

**1 : 1200 / 1 : 240**

WELL INFORMATION					
MWD Run Number	100	200	300	400	
Date run completed	09-Jul-11	10-Jul-11	13-Jul-11	17-Jul-11	
Rig Bit Number	1	2	3	4	
Bit Size (in)	8.750	8.750	8.750	6.130	
Tool Nominal OD (in)	6.750	6.750	6.750	4.750	
Log Start Depth (TVD, ft)	485.00	4,801.69	5,176.69	6,310.26	
Log End Depth (TVD, ft)	4,801.69	5,176.69	6,310.26	6,292.49	
Drill or Wipe	Drill	Drill	Drill	Drill	
Drill/Wipe Start Date and Time	07-Jul-11 03:30	09-Jul-11 19:15	10-Jul-11 20:24	15-Jul-11 02:37	
Drill/Wipe End Date and Time	09-Jul-11 11:52	10-Jul-11 09:35	13-Jul-11 05:30	17-Jul-11 12:15	
Min Inc (deg) @ Depth (TVD, ft)	.09 @ 640.00	9.88 @ 5,089.84	8.72 @ 5,176.69	88.43 @ 6,306.67	
Max Inc (deg) @ Depth (TVD, ft)	24.43 @ 3,569.62	13.61 @ 4,779.33	88.52 @ 6,309.73	92.01 @ 6,306.39	
Bit TFA(in2) / Bit Type	.75 / PDC	.86 / PDC	.92 / Tricone	.46 / PDC	
Flow Rate (gpm)	430.00	430.00	430.00	240.00	
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	331.9 / 315.7	437.6 / 248.4	
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel	
Density (ppg) / Viscosity (spqt)	N/A / N/A	N/A / N/A	9.60 / 43.00	8.80 / 36.00	
Filtrate CL (ppm)	N/A	N/A	1,400.00	1,000.00	
pH / Fluid Loss (mptm)	N/A / N/A	N/A / N/A	8.50 / 0	8.40 / 0	
PV (cP) / YP (lbf2)	N/A / N/A	N/A / N/A	15 / 18.00	9 / 8.00	
% Solids / % Sand	N/A / N/A	N/A / N/A	9.5 / 0.20	2.9 / 0.25	
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A	
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A	N/A @ N/A	
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A	N/A @ N/A	
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A	N/A @ N/A	
Mud Temp (deg F) @	117.10 / 50M	116.80 / 50M	109.05 / 100M	109.00 / 100M	

Max Tool Temp (degF) / Source	117.10 / PCM	143.60 / PCM	169.65 / HCIM	209.20 / PCM	
Rm @ Max Tool Temp (degF)	N/A @ 117.10	N/A @ 143.60	N/A @ 169.65	N/A @ 209.20	
Lead MWD Engineer	Bogdan Cristian	Bogdan Cristian	Bogdan Cristian	Bogdan Cristian	
Customer Representative	Ray Hoffman	Ray Hoffman	Ray Hoffman	Ray Hoffman	

## SENSOR INFORMATION

### Downhole Processor Information

Tool Type	PCM	PCM	HCIM	PCM	
Software Version	5.76	5.76	88.47	5.76	
Sub Serial Number	11342301	11342301	11222074	11675321	
Insert Serial Number	11227547	11227547	136648	11227547	
Date and Time Initialized	06-Jul-11 13:39	06-Jul-11 13:39	10-Jul-11 16:19	14-Jul-11 11:53	
Date and Time Read	09-Jul-11 15:09	10-Jul-11 14:13	13-Jul-11 19:47	17-Jul-11 21:43	
ECMB SW Version	N/A	N/A	N/A	N/A	

### Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC	PCDC	
Distance From Bit (ft)	55.00	55.00	33.00	40.84	
Software Version	6.21	6.21	6.21	6.21	
Sub Serial Number	11342301	11342301	11677158	11675321	
Sonde Serial Number	11478177	11478177	11297618	11478177	
Sensor ID Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	357.86	194.21	332.00	55.27	

### Gamma Ray Sensor Information

Tool Type	N/A	N/A	DGR	PCG	
Distance From Bit (ft)	N/A	N/A	52.77	45.42	
Recorded Sample Period (sec)	N/A	N/A	12	10	
Software Version	N/A	N/A	N/A	8.15	
Sub Serial Number	N/A	N/A	11064912	11675321	
Insert/Sonde Serial Number	N/A	N/A	11321776	11579774	

### Resistivity Sensor Information

Tool Type	N/A	N/A	EWR-P4	N/A	
Distance From Bit (ft)	N/A	N/A	42.88	N/A	
Recorded Sample Period (sec)	N/A	N/A	12	N/A	
Software Version	N/A	N/A	1.50	N/A	
Sub Serial Number	N/A	N/A	10505915	N/A	
Receiver Insert Serial Number	N/A	N/A	112991	N/A	
Transmitter Insert Serial Number	N/A	N/A	230091	N/A	
Receiver Orientation	N/A	N/A	Down	N/A	

### Pulser Controller Sensor Information

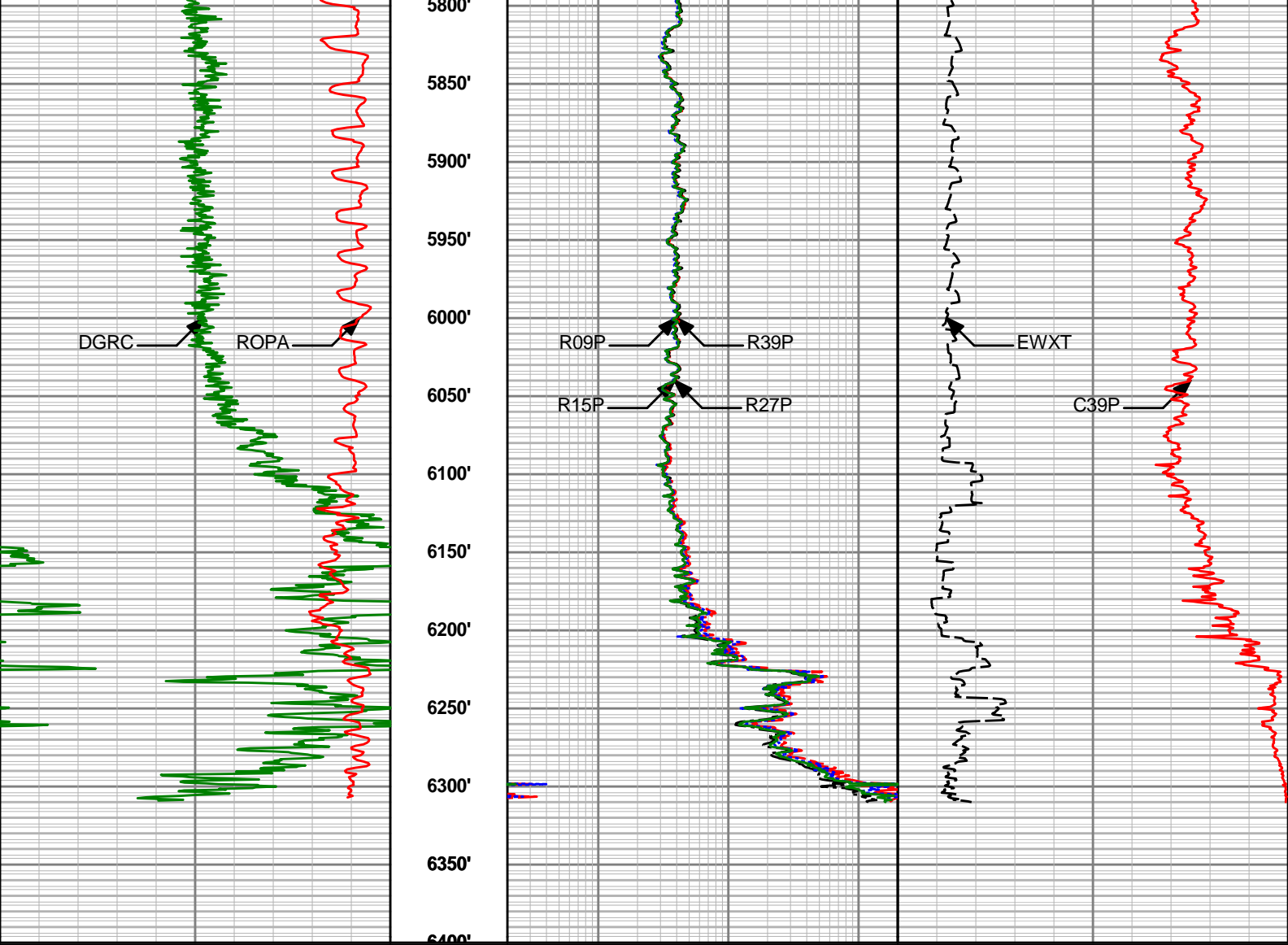
Tool Type	PCM	PCM	PCM	PCM	
Software Version	5.76	5.76	8.04	5.76	
PIC Software Version	1.30	1.30	N/A	1.30	
Sub/HOC Serial Number	11342301	11342301	11608311	11675321	
Insert/Probe/Module SN	11227547	11227547	10809549	11227547	
Battery Serial Number	N/A	N/A	N/A	N/A	
Valve Insert SN	N/A	N/A	N/A	N/A	
DC Insert Serial Number	N/A	N/A	N/A	N/A	
Choke Size (32nd)	N/A	N/A	N/A	N/A	
Driver Current (amps)	N/A	N/A	N/A	N/A	
Driver SMI Current (amps)	N/A	N/A	N/A	N/A	

Boot Strap Version	4,130.00	4,130.00	N/A	4,130.00	
DDSr-DGR Sensor Information					
Tool Type	N/A	N/A	DDSr-DGR	N/A	
Distance From Bit (ft)	N/A	N/A	0	N/A	
Recorded Sample Period (sec)	N/A	N/A	12	N/A	
Software Version	N/A	N/A	10.72	N/A	
Sub Serial Number	N/A	N/A	11064912	N/A	
Insert Serial Number	N/A	N/A	11383702	N/A	
Sensor ID Number	N/A	N/A	7024	N/A	

REMARKS
<p>1. All depths are measured bit depths, referenced to the Driller's pipe tally and are measured from the Kelly Bushing, unless otherwise specified.</p> <p>2. No depth corrections have been made for pipe stretch or compression.</p> <p>3. Critical annular velocities are calculated using the "Power Law" model for water based fluids and the "Bingham Plastic" model for oil and synthetic based fluids.</p> <p>4. All data presented is recorded data unless otherwise specified</p> <p>5. The following smoothing parameters have been applied to the data:</p> <p>ROPA (Average Rate of Penetration):</p> <p style="padding-left: 40px;">Interval Resolution: 0.5 ft</p> <p style="padding-left: 40px;">Interval Distance: 1.2 ft</p> <p style="padding-left: 40px;">Gap Fill : 3.0 ft</p> <p>All other data:</p> <p style="padding-left: 40px;">Interval Resolution: 0.5 ft</p> <p style="padding-left: 40px;">Interval Distance: 0.6 ft</p> <p style="padding-left: 40px;">Gap Fill: 3.0 ft</p> <p>6. INSITE version 7.2.4 Build 03</p>

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<p>HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY OTHER THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION AND PRODUCTION OPERATION. HALLIBURTON MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON.</p>

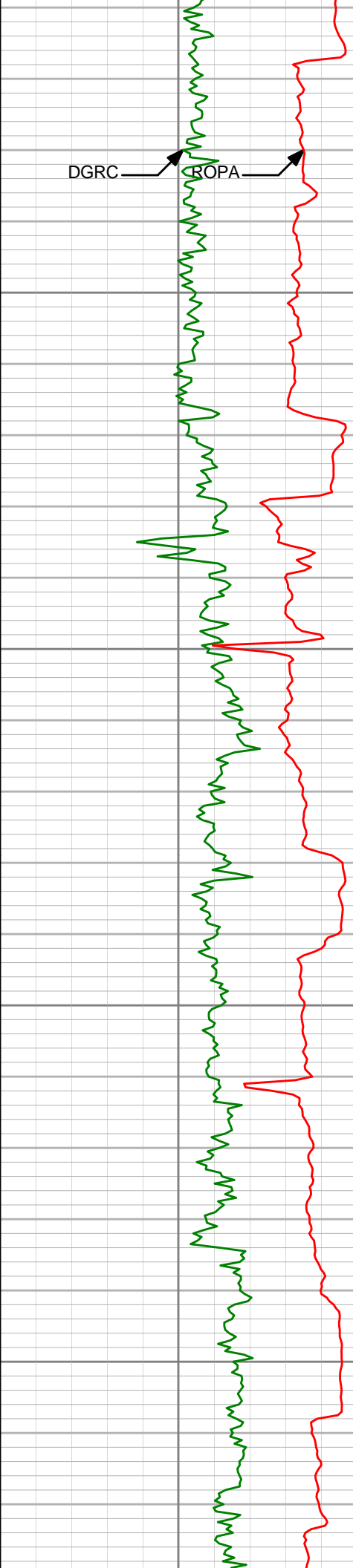
		39in Phase Resistivity (R39P)			
		0.2 ohm-m 200			
		27in Phase Resistivity (R27P)			
		0.2 ohm-m 200			
ROP Avg (ROPA)		15in Phase Resistivity (R15P)		Form Expos Time-EWR (EWXT)	
500 feet per hr 0		0.2 ohm-m 200		0 hours 10	
Cnts CG (DGRCC)		9in Phase Resistivity (R09P)		39in Phase Conductivity (C39P)	
0 api 200		0.2 ohm-m 200		1000 mmho/m 0	
	5000'				
	5100'				
	5150'				
	5200'				
	5250'				
	5300'				
	5350'				
	5400'				
	5450'				
	5500'				
	5550'				
	5600'				
	5650'				
	5700'				
	5750'				
	5800'				



Cnts CG (DGRCC)	Depth	9in Phase Resistivity (R09P)	39in Phase Conductivity (C39P)
0 api 200		0.2 ohm-m 200	1000 mmho/m 0
ROP Avg (ROPA)		15in Phase Resistivity (R15P)	Form Expos Time-EWR (EWXT)
500 feet per hr 0		0.2 ohm-m 200	0 hours 10
		27in Phase Resistivity (R27P)	
		0.2 ohm-m 200	
		39in Phase Resistivity (R39P)	
		0.2 ohm-m 200	

**HALLIBURTON**  
TVD Detail Log 1:240

		39in Phase Resistivity BC (R39P)		
		<div><div>0.2</div><div>ohm-m</div><div>200</div></div>		
		27in Phase Resistivity (R27P)		
		<div><div>0.2</div><div>ohm-m</div><div>200</div></div>		
ROP Avg (ROPA)		15in Phase Resistivity BC (R15P)		Form Expos Time-EWR (EWXT)
<div><div>500</div><div>feet per hr</div><div>0</div></div>		<div><div>0.2</div><div>ohm-m</div><div>200</div></div>		<div><div>0</div><div>hours</div><div>10</div></div>
Cnts CG (DGRCC)	Depth	9in Phase Resistivity (R09P)		39in Phase Conductivity (C39P)
<div><div>0</div><div>api</div><div>200</div></div>		<div><div>0.2</div><div>ohm-m</div><div>200</div></div>		<div><div>1000</div><div>mmho/m</div><div>0</div></div>
	5100'			
	5150'			
	5200'			
	5250'			

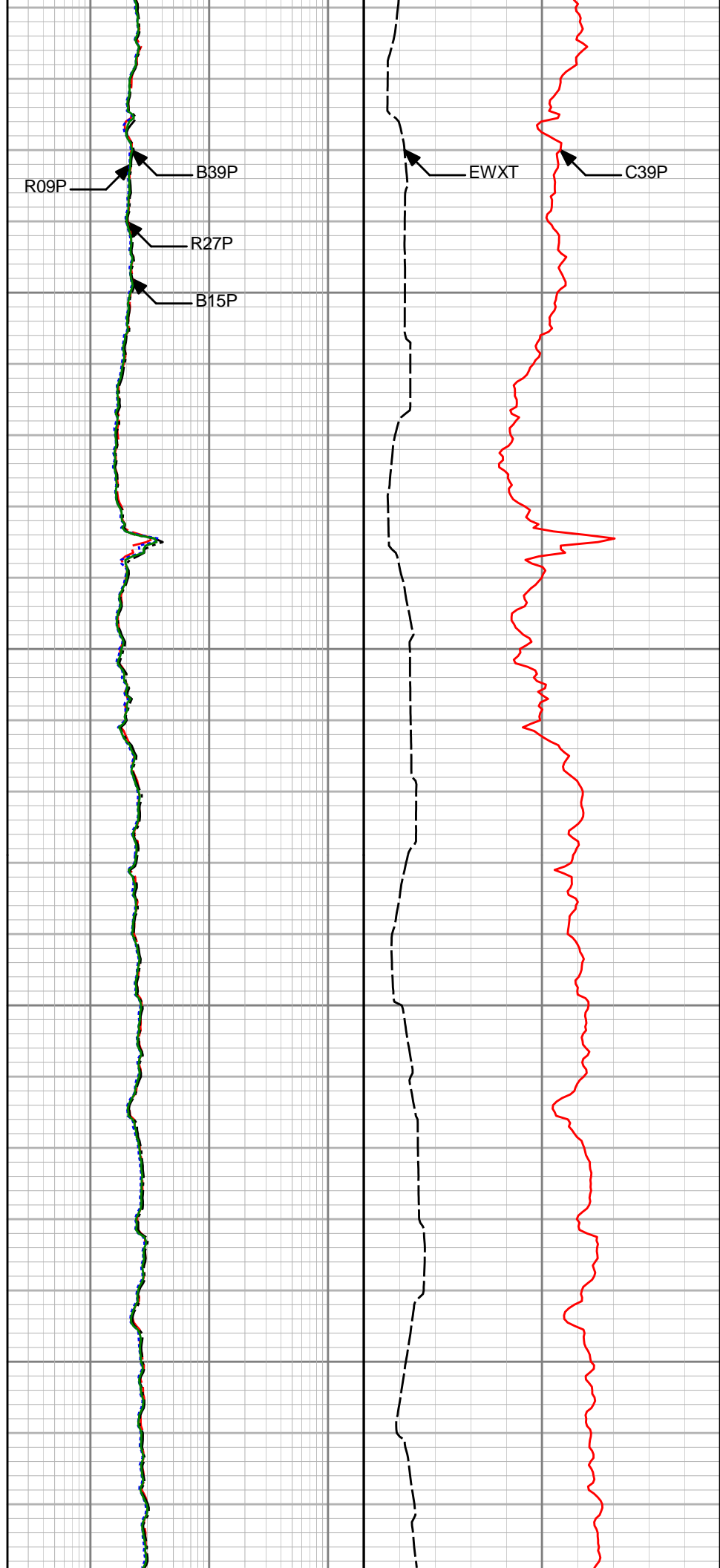


5300'

5350'

5400'

5450'



DGRC

ROPA

5500'

5550'

5600'

5650'

R27P

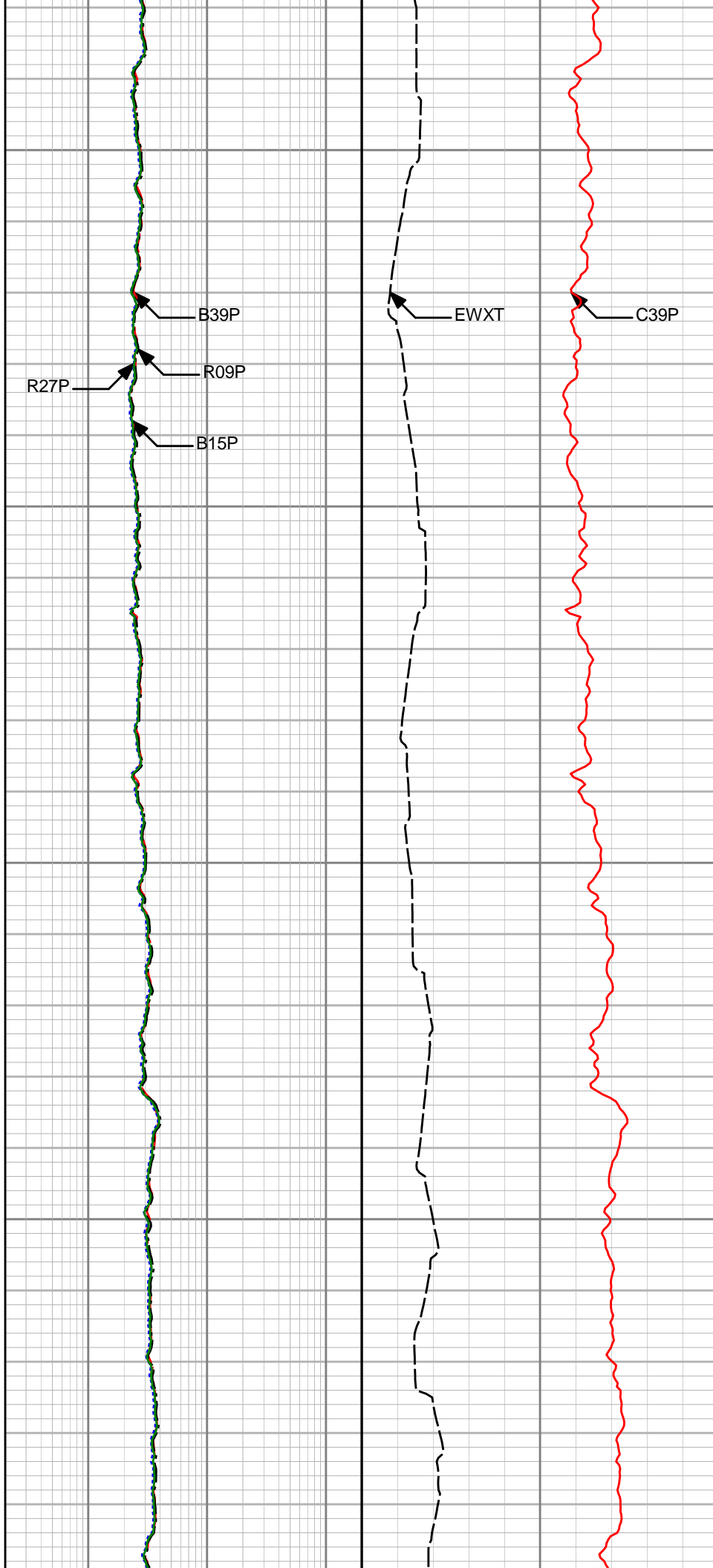
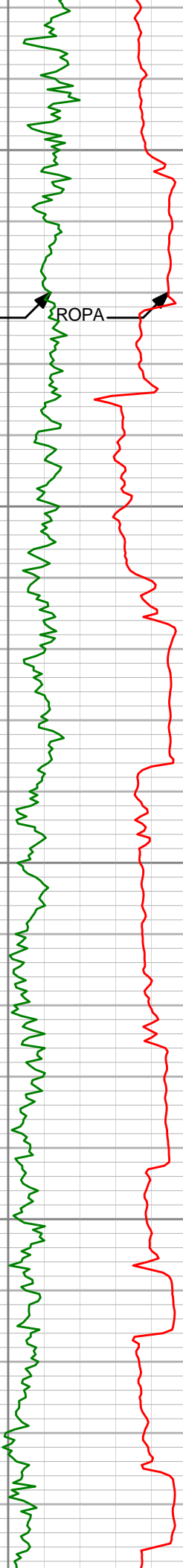
B39P

R09P

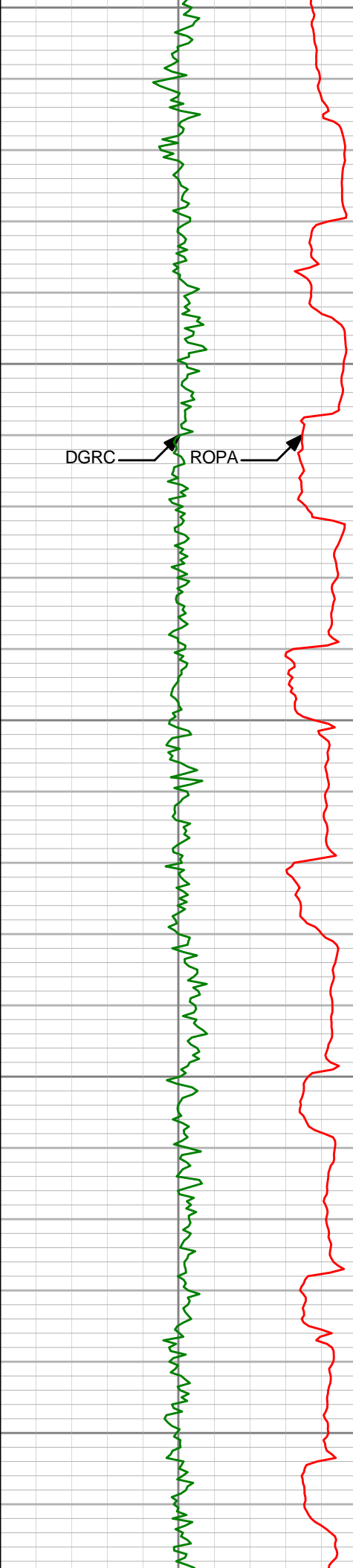
B15P

EWXT

C39P







5700'

5750'

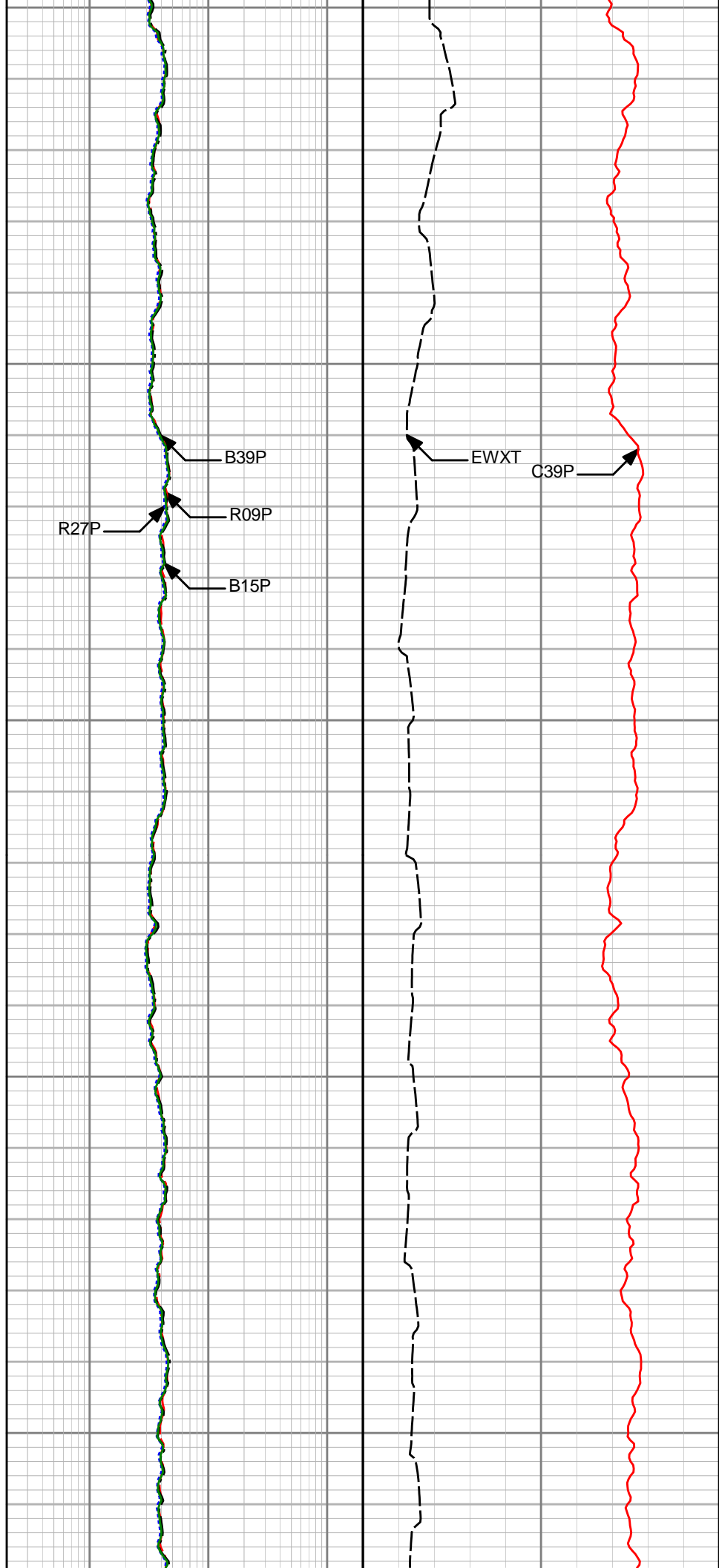
5800'

5850'

5900'

DGRC

ROPA



B39P

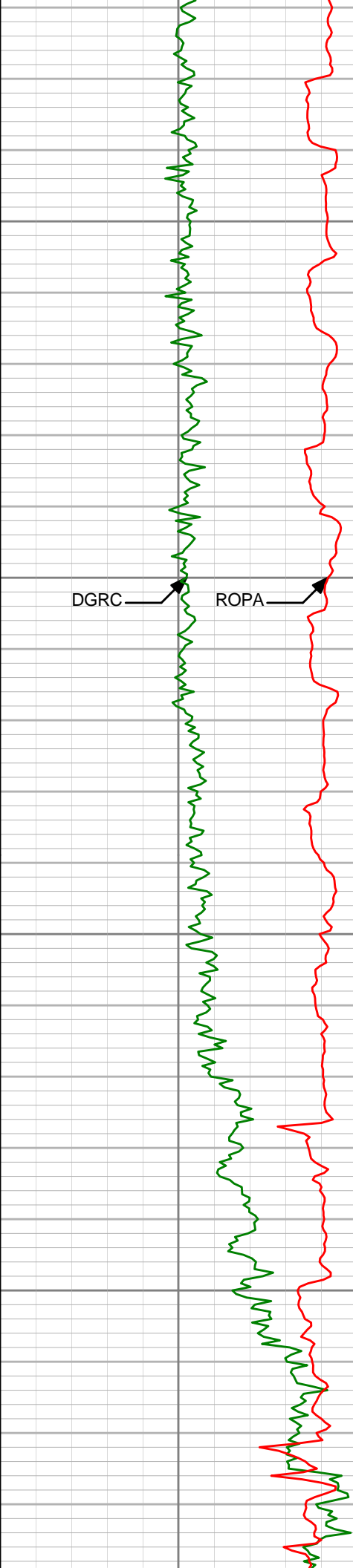
EWXT

C39P

R27P

R09P

B15P

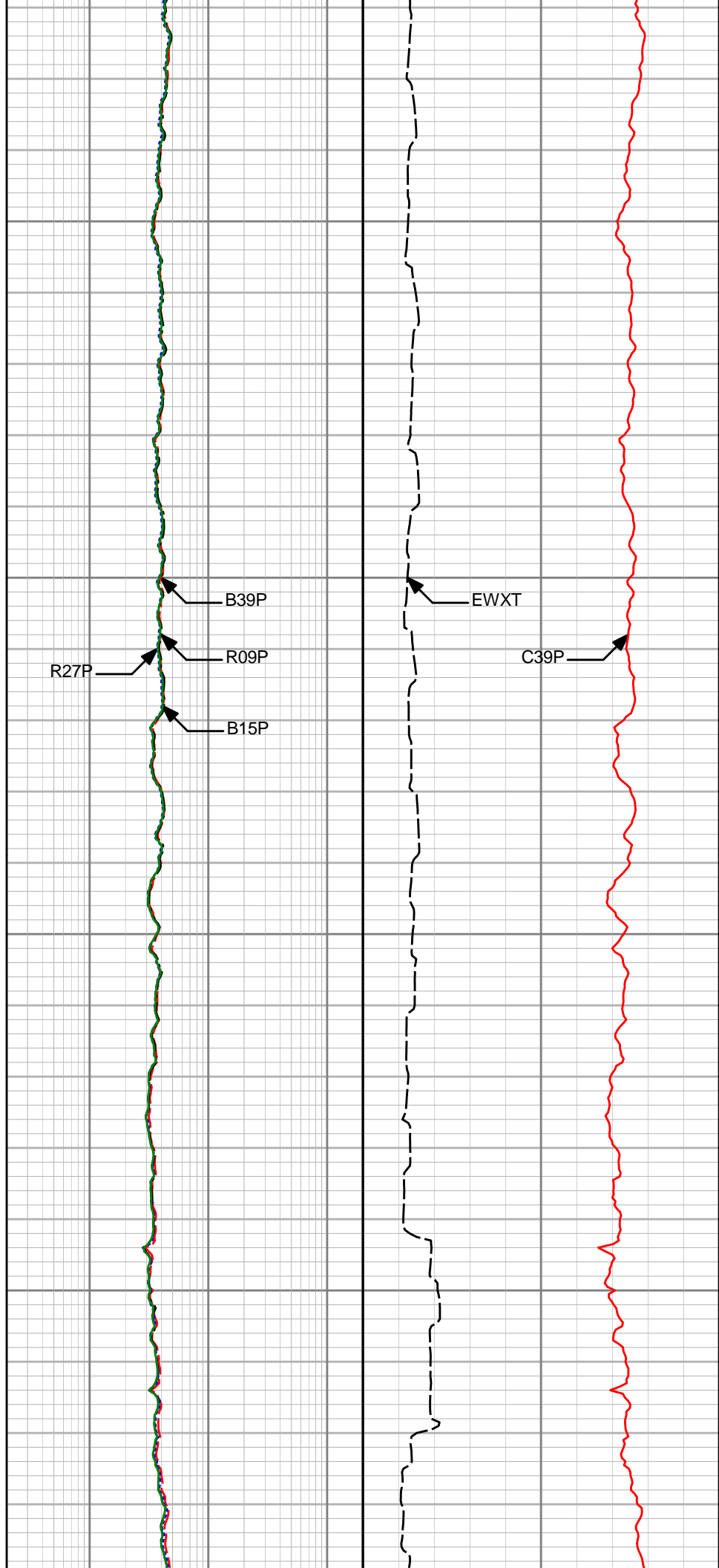


5950'

6000'

6050'

6100'



B39P

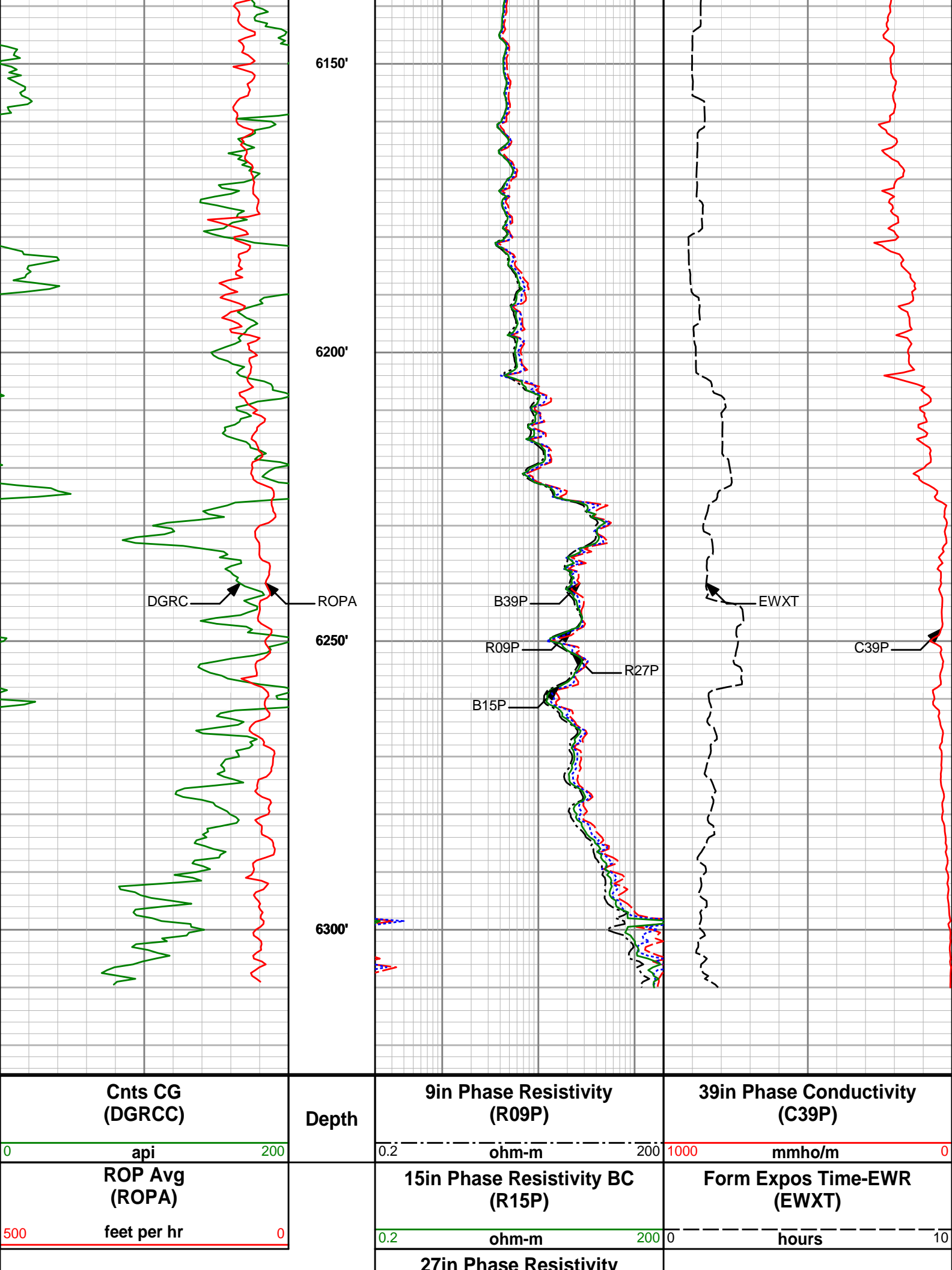
EWXT

C39P

R27P

R09P

B15P



Cnts CG  
(DGRCC)

Depth

9in Phase Resistivity  
(R09P)

39in Phase Conductivity  
(C39P)

ROP Avg  
(ROPA)

15in Phase Resistivity BC  
(R15P)

Form Expos Time-EWR  
(EWXT)

feet per hr

ohm-m

mmho/m

hours

27in Phase Resistivity

	200	ohm-m	0.2	(R27P)
	200	ohm-m	0.2	39in Phase Resistivity BC (R39P)



## HALLIBURTON

### DIRECTIONAL SURVEY REPORT

Bonanza Creek Energy, Inc.

North Platte 44-11-28HZ

Wattenburg

Weld CO

USA

CA-MJ-0008289470

Survey at 11000 ft. MD it's a projection to the bit.

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
549.00	0.31	182.09	549.00	1.48 S	0.05 W	-1.18	0.06
640.00	0.09	305.26	640.00	1.69 S	0.12 W	-1.31	0.40
732.00	0.40	192.76	732.00	1.97 S	0.25 W	-1.47	0.48
824.00	0.31	191.53	823.99	2.52 S	0.37 W	-1.85	0.10
916.00	0.25	179.24	915.99	2.97 S	0.42 W	-2.19	0.09
1007.00	0.18	310.14	1006.99	3.07 S	0.53 W	-2.21	0.43
1099.00	0.25	271.60	1098.99	2.97 S	0.84 W	-1.94	0.17
1190.00	0.39	64.43	1189.99	2.83 S	0.77 W	-1.87	0.69
1282.00	0.28	318.28	1281.99	2.52 S	0.64 W	-1.70	0.59
1376.00	0.61	330.50	1375.99	1.91 S	1.04 W	-0.97	0.36
1468.00	0.75	331.28	1467.98	0.96 S	1.57 W	0.12	0.16
1561.00	0.68	343.54	1560.97	0.10 N	2.02 W	1.25	0.18
1653.00	0.50	324.35	1652.97	0.96 N	2.41 W	2.16	0.29
1746.00	0.68	311.59	1745.96	1.65 N	3.06 W	3.11	0.23
1839.00	0.62	328.60	1838.96	2.45 N	3.73 W	4.15	0.21
1933.00	0.87	287.05	1932.95	3.09 N	4.68 W	5.22	0.61
1994.00	1.20	300.39	1993.94	3.55 N	5.67 W	6.16	0.67
2056.00	2.60	312.82	2055.91	4.83 N	7.26 W	8.13	2.33
2118.00	3.27	321.33	2117.82	7.17 N	9.39 W	11.27	1.29
2180.00	4.14	339.06	2179.70	10.64 N	11.30 W	15.20	2.30
2238.00	4.76	349.95	2237.52	14.96 N	12.47 W	19.41	1.80
2299.00	5.77	357.77	2298.27	20.52 N	13.03 W	24.28	2.03
2361.00	6.47	3.37	2359.91	27.12 N	12.94 W	29.63	1.48
2423.00	7.32	9.19	2421.46	34.50 N	12.11 W	35.19	1.77
2485.00	8.23	13.21	2482.90	42.71 N	10.46 W	40.97	1.71
2546.00	9.46	17.27	2543.17	51.75 N	7.98 W	46.93	2.26
2608.00	10.99	22.17	2604.18	62.09 N	4.23 W	53.24	2.84
2670.00	12.16	23.56	2664.92	73.55 N	0.61 E	59.84	1.95
2732.00	13.45	24.74	2725.38	86.08 N	6.23 E	66.86	2.11
2793.00	14.32	24.61	2784.60	99.38 N	12.35 E	74.24	1.44
2855.00	15.42	23.06	2844.52	113.94 N	18.77 E	82.46	1.88
2919.00	15.35	18.23	2906.23	129.81 N	24.75 E	92.01	2.00
2982.00	14.58	17.92	2967.09	145.28 N	29.80 E	101.76	1.22
3044.00	14.47	21.96	3027.11	159.89 N	35.10 E	110.67	1.65
3108.00	14.07	26.35	3089.14	174.28 N	41.54 E	118.74	1.80
3171.00	13.98	25.73	3150.26	187.99 N	48.24 E	126.12	0.29
3234.00	14.37	22.79	3211.34	202.05 N	54.57 E	133.99	1.30
3298.00	14.53	22.33	3273.32	216.80 N	60.70 E	142.53	0.30
3361.00	17.87	20.35	3333.81	233.18 N	67.07 E	152.28	5.38
3425.00	21.06	22.80	3394.14	253.00 N	74.94 E	163.97	5.15
3488.00	23.11	23.18	3452.52	274.80 N	84.20 E	176.49	3.25
3552.00	23.84	22.65	3511.22	298.28 N	94.12 E	190.00	1.20
3616.00	24.43	21.92	3569.62	322.50 N	104.05 E	204.12	1.03
3679.00	23.59	21.88	3627.17	346.29 N	113.61 E	218.09	1.33
3742.00	21.40	22.09	3685.37	368.64 N	122.63 E	231.20	3.48

	3806.00	20.56	21.42	3745.13	389.92 N	131.12 E	243.73	1.36
	3870.00	20.16	20.96	3805.13	410.68 N	139.17 E	256.10	0.68
	3932.00	19.23	20.98	3863.50	430.19 N	146.65 E	267.76	1.49
	3996.00	17.84	21.61	3924.18	449.14 N	154.03 E	279.03	2.19
	4059.00	16.54	22.18	3984.37	466.42 N	160.97 E	289.18	2.08
	4123.00	16.48	21.32	4045.73	483.32 N	167.71 E	299.13	0.39
	4186.00	17.08	21.74	4106.05	500.24 N	174.39 E	309.14	0.97
	4250.00	17.97	23.21	4167.07	518.04 N	181.76 E	319.48	1.55
	4313.00	17.18	24.86	4227.13	535.42 N	189.50 E	329.25	1.48
	4377.00	16.65	26.14	4288.36	552.23 N	197.52 E	338.40	1.02
	4440.00	15.68	30.01	4348.88	567.70 N	205.75 E	346.33	2.30
	4504.00	15.37	30.49	4410.54	582.50 N	214.38 E	353.48	0.52
	4567.00	15.48	30.15	4471.27	596.97 N	222.84 E	360.46	0.23
	4631.00	14.70	28.59	4533.06	611.48 N	231.02 E	367.64	1.38
	4694.00	13.90	26.24	4594.11	625.29 N	238.19 E	374.82	1.56
	4758.00	14.28	25.54	4656.18	639.31 N	244.99 E	382.38	0.64
	4821.00	14.38	23.64	4717.23	653.48 N	251.47 E	390.25	0.76
	4885.00	13.61	22.45	4779.33	667.72 N	257.54 E	398.42	1.27
	4948.00	12.99	21.78	4840.64	681.15 N	263.00 E	406.27	1.02
	5012.00	11.97	20.11	4903.12	694.06 N	267.95 E	413.99	1.69
	5075.00	10.83	18.25	4964.88	705.81 N	272.05 E	421.25	1.90
	5139.00	10.19	16.64	5027.81	716.94 N	275.55 E	428.35	1.10
	5202.00	9.88	13.90	5089.84	727.52 N	278.44 E	435.34	0.91
	5290.00	8.72	12.13	5176.69	741.37 N	281.66 E	444.83	1.36
	5334.00	9.34	10.04	5220.14	748.14 N	282.98 E	449.61	1.60
	5398.00	10.56	14.24	5283.18	758.94 N	285.33 E	457.10	2.22
	5461.00	11.81	15.81	5344.98	770.74 N	288.50 E	464.93	2.04
	5525.00	13.01	14.33	5407.49	784.02 N	292.07 E	473.74	1.94
	5588.00	14.59	15.07	5468.67	798.55 N	295.89 E	483.44	2.52
	5652.00	15.60	11.47	5530.46	814.77 N	299.69 E	494.52	2.15
	5715.00	17.43	9.58	5590.86	832.37 N	302.95 E	507.06	3.04
	5747.00	18.13	8.38	5621.33	842.02 N	304.47 E	514.08	2.46
	5779.00	18.99	4.59	5651.67	852.14 N	305.61 E	521.71	4.64
	5811.00	19.74	1.35	5681.86	862.73 N	306.16 E	530.06	4.08
	5842.00	20.43	358.23	5710.97	873.38 N	306.12 E	538.80	4.12
	5874.00	21.62	354.94	5740.84	884.83 N	305.42 E	548.57	5.22
	5906.00	22.62	350.92	5770.49	896.78 N	303.93 E	559.20	5.67
	5938.00	24.07	348.04	5799.87	909.24 N	301.61 E	570.74	5.76
	5969.00	25.86	345.53	5827.97	921.97 N	298.61 E	582.88	6.72
	6001.00	28.13	343.34	5856.49	935.95 N	294.70 E	596.57	7.74
	6033.00	30.39	341.98	5884.40	950.88 N	290.04 E	611.46	7.39
	6065.00	32.40	339.74	5911.72	966.62 N	284.56 E	627.49	7.25
	6096.00	34.38	338.34	5937.60	982.55 N	278.45 E	644.04	6.84
	6128.00	36.54	337.12	5963.66	999.72 N	271.42 E	662.14	7.11
	6160.00	38.72	336.89	5989.01	1017.71 N	263.78 E	681.24	6.84
	6192.00	40.89	336.19	6013.59	1036.50 N	255.63 E	701.30	6.91
	6223.00	42.73	335.58	6036.69	1055.36 N	247.18 E	721.59	6.09
	6255.00	44.92	335.18	6059.78	1075.50 N	237.95 E	743.38	6.90
	6287.00	47.33	335.34	6081.96	1096.45 N	228.30 E	766.07	7.54
	6319.00	49.97	334.97	6103.09	1118.25 N	218.21 E	789.71	8.29
	6350.00	52.09	334.71	6122.59	1140.06 N	207.96 E	813.45	6.88
	6382.00	53.66	333.51	6141.90	1163.01 N	196.81 E	838.64	5.74
	6414.00	55.46	331.37	6160.46	1186.12 N	184.75 E	864.48	7.82
	6446.00	58.34	330.67	6177.93	1209.56 N	171.76 E	891.13	9.19
	6477.00	61.20	330.44	6193.54	1232.89 N	158.59 E	917.79	9.23
	6509.00	63.37	328.81	6208.42	1257.32 N	144.27 E	946.02	8.16
	6541.00	65.29	327.42	6222.29	1281.81 N	129.03 E	974.81	7.15
	6573.00	67.30	326.55	6235.15	1306.37 N	113.07 E	1004.09	6.76
	6604.00	69.37	326.20	6246.60	1330.36 N	97.11 E	1032.89	6.77
	6636.00	71.00	325.02	6257.45	1355.20 N	80.11 E	1062.99	6.15
	6668.00	73.02	324.03	6267.33	1379.98 N	62.45 E	1093.42	6.97
	6700.00	75.14	323.48	6276.11	1404.80 N	44.25 E	1124.18	6.83
	6731.00	77.17	322.52	6283.53	1428.83 N	26.14 E	1154.26	7.20
	6763.00	78.68	322.14	6290.22	1453.60 N	7.01 E	1185.52	4.87
	6795.00	80.00	320.26	6296.14	1478.11 N	12.69 W	1216.90	7.10
	6827.00	81.88	319.26	6301.18	1502.23 N	33.10 W	1248.37	6.62
	6859.00	83.56	318.32	6305.23	1526.11 N	54.01 W	1279.93	6.02
	6890.00	85.74	317.38	6308.12	1548.99 N	74.72 W	1310.56	7.62
	6922.00	88.52	317.47	6309.73	1572.52 N	96.34 W	1342.24	8.70
	6993.00	91.08	317.39	6309.98	1624.81 N	144.37 W	1412.63	3.61
	7024.00	91.63	317.54	6309.24	1647.64 N	165.32 W	1443.36	1.85
	7086.00	91.60	317.26	6307.49	1693.26 N	207.27 W	1504.80	0.44
	7148.00	91.11	317.47	6306.02	1738.86 N	249.25 W	1566.25	0.86
	7210.00	91.66	317.93	6304.52	1784.71 N	290.97 W	1627.74	1.17
	7244.00	91.95	317.79	6303.79	1807.69 N	344.76 W	1659.49	2.94

7241.00	91.05	317.79	6303.79	1807.69 N	311.76 W	1658.49	2.04
7272.00	90.59	317.46	6303.34	1830.58 N	332.65 W	1689.24	1.82
7303.00	90.06	316.56	6303.17	1853.26 N	353.79 W	1719.94	3.36
7334.00	89.26	316.54	6303.35	1875.76 N	375.11 W	1750.61	2.59
7365.00	89.44	316.27	6303.70	1898.22 N	396.48 W	1781.27	1.05
7396.00	89.69	316.06	6303.94	1920.58 N	417.95 W	1811.91	1.06
7458.00	90.28	315.88	6303.95	1965.15 N	461.04 W	1873.15	0.99
7520.00	90.03	315.84	6303.79	2009.65 N	504.22 W	1934.38	0.40
7582.00	90.43	316.15	6303.54	2054.25 N	547.29 W	1995.63	0.82
7644.00	90.15	315.63	6303.22	2098.76 N	590.44 W	2056.86	0.96
7708.00	90.31	314.64	6302.96	2144.12 N	635.59 W	2119.93	1.56
7772.00	89.60	314.30	6303.01	2188.95 N	681.26 W	2182.86	1.23
7835.00	90.65	314.31	6302.88	2232.96 N	726.35 W	2244.79	1.67
7899.00	89.75	313.53	6302.66	2277.35 N	772.44 W	2307.61	1.86
7962.00	89.04	313.03	6303.32	2320.54 N	818.30 W	2369.31	1.37
8026.00	89.60	312.67	6304.08	2364.06 N	865.22 W	2431.89	1.03
8089.00	89.97	312.68	6304.31	2406.77 N	911.54 W	2493.46	0.59
8153.00	88.67	313.01	6305.07	2450.29 N	958.45 W	2556.04	2.09
8216.00	88.43	312.97	6306.67	2493.23 N	1004.52 W	2617.66	0.40
8280.00	88.49	312.92	6308.39	2536.82 N	1051.35 W	2680.24	0.13
8343.00	89.66	313.46	6309.41	2579.93 N	1097.28 W	2741.91	2.05
8407.00	90.34	313.44	6309.41	2623.94 N	1143.74 W	2804.64	1.06
8470.00	90.43	312.92	6308.99	2667.05 N	1189.68 W	2866.32	0.84
8534.00	91.29	312.67	6308.03	2710.53 N	1236.64 W	2928.88	1.40
8597.00	90.28	313.30	6307.16	2753.47 N	1282.72 W	2990.51	1.90
8661.00	90.34	314.14	6306.82	2797.71 N	1328.97 W	3053.29	1.32
8724.00	90.83	313.98	6306.17	2841.51 N	1374.24 W	3115.16	0.83
8788.00	90.40	314.88	6305.48	2886.32 N	1419.94 W	3178.09	1.57
8851.00	89.60	314.68	6305.48	2930.69 N	1464.66 W	3240.10	1.31
8915.00	90.25	314.97	6305.57	2975.81 N	1510.05 W	3303.11	1.11
8978.00	88.92	313.71	6306.03	3019.84 N	1555.10 W	3365.04	2.91
9042.00	89.97	313.69	6306.65	3064.05 N	1601.37 W	3427.81	1.64
9105.00	90.12	313.85	6306.60	3107.63 N	1646.86 W	3489.62	0.36
9169.00	89.41	313.11	6306.86	3151.67 N	1693.30 W	3552.35	1.60
9233.00	89.75	313.35	6307.32	3195.51 N	1739.93 W	3615.02	0.64
9296.00	89.75	314.83	6307.59	3239.34 N	1785.18 W	3676.89	2.35
9360.00	90.22	315.95	6307.61	3284.90 N	1830.13 W	3740.01	1.89
9423.00	92.01	316.50	6306.39	3330.38 N	1873.70 W	3802.27	2.97
9487.00	91.20	316.62	6304.60	3376.83 N	1917.69 W	3865.56	1.27
9550.00	90.03	315.94	6303.92	3422.36 N	1961.23 W	3927.84	2.15
9614.00	90.12	314.95	6303.83	3467.96 N	2006.13 W	3990.97	1.55
9677.00	90.25	313.87	6303.63	3512.05 N	2051.13 W	4052.91	1.73
9741.00	90.12	312.75	6303.42	3555.95 N	2097.70 W	4115.60	1.77
9804.00	90.25	312.84	6303.22	3598.75 N	2143.93 W	4177.20	0.25
9868.00	89.88	313.05	6303.15	3642.36 N	2190.77 W	4239.80	0.66
9932.00	90.03	313.43	6303.20	3686.20 N	2237.40 W	4302.48	0.64
9995.00	90.68	314.21	6302.81	3729.82 N	2282.85 W	4364.30	1.61
10059.00	90.25	315.83	6302.29	3775.09 N	2328.08 W	4427.34	2.62
10122.00	89.23	317.10	6302.58	3820.76 N	2371.47 W	4489.65	2.58
10186.00	90.34	317.25	6302.82	3867.70 N	2414.98 W	4553.07	1.75
10249.00	90.86	317.05	6302.16	3913.89 N	2457.82 W	4615.49	0.89
10313.00	89.72	317.04	6301.83	3960.73 N	2501.43 W	4678.88	1.78
10376.00	90.43	317.62	6301.75	4007.05 N	2544.13 W	4741.33	1.45
10440.00	90.77	317.58	6301.08	4054.31 N	2587.28 W	4804.80	0.53
10503.00	91.17	317.42	6300.01	4100.75 N	2629.84 W	4867.27	0.68
10566.00	90.22	317.52	6299.25	4147.17 N	2672.42 W	4929.73	1.53
10630.00	90.62	317.54	6298.78	4194.38 N	2715.63 W	4993.20	0.63
10693.00	90.09	316.07	6298.39	4240.30 N	2758.75 W	5055.56	2.47
10757.00	90.59	315.77	6298.01	4286.28 N	2803.27 W	5118.77	0.90
10820.00	90.80	315.87	6297.25	4331.46 N	2847.18 W	5180.98	0.38
10884.00	91.39	315.71	6296.03	4377.32 N	2891.80 W	5244.15	0.95
10957.00	91.91	315.65	6293.92	4429.53 N	2942.78 W	5316.18	0.72
11000.00	91.91	315.65	6292.49	4460.26 N	2972.82 W	5358.59	0.01

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT  
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD  
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 324.92 DEGREES (TRUE)  
A TOTAL CORRECTION OF 8.65 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.

HORIZONTAL DISPLACEMENT(CLOSURE) AT 11000.00 FEET  
IS 5360.18 FEET ALONG 326.32 DEGREES (TRUE)

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