

Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A	N/A @ N/A	
Max Tool Temp (degF) / Source	57.30 / PCM	144.54 / PCM	145.00 / PCM	116.00 / PCM	
Rm @ Max Tool Temp (degF)	N/A @ 57.30	N/A @ 144.54	N/A @ 145.00	N/A @ 116.00	
Lead MWD Engineer	Aaron Ashu	Aaron Ashu	Aaron Ashu	Aaron Ashu	
Customer Representative	Clayton Carmack	Clayton Carmack	Clayton Carmack	Clayton Carmack	

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM	PCM	
Software Version	5.28	5.28	5.28	5.28	
Sub Serial Number	11341316	11341316	11232127	11232127	
Insert Serial Number	11619991	11619991	11680900	11680900	
Date and Time Initialized	18-Feb-13 19:07	04-Mar-13 14:44	07-Mar-13 23:02	07-Mar-13 23:02	
Date and Time Read	20-Feb-13 10:43	07-Mar-13 18:50	11-Mar-13 20:01	11-Mar-13 20:08	
ECMB SW Version	N/A	N/A	N/A	N/A	

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC	PCDC	
Distance From Bit (ft)	60.63	51.99	49.97	50.92	
Software Version	6.21	6.21	6.21	6.21	
Sub Serial Number	11341316	11341316	11232127	11232127	
Sonde Serial Number	11478088	11833032	11833032	11833032	
Sensor ID Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	329.77	162.42	130.70	274.85	

Gamma Ray Sensor Information

Tool Type	N/A	PCG	PCG	PCG	
Distance From Bit (ft)	N/A	46.93	44.89	45.84	
Recorded Sample Period (sec)	N/A	10	10	10	
Software Version	N/A	8.15	8.15	8.15	
Sub Serial Number	N/A	11341316	11232127	11232127	
Insert/Sonde Serial Number	N/A	11681039	11681039	11681039	

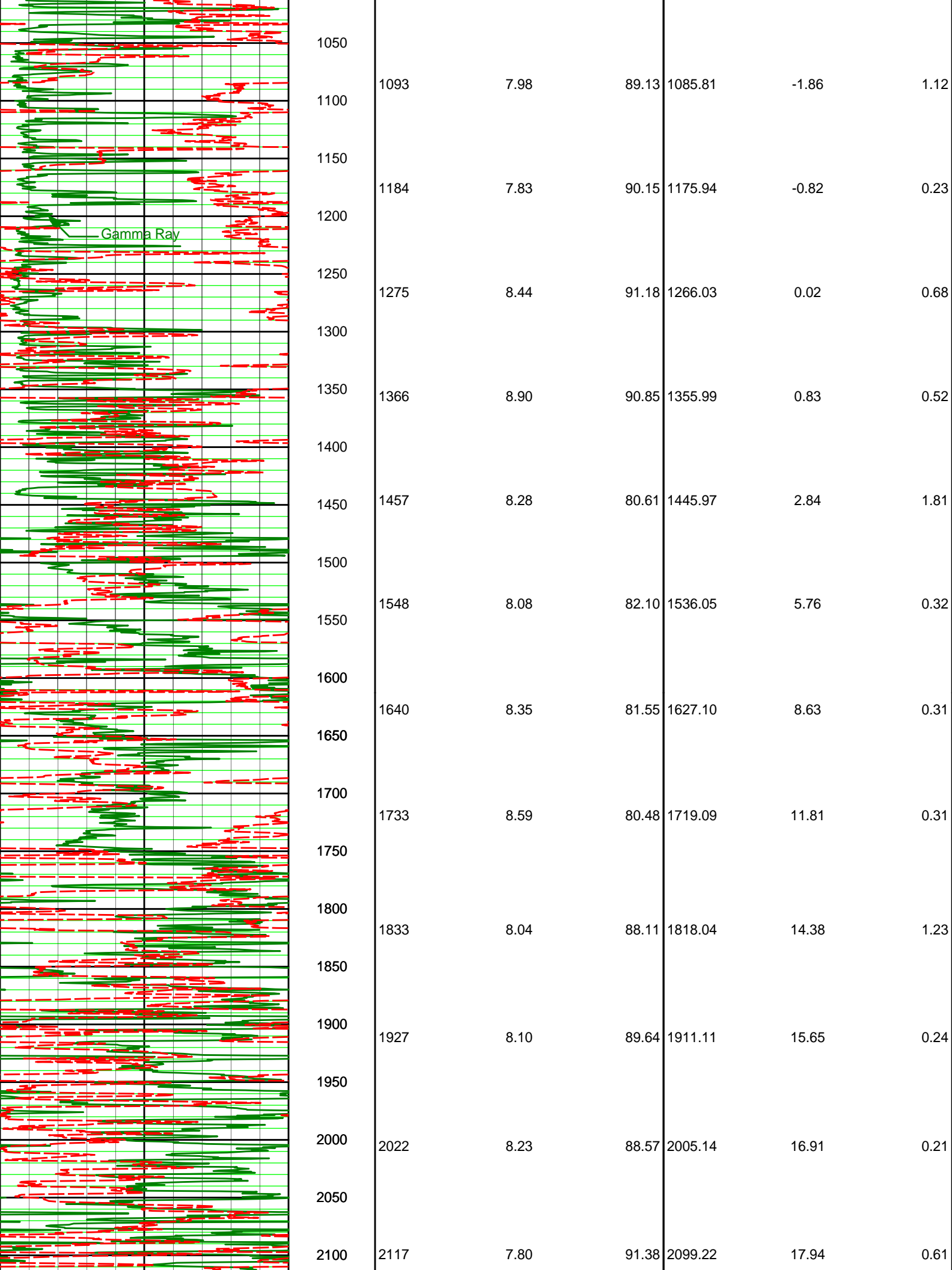
REMARKS

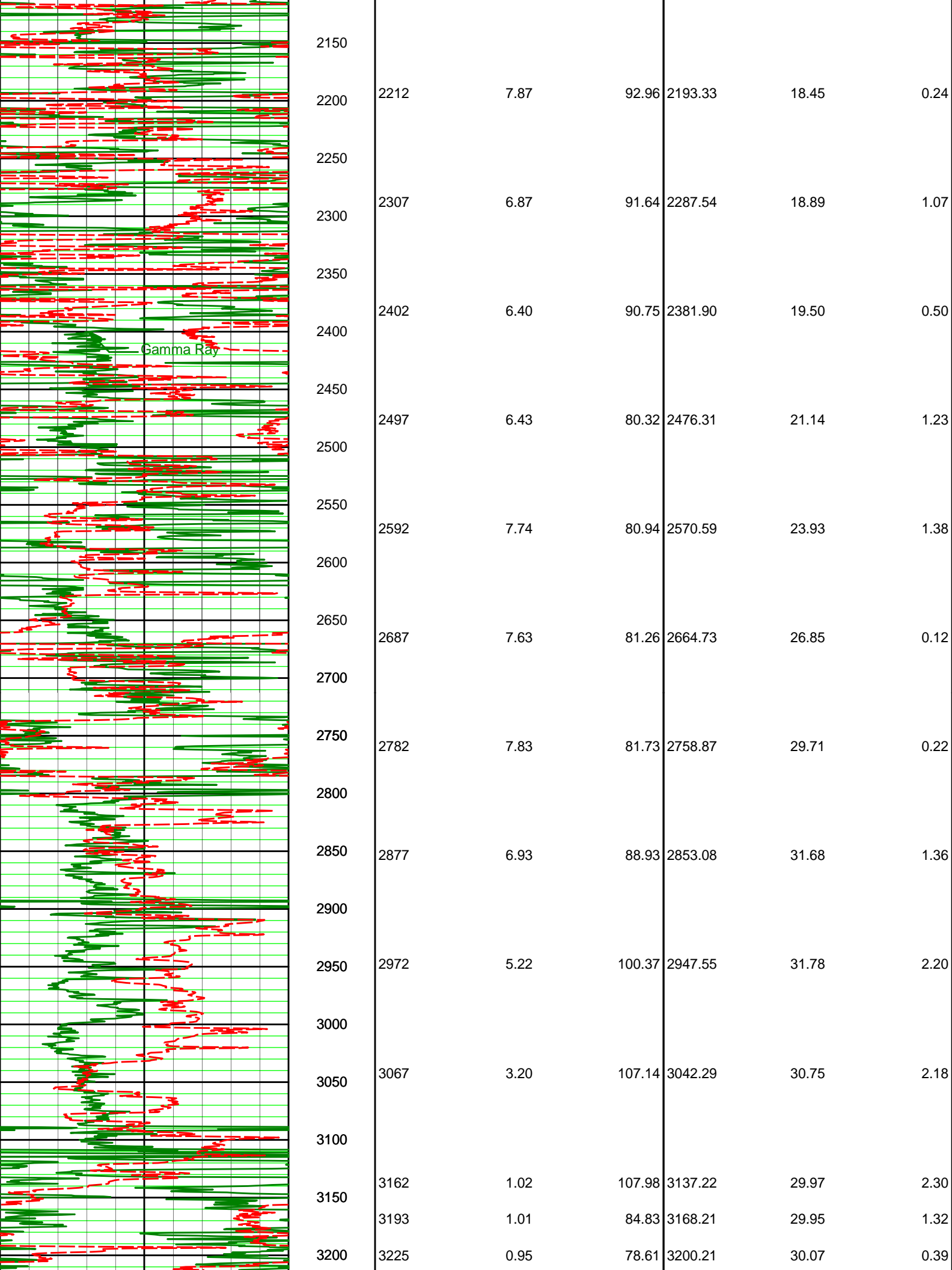
1. All depths are calibrated to the driller's pipe tally and are measured from the rotary table.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded (memory data) unless otherwise stated.
4. Run 100 was directional only, no gamma available for this run.
5. The following smoothing parameters have been applied to the data:
 - ROP: 1.0 ft interval, 3.0 ft coercion distance.
 - GAMMA: 0.5 ft interval, 0.6 ft coercion distance.

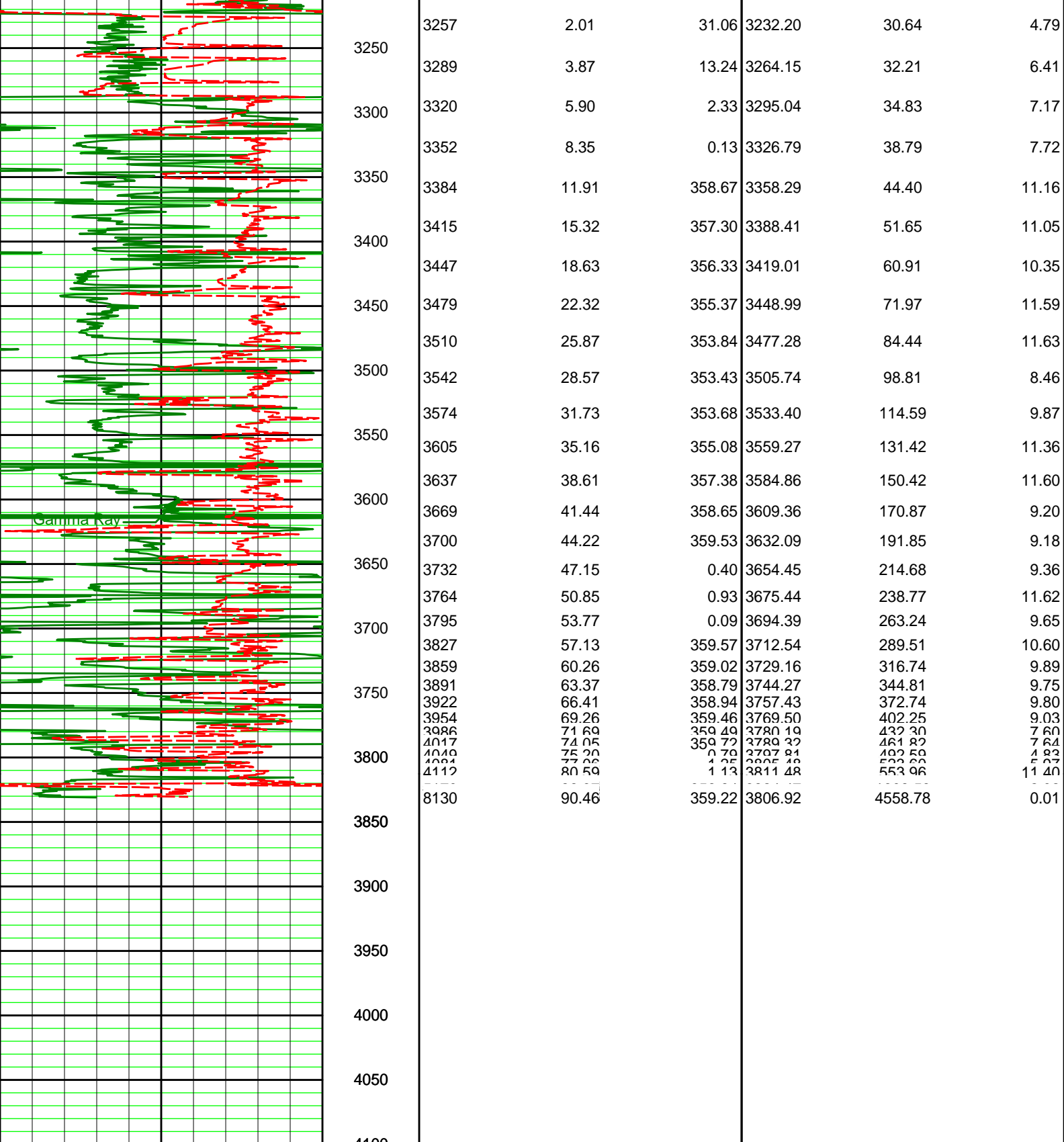
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PCG Gamma Ray api							
0 150							
Rate of Penetration feet per hr	TVD ft	Surveys			Surveys		
250 0	1 : 1200	Depth	Inclination	Azimuth	TVD	Vertical Sec	Dogleg Sev
300							
	350						
		368	1.66	133.76	367.98	-1.21	1.21
	400						
		432	3.90	119.74	431.90	-2.73	3.63
	450						
	500						
		527	7.12	98.90	526.45	-4.57	3.94
	550						
	600						
		622	9.63	93.09	620.43	-4.85	2.78
	650						
	700						
		717	9.36	91.64	714.13	-4.29	0.38
	750						
	800						
		812	8.81	91.67	807.94	-3.56	0.58
	850						
	900						
		907	8.48	92.30	901.86	-2.96	0.36
	950						
	1000						
		1002	8.80	93.41	995.78	-2.57	0.37







3250	3257	2.01	31.06	3232.20	30.64	4.79
	3289	3.87	13.24	3264.15	32.21	6.41
3300	3320	5.90	2.33	3295.04	34.83	7.17
	3352	8.35	0.13	3326.79	38.79	7.72
3350	3384	11.91	358.67	3358.29	44.40	11.16
	3415	15.32	357.30	3388.41	51.65	11.05
3400	3447	18.63	356.33	3419.01	60.91	10.35
	3479	22.32	355.37	3448.99	71.97	11.59
3450	3510	25.87	353.84	3477.28	84.44	11.63
	3542	28.57	353.43	3505.74	98.81	8.46
3500	3574	31.73	353.68	3533.40	114.59	9.87
	3605	35.16	355.08	3559.27	131.42	11.36
3550	3637	38.61	357.38	3584.86	150.42	11.60
	3669	41.44	358.65	3609.36	170.87	9.20
3600	3700	44.22	359.53	3632.09	191.85	9.18
	3732	47.15	0.40	3654.45	214.68	9.36
3650	3764	50.85	0.93	3675.44	238.77	11.62
	3795	53.77	0.09	3694.39	263.24	9.65
3700	3827	57.13	359.57	3712.54	289.51	10.60
	3859	60.26	359.02	3729.16	316.74	9.89
3750	3891	63.37	358.79	3744.27	344.81	9.75
	3922	66.41	358.94	3757.43	372.74	9.80
	3954	69.26	359.46	3769.50	402.25	9.03
	3986	71.69	359.49	3780.19	432.30	7.60
	4017	74.05	359.72	3789.32	461.82	7.64
	4049	75.99	0.79	3797.84	492.59	4.92
	4081	77.66	4.25	3805.48	523.66	5.67
3800	4112	80.59	1.13	3811.48	553.96	11.40
	8130	90.46	359.22	3806.92	4558.78	0.01

Rate of Penetration feet per hr		TVD ft	Surveys			Surveys		
250 ----- 0		1 : 1200	Depth	Inclination	Azimuth	TVD	Vertical Sec	Dogleg Sev
PCG Gamma Ray api								
0 ----- 150								



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Shell Exploration Production
 Young Trust 2309 35-1H
 Wildcat
 Reno Co Kansas
 USA

OK-XX-0900034106

Surveys from 141' MD to 8130' MD provided by Halliburton Sperry Drilling Services.
 Final Survey @ 8130' MD is 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
141.00	0.14	121.22	141.00	0.09 S	0.15 E	-0.08	0.10
171.00	0.28	79.43	171.00	0.09 S	0.25 E	-0.07	0.68
232.00	0.69	100.38	232.00	0.13 S	0.76 E	-0.07	0.71
286.00	0.71	119.06	285.99	0.35 S	1.37 E	-0.25	0.42
368.00	1.66	133.76	367.98	1.42 S	2.67 E	-1.21	1.21
432.00	3.90	119.74	431.90	3.14 S	5.23 E	-2.73	3.63
527.00	7.12	98.90	526.45	5.66 S	13.86 E	-4.57	3.94
622.00	9.63	93.09	620.43	6.99 S	27.61 E	-4.85	2.78
717.00	9.36	91.64	714.13	7.64 S	43.26 E	-4.29	0.38
812.00	8.81	91.67	807.94	8.08 S	58.25 E	-3.56	0.58
907.00	8.48	92.30	901.86	8.57 S	72.53 E	-2.96	0.36
1002.00	8.80	93.41	995.78	9.29 S	86.78 E	-2.57	0.37
1093.00	7.98	89.13	1085.81	9.60 S	100.05 E	-1.86	1.12
1184.00	7.83	90.15	1175.94	9.52 S	112.57 E	-0.82	0.23
1275.00	8.44	91.18	1266.03	9.68 S	125.44 E	0.02	0.68
1366.00	8.90	90.85	1355.99	9.92 S	139.16 E	0.83	0.52
1457.00	8.28	80.61	1445.97	8.96 S	152.66 E	2.84	1.81
1548.00	8.08	82.10	1536.05	7.01 S	165.45 E	5.76	0.32
1640.00	8.35	81.55	1627.10	5.14 S	178.47 E	8.63	0.31
1733.00	8.59	80.48	1719.09	2.99 S	192.01 E	11.81	0.31
1833.00	8.04	88.11	1818.04	1.53 S	206.37 E	14.38	1.23
1927.00	8.10	89.64	1911.11	1.27 S	219.56 E	15.65	0.24
2022.00	8.23	88.57	2005.14	1.06 S	233.05 E	16.91	0.21
2117.00	7.80	91.38	2099.22	1.04 S	246.30 E	17.94	0.61
2212.00	7.87	92.96	2193.33	1.53 S	259.25 E	18.45	0.24
2307.00	6.87	91.64	2287.54	2.03 S	271.43 E	18.89	1.07
2402.00	6.40	90.75	2381.90	2.27 S	282.40 E	19.50	0.50
2497.00	6.43	80.32	2476.31	1.44 S	292.94 E	21.14	1.23
2592.00	7.74	80.94	2570.59	0.46 N	304.50 E	23.93	1.38
2687.00	7.63	81.26	2664.73	2.43 N	317.05 E	26.85	0.12
2782.00	7.83	81.73	2758.87	4.32 N	329.70 E	29.71	0.22
2877.00	6.93	88.93	2853.08	5.35 N	341.83 E	31.68	1.36
2972.00	5.22	100.37	2947.55	4.68 N	351.82 E	31.78	2.20
3067.00	3.20	107.14	3042.29	3.12 N	358.61 E	30.75	2.18
3162.00	1.02	107.98	3137.22	2.08 N	361.95 E	29.97	2.30
3193.00	1.01	84.83	3168.21	2.02 N	362.49 E	29.95	1.32
3225.00	0.95	78.61	3200.21	2.10 N	363.03 E	30.07	0.39
3257.00	2.01	31.06	3232.20	2.63 N	363.58 E	30.64	4.79
3289.00	3.87	13.24	3264.15	4.16 N	364.12 E	32.21	6.41
3320.00	5.90	2.33	3295.04	6.77 N	364.42 E	34.83	7.17
3352.00	8.35	0.13	3326.79	10.73 N	364.49 E	38.79	7.72
3384.00	11.91	358.67	3358.29	16.36 N	364.42 E	44.40	11.16
3415.00	15.32	357.30	3388.41	23.65 N	364.16 E	51.65	11.05
3447.00	18.63	356.33	3419.01	32.98 N	363.63 E	60.91	10.35
3479.00	22.32	355.37	3448.99	44.14 N	362.81 E	71.97	11.59
3510.00	25.87	353.84	3477.28	56.74 N	361.61 E	84.44	11.63
3542.00	28.57	353.43	3505.74	71.28 N	359.98 E	98.81	8.46
3574.00	31.73	353.68	3533.40	87.25 N	358.18 E	114.59	9.87
3605.00	35.16	355.08	3559.27	104.25 N	356.52 E	131.42	11.36
3637.00	38.61	357.38	3584.86	123.41 N	355.27 E	150.42	11.60
3669.00	41.44	358.65	3609.36	143.98 N	354.56 E	170.87	9.20
3700.00	44.22	359.53	3632.09	165.04 N	354.23 E	191.85	9.18
3732.00	47.15	0.40	3654.45	187.94 N	354.23 E	214.68	9.36
3764.00	50.05	0.33	3675.14	210.83 N	354.23 E	238.57	9.88
3796.00	52.95	0.26	3695.83	233.72 N	354.23 E	262.46	10.40
3828.00	55.85	0.19	3716.52	256.61 N	354.23 E	286.35	10.92
3860.00	58.75	0.12	3737.21	279.50 N	354.23 E	310.24	11.44
3892.00	61.65	0.05	3757.90	302.39 N	354.23 E	334.13	11.96
3924.00	64.55	0.00	3778.59	325.28 N	354.23 E	358.02	12.48
3956.00	67.45	0.00	3799.28	348.17 N	354.23 E	381.91	13.00
3988.00	70.35	0.00	3819.97	371.06 N	354.23 E	405.80	13.52
4020.00	73.25	0.00	3840.66	393.95 N	354.23 E	429.69	14.04
4052.00	76.15	0.00	3861.35	416.84 N	354.23 E	453.58	14.56
4084.00	79.05	0.00	3882.04	439.73 N	354.23 E	477.47	15.08
4116.00	81.95	0.00	3902.73	462.62 N	354.23 E	501.36	15.60
4148.00	84.85	0.00	3923.42	485.51 N	354.23 E	525.25	16.12
4180.00	87.75	0.00	3944.11	508.40 N	354.23 E	549.14	16.64
4212.00	90.65	0.00	3964.80	531.29 N	354.23 E	573.03	17.16
4244.00	93.55	0.00	3985.49	554.18 N	354.23 E	596.92	17.68
4276.00	96.45	0.00	4006.18	577.07 N	354.23 E	620.81	18.20
4308.00	99.35	0.00	4026.87	600.00 N	354.23 E	644.70	18.72
4340.00	102.25	0.00	4047.56	622.89 N	354.23 E	668.59	19.24
4372.00	105.15	0.00	4068.25	645.78 N	354.23 E	692.48	19.76
4404.00	108.05	0.00	4088.94	668.67 N	354.23 E	716.37	20.28
4436.00	110.95	0.00	4109.63	691.56 N	354.23 E	740.26	20.80
4468.00	113.85	0.00	4130.32	714.45 N	354.23 E	764.15	21.32
4500.00	116.75	0.00	4151.01	737.34 N	354.23 E	788.04	21.84
4532.00	119.65	0.00	4171.70	760.23 N	354.23 E	811.93	22.36
4564.00	122.55	0.00	4192.39	783.12 N	354.23 E	835.82	22.88
4596.00	125.45	0.00	4213.08	806.01 N	354.23 E	859.71	23.40
4628.00	128.35	0.00	4233.77	828.90 N	354.23 E	883.60	23.92
4660.00	131.25	0.00	4254.46	851.79 N	354.23 E	907.49	24.44
4692.00	134.15	0.00	4275.15	874.68 N	354.23 E	931.38	24.96
4724.00	137.05	0.00	4295.84	897.57 N	354.23 E	955.27	25.48
4756.00	139.95	0.00	4316.53	920.46 N	354.23 E	979.16	26.00
4788.00	142.85	0.00	4337.22	943.35 N	354.23 E	1003.05	26.52
4820.00	145.75	0.00	4357.91	966.24 N	354.23 E	1026.94	27.04
4852.00	148.65	0.00	4378.60	989.13 N	354.23 E	1050.83	27.56
4884.00	151.55	0.00	4399.29	1012.02 N	354.23 E	1074.72	28.08
4916.00	154.45	0.00	4419.98	1034.91 N	354.23 E	1098.61	28.60
4948.00	157.35	0.00	4440.67	1057.80 N	354.23 E	1122.50	29.12
4980.00	160.25	0.00	4461.36	1080.69 N	354.23 E	1146.39	29.64
5012.00	163.15	0.00	4482.05	1103.58 N	354.23 E	1170.28	30.16
5044.00	166.05	0.00	4502.74	1126.47 N	354.23 E	1194.17	30.68
5076.00	168.95	0.00	4523.43	1149.36 N	354.23 E	1218.06	31.20
5108.00	171.85	0.00	4544.12	1172.25 N	354.23 E	1241.95	31.72
5140.00	174.75	0.00	4564.81	1195.14 N	354.23 E	1265.84	32.24
5172.00	177.65	0.00	4585.50	1218.03 N	354.23 E	1289.73	32.76
5204.00	180.55	0.00	4606.19	1240.92 N	354.23 E	1313.62	33.28
5236.00	183.45	0.00	4626.88	1263.81 N	354.23 E	1337.51	33.80
5268.00	186.35	0.00	4647.57	1286.70 N	354.23 E	1361.40	34.32
5300.00	189.25	0.00	4668.26	1309.59 N	354.23 E	1385.29	34.84
5332.00	192.15	0.00	4688.95	1332.48 N	354.23 E	1409.18	35.36
5364.00	195.05	0.00	4709.64	1355.37 N	354.23 E	1433.07	35.88
5396.00	197.95	0.00	4730.33	1378.26 N	354.23 E	1456.96	36.40
5428.00	200.85	0.00	4751.02	1401.15 N	354.23 E	1480.85	36.92
5460.00	203.75	0.00	4771.71	1424.04 N	354.23 E	1504.74	37.44
5492.00	206.65	0.00	4792.40	1446.93 N	354.23 E	1528.63	37.96
5524.00	209.55	0.00	4813.09	1469.82 N	354.23 E	1552.52	38.48
5556.00	212.45	0.00	4833.78	1492.71 N	354.23 E	1576.41	39.00
5588.00	215.35	0.00	4854.47	1515.60 N	354.23 E	1600.30	39.52
5620.00	218.25	0.00	4875.16	1538.49 N	354.23 E	1624.19	40.04
5652.00	221.15	0.00	4895.85	1561.38 N	354.23 E	1648.08	40.56
5684.00	224.05	0.00	4916.54	1584.27 N	354.23 E	1671.97	41.08
5716.00	226.95	0.00	4937.23	1607.16 N	354.23 E	1695.86	41.60
5748.00	229.85	0.00	4957.92	1630.05 N	354.23 E	1719.75	42.12
5780.00	232.75	0.00	4978.61	1652.94 N	354.23 E	1743.64	42.64
5812.00	235.65	0.00	4999.30	1675.83 N	354.23 E	1767.53	43.16
5844.00	238.55	0.00	5019.99	1698.72 N	354.23 E	1791.42	43.68
5876.00	241.45	0.00	5040.68	1721.61 N	354.23 E	1815.31	44.20
5908.00	244.35	0.00	5061.37	1744.50 N	354.23 E	1839.20	44.72
5940.00	247.25	0.00	5082.06	1767.39 N	354.23 E	1863.09	45.24
5972.00	250.15	0.00	5102.75	1790.28 N	354.23 E	1886.98	45.76
6004.00	253.05	0.00	5123.44	1813.17 N	354.23 E	1910.87	46.28
6036.00	255.95	0.00	5144.13	1836.06 N	354.23 E	1934.76	46.80
6068.00	258.85	0.00	5164.82	1858.95 N	354.23 E	1958.65	47.32
6100.00	261.75	0.00	5185.51	1881.84 N	354.23 E	1982.54	47.84
6132.00	264.65	0.00	5206.20	1904.73 N	354.23 E	2006.43	48.36

3764.00	50.85	0.93	3675.44	212.08 N	354.51 E	238.77	11.62
3795.00	53.77	0.09	3694.39	236.61 N	354.73 E	263.24	9.65
3827.00	57.13	359.57	3712.54	262.96 N	354.64 E	289.51	10.60
3859.00	60.26	359.02	3729.16	290.29 N	354.31 E	316.74	9.89
3891.00	63.37	358.79	3744.27	318.49 N	353.77 E	344.81	9.75
3922.00	66.41	358.94	3757.43	346.55 N	353.21 E	372.74	9.80
3954.00	69.26	359.46	3769.50	376.18 N	352.80 E	402.25	9.03
3986.00	71.69	359.49	3780.19	406.34 N	352.52 E	432.30	7.60
4017.00	74.05	359.72	3789.32	435.96 N	352.32 E	461.82	7.64
4049.00	75.20	0.79	3797.81	466.81 N	352.46 E	492.59	4.83
4081.00	77.06	1.25	3805.48	497.87 N	353.01 E	523.60	5.97
4112.00	80.59	1.13	3811.48	528.28 N	353.65 E	553.96	11.40
4207.00	87.91	0.25	3821.00	622.73 N	354.78 E	648.22	7.75
4293.00	89.17	359.69	3823.19	708.70 N	354.74 E	733.93	1.61
4325.00	89.08	359.38	3823.68	740.69 N	354.48 E	765.81	0.99
4420.00	91.08	0.25	3823.55	835.68 N	354.17 E	860.49	2.29
4515.00	91.79	0.98	3821.18	930.65 N	355.19 E	955.25	1.08
4609.00	90.15	1.27	3819.58	1024.61 N	357.03 E	1049.08	1.77
4704.00	90.40	1.00	3819.13	1119.59 N	358.90 E	1143.92	0.38
4798.00	89.20	0.40	3819.46	1213.58 N	360.04 E	1237.72	1.43
4893.00	88.46	0.33	3821.40	1308.56 N	360.65 E	1332.46	0.78
4988.00	89.63	0.22	3822.98	1403.55 N	361.10 E	1427.20	1.24
5079.00	90.06	359.56	3823.22	1494.54 N	360.93 E	1517.92	0.86
5170.00	88.37	358.84	3824.47	1585.52 N	359.66 E	1608.53	2.02
5261.00	88.25	358.22	3827.16	1676.45 N	357.33 E	1699.01	0.70
5352.00	88.58	358.92	3829.67	1767.39 N	355.06 E	1789.50	0.86
5442.00	89.26	0.21	3831.37	1857.37 N	354.38 E	1879.16	1.62
5533.00	90.55	1.19	3831.52	1948.36 N	355.50 E	1969.96	1.78
5625.00	90.18	0.36	3830.92	2040.35 N	356.74 E	2061.77	0.99
5717.00	90.46	0.46	3830.41	2132.34 N	357.40 E	2153.54	0.32
5811.00	90.98	359.67	3829.22	2226.33 N	357.50 E	2247.26	1.01
5905.00	90.99	359.55	3827.60	2320.32 N	356.86 E	2340.92	0.13
6000.00	90.09	0.36	3826.71	2415.31 N	356.78 E	2435.63	1.28
6095.00	89.60	0.53	3826.97	2510.31 N	357.52 E	2530.40	0.55
6190.00	89.85	0.10	3827.43	2605.31 N	358.05 E	2625.15	0.52
6285.00	89.94	359.92	3827.60	2700.31 N	358.06 E	2719.87	0.22
6380.00	91.51	359.96	3826.40	2795.30 N	357.96 E	2814.57	1.65
6475.00	91.45	359.71	3823.95	2890.26 N	357.69 E	2909.23	0.27
6570.00	92.22	359.25	3820.91	2985.21 N	356.83 E	3003.83	0.94
6665.00	91.91	359.37	3817.49	3080.14 N	355.68 E	3098.39	0.35
6760.00	91.17	359.35	3814.94	3175.10 N	354.62 E	3192.99	0.78
6855.00	89.97	0.11	3813.99	3270.09 N	354.18 E	3287.66	1.50
6950.00	90.68	359.96	3813.46	3365.09 N	354.24 E	3382.38	0.76
7045.00	90.03	0.94	3812.87	3460.08 N	354.99 E	3477.15	1.23
7140.00	89.29	0.18	3813.43	3555.08 N	355.91 E	3571.93	1.12
7236.00	89.75	0.48	3814.23	3651.07 N	356.46 E	3667.68	0.57
7331.00	90.06	0.14	3814.38	3746.07 N	356.97 E	3762.44	0.48
7426.00	89.85	0.49	3814.46	3841.07 N	357.49 E	3857.19	0.43
7521.00	90.37	0.04	3814.28	3936.07 N	357.94 E	3951.94	0.72
7616.00	89.63	359.87	3814.28	4031.06 N	357.87 E	4046.66	0.80
7711.00	91.14	359.31	3813.64	4126.06 N	357.19 E	4141.31	1.70
7806.00	92.24	359.84	3810.84	4221.01 N	356.49 E	4235.93	1.29
7901.00	90.61	0.13	3808.47	4315.98 N	356.46 E	4330.61	1.74
7996.00	90.18	359.62	3807.81	4410.98 N	356.26 E	4425.31	0.70
8076.00	90.46	359.22	3807.36	4490.97 N	355.45 E	4505.01	0.62
8130.00	90.46	359.22	3806.92	4544.96 N	354.71 E	4558.78	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 4.42 DEGREES (GRID)
A TOTAL CORRECTION OF 4.62 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 8130.00 FEET
IS 4558.78 FEET ALONG 4.46 DEGREES (GRID)**