

# **VERDAD RESOURCES**

**WATTENBERG FIELD  
2N-63W-19 KBL PAD  
KBL 1918-05H**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**10 July, 2019**

Project: WATTENBERG FIELD  
Site: 2N-63W-19 KBL PAD  
Well: KBL 1918-05H  
Wellbore: Wellbore #1  
Design: Design #1

# VERDAD RESOURCES

## CASING DETAILS

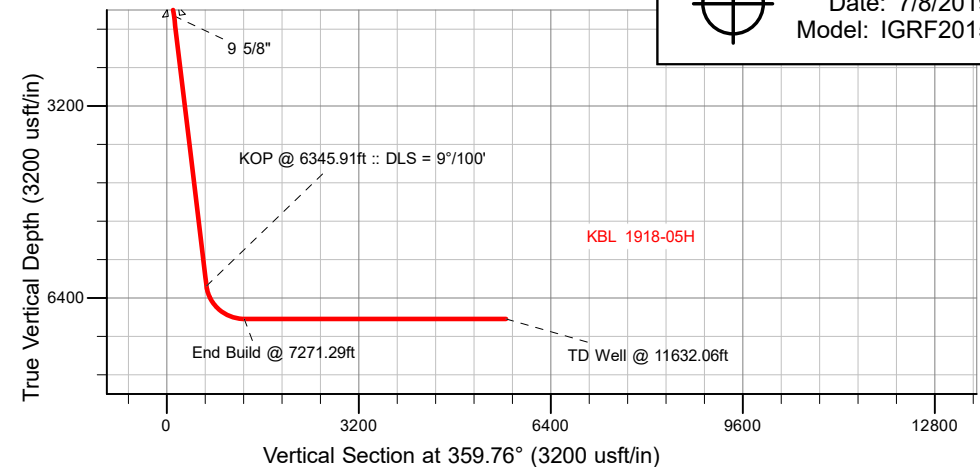
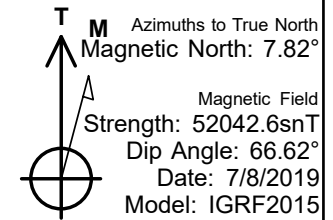
TVD	MD	Name	Size
1700.00	1724.49	9 5/8"	9-5/8

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	360.00	0.00	0.00	360.00	0.00	0.00	0.00	0.00	0.00	
3	1021.00	13.22	300.51	1015.15	38.54	-65.41	2.00	300.51	38.82	
4	6345.91	13.22	300.51	6198.95	656.79	-1114.56	0.00	0.00	661.45	
5	7271.29	90.00	359.76	6750.00	1288.56	-1228.48	9.00	59.92	1293.69	
6	11632.06	90.00	359.76	6750.00	5649.28	-1246.97	0.00	0.00	5654.46	KBL 1918-05H_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KBL 1918-05H_SHL	0.00	0.00	0.00	40.121609	-104.478391
KBL 1918-05H_BHL	6750.00	5649.28	-1246.97	40.137117	-104.482851



SHL  
1807' FSL  
2111' FEL

LP  
2180' FNL  
2100' FWL

BHL  
2180' FSL  
2100' FWL

## WELL DETAILS: KBL 1918-05H

GL = 4864'  
RKB = 24' @ 4888.00usft (RIG)

Plan: Design #1 (KBL 1918-05H/Wellbore #1)

Date: 7/10/2019

# Hewlett-Packard

## Planning Report

<b>Database:</b>	EDM 5000.14 Single User Db	<b>Local Co-ordinate Reference:</b>	Well KBL 1918-05H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Site:</b>	2N-63W-19 KBL PAD	<b>North Reference:</b>	True
<b>Well:</b>	KBL 1918-05H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	WATTENBERG FIELD		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		2N-63W-19 KBL PAD			
Site Position:		Northing:	1,288,791.50 usft	Latitude:	40.121610
From:	Lat/Long	Easting:	3,285,630.62 usft	Longitude:	-104.478606
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.66 °

Well	KBL 1918-05H					
Well Position	+N/-S	-0.37 usft	Northing:	1,288,791.82 usft	Latitude:	40.121609
	+E/-W	60.13 usft	Easting:	3,285,690.75 usft	Longitude:	-104.478391
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,864.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/8/2019	7.82	66.62	52,042.59520583

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	359.76

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/10/2019		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	1,700.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination
2	1,700.00	11,632.06	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
360.00	0.00	0.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,021.00	13.22	300.51	1,015.15	38.54	-65.41	2.00	2.00	0.00	300.51	
6,345.91	13.22	300.51	6,198.95	656.79	-1,114.56	0.00	0.00	0.00	0.00	
7,271.29	90.00	359.76	6,750.00	1,288.56	-1,228.48	9.00	8.30	6.40	59.92	
11,632.06	90.00	359.76	6,750.00	5,649.28	-1,246.97	0.00	0.00	0.00	0.00	KBL 1918-05H_BHL

# Hewlett-Packard

## Planning Report

<b>Database:</b>	EDM 5000.14 Single User Db	<b>Local Co-ordinate Reference:</b>	Well KBL 1918-05H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Site:</b>	2N-63W-19 KBL PAD	<b>North Reference:</b>	True
<b>Well:</b>	KBL 1918-05H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
360.00	0.00	0.00	360.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 360.00ft									
400.00	0.80	300.51	400.00	0.14	-0.24	0.14	2.00	2.00	0.00
500.00	2.80	300.51	499.94	1.74	-2.95	1.75	2.00	2.00	0.00
600.00	4.80	300.51	599.72	5.10	-8.66	5.14	2.00	2.00	0.00
700.00	6.80	300.51	699.20	10.23	-17.36	10.30	2.00	2.00	0.00
800.00	8.80	300.51	798.27	17.12	-29.05	17.24	2.00	2.00	0.00
900.00	10.80	300.51	896.81	25.76	-43.72	25.94	2.00	2.00	0.00
1,000.00	12.80	300.51	994.69	36.14	-61.33	36.40	2.00	2.00	0.00
1,021.00	13.22	300.51	1,015.15	38.54	-65.41	38.82	2.00	2.00	0.00
Hold Tangent @ 1021.00ft									
1,100.00	13.22	300.51	1,092.06	47.72	-80.97	48.05	0.00	0.00	0.00
1,200.00	13.22	300.51	1,189.41	59.33	-100.68	59.75	0.00	0.00	0.00
1,300.00	13.22	300.51	1,286.76	70.94	-120.38	71.44	0.00	0.00	0.00
1,400.00	13.22	300.51	1,384.11	82.55	-140.08	83.13	0.00	0.00	0.00
1,500.00	13.22	300.51	1,481.46	94.16	-159.78	94.83	0.00	0.00	0.00
1,600.00	13.22	300.51	1,578.81	105.77	-179.49	106.52	0.00	0.00	0.00
1,700.00	13.22	300.51	1,676.16	117.38	-199.19	118.21	0.00	0.00	0.00
1,724.49	13.22	300.51	1,700.00	120.22	-204.01	121.08	0.00	0.00	0.00
9 5/8"									
1,800.00	13.22	300.51	1,773.51	128.99	-218.89	129.90	0.00	0.00	0.00
1,900.00	13.22	300.51	1,870.86	140.60	-238.59	141.60	0.00	0.00	0.00
2,000.00	13.22	300.51	1,968.21	152.21	-258.30	153.29	0.00	0.00	0.00
2,100.00	13.22	300.51	2,065.56	163.82	-278.00	164.98	0.00	0.00	0.00
2,200.00	13.22	300.51	2,162.91	175.43	-297.70	176.68	0.00	0.00	0.00
2,300.00	13.22	300.51	2,260.26	187.04	-317.40	188.37	0.00	0.00	0.00
2,400.00	13.22	300.51	2,357.61	198.65	-337.11	200.06	0.00	0.00	0.00
2,500.00	13.22	300.51	2,454.96	210.26	-356.81	211.75	0.00	0.00	0.00
2,600.00	13.22	300.51	2,552.31	221.87	-376.51	223.45	0.00	0.00	0.00
2,700.00	13.22	300.51	2,649.66	233.48	-396.21	235.14	0.00	0.00	0.00
2,800.00	13.22	300.51	2,747.01	245.09	-415.92	246.83	0.00	0.00	0.00
2,900.00	13.22	300.51	2,844.36	256.70	-435.62	258.52	0.00	0.00	0.00
3,000.00	13.22	300.51	2,941.71	268.31	-455.32	270.22	0.00	0.00	0.00
3,100.00	13.22	300.51	3,039.06	279.92	-475.03	281.91	0.00	0.00	0.00
3,200.00	13.22	300.51	3,136.41	291.53	-494.73	293.60	0.00	0.00	0.00
3,300.00	13.22	300.51	3,233.76	303.14	-514.43	305.30	0.00	0.00	0.00
3,400.00	13.22	300.51	3,331.11	314.75	-534.13	316.99	0.00	0.00	0.00
3,500.00	13.22	300.51	3,428.46	326.36	-553.84	328.68	0.00	0.00	0.00
3,600.00	13.22	300.51	3,525.80	337.97	-573.54	340.37	0.00	0.00	0.00
3,700.00	13.22	300.51	3,623.15	349.59	-593.24	352.07	0.00	0.00	0.00
3,800.00	13.22	300.51	3,720.50	361.20	-612.94	363.76	0.00	0.00	0.00
3,900.00	13.22	300.51	3,817.85	372.81	-632.65	375.45	0.00	0.00	0.00
4,000.00	13.22	300.51	3,915.20	384.42	-652.35	387.15	0.00	0.00	0.00
4,100.00	13.22	300.51	4,012.55	396.03	-672.05	398.84	0.00	0.00	0.00
4,200.00	13.22	300.51	4,109.90	407.64	-691.75	410.53	0.00	0.00	0.00
4,300.00	13.22	300.51	4,207.25	419.25	-711.46	422.22	0.00	0.00	0.00
4,400.00	13.22	300.51	4,304.60	430.86	-731.16	433.92	0.00	0.00	0.00
4,500.00	13.22	300.51	4,401.95	442.47	-750.86	445.61	0.00	0.00	0.00
4,600.00	13.22	300.51	4,499.30	454.08	-770.56	457.30	0.00	0.00	0.00

# Hewlett-Packard

## Planning Report

<b>Database:</b>	EDM 5000.14 Single User Db	<b>Local Co-ordinate Reference:</b>	Well KBL 1918-05H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Site:</b>	2N-63W-19 KBL PAD	<b>North Reference:</b>	True
<b>Well:</b>	KBL 1918-05H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.00	13.22	300.51	4,596.65	465.69	-790.27	469.00	0.00	0.00	0.00
4,800.00	13.22	300.51	4,694.00	477.30	-809.97	480.69	0.00	0.00	0.00
4,900.00	13.22	300.51	4,791.35	488.91	-829.67	492.38	0.00	0.00	0.00
5,000.00	13.22	300.51	4,888.70	500.52	-849.38	504.07	0.00	0.00	0.00
5,100.00	13.22	300.51	4,986.05	512.13	-869.08	515.77	0.00	0.00	0.00
5,200.00	13.22	300.51	5,083.40	523.74	-888.78	527.46	0.00	0.00	0.00
5,300.00	13.22	300.51	5,180.75	535.35	-908.48	539.15	0.00	0.00	0.00
5,400.00	13.22	300.51	5,278.10	546.96	-928.19	550.84	0.00	0.00	0.00
5,500.00	13.22	300.51	5,375.45	558.57	-947.89	562.54	0.00	0.00	0.00
5,600.00	13.22	300.51	5,472.80	570.18	-967.59	574.23	0.00	0.00	0.00
5,700.00	13.22	300.51	5,570.15	581.79	-987.29	585.92	0.00	0.00	0.00
5,800.00	13.22	300.51	5,667.50	593.40	-1,007.00	597.62	0.00	0.00	0.00
5,900.00	13.22	300.51	5,764.85	605.01	-1,026.70	609.31	0.00	0.00	0.00
6,000.00	13.22	300.51	5,862.20	616.62	-1,046.40	621.00	0.00	0.00	0.00
6,100.00	13.22	300.51	5,959.55	628.23	-1,066.10	632.69	0.00	0.00	0.00
6,200.00	13.22	300.51	6,056.90	639.84	-1,085.81	644.39	0.00	0.00	0.00
6,300.00	13.22	300.51	6,154.25	651.45	-1,105.51	656.08	0.00	0.00	0.00
6,345.91	13.22	300.51	6,198.95	656.79	-1,114.56	661.45	0.00	0.00	0.00
KOP @ 6345.91ft :: DLS = 9°/100'									
6,400.00	16.21	315.76	6,251.28	665.34	-1,125.16	670.05	9.00	5.52	28.20
6,500.00	23.42	331.97	6,345.36	692.93	-1,144.27	697.72	9.00	7.21	16.21
6,600.00	31.52	340.54	6,434.05	735.21	-1,162.35	740.07	9.00	8.11	8.57
6,700.00	39.98	345.83	6,515.15	791.12	-1,178.96	796.05	9.00	8.46	5.29
6,800.00	48.61	349.51	6,586.67	859.29	-1,193.69	864.29	9.00	8.63	3.68
6,900.00	57.33	352.32	6,646.84	938.05	-1,206.17	943.10	9.00	8.72	2.81
7,000.00	66.10	354.62	6,694.19	1,025.45	-1,216.10	1,030.54	9.00	8.77	2.31
7,100.00	74.90	356.63	6,727.55	1,119.35	-1,223.23	1,124.46	9.00	8.80	2.01
7,200.00	83.71	358.48	6,746.09	1,217.42	-1,227.39	1,222.55	9.00	8.82	1.85
7,271.29	90.00	359.76	6,750.00	1,288.56	-1,228.48	1,293.69	9.00	8.82	1.79
End Build @ 7271.29ft									
7,300.00	90.00	359.76	6,750.00	1,317.27	-1,228.61	1,322.40	0.00	0.00	0.00
7,400.00	90.00	359.76	6,750.00	1,417.26	-1,229.03	1,422.40	0.00	0.00	0.00
7,500.00	90.00	359.76	6,750.00	1,517.26	-1,229.45	1,522.40	0.00	0.00	0.00
7,600.00	90.00	359.76	6,750.00	1,617.26	-1,229.88	1,622.40	0.00	0.00	0.00
7,700.00	90.00	359.76	6,750.00	1,717.26	-1,230.30	1,722.40	0.00	0.00	0.00
7,800.00	90.00	359.76	6,750.00	1,817.26	-1,230.73	1,822.40	0.00	0.00	0.00
7,900.00	90.00	359.76	6,750.00	1,917.26	-1,231.15	1,922.40	0.00	0.00	0.00
8,000.00	90.00	359.76	6,750.00	2,017.26	-1,231.57	2,022.40	0.00	0.00	0.00
8,100.00	90.00	359.76	6,750.00	2,117.26	-1,232.00	2,122.40	0.00	0.00	0.00
8,200.00	90.00	359.76	6,750.00	2,217.26	-1,232.42	2,222.40	0.00	0.00	0.00
8,300.00	90.00	359.76	6,750.00	2,317.26	-1,232.85	2,322.40	0.00	0.00	0.00
8,400.00	90.00	359.76	6,750.00	2,417.26	-1,233.27	2,422.40	0.00	0.00	0.00
8,500.00	90.00	359.76	6,750.00	2,517.25	-1,233.69	2,522.40	0.00	0.00	0.00
8,600.00	90.00	359.76	6,750.00	2,617.25	-1,234.12	2,622.40	0.00	0.00	0.00
8,700.00	90.00	359.76	6,750.00	2,717.25	-1,234.54	2,722.40	0.00	0.00	0.00
8,800.00	90.00	359.76	6,750.00	2,817.25	-1,234.97	2,822.40	0.00	0.00	0.00
8,900.00	90.00	359.76	6,750.00	2,917.25	-1,235.39	2,922.40	0.00	0.00	0.00
9,000.00	90.00	359.76	6,750.00	3,017.25	-1,235.81	3,022.40	0.00	0.00	0.00
9,100.00	90.00	359.76	6,750.00	3,117.25	-1,236.24	3,122.40	0.00	0.00	0.00
9,200.00	90.00	359.76	6,750.00	3,217.25	-1,236.66	3,222.40	0.00	0.00	0.00
9,300.00	90.00	359.76	6,750.00	3,317.25	-1,237.09	3,322.40	0.00	0.00	0.00
9,400.00	90.00	359.76	6,750.00	3,417.25	-1,237.51	3,422.40	0.00	0.00	0.00
9,500.00	90.00	359.76	6,750.00	3,517.25	-1,237.93	3,522.40	0.00	0.00	0.00
9,600.00	90.00	359.76	6,750.00	3,617.24	-1,238.36	3,622.40	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	EDM 5000.14 Single User Db	<b>Local Co-ordinate Reference:</b>	Well KBL 1918-05H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 24' @ 4888.00usft (RIG)
<b>Site:</b>	2N-63W-19 KBL PAD	<b>North Reference:</b>	True
<b>Well:</b>	KBL 1918-05H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,700.00	90.00	359.76	6,750.00	3,717.24	-1,238.78	3,722.40	0.00	0.00	0.00	
9,800.00	90.00	359.76	6,750.00	3,817.24	-1,239.21	3,822.40	0.00	0.00	0.00	
9,900.00	90.00	359.76	6,750.00	3,917.24	-1,239.63	3,922.40	0.00	0.00	0.00	
10,000.00	90.00	359.76	6,750.00	4,017.24	-1,240.05	4,022.40	0.00	0.00	0.00	
10,100.00	90.00	359.76	6,750.00	4,117.24	-1,240.48	4,122.40	0.00	0.00	0.00	
10,200.00	90.00	359.76	6,750.00	4,217.24	-1,240.90	4,222.40	0.00	0.00	0.00	
10,300.00	90.00	359.76	6,750.00	4,317.24	-1,241.33	4,322.40	0.00	0.00	0.00	
10,400.00	90.00	359.76	6,750.00	4,417.24	-1,241.75	4,422.40	0.00	0.00	0.00	
10,500.00	90.00	359.76	6,750.00	4,517.24	-1,242.17	4,522.40	0.00	0.00	0.00	
10,600.00	90.00	359.76	6,750.00	4,617.24	-1,242.60	4,622.40	0.00	0.00	0.00	
10,700.00	90.00	359.76	6,750.00	4,717.23	-1,243.02	4,722.40	0.00	0.00	0.00	
10,800.00	90.00	359.76	6,750.00	4,817.23	-1,243.44	4,822.40	0.00	0.00	0.00	
10,900.00	90.00	359.76	6,750.00	4,917.23	-1,243.87	4,922.40	0.00	0.00	0.00	
11,000.00	90.00	359.76	6,750.00	5,017.23	-1,244.29	5,022.40	0.00	0.00	0.00	
11,100.00	90.00	359.76	6,750.00	5,117.23	-1,244.72	5,122.40	0.00	0.00	0.00	
11,200.00	90.00	359.76	6,750.00	5,217.23	-1,245.14	5,222.40	0.00	0.00	0.00	
11,300.00	90.00	359.76	6,750.00	5,317.23	-1,245.56	5,322.40	0.00	0.00	0.00	
11,400.00	90.00	359.76	6,750.00	5,417.23	-1,245.99	5,422.40	0.00	0.00	0.00	
11,500.00	90.00	359.76	6,750.00	5,517.23	-1,246.41	5,522.40	0.00	0.00	0.00	
11,600.00	90.00	359.76	6,750.00	5,617.23	-1,246.84	5,622.40	0.00	0.00	0.00	
11,632.06	90.00	359.76	6,750.00	5,649.28	-1,246.97	5,654.46	0.00	0.00	0.00	
TD Well @ 11632.06ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,724.49	1,700.00	9 5/8"		9-5/8	13-1/2

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
360.00	360.00	0.00	0.00	Begin Nudge @ 360.00ft	
1,021.00	1,015.15	38.54	-65.41	Hold Tangent @ 1021.00ft	
6,345.91	6,198.95	656.79	-1,114.56	KOP @ 6345.91ft :: DLS = 9°/100'	
7,271.29	6,750.00	1,288.56	-1,228.48	End Build @ 7271.29ft	
11,632.06	6,750.00	5,649.28	-1,246.97	TD Well @ 11632.06ft	