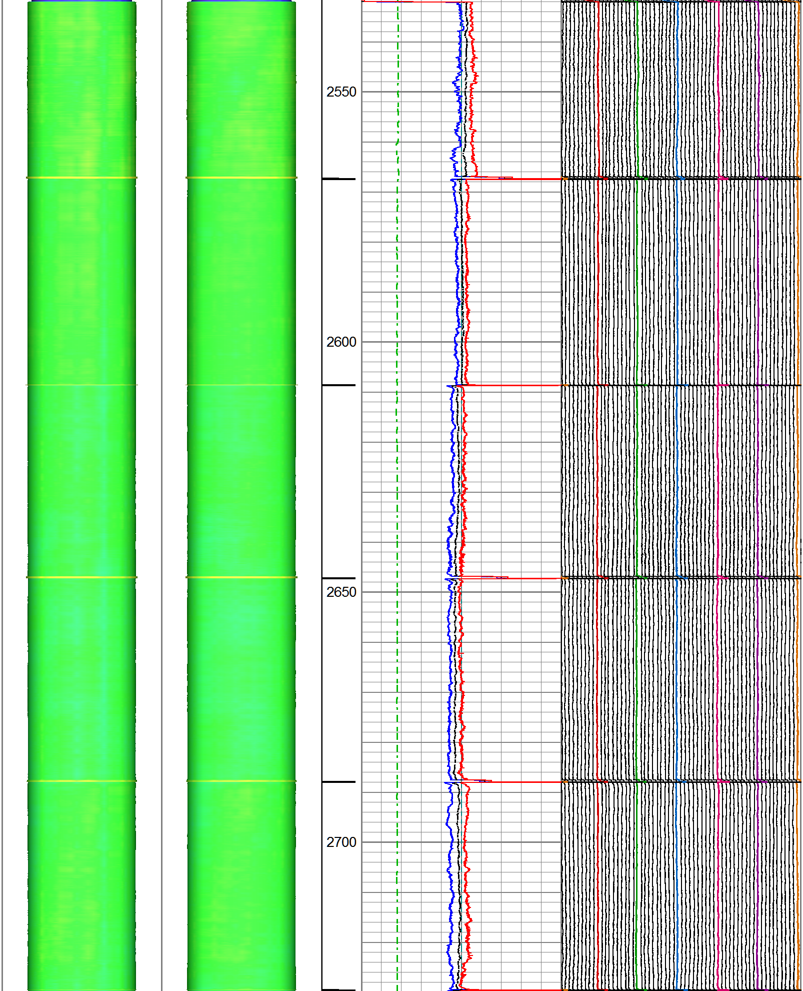


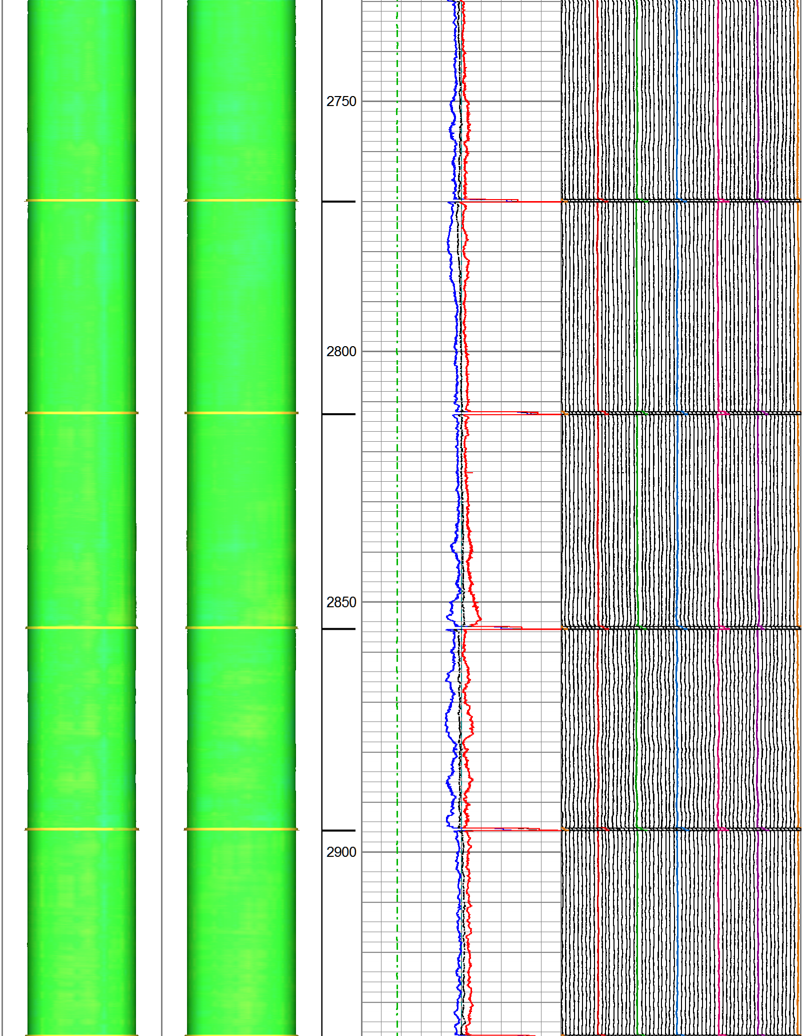


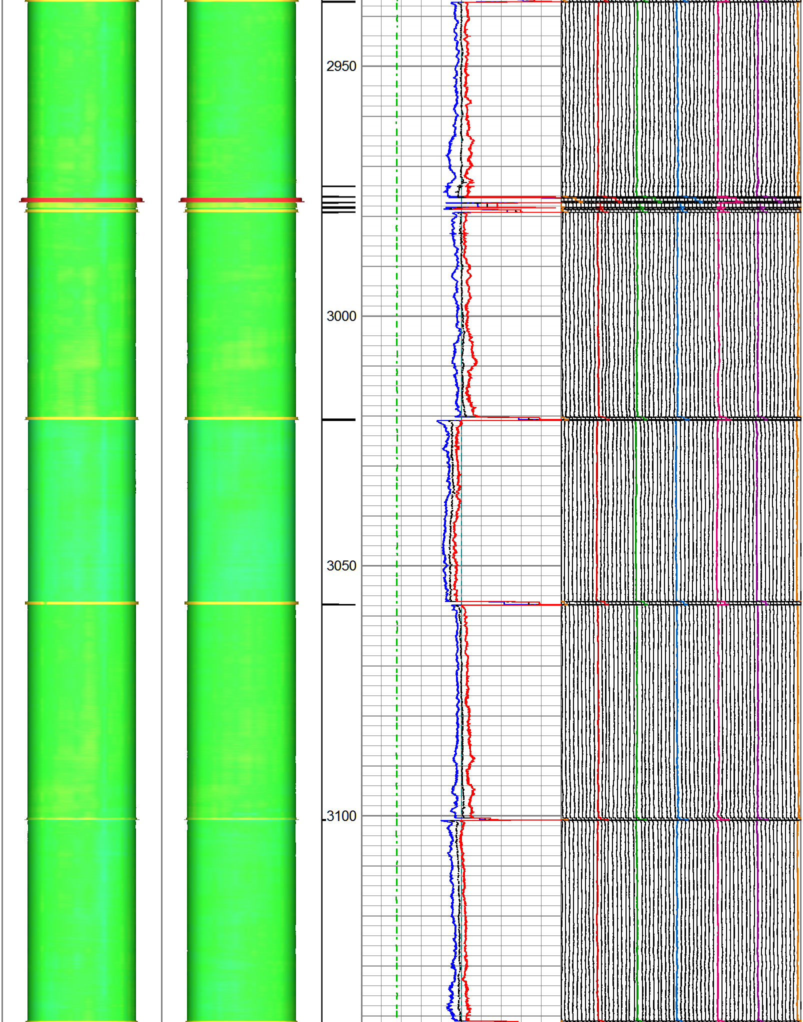


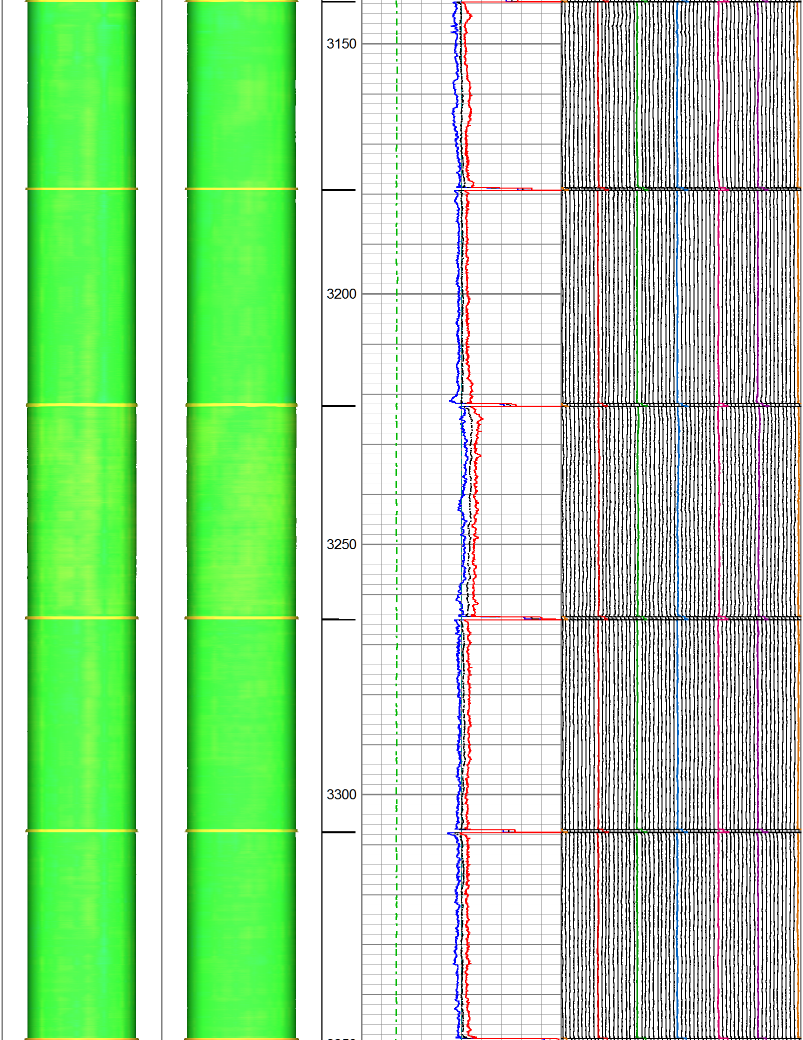


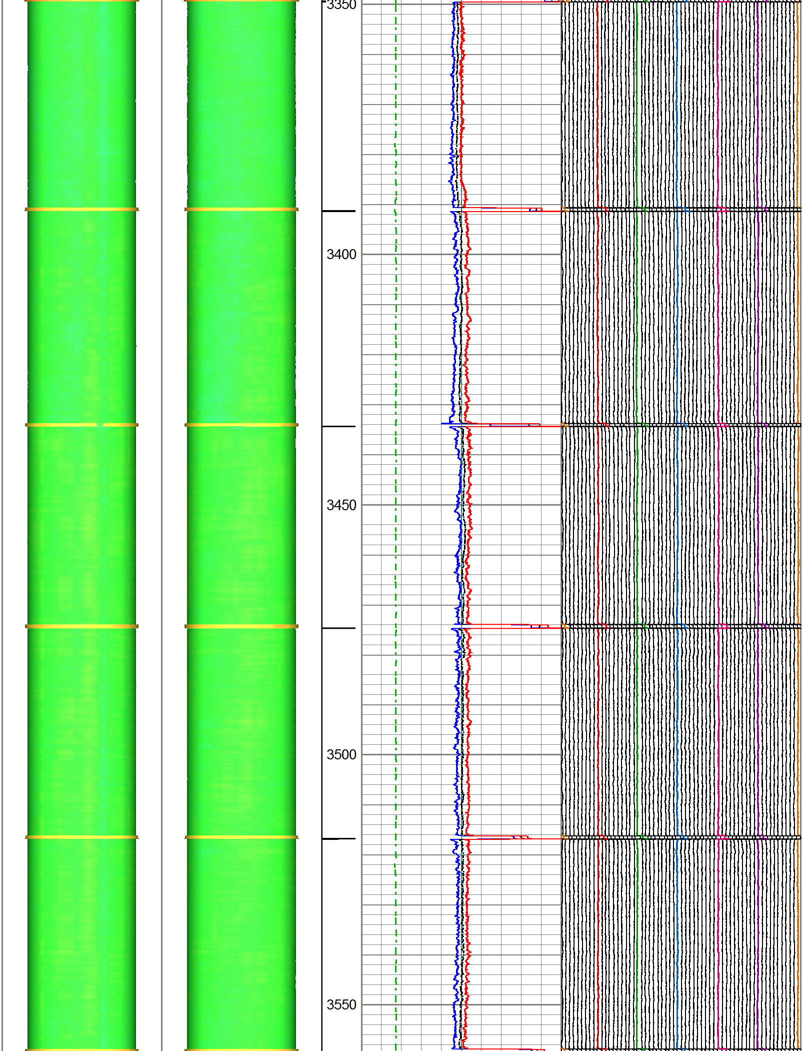


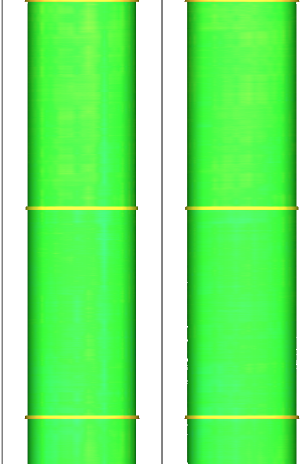


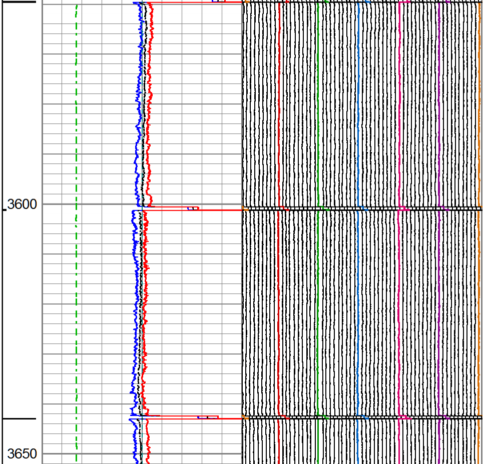


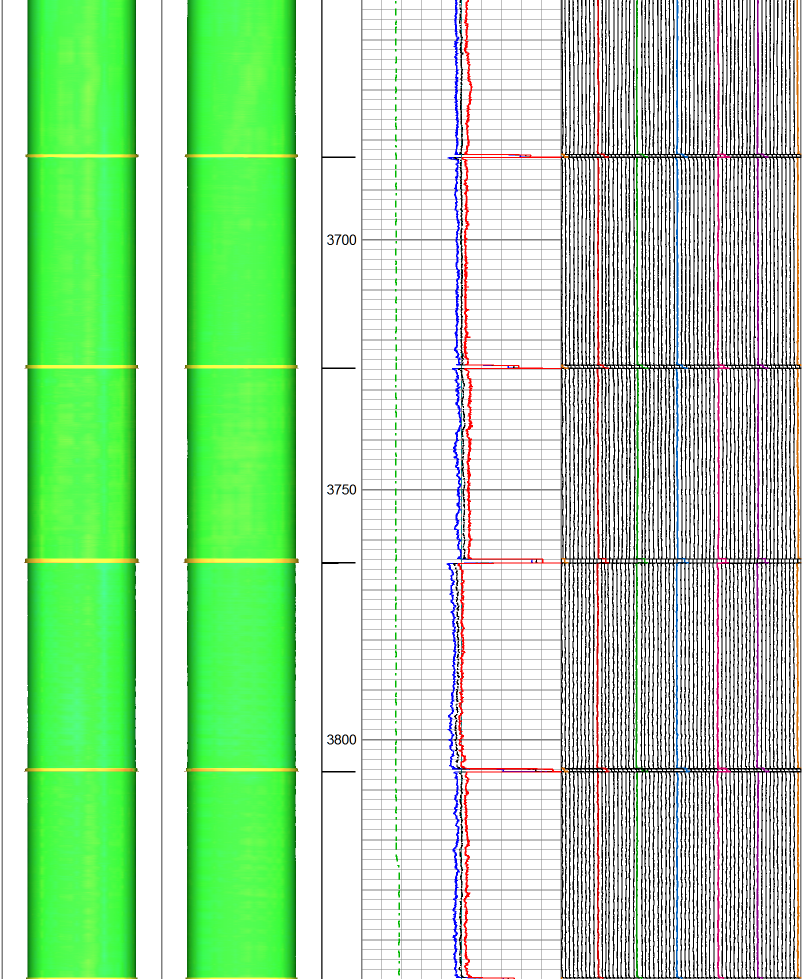








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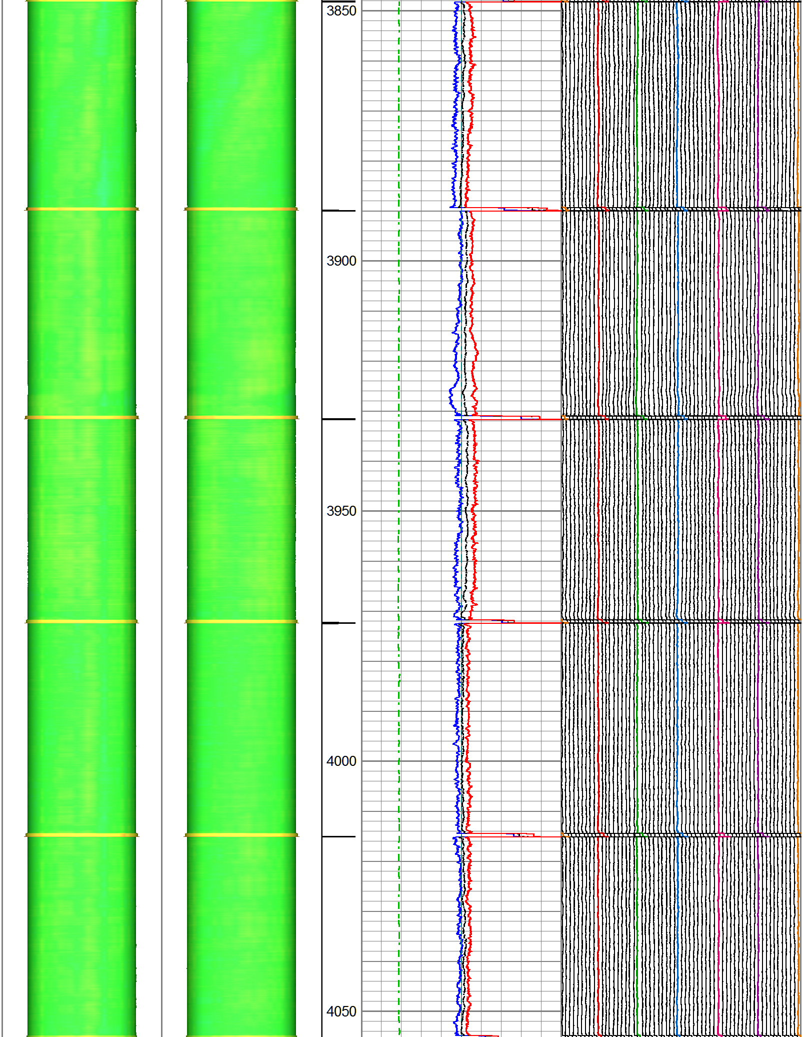
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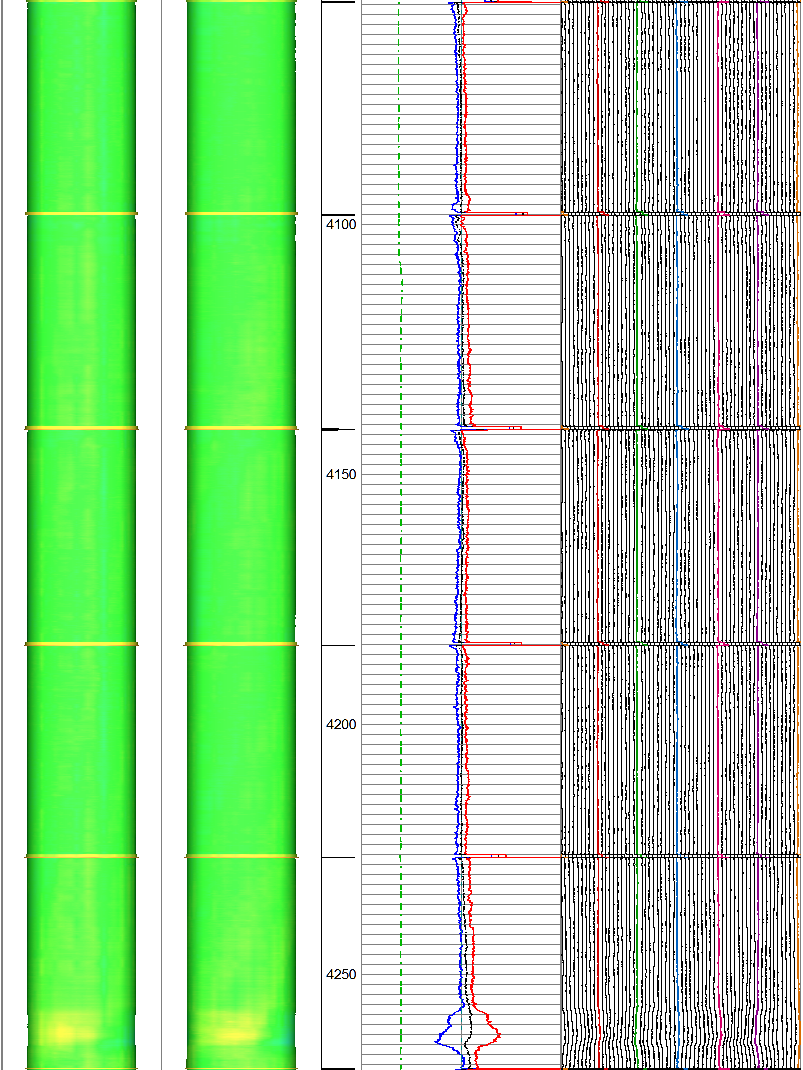
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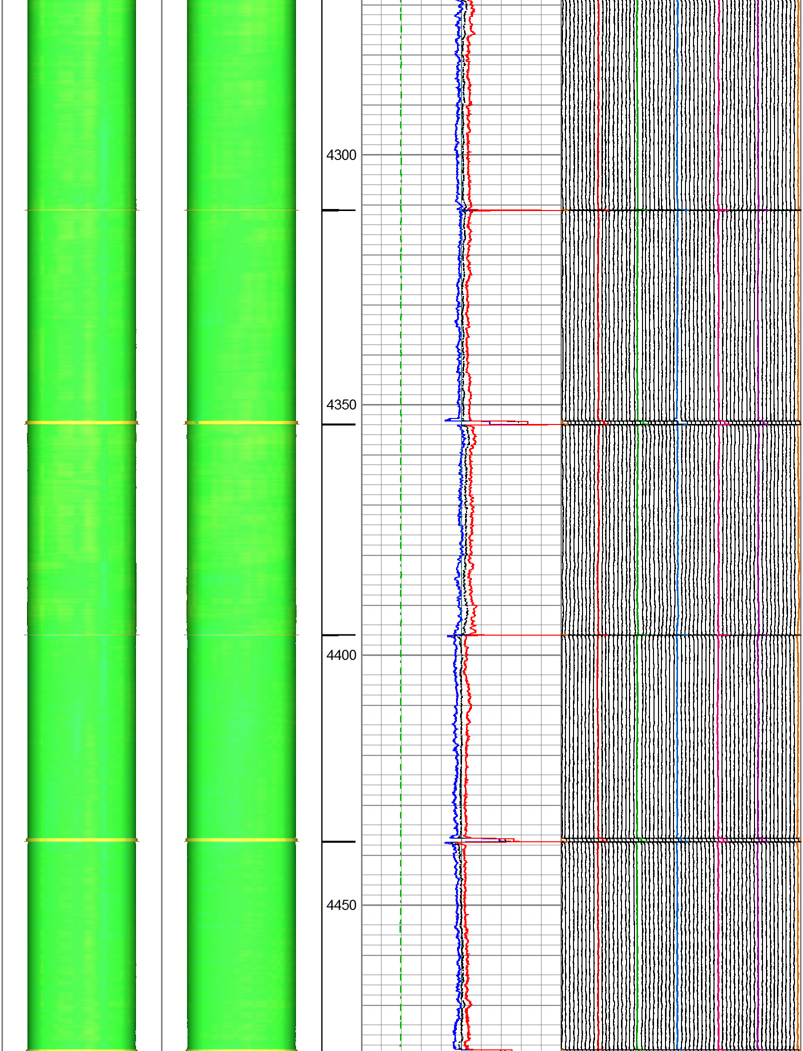
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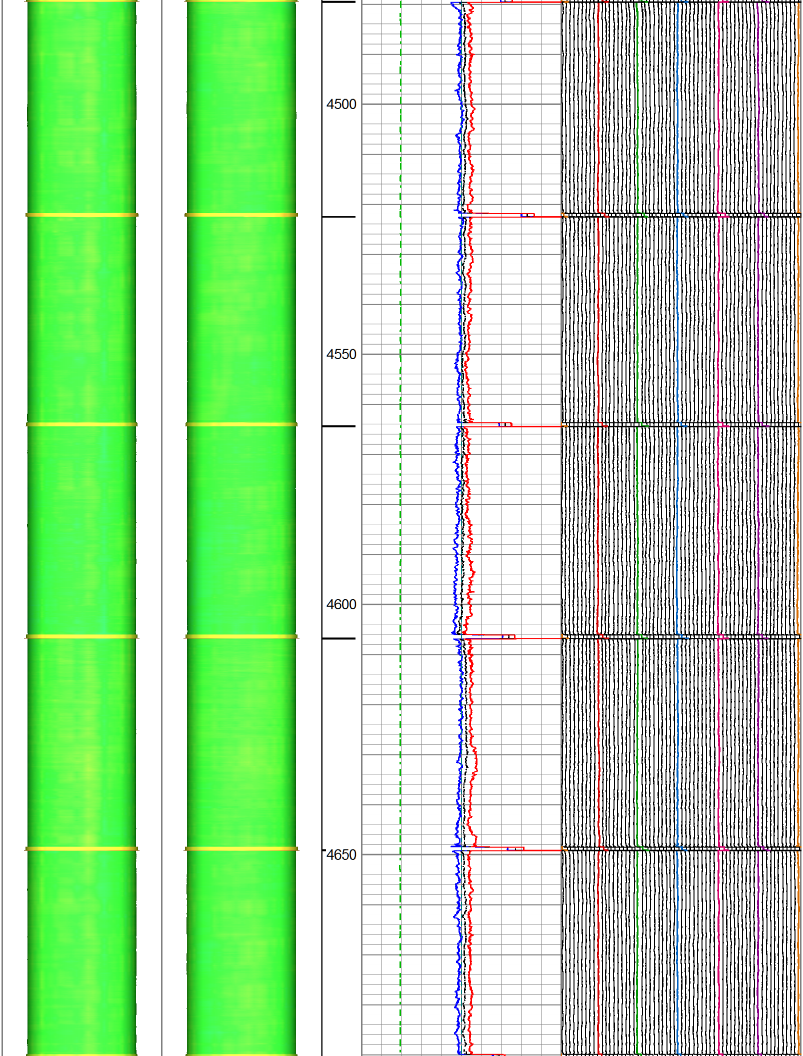
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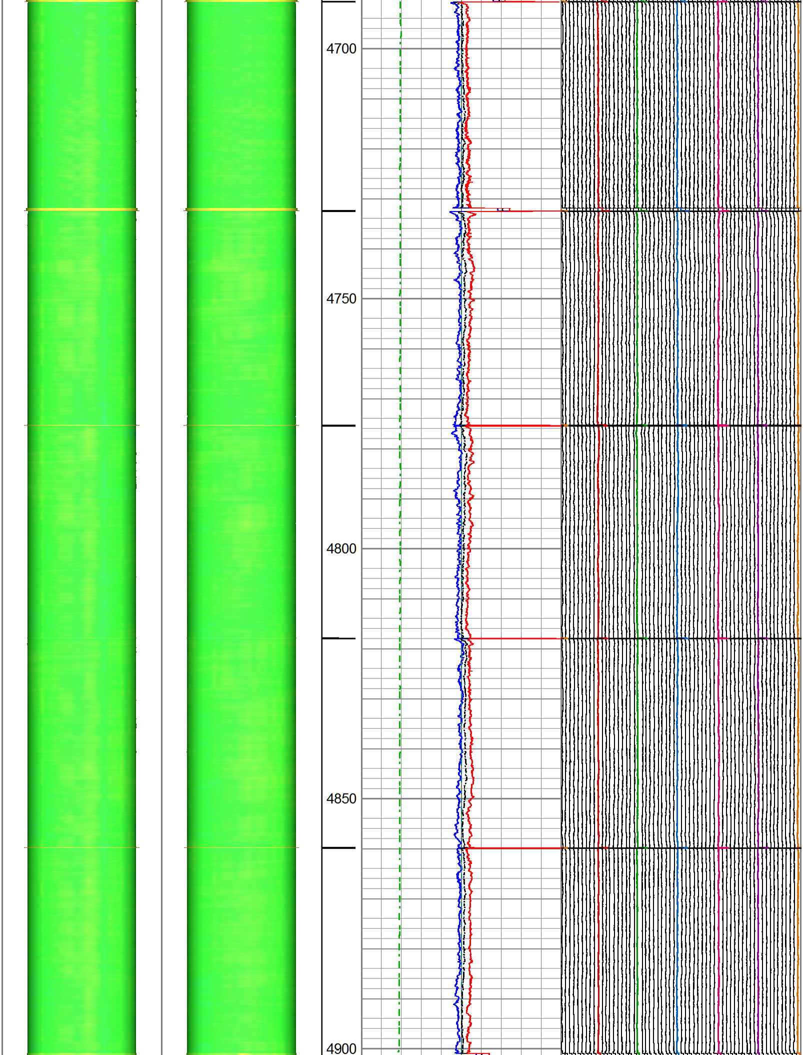
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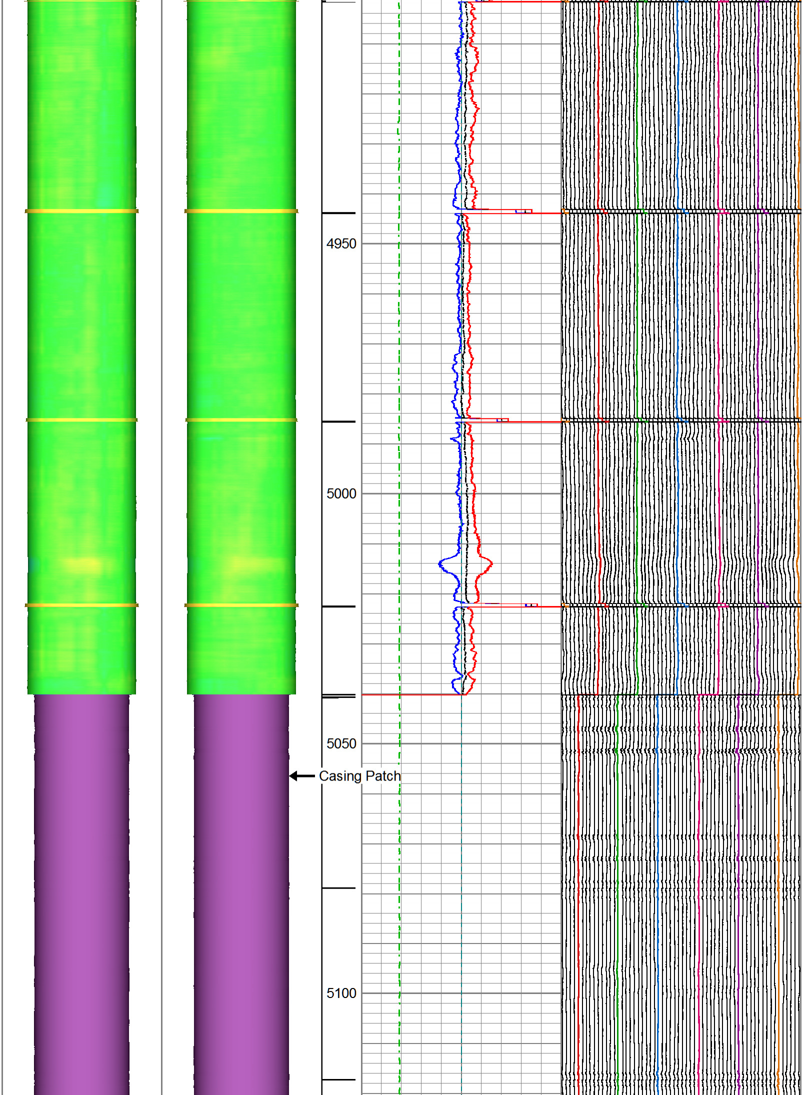
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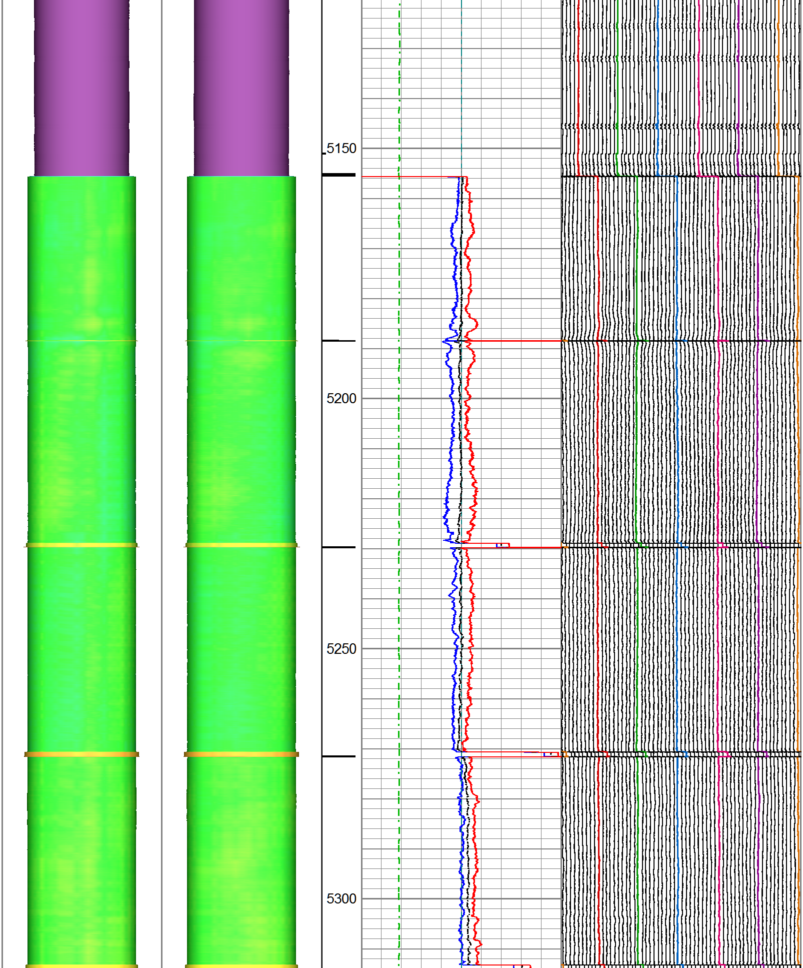
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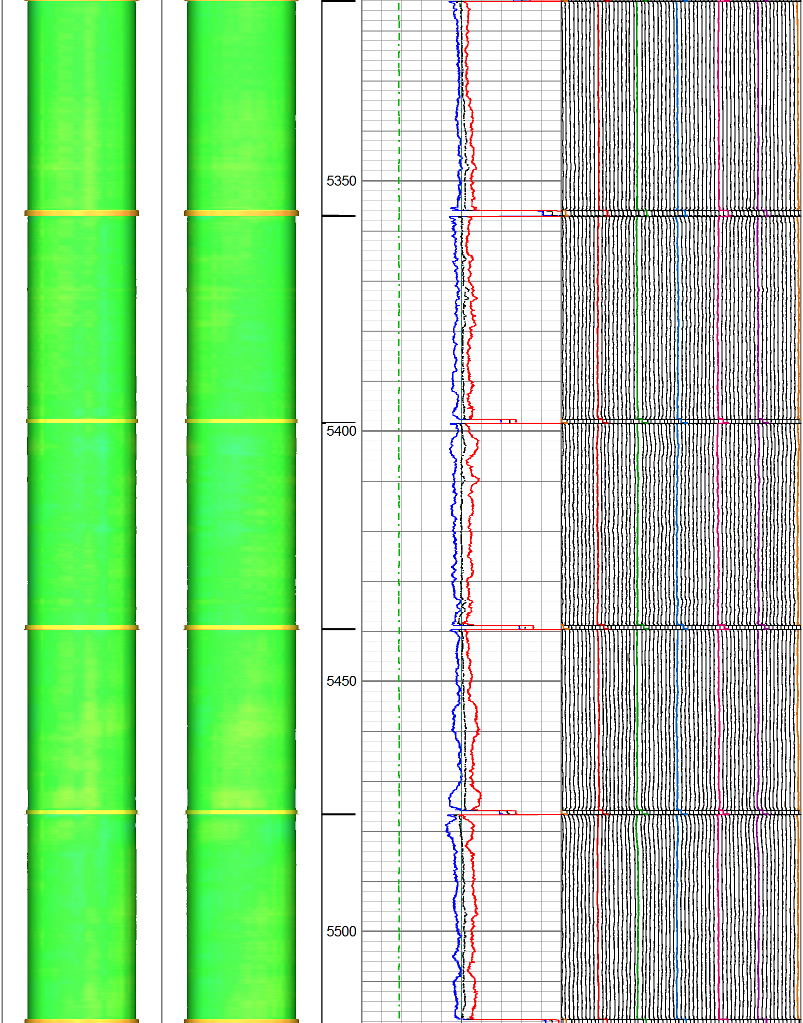
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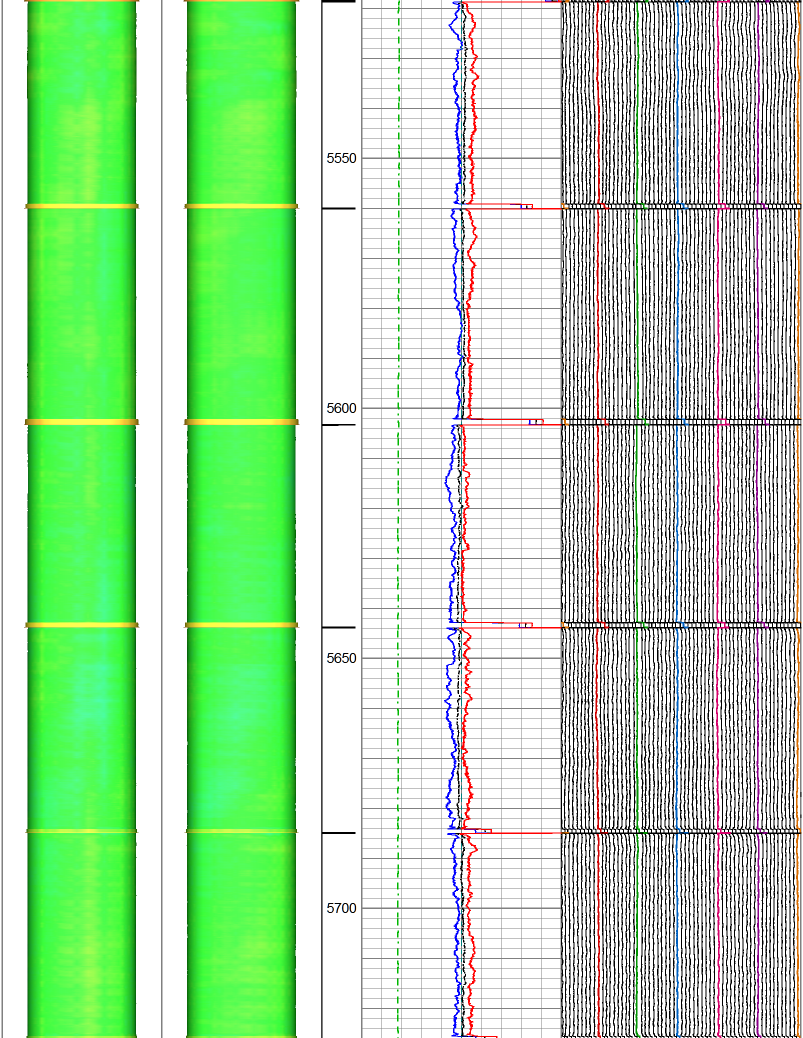
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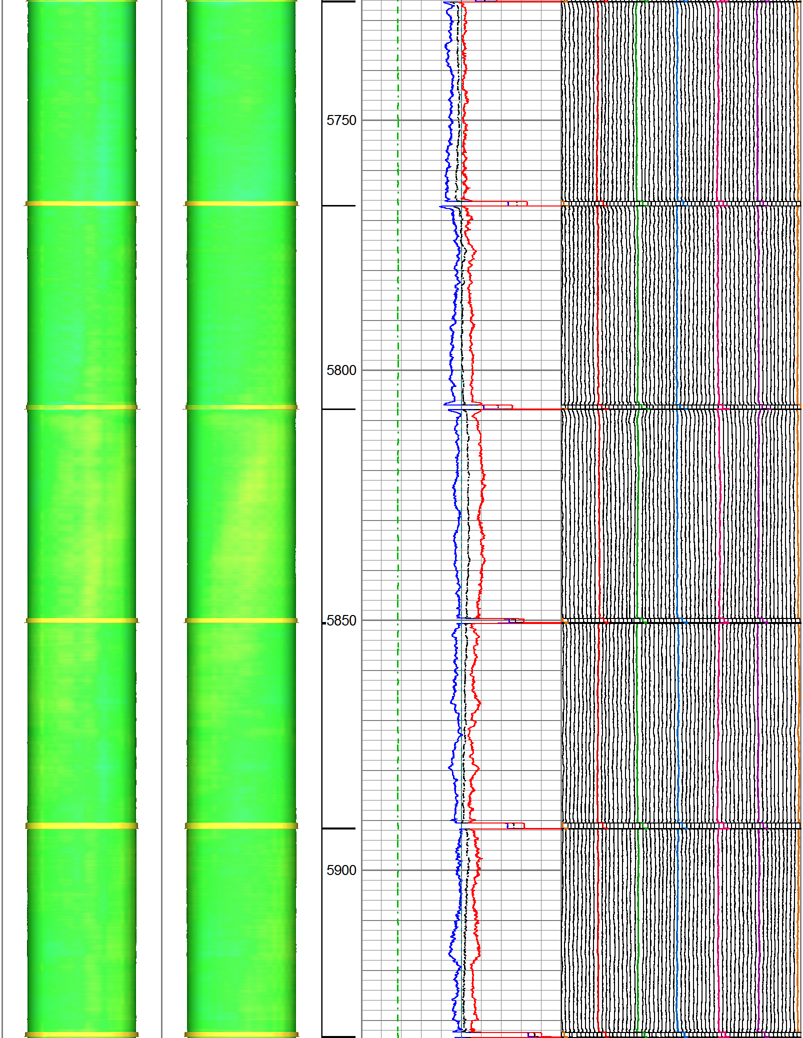
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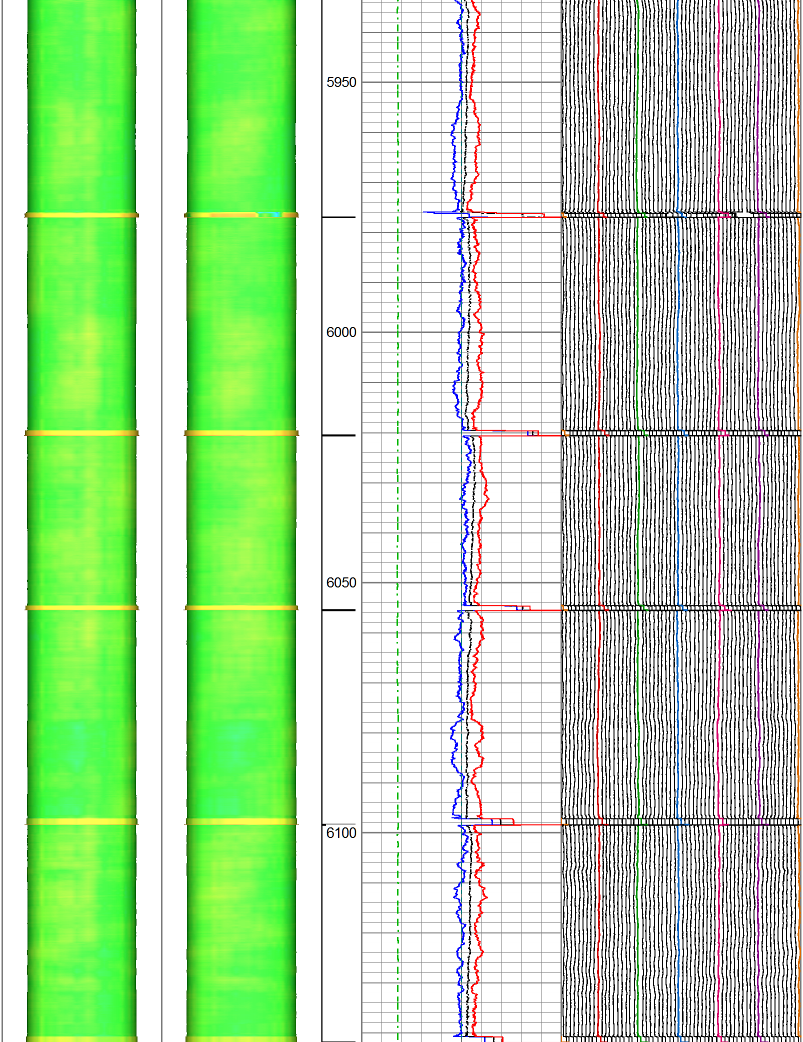
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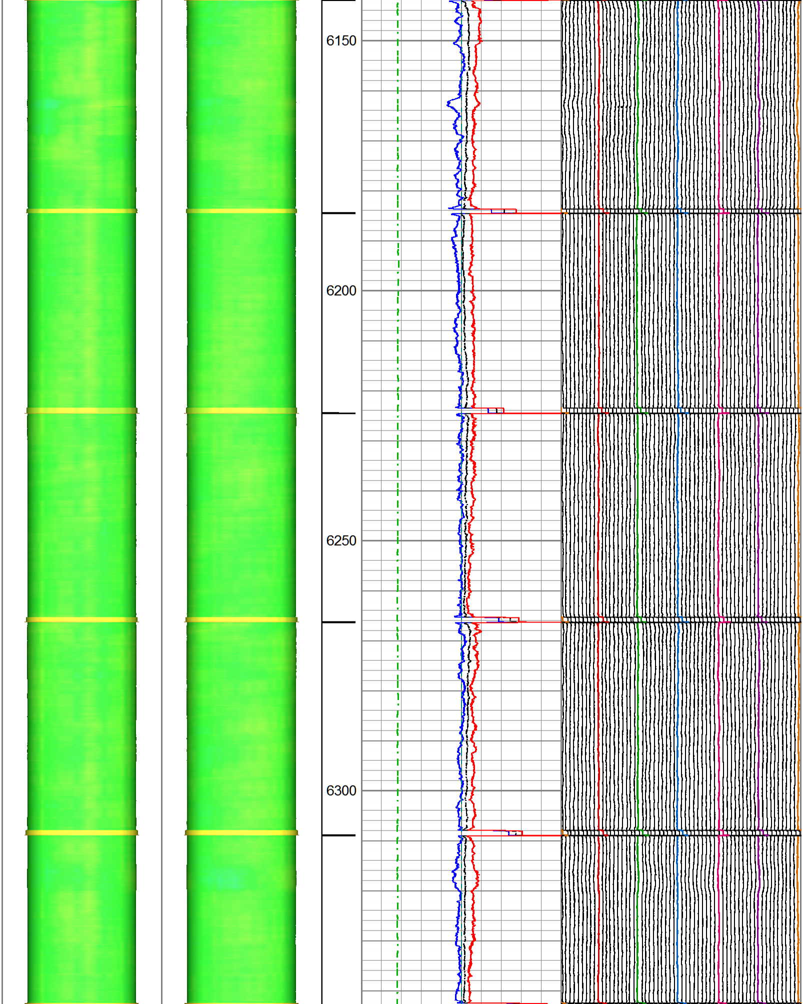
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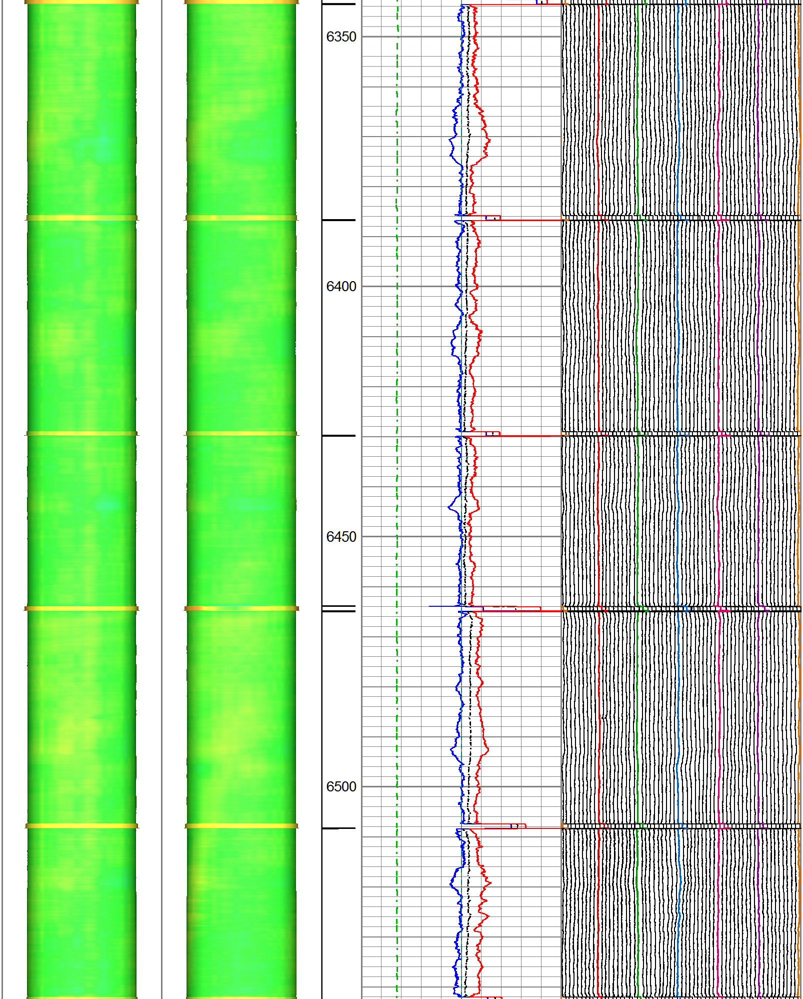
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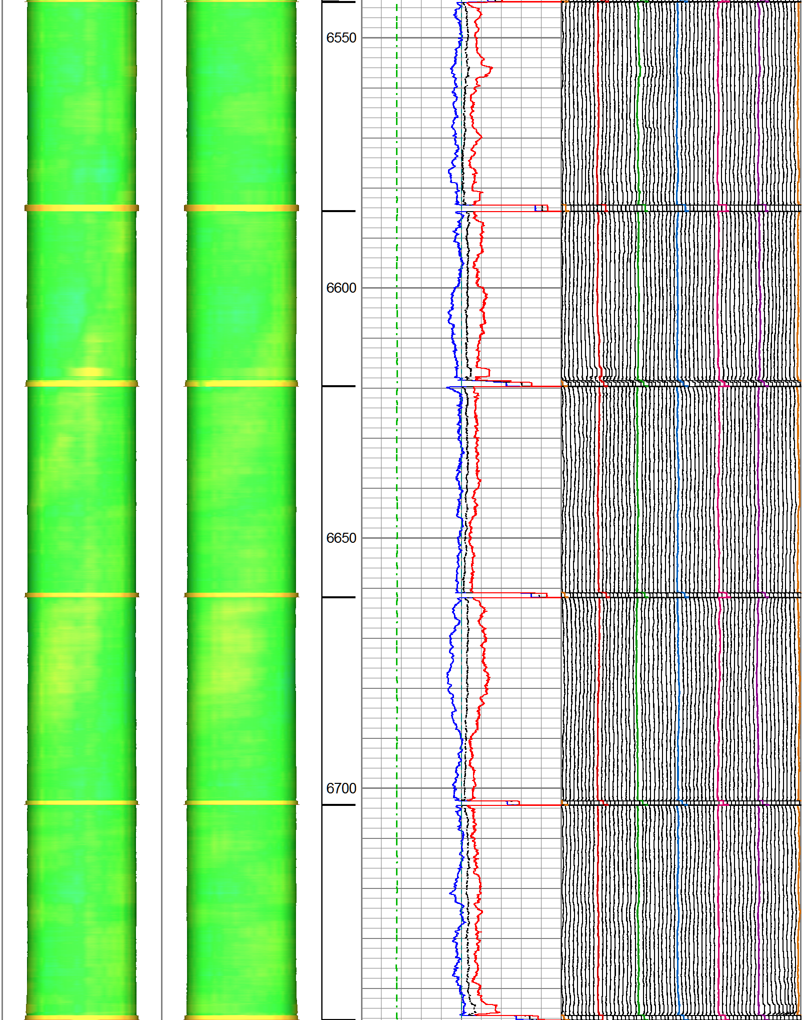
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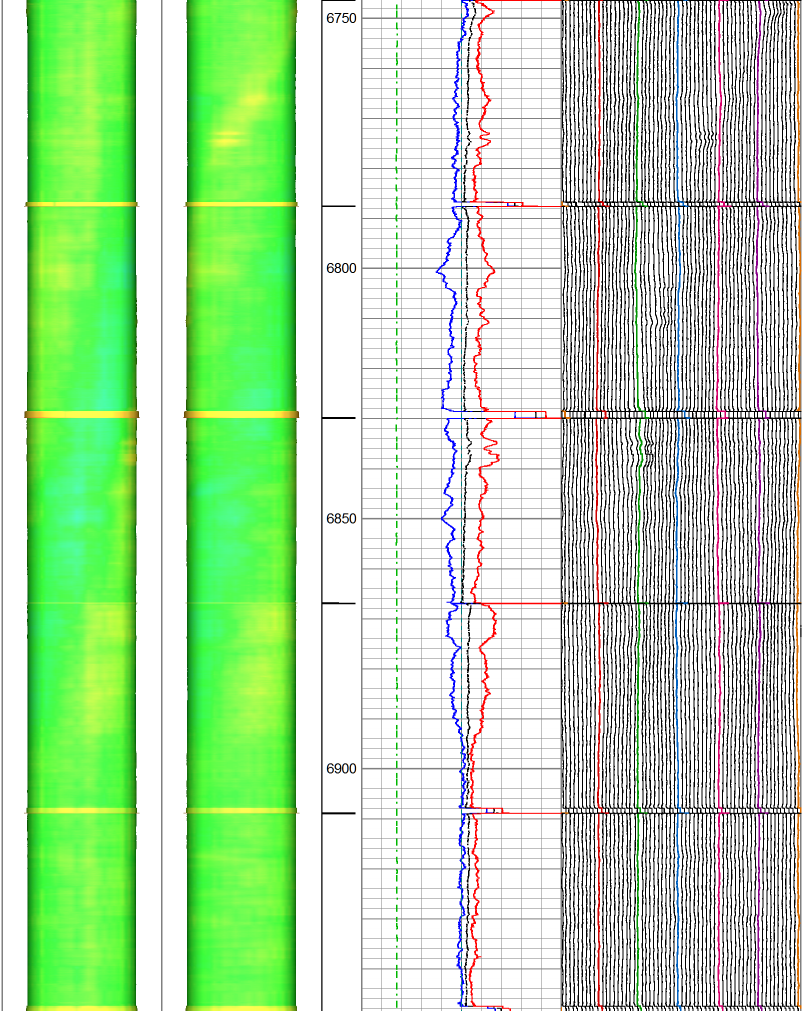
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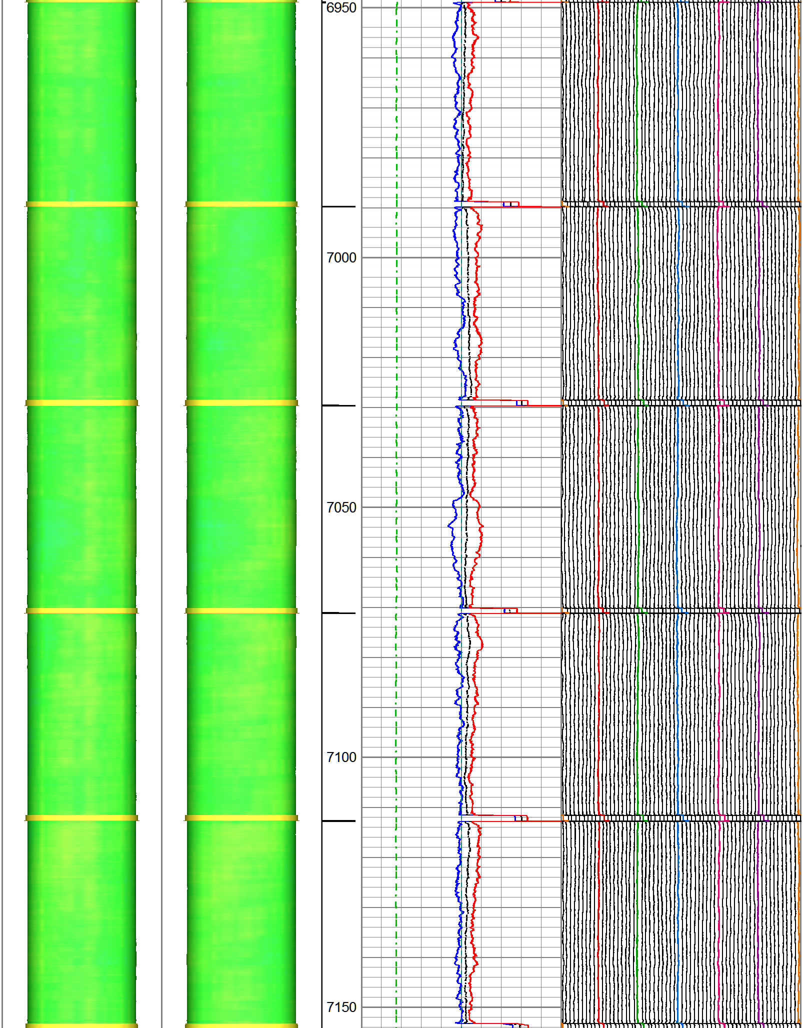
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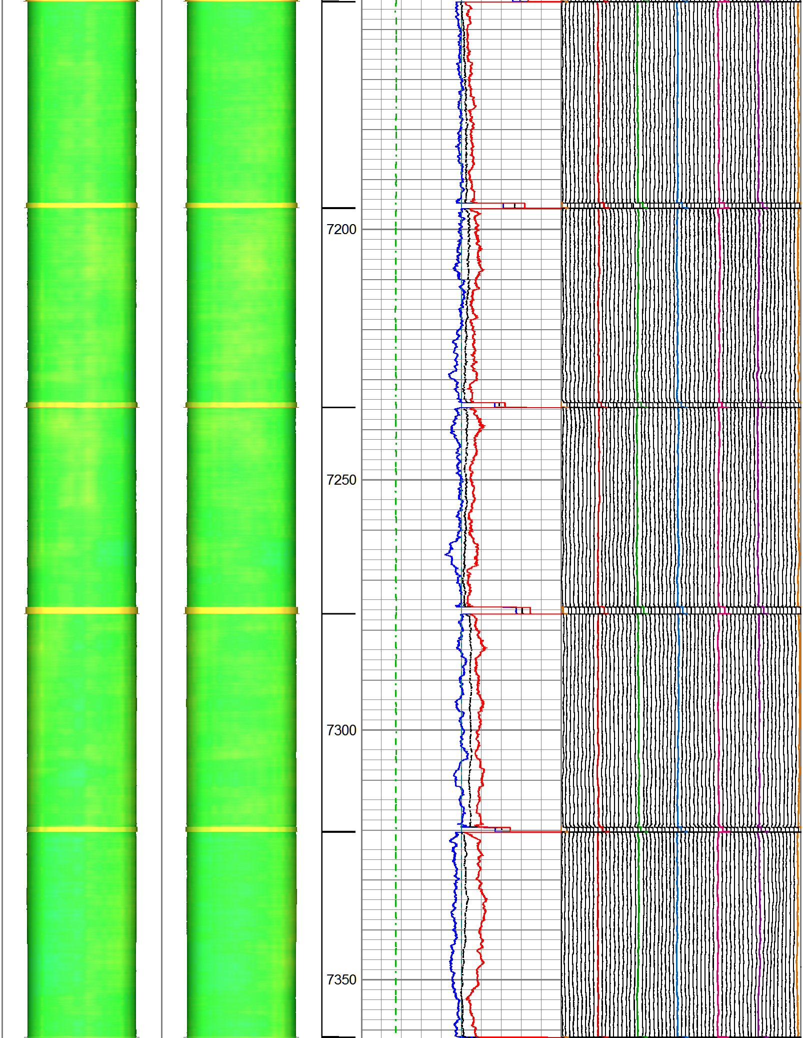
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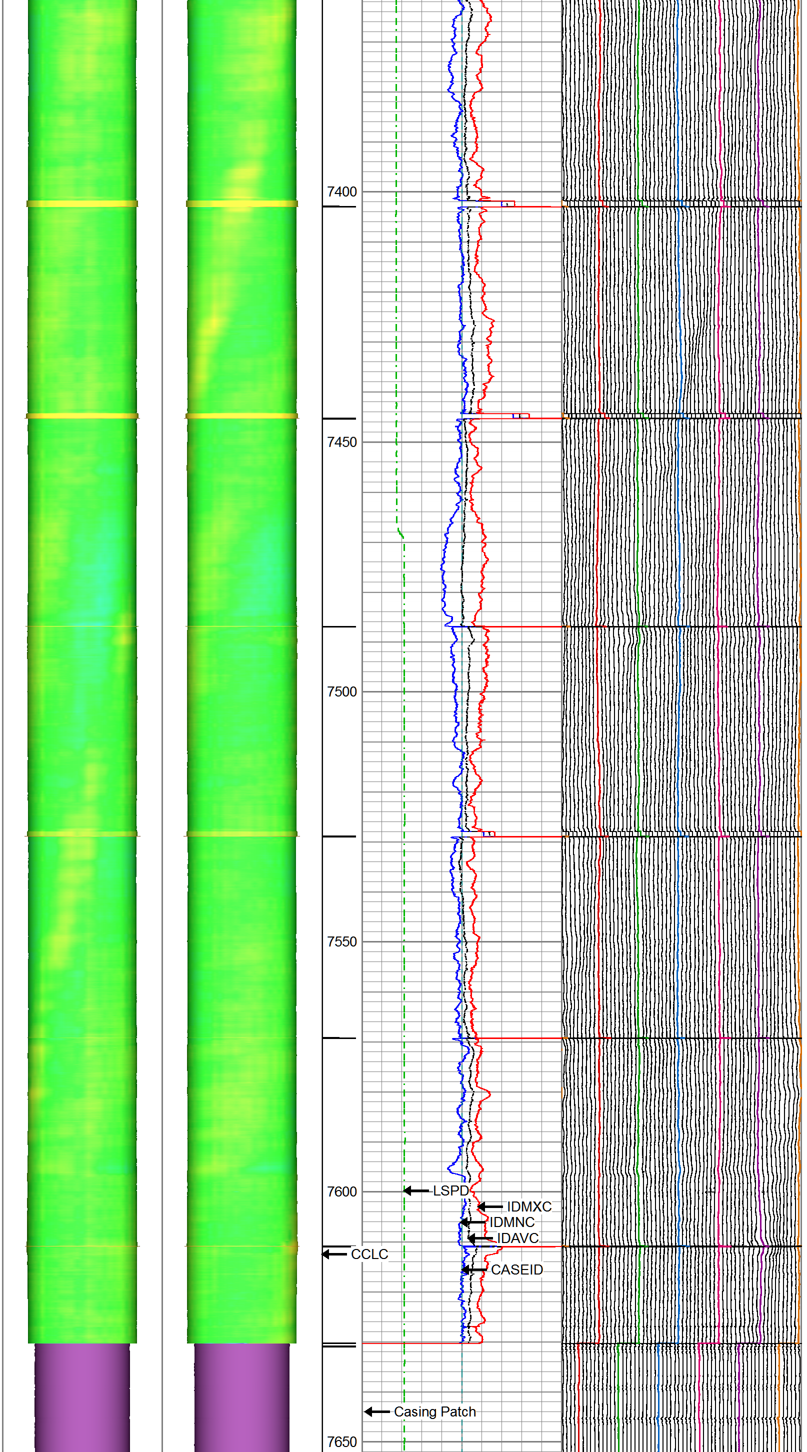
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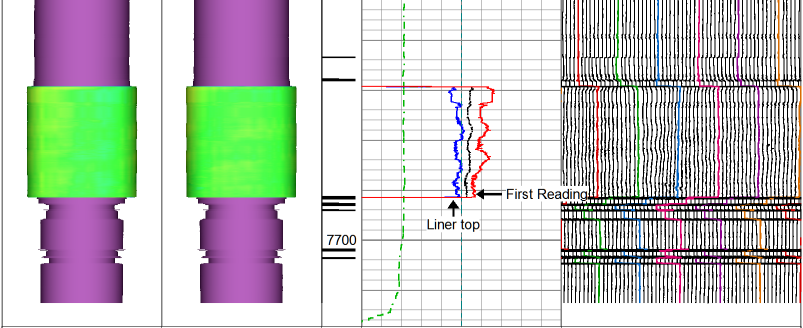

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			7.325 CASEID (in) 8.325	3 RC30 (in) 9
			7.325 IDAVC (in) 8.325	4 RC40 (in) 10
			7.325 IDMXC (in) 8.325	5 RC50 (in) 11
				6 RC60 (in) 12

Western Wireline

Repeat Logging Section

5 inches = 100 feet

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Dataset Pathname	pass2
Presentation Format	1b_mac_60_multi arm_gas co edit
Dataset Creation	Wed Aug 31 08:45:39 2016
Charted by	Depth in Feet scaled 1:240

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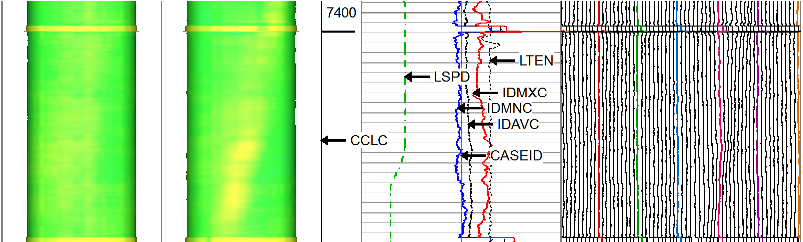
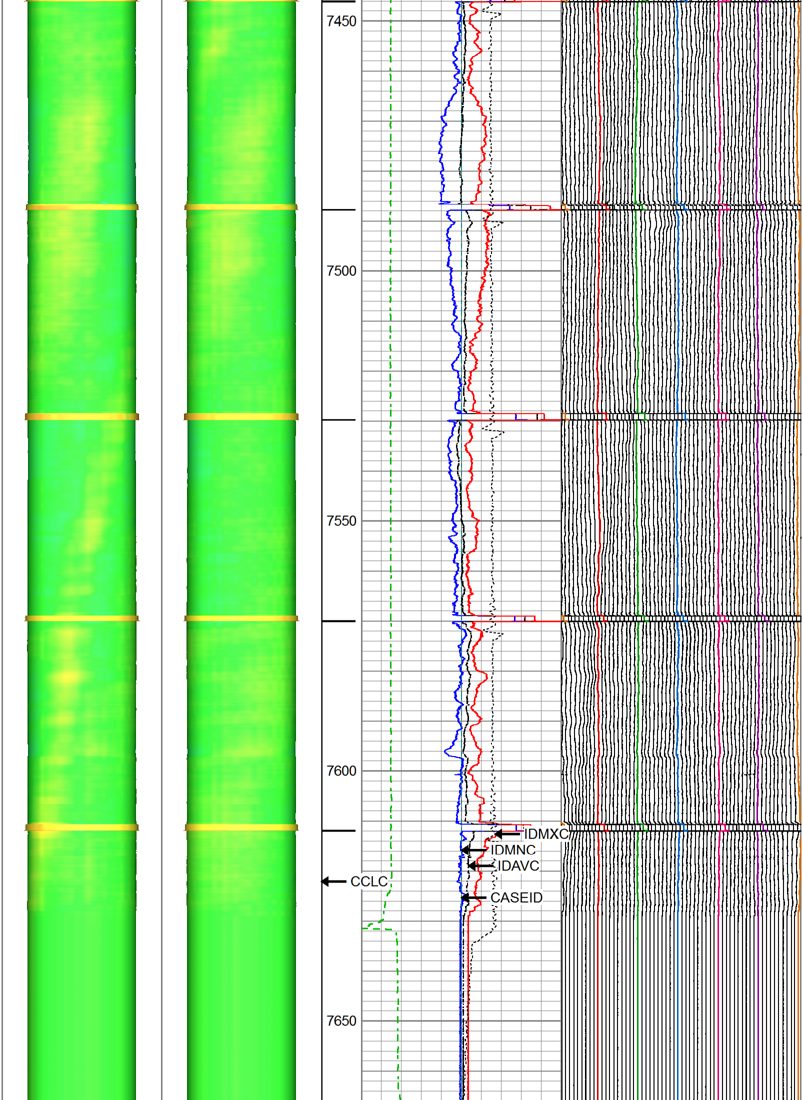
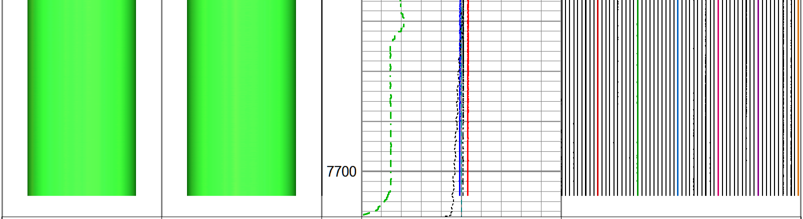
			7.325 IDAVC (in) 8.325	4 RC40 (in) 10
			7.325 IDMXC (in) 8.325	5 RC50 (in) 11
			0 LTEN (lb) 2000	6 RC60 (in) 12







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Low Side Image	High Side Image	CCL	0 LSPD (ft/min) 200	1 RC10 (in) 7
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			7.325 IDMXC (in) 8.325	5 RC50 (in) 11
			0 LTEN (lb) 2000	6 RC60 (in) 12

Western Wireline

Down Hole Static Casing Check

Time Driven

Database File	southerncaliforniagasporter26a60mac.db
Dataset Pathname	pass4
Presentation Format	1b_mac_60_multi arm_gas co edit
Dataset Creation	Wed Aug 31 12:54:34 2016
Charted by	Time scaled 360/hour

Low Side Image	High Side Image	CCL	LSPD / ID curves	RC curves
Low Side Image	High Side Image	CCL	0 LSPD (ft/min) 200	1 RC10 (in) 7
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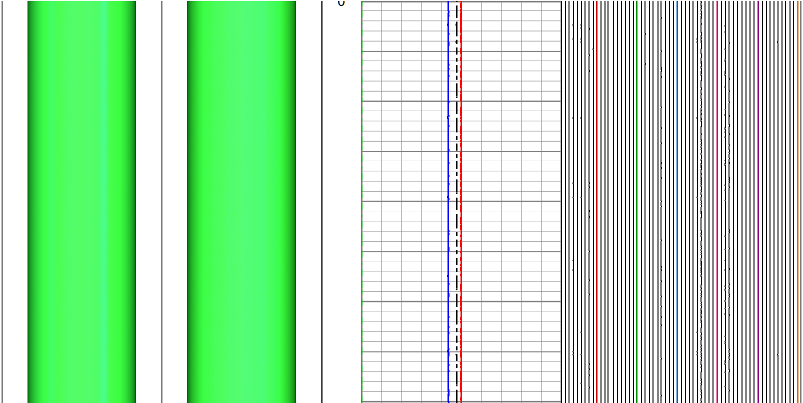
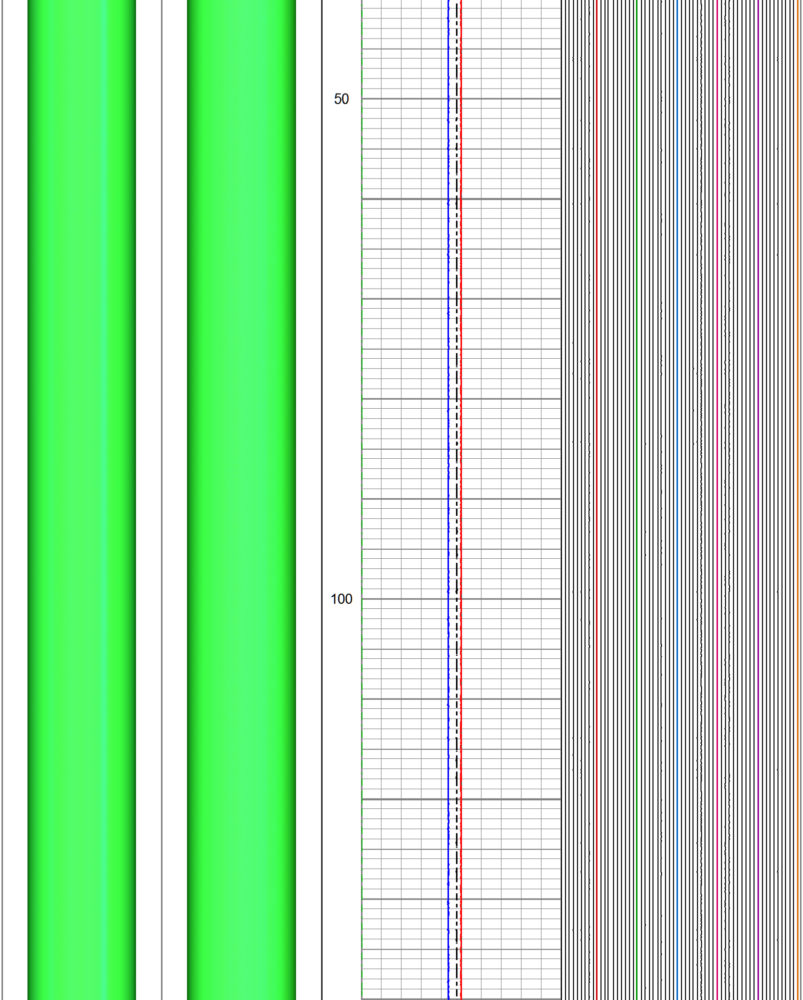
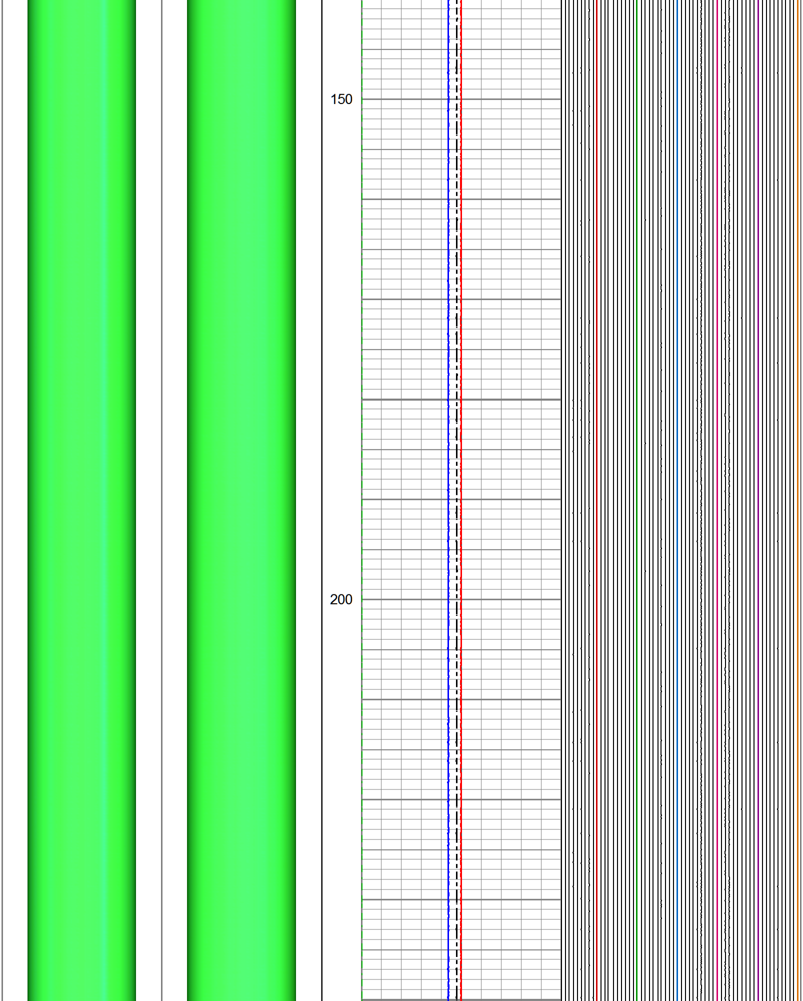
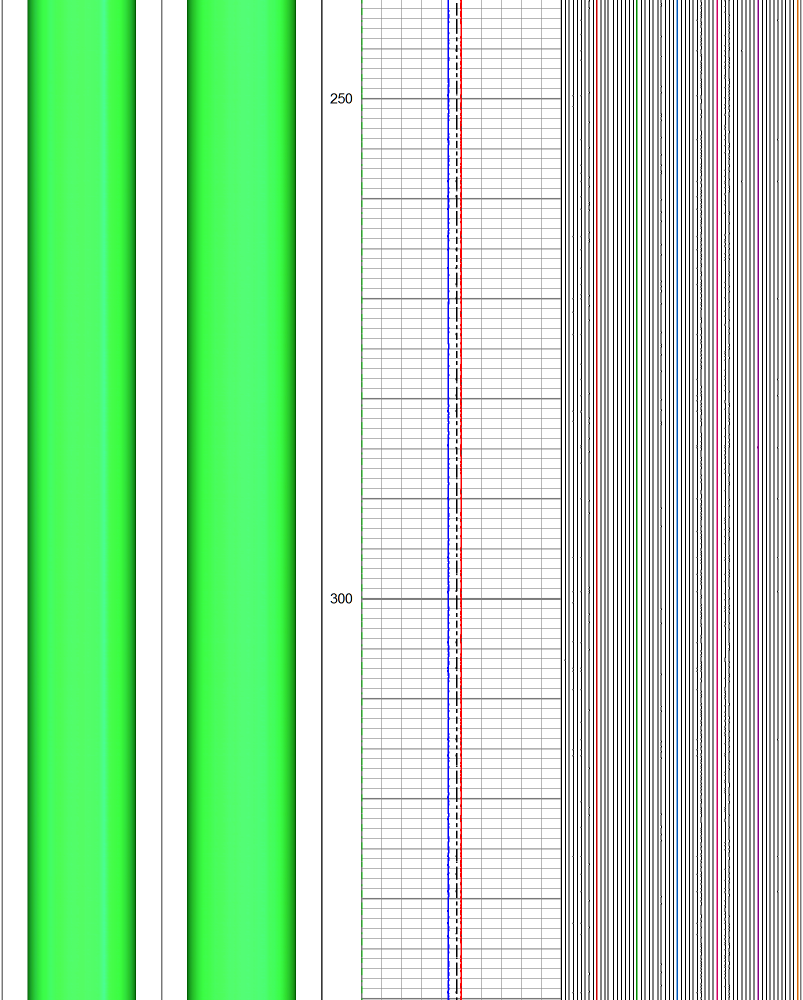
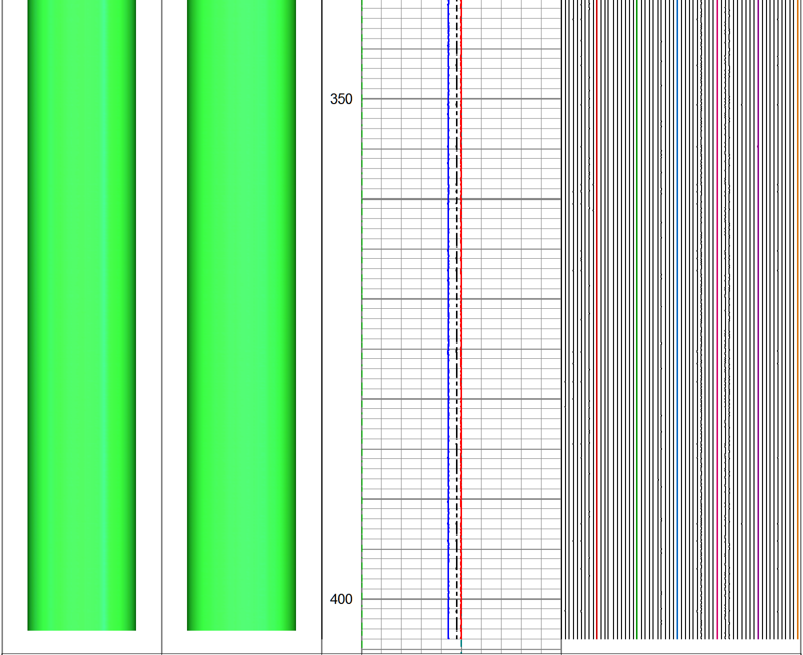
			7.325 CASEID (in) 8.325	3 RC30 (in) 9
			7.325 IDAVC (in) 8.325	4 RC40 (in) 10
			7.325 IDMXC (in) 8.325	5 RC50 (in) 11
				6 RC60 (in) 12











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			7.325	CASEID (in)	8.325	3	RC30 (in)	9
			7.325	IDAVC (in)	8.325	4	RC40 (in)	10
			7.325	IDMXC (in)	8.325	5	RC50 (in)	11
						6	RC60 (in)	12

Western Wireline

Surface Check in 8.625 40# Casing

Time Driven

Database File	southerncaliforniagasporter26a60mac.db
Dataset Pathname	pass6
Presentation Format	1b_mac_60_multi arm_gas co edit
Dataset Creation	Wed Aug 31 13:19:44 2016
Charted by	Time scaled 360/hour

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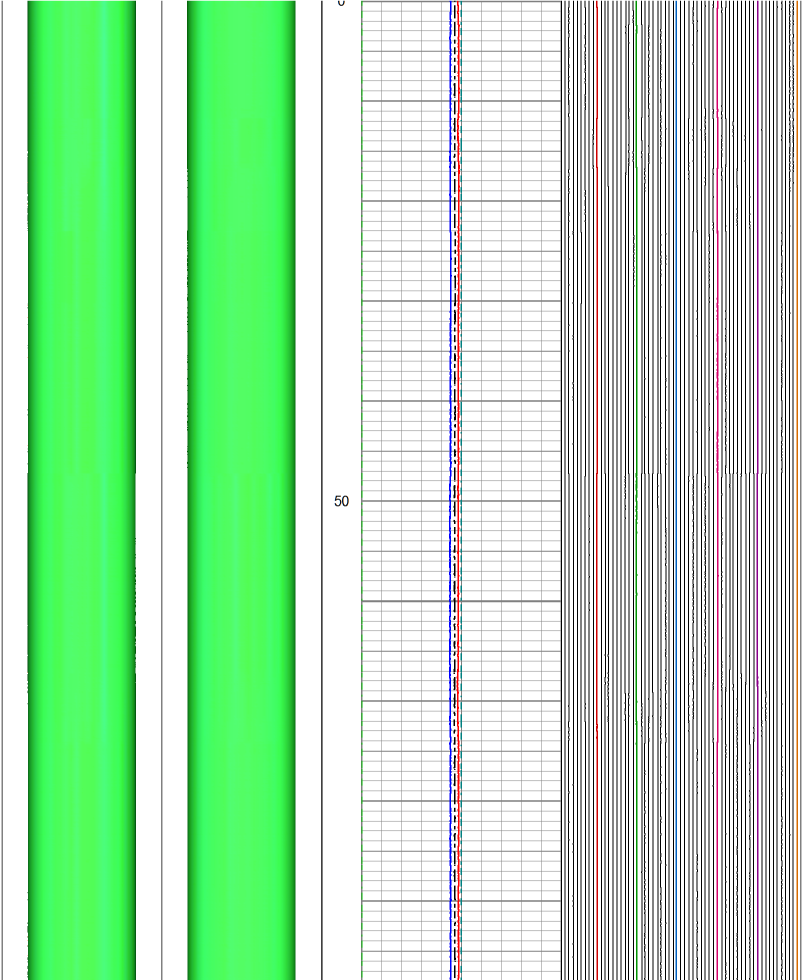
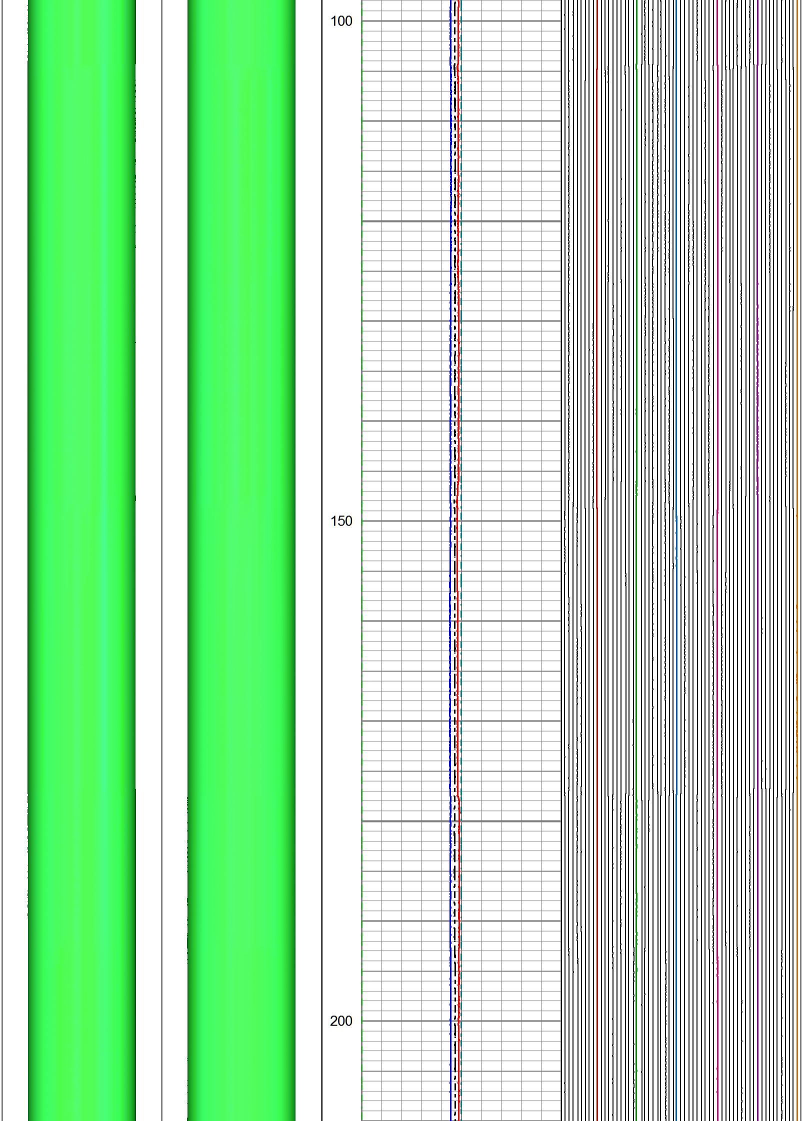
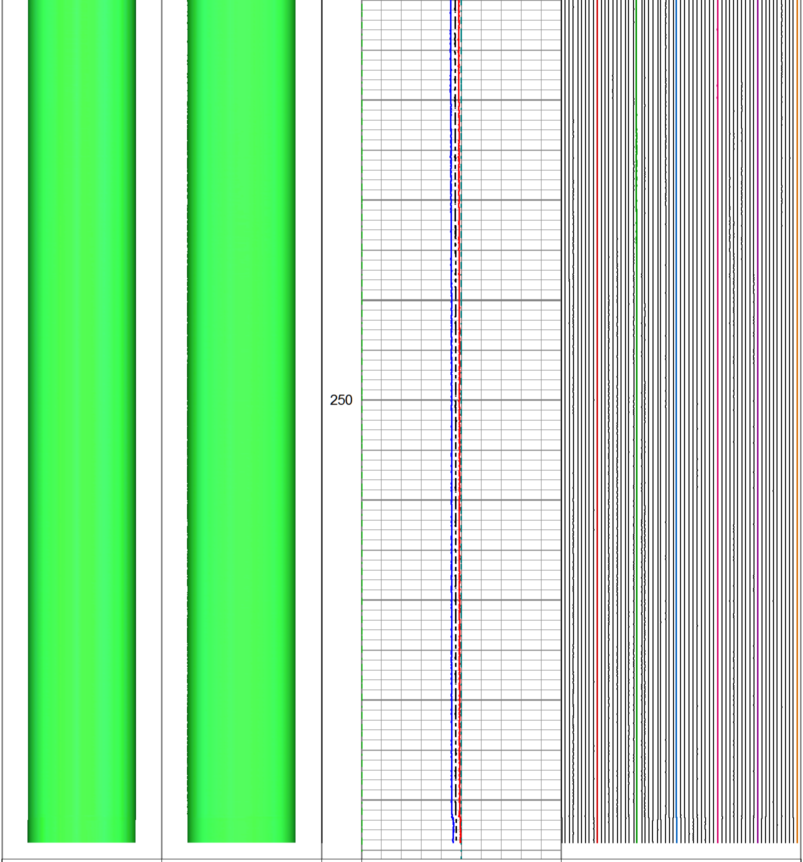
					7.325	CASEID (in)	8.325	3	RC30 (in)	9
					7.325	IDAVC (in)	8.325	4	RC40 (in)	10
					7.325	IDMXC (in)	8.325	5	RC50 (in)	11
								6	RC60 (in)	12







Low Side Image	High Side Image	CCL	0 LSPD (ft/min) 200	1 RC10 (in) 7
7.025 8.625	7.025 8.625		7.325 IDMNC (in) 8.325	2 RC20 (in) 8
			7.325 CASEID (in) 8.325	3 RC30 (in) 9
			7.325 IDAVC (in) 8.325	4 RC40 (in) 10
			7.325 IDMXC (in) 8.325	5 RC50 (in) 11
				6 RC60 (in) 12

Western Wireline

Post Job Verification

Time Driven

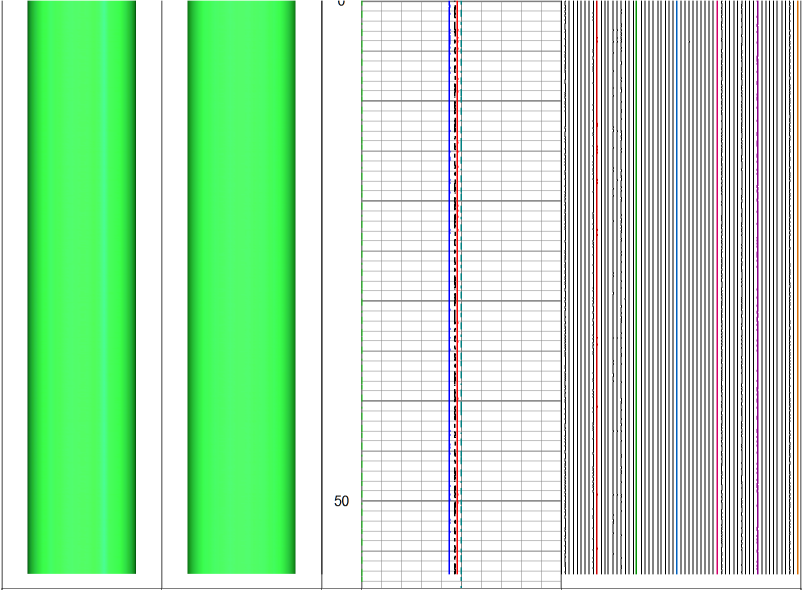
Database File	southerncaliforniagasporter26a60mac.db
Dataset Pathname	pass7
Presentation Format	1b_mac_60_multi arm_gas co edit
Dataset Creation	Wed Aug 31 13:33:29 2016
Charted by	Time scaled 360/hour

Low Side Image		High Side Image	
7.025	8.625	7.025	8.625

CCL

0	LSPD (ft/min)	200
7.325	IDMNC (in)	8.325
7.325	CASEID (in)	8.325
7.325	IDAVC (in)	8.325
7.325	IDMXC (in)	8.325

1	RC10 (in)	7
2	RC20 (in)	8
3	RC30 (in)	9
4	RC40 (in)	10
5	RC50 (in)	11
6	RC60 (in)	12



Low Side Image		High Side Image	
7.025	8.625	7.025	8.625

CCL

0	LSPD (ft/min)	200
7.325	IDMNC (in)	8.325
7.325	CASEID (in)	8.325
7.325	IDAVC (in)	8.325
7.325	IDMXC (in)	8.325

1	RC10 (in)	7
2	RC20 (in)	8
3	RC30 (in)	9
4	RC40 (in)	10
5	RC50 (in)	11
6	RC60 (in)	12

Calibration Report

Database File	southerncaliforniagasporter26a60mac.db
Dataset Pathname	pass8
Dataset Creation	Wed Aug 31 13:35:58 2016

60 Arm Multi Sensor Caliper Calibration Report

Serial Number:	0060
Tool Model:	60
Performed:	Wed Aug 31 07:44:19 2016

Ref ID:	4.33	4.92	6.10	6.69	7.78	in
Arm1	1834.00	2328.00	3312.00	3791.00	4800.00	in
Arm2	1697.00	2182.00	3161.00	3644.00	4656.00	in
Arm3	1744.00	2236.00	3223.00	3711.00	4740.00	in
Arm4	1755.00	2246.00	3226.00	3707.00	4720.00	in
Arm5	1719.00	2212.00	3193.00	3672.00	4670.00	in
Arm6	1750.00	2253.00	3252.00	3744.00	4784.00	in
Arm7	1846.00	2356.00	3370.00	3873.00	4915.00	in
Arm8	1781.00	2268.00	3252.00	3746.00	4798.00	in
Arm9	1928.00	2414.00	3385.00	3866.00	4872.00	in
Arm10	1758.00	2243.00	3216.00	3702.00	4706.00	in
Arm11	1720.00	2228.00	3262.00	3775.00	4858.00	in
Arm12	1681.00	2152.00	3087.00	3558.00	4542.00	in
Arm13	1665.00	2162.00	3148.00	3641.00	4649.00	in
Arm14	1717.00	2199.00	3156.00	3642.00	4646.00	in
Arm15	1676.00	2170.00	3148.00	3642.00	4660.00	in
Arm16	1662.00	2160.00	3150.00	3647.00	4676.00	in
Arm17	1693.00	2188.00	3174.00	3676.00	4702.00	in
Arm18	1722.00	2212.00	3175.00	3666.00	4664.00	in
Arm19	1730.00	2216.00	3178.00	3673.00	4686.00	in
Arm20	1761.00	2252.00	3231.00	3725.00	4738.00	in
Arm21	1864.00	2348.00	3336.00	3803.00	4805.00	in
Arm22	1742.00	2242.00	3230.00	3734.00	4764.00	in
Arm23	1838.00	2322.00	3278.00	3775.00	4788.00	in
Arm24	1794.00	2276.00	3224.00	3715.00	4716.00	in
Arm25	1846.00	2340.00	3308.00	3812.00	4828.00	in
Arm26	1748.00	2231.00	3192.00	3683.00	4687.00	in
Arm27	1929.00	2428.00	3403.00	3899.00	4906.00	in
Arm28	1620.00	2100.00	3048.00	3543.00	4568.00	in
Arm29	1750.00	2226.00	3182.00	3680.00	4712.00	in
Arm30	1706.00	2189.00	3170.00	3692.00	4775.00	in

* Bad

Calibration Report

Serial Number:	
Tool Model:	
Performed:	

Ref ID:	4.33	4.92	6.10	6.69	7.78	in
Arm31	1860.00	2353.00	3322.00	3823.00	4837.00	in
Arm32	1756.00	2243.00	3202.00	3695.00	4706.00	in
Arm33	1768.00	2258.00	3222.00	3728.00	4742.00	in
Arm34	1787.00	2266.00	3216.00	3712.00	4716.00	in
Arm35	1760.00	2257.00	3235.00	3743.00	4788.00	in
Arm36	1774.00	2256.00	3206.00	3701.00	4719.00	in
Arm37	1924.00	2408.00	3360.00	3851.00	4862.00	in
Arm38	1884.00	2398.00	3392.00	3892.00	4906.00	in
Arm39	1636.00	2133.00	3126.00	3642.00	4732.00	in
Arm40	1905.00	2387.00	3338.00	3822.00	4826.00	in
Arm41	1955.00	2446.00	3412.00	3902.00	4918.00	in
Arm42	1807.00	2300.00	3271.00	3764.00	4793.00	in
Arm43	1724.00	2223.00	3213.00	3715.00	4748.00	in
Arm44	1782.00	2278.00	3256.00	3754.00	4783.00	in
Arm45	2018.00	2518.00	3512.00	4012.00	5042.00	in
Arm46	1888.00	2422.00	3488.00	4022.00	5109.00	in
Arm47	1888.00	2372.00	3335.00	3816.00	4822.00	in
Arm48	1808.00	2304.00	3296.00	3792.00	4827.00	in

Arm49	1832.00	2322.00	3300.00	3794.00	4832.00	in
Arm50	1879.00	2374.00	3356.00	3844.00	4862.00	in
Arm51	1755.00	2246.00	3230.00	3719.00	4751.00	in
Arm52	1819.00	2318.00	3316.00	3808.00	4844.00	in
Arm53	1872.00	2358.00	3332.00	3819.00	4841.00	in
Arm54	1886.00	2380.00	3366.00	3854.00	4875.00	in
Arm55	1724.00	2218.00	3214.00	3707.00	4756.00	in
Arm56	1931.00	2429.00	3419.00	3905.00	4924.00	in
Arm57	1857.00	2350.00	3324.00	3803.00	4812.00	in
Arm58	1770.00	2260.00	3259.00	3757.00	4824.00	in
Arm59	1798.00	2295.00	3286.00	3773.00	4793.00	in
Arm60	1804.00	2300.00	3296.00	3786.00	4816.00	in

* Bad

HWWSMFC verifications Calibration Report

	Pre Verification	Post Verification	Casing Check	
Performed:	Wed Aug 31 07:47:06 2016	Wed Aug 31 13:35:04 2016	Wed Aug 31 13:35:55 2016	
Ref ID:	7.78	7.78	7.78	in
Min.	7.78	7.76	7.76	in
Max.	7.79	7.81	7.81	in
Avg.	7.78	7.79	7.79	in
Dia1	7.78	7.80	7.80	in
Dia2	7.78	7.80	7.80	in
Dia3	7.78	7.79	7.79	in
Dia4	7.78	7.79	7.79	in
Dia5	7.78	7.80	7.80	in
Dia6	7.78	7.79	7.79	in
Dia7	7.78	7.79	7.79	in
Dia8	7.78	7.79	7.79	in
Dia9	7.78	7.80	7.80	in
Dia10	7.78	7.80	7.80	in
Dia11	7.78	7.79	7.79	in
Dia12	7.78	7.80	7.80	in
Dia13	7.78	7.79	7.79	in
Dia14	7.78	7.80	7.80	in
Dia15	7.78	7.80	7.80	in
Dia16	7.78	7.78	7.78	in
Dia17	7.78	7.79	7.79	in
Dia18	7.78	7.80	7.80	in
Dia19	7.78	7.80	7.80	in
Dia20	7.78	7.79	7.79	in
Dia21	7.78	7.79	7.79	in
Dia22	7.78	7.79	7.79	in
Dia23	7.78	7.80	7.80	in
Dia24	7.78	7.80	7.80	in
Dia25	7.78	7.79	7.79	in
Dia26	7.79	7.80	7.80	in
Dia27	7.78	7.76	7.76	in
Dia28	7.78	7.79	7.79	in
Dia29	7.78	7.81	7.81	in
Dia30	7.78	7.79	7.79	in

Inclinometer Calibration Report

Performed: (Not Performed)

	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	0.00	1.00	0.00	1.00	gee
Y Accelerometer	0.00	1.00	0.00	1.00	gee
Z Accelerometer					gee

Western Wireline

Company	Southern California Gas Company
Well	Porter 26A
Field	Aliso Canyon
County	Los Angeles
State	California
Country	U.S.A.