



Realtime Log

Gamma Ray

Scale:

Company: Kerr McGee Oil & Gas Onshore, LP

1:240 TRUE VERTICAL DEPTH

Well: Nichols 30C-5HZ

Field: Wattenberg

County: Weld State: Colorado

Status:

FIELD PRINT

Surface Location:

Latitude: 40° 9' 14.090" N

Longitude: 104° 41' 46.601" W

Other Services:

API Number:

05-123-35919

SEC: 8

TWP: 2N

RNG: 65W

Permanent Datum (P.D.): Mean Sea Level

Elevation: 0.00 ft.

Elevations: N/A

Log Measured From:

Rig Floor

4962.00 ft.

Above P.D.

KB: N/A
DF: 4962.00 ft.
GL: 4946.00 ft.

Depth Reference:

Driller's Depth

GL:

Interval Logged

Dates

Magnetic Field Reference

Top: 6698.0 ft. Date From: 07/Feb/13

Dip Angle: 66.94° Azi Reference North:

True

Bottom: 14296.0 ft. Date To: 19/Feb/13

Total Mag to Reference

Spud Date: 07/Feb/13

Field Strength: 52820.0 nT North Correction:

8.64°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
-----------	------	----	------	--------	------	----

13.500 in.	Surface	741.0 ft.	9.625 in.	36.00 lb/ft	Surface	741.0 ft.
------------	---------	-----------	-----------	-------------	---------	-----------

8.750 in.	741.0 ft.	7719.0 ft.	7.000 in.	26.00 lb/ft	Surface	7712.0 ft.
-----------	-----------	------------	-----------	-------------	---------	------------

6.125 in.	7719.0 ft.	14348.0 ft.				
-----------	------------	-------------	--	--	--	--

--	--	--	--	--	--	--

--	--	--	--	--	--	--

--	--	--	--	--	--	--

--	--	--	--	--	--	--

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
------	------	----	-----------	----------	------------------	----------------

Water Based Mud	Surface	14348.0 ft.	8.750 in.	6978.0 ft.	0.2° / 226.1°	86.9° / 259.5°
-----------------	---------	-------------	-----------	------------	---------------	----------------

			6.125 in.	6629.0 ft.	91.7° / 359.4°	89.9° / 358.8°
--	--	--	-----------	------------	----------------	----------------

					/	/
--	--	--	--	--	---	---

					/	/
--	--	--	--	--	---	---

					/	/
--	--	--	--	--	---	---

					/	/
--	--	--	--	--	---	---

Acquisition System Software Version

Other

Advantage	2.20U3	Rig:	Xtreme 20	/ Xtreme Coil Drilling
-----------	--------	------	-----------	------------------------

PATS	6.4.1.34	Job No:	5199630	
------	----------	---------	---------	--

		District / Unit:	Rocky Mountains	/ D&E
--	--	------------------	-----------------	-------

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.

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 (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
2	2	2	8.750	PDC	3.000	Steerable	6698.0	7558.0	6748.0	7608.0	09/Feb/2013 07:00	09/Feb/2013 02:50	20.1
3	3	2RR	8.750	PDC	3.000	Steerable	7558.0	7668.0	7608.0	7719.0	10/Feb/2013 14:50	10/Feb/2013 18:20	5.4
4	4	3	6.125	PDC	3.000	Steerable	7668.0	13118.0	7719.0	13162.0	12/Feb/2013 09:35	15/Feb/2013 07:45	61.8
5	5	4	6.125	PDC	3.000	Steerable	13118.0	14296.0	13162.0	14348.0	17/Feb/2013 03:45	18/Feb/2014 01:55	38.8

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Adam Schlenz	07/Feb/13	19/Feb/13	Robert Dix	07/Feb/13	10/Feb/13	Mark Dix	10/Feb/13	19/Feb/13

Witness

Name	LWD Run Number
Marvin Hackworth	2,3
James Adkins	4,5

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+ (%)
09/Feb/13 08:00	2	6812.0	Water Based	9.8	14	8.7	N/A	-/92	Active Pit	1600	N/A
09/Feb/13 19:30	2	7363.0	Water Based	9.8	12	8.7	N/A	-/92.2	Active Pit	1800	N/A
11/Feb/13 08:00	3	7720.0	Water Based	10.0	14	8.5	N/A	-/91.4	Active Pit	1600	N/A
11/Feb/13 20:00	3	7720.0	Water Based	9.8	12	8.0	N/A	-/92.2	Active Pit	1750	N/A
12/Feb/13 12:00	4	7900.0	Water Based	9.4	9	10.5	N/A	-/93.8	Active Pit	1300	N/A
12/Feb/13 20:00	4	8581.0	Water Based	9.8	12	11.5	N/A	-/90.2	Active Pit	1400	N/A
13/Feb/13 07:30	4	10204.0	Water Based	9.8	15	10.5	N/A	-/89.2	Active Pit	1400	N/A
13/Feb/13 17:30	4	11221.0	Water Based	9.8	13	10.5	N/A	-/88	Active Pit	1500	N/A
14/Feb/13 07:00	4	12217.0	Water Based	9.8	13	10.5	N/A	-/87	Active Pit	1450	N/A
14/Feb/13 18:00	4	12530.0	Water Based	9.8	14	10.5	N/A	-/85.8	Active Pit	1500	N/A
15/Feb/13 07:00	4	13160.0	Water Based	9.8	14	10.8	N/A	-/85.7	Active Pit	1450	N/A
15/Feb/13 18:00	4	13168.0	Water Based	9.8	15	11.0	N/A	-/85.8	Active Pit	1400	N/A
16/Feb/13 10:00	4	13168.0	Water Based	9.8	15	11.5	N/A	-/85.6	Active Pit	1500	N/A
16/Feb/13 20:00	4	13168.0	Water Based	9.9	16	11.0	N/A	-/85.4	Active Pit	1600	N/A
17/Feb/13 07:00	5	13321.0	Water Based	10.2	15	11.0	N/A	-/84.4	Active Pit	1600	N/A
17/Feb/13 18:00	5	13763.0	Water Based	10.2	16	11.5	N/A	-/84.2	Active Pit	1800	N/A

Mud Resistivity Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Surface Temp (deg F)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg F)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
12/Feb/2013	00:15	4	7719.0	73	1.10	N/A	N/A	180	0.46	N/A	N/A
13/Feb/2013	00:34	4	9251.0	71	0.80	N/A	N/A	210	0.28	N/A	N/A
13/Feb/2013	12:58	4	10943.0	75	0.67	N/A	N/A	231	0.23	N/A	N/A
13/Feb/2013	23:46	4	11881.0	72	0.72	N/A	N/A	234	0.23	N/A	N/A
14/Feb/2013	15:54	4	12477.0	71	0.60	N/A	N/A	237	0.19	N/A	N/A
14/Feb/2013	23:53	4	12901.0	71	0.68	N/A	N/A	242	0.21	N/A	N/A
16/Feb/2013	04:13	5	13163.0	73	0.70	N/A	N/A	241	0.22	N/A	N/A
17/Feb/2013	23:59	5	14198.0	76	0.55	N/A	N/A	253	0.17	N/A	N/A

Mnemonics

Curve	Description	Units
ROPA	Rate of Penetration, 3.0 ft. Avg	ft/hr
GRAX	Gamma Ray – Apparent, 0.5 ft. Avg	API

GRIX	Gamma Ray – Data Point Indicator	unitless
TCDX	Downhole Temperature	degF
WOBA	Surface weight on bit, 1.0 ft. Avg.	klbs.

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
2	DIR	12546334	Directional	53.31	6.750	0.000
2	SRIG	12604925	Gamma	49.94	6.750	0.000
3	DIR	11670150	Directional	53.42	6.750	3.250
3	SRIG	12131373	Gamma	50.04	6.750	0.000
4	CS	12016837	-	76.14	4.910	1.750
4	BCPM	12015762	Telemetry	65.08	5.000	1.750
4	STAB	11781612	-	61.88	5.625	1.750
4	OTK	11983648	Directional	56.44	5.066	1.750
4	OTK	11983648	Resistivity	43.26	7.031	2.165
4	APR	11983648	Resistivity	43.26	0.000	0.000
4	OTK	11983648	Gamma	51.75	5.066	1.750
4	OTK	11983648	Pressure	47.70	5.066	1.750
4	CS	12018734	-	36.89	4.980	1.750
5	CS	12016837	-	72.54	4.910	1.750
5	BCPM	10411250	Telemetry	61.45	5.000	1.750
5	STAB	11781612	-	58.25	5.625	1.750
5	OTK	10208007	Directional	53.87	4.843	2.569
5	OTK	10208007	Resistivity	47.90	7.031	2.165
5	OTK	10208007	Gamma	40.71	4.843	2.569
5	OTK	10208007	Pressure	43.34	4.843	2.569
5	CS	12018734	-	36.83	4.980	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 2 & 3 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 6748 to 7719 feet MD (6733 to 7314 feet TVD).

(2) Baker Hughes INTEQ run 4 & 5 utilized 4 3/4 inch OnTrak services (Mutiple Propagation Resistivity, Gamma Ray, and Directional) behind a 6 1/8 inch bit and steerable assembly from 7719 to 14348 feet MD (7314 to 7301 feet TVD).

and steerable assembly from 7719 to 14348 feet MD (7314 to 7301 feet TVD).

(3) A sliding indicator is shown to the right edged 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	6748	8.750	2	The interval from 6698 to 6748 feet MD (6683 to 6733 feet TVD) was logged up to 10 hours after being drilled due to a trip out of the hole to pick up the build assembly.
2	7608	8.750	3	The interval from 7558 to 7608 feet MD (7298 to 7306 feet TVD) was logged up to 10 hours after being drilled due to a trip out of the hole to pick up a new MWD.
3	7719	6.125	4	The interval from 7668 to 7719 feet MD (7312 to 7314 feet TVD) was logged up to 10 hours after being drilled due to a trip out of the hole for casing and cement operations and to pickup the lateral assembly.
4	7712	6.125	4	Driller's casing depth was 7712 feet MD (7314 feet TVD). MWD's casing depth was 7704 feet MD (7314 feet TVD).
5	13162	6.125	5	The interval from 13118 to 13162 feet MD (7296 feet TVD) was logged up to 10 hours after being drilled due to a trip out of the hole to check the torque on all of the tool joints and pickup a new BHA.
6	14348	6.125	5	The interval from 14296 to 14348 feet MD (7301 feet TVD) was not logged up due to sensors offsets to bit at TD.

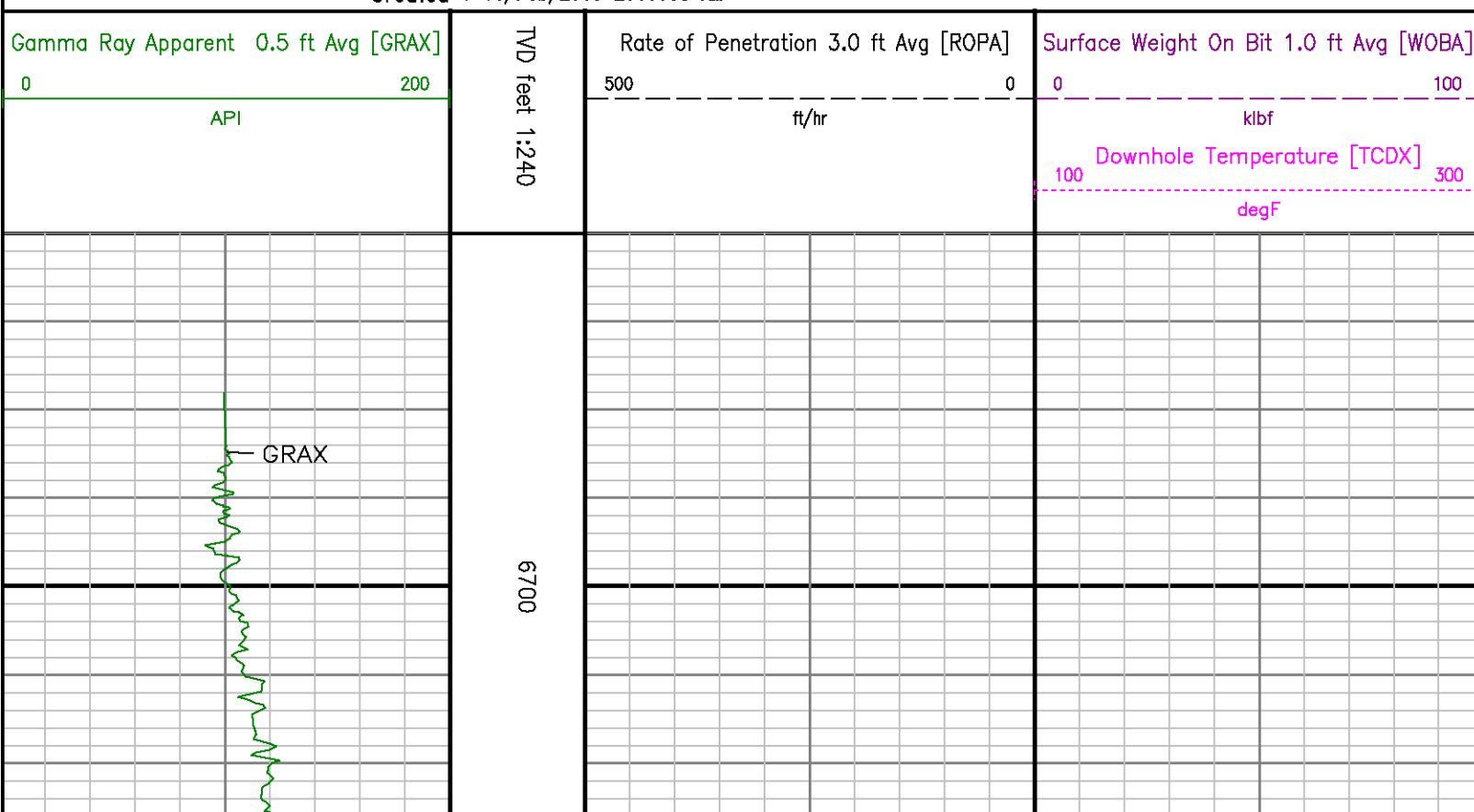


Company : Kerr McGee Oil & Gas Onshore, LP

Well : Nichols 30C-5HZ

Interval : 6660.00 - 7350.00 feet

Created : 16/Feb/2013 2:16:38 AM



See Remark 1

> Run 2

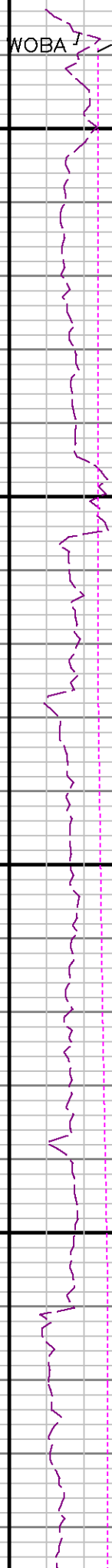
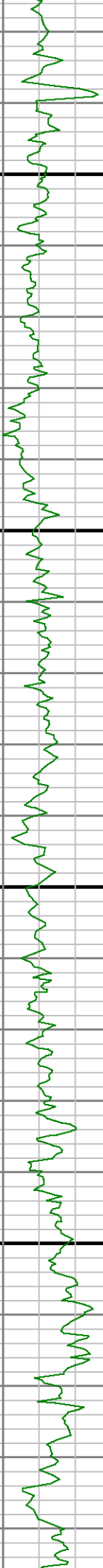
6800

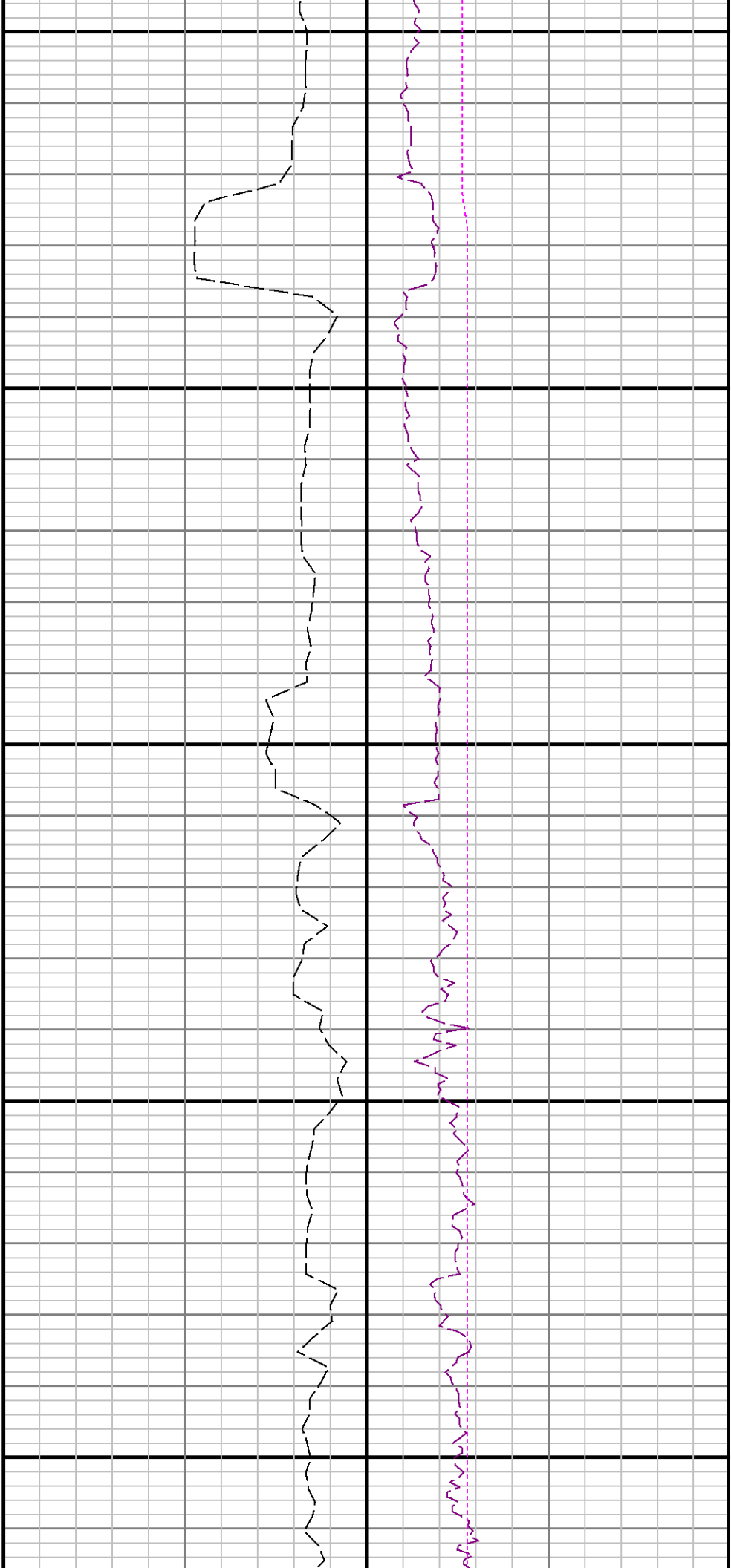
6900

ROPA

WOBA

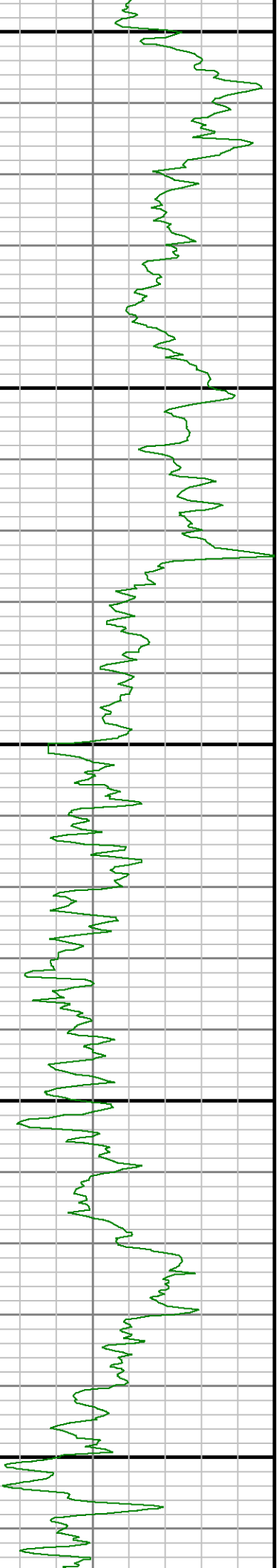
TCDX

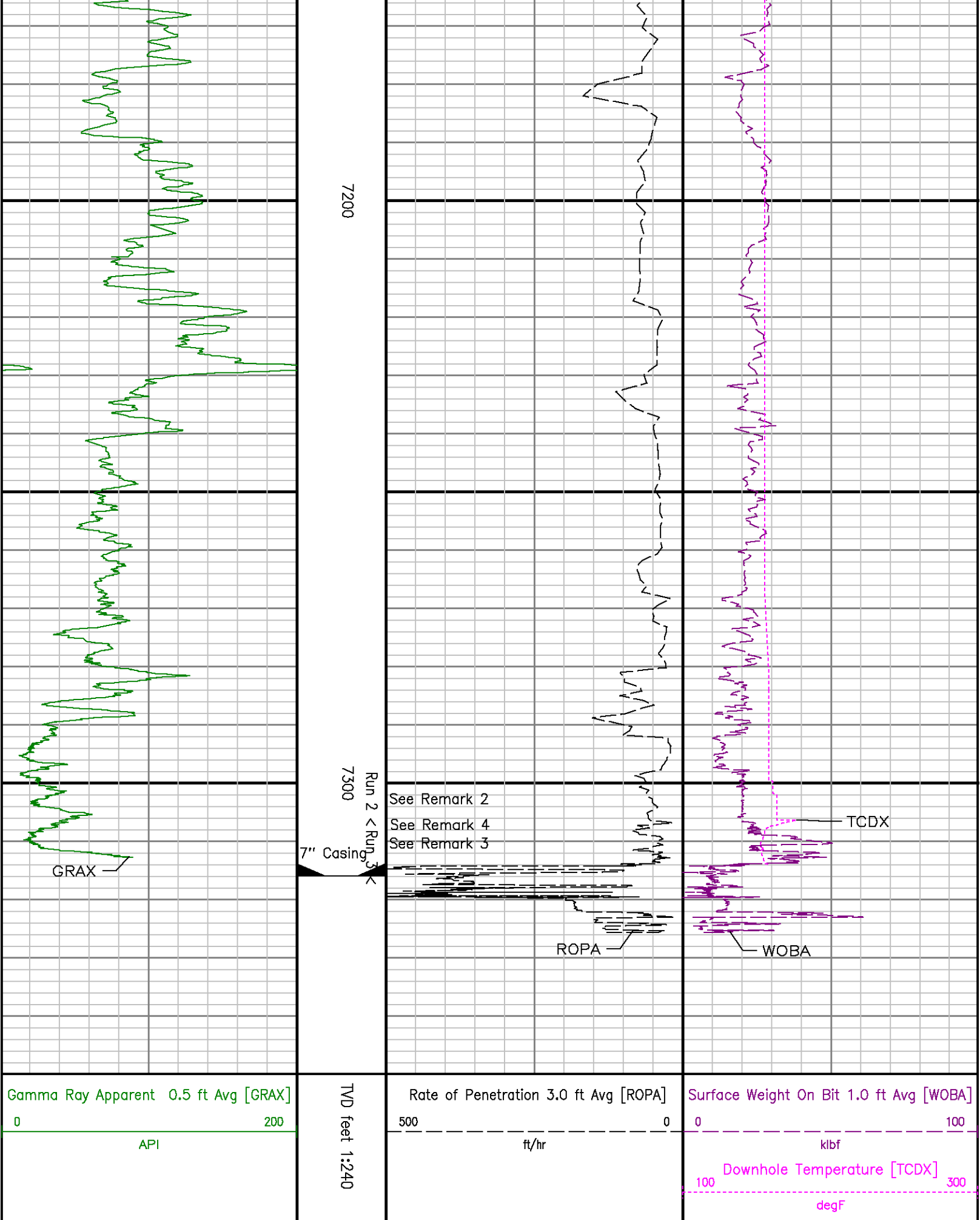




7000

7100





ADVANTAGE Final Survey Listing

Operator	:Kerr McGee Oil & Gas Onshore, LP	Field	: Wattenberg	API No	: 05-123-35919
Well	:Nichols 30C-5HZ	Rig	: Xtreme 20	Job	:5199630
Wellbore	:Nichols 30C-5HZ Orig Hole				

Well Origin			
Latitude	40.15 deg	Longitude	-104.70 deg
North Reference	True	Drill Depth Zero	NULL
Vertical Datum is	Mean Sea Level	Vertical Datum to DDZ	4962.00 ft
Vertical Section North	0.00 ft	Vertical Section East	0.00 ft
Vertical Section Azimuth	0.55 deg	Vertical Section Depth	0.00ft
Grid Convergence	0.00 deg	Magnetic Declination	8.64 deg
Total Correction	8.64 deg	TVD Calculation Method	Minimal Curvature
D-Raw Calculation	Magcorr1	Local Magnetic Field	52820 nT
Local Magnetic Dip Angle	66.94 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
-----	----------	-------------	-------------	-------------	------------	-----------	----------	---------------	---------------	------------------	--------------------	-------------------

U	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
	16.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	16.00	0.00	0.00	0.00
	116.00	0.31	60.68	0.13	0.24	116.00	0.13	0.27	100.00	0.31	0.31	60.68
	216.00	0.18	14.38	0.40	0.51	216.00	0.41	0.65	100.00	0.23	-0.15	-46.30
	316.00	0.30	333.75	0.77	0.43	316.00	0.77	1.03	100.00	0.21	0.14	-40.63
	416.00	0.17	264.04	0.99	0.16	416.00	0.99	1.37	100.00	0.29	-0.13	-69.71
	516.00	0.42	336.72	1.31	-0.13	516.00	1.31	1.81	100.00	0.40	0.25	72.68
	616.00	0.18	258.77	1.62	-0.43	615.99	1.61	2.24	100.00	0.42	-0.24	-77.95
	716.00	0.14	308.74	1.66	-0.68	715.99	1.66	2.49	100.00	0.14	-0.04	49.97
	816.00	0.15	312.97	1.63	-0.87	815.99	1.62	2.74	100.00	0.01	0.01	4.23
	866.00	0.25	288.49	1.94	-1.06	865.99	1.93	2.98	70.00	0.18	0.14	-34.97
	970.00	0.22	226.09	1.89	-1.37	969.99	1.87	3.28	84.00	0.29	-0.04	-74.29
	1062.00	1.16	203.61	0.91	-1.87	1061.99	0.89	4.37	92.00	1.04	1.02	-24.43
	1154.00	2.19	205.21	-1.53	-2.99	1153.95	-1.56	7.06	92.00	1.12	1.12	1.74
	1246.00	2.51	202.43	-4.99	-4.51	1245.87	-5.03	10.83	92.00	0.37	0.35	-3.02
	1334.00	3.75	198.97	-9.49	-6.18	1333.73	-9.55	15.63	86.00	1.42	1.41	-3.93
	1419.00	4.78	190.35	-15.60	-7.72	1418.50	-15.68	21.94	85.00	1.42	1.21	-10.14
	1504.00	6.64	186.45	-23.97	-8.91	1503.07	-24.05	30.39	85.00	2.23	2.19	-4.59
	1589.00	8.11	185.29	-34.82	-10.02	1587.37	-34.92	41.30	85.00	1.74	1.73	-1.36
	1674.00	10.17	183.99	-46.28	-11.09	1671.26	-46.39	54.80	85.00	2.44	2.42	-1.53
	1760.00	10.43	183.70	-63.62	-12.12	1755.90	-63.74	70.18	86.00	0.31	0.30	-0.34
	1845.00	10.37	183.73	-78.94	-13.11	1839.50	-79.06	85.52	85.00	0.07	-0.07	0.04
	1930.00	10.30	183.65	-94.15	-14.10	1923.12	-94.28	100.77	85.00	0.08	-0.08	-0.09
	2015.00	9.86	182.07	-109.01	-14.84	2008.81	-109.15	115.65	85.00	0.61	-0.52	-1.66
	2100.00	9.53	182.44	-123.31	-15.41	2090.60	-123.46	129.96	85.00	0.40	-0.39	0.44
	2185.00	9.39	183.04	-137.27	-16.07	2174.44	-137.42	143.93	85.00	0.20	-0.16	0.71
	2271.00	7.92	180.85	-150.20	-16.53	2259.46	-150.35	156.87	86.00	1.75	-1.71	-2.55
	2356.00	6.73	184.02	-161.02	-16.97	2343.76	-161.18	167.70	85.00	1.48	-1.40	3.73
	2441.00	6.42	184.74	-170.73	-17.71	2428.21	-170.89	177.44	85.00	0.38	-0.36	0.65
	2526.00	4.93	187.49	-179.08	-18.58	2512.79	-179.25	185.84	85.00	1.78	-1.75	3.24
	2612.00	4.37	190.38	-185.97	-19.65	2598.50	-186.15	192.81	86.00	0.71	-0.65	3.36
	2697.00	3.13	192.26	-191.42	-20.73	2683.32	-191.61	198.37	85.00	1.47	-1.46	2.21
	2782.00	1.87	194.11	-195.04	-21.56	2768.24	-195.24	202.07	85.00	1.49	-1.46	2.18
	2868.00	1.07	183.95	-197.20	-21.96	2854.21	-197.40	204.27	86.00	0.97	-0.93	-11.81
	2953.00	0.32	118.12	-198.10	-21.80	2939.20	-198.30	205.19	85.00	1.16	-0.88	-77.45
	3038.00	0.25	120.82	-198.31	-21.43	3024.20	-198.51	205.61	85.00	0.08	-0.08	3.18
	3123.00	0.27	120.10	-198.51	-21.10	3109.20	-198.70	206.00	85.00	0.02	0.02	-0.65
	3209.00	0.15	181.49	-198.72	-20.93	3195.20	-198.91	206.27	86.00	0.26	-0.14	71.36
	3294.00	0.09	243.22	-198.86	-20.99	3280.20	-199.05	206.43	85.00	0.16	-0.07	72.62
	3379.00	0.36	291.57	-198.79	-21.30	3365.20	-198.99	206.74	85.00	0.36	0.32	56.66
	3464.00	0.49	261.08	-198.75	-21.91	3450.20	-198.95	207.35	85.00	0.30	0.15	-35.67
	3549.00	1.01	266.47	-198.85	-23.01	3535.19	-199.06	208.46	85.00	0.62	0.61	6.34
	3635.00	1.24	272.25	-198.85	-24.52	3621.16	-199.12	209.22	86.00	0.42	0.22	2.75

	3635.00	1.01	272.25	-198.87	-24.53	3621.18	-199.10	209.98	86.00	0.12	0.00	6.72
	3721.00	0.52	147.38	-199.17	-25.07	3707.17	-199.40	210.80	86.00	1.60	-0.57	-145.20
	3806.00	0.92	119.81	-199.83	-24.27	3792.17	-200.06	211.84	85.00	0.61	0.47	-32.44
	3891.00	0.57	138.42	-200.49	-23.40	3877.16	-200.70	212.73	85.00	0.50	-0.41	21.89
	3976.00	0.74	143.65	-201.25	-22.79	3962.15	-201.46	213.70	85.00	0.21	0.20	6.15
	4061.00	0.89	148.98	-202.25	-22.13	4047.14	-202.46	214.91	85.00	0.20	0.18	6.27
	4147.00	1.08	182.48	-203.64	-21.82	4133.13	-203.84	216.33	86.00	0.69	0.22	38.95
	4232.00	0.11	196.80	-204.52	-21.88	4218.13	-204.72	217.21	85.00	1.15	-1.14	16.85
Tie	MD	Incl	Azim	North	East	TVD	VS	Incr VS	Crs Len	DLS	Build	Turn
	ft	deg	deg	ft	ft	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft
	4317.00	0.84	275.49	-204.53	-22.52	4303.12	-204.74	217.85	85.00	0.97	0.86	92.58
	4402.00	0.60	4.81	-204.03	-23.11	4388.12	-204.24	218.82	85.00	1.21	-0.28	105.08
	4488.00	0.72	332.12	-203.10	-23.32	4474.11	-203.32	219.57	86.00	0.45	0.14	-38.01
	4573.00	0.87	305.91	-202.25	-24.09	4559.11	-202.48	220.72	85.00	0.48	0.18	-30.84
	4658.00	1.28	9.79	-200.94	-24.45	4644.09	-201.17	222.08	85.00	1.40	0.48	75.15
	4744.00	1.27	7.89	-199.05	-24.16	4730.07	-199.27	224.00	86.00	0.06	-0.01	-2.44
	4829.00	0.86	350.63	-197.49	-24.14	4815.06	-197.71	225.56	85.00	0.60	-0.48	-20.07
	4914.00	1.16	358.99	-196.00	-24.29	4900.04	-196.22	227.06	85.00	0.38	0.35	7.48
	4999.00	1.04	53.51	-194.68	-23.71	4985.03	-194.90	228.49	85.00	1.23	-0.14	66.49
	5084.00	0.97	81.26	-194.11	-22.38	5070.02	-194.32	229.94	85.00	0.57	-0.08	32.85
	5169.00	0.92	69.95	-193.77	-21.03	5155.01	-193.96	231.34	85.00	0.23	-0.06	-13.31
	5255.00	1.06	110.82	-193.82	-19.63	5240.99	-194.00	232.74	86.00	0.83	0.19	47.52
	5340.00	1.11	104.77	-194.31	-18.08	5325.98	-194.48	234.36	85.00	0.14	0.04	-7.12
	5425.00	1.02	87.94	-194.50	-16.53	5410.96	-194.65	235.93	85.00	0.38	-0.11	-19.80
	5510.00	0.44	163.79	-194.76	-15.63	5495.96	-194.90	236.87	85.00	1.10	-0.88	77.47
	5595.00	1.18	153.13	-195.84	-15.09	5580.95	-195.97	238.07	85.00	0.87	0.87	-0.78
	5680.00	1.48	148.43	-197.54	-14.13	5665.93	-197.67	240.02	85.00	0.35	0.33	-5.53
	5765.00	1.20	146.61	-199.20	-13.07	5750.90	-199.32	242.00	85.00	0.31	-0.31	-2.14
	5850.00	1.15	143.42	-200.63	-12.07	5835.89	-200.74	243.74	85.00	0.10	-0.06	-3.75
	5936.00	0.19	90.11	-201.33	-11.41	5921.88	-201.43	244.69	86.00	1.22	-1.12	-61.99
	6021.00	0.57	10.61	-200.91	-11.19	6006.86	-201.01	245.16	85.00	0.67	0.45	-93.53
	6106.00	0.38	12.91	-200.22	-11.05	6091.87	-200.32	245.87	85.00	0.22	-0.22	2.71
	6191.00	0.42	58.22	-199.77	-10.73	6176.87	-199.87	246.42	85.00	0.35	0.05	50.95
	6276.00	0.52	57.62	-199.39	-10.15	6261.87	-199.48	247.12	85.00	0.12	0.12	1.65
	6362.00	0.60	100.04	-199.26	-9.37	6347.87	-199.34	247.90	86.00	0.48	0.09	49.33
	6447.00	0.27	100.87	-199.38	-8.74	6432.86	-199.45	248.55	85.00	0.39	-0.39	0.98
	6532.00	0.37	148.34	-199.65	-8.40	6517.86	-199.72	248.98	85.00	0.32	0.12	55.85
	6618.00	0.20	150.10	-200.02	-8.18	6603.86	-200.09	249.41	86.00	0.20	-0.20	2.05
	6685.00	0.46	151.63	-200.35	-7.99	6670.86	-200.42	249.80	67.00	0.39	0.39	2.28
	6703.00	0.42	126.74	-200.46	-7.91	6688.86	-200.52	249.93	18.00	1.08	-0.22	-138.28
	6746.00	0.39	27.21	-200.42	-7.71	6731.86	-200.49	250.13	43.00	1.44	-0.07	-231.47
	6788.00	4.79	7.53	-198.55	-7.42	6773.81	-198.62	252.02	42.00	10.54	10.48	-46.86
	6831.00	10.64	9.05	-192.85	-6.66	6816.40	-192.90	257.79	43.00	13.61	13.60	3.53
	6873.00	16.18	4.66	-183.18	-5.47	6857.24	-183.22	267.52	42.00	13.40	13.19	-10.40
	6916.00	20.06	4.12	-169.85	-4.45	6898.10	-169.88	280.89	43.00	9.03	9.02	-1.30
	6958.00	24.17	3.10	-154.07	-3.47	6937.00	-154.10	296.70	42.00	9.83	9.79	-2.43
	7001.00	27.11	6.94	-135.55	-1.81	6975.76	-135.56	315.29	43.00	7.85	6.84	8.93
	7044.00	30.89	6.14	-114.84	0.56	7013.37	-114.83	336.13	43.00	8.84	8.79	-1.86
	7087.00	34.47	4.18	-91.72	2.63	7049.55	-91.69	359.34	43.00	8.66	8.33	-4.56
	7129.00	37.40	3.56	-67.13	4.29	7083.56	-67.09	383.99	42.00	7.03	6.96	-1.48
	7172.00	41.14	0.46	-39.94	5.21	7116.84	-39.89	411.20	43.00	9.82	8.70	-7.21
	7214.00	45.75	355.88	-11.10	4.24	7147.34	-11.06	440.05	42.00	13.29	10.98	-10.90
	7257.00	49.78	350.82	20.49	0.51	7178.24	20.49	471.86	43.00	12.79	9.37	-11.77
	7299.00	54.42	354.03	53.33	-3.83	7202.04	53.29	504.99	42.00	12.58	11.05	7.64
	7342.00	58.83	359.88	89.18	-5.68	7225.70	89.10	540.86	43.00	15.30	10.26	13.80
	7384.00	63.17	1.12	125.88	-5.36	7246.06	125.82	577.59	42.00	10.65	10.33	2.95
	7427.00	68.42	0.85	165.08	-4.68	7263.69	165.03	616.79	43.00	12.22	12.21	-0.63
	7469.00	73.37	1.01	204.75	-4.04	7277.43	204.70	656.47	42.00	11.79	11.79	0.38
	7512.00	75.75	0.76	246.19	-3.40	7288.88	246.14	697.91	43.00	5.56	5.53	-0.58
	7555.00	80.04	0.25	288.22	-3.03	7297.89	288.18	739.95	43.00	10.04	9.98	-1.19
Tie	MD	Incl	Azim	North	East	TVD	VS	Incr VS	Crs Len	DLS	Build	Turn
	ft	deg	deg	ft	ft	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft
	7598.00	81.04	0.48	330.83	-2.76	7304.96	330.69	782.36	43.00	2.38	2.33	0.63

	7640.00	83.73	359.41	372.26	-2.80	7310.52	372.22	823.99	42.00	6.88	6.40	-2.55
	7665.00	86.90	359.54	397.17	-3.03	7312.57	397.12	848.90	25.00	12.69	12.68	0.52
	7780.00	91.66	359.41	492.13	-3.90	7313.76	492.07	943.87	95.00	5.01	5.01	-0.14
	7852.00	91.04	359.67	584.10	-4.64	7311.59	584.03	1035.84	92.00	0.73	-0.67	0.28
	7942.00	91.32	1.29	674.08	-3.88	7309.74	674.01	1126.82	90.00	1.83	0.31	1.80
	8034.00	89.93	1.49	766.04	-1.65	7308.73	765.99	1217.81	92.00	1.53	-1.51	0.22
	8126.00	90.46	2.25	857.99	1.35	7308.42	857.97	1309.81	92.00	1.01	0.58	0.83
	8218.00	90.24	2.29	949.92	4.99	7307.86	949.92	1401.81	92.00	0.24	-0.24	0.04
	8310.00	89.02	0.93	1041.86	7.58	7308.45	1041.90	1493.80	92.00	1.99	-1.33	-1.48
	8401.00	89.60	1.56	1132.85	9.56	7309.56	1132.89	1684.79	91.00	0.93	0.64	0.68
	8493.00	89.72	1.53	1224.81	12.02	7310.10	1224.87	1676.79	92.00	0.13	0.13	-0.02
	8585.00	90.12	0.86	1316.79	13.94	7310.22	1316.87	1768.79	92.00	0.85	0.43	-0.73
	8677.00	89.91	359.70	1408.79	14.39	7310.20	1408.86	1860.79	92.00	1.28	-0.23	-1.26
	8769.00	90.40	359.96	1500.79	14.12	7309.95	1500.86	1952.79	92.00	0.60	0.53	0.28
	8861.00	89.42	358.80	1592.78	13.12	7310.10	1592.83	2044.79	92.00	1.65	-1.07	-1.26
	8953.00	89.29	359.91	1684.77	12.08	7311.13	1684.81	2136.78	92.00	1.21	-0.14	1.21
	9045.00	89.66	0.48	1776.76	12.40	7311.97	1776.80	2228.77	92.00	0.74	0.40	0.62
	9137.00	90.00	1.44	1868.75	13.94	7312.25	1868.80	2320.77	92.00	1.11	0.37	1.04
	9229.00	88.61	0.82	1960.72	15.75	7313.36	1960.78	2412.76	92.00	1.65	-1.51	-0.67
	9320.00	88.09	0.21	2051.68	16.57	7315.98	2051.74	2503.72	91.00	0.88	-0.57	-0.67
	9412.00	89.29	358.31	2143.64	15.38	7316.09	2143.69	2595.69	92.00	2.44	1.30	-2.07
	9504.00	89.54	359.39	2235.62	13.54	7319.03	2235.64	2687.69	92.00	1.20	0.27	1.17
	9596.00	89.91	359.57	2327.61	12.70	7319.47	2327.63	2779.69	92.00	0.45	0.40	0.20
	9687.00	90.15	0.17	2418.61	12.49	7319.42	2418.62	2870.69	91.00	0.71	0.26	0.66
	9778.00	90.40	0.93	2509.60	13.37	7318.98	2509.62	2961.68	91.00	0.88	0.27	0.84
	9864.00	90.46	1.49	2595.58	15.18	7318.34	2595.61	3047.68	86.00	0.65	0.07	0.65
	9949.00	90.52	2.17	2680.54	17.90	7317.61	2680.58	3132.68	85.00	0.80	0.07	0.80
	10034.00	89.29	1.11	2765.50	20.33	7317.75	2765.57	3217.68	85.00	1.91	-1.45	-1.25
	10119.00	89.11	0.11	2850.46	21.24	7318.94	2850.56	3302.67	85.00	1.20	-0.21	-1.18
	10204.00	89.97	359.50	2935.48	20.95	7319.82	2935.54	3387.66	85.00	1.24	1.01	-0.72
	10290.00	90.52	359.20	3021.47	19.97	7319.25	3021.52	3473.66	86.00	0.73	0.64	-0.35
	10375.00	90.55	359.64	3106.46	19.11	7318.46	3106.50	3558.66	85.00	0.52	0.04	0.52
	10460.00	90.73	0.25	3191.46	19.03	7317.51	3191.49	3643.65	85.00	0.75	0.21	0.72
	10545.00	91.04	0.74	3276.44	19.76	7316.20	3276.48	3728.64	85.00	0.68	0.36	0.58
	10631.00	90.49	1.36	3362.42	21.34	7315.05	3362.47	3814.63	86.00	0.96	-0.64	0.72
	10715.00	90.83	1.74	3446.39	23.61	7314.08	3446.45	3898.63	84.00	0.61	0.40	0.45
	10801.00	90.98	2.76	3532.31	26.99	7312.72	3532.40	3984.61	86.00	1.20	0.17	1.19
	10886.00	90.21	2.97	3617.20	31.24	7311.84	3617.33	4069.61	85.00	0.94	-0.91	0.25
	10971.00	88.86	1.91	3702.11	34.85	7312.53	3702.28	4154.60	85.00	2.02	-1.59	-1.25
	11056.00	88.82	0.18	3787.08	36.40	7314.25	3787.25	4239.58	85.00	2.04	-0.05	-2.04
	11142.00	89.10	0.97	3873.06	37.27	7315.81	3873.24	4325.57	86.00	0.97	0.33	0.92
	11227.00	89.48	359.17	3958.05	37.37	7316.87	3958.22	4410.56	85.00	2.16	0.45	-2.12
	11312.00	89.54	359.54	4043.04	36.41	7317.59	4043.20	4495.55	85.00	0.44	0.07	0.44
	11398.00	90.25	358.94	4129.03	35.27	7317.75	4129.18	4581.55	86.00	1.08	0.83	-0.70
	11483.00	90.18	359.00	4214.02	33.74	7317.43	4214.15	4666.55	85.00	0.11	-0.08	0.07
	11568.00	90.86	359.54	4299.01	32.66	7316.66	4299.12	4751.55	85.00	1.02	0.80	0.64
	11653.00	90.80	0.05	4384.00	32.36	7315.43	4384.10	4836.54	85.00	0.60	-0.07	0.60
	11739.00	90.34	359.72	4469.99	32.19	7314.57	4470.09	4922.53	86.00	0.66	-0.53	-0.38
	11824.00	89.57	359.14	4554.99	31.34	7314.84	4555.08	5007.53	85.00	1.13	-0.91	-0.68
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
	11909.00	88.59	358.16	4639.95	29.34	7316.00	4640.02	5092.52	85.00	1.63	-1.15	-1.15
	11994.00	89.20	359.40	4724.91	27.53	7317.64	4724.96	5177.50	85.00	1.63	0.72	1.48
	12079.00	90.34	0.31	4809.91	27.31	7317.98	4809.95	5262.50	85.00	1.72	1.34	1.07
	12164.00	87.53	358.99	4894.88	26.79	7319.56	4894.91	5347.47	85.00	3.65	-3.31	-1.55
	12250.00	87.41	358.39	4980.78	24.83	7323.36	4980.78	5433.39	86.00	0.71	-0.14	-0.70
	12335.00	89.60	357.79	5065.69	22.00	7325.58	5065.67	5518.36	85.00	2.67	2.58	-0.71
	12420.00	92.31	358.12	5150.62	18.97	7324.16	5150.56	5603.34	85.00	3.21	3.19	0.39
	12505.00	92.95	359.34	5235.51	17.08	7320.26	5235.43	5688.24	85.00	1.62	0.75	1.44
	12590.00	92.77	0.87	5320.40	17.24	7316.02	5320.32	5773.14	85.00	1.81	-0.21	1.80
	12676.00	92.52	0.98	5406.30	18.63	7312.05	5406.23	5859.04	86.00	0.32	-0.29	0.13
	12761.00	92.09	1.88	5491.20	20.75	7308.83	5491.15	5943.97	85.00	1.17	-0.51	1.06
	12847.00	93.17	2.26	5577.05	23.85	7304.89	5577.02	6029.88	86.00	1.33	1.26	0.44

12932.00	92.56	3.41	5661.84	28.05	7300.44	5661.85	6114.77	85.00	1.53	-0.72	1.35
13017.00	91.32	2.18	5746.69	32.19	7297.56	5746.73	6199.72	85.00	2.05	-1.46	-1.45
13102.00	90.40	2.92	5831.59	35.97	7296.28	5831.67	6284.71	85.00	1.39	-1.08	0.87
13179.00	89.81	2.03	5908.52	39.30	7296.14	5908.62	6361.71	77.00	1.39	-0.77	-1.16
13264.00	89.96	1.24	5993.48	41.72	7296.31	5993.61	6446.71	85.00	0.95	0.18	-0.93
13350.00	88.48	358.32	6079.46	41.39	7297.48	6079.58	6532.69	86.00	3.81	-1.72	-3.40
13435.00	88.32	358.51	6164.40	39.04	7299.86	6164.49	6617.66	85.00	0.29	-0.19	0.22
13520.00	88.62	358.49	6249.34	36.82	7302.13	6249.40	6702.63	85.00	0.35	0.35	-0.02
13606.00	88.61	357.28	6335.25	33.64	7304.21	6335.28	6788.60	86.00	1.41	-0.01	-1.41
13691.00	89.87	357.68	6420.16	29.91	7305.33	6420.15	6873.59	85.00	1.56	1.48	0.47
13776.00	91.11	359.72	6505.13	27.98	7304.61	6505.10	6958.58	85.00	2.81	1.46	2.40
13861.00	90.55	359.87	6590.12	27.67	7303.38	6590.08	7043.57	85.00	0.68	-0.66	0.18
13947.00	89.41	358.57	6676.11	26.50	7303.41	6676.05	7129.57	86.00	2.01	-1.33	-1.51
14032.00	91.42	1.13	6761.09	26.28	7302.79	6761.03	7214.55	85.00	3.83	2.36	3.01
14117.00	90.03	359.24	6846.08	26.56	7301.71	6846.02	7299.54	85.00	2.76	-1.64	-2.22
14203.00	90.06	359.47	6932.07	25.59	7301.65	6932.00	7385.54	86.00	0.27	0.03	0.27
14292.00	89.94	358.81	7021.06	24.25	7301.65	7020.97	7474.54	89.00	0.75	-0.13	-0.74
Projection to TD:											
14348.00	89.94	358.81	7077.05	23.09	7301.71	7076.95	7530.54	56.00	0.00	0.00	0.00