



Weatherford®

6 3/4 in. & 4 3/4 in.
WeatherfordMLWD™
Spectral Gamma Ray
1 in. & 5 in. TRUE VERTICAL DEPTH
RECORDED DATA

Company: Anadarko
Well: Dechant State 37N-W36HZ
Field: Wattenberg
Rig: H&P 307
County: Weld

COMPANY Anadarko
WELL Dechant State 37N-W36HZ
FIELD Wattenberg
RIG H&P 307
COUNTY Weld STATE Colorado
API # 05-123-36417-0000

Location	
Latitude: 40.18848° N	x = 1,312,750 ft
Longitude: 104.61073 W	y = 3,248,440 ft
Mag Decl: 8.65°	
Mag Dip: 66.91°	

Other Services: Directional, Temperature, and SAGR

Permanent Datum: Mean Sea Level
Log Measured From: Drill Floor Elev: 4833 ft above perm. datum
Depth Reference: Drillers Tally Total Depth: 11490 ft
Depth Logged: 6375 ft to 11490 ft Runs: 3
Date Logged: 14-Feb-13 to 20-Feb-13 Spud Date: 14-Feb-13

Elevation	
K.B. Top Drive	
G.L. 4808 ft	
D.F. 4833 ft	
W.D. Land	

Borehole Record			Casing Record		
Hole Size	From	To	Size	Weight	From To
8.750 in.	744 ft	7337 ft	9.625 in.	36 lb/ft	Surface 550 ft
6.125 in.	7337 ft	11490 ft	7.000 in.	26 lb/ft	Surface 7318 ft

Borehole Deviation Record			Mud Record		
Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From To
8.750 in.	0.22°	83.48°	WBM	9.20-9.60 ppg	744 ft 11490 ft
6.500 in.	84.13°	91.48°			

All interpretations of log data are opinions based on inferences from electrical or other measurements. Weatherford International does not guarantee the accuracy or correctness of any interpretation or recommendation and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation or recommendation made by any of our employees or agents.

RUN SUMMARY

M/LWD Run Number		1	2	3				
Bit Size	in.	8.750	8.750	6.125				
Bit Type		PDC	PDC	PDC				
Bit TFA	sq.in.	0.750	1.240	0.380				
Bit Start Depth	ft	744	6418	7337				
Bit End Depth	ft	6418	7337	11490				
Top Log Interval	ft	N/A	6375	7300				
Bottom Log Interval	ft	N/A	7337	11490				
Begin Log Time	hrs	N/A	12:30	21:30				
Begin Log Date	DD-MMM-YY	N/A	16-Feb-13	18-Feb-13				
End Log Time	hrs	N/A	0:55	14:00				
End Log Date	DD-MMM-YY	N/A	17-Feb-13	20-Feb-13				
Drill or Wipe		Drill	Drill	Drill				
Flow Rate	gal/min	570	482	295				
Max AV / CV @ MWD	ft/min	450 / 164	381 / 343	483 / 216				
Min Inc @ Depth	deg @ ft	0.22 @ 864	11.97 @ 6490	84.13 @ 11436				
Max Inc @ Depth	deg @ ft	11.41 @ 3370	83.48 @ 7277	91.17 @ 9639				

MUD DATA

Depth	ft	6418	7337	11490				
Fluid Type		WBM	WBM	WBM				
Mud Weight	ppg	9.20	9.20	9.60				
Plastic Viscosity	cP	1	9	5				
Solids / Sand	%	3.7 / 0.25	5.4 / 1.0	10.9 / 1.0				
NaCl Equiv. Chlorides	ppm	1980	2310	2475				
pH		8.7	8.6	8.8				
Oil:Water Ratio	% Vol	4.5 : 95.5	6.0 : 94.0	10.0 : 90.0				
KCl	% Vol	0	0	0				
Client Representative		D. Barone	D. Barone	D. Barone				
WeatherfordLWD Engineer		R. Komrs	R. Komrs	A. Danna				

EQUIPMENT SUMMARY

M/LWD Run Number	1	2	3		
BTR / CDS Serial Number	849 / 983	849 / 983	N/A		
Battery Serial Number	403468133	403468133	N/A		
Gamma Ray Serial Number	2657	2657	N/A		
CMS Serial Number	2015	2015	N/A		
Pulser Serial Number	9329	43919	N/A		
HEL Serial Number	N/A	N/A	NW130436PDBB4.75		
IDS Serial Number	N/A	N/A	NW130438B4.75		
SAGR Serial Number	N/A	N/A	NW130439JB4.75		
Sensor to Bit Offsets / Acquisition Rates					
Directional	ft / sec	58.11 / RT	58.11 / RT	52.24 / RT	
Gamma Ray	ft / sec	43.9 / 14	43.9 / 14	37.73 / 10	
Other Information					
Total BHA Length	ft	96.24	96.92	111.47	
BHA Assembly Type		Steerable	Steerable	Steerable	
Stabilizer Location	ft	N/A	N/A	29.05	
Stabilizer Location	ft	N/A	N/A	73.49	
Run Circulating Time	hr	23.28	12.73	43.55	
Run Drilling Time	hr	14.06	7.91	23.35	

MUD SUMMARY

Date and Time	Run	Bit Depth	Mud Weight	% K	Rm @ Temp	Rmf @ Temp	Rmc @ Temp	BHCT
15 Feb 13 @ 23:40	01	6418 ft	9.20 ppg	0	N/A	N/A	N/A	161 F
17 Feb 13 @ 00:55	02	7337 ft	9.20 ppg	0	N/A	N/A	N/A	179 F
20 Feb 13 @ 14:00	03	11490 ft	9.60 ppg	0	N/A	N/A	N/A	227 F

M/LWD RUN REMARKS

Run Number: 1 :: No Data Logged

WFT Services Provided:

Directional Services: On demand Inclination and Azimuth.

Run Number: 2 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Gamma Ray and Temperature.

Directional Services: On demand Inclination and Azimuth.

Borehole and Environmental Correction:

Collar O.D.: 6.750 in.

Gamma Ray: Collar O.D., Collar I.D. and K1 factor.

Collar I.D.: 3.250 in.

K1 Factor: 3.958

Run Number: 3 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Gamma Ray and Temperature.

Directional Services: On demand Inclination and Azimuth.

Borehole and Environmental Correction:

Hole Size: 6.125 in.

Gamma Ray: Correct for mud weight, hole size and KCL concentration.

Mud Weight: 9.60 ppg

KCl Concentration: 0%

M/LWD LOG COMMENTS

Comment No. 1-1

No logging occurred during this run.

Comment No. 2-1

RECORDED DATA LOG

Start of M/LWD Drilling Run 02

Weatherford International provided 6 3/4 in. Directional, Gamma Ray and Temperature for Run 02.

Run 02 started formation drilling February 16, 2013 at 12:30 at 6418 MD / 6364 TVD. Weatherford International logged the 8.750 in. borehole.

The WBM at the start of drilling was 9.20 ppg.

Comment No. 2-2

End of M/LWD Drilling Run 02

Run 02 ended drilling formation February 17, 2012 at 00:55 at 7337 MD / 6935 TVD.

The WBM at the end of drilling was 9.20 ppg.

Comment No. 3-1

RECORDED DATA LOG

Start of M/LWD Drilling Run 03

Weatherford International provided 4 3/4 in. Directional, Spectral Gamma Ray and Temperature for Run 03.

Run 03 started formation drilling February 18, 2013 at 21:30 at 7337 MD / 6935 TVD. Weatherford International logged the 6.125 in. borehole.

The WBM at the start of drilling was 9.60 ppg.

Comment No. 3-2

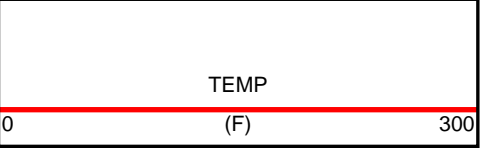
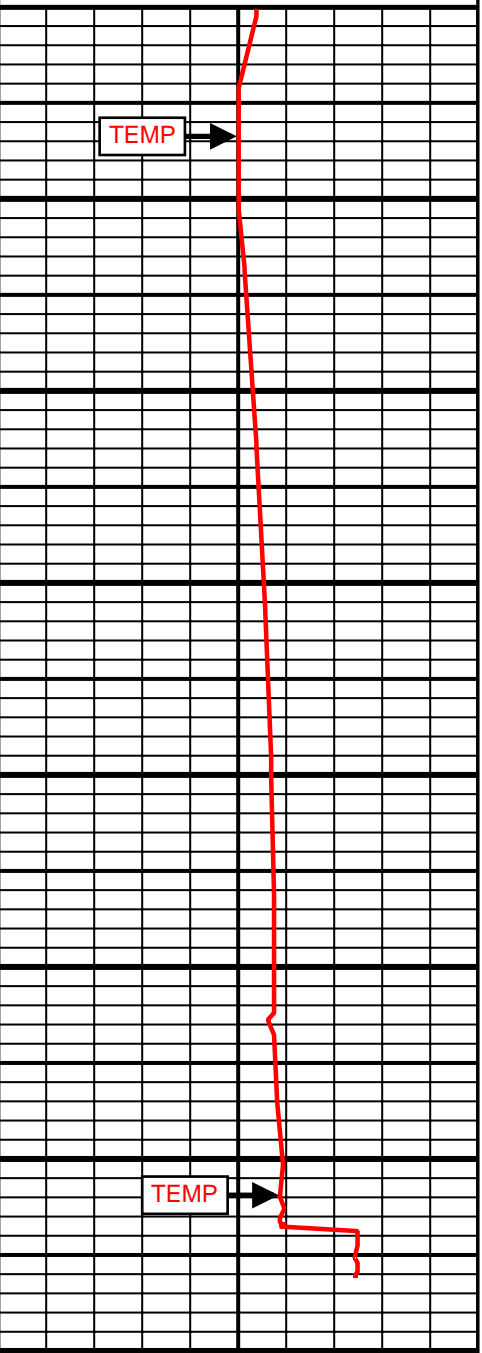
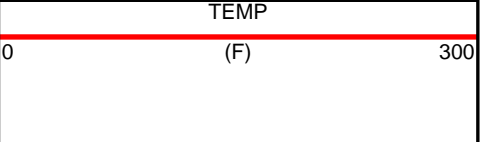
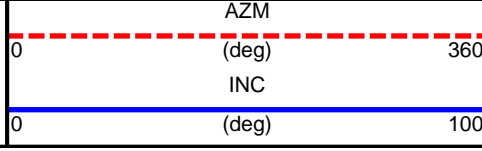
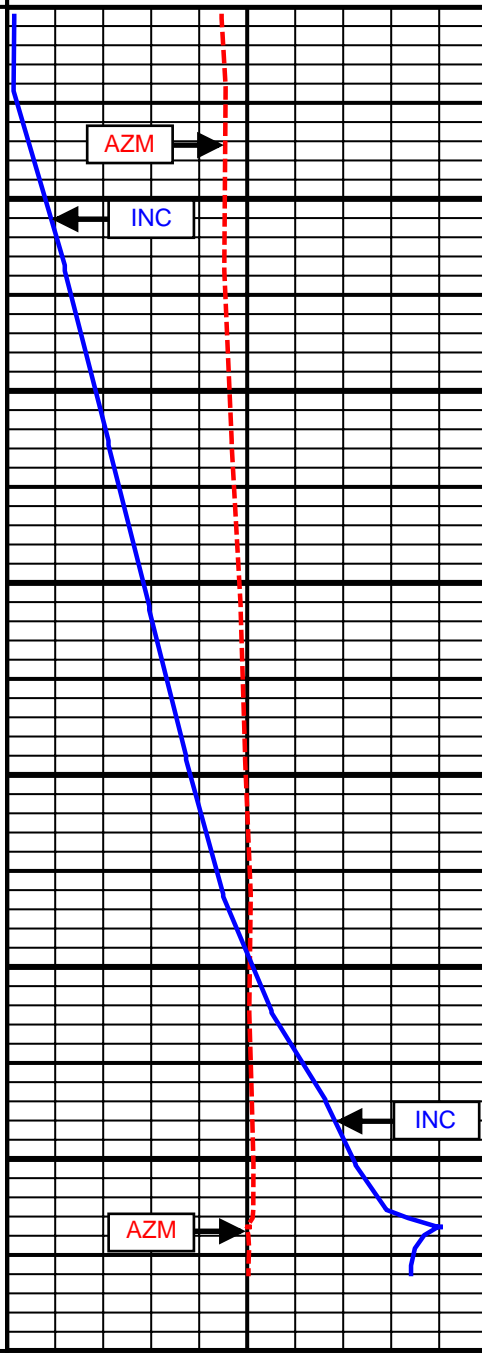
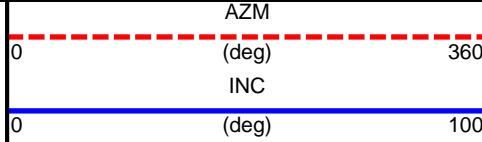
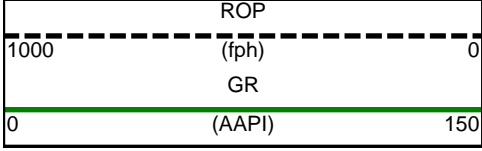
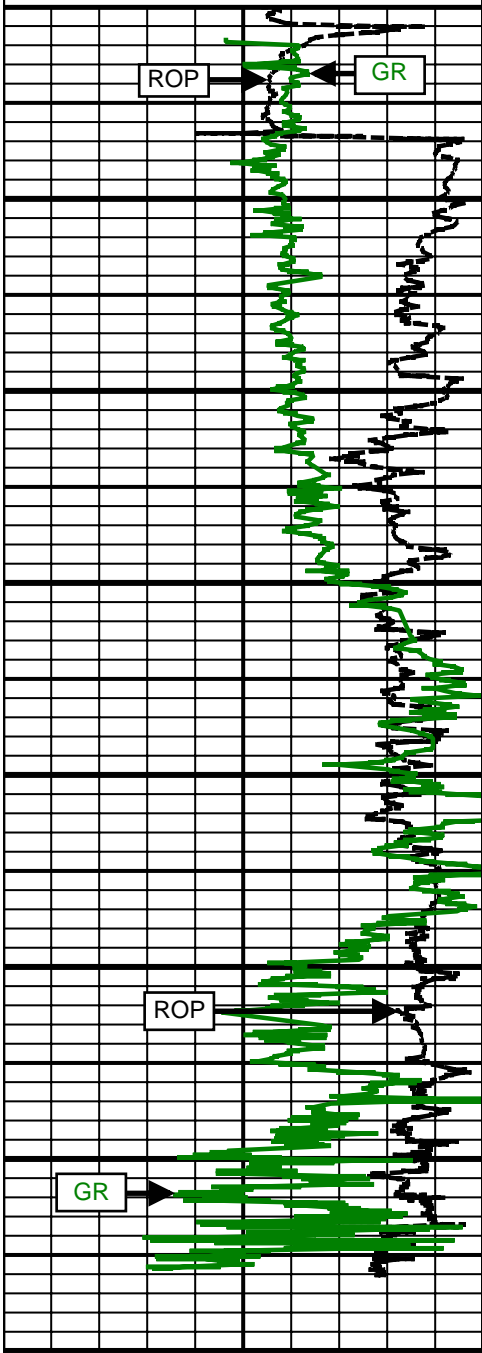
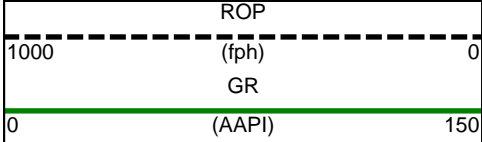
End of LWD Drilling Run 03

Run 03 ended drilling formation February 20, 2013 at 14:00 at 11490 MD / 6961 TVD.

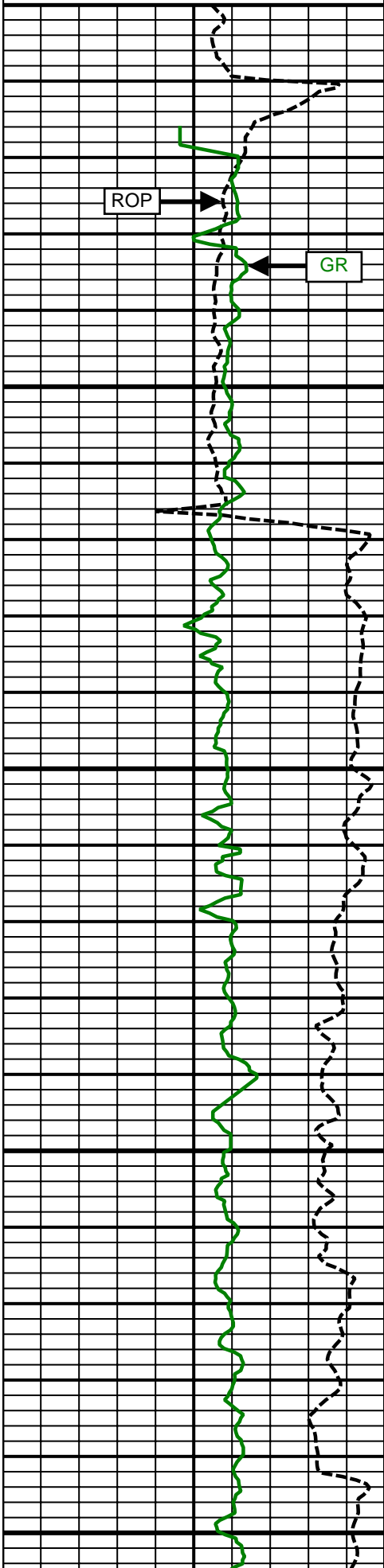
The WBM at the end of drilling was 9.60 ppg.

CURVE SPECIFICATIONS				
CURVE TYPE	MNEMONIC	UNITS	COMMENTS	CORRECTIONS
Rate of Penetration	ROP	fph	Rate of Penetration 3.0 ft window 0.5 ft Exponential Smoothing	None
Gamma Ray	GR	AAPI	Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	See M/LWD Run Remarks
Inclination	INC	deg	Survey Inclination No Smoothing	None
Azimuth	AZM	deg	Survey Azimuth No Smoothing	
Temperature	TEMP	F	Borehole Temperature 3.0 ft window 0.5 ft Exponential Smoothing	

1 Inch - True Vertical Depth



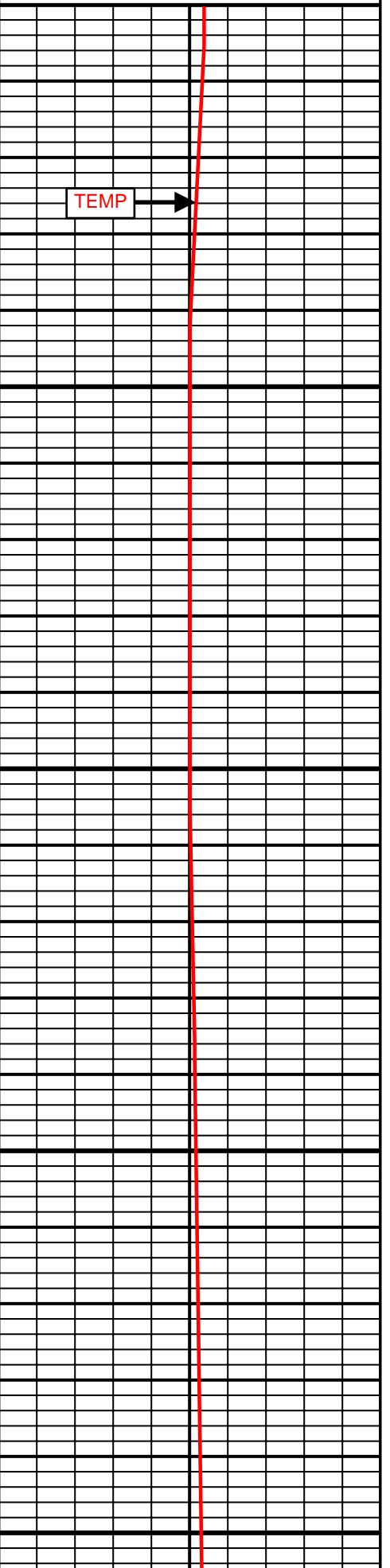
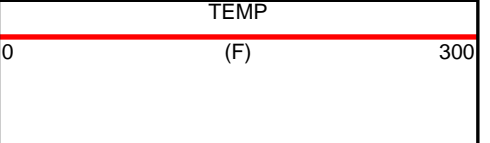
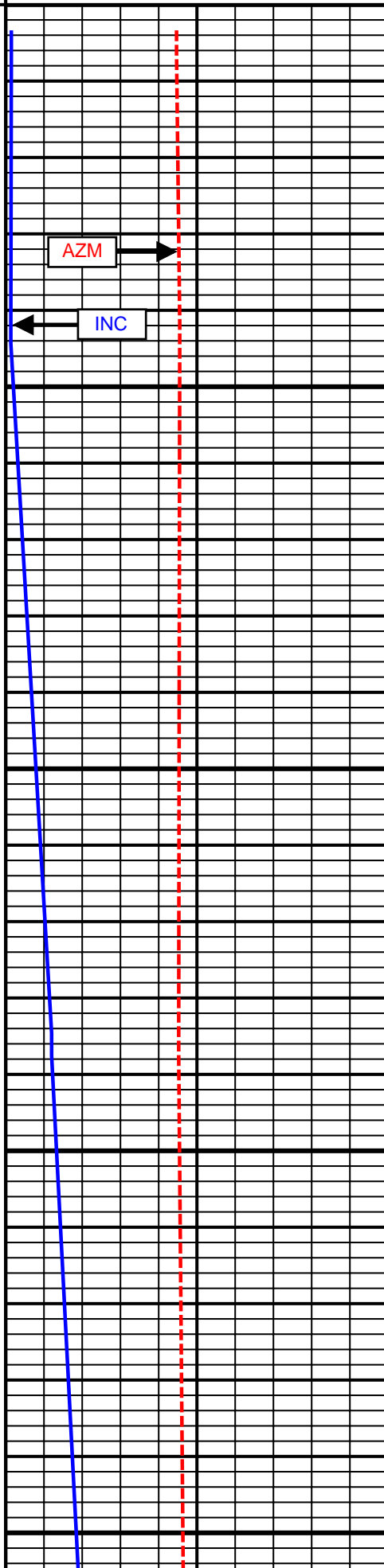
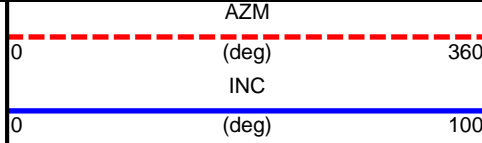
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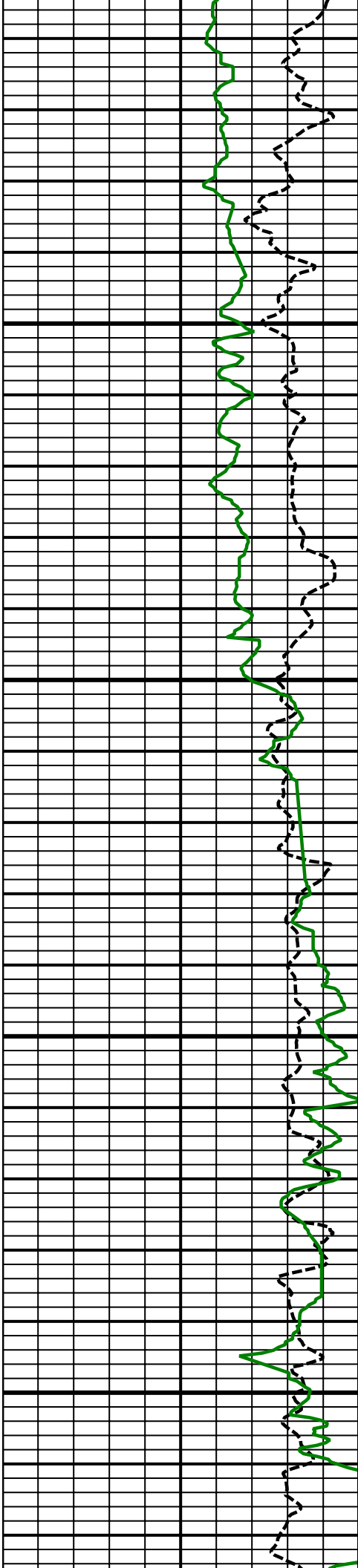


6300
TVD

6400
TVD

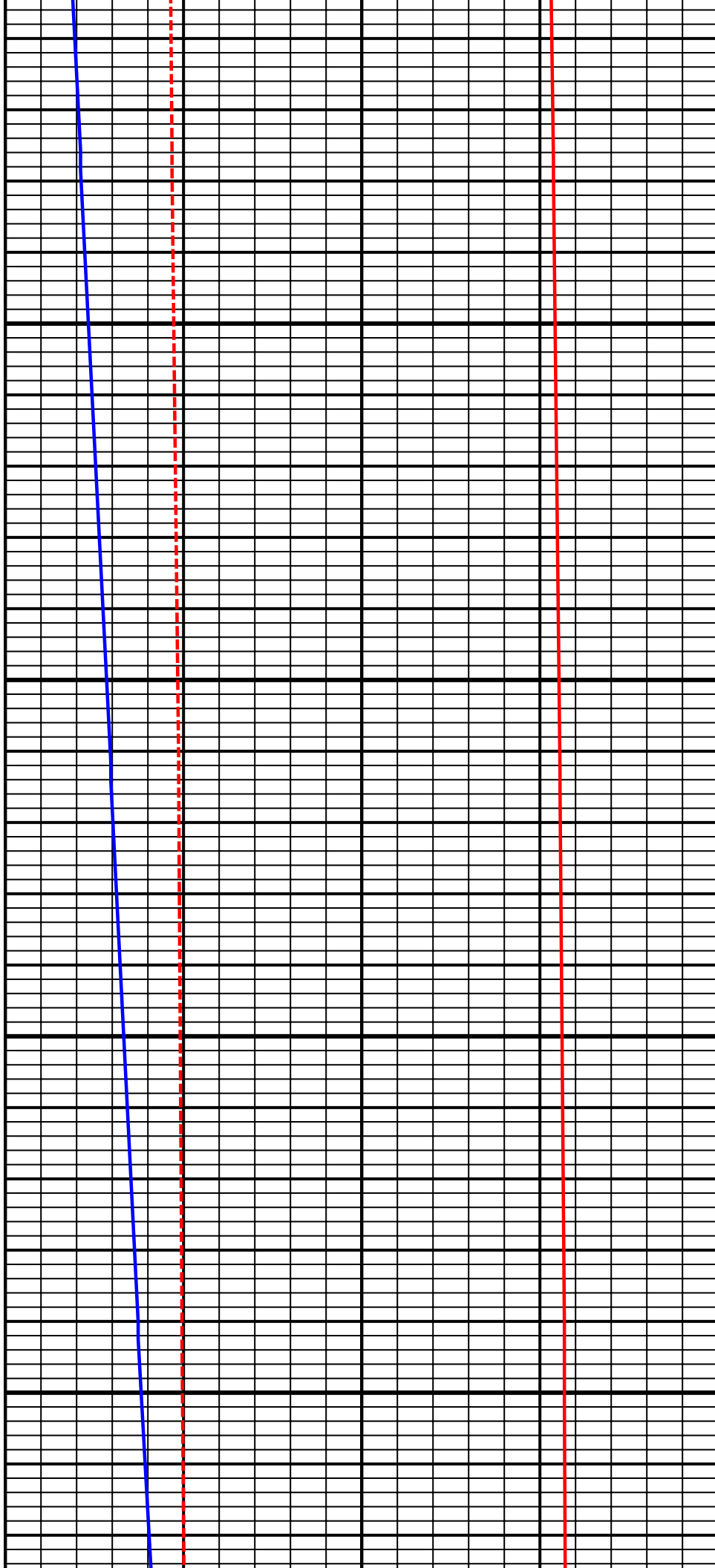
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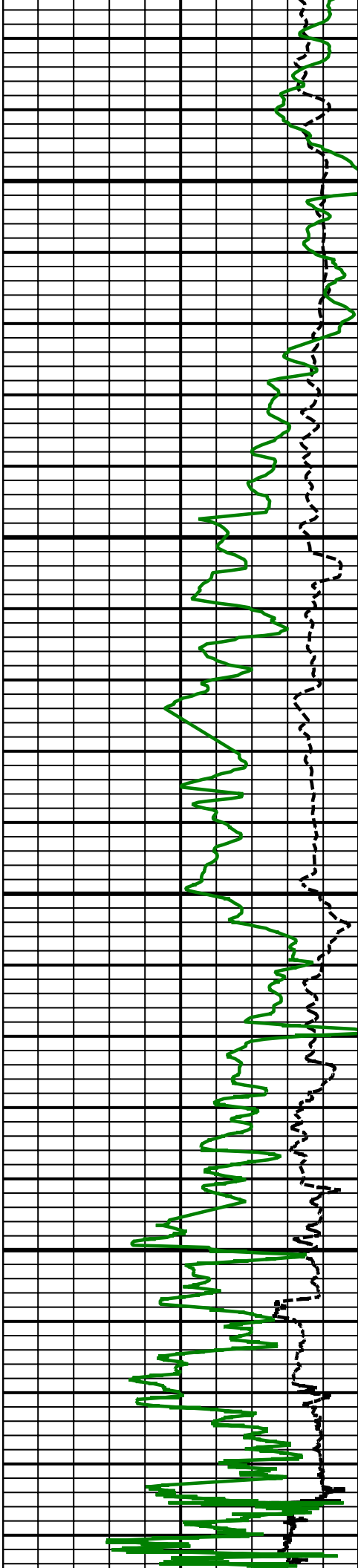




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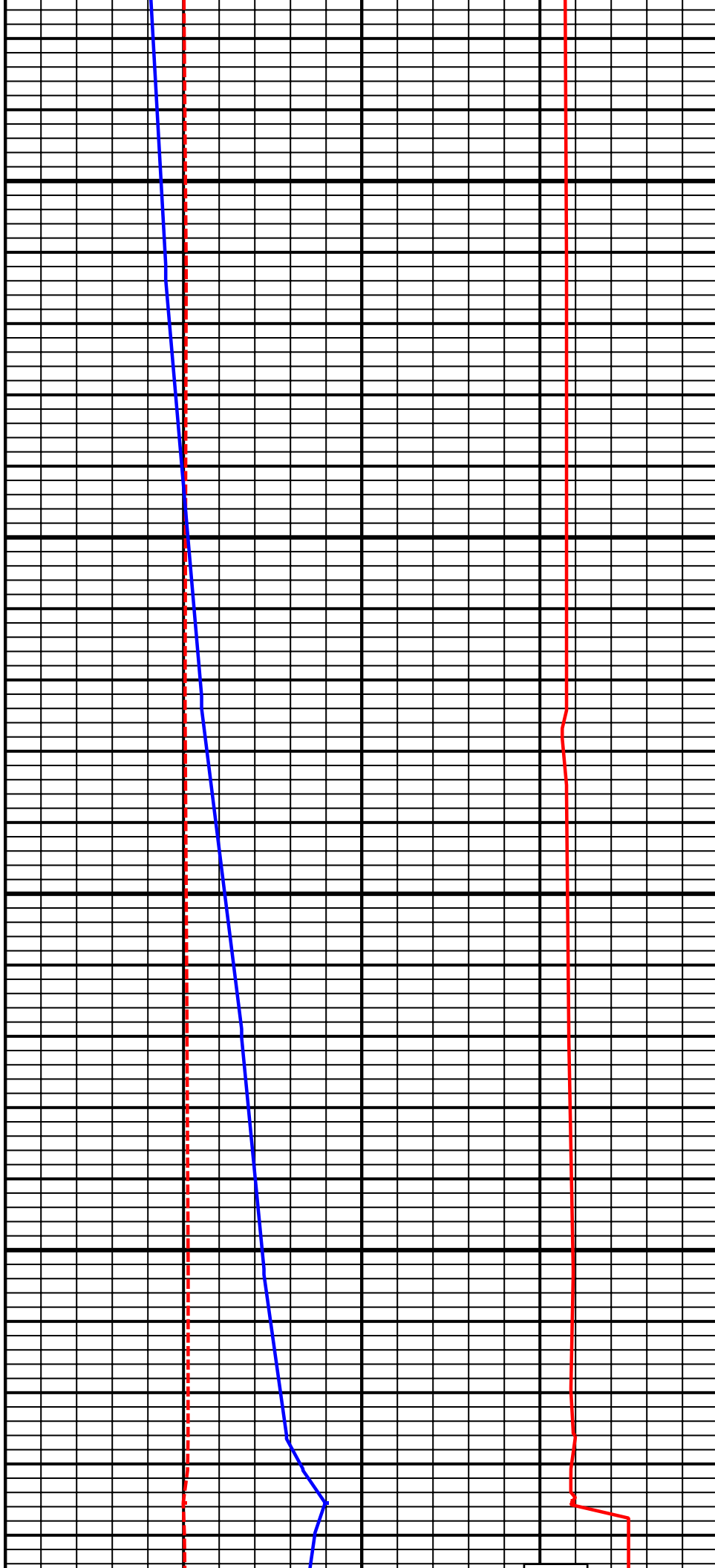
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TVD

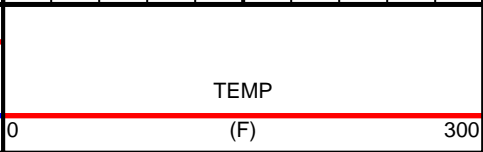
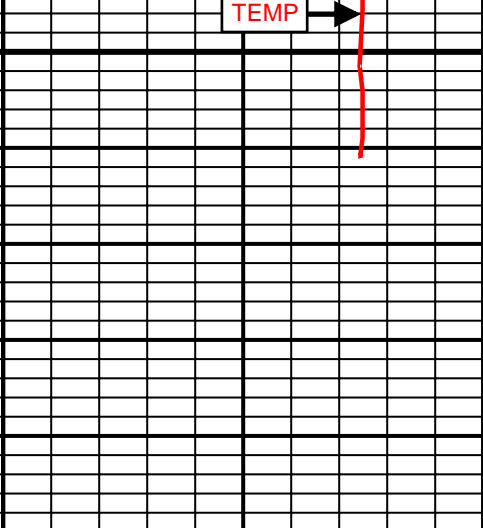
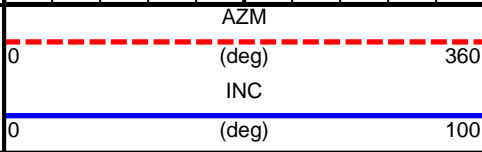
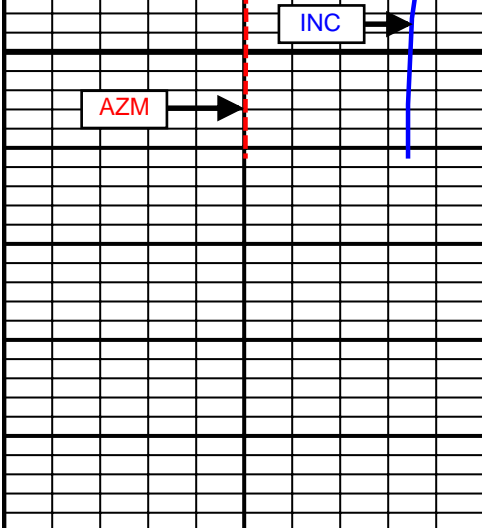
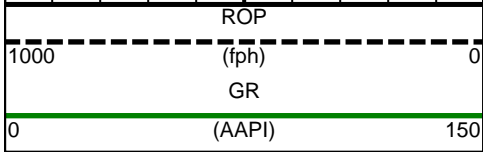
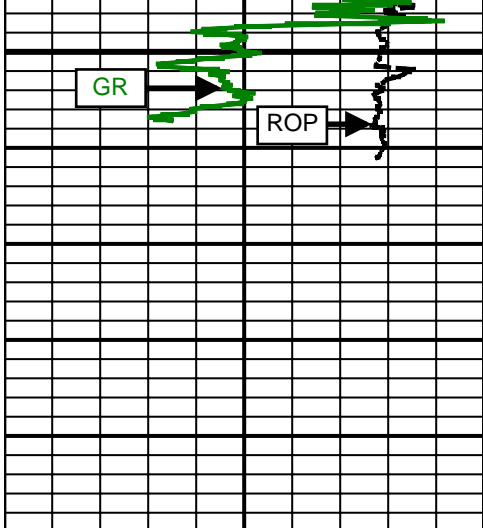




6800
TVD

6900
TVD





SURVEY						
Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
True North	180.21 deg	52840 nT	66.90 deg	8.65 deg	0.00 deg	8.65 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	638.00 ft	0.09 deg	253.09 deg	638.00 ft	0.46 ft	-1.81 ft

Well Head							
Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	NS (ft)	EW (ft)	VSect (ft)	Dogleg (deg/100ft)
772.00	0.38	144.45	772.00	0.07	-1.65	-0.06	0.31
864.00	0.22	49.15	864.00	-0.06	-1.34	0.07	0.50
956.00	0.63	132.18	956.00	-0.29	-0.83	0.29	0.70
1048.00	2.61	104.18	1047.96	-1.14	1.57	1.14	2.26
1140.00	5.49	90.08	1139.72	-1.66	8.01	1.63	3.29
1231.00	8.09	86.45	1230.07	-1.27	18.75	1.20	2.89
1323.00	10.13	83.79	1320.91	0.01	33.26	-0.13	2.26
1415.00	10.59	76.93	1411.41	2.79	49.54	-2.97	1.43
1506.00	10.29	76.56	1500.90	6.57	65.59	-6.81	0.34
1596.00	9.93	77.00	1589.51	10.19	80.97	-10.48	0.41
1688.00	9.59	77.76	1680.18	13.60	96.18	-13.95	0.40
1778.00	9.09	75.63	1768.98	16.95	110.40	-17.35	0.68
1870.00	9.09	74.32	1859.83	20.72	124.44	-21.17	0.22
1961.00	8.40	73.46	1949.77	24.55	137.73	-25.06	0.77
2052.00	7.38	74.50	2039.91	28.01	149.73	-28.56	1.13
2144.00	8.91	78.55	2130.98	31.00	162.41	-31.60	1.78
2236.00	11.22	81.94	2221.55	33.67	178.26	-34.32	2.59
2330.00	11.21	79.10	2313.76	36.68	196.28	-37.40	0.59
2425.00	10.08	73.58	2407.13	40.78	213.33	-41.56	1.60
2519.00	9.31	70.06	2499.78	45.69	228.37	-46.53	1.03
2614.00	9.52	72.93	2593.50	50.62	243.10	-51.51	0.54
2708.00	10.28	79.33	2686.11	54.46	258.77	-55.40	1.42
2803.00	10.50	95.00	2779.57	55.27	275.73	-56.28	2.97
2898.00	10.05	93.51	2873.04	54.01	292.63	-55.08	0.55
2992.00	9.38	92.18	2965.70	53.22	308.47	-54.35	0.75
3087.00	10.97	89.10	3059.20	53.06	325.24	-54.26	1.77
3182.00	10.38	87.92	3152.56	53.52	342.83	-54.77	0.66
3276.00	9.71	86.97	3245.11	54.24	359.21	-55.56	0.73
3370.00	11.41	87.55	3337.52	55.06	376.42	-56.44	1.81
3465.00	10.52	85.22	3430.78	56.18	394.45	-57.63	1.05
3560.00	9.66	85.96	3524.31	57.47	411.04	-58.97	0.92
3654.00	10.63	79.81	3616.85	59.56	427.45	-61.12	1.55
3749.00	9.48	78.46	3710.38	62.67	443.74	-64.30	1.24
3844.00	10.78	77.79	3803.90	66.12	460.08	-67.80	1.37
3938.00	10.57	78.46	3896.28	69.70	477.12	-71.45	0.26
4033.00	10.48	76.59	3989.68	73.45	494.07	-75.26	0.37
4127.00	10.07	73.80	4082.17	77.72	510.27	-79.59	0.69
4222.00	9.70	71.93	4175.76	82.52	525.86	-84.45	0.52
4317.00	9.27	72.74	4269.46	87.28	540.77	-89.26	0.47
4411.00	8.10	69.72	4362.38	91.82	554.22	-93.85	1.34
4506.00	7.50	67.91	4456.50	96.47	566.24	-98.54	0.68
4601.00	7.29	67.07	4550.71	101.15	577.53	-103.26	0.25

4695.00	6.67	66.04	4644.02	105.69	588.02	-107.84	0.67
4790.00	5.87	66.64	4738.45	109.86	597.52	-112.05	0.84
4885.00	5.24	66.00	4833.00	113.55	605.94	-115.77	0.67
4979.00	4.77	65.09	4926.64	116.94	613.41	-119.19	0.51
5074.00	4.49	64.21	5021.33	120.22	620.34	-122.49	0.30
5168.00	2.34	76.44	5115.16	122.27	625.52	-124.56	2.40
5263.00	1.03	85.06	5210.12	122.80	628.25	-125.10	1.40
5357.00	0.43	306.15	5304.11	123.08	628.81	-125.38	1.47
5736.00	1.47	162.67	5683.08	119.28	629.11	-121.58	0.48
6114.00	1.54	151.02	6060.95	110.21	633.01	-112.53	0.08
6358.00	1.44	160.79	6304.87	104.44	635.61	-106.77	0.11
6396.00	1.31	163.78	6342.85	103.58	635.89	-105.91	0.39
6490.00	11.97	162.80	6436.09	93.20	639.08	-95.54	11.34
6585.00	21.07	168.32	6527.08	67.01	645.47	-69.38	9.71
6680.00	29.60	174.99	6612.88	26.83	650.98	-29.22	9.46
6774.00	37.26	178.41	6691.28	-24.82	653.80	22.42	8.39
6869.00	44.98	182.62	6762.80	-87.21	653.07	84.82	8.63
6963.00	55.06	181.46	6823.12	-159.10	650.56	156.72	10.76
7058.00	66.27	183.37	6869.59	-241.71	647.00	239.33	11.93
7153.00	72.54	184.68	6902.99	-330.37	640.74	328.02	6.72
7247.00	78.88	184.47	6926.18	-421.12	633.48	418.80	6.75
7277.00	83.48	183.99	6930.78	-450.68	631.30	448.36	15.41
7369.00	90.74	183.16	6935.42	-542.32	625.57	540.03	7.94
7463.00	89.88	180.74	6934.91	-636.26	622.37	633.97	2.73
7557.00	89.44	179.14	6935.47	-730.25	622.47	727.97	1.77
7652.00	90.49	178.65	6935.53	-825.23	624.30	822.94	1.22
7747.00	90.53	178.60	6934.68	-920.20	626.58	917.90	0.07
7841.00	90.44	178.42	6933.89	-1014.17	629.03	1011.86	0.21
7936.00	90.19	180.02	6933.36	-1109.15	630.32	1106.84	1.70
8031.00	89.74	180.01	6933.42	-1204.15	630.30	1201.84	0.47
8125.00	90.43	179.27	6933.28	-1298.15	630.89	1295.83	1.08
8220.00	90.19	179.19	6932.77	-1393.14	632.16	1390.81	0.27
8314.00	90.06	179.15	6932.56	-1487.13	633.52	1484.80	0.14
8409.00	89.94	178.76	6932.56	-1582.12	635.26	1579.78	0.43
8504.00	90.37	180.89	6932.31	-1677.11	635.55	1674.77	2.29
8598.00	90.74	182.15	6931.39	-1771.07	633.05	1768.74	1.40
8693.00	90.06	182.15	6930.73	-1866.00	629.49	1863.68	0.72
8788.00	90.12	181.41	6930.58	-1960.95	626.54	1958.64	0.78
8882.00	89.81	181.18	6930.64	-2054.93	624.42	2052.63	0.41
8977.00	89.81	181.41	6930.95	-2149.90	622.27	2147.61	0.24
9071.00	89.63	180.87	6931.41	-2243.88	620.40	2241.59	0.61
9166.00	89.75	181.08	6931.93	-2338.87	618.78	2336.58	0.25
9261.00	90.19	181.62	6931.98	-2433.84	616.54	2431.57	0.73
9355.00	90.18	181.68	6931.67	-2527.80	613.84	2525.53	0.06
9450.00	90.31	181.44	6931.27	-2622.77	611.25	2620.51	0.29
9544.00	90.68	181.25	6930.46	-2716.74	609.04	2714.49	0.44
9639.00	91.17	181.30	6928.92	-2811.70	606.93	2809.46	0.52
9734.00	90.31	181.47	6927.70	-2906.66	604.63	2904.43	0.92
9828.00	90.18	180.89	6927.29	-3000.64	602.70	2998.41	0.63
9923.00	90.12	180.57	6927.04	-3095.63	601.49	3093.41	0.34
10017.00	89.38	179.70	6927.45	-3189.63	601.27	3187.41	1.22
10112.00	89.82	179.66	6928.12	-3284.63	601.80	3282.40	0.47
10207.00	90.68	179.43	6927.70	-3379.62	602.55	3377.39	0.94
10301.00	91.48	181.03	6925.93	-3473.60	602.18	3471.37	1.90
10396.00	91.42	180.57	6923.53	-3568.56	600.85	3566.33	0.49
10490.00	90.56	180.50	6921.90	-3662.54	599.97	3660.32	0.92
10585.00	89.75	180.00	6921.65	-3757.54	599.56	3755.32	1.00
10680.00	89.26	179.97	6922.47	-3852.54	599.58	3850.31	0.52
10774.00	88.77	180.01	6924.08	-3946.52	599.60	3944.30	0.52
10869.00	88.71	180.43	6926.17	-4041.50	599.23	4039.27	0.45
10964.00	88.58	180.65	6928.42	-4136.47	598.34	4134.25	0.27

11058.00	88.03	180.91	6931.20	-4230.42	597.06	4228.20	0.65
11153.00	87.35	180.89	6935.03	-4325.33	595.57	4323.12	0.72
11247.00	86.85	180.81	6939.78	-4419.20	594.18	4416.99	0.54
11342.00	84.93	181.42	6946.59	-4513.93	592.33	4511.73	2.12
11436.00	84.13	180.96	6955.55	-4607.48	590.39	4605.28	0.98
Projected to Total Depth:							
11490.00	84.13	180.96	6961.08	-4661.19	589.49	4659.00	0.00

Weatherford M/LWD Surveys from 772.0 MD to 11436.0 MD.

TD at 11490.0 MD.

The total correction is 8.65 deg relative to True North.



Weatherford®

Final Print

COMPANY	<u>Anadarko</u>		
WELL	<u>Dechant State 37N-W36HZ</u>		
FIELD	<u>Wattenberg</u>		
RIG	<u>H&P 307</u>		
LOC.	<u>Colorado</u>	COUNTY	<u>Weld</u>