

Company: Noble Energy Inc.		Well: Wells Ranch AA11-637		Field: Wattenburg		County: Weld		State: Colorado		Country: USA	
<div><div>SlimPulse & AWR - GR & RES</div><div>1 in./ 100 ft, True Vertical Depth</div><div>Recorded Mode, Composite Log</div><div><div>PATHFINDER</div><div>A Schlumberger Company</div></div></div>											
Company: Noble Energy Inc.				Wells Ranch AA11-637							
Well: Wells Ranch AA11-637				Wattenburg							
County: Weld				Colorado							
State: Colorado				USA							
Country: USA											
Section: 11		APIN: 05-123-41253									
Township: 06N		Rig Name: H&P 326									
Range: 63W		Rig Type: Top Drive									
FL: NAD83 Colorado State Plane, Norther Zone, US Feet											
FL1: Latitude: N 40° 29' 55.104" Northing: 1426409.415 ftUS											
FL2: Longitude: W 104° 23' 42.324" Easting: 3307273.172 ftUS											
<div><div>Log Measured From: - Drill Floor: 4885.00 ft</div><div>Ground Level: 4855.00 ft</div><div><div></div><div></div></div></div>											
Permanent Datum: - Mean Sea Level											
Acquisition Dates: 03-Jun-2015		Other Services:									
Log Interval: 1789.97(ft)TVD -- 6701.21(ft)TVD		Surveys / Continuous D&I									
Index Types: True Vertical Depth		Downhole Temperature									
Index Scales: 1:1200 1" / 100'		Downhole Shocks									
Depth Source: Driller's Depth		Directional Drilling									
Depth Sensor: PASON											
Print Type: Final											
Spud Date: 31-MAY-2015		<div><div></div><div></div></div>									

Disclaimer

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Borehole Size/Casing Record						
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Bit						
Bit Size (in)	13.5	8.75	8.5			
Top Driller (ft)	0	1861	7227			
Bottom Driller (ft)	1861	7227	13827.5			
Casing						
Size (in)	9.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	8.921					
Grade	P110					
Top Driller (ft)	0					
Bottom Driller (ft)	1850					

Operational Run Summary						
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Parameter (unit)	Run02	Imported Run 2	Imported Run 6			
Date Log Started	03-Jun-2015					
Time Log Started	16:38:33					
Date Log Finished	06-Jun-2015					
Time Log Finished	08:22:53					
Bit Size (in)	8.500					
Bit Start Depth (ft)	7227.00					
Bit Stop Depth (ft)	13827.00					
Top Log Interval (ft)	7174.00					
Bottom Log Interval (ft)	13784.00					
Max Hole Deviation (deg)	91.24					
Azimuth of Max Deviation (deg)	268.59					
Logging Unit Number	Command Center	Command Center	Command Center			
Logging Unit Location	Zone 2	Zone 2	Zone 2			
Recorded By	Mark Wilson					
Witnessed By	John Drahota					
Service Order Number	15CCO0477	15CCO0477	15CCO0477			

Borehole Fluids						
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Parameter(unit)	Run02	Imported Run 2	Imported Run 6			
Fluid Type	Water					
Max Recorded Temperatures	233.6					

(degF)						
Source of Sample	Active Tank					
Salinity (ppm)	34972.17					
Density (lbm/gal)	10					
Funnel Viscosity (s)	38					
Fluid Loss (cm3)						
PH	10.1					
Source RMF						
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	0.2 @ 68					
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68					
RMC @ Meas Temp (ohm.m@degF)						
RM @ BHT (ohm.m@degF)	0.07 @ 212					
RMF @ BHT (ohm.m@degF)	0.05 @ 212					
RMC @ BHT (ohm.m@degF)	NaN @ 212					
Total Solid (%)	10.2					
High Gravity Solids (%)						

Remarks and Equipment Summary

Data presented is from tool memory and acquired while drilling from 7227.0 ft to 13827.0 ft MD

Depth Reference: Driller's Depth

Environmental Corrections: Gamma Ray is corrected for bit size, mud weight, and tool collar thickness. Barite and Potassium in the mud affect Gamma Ray readings.

Run02: Remarks	Imported Run 2: Remarks	Imported Run 6: Remarks
Run Objective: Drill the lateral section		
Bit to GR: 43.06 ft Bit to DNI: 40.03 ft		
Drilled from: 7227 ft MD to 13827 ft MD Logged from: 7184 ft MD to 13784 ft MD		
SlimPulse Software Version: Version 11 SlimPulse GR Calibrated: 14-Nov-2014 SlimPulse UDI Callibrated: 05-Mar-2014		
PathFinder, a Schlumberger Co., Personnel: DD: Charles Mitchell, Brian Walker MWD: Mark Wilson, Eric Sloyer		
Reason for POOH: Well TD		

Run02: Toolstring	Imported Run 2: Toolstring	Imported Run 6: Toolstring
<div> <div> <div>Equip name</div> <div>Length</div> <div>MP name</div> <div>Offset</div> </div> <div> <div>NMDC: 6 3/4":DR8 626</div> <div>121.72</div> <div></div> <div></div> </div> </div> <div> <div>Motor:675084</div> <div>92.00</div> <div>675 PF Motor 7/8_5.0_288 rpg</div> </div>		



66.00

64.02

60.97

55.25

FLOWSUB:DR18146
 SPCOLLAR:DR24409
 SPMA:607
 SPEC:HH750
 SPBA:01875

43.06

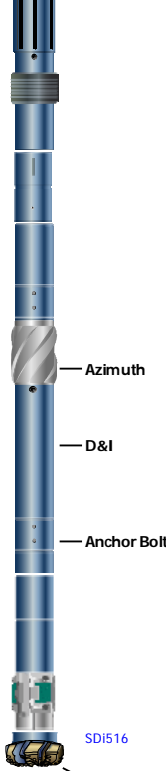
40.03

21.58

CLK6D: 75729
CLK6C
CLKP6E

UBHO: 6 3/4":675U 17.28
231

PDORBIT_675:EXP 14.47
09
PD675CC
PDCU
Impeller Set
PDORB675BU:EXP09



Azimuth 13.13
D&I 10.93
Anchor Bolt 7.73

Bit: 8 1/2":JJ5522 1.03

SDI516

TOOL_ZERO

Lengths are in ft

Maximum Outer Diameter = 8.500 in

Line: Sensor Location, Value: Gating Offset

All measurements are relative to TOOL_ZERO

Merge Composite

Software Version

Acquisition System	Version
Maxwell	5.2.42572.3100
Application Patch	Maxwell_NPD-DMM-MW2014-SP2_5.2.43132

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Imported Run 6	LasFileLap	Down	1800.00 ft	6451.50 ft			No
Imported Run 2	LasFileLap	Down	700.00 ft	7227.50 ft			No
Run02	Drilling	Down	7159.50 ft	13827.50 ft	03-Jun-2015 10:55:54 PM	06-Jun-2015 8:22:53 AM	No

All depths are referenced to toolstring zero

Log

Company:Noble Energy Inc. Well:Wells Ranch AA11-637
Merge Composite:S223

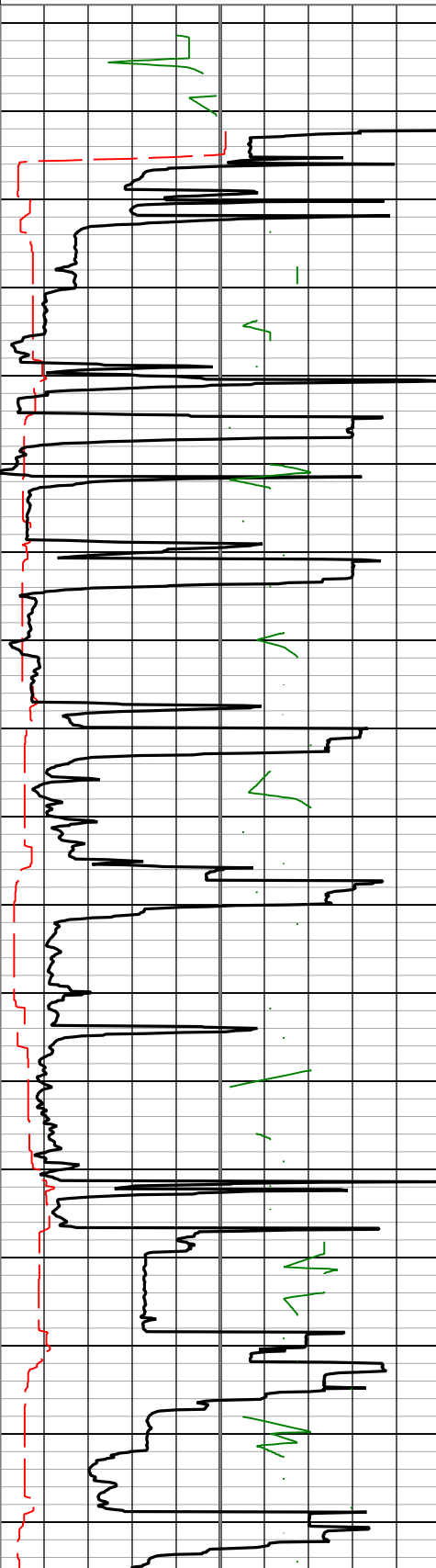
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Resistivity Time After Bit (TAB_RES)
0 h 5
Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5)
1500 ft/h 0
Instance - 1 (6" RT) (ROP5)
Instance - 2 (6" RT) (ROP5)
Shock Risk (SHKRSK_RT) SPULSE-GEN RT
0 3
Gamma Ray (GR SPULSE RHC) 4

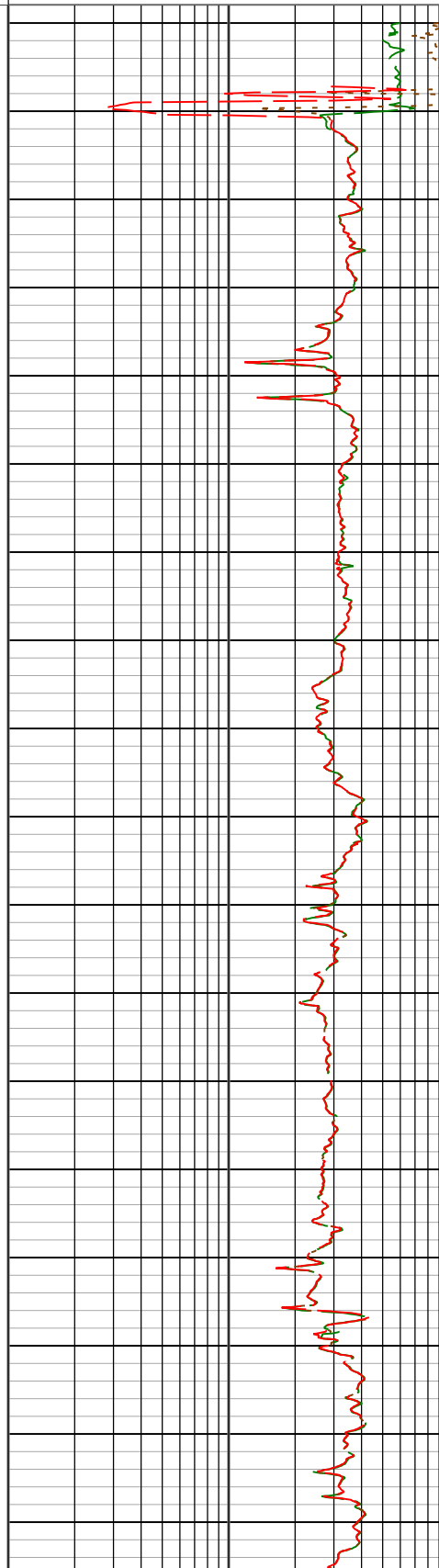
Phase Shift Resistivity 10 inch Spacing at 2

Attenuation Resistivity 10 inch Spacing at 2

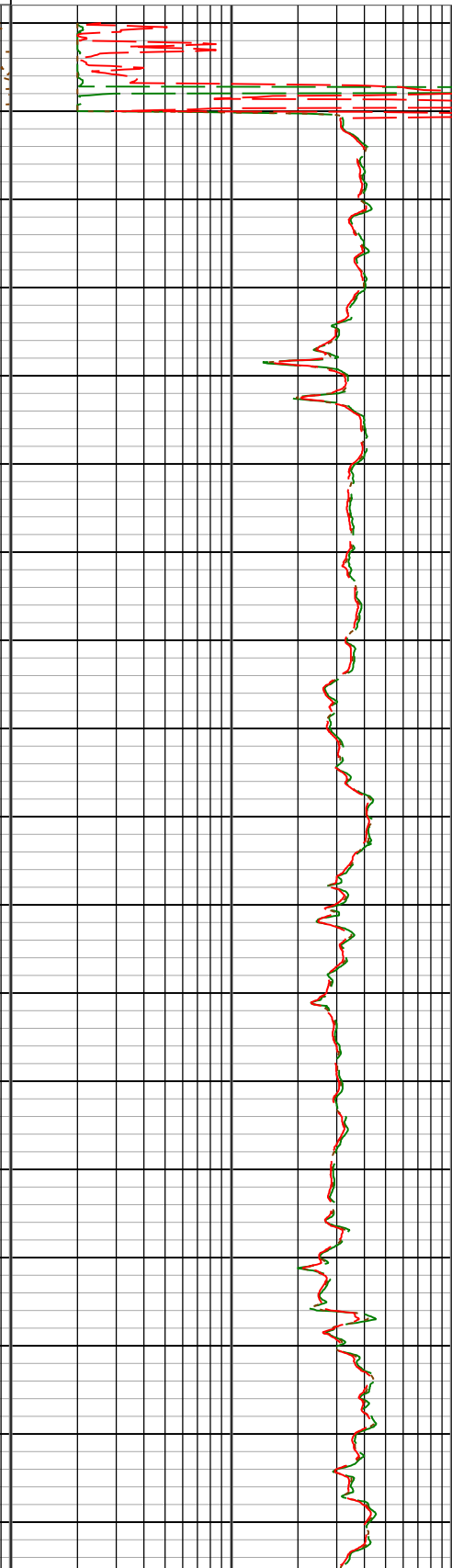
Gamma Ray (GR_SPULSE_BHC).4 SPULSE-GEN RM		
0	gAPI	150
Gamma Ray (GR_SPULSE_BHC).3 SPULSE-GEN RM		
150	gAPI	300
Tool Temperature (DHTEMP) SPULSE-GEN RM		
150	degF	250

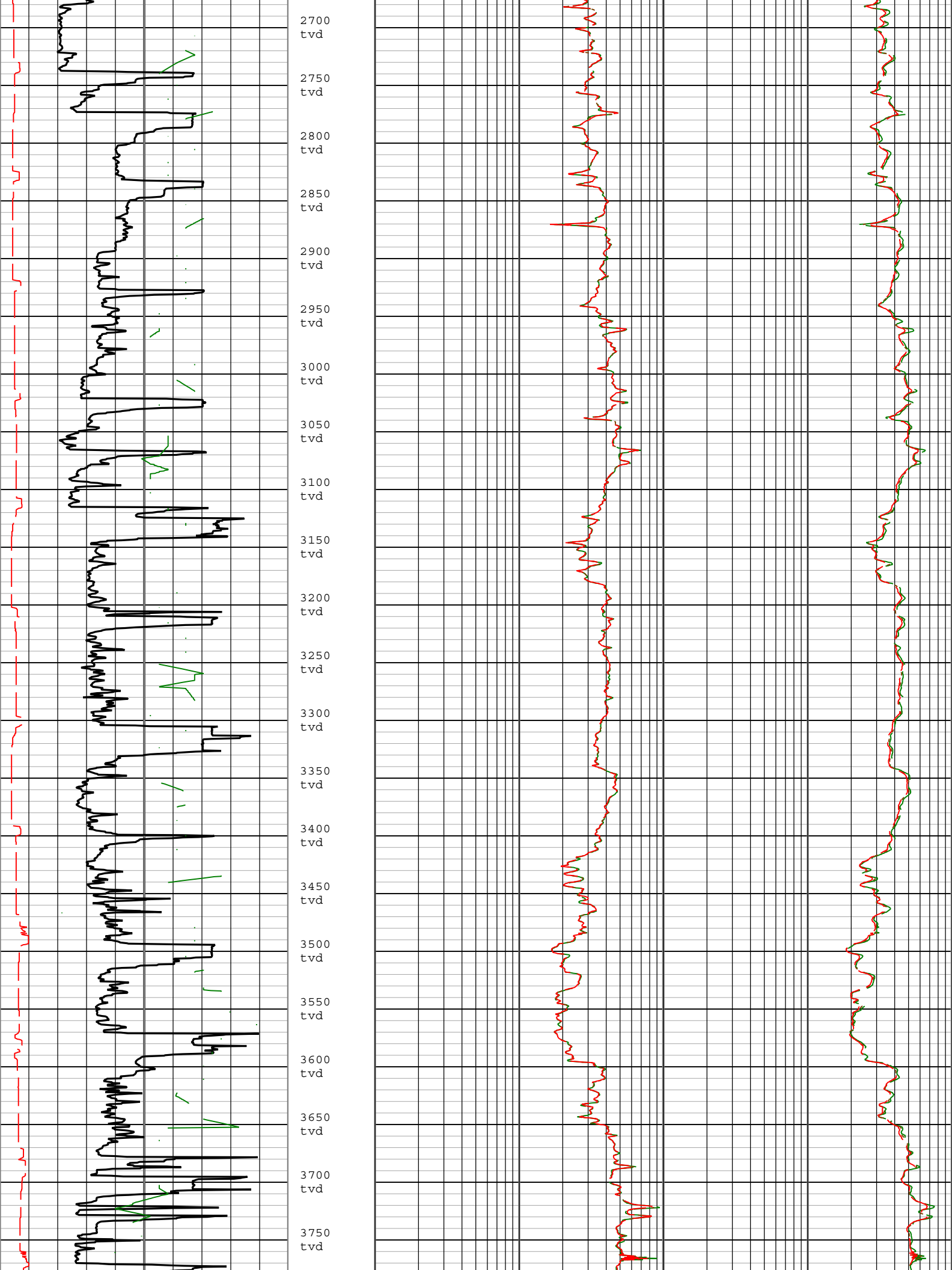


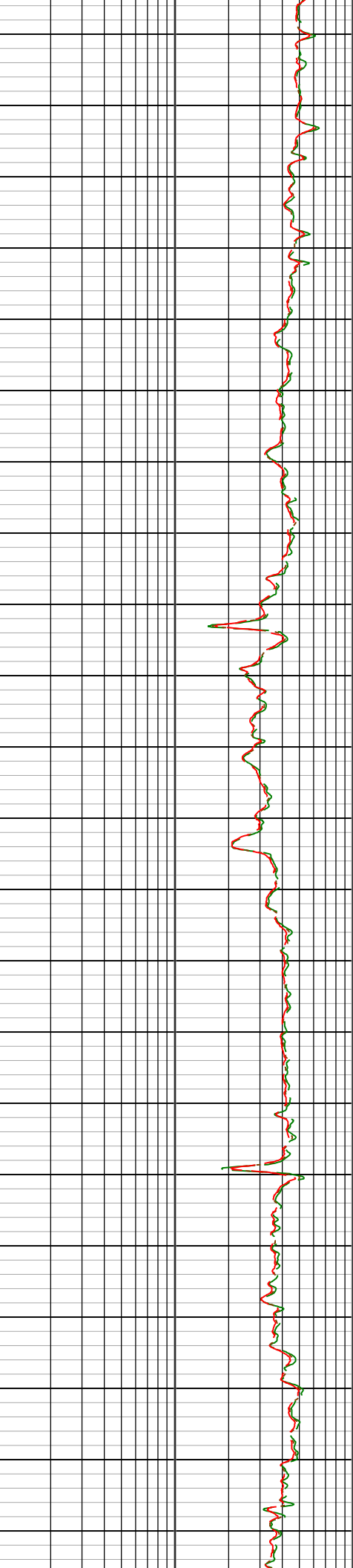
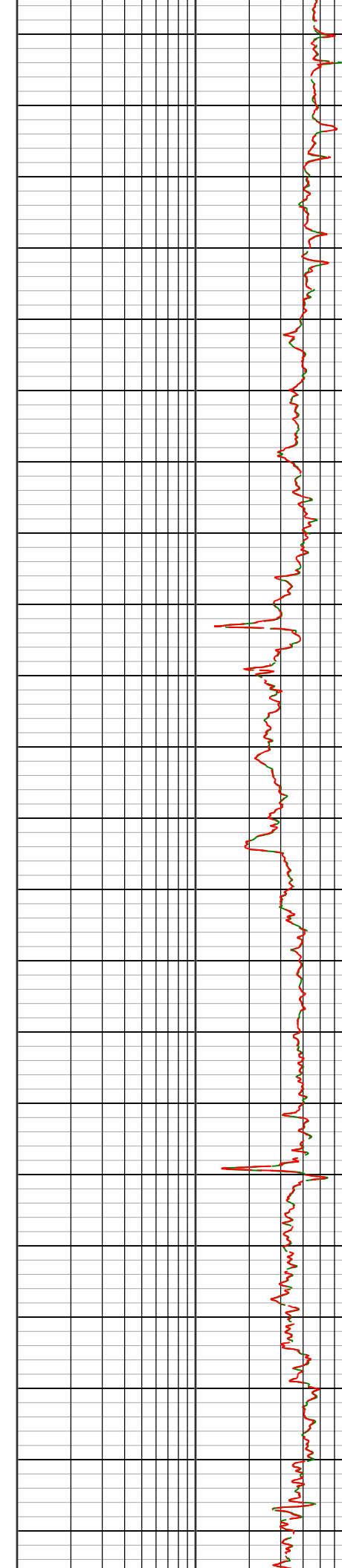
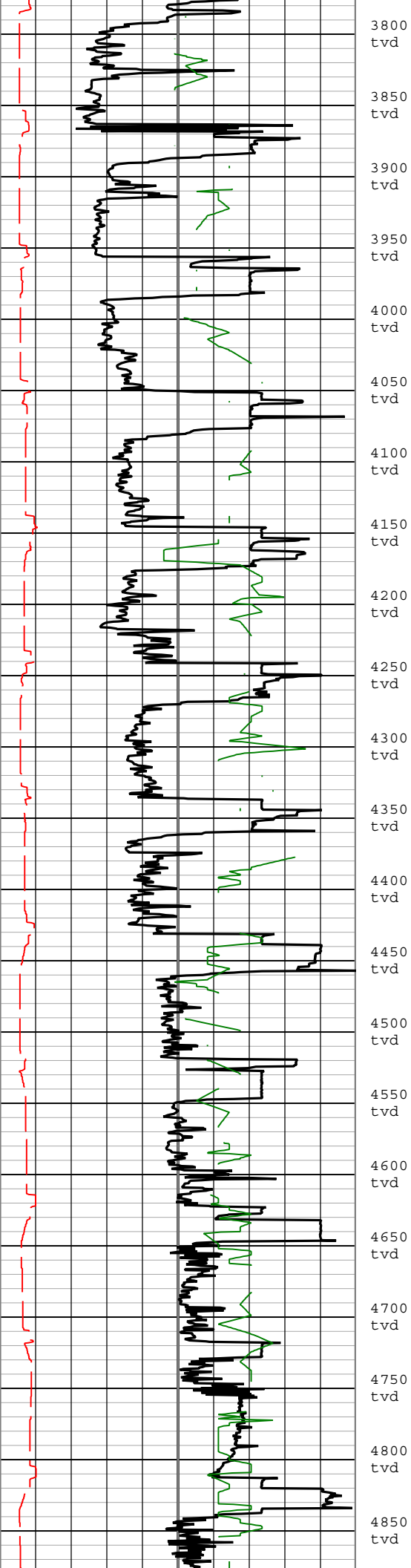
Phase Shift Resistivity 10 inch Spacing at 2 MHz, Environmentally Corrected. (P10H)		
0.1	ohm.m	10
Phase Shift Resistivity 22 inch Spacing at 2 MHz, Environmentally Corrected. (P22H)		
0.1	ohm.m	10
Phase Shift Resistivity 34 inch Spacing at 2 MHz, Environmentally Corrected. (P34H)		
0.1	ohm.m	10

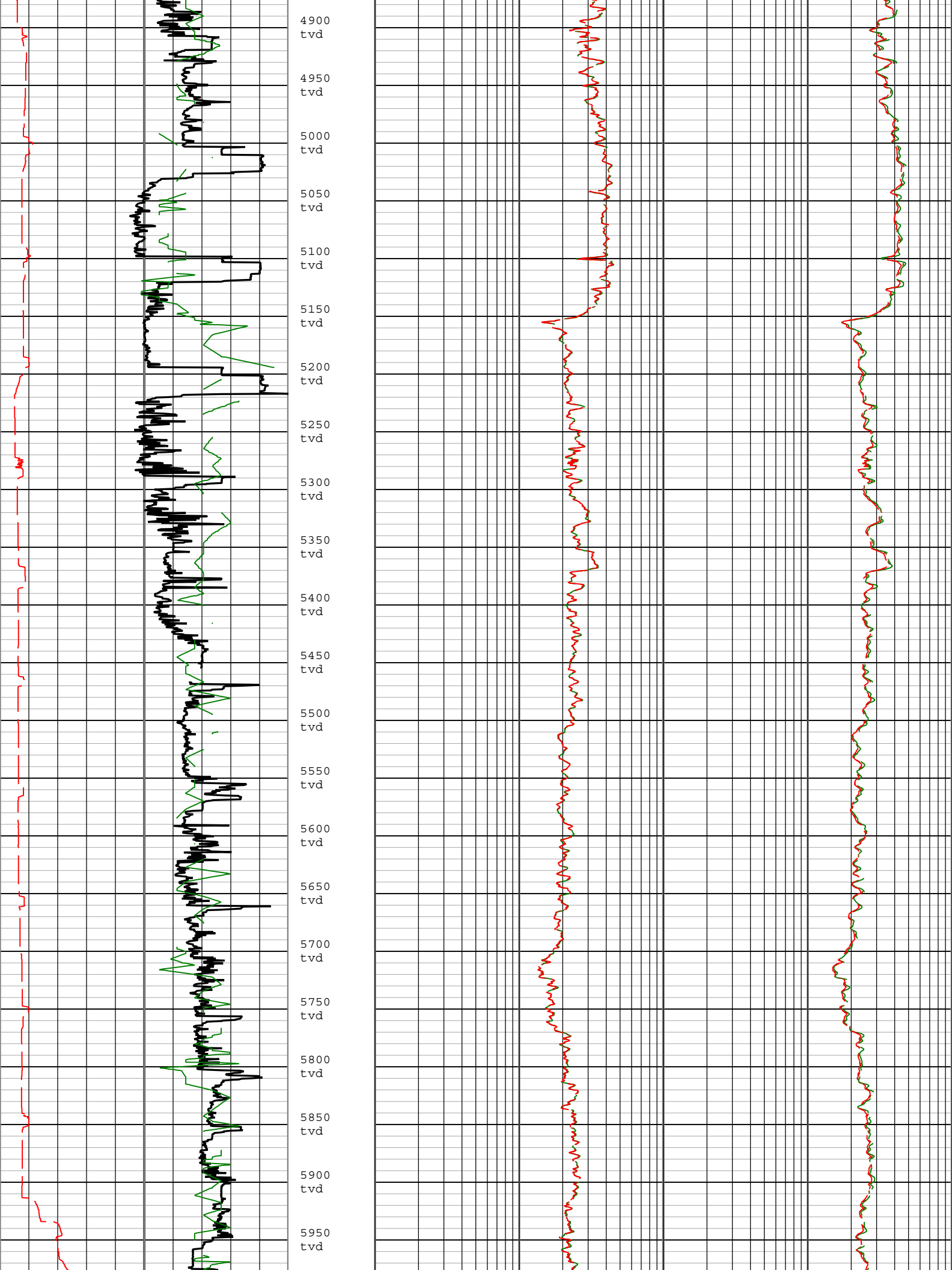


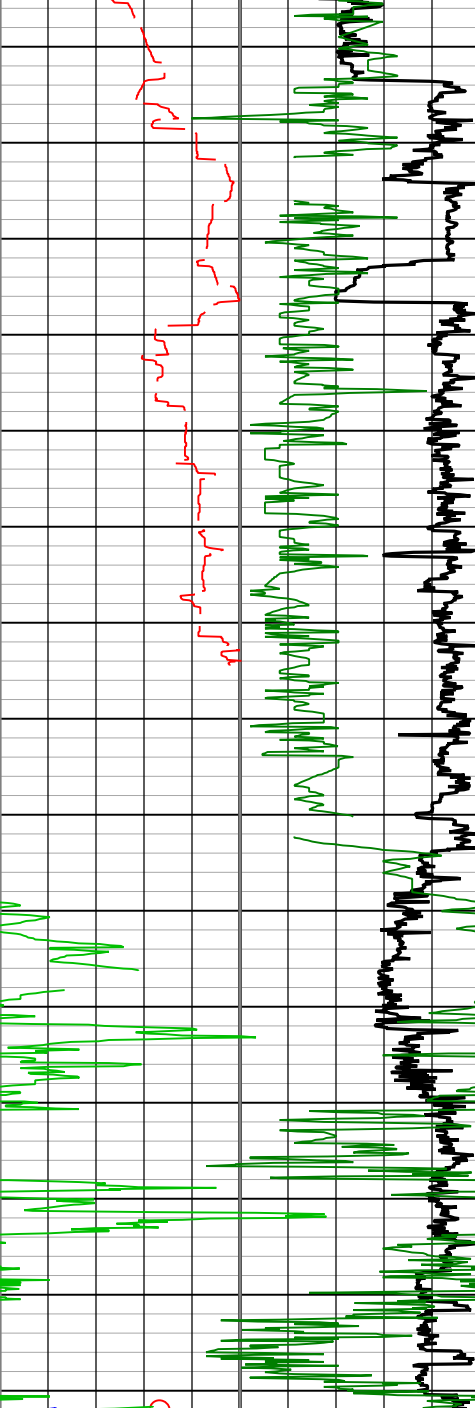
Attenuation Resistivity 10 inch Spacing at 2 MHz, Environmentally Corrected (A10H)		
0.1	ohm.m	10
Attenuation Resistivity 22 inch Spacing at 2 MHz, Environmentally Corrected (A22H)		
0.1	ohm.m	10
Attenuation Resistivity 34 inch Spacing at 2 MHz, Environmentally Corrected (A34H)		
0.1	ohm.m	10



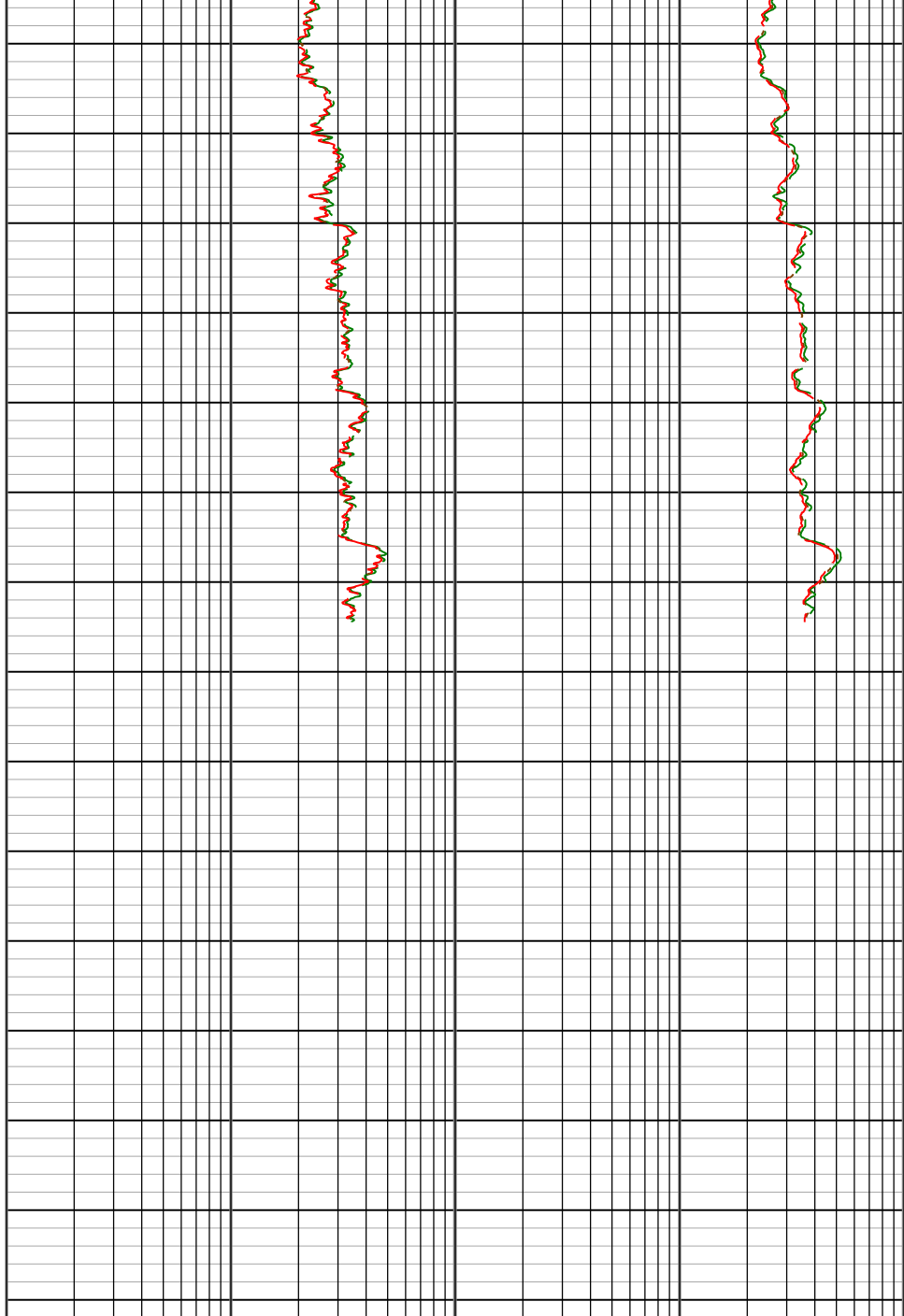








Resistivity Time After Bit (TAB_RES)		
0	h	5
Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5)		
1500	ft/h	0
Instance - 1 (6" RT) (ROP5)		
Instance - 2 (6" RT) (ROP5)		
Shock Risk (SHKRSK_RT) SPULSE-GEN RT		
0		3
Gamma Ray (GR_SPULSE_BHC).4 SPULSE-GEN RM		
0	gAPI	150
Gamma Ray (GR_SPULSE_BHC).3 SPULSE-GEN RM		
150	gAPI	300



Phase Shift Resistivity 10 inch Spacing at 2 MHz, Environmentally Corrected. (P10H)		
0.1	ohm.m	10
Phase Shift Resistivity 22 inch Spacing at 2 MHz, Environmentally Corrected. (P22H)		
0.1	ohm.m	10
Phase Shift Resistivity 34 inch Spacing at 2 MHz, Environmentally Corrected. (P34H)		
0.1	ohm.m	10
Attenuation Resistivity 10 inch Spacing at 2 MHz, Environmentally Corrected (A10H)		
0.1	ohm.m	10
Attenuation Resistivity 22 inch Spacing at 2 MHz, Environmentally Corrected (A22H)		
0.1	ohm.m	10
Attenuation Resistivity 34 inch Spacing at 2 MHz, Environmentally Corrected (A34H)		
0.1	ohm.m	10

Tool Temperature (DHTEMP) SPULSE-GEN RM															
150	degF	250													
Description: Format: Log (GR and Res TVD) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: TVD Creation Date: 08-Jun-2015 10:50:57															
Channel Processing Parameters															
Run02: Parameters															
Parameter		Description				Tool			Value			Unit			
BS		Bit Size				DNMSESSION			8.75			in			
DFD		Drilling Fluid Density				Borehole			10			lbm/gal			
GR_SRC		GR Source Selection				SPULSE-GEN			GAMMA_EXT						
Tool Control Parameters															
Survey Record															
Survey Calculation															
Method :		Minimum Radius of Curvature				DLS Method :			Lubinski						
North Reference :		Grid North				Total Correction Formula :			Magnetic Dec - Grid Convergence						
Grid Convergence :		0.71 deg													
Rig Location															
Latitude :		40° 29' 55.104" N				Longitude :			104° 23' 42.324" W						
Tie In Point															
Measured Depth:		0.00 ft		Inclination:		0.00 deg		Azimuth:		0.00 deg					
True Vertical Depth:		0.00 ft		North Displacement:		0.00 ft		East Displacement:		0.00 ft					
N/-S VSec Origin:		0.00 ft		E/-W VSec Origin:		0.00 ft		Vertical Section Azimuth:		269.79 deg					
D&I Inits Computed and Values Used - Run02															
Geomagnetic Model :		HDGM 2014				Geomagnetic Date :			01 Jun 2015						
Computed Location B :		52537.80 nT +/- 300.00nT				Used Location B :			52429.00 nT +/- 300.00nT						
Computed Location G :		999.55 mgn +/- 2.50mgn				Used Location G :			999.55 mgn +/- 2.50mgn						
Computed Magnetic Dip :		67.06 deg +/- 0.45deg				Used Magnetic Dip :			67.14 deg +/- 0.45deg						
Computed Magnetic Dec :		8.21 deg				Used Magnetic Dec :			8.09 deg						
Computed Total Correction :		7.5 deg				Used Total Correction :			7.38 deg						
Survey Quality Index															
9 : Manual		28 : Tie-In Point													
Survey Correction Index															
0 : No correction															
Survey Description Index															
0 : Not Flagged Survey				7 : Projection to Bit				14 : Competitor MWD Survey							
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azim (deg)	DLS deg/100ft	Tool Type	QI	CI	DI
1	0.00	0.00	0.00	- - - -	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
2	64.21	0.54	164.30	64.21	64.21	-0.08	-0.29	0.08	0.30	164.30	0.84	MultiShot	9	0	14
3	158.12	0.79	154.34	93.91	158.11	-0.48	-1.30	0.48	1.38	159.67	0.29	MultiShot	9	0	14
4	252.03	0.28	179.38	93.91	252.02	-0.76	-2.11	0.76	2.26	160.11	0.58	MultiShot	9	0	14
5	345.94	0.29	221.79	93.91	345.93	-0.60	-2.52	0.61	2.59	166.42	0.22	MultiShot	9	0	14
6	439.85	0.44	256.14	93.91	439.84	-0.09	-2.78	0.10	2.79	177.93	0.28	MultiShot	9	0	14
7	533.76	0.32	159.60	93.91	533.74	0.17	-3.12	-0.16	3.12	182.91	0.61	MultiShot	9	0	14
8	627.67	0.28	160.37	93.91	627.65	0.00	-3.58	0.01	3.58	179.84	0.04	MultiShot	9	0	14
9	721.58	0.21	131.78	93.91	721.56	-0.20	-3.91	0.22	3.90	176.84	0.15	MultiShot	9	0	14
10	815.49	0.26	140.23	93.91	815.47	-0.46	-4.19	0.48	4.20	173.46	0.06	MultiShot	9	0	14
11	909.40	0.40	132.12	93.91	909.38	-0.84	-4.57	0.86	4.66	169.35	0.16	MultiShot	9	0	14
12	1003.31	0.39	153.19	93.91	1003.29	-1.23	-5.08	1.25	5.22	166.20	0.15	MultiShot	9	0	14
13	1097.22	0.38	141.25	93.91	1097.20	-1.57	-5.60	1.59	5.84	164.20	0.09	MultiShot	9	0	14
14	1191.13	0.36	144.35	93.91	1191.10	-1.93	-6.09	1.95	6.40	162.21	0.03	MultiShot	9	0	14

	1151.15	0.35	144.55	93.91	1151.15	-1.35	-0.65	1.35	0.40	162.21	0.65	MultiShot	9	0	14
15	1285.04	0.28	136.10	93.91	1285.01	-2.26	-6.49	2.28	6.89	160.62	0.10	MultiShot	9	0	14
16	1378.95	0.23	136.86	93.91	1378.92	-2.55	-6.79	2.57	7.25	159.27	0.05	MultiShot	9	0	14
17	1472.86	0.20	140.59	93.91	1472.83	-2.78	-7.06	2.81	7.61	158.33	0.04	MultiShot	9	0	14
18	1566.77	0.17	224.65	93.91	1566.74	-2.78	-7.28	2.81	7.81	158.90	0.26	MultiShot	9	0	14
19	1660.68	0.24	122.18	93.91	1660.65	-2.85	-7.49	2.88	8.04	158.97	0.34	MultiShot	9	0	14
20	1754.59	0.24	195.53	93.91	1754.56	-2.97	-7.78	2.99	8.33	158.96	0.31	MultiShot	9	0	14
21	1848.50	0.22	192.02	93.91	1848.47	-2.87	-8.15	2.90	8.66	160.39	0.03	MultiShot	9	0	14
22	1953.00	0.43	270.38	104.50	1952.97	-2.44	-8.34	2.47	8.69	163.51	0.42	MultiShot	9	0	14
23	2045.00	2.02	76.50	92.00	2044.95	-3.67	-7.96	3.70	8.79	155.07	2.65	MultiShot	9	0	14
24	2137.00	3.91	62.87	92.00	2136.82	-8.05	-6.15	8.07	10.14	127.32	2.18	MultiShot	9	0	14
25	2229.00	5.63	75.71	92.00	2228.51	-15.22	-3.61	15.24	15.65	103.32	2.19	MultiShot	9	0	14
26	2321.00	7.29	74.13	92.00	2319.92	-25.22	-0.90	25.22	25.23	92.04	1.81	MultiShot	9	0	14
27	2412.00	6.90	70.10	91.00	2410.22	-35.93	2.54	35.92	35.99	85.95	0.69	MultiShot	9	0	14
28	2504.00	6.37	69.82	92.00	2501.60	-45.93	6.18	45.90	46.33	82.33	0.58	MultiShot	9	0	14
29	2596.00	8.08	75.97	92.00	2592.87	-57.00	9.51	56.97	57.74	80.52	2.04	MultiShot	9	0	14
30	2690.00	8.61	76.76	94.00	2685.88	-70.27	12.72	70.23	71.36	79.73	0.58	MultiShot	9	0	14
31	2785.00	8.17	74.12	95.00	2779.86	-83.70	16.20	83.64	85.20	79.04	0.62	MultiShot	9	0	14
32	2879.00	7.78	74.56	94.00	2872.95	-96.27	19.72	96.20	98.20	78.41	0.42	MultiShot	9	0	14
33	2974.00	7.34	74.13	95.00	2967.13	-108.32	23.09	108.23	110.66	77.96	0.47	MultiShot	9	0	14
34	3069.00	7.25	73.51	95.00	3061.36	-119.91	26.45	119.82	122.70	77.55	0.13	MultiShot	9	0	14
35	3163.00	7.34	85.11	94.00	3154.60	-131.59	28.65	131.49	134.58	77.71	1.57	MultiShot	9	0	14
36	3258.00	6.72	86.25	95.00	3248.89	-143.19	29.53	143.08	146.10	78.34	0.67	MultiShot	9	0	14
37	3353.00	8.09	80.02	95.00	3343.09	-155.33	31.05	155.21	158.30	78.69	1.67	MultiShot	9	0	14
38	3447.00	6.51	79.31	94.00	3436.33	-167.08	33.19	166.96	170.24	78.76	1.68	MultiShot	9	0	14
39	3542.00	6.42	69.12	95.00	3530.73	-177.35	36.08	177.22	180.84	78.49	1.21	MultiShot	9	0	14
40	3732.00	7.08	69.21	190.00	3719.41	-198.25	44.02	198.09	202.92	77.47	0.35	MultiShot	9	0	14
41	3826.00	7.16	67.54	94.00	3812.68	-209.10	48.32	208.92	214.44	76.98	0.24	MultiShot	9	0	14
42	3921.00	7.69	75.54	95.00	3906.89	-220.74	52.17	220.55	226.64	76.69	1.22	MultiShot	9	0	14
43	4016.00	6.37	71.76	95.00	4001.17	-231.91	55.40	231.71	238.25	76.55	1.47	MultiShot	9	0	14
44	4110.00	4.40	83.45	94.00	4094.76	-240.45	57.45	240.24	247.01	76.55	2.39	MultiShot	9	0	14
45	4205.00	2.55	94.43	95.00	4189.58	-246.18	57.70	245.97	252.66	76.80	2.06	MultiShot	9	0	14
46	4300.00	0.62	38.36	95.00	4284.54	-248.61	57.94	248.40	255.05	76.87	2.38	MultiShot	9	0	14
47	4394.00	1.41	351.42	94.00	4378.53	-248.76	59.48	248.54	255.54	76.54	1.15	MultiShot	9	0	14
48	4489.00	2.28	310.12	95.00	4473.48	-247.15	61.85	246.92	254.56	75.94	1.62	MultiShot	9	0	14
49	4584.00	1.76	318.38	95.00	4568.42	-244.74	64.16	244.51	252.79	75.30	0.63	MultiShot	9	0	14
50	4679.00	1.89	252.99	95.00	4663.38	-242.28	64.79	242.04	250.56	75.01	2.08	MultiShot	9	0	14
51	4773.00	1.23	189.53	94.00	4757.35	-240.62	63.35	240.39	248.59	75.24	1.84	MultiShot	9	0	14
52	4868.00	2.99	223.02	95.00	4852.29	-238.75	60.53	238.53	246.10	75.76	2.19	MultiShot	9	0	14
53	4963.00	3.08	200.25	95.00	4947.16	-236.16	56.32	235.96	242.59	76.57	1.26	MultiShot	9	0	14
54	5058.00	3.78	216.69	95.00	5041.99	-233.39	51.42	233.20	238.81	77.57	1.26	MultiShot	9	0	14
55	5153.00	3.43	250.09	95.00	5136.81	-228.83	47.94	228.66	233.63	78.16	2.21	MultiShot	9	0	14
56	5247.00	2.02	280.67	94.00	5230.71	-224.56	47.29	224.39	229.33	78.10	2.10	MultiShot	9	0	14
57	5342.00	1.67	258.00	95.00	5325.66	-221.56	47.31	221.39	226.38	77.94	0.84	MultiShot	9	0	14
58	5437.00	1.23	252.99	95.00	5420.63	-219.23	46.72	219.06	223.98	77.96	0.48	MultiShot	9	0	14
59	5531.00	0.92	224.60	94.00	5514.61	-217.73	45.89	217.56	222.34	78.09	0.65	MultiShot	9	0	14
60	5626.00	0.62	204.91	95.00	5609.61	-216.97	44.88	216.81	221.42	78.30	0.42	MultiShot	9	0	14
61	5721.00	1.05	222.66	95.00	5704.60	-216.16	43.78	216.01	220.41	78.54	0.52	MultiShot	9	0	14
62	5816.00	1.45	199.72	95.00	5799.57	-215.16	42.00	215.01	219.06	78.95	0.67	MultiShot	9	0	14
63	5910.00	1.54	191.46	94.00	5893.54	-214.50	39.65	214.36	217.98	79.52	0.25	MultiShot	9	0	14
64	6005.00	1.19	154.72	95.00	5988.52	-214.66	37.50	214.53	217.78	80.08	0.97	MultiShot	9	0	14
65	6100.00	7.29	265.20	95.00	6083.27	-209.06	36.10	208.93	212.04	80.20	8.20	MultiShot	9	0	14

66	6194.00	13.40	264.93	94.00	6175.70	-192.25	34.64	192.12	195.21	79.78	6.50	MultiShot	9	0	14
67	6289.00	19.38	258.25	95.00	6266.80	-165.81	30.45	165.70	168.47	79.59	6.59	MultiShot	9	0	14
68	6384.00	23.10	266.70	95.00	6355.35	-131.74	26.17	131.64	134.22	78.76	5.06	MultiShot	9	0	14
69	6420.00	23.56	270.21	36.00	6388.41	-117.49	25.79	117.40	120.21	77.61	4.07	MultiShot	9	0	14
70	6514.00	32.26	282.17	94.00	6471.46	-74.08	31.16	73.97	80.28	67.16	10.97	MultiShot	9	0	14
71	6609.00	46.86	283.22	95.00	6544.51	-15.29	44.51	15.13	47.01	18.77	15.38	MultiShot	9	0	14
72	6704.00	60.48	275.13	95.00	6600.72	60.01	56.19	-60.22	82.38	313.02	15.87	MultiShot	9	0	14
73	6798.00	72.18	270.04	94.00	6638.41	145.82	59.90	-146.04	157.84	292.30	13.39	MultiShot	9	0	14
74	6893.00	74.19	269.51	95.00	6665.89	236.76	59.54	-236.98	244.36	284.10	2.18	MultiShot	9	0	14
75	6988.00	79.47	269.50	95.00	6687.53	329.22	58.74	-329.44	334.65	280.11	5.56	MultiShot	9	0	14
76	7082.00	81.01	268.19	94.00	6703.46	421.85	56.87	-422.06	425.89	277.67	2.14	MultiShot	9	0	14
77	7177.00	90.40	267.00	95.00	6710.57	516.40	52.89	-516.60	519.29	275.85	9.96	MultiShot	9	0	14
78	7275.00	90.62	266.02	98.00	6709.70	614.24	46.93	-614.41	616.21	274.37	1.02	SlimPulse	9	0	0
79	7370.00	90.89	266.66	95.00	6708.45	709.06	40.86	-709.21	710.40	273.30	0.73	SlimPulse	9	0	0
80	7464.00	90.62	266.42	94.00	6707.21	802.90	35.19	-803.03	803.81	272.51	0.38	SlimPulse	9	0	0
81	7559.00	90.45	266.28	95.00	6706.32	897.72	29.14	-897.83	898.29	271.86	0.23	SlimPulse	9	0	0
82	7654.00	90.82	267.58	95.00	6705.27	992.59	24.06	-992.69	992.98	271.39	1.42	SlimPulse	9	0	0
83	7745.00	90.38	268.03	91.00	6704.31	1083.53	20.57	-1083.62	1083.83	271.09	0.69	SlimPulse	9	0	0
84	7837.00	90.58	268.35	92.00	6703.54	1175.50	17.67	-1175.57	1175.69	270.86	0.41	SlimPulse	9	0	0
85	7929.00	90.38	268.14	92.00	6702.77	1267.46	14.85	-1267.52	1267.62	270.67	0.32	SlimPulse	9	0	0
86	8022.00	90.52	268.20	93.00	6702.04	1360.42	11.88	-1360.47	1360.53	270.50	0.16	SlimPulse	9	0	0
87	8114.00	91.24	268.59	92.00	6700.63	1452.38	9.30	-1452.42	1452.46	270.37	0.89	SlimPulse	9	0	0
88	8206.00	90.14	269.75	92.00	6699.52	1544.36	7.97	-1544.40	1544.42	270.30	1.74	SlimPulse	9	0	0
89	8298.00	90.17	269.96	92.00	6699.27	1636.36	7.74	-1636.40	1636.42	270.27	0.23	SlimPulse	9	0	0
90	8390.00	90.48	269.87	92.00	6698.75	1728.36	7.60	-1728.40	1728.41	270.25	0.35	SlimPulse	9	0	0
91	8482.00	90.65	270.96	92.00	6697.84	1820.35	8.27	-1820.39	1820.41	270.26	1.20	SlimPulse	9	0	0
92	8574.00	89.76	269.64	92.00	6697.51	1912.34	8.75	-1912.39	1912.40	270.26	1.73	SlimPulse	9	0	0
93	8666.00	89.72	269.84	92.00	6697.93	2004.34	8.33	-2004.39	2004.40	270.24	0.22	SlimPulse	9	0	0
94	8757.00	89.72	270.24	91.00	6698.38	2095.34	8.39	-2095.39	2095.41	270.23	0.44	SlimPulse	9	0	0
95	8852.00	89.86	270.04	95.00	6698.72	2190.34	8.63	-2190.38	2190.39	270.23	0.26	SlimPulse	9	0	0
96	8947.00	89.45	269.33	95.00	6699.30	2285.34	8.10	-2285.38	2285.40	270.20	0.86	SlimPulse	9	0	0
97	9041.00	89.24	269.51	94.00	6700.37	2379.33	7.15	-2379.37	2379.40	270.17	0.29	SlimPulse	9	0	0
98	9136.00	89.24	269.40	95.00	6701.63	2474.32	6.25	-2474.36	2474.38	270.14	0.12	SlimPulse	9	0	0
99	9231.00	89.86	269.78	95.00	6702.38	2569.31	5.57	-2569.35	2569.36	270.12	0.77	SlimPulse	9	0	0
100	9326.00	90.41	270.13	95.00	6702.15	2664.31	5.49	-2664.35	2664.37	270.12	0.69	SlimPulse	9	0	0
101	9420.00	90.48	270.15	94.00	6701.42	2758.31	5.72	-2758.35	2758.37	270.12	0.08	SlimPulse	9	0	0
102	9515.00	90.45	270.22	95.00	6700.65	2853.30	6.03	-2853.34	2853.35	270.12	0.08	SlimPulse	9	0	0
103	9609.00	90.31	270.01	94.00	6700.03	2947.30	6.22	-2947.34	2947.34	270.12	0.27	SlimPulse	9	0	0
104	9704.00	90.45	270.07	95.00	6699.40	3042.30	6.29	-3042.34	3042.36	270.12	0.16	SlimPulse	9	0	0
105	9799.00	90.21	269.91	95.00	6698.85	3137.29	6.27	-3137.34	3137.34	270.11	0.30	SlimPulse	9	0	0
106	9894.00	89.86	269.89	95.00	6698.79	3232.29	6.10	-3232.34	3232.35	270.11	0.37	SlimPulse	9	0	0
107	9988.00	89.73	269.59	94.00	6699.13	3326.29	5.68	-3326.33	3326.35	270.10	0.35	SlimPulse	9	0	0
108	10083.00	89.79	269.87	95.00	6699.53	3421.29	5.23	-3421.33	3421.33	270.09	0.30	SlimPulse	9	0	0
109	10178.00	89.72	269.87	95.00	6699.93	3516.29	5.01	-3516.33	3516.34	270.08	0.07	SlimPulse	9	0	0
110	10273.00	89.90	270.26	95.00	6700.25	3611.29	5.12	-3611.33	3611.32	270.08	0.45	SlimPulse	9	0	0
111	10367.00	89.24	269.38	94.00	6700.95	3705.28	4.83	-3705.33	3705.31	270.07	1.17	SlimPulse	9	0	0
112	10462.00	89.35	269.50	95.00	6702.12	3800.27	3.90	-3800.31	3800.33	270.06	0.17	SlimPulse	9	0	0
113	10556.00	89.55	269.84	94.00	6703.03	3894.27	3.36	-3894.31	3894.32	270.05	0.42	SlimPulse	9	0	0
114	10651.00	90.00	269.83	95.00	6703.40	3989.27	3.08	-3989.31	3989.30	270.04	0.47	SlimPulse	9	0	0
115	10745.00	90.03	269.51	94.00	6703.37	4083.27	2.54	-4083.31	4083.30	270.04	0.34	SlimPulse	9	0	0
116	10840.00	89.90	269.71	95.00	6703.43	4178.27	1.89	-4178.30	4178.31	270.03	0.25	SlimPulse	9	0	0

117	10935.00	90.28	269.95	95.00	6703.28	4273.27	1.61	-4273.30	4273.29	270.02	0.47	SlimPulse	9	0	0
118	11029.00	89.72	269.44	94.00	6703.28	4367.27	1.11	-4367.30	4367.29	270.01	0.81	SlimPulse	9	0	0
119	11124.00	89.48	268.75	95.00	6703.95	4462.26	-0.39	-4462.29	4462.27	270.00	0.77	SlimPulse	9	0	0
120	11219.00	90.31	270.05	95.00	6704.12	4557.25	-1.38	-4557.28	4557.28	269.98	1.62	SlimPulse	9	0	0
121	11314.00	89.69	268.97	95.00	6704.12	4652.25	-2.19	-4652.27	4652.26	269.97	1.31	SlimPulse	9	0	0
122	11408.00	89.69	269.12	94.00	6704.63	4746.24	-3.76	-4746.26	4746.26	269.95	0.16	SlimPulse	9	0	0
123	11503.00	90.38	270.19	95.00	6704.57	4841.24	-4.33	-4841.25	4841.24	269.95	1.34	SlimPulse	9	0	0
124	11598.00	89.93	269.83	95.00	6704.31	4936.24	-4.32	-4936.25	4936.25	269.95	0.61	SlimPulse	9	0	0
125	11692.00	90.14	269.91	94.00	6704.26	5030.24	-4.53	-5030.25	5030.25	269.95	0.24	SlimPulse	9	0	0
126	11787.00	90.62	270.36	95.00	6703.63	5125.23	-4.31	-5125.25	5125.26	269.95	0.69	SlimPulse	9	0	0
127	11881.00	90.07	270.00	94.00	6703.06	5219.23	-4.01	-5219.25	5219.26	269.96	0.70	SlimPulse	9	0	0
128	11976.00	90.41	269.88	95.00	6702.66	5314.23	-4.11	-5314.25	5314.24	269.96	0.38	SlimPulse	9	0	0
129	12071.00	90.45	270.08	95.00	6701.95	5409.22	-4.14	-5409.24	5409.25	269.96	0.21	SlimPulse	9	0	0
130	12165.00	90.45	270.34	94.00	6701.21	5503.22	-3.80	-5503.24	5503.25	269.96	0.28	SlimPulse	9	0	0
131	12260.00	90.52	270.11	95.00	6700.41	5598.21	-3.43	-5598.24	5598.23	269.96	0.25	SlimPulse	9	0	0
132	12355.00	90.52	270.50	95.00	6699.54	5693.20	-2.92	-5693.23	5693.24	269.97	0.41	SlimPulse	9	0	0
133	12449.00	89.97	270.69	94.00	6699.14	5787.19	-1.94	-5787.22	5787.24	269.98	0.62	SlimPulse	9	0	0
134	12544.00	89.52	269.77	95.00	6699.57	5882.19	-1.56	-5882.22	5882.22	269.98	1.08	SlimPulse	9	0	0
135	12638.00	89.86	270.30	94.00	6700.07	5976.18	-1.51	-5976.22	5976.21	269.99	0.67	SlimPulse	9	0	0
136	12733.00	90.07	269.99	95.00	6700.13	6071.18	-1.27	-6071.22	6071.23	269.99	0.39	SlimPulse	9	0	0
137	12827.00	89.90	269.32	94.00	6700.16	6165.18	-1.83	-6165.22	6165.22	269.98	0.74	SlimPulse	9	0	0
138	12922.00	90.03	269.24	95.00	6700.21	6260.18	-3.03	-6260.21	6260.20	269.97	0.16	SlimPulse	9	0	0
139	13016.00	90.14	269.33	94.00	6700.08	6354.17	-4.20	-6354.20	6354.20	269.96	0.15	SlimPulse	9	0	0
140	13111.00	89.90	269.47	95.00	6700.04	6449.17	-5.19	-6449.20	6449.21	269.95	0.29	SlimPulse	9	0	0
141	13205.00	90.00	269.44	94.00	6700.12	6543.17	-6.09	-6543.19	6543.21	269.95	0.11	SlimPulse	9	0	0
142	13299.00	90.10	269.41	94.00	6700.04	6637.17	-7.03	-6637.19	6637.20	269.94	0.11	SlimPulse	9	0	0
143	13394.00	90.03	269.25	95.00	6699.93	6732.16	-8.14	-6732.18	6732.19	269.93	0.18	SlimPulse	9	0	0
144	13489.00	89.97	268.28	95.00	6699.93	6827.15	-10.19	-6827.16	6827.17	269.91	1.02	SlimPulse	9	0	0
145	13583.00	89.76	266.00	94.00	6700.16	6921.04	-14.88	-6921.03	6921.06	269.88	2.44	SlimPulse	9	0	0
146	13678.00	89.69	266.53	95.00	6700.61	7015.86	-21.07	-7015.83	7015.85	269.83	0.56	SlimPulse	9	0	0
147	13772.00	89.76	266.84	94.00	6701.06	7109.72	-26.50	-7109.67	7109.71	269.79	0.34	SlimPulse	9	0	0
148	13785.00	89.86	266.84	13.00	6701.11	7122.70	-27.22	-7122.65	7122.70	269.78	0.77	SlimPulse	9	0	0
149	13827.00	89.86	266.84	42.00	6701.21	7164.65	-29.53	-7164.59	7164.63	269.76	0.00	Other	9	0	7

Calibration Report

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run02

Primary Equipment :

Elec. cartridge, 150C max with GR

SPEC

HH750

GRGain - Gamma Ray: Blanket

Master (Time Frame File): 12:00:00 28-May-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0208	1.1000	

Company: Noble Energy Inc.

Well: Wells Ranch AA11-637

Field: Wattenburg

County: Weld

State: Colorado

Country: USA



SlimPulse & AWR - GR & RES

1 in./ 100 ft, True Vertical Depth

Recorded Mode, Composite Log