HALLIBURTON | Sperry Drilling

Gamma Ray
Rate Of Penetration

INSITE

Halliburton|Sperry Drilling

1 : 240

County	: **Reno Co.**
Field	: **Wildcat**
Location	: **Lat: 38° 8' 44.06" North** **Long: 98° 7' 32.54" West**
Well	: **Siegrist 2207 #7-1H**
Company	: **Shell Explortation & Production**
Rig	: **Nabors 180**

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Rig : **Nabors 180**
Well : **Siegrist 2207 #7-1H**
Field : **Wildcat**
County : **Reno Co.**
API Number : **15155216240100**

LOCATION
Latitude : **38° 8' 44.06" North**
Longitude : **98° 7' 32.54" West**
UTM Easting = **2,107,641.023 ft**
UTM Northing = **538,710.986 ft**

Other Services
Directional

Permanent Datum : **Ground Level** Elevation : **1602.00 ft**
Log Measured From : **Drill Floor** **23.00 ft** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB **N/A**
DF **1625.00 ft**
GL **1602.00 ft**
WD **N/A**

Depth Logged : **3,891.00 ft** To **8,015.00 ft**
Date Logged : **01-Apr-13** To **06-Apr-13**
Total Depth MD : **8,015.00 ft** TVD : **3,566.21 ft**
Spud Date : **25-Mar-13**

Unit No. : **PP #17**
Job No. : **OK-XX-0900033716**
Plot Type : **Final**
Plot Date : **10-Apr-13**

Run No.	Borehole Record (MD) Size	From	To
1	6.125 in	3,891.00 ft	8,015.00 ft

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD)

Size	Weight	From	To
9.625 in	34.90 lbpf	SURFACE	375.00 ft
7.000 in	12.70 lbpf	SURFACE	3,891.00 ft

WELL INFORMATION

MWD Run Number	100	
Date run completed	06-Apr-13	
Rig Bit Number	1	
Bit Size (in)	6.125	
Tool Nominal OD (in)	4.750	
Log Start Depth (MD, ft)	3,891.00	
Log End Depth (MD, ft)	8,015.00	
Drill or Wipe	Drill	
Drill/Wipe Start Date and Time	02-Apr-13 11:30	
Drill/Wipe End Date and Time	06-Apr-13 06:00	
Min Inc (deg) @ Depth (MD, ft)	80.36 @ 3,939.00	
Max Inc (deg) @ Depth (MD, ft)	94.56 @ 4,413.00	
Bit TFA(in2) / Bit Type	.29 / PDC	
Flow Rate (gpm)	285.00	
Max AV (fpm) / CV (fpm) @ MWD	483.5 / 488.1	
Fluid Type	Fresh Water Gel	
Density (ppg) / Viscosity (spqt)	8.45 / 29.00	
Filtrate CL (ppm)	2,700.00	
pH / Fluid Loss (mptm)	7.60 / N/A	
PV (cP) / YP (lhf2)	1 / 2.00	
% Solids / % Sand	1.0 / 1.0	
% Oil / Oil:Water Ratio	N/A / N/A	
Rm @ Measured Temp (degF)	N/A @ N/A	

Rmf @ Measured Temp (degF)	N/A @ N/A				
Rmc @ Measured Temp (degF)	N/A @ N/A				
Max Tool Temp (degF) / Source	124.60 / PCG-R				
Rm @ Max Tool Temp (degF)	N/A @ N/A				
Lead MWD Engineer	Fred Burger				
Customer Representative	Jack Everette				

SENSOR INFORMATION

Directional Sensor Information

Tool Type	PCD				
Distance From Bit (ft)	47.13				
Software Version	3.32				
Sub Serial Number	11595287				
Sonde Serial Number	10993563				
Sensor ID Number	N/A				
Toolface Offset (deg)	112.98				

Gamma Ray Sensor Information

Tool Type	PCG				
Distance From Bit (ft)	52.63				
Recorded Sample Period (sec)	15				
Software Version	8.15				
Sub Serial Number	10993563				
Insert/Sonde Serial Number	10986798				

REMARKS

1. **All depths are calibrated to the driller's pipe tally, and measured from the drill floor.**

2. **No depth correction has been made for pipe stretch or compression.**

3. **All data presented is recorded (memory data) unless otherwise stated.**

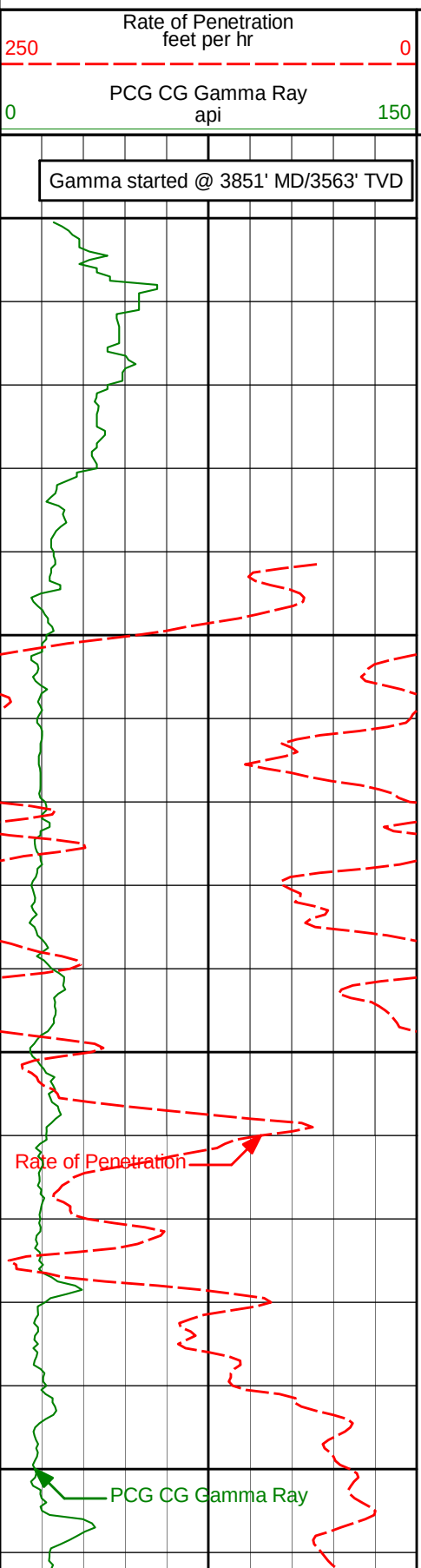
4. **The following smoothing parameters have been applied to data:**

   ROP: 1.0' interval, 3.0' coercion distance

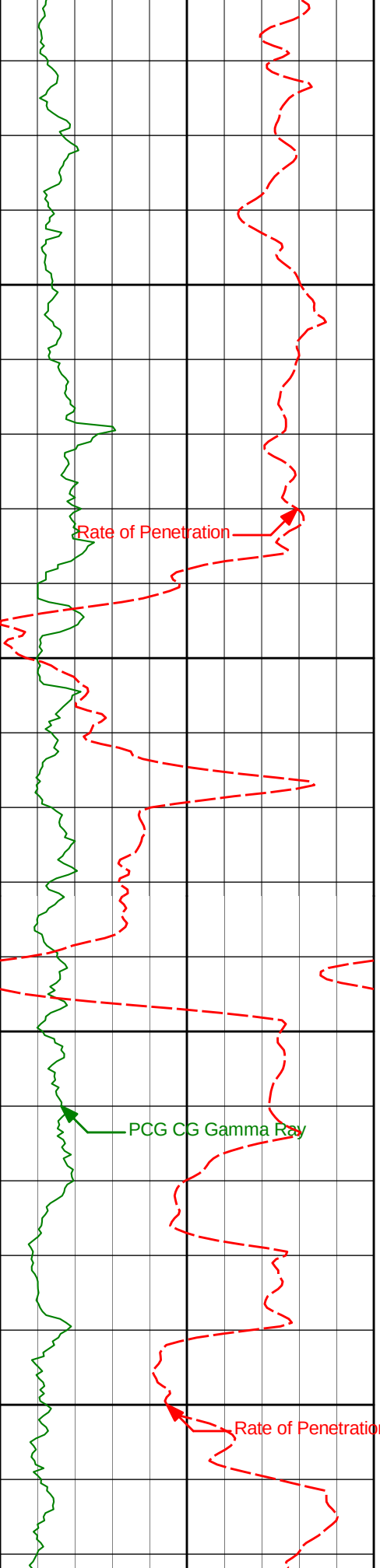
   All other curves: 0.5' interval, 0.6' distance

Started all data in lateral section at depth of 3891'MD/3563' TVD

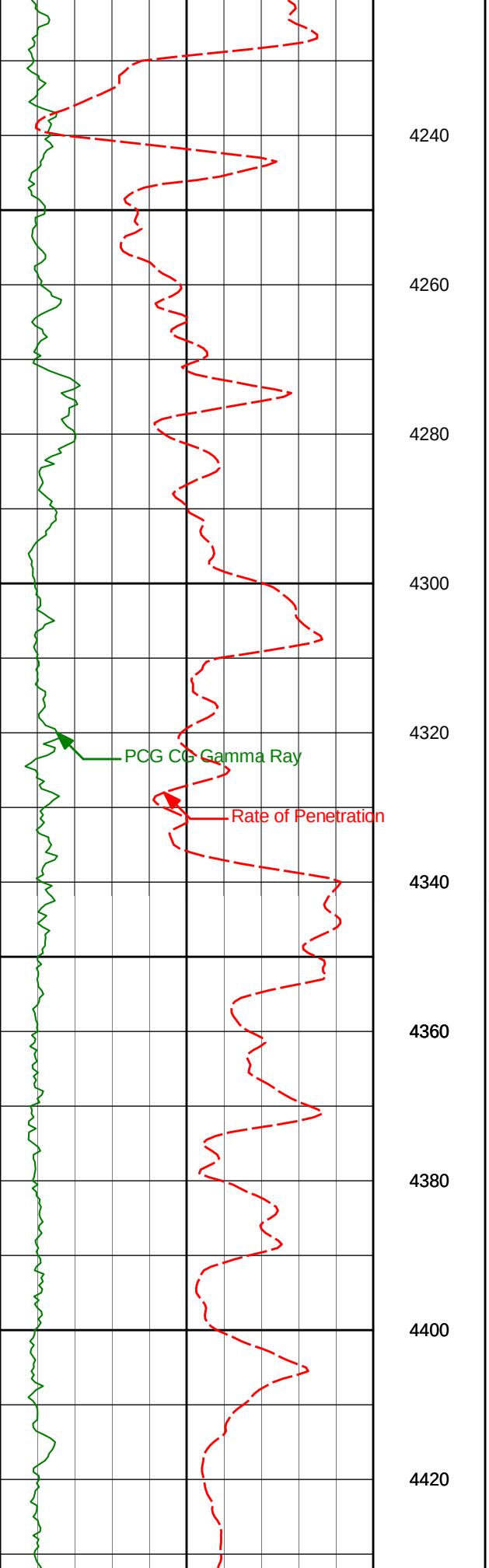
WARRANTY



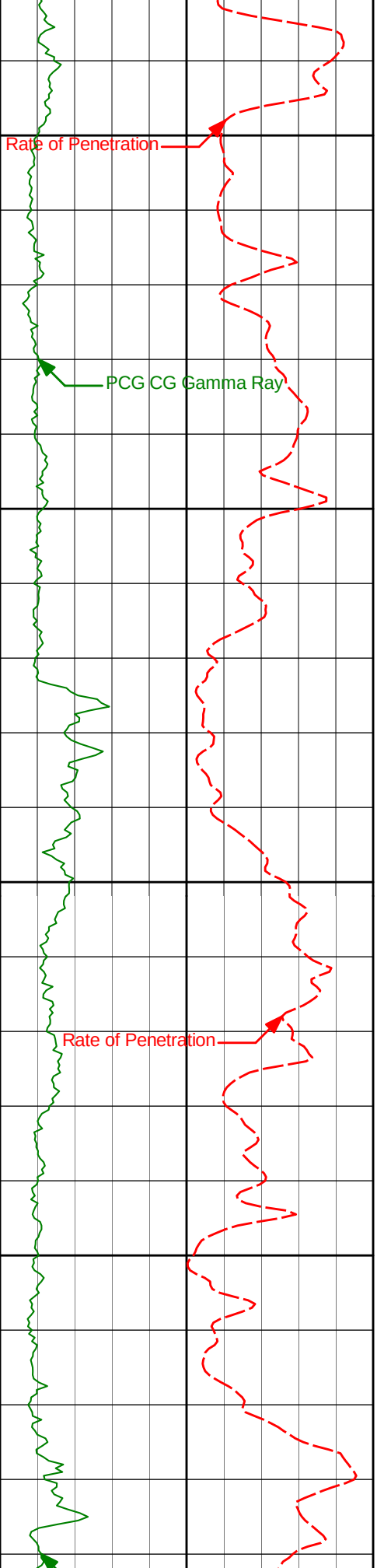
Measured Depth 1 : 240	Depth	Inclination	Azimuth	TVD	Vertical Sec	DLS
3860						
3880						
3900						
3920						
3940	3939'	80.36°	3.03°	3571.13'	643.76'	1.08°
3960	3970'	80.56°	3.36°	3576.27'	674.30'	1.23°
3980						
4000	4002'	82.45°	2.81°	3581.00'	705.92'	6.14°



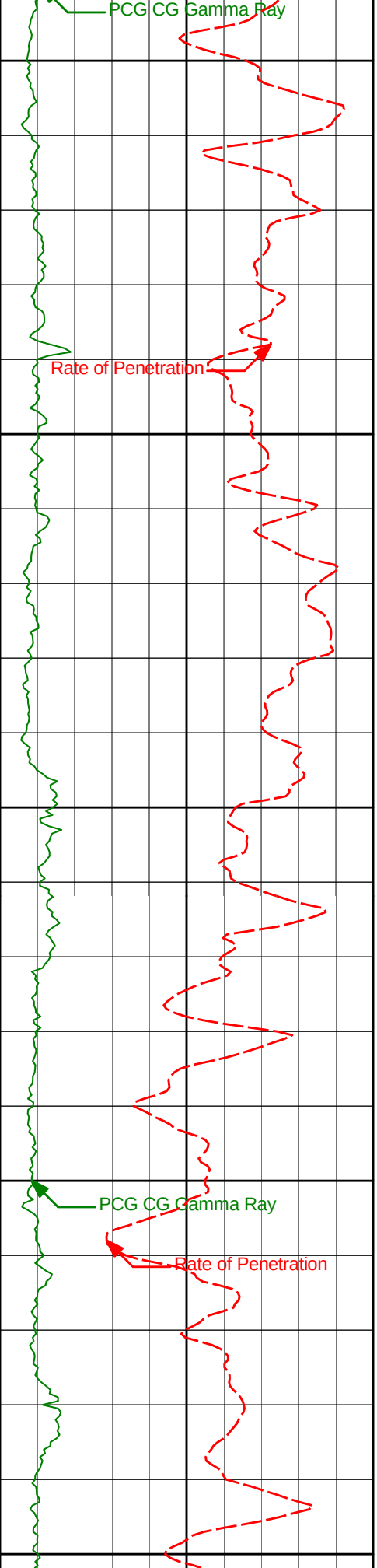
4034'	85.90°	3.09°	3584.25'	737.72'	10.81°
4065'	89.26°	2.86°	3585.56'	768.65'	10.88°
4097'	90.06°	2.46°	3585.74'	800.63'	2.79°
4128'	90.00°	2.69°	3585.73'	831.61'	0.77°
4160'	91.42°	2.91°	3585.33'	863.58'	4.49°
4192'	92.50°	1.87°	3584.24'	895.54'	4.66°



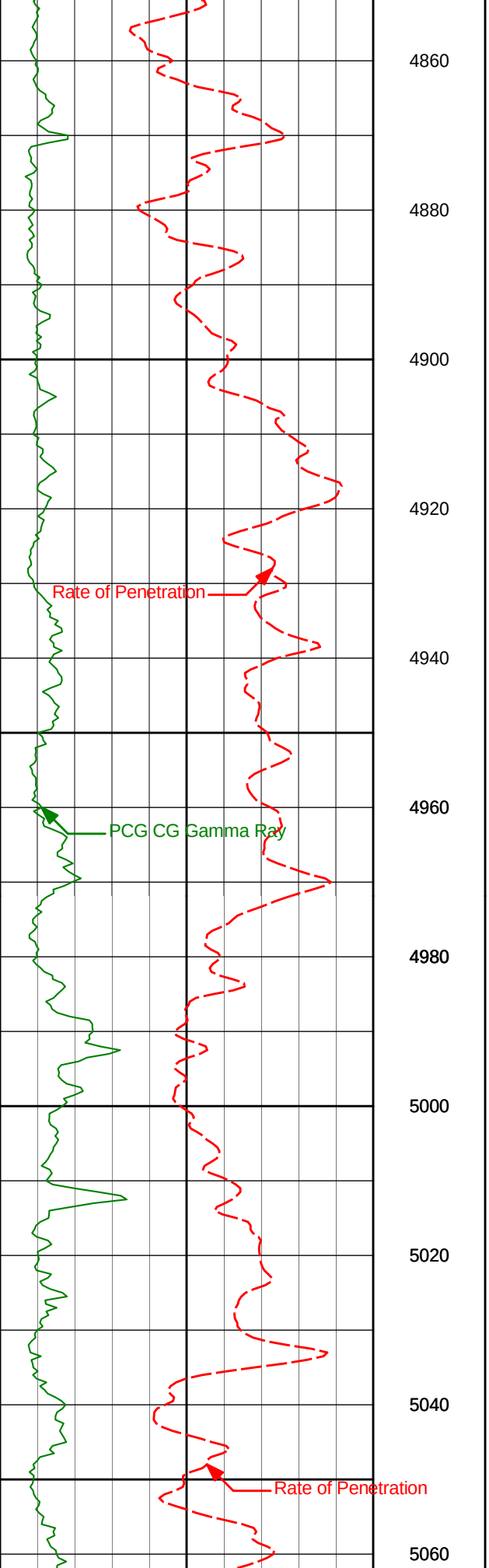
4223'	93.24°	0.87°	3582.69'	926.50'	4.01°
4255'	93.42°	0.56°	3580.83'	958.44'	1.13°
4286'	93.45°	0.99°	3578.97'	989.39'	1.37°
4318'	93.77°	0.71°	3576.96'	1021.32'	1.32°
4350'	94.10°	359.38°	3574.76'	1053.25'	4.25°
4381'	94.38°	359.53°	3572.47'	1084.16'	1.00°
4413'	94.56°	359.47°	3569.97'	1116.05'	0.61°



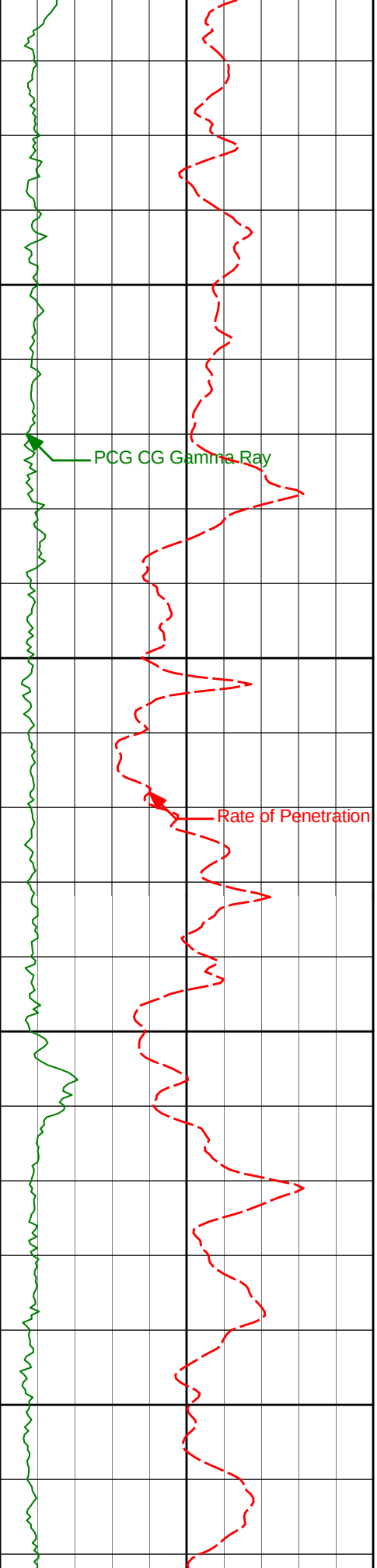
4440	4444'	94.10°	358.50°	3567.63'	1146.96'	3.45°
4460						
4480						
4500	4508'	94.20°	358.42°	3563.00'	1210.75'	0.20°
4520						
4540	4539'	94.38°	358.88°	3560.68'	1241.65'	1.62°
4560						
	4571'	92.87°	358.64°	3558.66'	1273.57'	4.77°
4580						
4600	4602'	93.24°	358.42°	3557.01'	1304.50'	1.39°
4620						
	4634'	92.83°	359.68°	3555.31'	1336.45'	4.16°
4640						



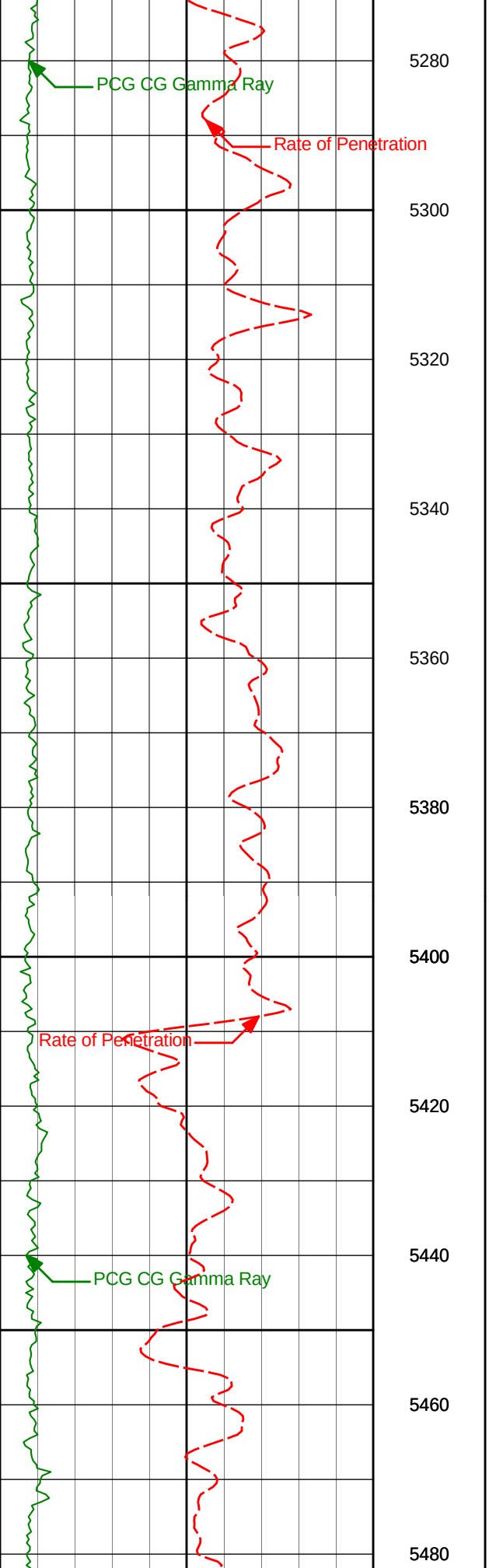
4660						
	4666'	92.22°	1.03°	3553.90'	1368.42'	4.62°
4680						
4700	4697'	91.67°	1.26°	3552.85'	1399.40'	1.93°
4720						
	4729'	90.18°	0.54°	3552.34'	1431.39'	5.15°
4740						
4760						
4780						
	4792'	90.12°	0.68°	3552.17'	1494.39'	0.24°
4800						
4820						
4840						



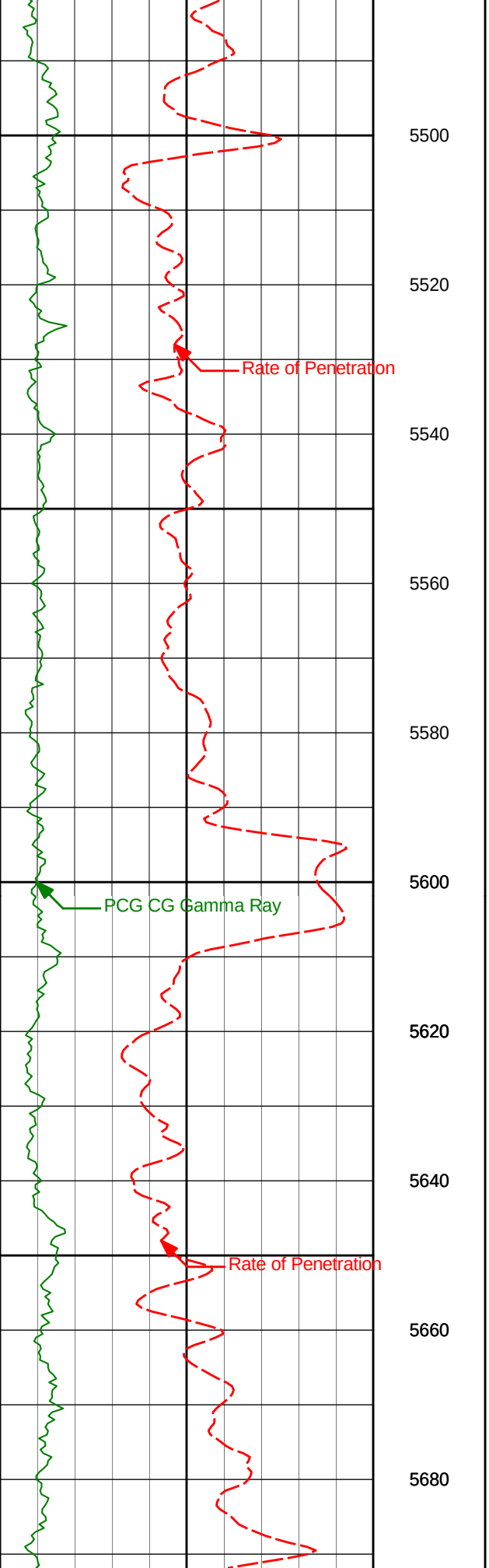
4856'	90.77°	0.59°	3551.67'	1558.39'	1.02°
4919'	89.35°	0.13°	3551.60'	1621.39'	2.36°
4982'	88.95°	0.19°	3552.53'	1684.38'	0.64°



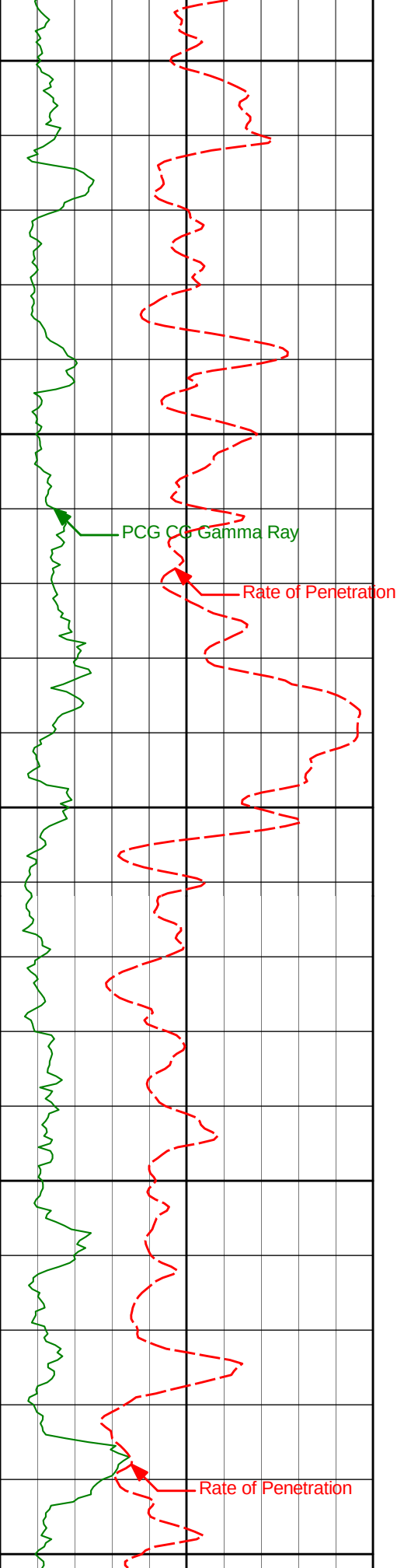
5077'	89.38°	0.30°	3553.91'	1779.37'	0.47°
5170'	90.37°	0.13°	3554.11'	1872.36'	1.08°
5263'	90.31°	0.53°	3553.56'	1965.36'	0.44°



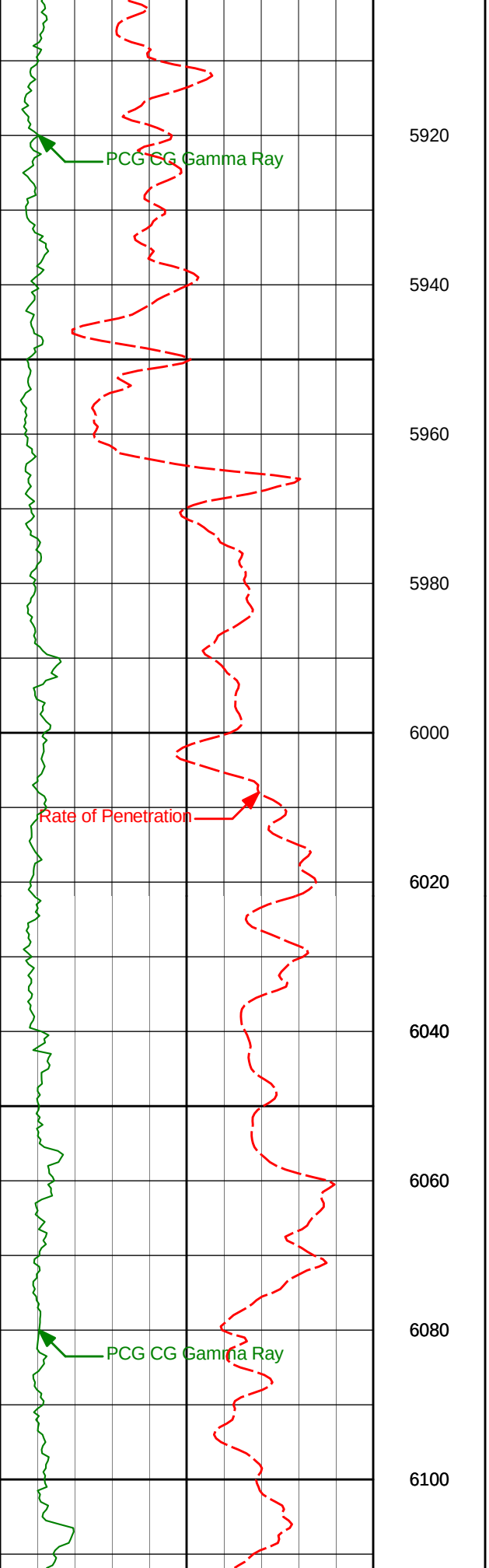
5356'	89.85°	0.10°	3553.43'	2058.36'	0.68°
5449'	89.63°	359.47°	3553.86'	2151.35'	0.71°



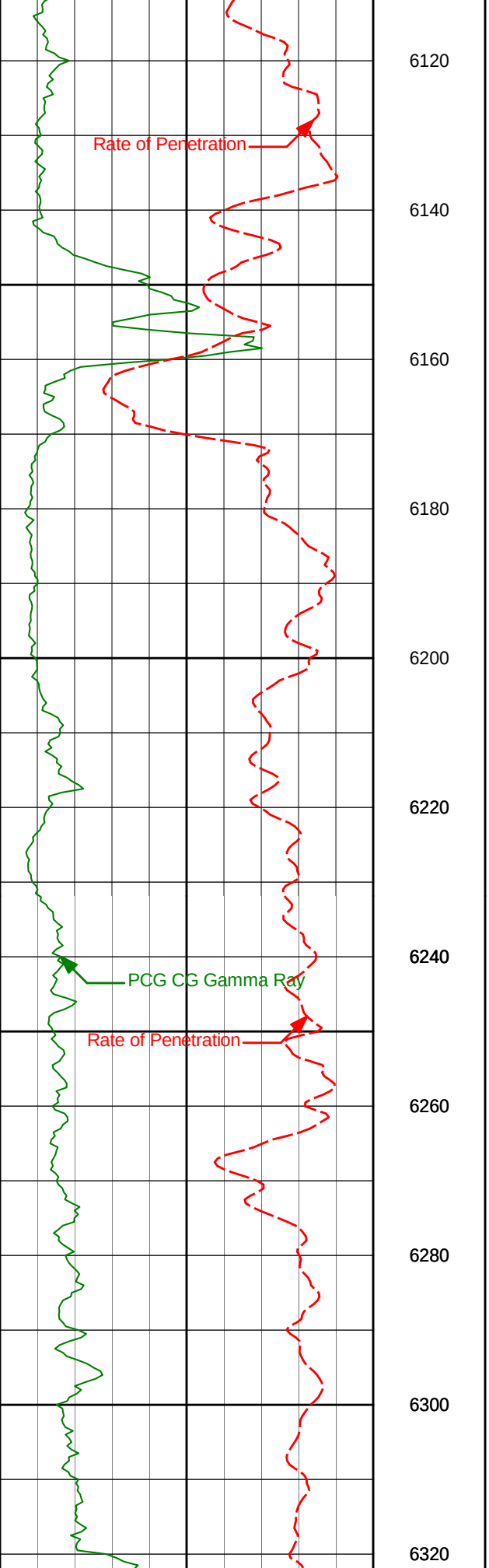
5542'	89.17°	358.81°	3554.84'	2244.32'	0.87°
5636'	89.75°	359.25°	3555.72'	2338.29'	0.77°



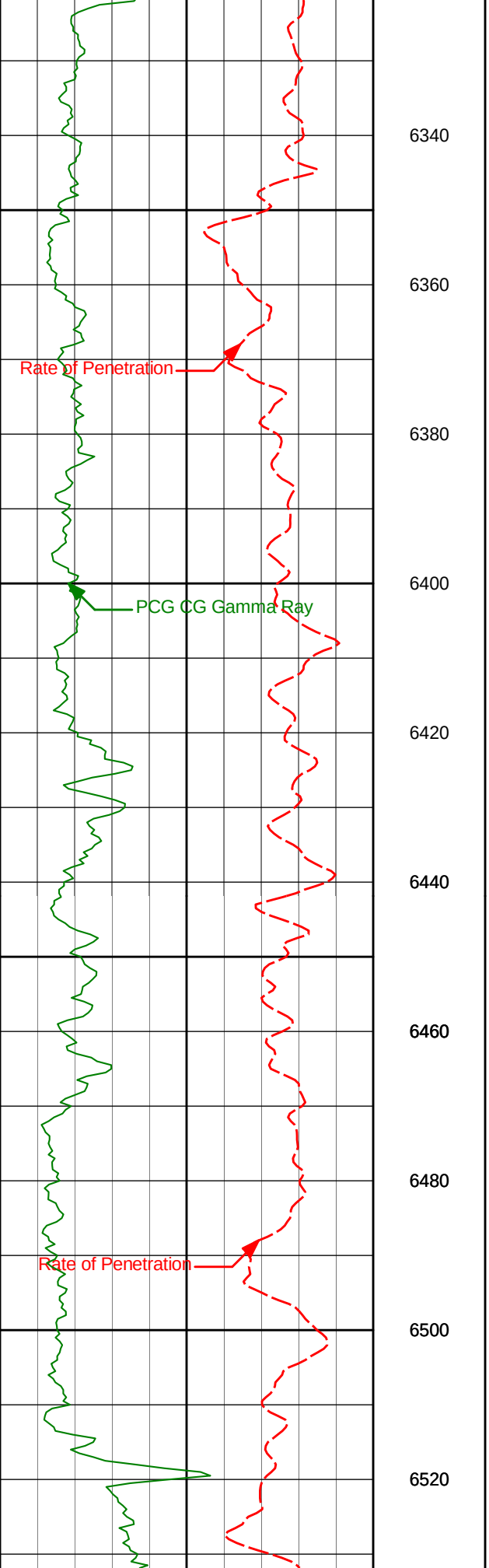
5729'	88.95°	358.42°	3556.77'	2431.24'	1.23°
5822'	90.52°	358.31°	3557.20'	2524.18'	1.69°



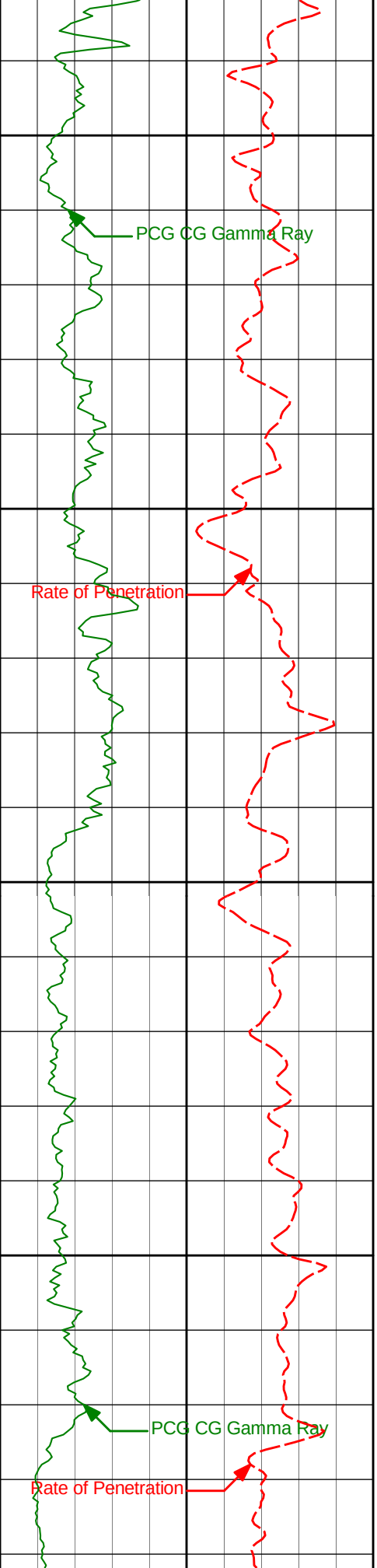
5915'	92.00°	359.04°	3555.15'	2617.11'	1.77°
6009'	92.56°	359.42°	3551.41'	2711.01'	0.72°
6104'	91.85°	359.67°	3547.75'	2805.92'	0.79°



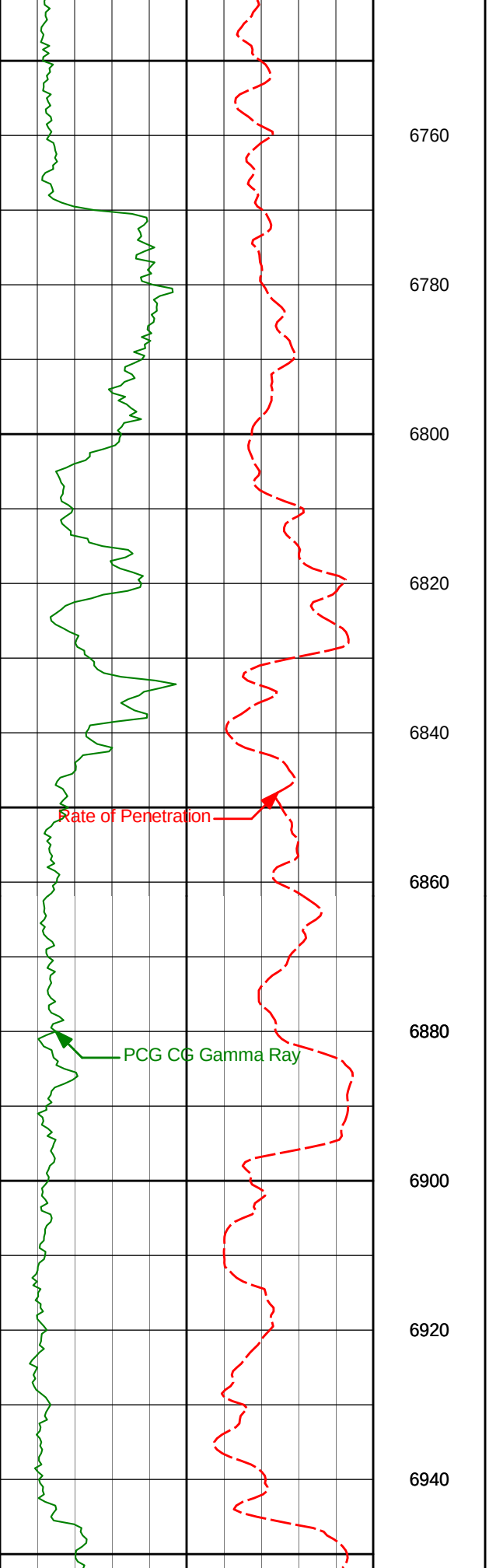
6120					
6140					
6160					
6180					
6200	6198'	89.32°	0.43°	3546.79'	2899.91'	2.81°
6220					
6240					
6260					
6280					
6300	6293'	87.56°	0.76°	3549.38'	2994.87'	1.89°
6320					



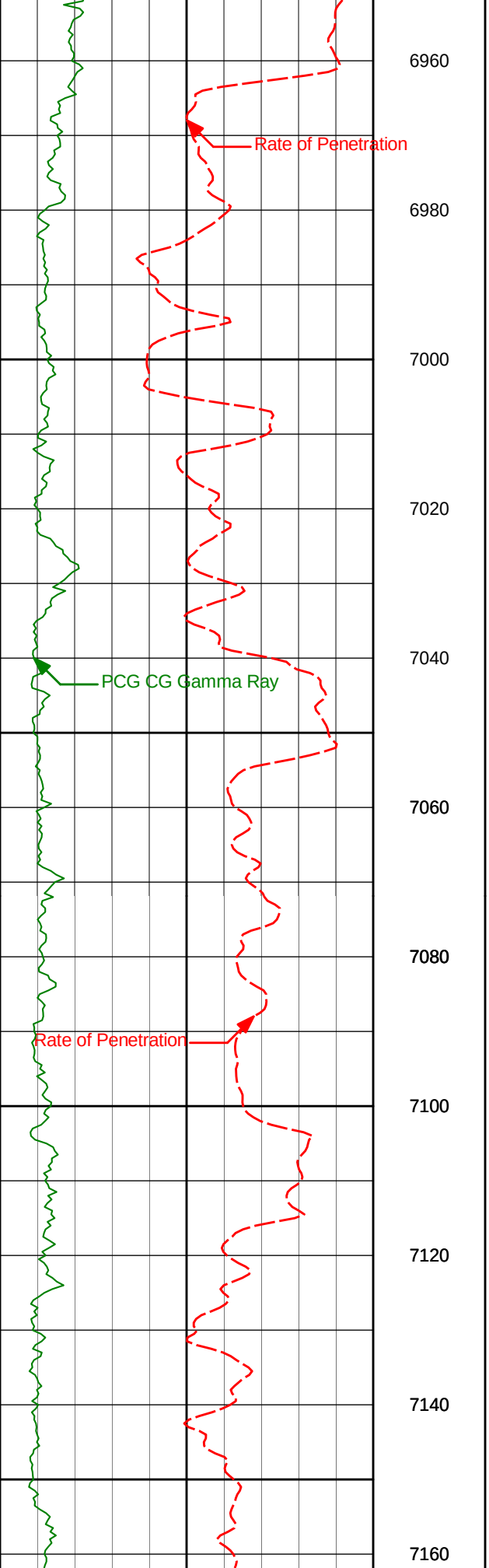
6388'	88.49°	1.18°	3552.66'	3089.81'	1.08°
6483'	87.87°	0.80°	3555.68'	3184.76'	0.77°



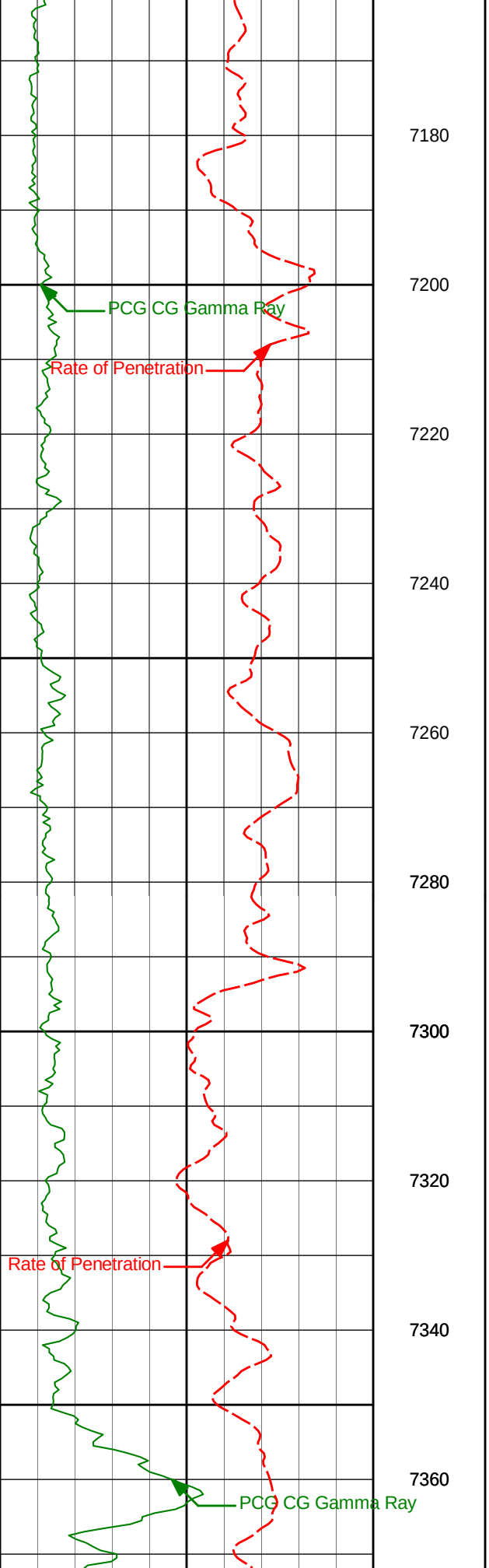
6540						
6560						
	6577'	88.86°	0.76°	3558.37'	3278.71'	1.06°
6580						
6600						
6620						
6640						
6660						
	6672'	88.74°	0.41°	3560.36'	3373.69'	0.40°
6680						
6700						
6720						
6740						



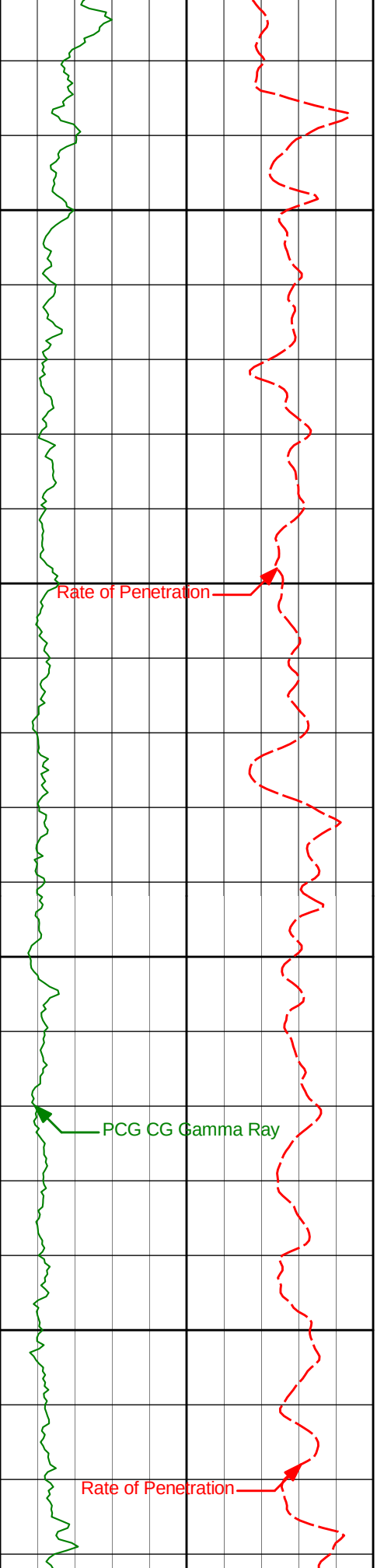
6767'	88.49°	359.92°	3562.66'	3468.66'	0.57°
6862'	88.86°	359.06°	3564.86'	3563.62'	0.98°



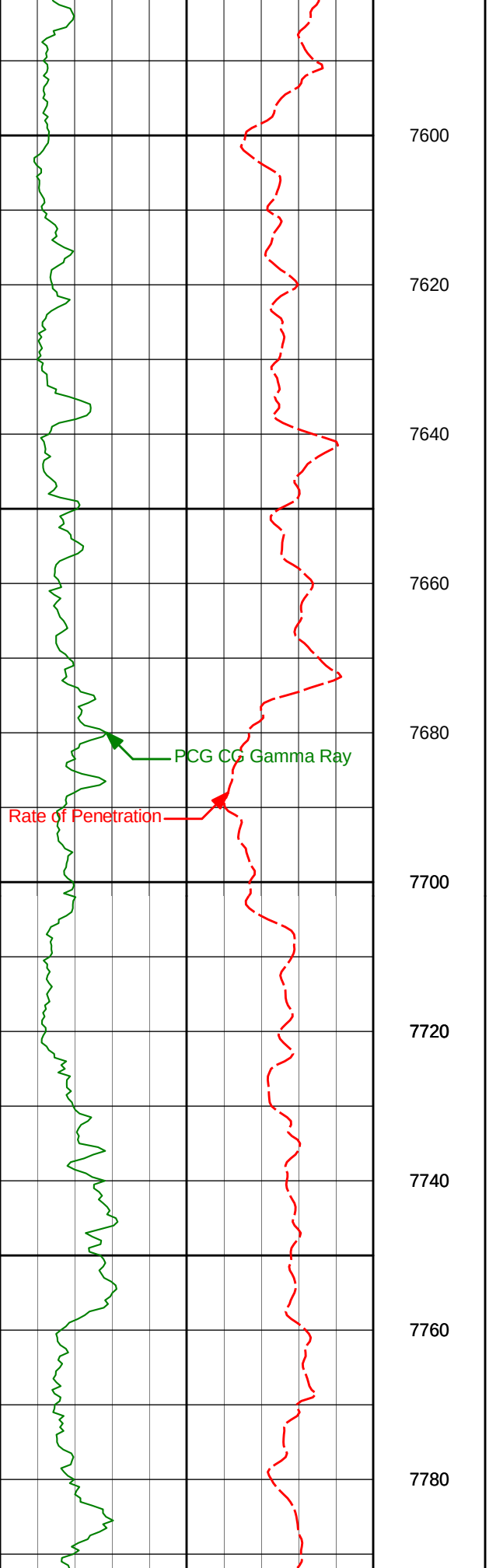
6957'	90.06°	358.14°	3565.75'	3658.57'	1.59°
7052'	90.09°	359.08°	3565.63'	3753.51'	0.98°
7147'	90.95°	0.28°	3564.76'	3848.50'	1.56°



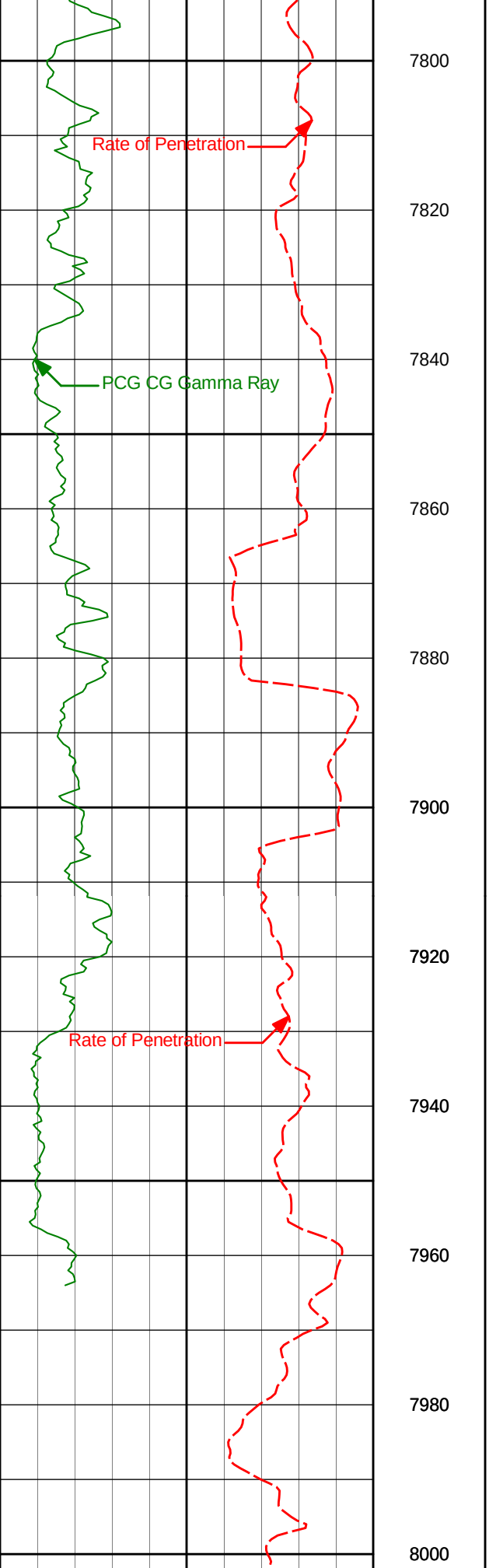
7242'	90.34°	0.94°	3563.69'	3943.49'	0.95°
7337'	91.02°	0.40°	3562.56'	4038.48'	0.91°



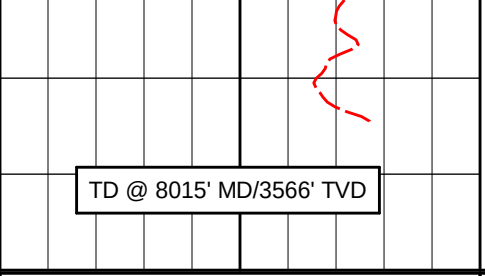
7431'	91.57°	1.91°	3560.44'	4132.45'	1.71°
7527'	91.45°	1.69°	3557.91'	4228.39'	0.26°



7621'	89.66°	1.96°	3557.00'	4322.36'	1.93°
7716'	88.15°	1.84°	3558.81'	4417.31'	1.59°



7800					
7811'	87.81°	1.90°	3562.15'	4512.22'	0.36°
7820					
7840					
7860					
7880					
7900					
7906'	88.58°	2.41°	3565.14'	4607.13'	0.97°
7920					
7940					
7960					
7965'	89.75°	3.08°	3566.00'	4666.08'	2.28°
7980					
8000					



	8020	8015'	89.75°	3.08°	3566.21'	4716.02'	0.01°
Rate of Penetration feet per hr 250 0	Measured Depth	Depth	Inclination	Azimuth	TVD	Vertical Sec	DLS
PCG CG Gamma Ray api 0 150	1 : 240						

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Shell Explortation _Production
Siegrist 2207 #7-1H
Wildcat
Reno Co. Kansas
USA
OK-XX-0900033716
Surveys from 82' to 3827' provided by MS Directional
Sperry Drilling provided survey information from 3939' to 7965'
Final Survey Projected to Bit at depth of 8015'

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
82.00	0.14	225.57	82.00	0.07 S	0.07 W	-0.07	0.17
152.00	0.06	196.25	152.00	0.17 S	0.14 W	-0.17	0.13
222.00	0.26	214.93	222.00	0.33 S	0.24 W	-0.33	0.29
292.00	0.32	210.03	292.00	0.63 S	0.43 W	-0.63	0.09
362.00	0.36	218.84	362.00	0.97 S	0.67 W	-0.98	0.09
430.00	0.20	185.80	430.00	1.26 S	0.81 W	-1.26	0.33
525.00	0.30	170.50	525.00	1.67 S	0.79 W	-1.67	0.13
999.00	0.20	265.10	998.99	2.96 S	1.41 W	-2.97	0.08
1092.00	0.20	251.30	1091.99	3.03 S	1.73 W	-3.04	0.05
1185.00	0.20	237.60	1184.99	3.16 S	2.02 W	-3.18	0.05
1278.00	0.20	269.70	1277.99	3.25 S	2.32 W	-3.27	0.12
1371.00	0.10	216.70	1370.99	3.32 S	2.53 W	-3.34	0.17
1465.00	0.10	221.60	1464.99	3.45 S	2.63 W	-3.47	0.01
1558.00	0.00	282.00	1557.99	3.51 S	2.68 W	-3.53	0.11
1651.00	0.00	4.90	1650.99	3.51 S	2.68 W	-3.53	0.00
1745.00	0.10	184.40	1744.99	3.59 S	2.69 W	-3.61	0.11
1838.00	0.10	4.40	1837.99	3.59 S	2.69 W	-3.61	0.22
1932.00	0.00	73.40	1931.99	3.51 S	2.68 W	-3.53	0.11
2026.00	0.10	128.50	2025.99	3.56 S	2.62 W	-3.58	0.11
2121.00	0.10	212.00	2120.99	3.68 S	2.60 W	-3.70	0.14
2215.00	0.10	184.40	2214.99	3.83 S	2.65 W	-3.85	0.05
2310.00	0.10	274.90	2309.99	3.91 S	2.74 W	-3.93	0.15
2405.00	0.20	155.60	2404.99	4.05 S	2.75 W	-4.07	0.28
2500.00	0.30	196.80	2499.99	4.44 S	2.75 W	-4.46	0.21
2595.00	0.20	170.00	2594.99	4.84 S	2.80 W	-4.86	0.16
2690.00	0.00	118.10	2689.99	5.00 S	2.77 W	-5.03	0.21
2784.00	0.20	213.10	2783.99	5.14 S	2.86 W	-5.16	0.21
2879.00	0.80	16.60	2878.99	4.64 S	2.76 W	-4.67	1.05
2911.00	2.40	357.90	2910.97	3.76 S	2.72 W	-3.78	5.19
2942.00	3.90	357.70	2941.92	2.06 S	2.79 W	-2.08	4.84
2974.00	4.90	350.60	2973.83	0.38 N	3.05 W	0.35	3.55
3005.00	6.80	352.70	3004.67	3.50 N	3.50 W	3.47	6.17

3037.00	9.30	355.30	3036.35	7.96 N	3.96 W	7.93	7.89
3068.00	12.30	359.10	3066.80	13.76 N	4.21 W	13.72	9.94
3100.00	15.80	0.70	3097.83	21.53 N	4.21 W	21.49	11.00
3132.00	19.10	0.60	3128.36	31.12 N	4.10 W	31.09	10.31
3163.00	22.10	2.00	3157.37	42.02 N	3.85 W	41.99	9.81
3195.00	24.40	2.70	3186.77	54.64 N	3.33 W	54.61	7.24
3227.00	25.80	3.30	3215.75	68.20 N	2.61 W	68.17	4.45
3258.00	28.30	1.90	3243.36	82.28 N	1.98 W	82.26	8.32
3290.00	31.50	359.80	3271.09	98.23 N	1.76 W	98.21	10.52
3322.00	34.20	359.70	3297.97	115.58 N	1.84 W	115.56	8.44
3353.00	37.40	359.10	3323.11	133.71 N	2.03 W	133.69	10.38
3385.00	41.00	359.10	3347.91	153.93 N	2.35 W	153.91	11.25
3416.00	42.90	1.40	3370.96	174.65 N	2.25 W	174.63	7.88
3448.00	45.40	2.60	3393.92	196.92 N	1.47 W	196.90	8.24
3480.00	48.10	1.80	3415.85	220.21 N	0.58 W	220.20	8.63
3511.00	51.50	2.70	3435.85	243.87 N	0.36 E	243.86	11.19
3543.00	54.80	2.30	3455.04	269.44 N	1.47 E	269.45	10.36
3575.00	58.70	2.60	3472.58	296.18 N	2.62 E	296.19	12.21
3606.00	62.70	2.90	3487.75	323.17 N	3.92 E	323.20	12.93
3638.00	66.60	2.00	3501.45	352.06 N	5.15 E	352.09	12.45
3670.00	70.30	2.00	3513.20	381.80 N	6.19 E	381.84	11.56
3701.00	72.20	1.50	3523.17	411.14 N	7.08 E	411.18	6.32
3732.00	73.80	1.60	3532.23	440.77 N	7.89 E	440.82	5.17
3764.00	76.00	1.80	3540.57	471.65 N	8.80 E	471.71	6.90
3795.00	78.00	2.30	3547.54	501.84 N	9.88 E	501.90	6.64
3827.00	81.30	3.80	3553.29	533.27 N	11.56 E	533.34	11.30
3939.00	80.36	3.03	3571.13	643.64 N	18.14 E	643.76	1.08
3970.00	80.56	3.36	3576.27	674.16 N	19.85 E	674.30	1.23
4002.00	82.45	2.81	3581.00	705.76 N	21.55 E	705.92	6.14
4034.00	85.90	3.09	3584.25	737.55 N	23.18 E	737.72	10.81
4065.00	89.26	2.86	3585.56	768.48 N	24.79 E	768.65	10.88
4097.00	90.06	2.46	3585.74	800.44 N	26.28 E	800.63	2.79
4128.00	90.00	2.69	3585.73	831.41 N	27.67 E	831.61	0.77
4160.00	91.42	2.91	3585.33	863.37 N	29.24 E	863.58	4.49
4192.00	92.50	1.87	3584.24	895.32 N	30.57 E	895.54	4.66
4223.00	93.24	0.87	3582.69	926.27 N	31.31 E	926.50	4.01
4255.00	93.42	0.56	3580.83	958.22 N	31.71 E	958.44	1.13
4286.00	93.45	0.99	3578.97	989.16 N	32.13 E	989.39	1.37
4318.00	93.77	0.71	3576.96	1021.09 N	32.60 E	1021.32	1.32
4350.00	94.10	359.38	3574.76	1053.01 N	32.63 E	1053.25	4.25
4381.00	94.38	359.53	3572.47	1083.93 N	32.33 E	1084.16	1.00
4413.00	94.56	359.47	3569.97	1115.83 N	32.05 E	1116.05	0.61
4444.00	94.10	358.50	3567.63	1146.74 N	31.50 E	1146.96	3.45
4508.00	94.20	358.42	3563.00	1210.54 N	29.78 E	1210.75	0.20
4539.00	94.38	358.88	3560.68	1241.45 N	29.06 E	1241.65	1.62
4571.00	92.87	358.64	3558.66	1273.38 N	28.37 E	1273.57	4.77
4602.00	93.24	358.42	3557.01	1304.32 N	27.57 E	1304.50	1.39
4634.00	92.83	359.68	3555.31	1336.27 N	27.04 E	1336.45	4.16
4666.00	92.22	1.03	3553.90	1368.24 N	27.24 E	1368.42	4.62
4697.00	91.67	1.26	3552.85	1399.22 N	27.86 E	1399.40	1.93
4729.00	90.18	0.54	3552.34	1431.21 N	28.36 E	1431.39	5.15
4792.00	90.12	0.68	3552.17	1494.20 N	29.03 E	1494.39	0.24
4856.00	90.77	0.59	3551.67	1558.20 N	29.74 E	1558.39	1.02
4919.00	89.35	0.13	3551.60	1621.19 N	30.13 E	1621.39	2.36
4982.00	88.95	0.19	3552.53	1684.19 N	30.31 E	1684.38	0.64
5077.00	89.38	0.30	3553.91	1779.18 N	30.71 E	1779.37	0.47
5170.00	90.37	0.13	3554.11	1872.17 N	31.06 E	1872.36	1.08
5263.00	90.31	0.53	3553.56	1965.17 N	31.60 E	1965.36	0.44
5356.00	89.85	0.10	3553.43	2058.17 N	32.11 E	2058.36	0.68
5449.00	89.63	359.47	3553.86	2151.17 N	31.76 E	2151.35	0.71
5542.00	89.17	358.81	3554.84	2244.15 N	30.37 E	2244.32	0.87
5636.00	89.75	359.25	3555.72	2338.13 N	28.78 E	2338.29	0.77
5729.00	88.95	358.42	3556.77	2431.10 N	26.89 E	2431.24	1.23
5822.00	90.52	358.31	3557.20	2524.06 N	24.24 E	2524.18	1.69
5915.00	92.00	359.04	3555.15	2617.01 N	22.09 E	2617.11	1.77
6009.00	92.56	359.42	3551.41	2710.93 N	20.83 E	2711.01	0.72
6104.00	91.85	359.67	3547.75	2805.85 N	20.07 E	2805.92	0.79
6198.00	89.32	0.43	3546.79	2899.84 N	20.16 E	2899.91	2.81
6293.00	87.56	0.76	3549.38	2994.80 N	21.15 E	2994.87	1.89
6388.00	88.49	1.18	3552.66	3089.73 N	22.76 E	3089.81	1.08
6483.00	87.87	0.80	3555.68	3184.66 N	24.40 E	3184.76	0.77
6577.00	88.86	0.76	3558.37	3278.61 N	25.69 E	3278.71	1.06

6672.00	88.74	0.41	3560.36	3373.59 N	26.65 E	3373.69	0.40
6767.00	88.49	359.92	3562.66	3468.56 N	26.92 E	3468.66	0.57
6862.00	88.86	359.06	3564.86	3563.53 N	26.07 E	3563.62	0.98
6957.00	90.06	358.14	3565.75	3658.49 N	23.75 E	3658.57	1.59
7052.00	90.09	359.08	3565.63	3753.46 N	21.44 E	3753.51	0.98
7147.00	90.95	0.28	3564.76	3848.46 N	20.91 E	3848.50	1.56
7242.00	90.34	0.94	3563.69	3943.44 N	21.93 E	3943.49	0.95
7337.00	91.02	0.40	3562.56	4038.43 N	23.04 E	4038.48	0.91
7431.00	91.57	1.91	3560.44	4132.38 N	24.93 E	4132.45	1.71
7527.00	91.45	1.69	3557.91	4228.30 N	27.94 E	4228.39	0.26
7621.00	89.66	1.96	3557.00	4322.25 N	30.93 E	4322.36	1.93
7716.00	88.15	1.84	3558.81	4417.18 N	34.08 E	4417.31	1.59
7811.00	87.81	1.90	3562.15	4512.07 N	37.18 E	4512.22	0.36
7906.00	88.58	2.41	3565.14	4606.95 N	40.75 E	4607.13	0.97
7965.00	89.75	3.08	3566.00	4665.88 N	43.57 E	4666.08	2.28
8015.00	89.75	3.08	3566.21	4715.80 N	46.26 E	4716.02	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 0.47 DEGREES (GRID)
A TOTAL CORRECTION OF 4.42 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 8015.00 FEET
IS 4716.03 FEET ALONG 0.56 DEGREES (GRID)

Final Survey Projected to Bit at depth of 8015'

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