



Scale:	1:240	Measured Depth
Company:	Kerr-McGee Oil & Gas Onshore LP	
Well:	Hudson 36N-35HZ	
Field:	Wattenbera	

County: Weld **State:** Colorado

Status: Field Print	Surface Location: Latitude: 40° 6' 57.092" N Longitude: 104° 37' 58.991" W	Other Services:
Plot Number: 05-123-35948	Section: 26 T1W1N, 2N Range: 65W	Directional

Permanent Datum (P.D.):		Mean Sea Level	Elevation:	0.00 ft.	Elevations:
Log Measured From:	Rig Floor	4926.00 ft.	Above P.D.	N/A	
Depth Reference:	Driller's Depth			4926.00 ft.	
				4910.00 ft.	

Interval		Logged	Dates		Magnetic Field Reference	
pp:	6473.0 ft.	Date From:	25/Feb/2013	Dip Angle:	66.71 °	Azi Reference North: True
Bottom:	16950.0 ft.	Date To:	01/Apr/2013	Total		Mag to Reference
	Spud Date:	23/Feb/2013	Field Strength:	52936.0 nT	North Correction:	8.40 °

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
13.500 in.	Surface	936.0 ft.	9.625 in.	36.00 lb/ft	Surface	936.0 ft.	
8.750 in.	936.0 ft.	7425.0 ft.	7.000 in.	26.00 lb/ft	936.0 ft.	7415.0 ft.	
6.125 in.	7425.0 ft.	16950.0 ft.					

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based Mud	936.0 ft.	7425.0 ft.	8.750 in.	Vertical	0.0 ° / 0.0 °	1.1 ° / 241.2 °
Oil Based Mud	7425.0 ft.	16950.0 ft.	8.750 in.	Curve	1.1 ° / 241.2 °	88.1 ° / 179.1 °
			6.125 in.	Lateral	88.1 ° / 179.1 °	90.1 ° / 177.8 °
					/	/
					/	/
					/	/
					/	/

Acquisition System	Software Version	Other
Vantage	2.20U4	Rig / Contractor: Xtreme 20 / Xtreme Coil Drilling
ATS	B.4.1.34	Job No: 5247125
		District: / Unit: RMA /

INTEQ does not guarantee the accuracy or correctness of interpretations provided in or from this log. Since all interpretations are opinions based on measurements, INTEQ shall under no circumstances be responsible for consequential damages or any other loss, costs, damages or expenses incurred or sustained in connection with the use of any such interpretations. INTEQ disclaims all expressed and implied warranties related to this service. INTEQ's liabilities and obligations shall be governed by INTEQ's Standard Terms and Conditions.

Crew								
Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Robert Dix	24/Feb/2013	02/Apr/2013	Mark Dix	24/Feb/2013	23/Mar/2013	Adam Schlenz	01/Mar/2013	20/Mar/2013
David Belek	23/Mar/2013	01/Apr/2013						

Witness

Name	LWD Run Number
Marvin Hackworth	2,4
James Adkins	3

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+
25/Feb/2013 12:29	2	4555.0	Water Based Mud	8.6	28	8.0	N/A	0 / 100	Active Mud Pit	800	0.0
29/Mar/2013 12:00	3	12301.0	Oil Based Mud	9.7	50	N/A	N/A	67 / 20	Active Mud Pit	50000	0.0
01/Apr/2013 16:53	4	16950.0	Oil Based Mud	9.9	53	N/A	N/A	67 / 20	Active Mud Pit	45000	0.0

Mud Resistivity Record

Date / Time		LWD Run No.	Measured Depth (m.)	Surface Temp (deg C)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg C)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
26/Mar/2013	04:25	3	7425.0	70	100.00	N/A	N/A	70	100.00	N/A	N/A
29/Mar/2013	16:53	4	12950.0	70	100.00	N/A	N/A	70	100.00	N/A	N/A

Mnemonics

Curve	Description	Units
CACHM	Conductivity Attenuation – Corrected – 2MHz	mmho/m
GRAX	Gamma Ray – Apparent, 0.5 ft. Avg	API
GRIX	Gamma Ray – Data Point Indicator	unitless
GRIM	Gamma Ray – Data Point Indicator	unitless
GRAM	Gamma Ray – Apparent, 0.5 ft. Avg	API
RPCHM	Resistivity Phase – Corrected – 2MHz	ohm.m
RPCLM	Resistivity Phase – Corrected – 400kHz	ohm.m
RACHM	Resistivity Attenuation – Corrected – 2MHz	ohm.m
RACLM	Resistivity Attenuation – Corrected – 400kHz	ohm.m
ROPA	Rate of Penetration, 3.0 ft. Avg	ft/hr
RPTHM	Resistivity Time Since Drilled	min
RPSIHM	Resistivity Phase Long Space Sliding Indicator – 2MHz	unitless
TCDX	Downhole Temperature	degF
TCDM	Downhole Temperature	degF

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
2	DIR	11859501	Directional	51.94	6.750	0.000
2	SRIG	12556139	Gamma	48.56	6.750	0.000
5	20	10005000		55.56	5.000	0.000

	CS	10623929	-	73.39	5.000	2.250
3	BCPM	12164143	Telemetry	62.43	5.000	0.000
3	STAB	11863323	-	59.13	0.000	2.250
3	OTK	10095221	Directional	54.63	4.843	2.569
3	OTK	10095221	Resistivity	48.66	4.843	2.569
3	OTK	10095221	Gamma	41.47	4.843	2.569
3	OTK	10095221	Pressure	44.10	4.843	2.569
3	CS	10369034	-	37.41	5.000	2.250
4	CS	10143098	-	73.69	5.000	2.250
4	BCPM	11592355	Telemetry	62.74	5.000	0.000
4	STAB	12401251	-	59.47	0.000	2.250
4	OTK	10266171	Directional	54.92	4.843	2.569
4	OTK	10266171	Resistivity	48.95	4.843	2.569
4	OTK	10266171	Gamma	41.76	4.843	2.569
4	OTK	10266171	Pressure	44.39	4.843	2.569
4	CS	10623942	-	37.48	5.000	2.250

Service and Tool Mnemonics

Mnemonic	Name	Description
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 run 2 utilized 6 3/4 inch NaviGamma service (Directional and Gamma Ray) behind an 8 3/4 inch and steerable assembly from 6474 to 7425 feet MD (6426 to 7024 feet TVD).
2)	Baker Hughes Run 3 and 4 utilized 4 3/4 inch OnTrak services (Azimuthal Gamma Ray, Multiple Propagation Resistivity, Directional, and Gamma Ray) behind a 6 1/8 inch bit and steerable assembly from 7425 to 16950 feet MD (7024 to 6941 feet TVD).
3)	The solid line on the right side of the resistivity track indicates the interval over which data was collected while not rotating.

Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6455	8.750	2	The interval from 6425 to 6474 feet MD (6377 to 6425 feet TVD) was logged up to 12 hours after being drilled due to a trip to pick up the curve assembly.
2	7405	6.125	3	The interval from 7376 to 7425 feet MD (7020 to 7024 feet TVD) was logged up to 32 days after being drilled due to a rig skid while batch drilling curve section.
3	12935	6.125	4	The interval from 12913 to 12954 feet MD (6984 to 6984 feet TVD) was not logged up to 24 hours after being drilled due to a trip to pick up a new motor.



Company : Kerr-McGee Oil & Gas Onshore LP
 Well : Hudson 36N-35HZ
 Interval : 6360.00 - 7030.00 feet
 Created : 02/Apr/2013 4:22:44 AM

Gamma Ray Apparent 0.5 ft Avg [GRAX]	TVD feet 1:240	Rate of Penetration 3.0 ft Avg [ROPA]	Surface Weight On Bit 1.0 ft Avg [WOBA]
0 200		500 0	0 100
API		ft/hr	klbf
			Downhole Temperature [TCDX]
			0 300
			degF

GRAX

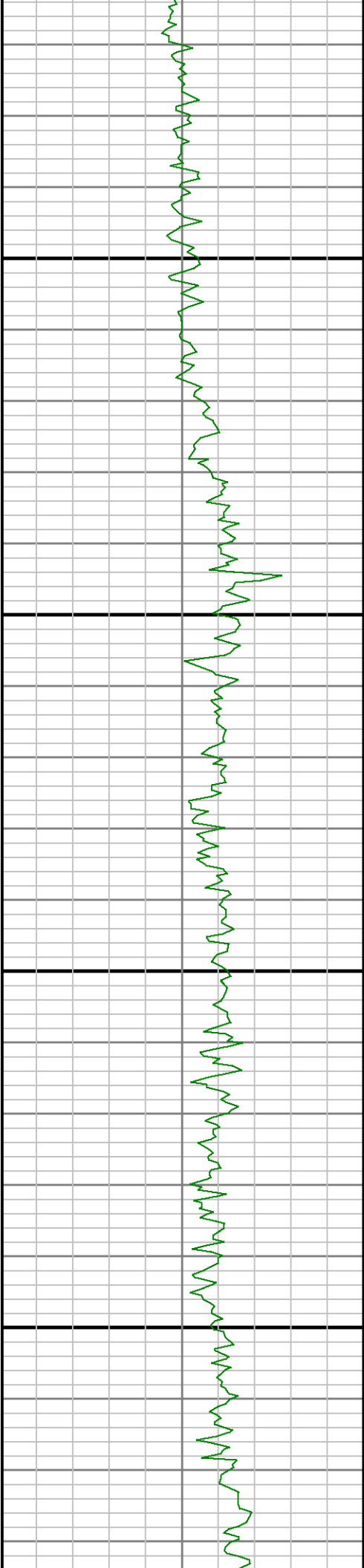
See Remark 1

> Run 2

ROPA

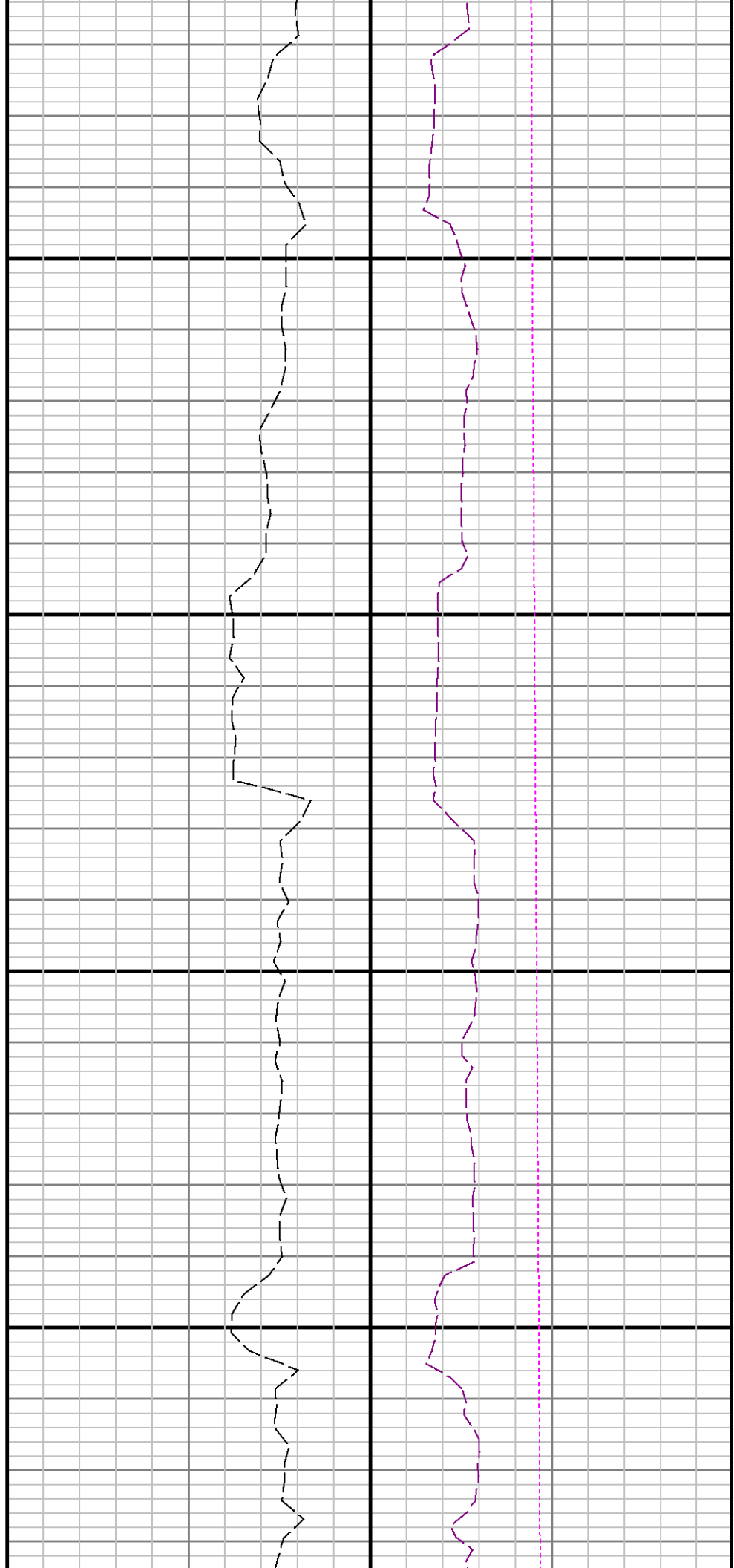
WOBA

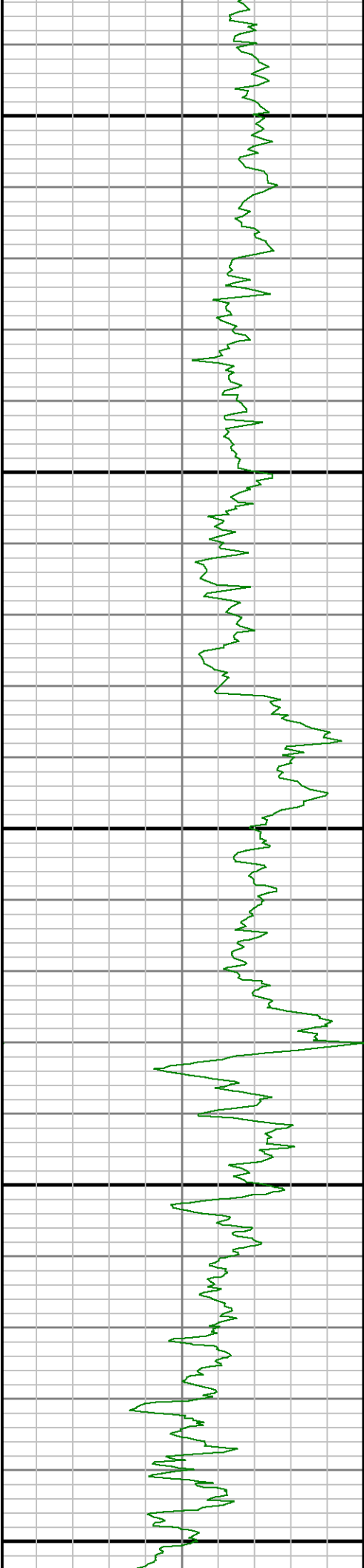
TCDX



6600

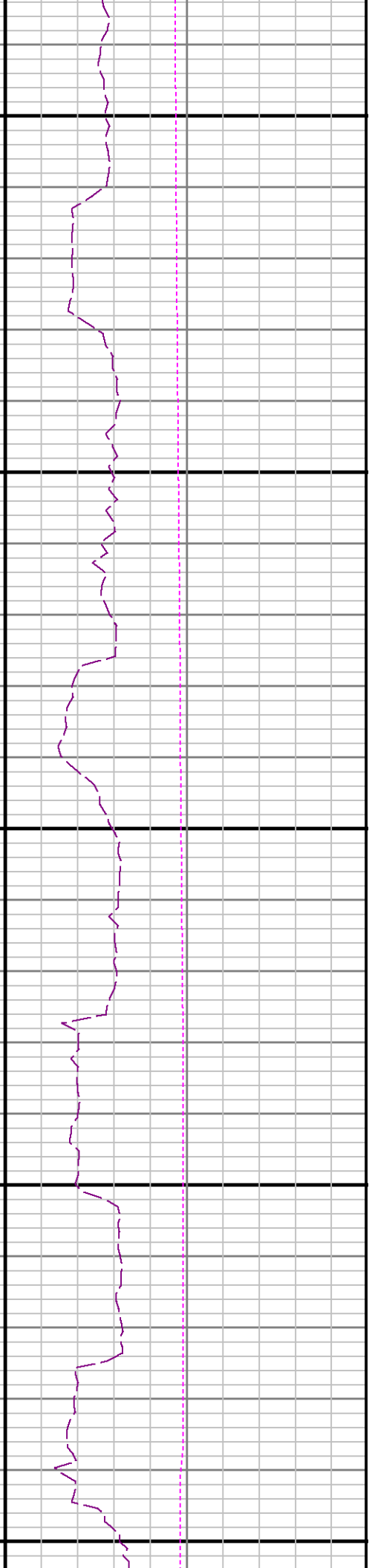
6700

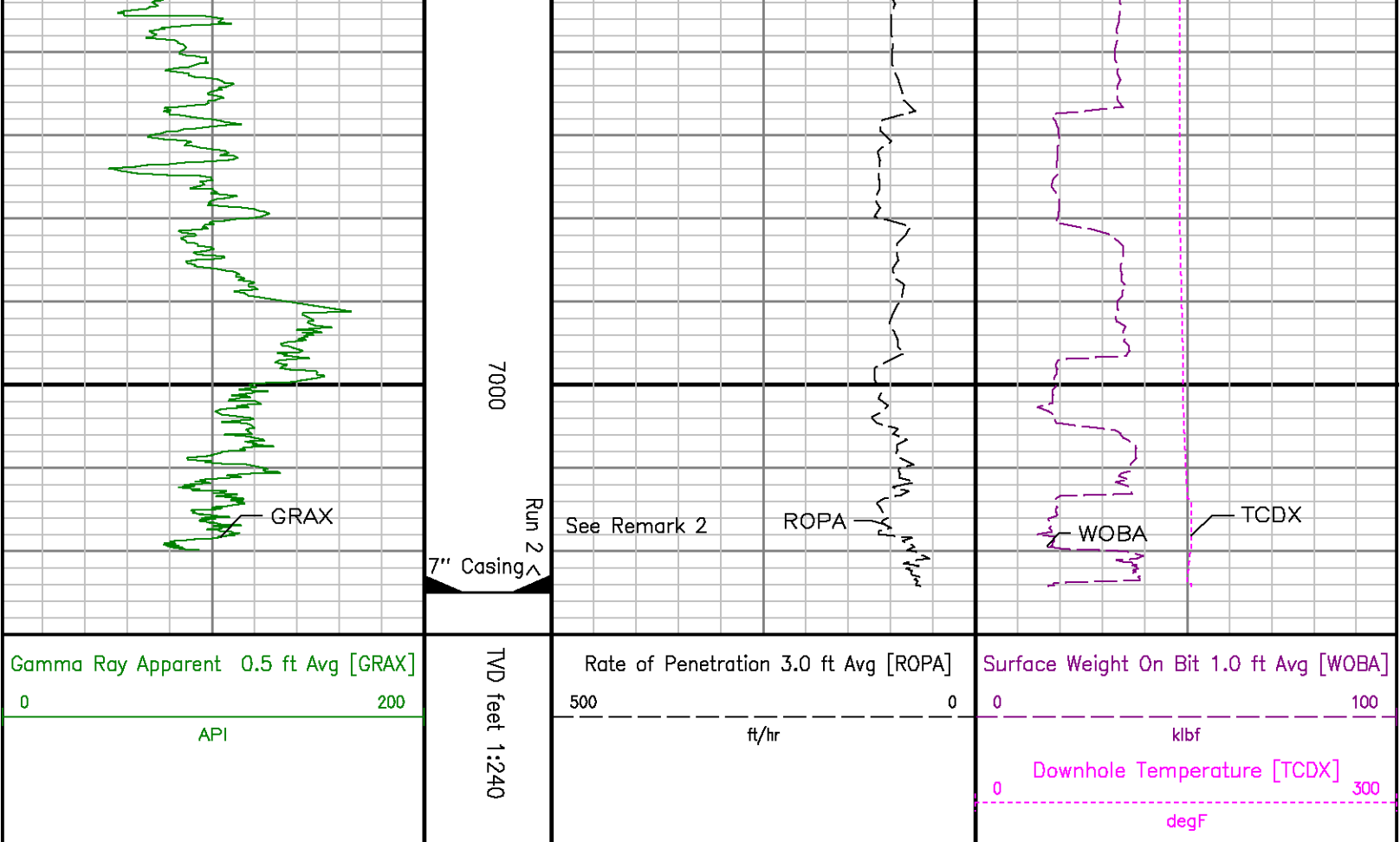




0069

0089





ADVANTAGE Final Survey Listing												
Operator :Kerr-McGee Oil & Gas Onshore LPField												

	916.00	0.080000	175.040000	4.49	-2.34	915.98	-4.51	5.27	100.00	0.23	-0.07	163.98
	1016.00	0.080000	74.670000	4.44	-2.27	1015.98	-4.46	5.36	100.00	0.12	0.00	-100.37
	1116.00	0.190000	257.440000	4.42	-2.36	1115.98	-4.44	5.48	100.00	0.27	0.11	-177.23
	1216.00	0.270000	260.930000	4.35	-2.76	1215.98	-4.37	5.86	100.00	0.08	0.08	3.49
	1257.00	0.320000	229.980000	4.28	-2.94	1256.98	-4.29	6.08	41.00	0.40	0.12	-75.49
	1428.00	2.380000	58.730000	5.80	-0.27	1427.94	-5.80	9.14	171.00	1.58	1.20	-100.15
	1514.00	4.270000	60.300000	8.31	4.04	1513.79	-8.27	14.13	86.00	2.20	2.20	1.83
	1599.00	6.350000	61.440000	12.12	10.92	1598.42	-12.02	22.00	85.00	2.45	2.45	1.34
	1684.00	7.880000	62.000000	17.11	20.19	1682.76	-16.92	32.52	85.00	1.80	1.80	0.66
	1789.00	9.030000	61.320000	23.04	31.19	1786.84	-22.75	45.02	85.00	1.38	1.35	-0.80
	1854.00	9.700000	53.650000	30.49	42.81	1850.71	-30.09	58.82	85.00	1.66	0.79	-9.02
	1940.00	9.830000	56.210000	38.87	54.74	1935.46	-38.35	73.40	86.00	0.53	0.15	2.98
	2026.00	9.630000	56.390000	46.84	66.70	2019.24	-46.21	87.77	85.00	0.24	-0.24	0.21
	2110.00	9.410000	55.250000	54.73	78.33	2103.07	-54.00	101.83	85.00	0.34	-0.26	-1.34
	2195.00	8.960000	54.890000	62.50	89.45	2186.98	-61.66	115.40	85.00	0.53	-0.53	-0.42
	2280.00	8.940000	61.670000	69.44	100.68	2270.94	-68.50	128.60	85.00	1.24	-0.02	7.98
	2365.00	8.240000	62.730000	75.37	111.91	2354.99	-74.32	141.29	85.00	0.84	-0.82	1.25
	2451.00	9.110000	62.300000	81.36	123.41	2440.01	-80.20	154.28	86.00	1.01	1.01	-0.50
	2536.00	8.400000	63.040000	87.30	134.90	2524.01	-86.04	167.20	85.00	0.85	-0.84	0.87
	2621.00	9.040000	57.620000	93.69	146.08	2608.03	-92.32	180.07	85.00	1.22	0.75	-6.38
	2706.00	10.370000	56.630000	101.47	158.11	2691.81	-99.99	194.40	85.00	1.58	1.56	-1.16
	2792.00	9.550000	55.370000	109.79	170.44	2776.52	-108.19	209.27	86.00	0.99	-0.95	-1.47
	2877.00	9.250000	53.630000	117.84	181.74	2860.38	-116.14	223.16	85.00	0.49	-0.35	-2.05
	2962.00	9.510000	60.220000	125.36	193.34	2944.24	-123.57	236.99	85.00	1.30	0.31	7.75
	3047.00	9.160000	58.890000	132.37	205.23	3028.12	-130.44	250.77	85.00	0.48	-0.41	-1.56
	3133.00	9.580000	61.280000	139.34	217.36	3112.97	-137.31	264.77	86.00	0.66	0.49	2.76
	3218.00	9.180000	59.370000	146.20	229.40	3196.83	-144.05	278.62	85.00	0.59	-0.47	-2.22
	3303.00	9.140000	61.380000	152.89	241.16	3280.75	-150.63	292.15	85.00	0.38	-0.05	2.36
	3389.00	10.500000	63.770000	159.62	254.18	3365.49	-157.24	306.82	86.00	1.65	1.58	2.78
	3474.00	9.780000	64.690000	166.13	267.66	3449.16	-163.63	321.78	85.00	0.87	-0.85	1.08
	3559.00	7.890000	63.070000	171.86	279.39	3533.15	-169.25	334.83	85.00	2.24	-2.22	-1.91
	3644.00	9.000000	55.000000	178.32	290.04	3617.23	-175.60	347.29	85.00	1.91	1.31	-9.49
	3729.00	10.020000	56.750000	186.19	301.67	3701.06	-183.36	361.33	85.00	1.25	1.20	2.06
	3814.00	10.390000	59.590000	194.12	314.46	3784.71	-191.18	376.36	85.00	0.73	0.44	3.34
	3899.00	9.650000	57.060000	201.87	327.05	3868.42	-196.81	391.17	85.00	1.01	-0.87	-2.98
	3984.00	9.840000	58.520000	209.54	339.22	3952.19	-206.37	405.55	85.00	0.37	0.22	1.72
	4070.00	11.090000	61.730000	217.30	352.78	4036.76	-213.99	421.17	86.00	1.60	1.45	3.73
	4155.00	11.100000	62.340000	224.97	367.22	4120.17	-221.53	437.53	85.00	0.14	0.01	0.72
	4240.00	10.200000	61.640000	232.32	381.10	4203.71	-228.75	453.23	85.00	1.06	-1.06	-0.59
	4325.00	10.450000	63.110000	239.36	394.62	4287.33	-235.66	468.47	85.00	0.40	0.29	1.49
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
	4410.00	10.990000	57.180000	247.24	408.30	4370.85	-243.41	484.26	85.00	1.45	0.64	-7.00
	4495.00	10.450000	58.450000	255.66	421.67	4454.36	-251.71	500.07	85.00	0.70	-0.64	1.52
	4580.00	9.890000	56.720000	263.70	434.35	4538.03	-259.64	515.07	85.00	0.75	-0.66	-2.04
	4666.00	9.740000	55.910000	271.83	446.55	4622.77	-267.65	529.73	86.00	0.24	-0.17	-0.94
	4751.00	9.210000	58.880000	279.36	458.32	4706.61	-275.09	543.72	85.00	0.85	-0.62	3.49
	4836.00	8.420000	58.100000	286.18	469.43	4790.61	-281.79	556.75	85.00	0.94	-0.93	-0.92
	4921.00	7.070000	59.210000	292.15	479.21	4874.83	-287.66	568.20	85.00	1.60	-1.59	1.31
	5006.00	6.370000	62.070000	297.04	487.87	4959.24	-292.47	578.15	85.00	0.91	-0.82	3.36
	5091.00	4.970000	77.130000	300.06	495.62	5043.83	-295.42	586.47	85.00	2.39	-1.65	17.72
	5176.00	3.450000	69.090000	301.80	501.60	5128.60	-297.10	592.70	85.00	1.91	-1.79	-9.46
	5262.00	2.050000	59.080000	303.51	505.34	5214.50	-298.78	596.81	86.00	1.71	-1.63	-11.64
	5347.00	0.730000	23.200000	304.79	506.66	5299.47	-300.04	598.79	85.00	1.79	-1.55	-42.21
	5432.00	0.850000	217.840000	304.79	506.66	5384.47	-300.05	598.97	85.00	1.84	0.14	-194.54
	5517.00	0.450000	225.520000	304.06	506.06	5469.47	-299.32	599.93	85.00	0.48	-0.47	9.04
	5603.00	0.660000	139.510000	303.45	506.14	5555.46	-298.71	600.55	86.00	0.90	0.24	-100.01
	5688.00	0.670000	145.970000	302.66	506.74	5640.46	-297.92	601.53	85.00	0.09	0.01	7.60
	5773.00	0.960000	231.490000	301.81	506.46	5725.45	-297.06	602.43	85.00	1.33	0.34	100.61
	5858.00	0.670000	274.270000	301.40	505.40	5810.44	-296.67	603.56	85.00	0.77	-0.34	50.33
	5943.00	0.850000	212.320000	300.90	504.57	5895.44	-296.18	604.53	85.00	0.94	0.21	-72.88
	6028.00	0.800000	219.870000	299.92	503.85	5980.43	-295.20	605.75	85.00	0.14	-0.06	6.66
	6114.00	0.830000	214.150000	298.94	503.12	6066.42	-294.23	606.97	86.00	0.10	0.03	-6.65

	6199.00	0.810000	219.990000	297.97	502.39	8151.41	-293.27	608.19	85.00	0.10	-0.02	6.87
	6284.00	1.250000	209.920000	296.71	501.54	8236.40	-292.01	609.71	85.00	0.56	0.52	-11.85
	6369.00	1.330000	229.980000	295.27	500.32	8321.38	-290.58	611.59	85.00	0.54	0.09	23.80
	6414.00	1.050000	228.920000	294.86	499.61	8366.37	-289.98	612.53	45.00	0.62	-0.82	-2.36
	6454.00	1.040000	241.220000	294.25	499.02	8406.36	-289.57	613.25	40.00	0.56	-0.03	30.75
	6496.00	3.370000	185.080000	292.83	498.57	8448.33	-288.16	614.74	42.00	6.98	5.55	-133.71
	6540.00	8.340000	186.100000	288.37	498.12	8492.08	-283.70	619.22	44.00	11.30	11.30	2.38
	6582.00	11.760000	186.330000	281.08	497.32	8533.43	-278.43	626.55	42.00	8.14	8.14	0.55
	6625.00	15.460000	182.350000	271.00	496.60	8575.22	-266.35	636.86	43.00	6.87	6.80	-9.26
	6667.00	17.300000	182.070000	259.18	496.15	8615.51	-254.52	646.51	42.00	4.38	4.38	-0.67
	6710.00	21.390000	179.810000	244.93	495.94	8656.08	-240.28	662.74	43.00	9.67	9.51	-5.26
	6752.00	26.760000	179.700000	227.80	496.02	8694.41	-223.16	679.87	42.00	12.79	12.79	-0.26
	6795.00	31.150000	181.330000	206.99	495.81	8732.03	-202.35	700.88	43.00	10.37	10.21	3.79
	6837.00	36.100000	179.360000	183.74	495.69	8766.99	-179.11	723.93	42.00	12.06	11.79	-4.64
	6880.00	40.510000	178.220000	157.10	496.27	8800.73	-152.46	750.57	43.00	10.39	10.26	-2.70
	6922.00	45.380000	178.020000	128.51	497.21	8831.46	-123.86	779.18	42.00	11.80	11.60	-0.48
	6966.00	50.240000	178.300000	95.94	498.25	8861.00	-91.28	811.77	44.00	11.06	11.05	0.64
	7008.00	53.490000	180.180000	62.91	498.68	8886.94	-58.25	844.80	42.00	8.50	7.74	4.48
	7051.00	57.120000	180.840000	27.57	498.36	8911.41	-22.91	880.15	43.00	6.54	6.44	1.53
	7093.00	60.130000	181.670000	-8.28	497.57	8933.27	12.93	916.00	42.00	7.36	7.17	1.98
	7136.00	63.170000	179.510000	-46.11	497.19	8953.89	50.75	953.84	43.00	8.34	7.07	-5.02
	7178.00	66.770000	180.360000	-84.16	497.23	8971.46	88.80	991.89	42.00	8.77	8.57	2.02
	7221.00	70.770000	180.740000	-124.23	496.84	8987.02	128.87	1031.96	43.00	9.34	9.30	0.88
	7263.00	74.640000	180.500000	-164.35	496.41	8999.44	168.97	1072.07	42.00	9.71	9.69	-0.57
	7307.00	79.080000	179.830000	-207.20	496.29	7009.36	211.83	1114.93	44.00	9.75	9.64	-1.52
	7349.00	82.060000	179.910000	-248.63	496.38	7016.24	253.25	1156.36	42.00	7.10	7.10	0.19
	7372.00	82.970000	179.960000	-271.43	496.41	7019.24	276.06	1179.16	23.00	3.96	3.96	0.22
	7456.00	88.060000	179.080000	-355.14	497.11	7026.81	359.77	1262.87	84.00	6.15	6.06	-1.06
	7541.00	87.440000	179.330000	-440.07	496.29	7029.14	444.70	1347.81	85.00	0.79	-0.73	0.29
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
	7627.00	88.490000	179.080000	-526.01	499.48	7032.20	530.65	1433.75	86.00	1.26	1.22	-0.29
	7712.00	89.420000	179.570000	-610.98	500.48	7033.75	615.63	1618.74	85.00	1.24	1.09	0.58
	7797.00	90.710000	179.080000	-695.98	501.48	7033.86	700.63	1603.74	85.00	1.62	1.52	-0.58
	7882.00	90.580000	178.910000	-780.96	502.97	7032.70	785.62	1688.73	85.00	0.25	-0.15	-0.20
	7967.00	90.740000	178.590000	-865.93	504.83	7031.72	870.61	1773.72	85.00	0.42	0.19	-0.38
	8053.00	90.620000	178.550000	-951.90	506.97	7030.70	956.59	1859.72	86.00	0.15	-0.14	-0.05
	8138.00	90.340000	178.640000	-1036.87	509.06	7029.98	1041.58	1944.72	85.00	0.35	-0.33	0.11
	8223.00	90.500000	179.050000	-1121.85	510.77	7029.36	1126.57	2029.71	85.00	0.52	0.19	0.48
	8308.00	90.550000	180.060000	-1206.84	511.43	7028.58	1211.57	2114.71	85.00	1.19	0.06	1.19
	8393.00	89.510000	179.050000	-1291.84	512.09	7028.54	1296.66	2199.71	85.00	1.71	-1.22	-1.19
	8478.00	89.660000	179.000000	-1376.82	513.54	7029.15	1381.56	2284.70	85.00	0.19	0.18	-0.06
	8563.00	89.540000	179.200000	-1461.81	514.87	7029.75	1466.55	2369.70	85.00	0.27	-0.14	0.24
	8648.00	89.010000	178.750000	-1546.79	516.39	7030.82	1551.54	2454.69	85.00	0.82	-0.62	-0.53
	8734.00	89.350000	178.920000	-1632.76	518.14	7032.05	1637.53	2540.69	86.00	0.44	0.40	0.20
	8819.00	90.490000	179.480000	-1717.75	519.34	7032.17	1722.63	2626.88	85.00	1.48	1.34	0.64
	8904.00	90.400000	179.410000	-1802.75	520.18	7031.51	1807.52	2710.68	85.00	0.12	-0.11	-0.06
	8989.00	91.330000	180.080000	-1887.73	520.56	7030.23	1892.51	2795.67	85.00	1.35	1.09	0.79
	9075.00	91.570000	180.100000	-1973.71	520.42	7028.05	1978.48	2881.64	86.00	0.28	0.28	0.02
	9160.00	91.800000	179.770000	-2058.67	520.52	7025.70	2063.44	2966.61	85.00	0.39	0.04	-0.39
	9245.00	89.970000	179.480000	-2143.66	521.09	7024.54	2148.43	3051.60	85.00	1.95	-1.92	-0.36
	9330.00	90.030000	179.510000	-2228.66	521.86	7024.54	2233.43	3136.60	85.00	0.09	0.07	0.06
	9416.00	89.940000	180.040000	-2314.66	522.19	7024.56	2319.43	3222.60	86.00	0.63	-0.10	0.62
	9501.00	91.390000	180.080000	-2399.65	522.10	7023.57	2404.42	3307.59	85.00	1.71	1.71	0.05
	9586.00	90.180000	179.690000	-2484.64	522.27	7022.41	2489.41	3392.58	85.00	1.50	-1.42	-0.46
	9678.00	90.000000	179.470000	-2576.64	522.95	7022.26	2561.41	3484.58	92.00	0.31	-0.20	-0.24
	9769.00	88.770000	178.290000	-2667.61	524.73	7023.24	2672.39	3575.57	91.00	1.87	-1.35	-1.30
	9861.00	88.370000	178.700000	-2759.55	527.14	7025.54	2764.35	3667.54	92.00	0.62	-0.43	0.45
	9953.00	89.380000	178.860000	-2851.51	529.09	7027.34	2856.33	3759.52	92.00	1.12	1.10	0.20
	10044.00	89.750000	178.750000	-2942.49	530.97	7028.03	2947.32	3850.52	91.00	0.43	0.41	-0.14
	10135.00	88.800000	178.580000	-3033.45	533.09	7029.18	3038.30	3941.51	91.00	1.06	-1.04	-0.19
	10227.00	88.860000	178.450000	-3125.40	535.47	7031.06	3130.27	4033.49	92.00	0.16	0.07	-0.14
	10316.00	91.800000	179.240000	-3216.36	537.31	7030.70	3221.25	4124.48	91.00	3.13	3.01	0.87

	10410.00	91.790000	178.400000	-3308.32	639.20	7027.98	3313.21	4216.44	92.00	0.94	0.21	-0.91
	10501.00	91.970000	178.900000	-3399.24	541.34	7024.99	3404.15	4307.39	91.00	0.58	0.20	0.55
	10593.00	92.000000	178.630000	-3491.16	543.32	7021.80	3496.09	4399.34	92.00	0.30	0.03	-0.29
	10685.00	92.030000	180.510000	-3583.10	544.01	7018.57	3588.02	4491.28	92.00	2.04	0.03	2.04
	10776.00	91.850000	180.350000	-3674.05	543.33	7015.49	3678.96	4582.22	91.00	0.26	-0.20	-0.18
	10868.00	90.950000	179.380000	-3766.02	543.55	7013.24	3770.93	4674.19	92.00	1.44	-0.98	-1.05
	10960.00	90.990000	179.670000	-3858.00	544.31	7011.68	3862.91	4766.18	92.00	0.32	0.04	0.32
	11051.00	91.320000	179.630000	-3948.98	544.87	7009.85	3953.89	4857.16	91.00	0.37	0.36	-0.04
	11143.00	91.390000	179.650000	-4040.95	545.44	7007.87	4045.87	4949.14	92.00	0.08	0.08	0.02
	11234.00	91.360000	179.150000	-4131.92	546.40	7005.49	4136.84	5040.11	91.00	0.55	-0.03	-0.55
	11326.00	91.540000	179.190000	-4223.88	547.73	7003.16	4228.81	5132.08	92.00	0.20	0.20	0.04
	11417.00	91.570000	180.040000	-4314.84	548.34	7000.89	4319.78	5223.05	91.00	0.93	0.03	0.93
	11508.00	90.520000	179.610000	-4406.83	548.62	6999.03	4410.76	5314.03	91.00	1.25	-1.15	-0.47
	11600.00	90.980000	179.610000	-4497.82	549.24	6997.83	4502.75	5406.02	92.00	0.50	0.50	0.00
	11691.00	90.890000	180.020000	-4588.80	549.54	6996.34	4593.74	5497.01	91.00	0.46	-0.10	0.45
	11783.00	91.110000	179.680000	-4680.79	549.78	6994.74	4685.72	5589.00	92.00	0.44	0.24	-0.37
	11874.00	92.400000	182.360000	-4771.72	548.14	6991.95	4776.63	5679.94	91.00	3.29	1.42	2.97
	11966.00	91.390000	181.950000	-4863.60	544.67	6988.91	4868.48	5771.89	92.00	1.19	-1.10	-0.47
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
	12057.00	90.430000	181.680000	-4954.55	541.79	6987.46	4959.39	5862.88	91.00	1.10	-1.05	-0.30
	12149.00	90.060000	180.520000	-5046.53	540.02	6987.07	5051.35	5954.88	92.00	1.32	-0.40	-1.26
	12241.00	90.060000	180.460000	-5138.52	539.22	6986.97	5143.33	6046.88	92.00	0.04	0.00	-0.04
	12333.00	90.000000	179.770000	-5230.52	539.02	6986.92	5235.33	6138.87	92.00	0.77	-0.07	-0.77
	12416.00	90.460000	179.570000	-5315.52	539.51	6986.58	5320.33	6223.87	85.00	0.59	0.54	-0.24
	12503.00	90.400000	180.120000	-5400.52	539.74	6985.95	5405.32	6308.87	85.00	0.65	-0.07	0.65
	12586.00	90.400036	180.850000	-5485.51	539.02	6985.35	5490.31	6393.87	85.00	0.86	0.00	0.86
	12673.00	90.370000	180.770000	-5570.50	537.82	6984.78	5575.28	6478.87	85.00	0.10	-0.04	-0.09
	12758.00	90.060000	179.320000	-5655.50	537.75	6984.46	5660.27	6563.86	85.00	1.74	-0.36	-1.71
	12843.00	90.030000	179.760000	-5740.50	538.43	6984.40	5745.27	6648.86	85.00	0.52	-0.04	0.52
	12926.00	90.370000	178.120000	-5825.48	540.01	6984.10	5830.27	6733.86	85.00	1.97	0.40	-1.93
	13014.00	90.370000	179.110000	-5911.45	542.08	6983.54	5916.25	6819.86	86.00	1.15	0.00	1.15
	13099.00	90.520000	179.230000	-5996.44	543.32	6982.88	6001.25	6904.85	85.00	0.23	0.18	0.14
	13185.00	90.890000	179.120000	-6082.42	544.55	6981.82	6087.24	6990.85	86.00	0.45	0.43	-0.13
	13270.00	90.650000	178.680000	-6167.40	546.19	6980.88	6172.23	7075.84	85.00	0.59	-0.28	-0.52
	13355.00	89.810000	177.990000	-6252.36	548.66	6980.34	6257.21	7160.84	85.00	1.28	-0.99	-0.81
	13440.00	90.060000	180.230000	-6337.34	549.98	6980.44	6342.20	7245.83	85.00	2.65	0.29	2.64
	13525.00	90.740000	181.630000	-6422.33	548.60	6979.84	6427.17	7330.83	85.00	1.83	0.80	1.65
	13610.00	90.990000	180.230000	-6507.31	547.22	6978.56	6512.13	7415.82	85.00	1.67	0.29	-1.65
	13696.00	92.150000	180.150000	-6593.27	546.93	6976.20	6598.09	7501.78	86.00	1.35	1.35	-0.09
	13780.00	92.250000	180.280000	-6677.21	546.62	6972.98	6682.02	7585.72	84.00	0.20	0.12	0.15
	13866.00	92.400000	180.550000	-6763.14	545.99	6969.49	6767.94	7671.65	86.00	0.36	0.17	0.31
	13951.00	92.000000	179.240000	-6848.07	546.15	6966.23	6852.87	7756.58	85.00	1.61	-0.47	-1.54
	14036.00	91.450000	179.300000	-6933.03	547.23	6963.87	6937.83	7841.55	85.00	0.65	-0.65	0.07
	14121.00	91.050000	177.610000	-7017.97	549.52	6961.82	7022.80	7926.52	85.00	2.04	-0.47	-1.99
	14206.00	90.770000	175.830000	-7102.82	554.39	6960.47	7107.68	8011.51	85.00	2.12	-0.33	-2.09
	14291.00	90.930000	178.670000	-7187.83	559.95	6959.20	7192.54	8096.50	85.00	1.01	0.19	0.99
	14377.00	88.920000	178.410000	-7273.54	563.64	6959.32	7278.48	8182.49	86.00	3.09	-2.34	2.02
	14462.00	88.670000	178.950000	-7358.45	567.05	6961.10	7363.42	8267.47	85.00	1.71	-0.29	-1.68
	14547.00	89.510000	177.570000	-7443.34	571.09	6962.45	7448.35	8352.46	85.00	1.21	0.99	0.69
	14632.00	89.050000	178.270000	-7528.28	574.18	6963.52	7533.31	8437.45	85.00	0.99	-0.54	0.82
	14717.00	88.280000	177.310000	-7613.19	577.46	6965.50	7618.25	8522.42	85.00	1.45	-0.91	-1.13
	14803.00	89.380000	178.120000	-7699.10	580.88	6967.26	7704.19	8608.40	86.00	1.59	1.28	0.94
	14888.00	89.970000	179.820000	-7784.08	582.56	6967.74	7789.18	8693.40	85.00	1.90	0.69	1.76
	14973.00	89.720000	179.490000	-7869.08	583.22	6967.97	7874.18	8778.40	85.00	0.33	-0.29	-0.15
	15058.00	90.520000	180.220000	-7954.08	583.44	6967.79	7959.18	8863.40	85.00	1.27	0.94	0.86
	15143.00	90.640000	181.490000	-8039.06	582.17	6966.93	8044.15	8948.39	85.00	1.50	0.14	1.49
	15228.00	90.610000	181.450000	-8124.03	579.99	6966.01	8129.09	9033.39	85.00	0.06	-0.04	-0.05
	15314.00	90.960000	182.010000	-8209.98	577.39	6964.83	8215.01	9119.38	86.00	0.77	0.41	0.65
	15399.00	90.930000	181.310000	-8294.93	574.93	6963.43	8299.94	9204.37	85.00	0.82	-0.04	-0.82
	15484.00	90.680000	182.910000	-8379.86	571.80	6962.23	8384.84	9289.36	85.00	1.91	-0.29	1.88
	15569.00	90.990000	180.260000	-8464.81	569.45	6960.99	8469.76	9374.34	85.00	3.14	0.36	-3.12
	15655.00	90.560000	180.030000	-8550.80	569.23	6959.83	8555.75	9460.33	86.00	0.57	-0.50	-0.27
	15740.00	90.510000	179.430000	-8635.82	568.92	6958.45	8640.74	9545.82	85.00	0.72	0.22	0.51

15740.00	90.310000	179.430000	-8635.80	569.63	6959.18	8640.74	9545.33	85.00	0.78	-0.29	-0.71
15825.00	90.220000	180.580000	-8720.80	569.64	6958.79	8725.74	9630.33	85.00	1.33	-0.11	1.33
15911.00	90.000000	179.240000	-8806.80	569.79	6958.83	8811.73	9716.32	86.00	1.56	-0.26	-1.53
15996.00	90.930000	178.880000	-8891.78	571.18	6957.94	8896.73	9801.32	85.00	1.17	1.09	-0.42
16081.00	91.200000	178.100000	-8976.74	573.42	6956.36	8981.70	9886.30	85.00	0.97	0.32	-0.92
16166.00	89.820000	178.250000	-9061.69	576.13	6955.80	9066.67	9971.30	85.00	1.63	-1.62	0.18
16251.00	91.480000	179.370000	-9146.66	577.89	6954.63	9151.66	10056.29	85.00	2.36	1.95	1.32

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
	16337.00	91.670000	179.860000	-9232.62	578.47	6952.27	9237.62	10142.26	86.00	0.61	0.22	0.57
	16422.00	91.790000	180.580000	-9317.58	578.15	6949.70	9322.58	10227.22	85.00	0.86	0.14	0.85
	16507.00	91.790000	180.590000	-9402.54	577.28	6947.05	9407.52	10312.18	85.00	0.01	0.00	0.01
	16592.00	91.450000	179.510000	-9487.50	577.20	6944.65	9492.48	10397.14	85.00	1.33	-0.40	-1.27
	16677.00	90.980000	178.730000	-9572.47	578.51	6942.84	9577.48	10482.12	85.00	1.07	-0.55	-0.92
	16762.00	90.460000	179.110000	-9657.45	580.11	6941.78	9662.45	10567.11	85.00	0.76	-0.61	0.45
	16846.00	90.430000	179.180000	-9743.44	581.40	6941.11	9748.44	10653.11	86.00	0.09	-0.03	0.08
	16894.00	90.060000	177.750000	-9789.42	582.63	6940.91	9794.43	10699.11	46.00	3.21	-0.80	-3.11
Projection to TD:												
	16950.00	90.060000	177.750000	-9845.38	584.83	6940.85	9850.41	10755.11	56.00	0.00	0.00	0.00