



Memory and Realtime Log

Natural Formation Evaluation
Multiple Propagation Resistivity
Gamma Ray

Scale:	Company: Anadarko
1:240 True Vertical Depth	Well: Nichols 15C-31HZ
	Field: Weld County (Kerr McGee)
	Region: Rocky Mountains State: United States

Status:	Field Print	Surface Location:	Other Services:
API Number:	05-123-35741	Latitude: 40° 9' 40.910" N Longitude: 104° 42' 7.272" W	Directional
Permanent Datum (P.D.):	Mean Sea Level	Elevation: 16.00 ft.	Elevations: N/A
Log Measured From:	Rig Floor	4881.00 ft.	Above P.D.
Depth Reference:	Driller's Depth	GL:	4897.00 ft. 4881.00 ft.

Interval Logged	Dates	Magnetic Field Reference
Top: 6114.0 ft.	Date From: 17/Jan/13	Dip Angle: 66.96° Azi Reference North: True
Bottom: 12481.0 ft.	Date To: 24/Jan/13	Total Mag to Reference
	Spud Date: 15/Jan/13	Field Strength: 52832.0 nT North Correction: 8.65°

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
8.750 in.	925.0 ft.	7826.0 ft.	9.625 in.	36.00 lb/ft	Surface	915.0 ft.	
6.125 in.	7826.0 ft.	12545.0 ft.	7.000 in.	20.00 lb/ft	Surface	7817.0 ft.	

Mud Record				Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)	
Water Based	925.0 ft.	12545.0 ft.	8.750 in.	Intermediate	0.4° / 288.8°	86.9° / 2.1°	
			6.125 in.	Lateral	89.7° / 1.7°	89.3° / 359.0°	
					/	/	
					/	/	
					/	/	
					/	/	
					/	/	
					/	/	

Acquisition System				Software Version				Other			
Advantage		2.20U3	Rig:	Xtreme 24	/	Xtreme Coil Drilling Corp					
PATS		6.4.1.34	Job No:	5172844							
			District / Unit:	RMD		/ D&E					

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top	Bottom	From	To	Start	End	
							(ft.)	(ft.)	(ft.)	(ft.)			
3	3	3	8.750	PDC	2.000	Steerable	6414.0	7777.0	6760.0	7826.0	18/Jan/2013 10:21	20/Jan/2013 01:30	47.7
4	4	4	6.125	PDC	2.000	Steerable	7777.0	11220.0	7826.0	11268.0	20/Jan/2013 21:30	22/Jan/2013 20:00	28
5	5	5	6.125	PDC	2.000	Steerable	11220.0	12581.0	11268.0	12545.0	22/Jan/2013 06:18	24/Jan/2013 12:28	30

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Austin Small	15/Jan/2012	18/Jan/2012	Marcus Boucher	15/Jan/2012	25/Jan/2012	David Belek	18/Jan/2012	25/Jan/2012

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+
19/Jan/2013 08:20	3	7311.0	Water Based	9.6	35	9.1	N/A	1 / 92	Flowline	1300	0.0
19/Jan/2013 20:23	4	7827.0	Water Based	9.9	39	8.9	N/A	1 / 91	Flowline	1000	0.0
22/Jan/2013 18:37	4	11272.0	Water Based	9.5	38	8.8	N/A	0 / 92	Flowline	800	0.0
22/Jan/2013 21:33	5	11272.0	Water Based	9.5	38	8.8	N/A	0 / 92	Flowline	800	0.0
23/Jan/2013 18:47	5	11355.0	Water Based	9.7	14	8.2	N/A	0 / 92	Flowline	500	0.0

Mnemonics

Curve	Description	Units
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
GRAX	Gamma Ray Apparent, 0.5 ft Avg.	API
GRAM	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRIM	Gamma Ray Data Density	points
RACLM	Resistivity (AT) (LS) 400kHz – Compensated Borehole Corrected	ohm.m
RACHM	Resistivity (AT) (LS) 2MHz – Compensated Borehole Corrected	ohm.m
RPCLM	Resistivity (PD) (LS) 400kHz – Compensated Borehole Corrected	ohm.m
RPCHM	Resistivity (PD) (LS) 2MHz – Compensated Borehole Corrected	ohm.m
CACHM	Conductivity (AT) (LS) 2MHz – Compensated Borehole Corrected	mho/m
RPTHM	Time Since Drilled [RPCHM]	mins
RPSHIM	Resistivity Slide Indicator	unitless
WOBA	Weight on Bit, 1.0 ft. Avg.	kLbs
TCDX	Downhole Temperature	degF
TCDM	Downhole Temperature	degF

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
3	DIR	12440860	Directional	51.33	6.750	3.250
3	SRIG	10658455	Gamma	47.96	6.750	3.250
4	CS	12443432	-	83.36	5.070	1.750
4	BCPM	10214387	Telemetry	72.26	5.070	1.750
4	STAB	11853041	-	69.13	5.500	1.750
4	OTK	10485158	Directional	64.72	5.070	1.750
4	OTK	10485158	Resistivity	58.75	4.843	2.569
4	OTK	10485158	Gamma	51.56	4.843	2.569
4	OTK	10485158	Pressure	54.19	4.843	2.569
4	CS	10388981	-	47.13	5.070	1.750
5	CS	10558669	-	86.53	5.070	1.750
5	BCPM	10474705	Telemetry	75.44	5.070	1.750
5	STAB	11826085	-	72.14	5.000	1.750

5	STAB	11026083	-	72.14	0.000	1.750
5	OTK	12115270	Directional	66.78	5.066	1.750
5	OTK	12115270	Resistivity	53.60	5.066	1.750
5	APR	12115270	Resistivity	53.60	5.070	1.750
5	OTK	12115270	Gamma	62.09	5.066	1.750
5	OTK	12115270	Pressure	58.04	5.066	1.750
5	CS	10432083	-	47.20	5.070	1.750

Service and Tool Mnemonics


Mnemonic	Name	Description
APR	Resistivity	Azimuthal propagation resistivity, azimuthal propagation resistivity image
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
DIR	Directional	Wellbore directional survey
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module
STAB	Stabilizer	Stabilizer assembly
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA

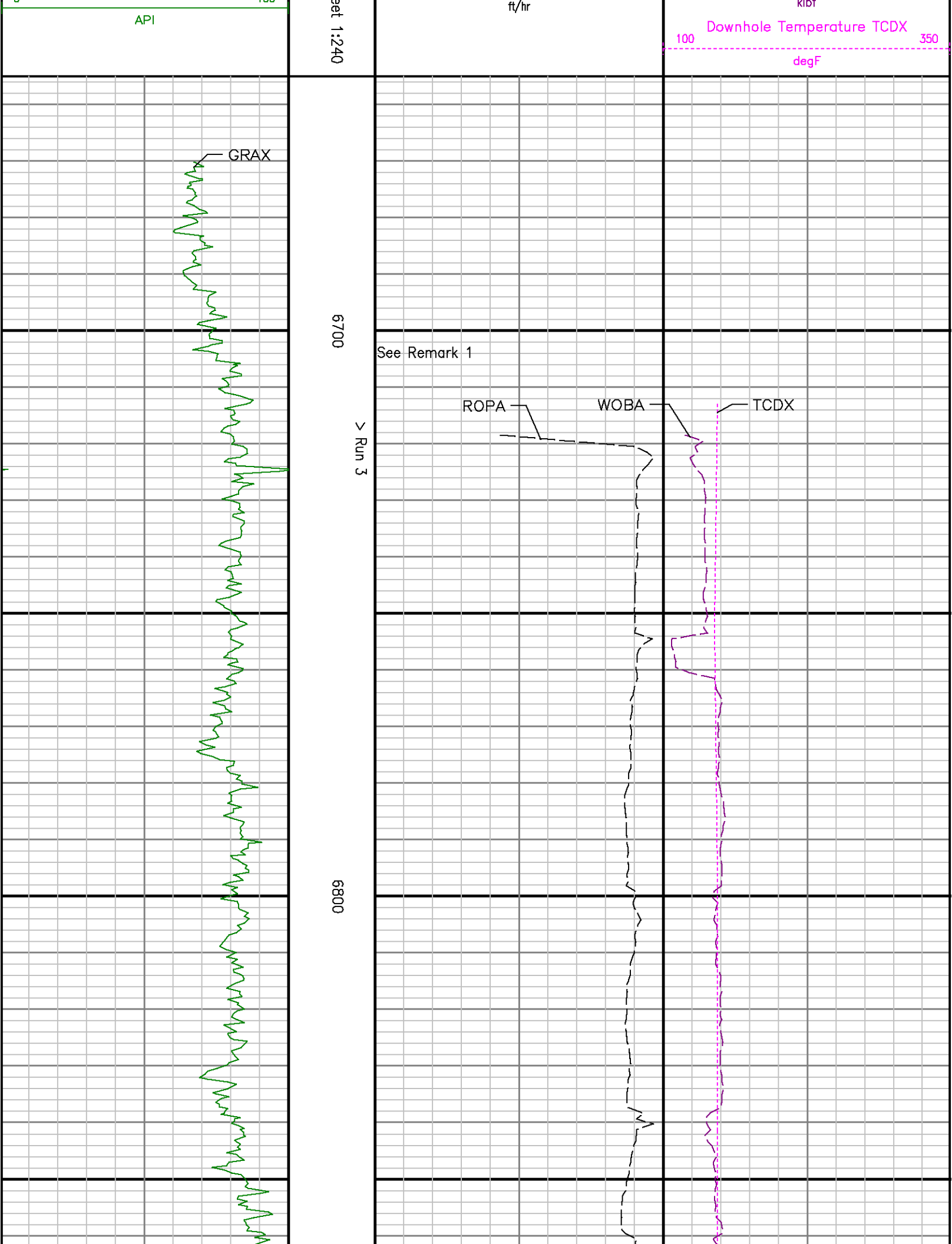
Comments

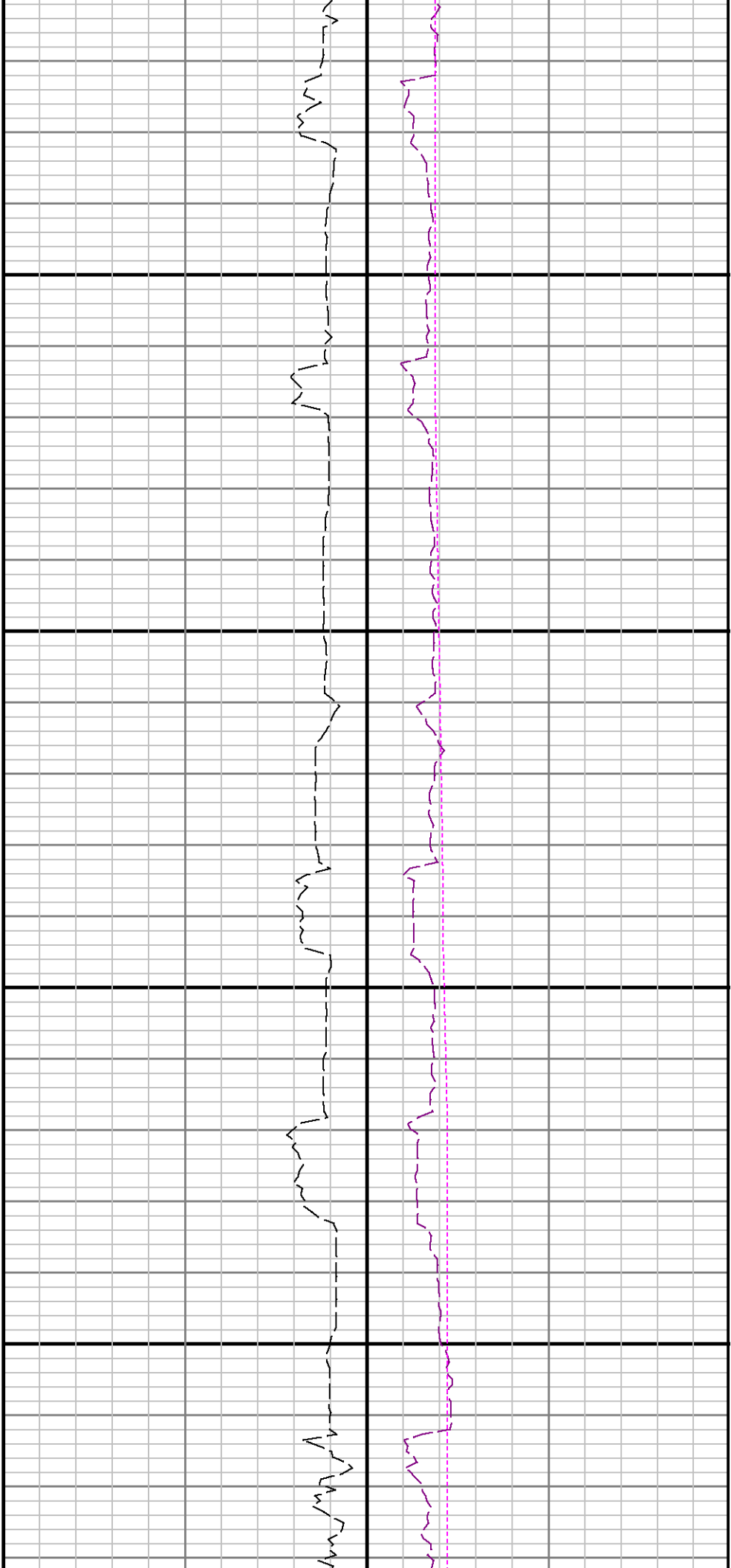
(1) Baker Hughes INTEQ run 3 utilized 6 3/4 NaviGamma services (Gamma Ray and Directional) behind a 8 3/4 inch bit and steerable assembly from 6760 to 7826 feet MD (6715 to 7307 feet TVD).
(2) Baker Hughes INTEQ runs 4 & 5 utilized 4 3/4 inch OnTrak services (Multiple Propagation Resistivity, Gamma Ray, and Directional) behind a 6 1/8 inch bit and steerable assembly from 7826 feet to 12545 feet MD (7307 to 7314 feet TVD).
(3) A sliding indicator is shown on the right edge of track 2 as a heavy line. The indicator has been depth-shifted to the resistivity sensor offset to correspond with resistivity data acquired while sliding.

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	6760	8.750	3	The interval from surface to 6760 feet MD (6715 feet TVD) was not logged since logging services began with the start of drilling with the curve assembly for run 3.
2	7826	8.750	3	The interval from 7775 to 7826 feet MD (7305 to 7307 feet TVD) was logged up to 41 hours after being drilled due to trip out of the hole for casing and cementing operations and picking up the lateral assembly.
3	11268	6.125	4	The interval from 11215 to 11268 feet MD (7297 to 7299 feet TVD) was logged up to 29 hours after being drilled due to trip out of the hole to change out motor and ream BHA through the lateral to bottom.
4	12545	6.125	5	The interval from 12481 to 12545 feet MD (7313 to 7314 feet TVD) was not logged due to bit sensor offset at TD.

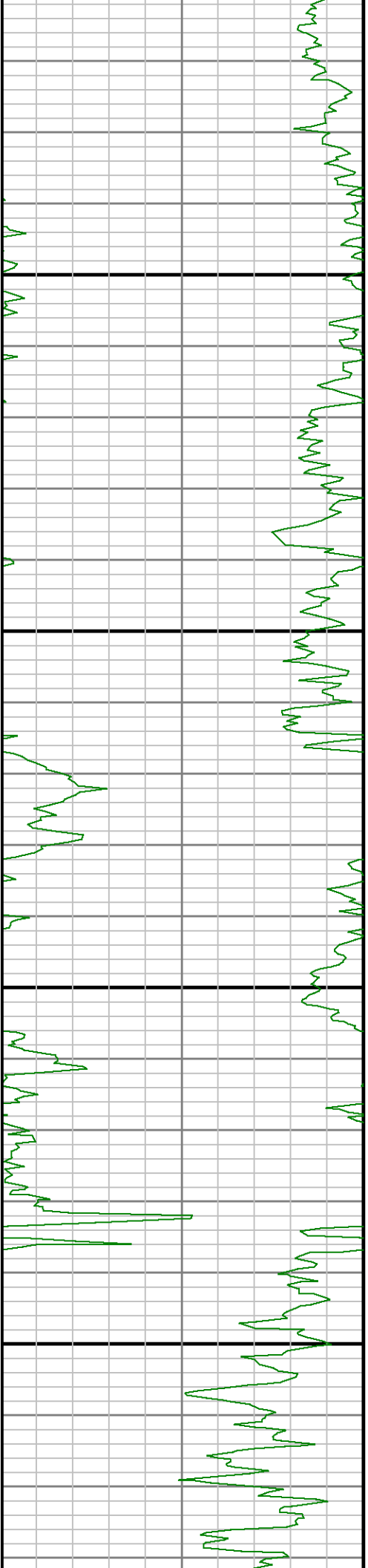
				Company : Anadarko Well : Nichols 15C-31HZ Interval : 6655.00 - 7320.00 feet Created : 19/Jan/2013 5:18:55 PM			
Gamma Ray Apparent 0.5 ft Avg GRAX		TVD feet	Rate of Penetration ROPA		Surface Weight On Bit 1.0 ft Avg WOB		
0	150		1000	0	0	150	

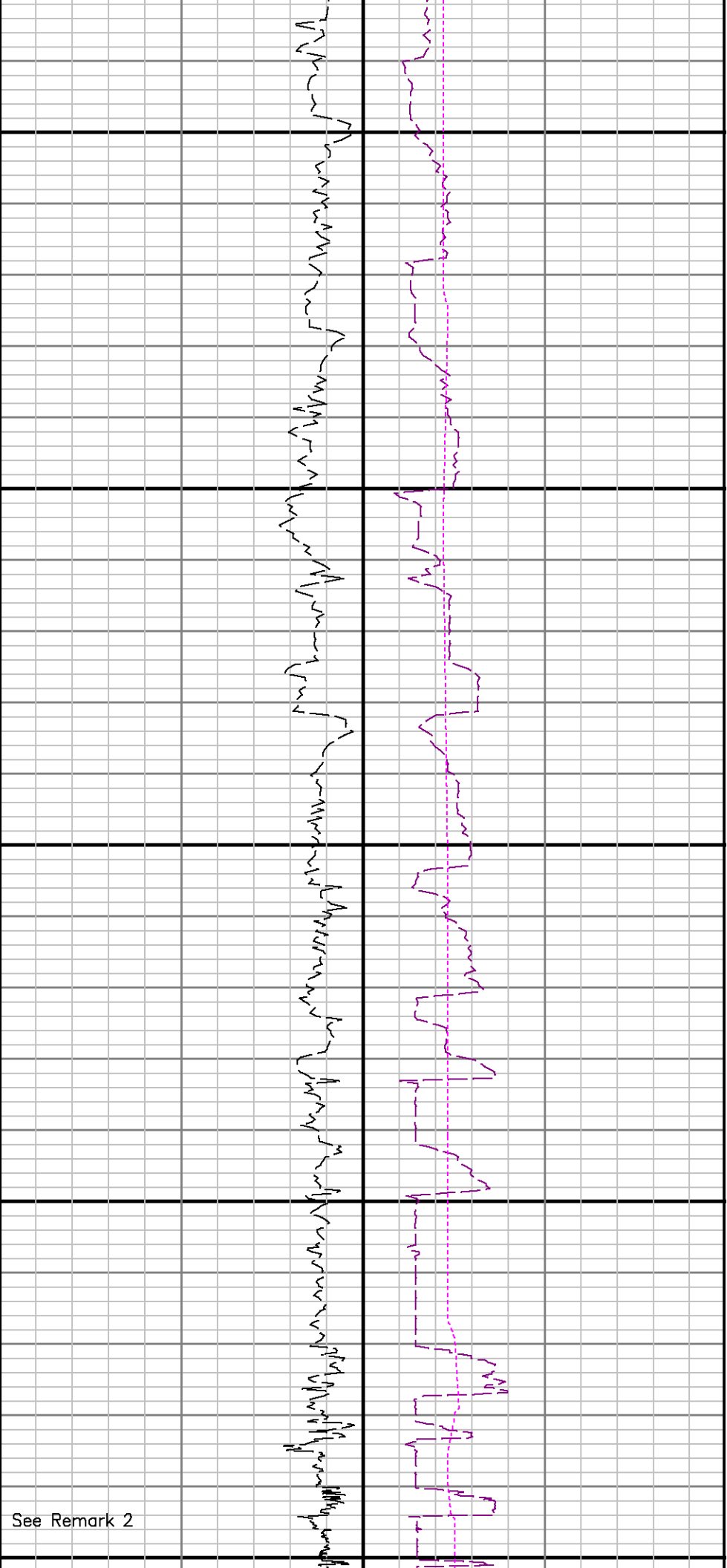




6900

7000



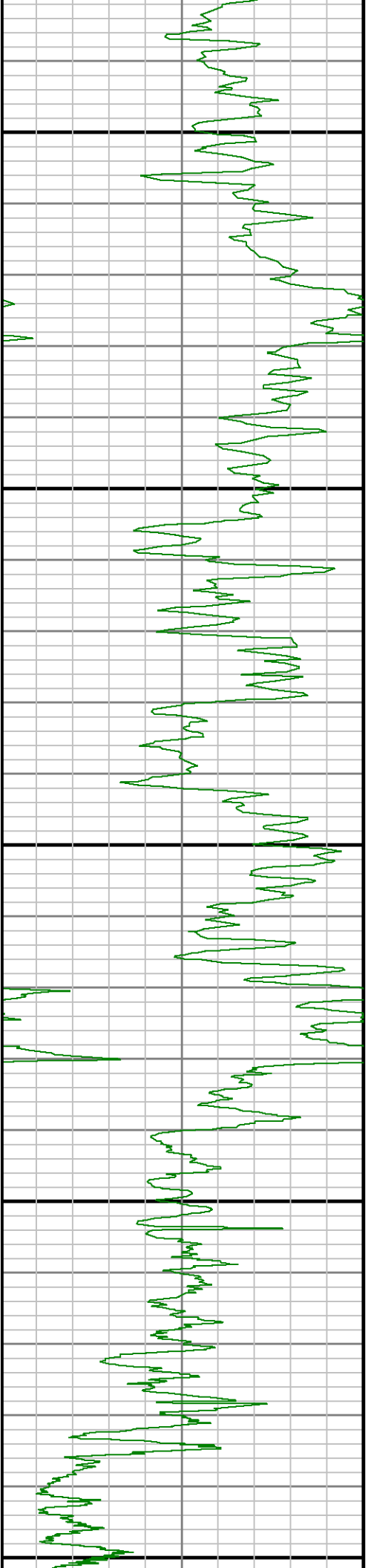


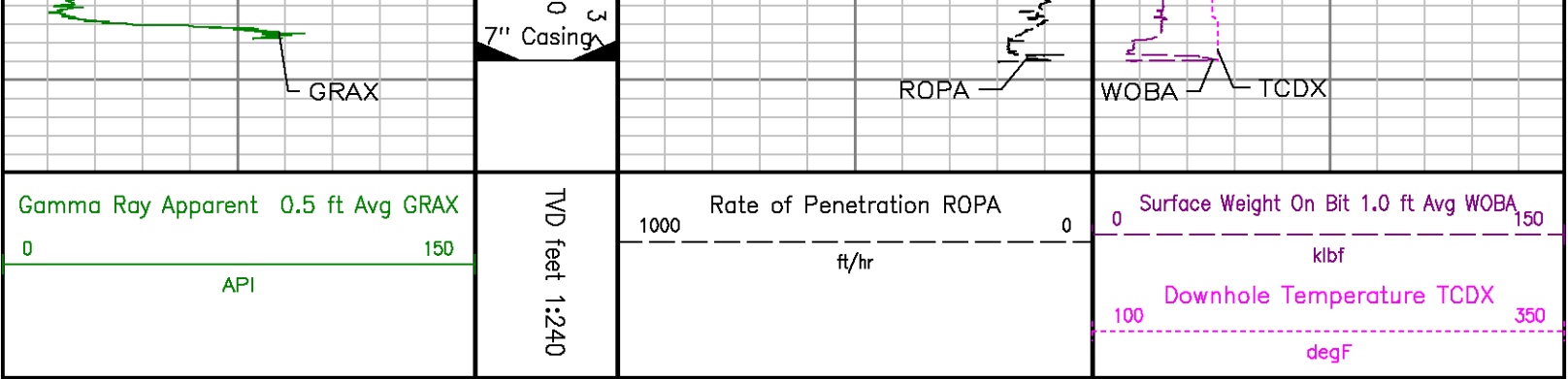
See Remark 2

7100

7200

Run 730





ADVANTAGE Final Survey Listing												
Operator :Anadarko				Field : Weld County (Kerr McGee)				API No : 05-123-35741				
Well :Nichols 15C-31HZ				Rig : Xtreme 24				Job :5172844				
Wellbore : Nichols 15C-31HZ Orig Hole												
Well Origin												
Latitude		40.1614 deg					Longitude		-104.7020 deg			
North Reference		True					Drill Depth Zero		NULL			
Vertical Datum is		Ground Level					Vertical Datum to DDZ		16.00 ft			
Vertical Section North		0.00 ft					Vertical Section East		0.00 ft			
Vertical Section Azimuth		355.8500 deg					Vertical Section Depth		0.00ft			
Grid Convergence		0.0000 deg					Magnetic Declination		8.6500 deg			
Total Correction		8.6500 deg					TVD Calculation Method		Minimal Curvature			
D-Raw Calculation		Magcorr1					Local Magnetic Field		52832 nT			
Local Magnetic Dip Angle		66.9600 deg					Local Gravity Field		9.801 m/s^2			
Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	16.00	0.0000	76.6200	0.00	0.00	16.00	0.00	0.00		0.00	0.00	0.00
	116.00	0.1200	76.6200	0.02	0.10	116.00	0.02	0.10	100.00	0.12	0.12	0.00
	216.00	0.5600	183.9100	-0.44	0.17	216.00	-0.45	0.57	100.00	0.61	0.44	107.29
	316.00	0.5400	152.0400	-1.34	0.36	315.99	-1.37	1.50	100.00	0.30	-0.02	-31.87
	416.00	0.6200	139.6100	-2.17	0.93	415.99	-2.23	2.50	100.00	0.15	0.08	-12.43
	516.00	0.4400	117.1500	-2.76	1.62	515.98	-2.87	3.41	100.00	0.27	-0.18	-22.46
	616.00	0.1800	240.2300	-3.01	1.83	615.98	-3.14	3.74	100.00	0.56	-0.26	123.08
	716.00	0.7000	231.0400	-3.47	1.22	715.98	-3.55	4.50	100.00	0.52	0.52	-9.19
	816.00	0.0200	148.5100	-3.87	0.75	815.98	-3.92	5.12	100.00	0.70	-0.68	-82.53
	866.00	0.3600	288.7900	-3.83	0.61	865.98	-3.86	5.27	50.00	0.75	0.68	280.56
	987.00	0.0900	220.1200	-3.78	0.18	986.98	-3.78	5.69	121.00	0.28	-0.22	-56.75
	1081.00	0.2600	232.3800	-3.97	-0.03	1080.98	-3.95	5.98	94.00	0.18	0.18	13.04
	1174.00	0.0400	308.4500	-4.08	-0.22	1173.98	-4.05	6.20	93.00	0.27	-0.24	81.80
	1268.00	1.6700	254.1000	-4.43	-1.57	1267.96	-4.30	7.59	94.00	1.75	1.73	-57.82
	1361.00	3.6500	238.8600	-6.33	-5.40	1360.86	-5.92	11.87	93.00	2.24	2.13	-16.39
	1455.00	5.8300	241.2800	-10.18	-12.15	1454.53	-9.27	19.64	94.00	2.33	2.32	2.55
	1540.00	7.8300	240.5700	-15.10	-20.98	1538.92	-13.54	29.74	85.00	2.35	2.35	-0.81
	1626.00	9.4200	242.1200	-21.27	-32.31	1623.95	-18.87	42.64	86.00	1.87	1.85	1.80
	1711.00	11.1800	237.2900	-28.97	-45.39	1707.58	-25.61	57.82	85.00	2.30	2.07	-5.68
	1796.00	10.6800	236.6700	-37.75	-58.90	1791.04	-33.39	73.94	85.00	0.60	-0.59	-0.73
	1881.00	10.4400	234.8700	-46.51	-71.78	1874.80	-41.20	89.52	85.00	0.48	-0.28	-2.12
	1966.00	12.2400	234.1500	-56.22	-85.39	1957.93	-49.90	106.23	85.00	2.12	2.12	-0.85
	2052.00	11.8800	232.0300	-67.01	-99.75	2042.04	-59.61	124.19	86.00	0.66	-0.42	-2.47
	2137.00	11.1000	229.9600	-77.65	-112.92	2125.33	-69.28	141.12	85.00	1.04	-0.92	-2.44
	2222.00	10.9800	228.9000	-88.24	-125.28	2208.76	-78.94	157.40	85.00	0.28	-0.14	-1.25
	2307.00	10.8000	229.4600	-98.74	-137.43	2292.23	-88.53	173.46	85.00	0.25	-0.21	0.66
	2393.00	9.9100	228.1600	-108.91	-149.07	2376.83	-97.84	188.91	86.00	1.07	-1.03	-1.51
	2478.00	9.3100	225.6500	-118.60	-159.43	2460.63	-106.75	203.10	85.00	0.86	-0.71	-2.95

	2563.00	8.5700	222.6300	-128.06	-168.64	2544.60	-115.52	216.31	85.00	1.03	-0.87	-3.56
	2648.00	8.5400	222.4000	-137.38	-177.18	2628.86	-124.20	228.95	85.00	0.05	-0.04	-0.27
	2734.00	9.0400	230.1900	-146.42	-186.68	2713.85	-132.53	242.06	86.00	1.50	0.58	9.08
	2819.00	9.2600	239.1200	-154.21	-197.68	2797.57	-139.50	255.54	85.00	1.69	0.26	10.51
	2904.00	8.8800	242.7400	-160.73	-209.38	2881.51	-145.15	268.93	85.00	0.81	-0.45	4.28
	2989.00	9.3000	242.0800	-166.95	-221.28	2965.44	-150.49	282.36	85.00	0.51	0.49	-0.78
	3074.00	8.5200	244.7200	-172.85	-233.05	3049.41	-155.53	295.52	85.00	1.04	-0.92	3.11
	3160.00	9.1200	242.8700	-178.68	-244.87	3134.40	-160.49	308.71	86.00	0.77	0.70	-2.16
	3245.00	8.1600	242.9100	-184.50	-256.24	3218.43	-165.47	321.47	85.00	1.13	-1.13	0.05
	3330.00	7.8700	238.4600	-190.21	-266.44	3302.82	-170.43	333.17	85.00	0.92	-0.58	-5.24
	3415.00	7.6900	239.2300	-196.09	-276.16	3386.86	-175.59	344.53	85.00	0.12	0.02	0.91
	3501.00	7.7700	236.9200	-202.21	-285.98	3472.08	-180.98	356.09	86.00	0.37	0.09	-2.89
	3586.00	8.9800	235.5700	-209.09	-296.27	3556.17	-187.11	368.47	85.00	1.44	1.42	-1.59
	3671.00	9.8600	233.5200	-217.17	-307.59	3640.02	-194.34	382.38	85.00	1.11	1.04	-2.41
	3756.00	10.0100	228.2700	-226.42	-318.95	3723.75	-202.74	397.03	85.00	1.08	0.18	-6.18
Tie	3841.00	9.8000	234.5200	-235.53	-330.36	3807.49	-211.01	411.63	85.00	1.29	-0.25	7.35
	3927.00	11.1700	235.7200	-244.47	-343.20	3892.05	-218.99	427.28	86.00	1.61	1.59	1.40
	4012.00	9.5300	234.9300	-253.15	-355.77	3975.86	-226.74	442.55	85.00	1.94	-1.93	-0.93
	4097.00	10.6100	237.8500	-261.36	-368.15	4059.35	-234.03	457.41	85.00	1.41	1.27	3.44
	4182.00	10.3300	239.0200	-269.45	-381.31	4142.94	-241.15	472.88	85.00	0.41	-0.33	1.38
	4267.00	9.0200	243.1100	-276.38	-393.79	4226.73	-247.16	487.13	85.00	1.74	-1.54	4.81
	4353.00	7.7500	246.1700	-281.78	-405.10	4311.81	-251.72	499.67	86.00	1.56	-1.48	3.56
	4438.00	7.0000	247.7000	-286.06	-415.14	4396.10	-255.26	510.58	85.00	0.91	-0.88	1.80
	4523.00	6.4200	253.3300	-289.39	-424.48	4480.52	-257.91	520.50	85.00	1.03	-0.68	6.62
	4608.00	6.0300	255.6200	-291.86	-433.36	4565.02	-259.73	529.71	85.00	0.54	-0.46	2.69
	4693.00	5.1400	254.9700	-293.95	-441.36	4649.62	-261.24	537.98	85.00	1.05	-1.05	-0.76
	4778.00	4.7800	254.4900	-295.89	-448.45	4734.30	-262.66	545.33	85.00	0.43	-0.42	-0.56
	4864.00	3.9000	245.0200	-298.08	-454.56	4820.05	-264.41	551.82	86.00	1.32	-1.02	-11.01
	4949.00	3.5300	231.7400	-300.92	-459.23	4904.87	-266.90	557.29	85.00	1.10	-0.44	-15.62
	5034.00	1.4800	228.0900	-303.28	-462.10	4989.79	-269.04	561.00	85.00	2.42	-2.41	-4.29
	5119.00	0.4300	124.1400	-304.19	-462.66	5074.78	-269.91	562.07	85.00	1.93	-1.24	-122.29
	5204.00	0.3300	96.2900	-304.40	-462.15	5159.78	-270.15	562.62	85.00	0.24	-0.12	-32.76
	5289.00	0.3200	101.3100	-304.47	-461.67	5244.78	-270.26	563.10	85.00	0.04	-0.01	5.91
	5375.00	0.3000	63.8100	-304.42	-461.24	5330.77	-270.24	563.54	86.00	0.23	-0.02	-43.60
	5460.00	0.3500	53.6700	-304.16	-460.83	5415.77	-270.02	564.02	85.00	0.09	0.06	-11.93
	5545.00	0.4600	21.8900	-303.69	-460.49	5500.77	-269.57	564.80	85.00	0.29	0.13	-37.39
	5631.00	0.5500	11.6900	-302.97	-460.28	5586.77	-268.87	565.35	86.00	0.15	0.10	-11.86
	5716.00	0.6400	33.9800	-302.18	-459.93	5671.76	-268.10	566.22	85.00	0.29	0.11	26.20
	5801.00	1.1100	110.8400	-302.08	-458.90	5756.76	-268.07	567.26	85.00	1.35	0.55	90.45
	5887.00	1.1800	94.7400	-302.44	-457.23	5842.74	-268.56	568.96	86.00	0.36	0.06	-18.72
	5972.00	1.0900	69.3900	-302.23	-455.61	5927.72	-268.47	570.60	85.00	0.59	-0.11	-29.82
	6058.00	1.1100	58.2300	-301.51	-454.13	6013.71	-267.85	572.25	86.00	0.25	0.02	-12.96
	6143.00	1.5200	71.1400	-300.71	-452.36	6098.88	-267.18	574.19	85.00	0.59	0.48	15.19
	6228.00	1.4700	78.2400	-300.12	-450.23	6183.86	-266.75	576.40	85.00	0.23	-0.06	8.35
	6313.00	1.7100	90.9600	-299.92	-447.90	6268.82	-266.72	578.74	85.00	0.50	0.26	14.96
	6398.00	1.5100	85.5400	-299.85	-445.51	6353.59	-266.83	581.13	85.00	0.30	-0.24	-6.38
	6483.00	0.7300	129.9800	-300.12	-443.98	6438.57	-267.20	582.66	85.00	1.31	-0.92	52.26
	6568.00	1.0400	179.7800	-301.23	-443.56	6523.56	-266.35	583.88	85.00	0.94	0.36	58.59
	6653.00	1.3200	194.8100	-302.95	-443.81	6608.55	-270.04	585.81	85.00	0.49	0.33	17.88
	6710.00	1.7500	202.4300	-304.39	-444.31	6665.53	-271.44	587.14	57.00	0.83	0.75	13.37
	6748.00	1.7300	206.8300	-305.44	-444.79	6703.51	-272.45	588.29	38.00	0.36	-0.05	11.58
	6791.00	2.6300	320.8000	-305.25	-445.71	6746.49	-272.20	589.22	43.00	6.56	2.09	265.05
	6833.00	7.6400	343.3000	-301.83	-447.12	6788.31	-268.68	592.93	42.00	12.63	11.93	53.57
	6876.00	13.2200	345.8300	-294.32	-449.14	6830.59	-261.04	600.71	43.00	13.02	12.98	5.88
	6919.00	17.5900	346.7500	-283.22	-451.84	6872.03	-249.78	612.13	43.00	10.18	10.16	2.14
	6961.00	21.9900	349.8500	-269.30	-454.68	6911.54	-235.69	626.34	42.00	10.77	10.48	7.38
	7004.00	26.5500	351.2100	-251.87	-457.57	6950.73	-218.09	644.01	43.00	10.66	10.60	3.16
	7046.00	30.3200	355.3100	-232.02	-459.87	6987.86	-198.13	663.99	42.00	10.10	8.98	9.76
	7089.00	33.8000	357.5900	-209.24	-461.26	7024.10	-175.31	686.81	43.00	8.57	8.09	5.30
	7131.00	36.1300	359.2200	-184.59	-461.93	7058.09	-150.68	711.47	42.00	10.56	10.31	3.86
	7174.00	42.3400	1.7700	-156.83	-461.66	7090.91	-123.01	739.23	43.00	10.51	9.79	5.93

	7217.00	45.7700	1.7100	-128.95	-460.76	7121.80	-93.27	769.13	43.00	7.98	7.98	-0.14
	7259.00	49.9400	359.2800	-95.82	-460.51	7149.98	-82.24	800.28	42.00	10.81	9.93	-5.79
	7302.00	53.8700	357.2800	-62.05	-461.54	7178.57	-28.49	834.04	43.00	9.41	8.87	-4.65
	7345.00	59.0700	358.0300	-28.29	-463.00	7200.38	7.29	869.83	43.00	12.64	12.56	1.74
	7387.00	64.4700	0.0400	10.89	-463.60	7220.24	44.22	908.82	42.00	13.53	12.86	4.79
	7430.00	67.2600	2.8400	49.91	-462.61	7237.82	83.26	946.05	43.00	8.80	6.49	6.51
	7472.00	70.1500	4.8300	88.95	-459.98	7253.07	122.01	985.18	42.00	8.17	6.88	4.74
	7515.00	71.9500	5.1800	129.48	-458.44	7267.04	162.18	1025.84	43.00	4.25	4.19	0.77
	7558.00	76.1100	4.8900	170.84	-452.82	7278.86	202.96	1067.18	43.00	9.69	9.87	-0.63
	7600.00	78.7800	4.7800	211.48	-449.37	7287.99	243.45	1108.17	42.00	6.36	8.36	-0.26
	7643.00	83.1100	3.4900	253.83	-446.31	7294.76	285.46	1150.62	43.00	10.50	10.07	-3.00
Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	7685.00	84.3900	2.7500	295.51	-444.04	7299.33	326.87	1192.37	42.00	3.52	3.05	-1.76
	7728.00	86.4500	2.7200	338.32	-441.99	7302.76	369.42	1235.23	43.00	4.79	4.79	-0.07
	7774.00	86.8800	2.0900	384.21	-440.06	7305.44	415.04	1281.15	46.00	1.66	0.93	-1.37
	7846.00	89.8600	1.6900	456.13	-437.69	7307.61	486.60	1353.11	72.00	3.90	3.86	-0.56
	7883.00	89.8900	1.8600	493.11	-436.54	7307.82	523.41	1390.11	37.00	0.47	0.08	0.48
	7968.00	89.7800	2.2000	578.05	-433.53	7308.22	607.91	1475.11	85.00	0.41	0.11	0.40
	8053.00	88.4200	0.6200	663.01	-431.44	7309.55	692.50	1560.10	85.00	2.45	-1.60	-1.86
	8138.00	87.9300	0.9200	747.96	-430.30	7312.26	777.14	1645.05	85.00	0.68	-0.58	0.35
	8224.00	88.3000	359.9800	833.91	-429.63	7315.09	862.82	1731.00	86.00	1.17	0.43	-1.09
	8309.00	89.3500	0.8800	918.89	-428.99	7316.83	947.52	1815.98	85.00	1.63	1.24	1.06
	8394.00	90.2100	1.2900	1003.87	-427.38	7317.16	1032.17	1900.98	85.00	1.12	1.01	0.48
	8479.00	89.9000	1.3500	1088.85	-425.42	7317.08	1116.78	1985.98	85.00	0.37	-0.36	0.07
	8564.00	89.8600	359.9300	1173.84	-424.47	7317.40	1201.48	2070.98	85.00	1.69	-0.28	-1.87
	8650.00	90.8400	0.6500	1259.84	-424.04	7317.18	1287.22	2156.98	86.00	1.41	1.14	0.84
	8735.00	90.2400	1.2500	1344.82	-422.63	7316.52	1371.88	2241.97	85.00	0.85	-0.47	0.71
	8820.00	90.3600	0.2000	1429.81	-421.55	7316.08	1456.57	2326.97	85.00	1.24	0.14	-1.24
	8905.00	91.3500	0.9200	1514.80	-420.72	7314.81	1541.27	2411.96	85.00	1.44	1.16	0.85
	8991.00	90.8600	359.0300	1600.78	-420.76	7313.15	1627.03	2497.94	86.00	2.27	-0.57	-2.20
	9076.00	90.0000	359.5200	1685.77	-421.83	7312.51	1711.88	2582.94	85.00	1.16	-1.01	0.58
	9161.00	89.5900	359.3700	1770.76	-422.66	7312.82	1796.71	2667.94	85.00	0.51	-0.48	-0.18
	9246.00	89.5900	359.5200	1855.76	-423.48	7313.43	1881.54	2752.93	85.00	0.18	0.00	0.18
	9331.00	90.4000	359.3800	1940.75	-424.30	7313.43	1966.37	2837.93	85.00	0.97	0.95	-0.16
	9416.00	91.1300	0.0500	2025.74	-424.72	7312.30	2051.17	2922.93	85.00	1.17	0.86	0.79
	9502.00	90.8300	359.5600	2111.73	-425.01	7310.83	2136.95	3008.91	86.00	0.67	-0.35	-0.57
	9587.00	90.9500	0.9600	2196.72	-424.63	7309.51	2221.69	3093.90	85.00	1.65	0.14	1.65
	9672.00	90.0300	0.6900	2281.70	-423.40	7308.78	2306.36	3178.90	85.00	1.13	-1.06	-0.32
	9757.00	90.0900	1.4600	2366.69	-421.81	7308.69	2391.01	3263.90	85.00	0.91	0.07	0.91
	9842.00	91.5100	1.8600	2451.64	-419.35	7307.51	2475.66	3348.88	85.00	1.74	1.67	0.47
	9927.00	92.1900	1.9400	2536.55	-416.53	7304.76	2560.04	3433.84	85.00	0.81	0.80	0.09
	10013.00	91.7900	1.7200	2622.45	-413.78	7301.77	2645.62	3519.79	86.00	0.53	-0.47	-0.26
	10098.00	90.9500	0.5600	2707.41	-412.09	7299.74	2730.13	3604.76	85.00	1.68	-0.99	-1.36
	10183.00	89.9100	0.9100	2792.40	-411.00	7299.10	2814.82	3689.76	85.00	1.29	-1.22	0.41
	10268.00	90.4300	1.0000	2835.39	-410.29	7298.98	2867.65	3732.76	43.00	1.23	1.21	0.21
	10268.00	88.7100	0.6100	2877.39	-409.70	7299.29	2899.49	3774.75	42.00	4.20	-4.10	-0.93
	10311.00	88.1200	359.5400	2920.37	-409.64	7300.48	2942.36	3817.74	43.00	2.84	-1.37	-2.49
	10354.00	88.5500	359.2300	2963.35	-410.10	7301.73	2985.26	3860.72	43.00	1.23	1.00	-0.72
	10398.00	89.5700	359.2600	3005.34	-410.66	7302.42	3027.18	3902.71	42.00	2.43	2.43	0.07
	10439.00	90.7400	359.3400	3048.33	-411.18	7302.30	3070.10	3945.71	43.00	2.73	2.72	0.19
	10481.00	90.8000	357.7400	3090.32	-412.25	7301.81	3112.05	3987.71	42.00	3.82	-0.33	-3.81
	10524.00	90.5200	359.0400	3133.30	-413.46	7301.39	3155.00	4030.70	43.00	3.03	-0.19	3.02
	10609.00	89.4100	1.5200	3218.29	-413.04	7301.44	3239.74	4115.70	85.00	3.20	-1.31	2.92
	10695.00	91.9700	0.7500	3304.26	-411.34	7300.41	3325.36	4201.68	86.00	3.11	2.98	-0.90
	10781.00	91.9700	2.1800	3390.18	-409.14	7297.46	3410.90	4287.63	86.00	1.66	0.00	1.66
	10866.00	89.6300	2.9300	3475.08	-405.35	7296.27	3495.30	4372.61	85.00	2.89	-2.75	0.88
	10951.00	90.2700	1.8400	3560.00	-401.82	7296.34	3579.75	4457.61	85.00	1.49	0.75	-1.28
	11036.00	90.4300	2.4500	3644.94	-398.64	7295.82	3664.23	4542.61	85.00	0.74	0.19	0.72
	11122.00	90.1500	2.2700	3730.87	-395.09	7295.39	3749.68	4628.61	86.00	0.39	-0.33	-0.21
	11208.00	87.8700	1.9700	3814.79	-391.99	7296.84	3833.15	4712.59	84.00	2.74	-2.71	-0.36
	11291.00	87.2300	1.3500	3899.68	-389.53	7300.47	3917.64	4797.51	85.00	1.05	-0.75	-0.73
	11376.00	87.0100	0.6300	3984.58	-388.06	7304.74	4002.19	4882.41	85.00	0.88	-0.26	-0.85

Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	11461.00	87.8800	359.5400	4069.47	-387.93	7308.53	4086.87	4967.32	85.00	1.64	1.02	-1.28
	11547.00	90.0000	358.1200	4155.43	-389.69	7310.12	4172.73	5053.30	86.00	2.97	2.47	-1.65
	11632.00	89.9700	358.3900	4240.39	-392.28	7310.14	4257.66	5138.30	85.00	0.32	-0.04	0.32
	11717.00	88.7100	357.7400	4325.33	-395.16	7311.12	4342.59	5223.29	85.00	1.67	-1.48	-0.76
	11802.00	88.9800	356.8100	4410.22	-399.19	7312.84	4427.54	5308.27	85.00	1.14	0.32	-1.09
	11888.00	88.5200	356.8500	4496.07	-403.94	7314.71	4513.51	5394.25	86.00	0.54	-0.53	0.05
	11973.00	89.3200	358.2700	4580.97	-407.56	7316.31	4598.45	5479.23	85.00	1.92	0.94	1.67
	12058.00	90.8000	359.8600	4665.95	-408.95	7316.22	4683.32	5564.23	85.00	2.56	1.74	1.87
	12143.00	90.6400	0.0200	4750.95	-409.04	7315.16	4768.09	5649.22	85.00	0.27	-0.19	0.19
	12228.00	90.7600	359.9500	4835.94	-409.06	7314.12	4852.86	5734.21	85.00	0.16	0.14	-0.08
	12314.00	90.4900	359.8600	4921.94	-409.20	7313.18	4938.64	5820.21	86.00	0.33	-0.31	-0.10
	12399.00	90.2100	0.4600	5006.93	-408.96	7312.66	5023.40	5905.21	85.00	0.78	-0.33	0.71
	12476.00	89.2900	359.0000	5083.93	-409.33	7313.00	5100.22	5982.20	77.00	2.24	-1.19	-1.90
Projection to TD:	12545.00	89.2900	359.0000	5152.91	-410.53	7313.85	5169.11	6051.20	69.00	0.00	0.00	0.00