

2" = 100' TVD

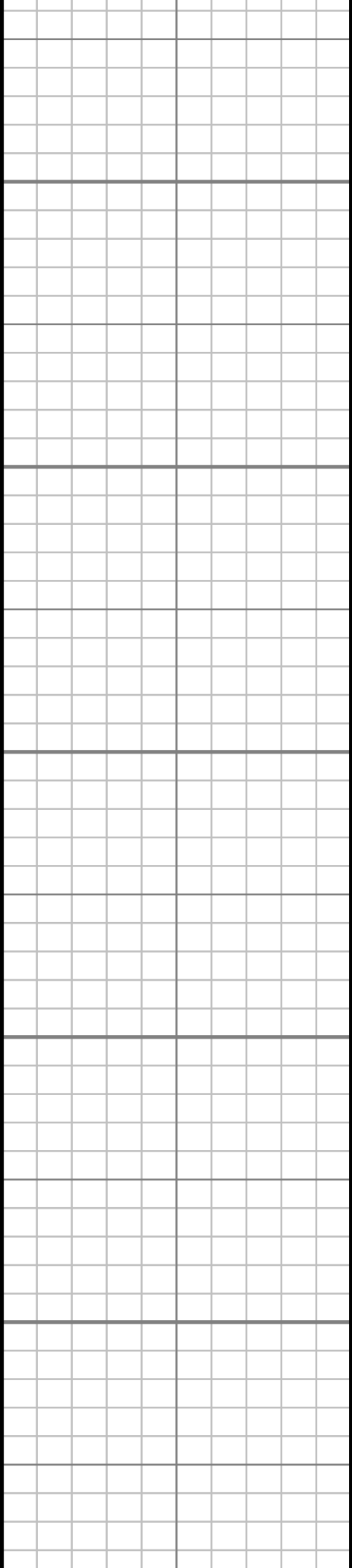
COMPANY : HIGHPOINT RESOURCES WELL : ANSCHUTZ EQUUS FARMS FED 5-61-35-4841B FIELD : WATTENBERG COUNTY : WELD STATE : COLORADO COUNTRY : U.S.A. UWI : 05-123-49225										COMPANY : HIGHPOINT RESOURCES WELL : ANSCHUTZ EQUUS FARMS FED 5-61-35-4841B FIELD : WATTENBERG COUNTY : WELD STATE : COLORADO COUNTRY : U.S.A. UWI : 05-123-49225									
DEPTH REF. : RKB REF. HEIGHT : 16,500 ft GROUND LEVEL : 4479.600 ft										RKB to Ground Level G.L. to MEAN SEA LEVEL									
BOREHOLE RECORD										DEVIATION RECORD									
HOLE SIZE in		FROM ft		TO ft		INCLINATION deg		FROM ft		TO ft									
13.5		0		1011		0		0		300									
8.75		1011		6235		0 - 5		300		635									
6.125		6235		15944		5		635		2694									
						5 - 0		2694		3078									
						0		3078		5188									
						0 - 90		5188		6176									
CASING RECORD				88 - 92		6176		15944											
CASING SIZE in		FROM ft		TO ft															
9.625		0		1011															
7		0		6209															
DRILLING CO.: CADE RIG: 24 LWD UNIT NO.: 282 SPUD DATE: 04/18/2019 LWD START DATE: 04/21/2019 LWD END DATE: 04/28/2019 DISTRICT: CASPER, CASPER DEPTH: 1011 ft DEPTH: 15944 ft TOTAL DEPTH: 15944 ft																			

Run Data						
RUN NUMBER	RUN 1	RUN 2	RUN 3			
START DATE	04/20/2019	04/21/2019	04/24/2019			
START TIME	04:00	16:00	00:30			
END DATE	04/21/2019	04/23/2019	04/28/2019			
END TIME	16:00	09:00	20:45			
DEPTH IN (ft)	0	1007	6235			
DEPTH OUT (ft)	1007	6235	15944			
LOG TOP (ft)	-	1007	6235			
LOG BOTTOM (ft)	-	6235	15944			
HOLE SIZE (in)	13.5	8.75	6.125			
MUD DATA @ (ft)	1007	6658	14409			
MUD TYPE	WATER	WATER-BASED	WATER-BASED			
DENSITY (lb / gal)	8.345	8.6	9.2			
VISCOSITY (s / qt)	-	34	30			
pH	-	11.3	9.5			
FLUID LOSS (cm3 / 30)	-	-	-			
SALINITY (mg/L)	-	700	700			
Rm (ohmm @ deg F)	-	-	-			
Rmf (ohmm @ deg F)	-	-	-			
MAX TEMP (deg F)	84.09	156.02	218.02			
Rm @ MAX TEMP (ohmm)	-	-	-			
LWD ENGINEER #1	A. FARQUHAR	M. BAILY	M. BAILY			
LWD ENGINEER #2	M. SUTTER	A. FARQUHAR	M. SUTTER			
LWD ENGINEER #3	-	M. SUTTER	-			
LOG WITNESS #1	-	-	-			
LOG WITNESS #2	-	-	-			

Remarks
HIGHPOINT RESOURCES PRODUCTION AFE# 20360D
SCIENTIFIC DRILLING INTERNATIONAL JOB# , OP.018091
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY TOTAL CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN #2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-126 / CONT = 163 / MWD EYE = 1035 / GAMMA RAY = 1341
BIT TO SENSOR OFFSETS: SURVEY = 57.41 FT. / GAMMA RAY = 53.41 FT.
RUN #3: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-277 / CONT = 303 / MWD EYE = 146 / GAMMA RAY = 1070
BIT TO SENSOR OFFSETS: SURVEY = 54.4 FT. / GAMMA RAY = 50.4 FT.
MNEMONICS LIST:
GR = GAMMA RAY TOTAL
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

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 interpretations, 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 as set out in our current price schedule.

HIGHPOINT RESOURCES ANSCHUTZ EQUUS FARMS FED 05-61-34-4841B WATTENBERG FIELD WELD COUNTY, COLORADO API # 05-123-49225			
<div>Gamma Ray Total (GR)</div> <div>0Unit = aapi200</div>	<div>TRUE VERTICAL DEPTH</div> <div>1:600 (ft)</div> <div>0</div> <div>100</div>	<div>Rate of Penetration (ROP)</div> <div>0Unit = ft/hr1000</div>	<div>Tool Temperature (T-TEMP)</div> <div>0Unit = °F300</div>
<div></div>		<div></div>	<div></div>



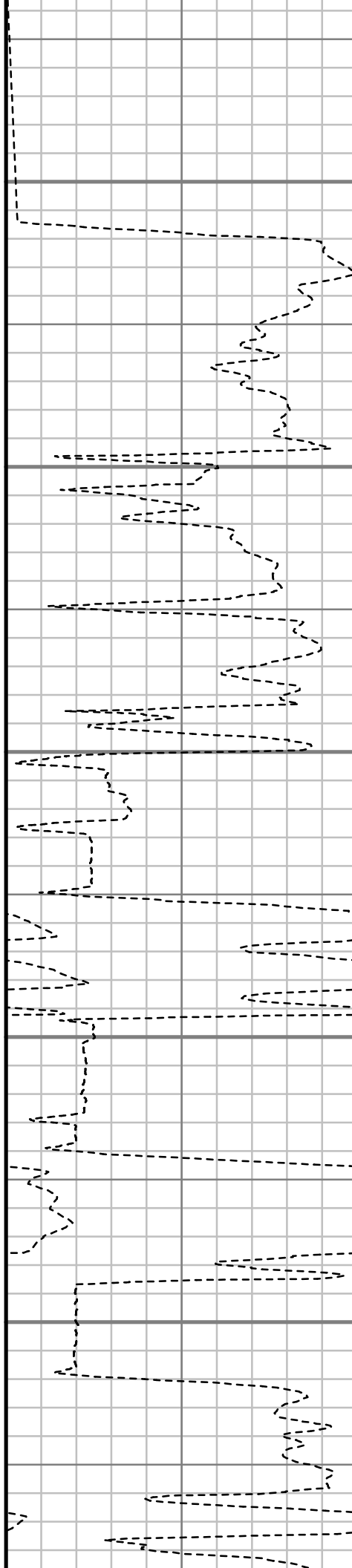
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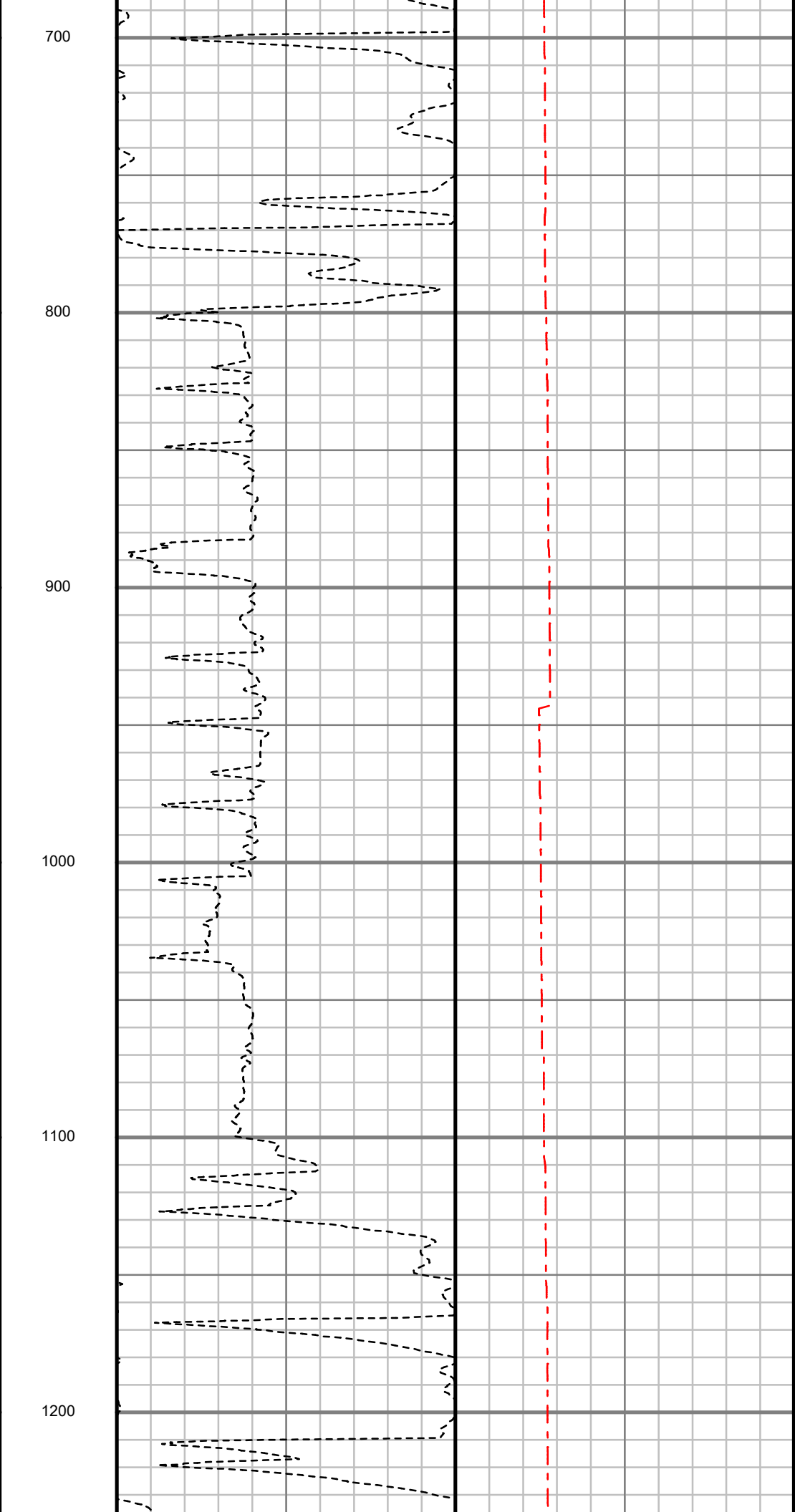
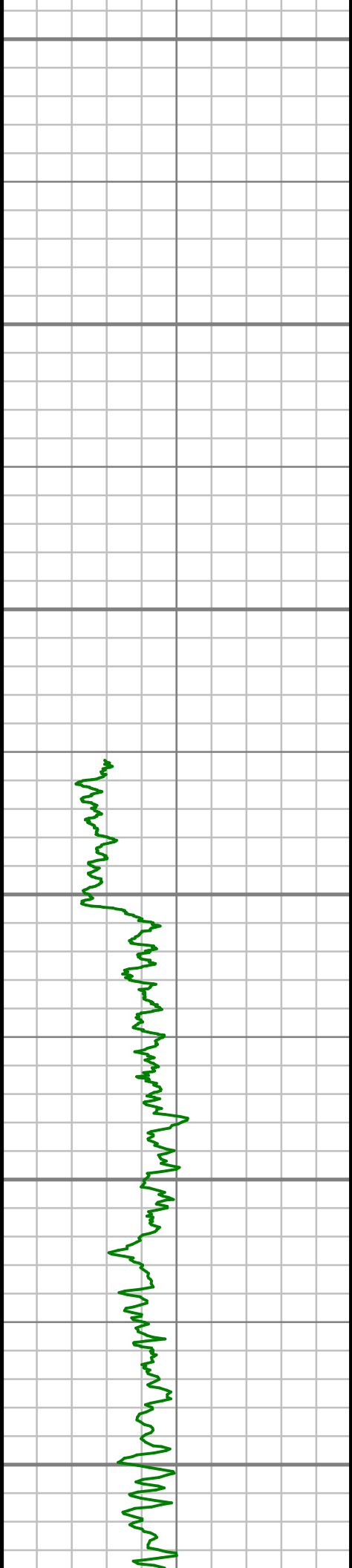
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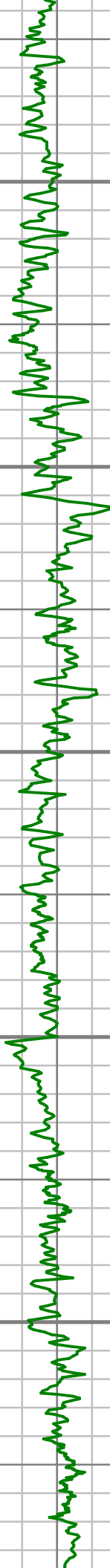
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500

600







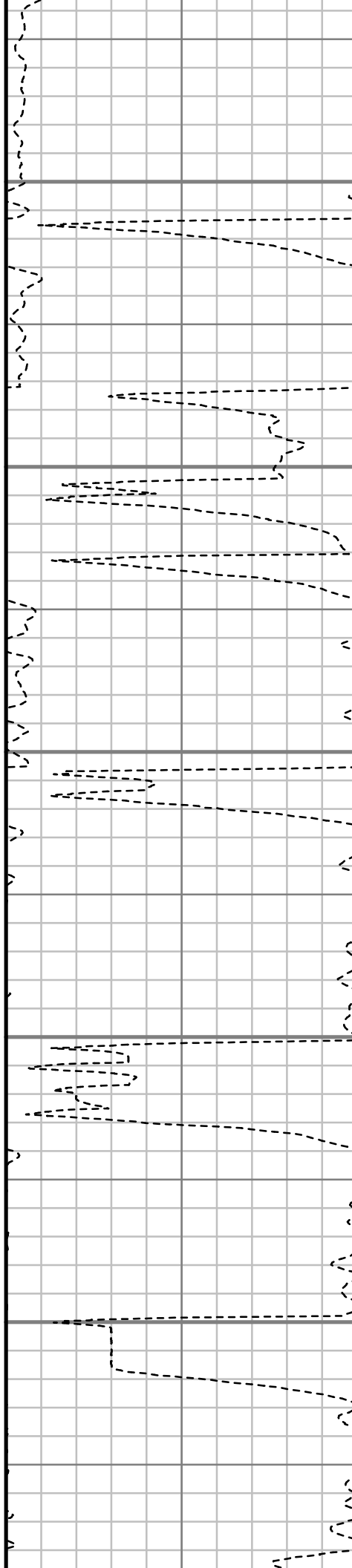
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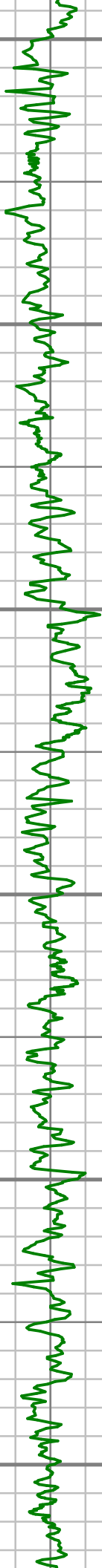
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1500

1600

1700





1800

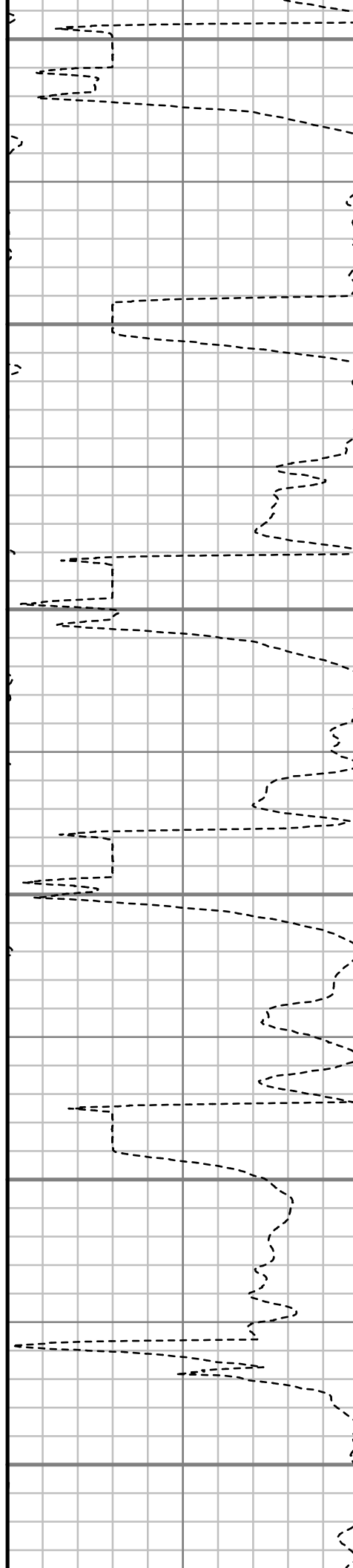
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2000

2100

2200

2300





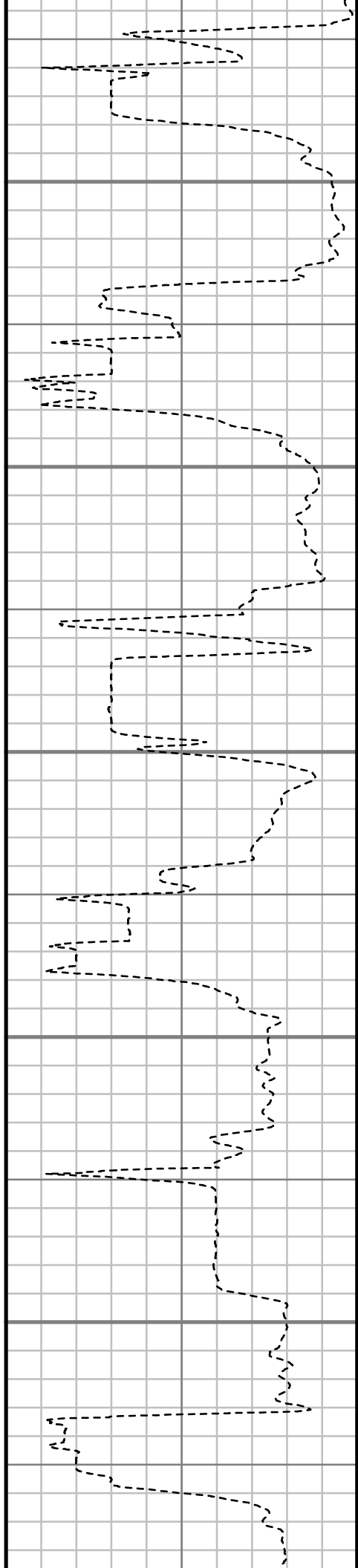
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2500

2600

2700

2800





2900

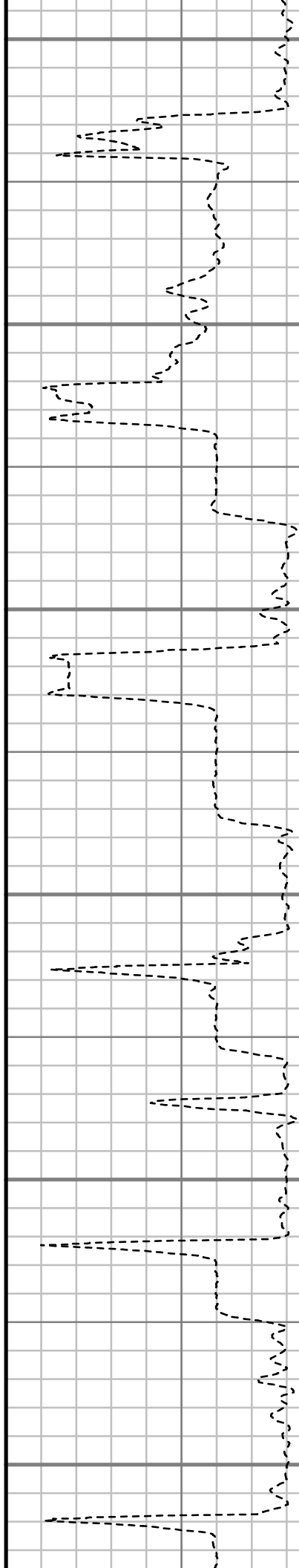
3000

3100

3200

3300

3400







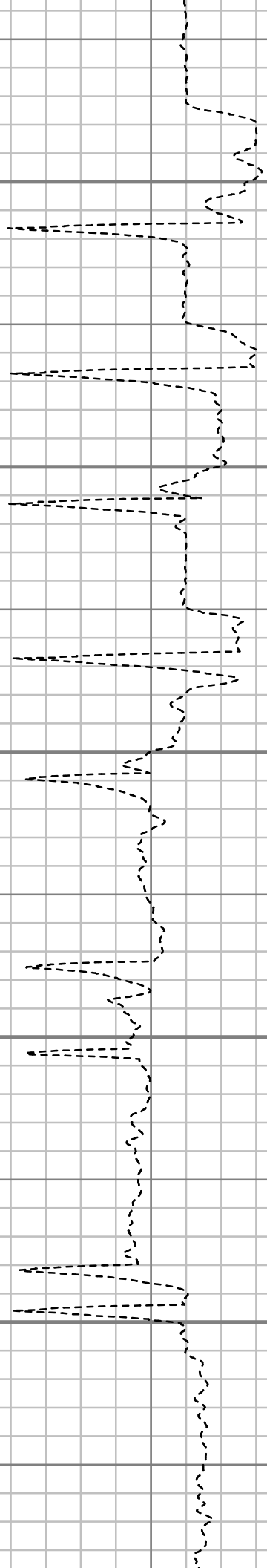
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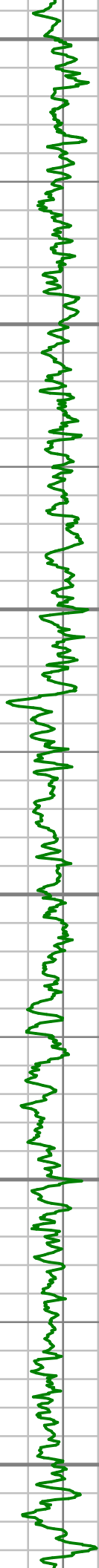
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3700

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3900





4000

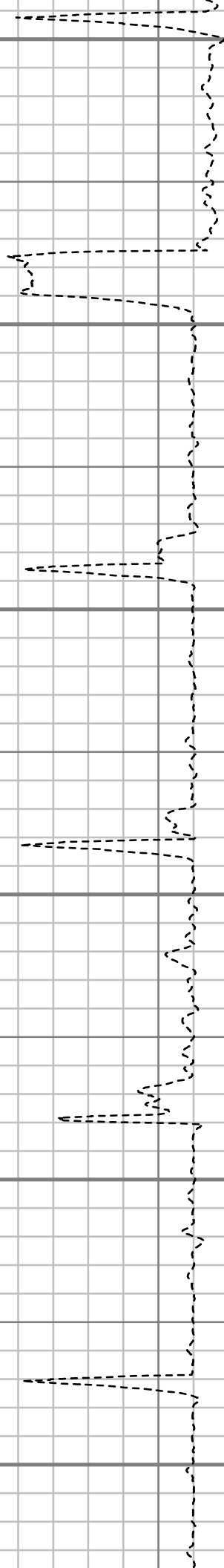
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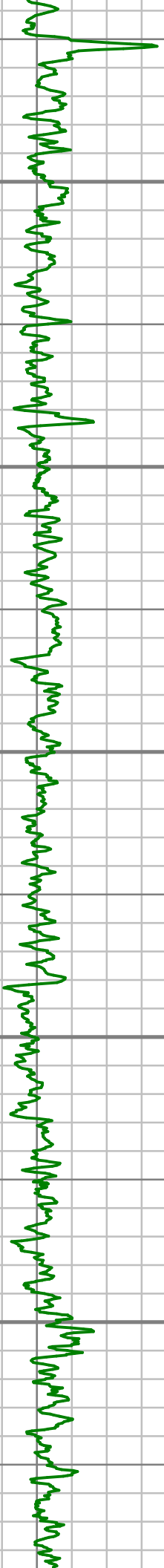
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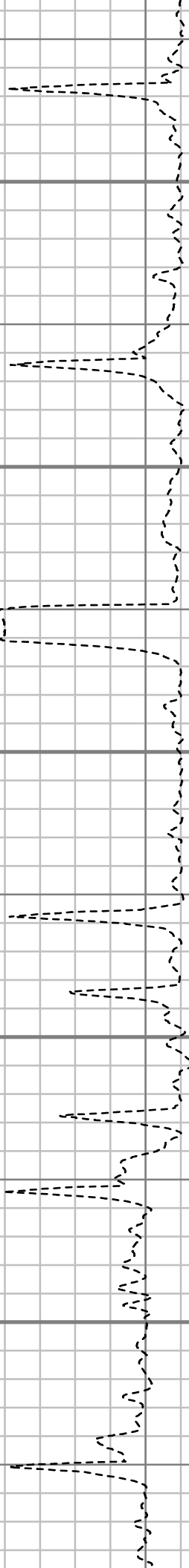
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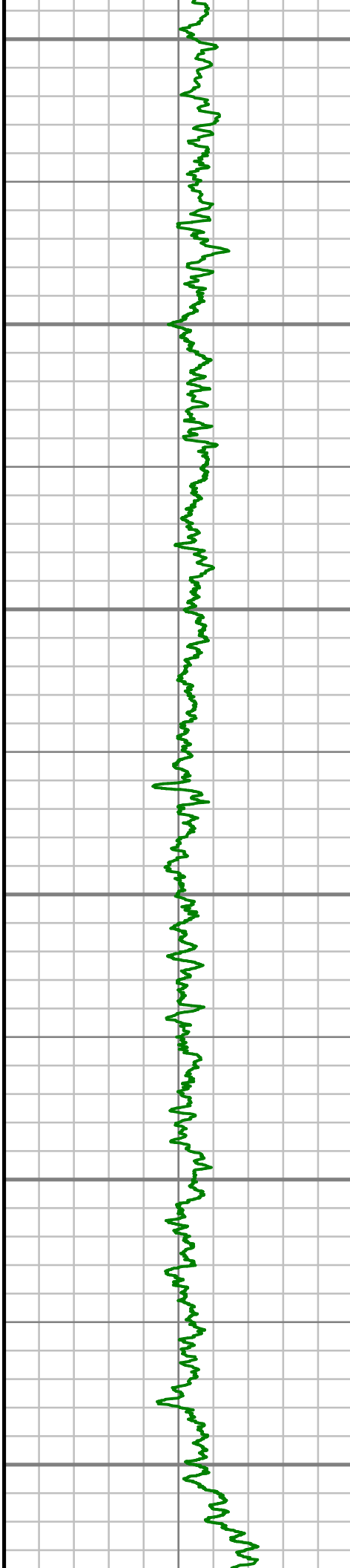
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4800

4900

5000





5100

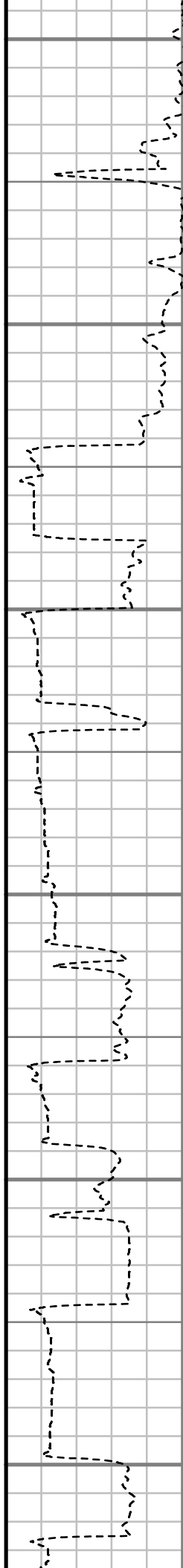
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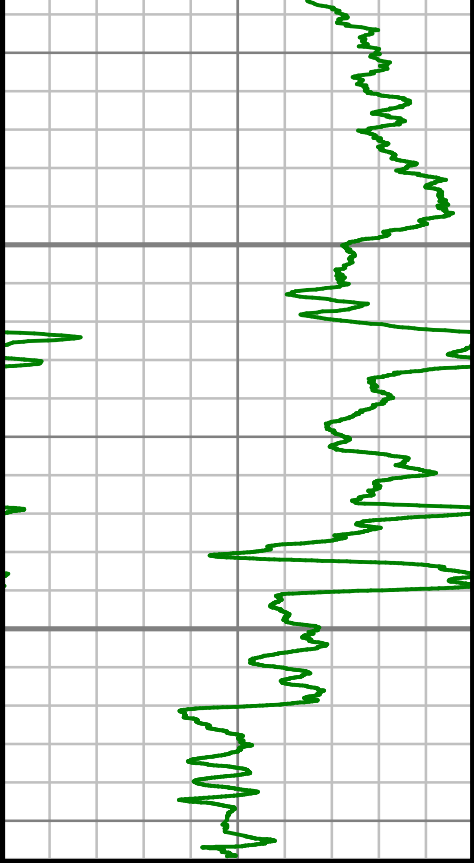
5300

5400

5500

5600





Gamma Ray Total (GR)

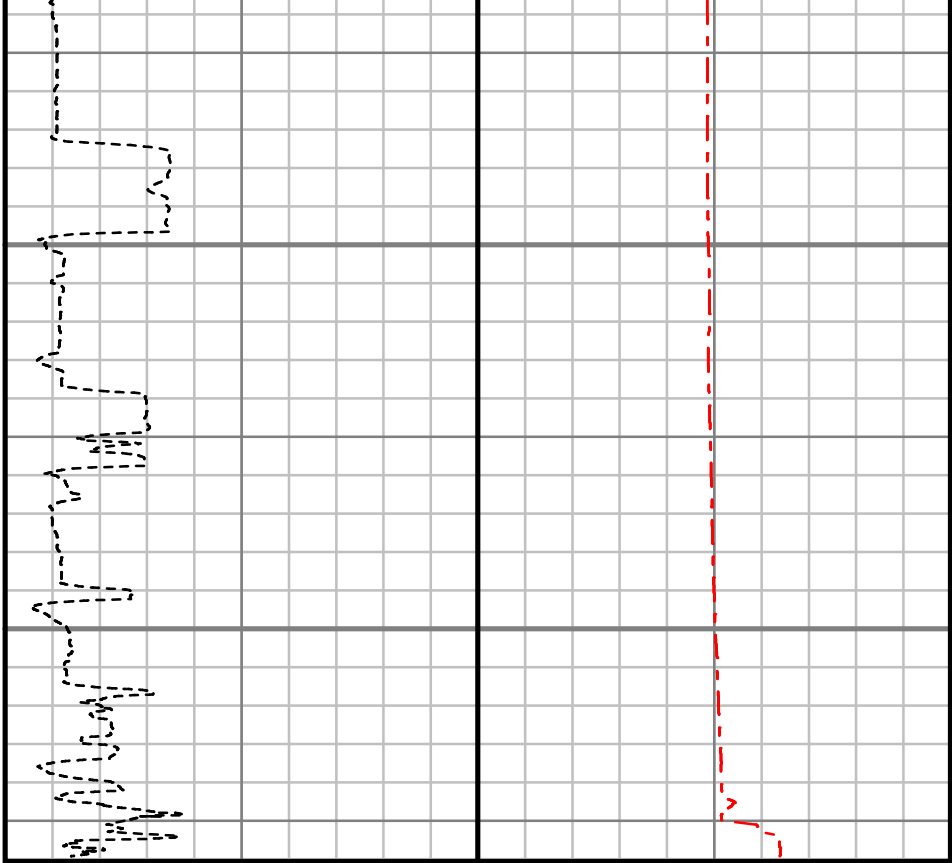
Unit = aapi

0 200

5700

5800

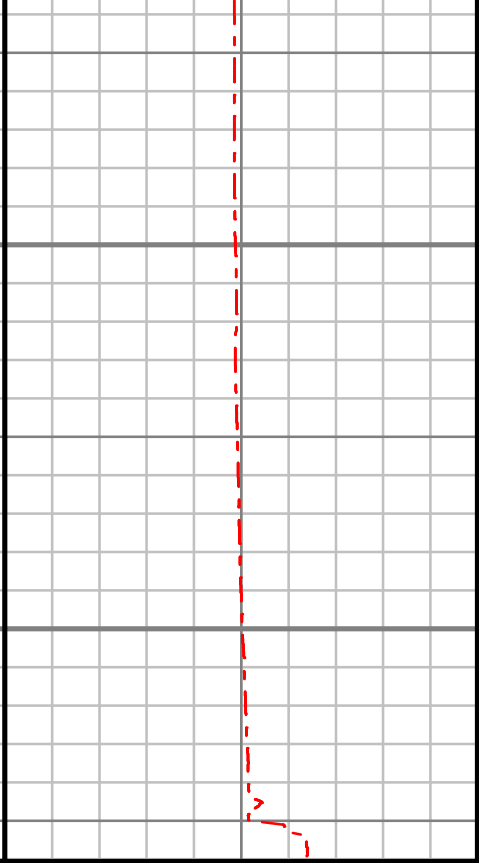
TRUE VERTICAL DEPTH  
1500 (ft)



Rate of Penetration (ROP)

Unit = ft/hr

0 1000



Tool Temperature (T-TEMP)

Unit = °F

0 300

# SURVEY REPORT

ANSCHUTZ EQUUS FARMS FED 5-61-35-4841B

COMPUTED SURVEYS

CUSTOMER HIGHPOINT RESOURCES  
PROJECT ANSCHUTZ EQUUS FARMS FED  
5-61-35-4841B  
FIELD WATTENBERG

## WELL INFORMATION

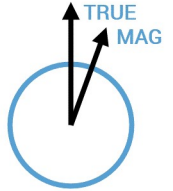
Lat/Long 40° 21' 17.03" N, 104° 11' 12.36" W  
Northing 1,374,778.99 ft  
Easting 3,365,979.93 ft  
UWI 05-123-49225

## MAP INFORMATION

North Reference True North  
Grid Correction  
System US State Plane 1983  
Datum North American Datum 1983 (GRS 1980)  
Map Zone Colorado North: 0501

## VERTICAL SECTION REFERENCE

+N/-S 0 ft  
+E/-W 0 ft  
Proposal Direction 89.83°  
Calculation Method Minimum Curvature



## GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: 999.110 mG [computed]

MD	MODEL	DATE	DECLINATION	MAG TO TRUE
0-15888 ft	HDGM2018	18 Apr 2019	8.10°	add 8.1°

## WELL NOTES

## OPERATORS

A FARQUHAR, A. FARQUHAR, M SUTTER, M. BAILY, M. SUTTER

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
242.00	0.38	122.53	242.00	0.67	-0.43	0.67	0.16
334.00	0.45	132.70	334.00	1.18	-0.83	1.19	0.11
426.00	1.48	90.56	425.98	2.63	-1.09	2.64	1.28
553.00	3.93	80.32	552.83	8.56	-0.37	8.56	1.96
635.00	5.37	75.49	634.56	15.05	1.06	15.04	1.82
738.00	5.52	78.25	737.10	24.57	3.28	24.56	0.30
821.00	5.49	84.03	819.71	32.43	4.51	32.42	0.67
885.00	5.14	83.96	883.44	38.33	5.12	38.32	0.55
943.00	5.01	82.02	941.21	43.43	5.75	43.41	0.37
1069.00	4.80	83.38	1066.75	54.12	7.12	54.10	0.19
1160.00	5.04	85.42	1157.41	61.89	7.88	61.87	0.33
1256.00	4.85	84.91	1253.06	70.14	8.58	70.11	0.21
1352.00	4.88	85.29	1348.71	78.25	9.27	78.22	0.05
1448.00	4.05	78.77	1444.42	85.64	10.27	85.61	1.02
1544.00	4.04	71.44	1540.18	92.17	12.00	92.14	0.54
1640.00	5.47	68.09	1635.85	99.63	14.79	99.59	1.52
1736.00	5.03	66.27	1731.45	107.74	18.19	107.69	0.49
1831.00	6.21	77.40	1825.99	116.58	20.99	116.52	1.68
1927.00	5.41	69.31	1921.50	125.89	23.72	125.82	1.19

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
2023.00	5.38	76.73	2017.07	134.51	26.35	134.43	0.73
2119.00	5.45	89.43	2112.65	143.45	27.43	143.37	1.25
2215.00	4.72	86.63	2208.27	151.95	27.70	151.87	0.80
2311.00	4.60	85.77	2303.95	159.73	28.22	159.64	0.15
2407.00	4.50	91.61	2399.65	167.33	28.40	167.24	0.49
2503.00	5.19	83.36	2495.31	175.41	28.79	175.32	1.03
2598.00	4.81	88.19	2589.95	183.66	29.42	183.57	0.60
2694.00	4.11	82.15	2685.66	191.09	30.01	191.00	0.88
2790.00	3.85	74.36	2781.43	197.60	31.35	197.50	0.62
2886.00	2.90	60.61	2877.26	202.82	33.41	202.72	1.29
2982.00	2.93	58.28	2973.14	207.04	35.90	206.93	0.13
3078.00	1.80	39.42	3069.05	210.09	38.35	209.97	1.41
3173.00	0.20	338.50	3164.04	210.98	39.67	210.86	1.80
3269.00	0.09	257.43	3260.04	210.84	39.81	210.72	0.22
3365.00	0.59	247.82	3356.04	210.30	39.60	210.18	0.52
3461.00	0.46	225.37	3452.03	209.57	39.15	209.45	0.26
3557.00	0.17	246.51	3548.03	209.16	38.82	209.05	0.32
3653.00	0.33	79.26	3644.03	209.30	38.82	209.19	0.52
3749.00	0.48	84.50	3740.03	209.98	38.91	209.86	0.16
3845.00	0.71	69.07	3836.02	210.94	39.16	210.82	0.28

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
3940.00	1.16	29.19	3931.01	211.96	40.20	211.83	0.80
4036.00	0.75	338.73	4027.00	212.20	41.64	212.08	0.93
4132.00	1.41	251.66	4122.99	210.85	41.85	210.73	1.63
4228.00	1.22	245.70	4218.96	208.80	41.06	208.67	0.25
4324.00	1.18	234.26	4314.94	207.06	40.06	206.94	0.25
4420.00	1.33	233.47	4410.92	205.36	38.82	205.24	0.15
4516.00	1.38	226.49	4506.89	203.63	37.37	203.51	0.18
4612.00	1.49	213.80	4602.86	202.09	35.54	201.98	0.35
4708.00	1.02	207.09	4698.84	201.00	33.74	200.90	0.51
4804.00	0.60	314.91	4794.83	200.26	33.33	200.16	1.39
4900.00	0.53	288.85	4890.83	199.48	33.83	199.38	0.27
4996.00	0.55	259.62	4986.82	198.61	33.89	198.51	0.28
5092.00	0.32	292.25	5082.82	197.92	33.91	197.81	0.34
5188.00	0.44	297.82	5178.82	197.35	34.18	197.24	0.13
5284.00	4.83	90.20	5274.71	201.07	34.34	200.96	5.44
5380.00	16.01	81.60	5368.98	218.27	36.26	218.16	11.73
5476.00	24.29	86.33	5459.03	251.14	39.47	251.02	8.78
5571.00	27.37	89.37	5544.53	292.50	40.96	292.37	3.53
5667.00	36.88	90.92	5625.74	343.49	40.73	343.36	9.94
5763.00	46.20	89.23	5697.52	407.07	40.73	406.95	9.78

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft
5859.00	54.74	90.56	5758.56	481.05	40.81	480.93	8.96
5955.00	71.05	89.36	5802.15	566.22	40.94	566.09	17.03
6051.00	77.89	88.60	5827.84	658.65	42.60	658.52	7.17
6146.00	83.76	88.27	5842.98	752.36	45.17	752.23	6.18
6176.00	88.66	88.56	5844.96	782.28	45.99	782.14	16.36
6270.00	89.83	87.91	5846.20	876.23	48.89	876.09	1.43
6334.00	88.99	88.80	5846.86	940.21	50.72	940.06	1.91
6430.00	89.40	89.30	5848.21	1036.19	52.32	1036.03	0.67
6526.00	89.60	88.07	5849.05	1132.16	54.52	1132.00	1.30
6622.00	89.76	89.32	5849.59	1228.14	56.71	1227.97	1.32
6718.00	90.03	89.93	5849.76	1324.14	57.33	1323.97	0.69
6814.00	90.37	89.53	5849.42	1420.14	57.79	1419.97	0.55
6909.00	90.81	90.45	5848.44	1515.13	57.81	1514.96	1.07
6991.00	94.10	93.00	5844.93	1596.99	55.35	1596.83	5.08
7005.00	94.17	93.11	5843.92	1610.93	54.60	1610.78	0.91
7102.00	89.80	91.10	5840.57	1707.77	51.05	1707.62	4.95
7197.00	88.99	90.82	5841.57	1802.75	49.45	1802.61	0.90
7293.00	87.45	91.00	5844.55	1898.68	47.93	1898.54	1.62
7389.00	90.77	90.00	5846.05	1994.65	47.09	1994.51	3.62
7485.00	90.37	89.49	5845.09	2090.64	47.52	2090.51	0.68

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft
7581.00	89.13	89.06	5845.51	2186.63	48.73	2186.50	1.37
7677.00	87.75	89.12	5848.13	2282.59	50.26	2282.45	1.44
7772.00	88.86	89.12	5850.94	2377.54	51.72	2377.39	1.17
7868.00	90.03	89.59	5851.87	2473.53	52.80	2473.38	1.32
7964.00	89.90	88.88	5851.93	2569.52	54.08	2569.37	0.75
8060.00	90.10	90.46	5851.93	2665.52	54.63	2665.37	1.66
8156.00	89.16	89.86	5852.55	2761.51	54.37	2761.36	1.16
8251.00	91.28	90.71	5852.19	2856.50	53.90	2856.35	2.40
8347.00	90.84	90.21	5850.42	2952.48	53.13	2952.33	0.69
8443.00	90.70	89.12	5849.12	3048.47	53.70	3048.32	1.15
8539.00	91.28	89.43	5847.46	3144.45	54.91	3144.30	0.68
8635.00	88.82	88.00	5847.38	3240.42	57.07	3240.27	2.96
8731.00	89.09	88.52	5849.12	3336.37	59.98	3336.20	0.61
8826.00	89.97	91.02	5849.90	3431.36	60.36	3431.19	2.78
8922.00	90.24	94.87	5849.73	3527.20	55.43	3527.05	4.02
9018.00	90.34	95.69	5849.25	3622.76	46.60	3622.64	0.86
9063.00	89.73	97.42	5849.23	3667.45	41.46	3667.34	4.07
9114.00	90.07	95.68	5849.32	3718.10	35.64	3718.01	3.49
9210.00	89.70	90.15	5849.51	3813.92	30.77	3813.85	5.77
9306.00	90.87	91.28	5849.04	3909.91	29.58	3909.83	1.70



MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
9402.00	90.40	89.08	5847.97	4005.89	29.28	4005.82	2.34
9498.00	88.86	88.26	5848.58	4101.87	31.51	4101.79	1.82
9594.00	88.22	88.55	5851.03	4197.80	34.17	4197.72	0.73
9690.00	88.42	89.01	5853.85	4293.75	36.21	4293.66	0.52
9786.00	88.93	89.48	5856.07	4389.72	37.47	4389.62	0.72
9882.00	89.19	89.15	5857.65	4485.70	38.61	4485.60	0.44
9978.00	89.23	89.96	5858.97	4581.69	39.36	4581.59	0.84
10074.00	92.28	91.57	5857.71	4677.65	38.07	4677.56	3.60
10170.00	92.29	90.31	5853.88	4773.56	36.50	4773.47	1.31
10266.00	91.91	89.46	5850.36	4869.49	36.69	4869.40	0.97
10362.00	91.48	89.66	5847.52	4965.45	37.43	4965.36	0.50
10458.00	89.60	87.50	5846.62	5061.41	39.82	5061.31	2.98
10554.00	91.68	90.26	5845.55	5157.38	41.70	5157.27	3.60
10646.00	91.71	89.99	5842.82	5249.33	41.50	5249.23	0.29
10738.00	90.17	89.83	5841.31	5341.32	41.64	5341.22	1.69
10830.00	88.25	89.17	5842.58	5433.30	42.45	5433.20	2.20
10922.00	89.60	90.12	5844.30	5525.28	43.02	5525.18	1.79
11014.00	90.37	89.29	5844.33	5617.28	43.50	5617.18	1.23
11106.00	89.29	86.86	5844.60	5709.23	46.59	5709.12	2.88
11197.00	91.34	88.44	5844.09	5800.16	50.33	5800.03	2.84

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
11289.00	91.95	89.16	5841.45	5892.10	52.26	5891.97	1.03
11381.00	92.01	88.50	5838.26	5984.03	54.13	5983.90	0.72
11472.00	91.01	89.84	5835.86	6074.99	55.45	6074.85	1.84
11564.00	89.66	87.61	5835.32	6166.97	57.50	6166.82	2.82
11656.00	89.56	89.85	5835.94	6258.94	59.54	6258.79	2.43
11752.00	87.88	89.11	5838.08	6354.91	60.41	6354.76	1.91
11848.00	88.96	90.14	5840.73	6450.87	61.04	6450.72	1.55
11944.00	91.14	91.18	5840.64	6546.85	59.93	6546.70	2.52
12040.00	91.35	90.85	5838.56	6642.81	58.23	6642.66	0.40
12136.00	91.64	90.86	5836.06	6738.76	56.79	6738.62	0.31
12232.00	90.54	90.53	5834.23	6834.73	55.62	6834.59	1.20
12328.00	90.07	91.64	5833.72	6930.71	53.80	6930.57	1.25
12424.00	89.53	90.63	5834.06	7026.68	51.90	7026.55	1.19
12520.00	89.90	88.58	5834.54	7122.67	52.56	7122.54	2.17
12616.00	88.79	87.77	5835.64	7218.62	55.62	7218.49	1.43
12712.00	88.52	90.20	5837.88	7314.58	57.31	7314.44	2.55
12807.00	90.27	92.17	5838.88	7409.54	55.34	7409.40	2.77
12903.00	91.44	92.07	5837.45	7505.45	51.78	7505.33	1.23
12999.00	89.63	90.21	5836.55	7601.41	49.87	7601.29	2.71
13095.00	93.23	91.28	5834.16	7697.35	48.62	7697.24	3.91

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
13190.00	91.51	91.40	5830.23	7792.23	46.40	7792.13	1.81
13286.00	92.45	92.77	5826.91	7888.10	42.90	7888.00	1.73
13382.00	89.70	91.50	5825.11	7983.99	39.33	7983.91	3.16
13478.00	87.88	90.51	5827.13	8079.95	37.65	8079.87	2.15
13574.00	87.95	90.70	5830.62	8175.87	36.64	8175.80	0.21
13670.00	88.72	89.73	5833.41	8271.83	36.28	8271.76	1.29
13766.00	89.60	89.16	5834.81	8367.81	37.21	8367.74	1.09
13862.00	89.09	88.81	5835.91	8463.80	38.91	8463.72	0.64
13958.00	90.97	90.14	5835.85	8559.79	39.79	8559.71	2.40
14054.00	89.80	88.17	5835.20	8655.77	41.21	8655.69	2.39
14150.00	89.30	85.28	5835.96	8751.62	46.69	8751.52	3.05
14245.00	88.59	87.23	5837.72	8846.42	52.89	8846.30	2.18
14342.00	89.09	89.24	5839.68	8943.35	55.88	8943.22	2.13
14437.00	89.70	90.87	5840.68	9038.34	55.79	9038.22	1.83
14533.00	91.38	92.95	5839.78	9134.27	52.59	9134.15	2.78
14629.00	90.84	92.74	5837.92	9230.12	47.83	9230.01	0.60
14725.00	91.14	91.12	5836.26	9326.03	44.59	9325.94	1.72
14821.00	90.77	90.53	5834.66	9422.00	43.21	9421.92	0.73
14917.00	90.67	90.44	5833.45	9517.99	42.40	9517.91	0.14
15013.00	90.40	90.07	5832.55	9613.98	41.97	9613.90	0.48

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
15109.00	89.06	89.11	5833.00	9709.98	42.66	9709.89	1.72
15205.00	87.21	86.83	5836.12	9805.87	46.06	9805.77	3.06
15254.00	87.48	87.70	5838.39	9854.76	48.40	9854.66	1.87
15301.00	88.72	91.14	5839.95	9901.73	48.87	9901.63	7.78
15397.00	91.65	90.21	5839.64	9997.71	47.74	9997.61	3.20
15493.00	91.95	89.69	5836.63	10093.66	47.83	10093.56	0.62
15588.00	92.25	89.78	5833.16	10188.59	48.27	10188.50	0.34
15684.00	91.04	89.74	5830.40	10284.55	48.68	10284.45	1.26
15780.00	91.65	88.54	5828.14	10380.52	50.12	10380.41	1.40
15876.00	91.58	88.84	5825.44	10476.46	52.31	10476.35	0.32
15888.00	91.31	89.22	5825.14	10488.46	52.52	10488.34	3.90



Scientific Drilling

GAMMA RAY

2" = 100' TVD