

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-01 TIMBRO 0101 PAD

TIMBRO 0101-13H

Wellbore #1

Plan: Design #1

Standard Planning Report

21 May, 2019

Project: WATTENBERG FIELD
Site: 9N-59W-01 TIMBRO 0101 PAD
Well: TIMBRO 0101-13H
Wellbore: Wellbore #1
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1700.00	1720.09	9 5/8"	9-5/8

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	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	
862.50	11.25	42.70	858.89	40.45	37.33	2.00	42.70	-40.04	
5420.92	11.25	42.70	5329.72	694.02	640.42	0.00	0.00	-686.93	
6511.56	90.00	179.37	6050.00	64.97	745.72	9.00	136.11	-56.76	
11226.70	90.00	179.37	6050.00	-4649.88	797.96	0.00	0.00	4658.37	TIMBRO 0101-13H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 0101-13H_SHL	0.00	0.00	0.00	40.786482	-103.924459
TIMBRO 0101-13H_BHL	6050.00	-4649.88	797.96	40.773719	-103.921578

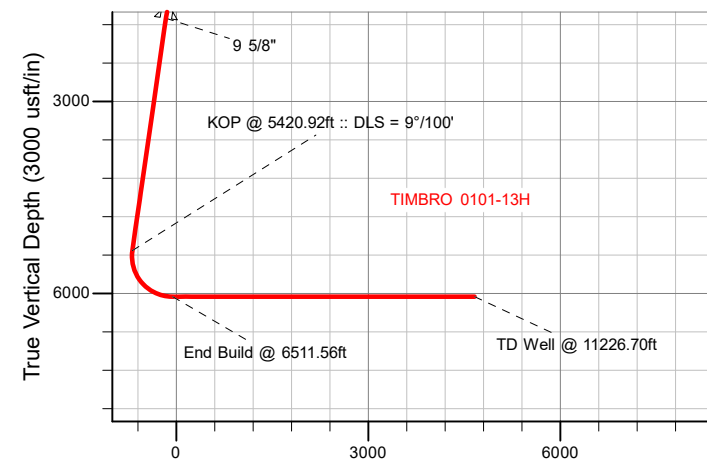
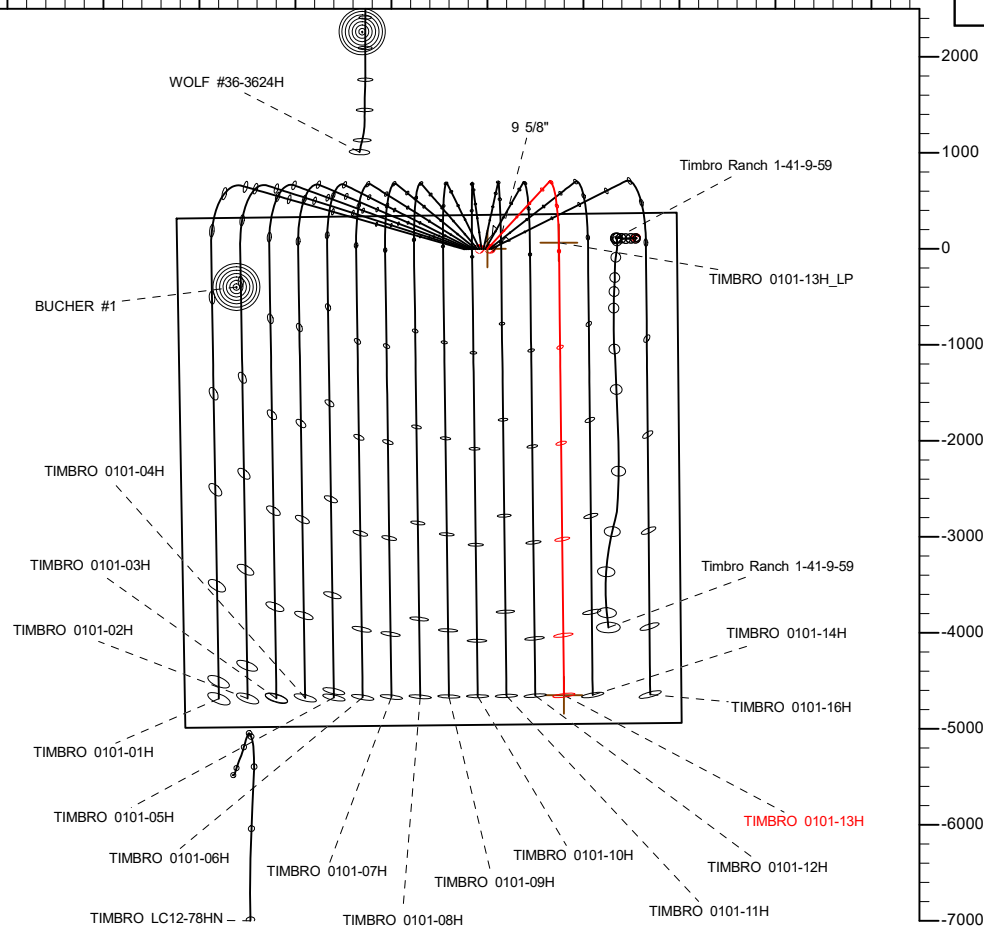
SHL
356' FNL
1977' FEL

LP
300' FNL
1231' FEL

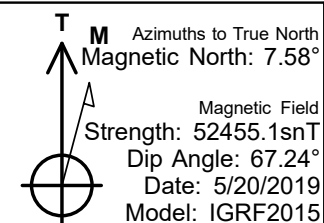
BHL
300' FSL
1224' FEL

West(-)/East(+) (2000 usft/in)

-5000 -4000 -3000 -2000 -1000 0 1000 2000 3000 4000



Vertical Section at 179.37° (3000 usft/in)



WELL DETAILS: TIMBRO 0101-13H

GL = 4939'

RKB = 24' @ 4963.00usft (RIG)

Plan: Design #1 (TIMBRO 0101-13H/Wellbore #1)

Date: 5/21/2019

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 0101-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4963.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4963.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site		9N-59W-01 TIMBRO 0101 PAD			
Site Position:		Northing:	1,533,230.40 usft	Latitude:	40.786474
From:	Lat/Long	Easting:	3,436,039.96 usft	Longitude:	-103.925326
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.02 °

Well	TIMBRO 0101-13H					
Well Position	+N/-S	2.87 usft	Northing:	1,533,237.53 usft	Latitude:	40.786482
	+E/-W	239.98 usft	Easting:	3,436,279.85 usft	Longitude:	-103.924459
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,939.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/20/2019	7.58	67.24	52,455.08489438

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.37

Plan Survey Tool Program	Date	5/21/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,700.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination
2	1,700.00	11,226.70	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
862.50	11.25	42.70	858.89	40.45	37.33	2.00	2.00	0.00	42.70	
5,420.92	11.25	42.70	5,329.72	694.02	640.42	0.00	0.00	0.00	0.00	
6,511.56	90.00	179.37	6,050.00	64.97	745.72	9.00	7.22	12.53	136.11	
11,226.70	90.00	179.37	6,050.00	-4,649.88	797.96	0.00	0.00	0.00	0.00	TIMBRO 0101-13H_E

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4963.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4963.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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
Begin Nudge @ 300.00ft									
400.00	2.00	42.70	399.98	1.28	1.18	-1.27	2.00	2.00	0.00
500.00	4.00	42.70	499.84	5.13	4.73	-5.08	2.00	2.00	0.00
600.00	6.00	42.70	599.45	11.53	10.64	-11.42	2.00	2.00	0.00
700.00	8.00	42.70	698.70	20.49	18.91	-20.28	2.00	2.00	0.00
800.00	10.00	42.70	797.47	31.99	29.52	-31.66	2.00	2.00	0.00
862.50	11.25	42.70	858.89	40.45	37.33	-40.04	2.00	2.00	0.00
Hold Tangent @ 862.50ft									
900.00	11.25	42.70	895.67	45.83	42.29	-45.36	0.00	0.00	0.00
1,000.00	11.25	42.70	993.75	60.17	55.52	-59.55	0.00	0.00	0.00
1,100.00	11.25	42.70	1,091.83	74.51	68.75	-73.75	0.00	0.00	0.00
1,200.00	11.25	42.70	1,189.91	88.84	81.98	-87.94	0.00	0.00	0.00
1,300.00	11.25	42.70	1,287.99	103.18	95.21	-102.13	0.00	0.00	0.00
1,400.00	11.25	42.70	1,386.06	117.52	108.44	-116.32	0.00	0.00	0.00
1,500.00	11.25	42.70	1,484.14	131.86	121.67	-130.51	0.00	0.00	0.00
1,600.00	11.25	42.70	1,582.22	146.19	134.90	-144.70	0.00	0.00	0.00
1,700.00	11.25	42.70	1,680.30	160.53	148.13	-158.89	0.00	0.00	0.00
1,720.09	11.25	42.70	1,700.00	163.41	150.79	-161.74	0.00	0.00	0.00
9 5/8"									
1,800.00	11.25	42.70	1,778.38	174.87	161.36	-173.08	0.00	0.00	0.00
1,900.00	11.25	42.70	1,876.46	189.21	174.59	-187.27	0.00	0.00	0.00
2,000.00	11.25	42.70	1,974.54	203.54	187.82	-201.47	0.00	0.00	0.00
2,100.00	11.25	42.70	2,072.61	217.88	201.05	-215.66	0.00	0.00	0.00
2,200.00	11.25	42.70	2,170.69	232.22	214.28	-229.85	0.00	0.00	0.00
2,300.00	11.25	42.70	2,268.77	246.56	227.51	-244.04	0.00	0.00	0.00
2,400.00	11.25	42.70	2,366.85	260.89	240.74	-258.23	0.00	0.00	0.00
2,500.00	11.25	42.70	2,464.93	275.23	253.98	-272.42	0.00	0.00	0.00
2,600.00	11.25	42.70	2,563.01	289.57	267.21	-286.61	0.00	0.00	0.00
2,700.00	11.25	42.70	2,661.09	303.91	280.44	-300.80	0.00	0.00	0.00
2,800.00	11.25	42.70	2,759.16	318.24	293.67	-314.99	0.00	0.00	0.00
2,900.00	11.25	42.70	2,857.24	332.58	306.90	-329.19	0.00	0.00	0.00
3,000.00	11.25	42.70	2,955.32	346.92	320.13	-343.38	0.00	0.00	0.00
3,100.00	11.25	42.70	3,053.40	361.26	333.36	-357.57	0.00	0.00	0.00
3,200.00	11.25	42.70	3,151.48	375.59	346.59	-371.76	0.00	0.00	0.00
3,300.00	11.25	42.70	3,249.56	389.93	359.82	-385.95	0.00	0.00	0.00
3,400.00	11.25	42.70	3,347.64	404.27	373.05	-400.14	0.00	0.00	0.00
3,500.00	11.25	42.70	3,445.71	418.61	386.28	-414.33	0.00	0.00	0.00
3,600.00	11.25	42.70	3,543.79	432.94	399.51	-428.52	0.00	0.00	0.00
3,700.00	11.25	42.70	3,641.87	447.28	412.74	-442.71	0.00	0.00	0.00
3,800.00	11.25	42.70	3,739.95	461.62	425.97	-456.91	0.00	0.00	0.00
3,900.00	11.25	42.70	3,838.03	475.95	439.20	-471.10	0.00	0.00	0.00
4,000.00	11.25	42.70	3,936.11	490.29	452.43	-485.29	0.00	0.00	0.00
4,100.00	11.25	42.70	4,034.19	504.63	465.66	-499.48	0.00	0.00	0.00
4,200.00	11.25	42.70	4,132.26	518.97	478.89	-513.67	0.00	0.00	0.00
4,300.00	11.25	42.70	4,230.34	533.30	492.12	-527.86	0.00	0.00	0.00
4,400.00	11.25	42.70	4,328.42	547.64	505.35	-542.05	0.00	0.00	0.00
4,500.00	11.25	42.70	4,426.50	561.98	518.58	-556.24	0.00	0.00	0.00
4,600.00	11.25	42.70	4,524.58	576.32	531.81	-570.43	0.00	0.00	0.00
4,700.00	11.25	42.70	4,622.66	590.65	545.04	-584.63	0.00	0.00	0.00

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4963.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4963.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
4,800.00	11.25	42.70	4,720.73	604.99	558.27	-598.82	0.00	0.00	0.00
4,900.00	11.25	42.70	4,818.81	619.33	571.50	-613.01	0.00	0.00	0.00
5,000.00	11.25	42.70	4,916.89	633.67	584.73	-627.20	0.00	0.00	0.00
5,100.00	11.25	42.70	5,014.97	648.00	597.96	-641.39	0.00	0.00	0.00
5,200.00	11.25	42.70	5,113.05	662.34	611.19	-655.58	0.00	0.00	0.00
5,300.00	11.25	42.70	5,211.13	676.68	624.42	-669.77	0.00	0.00	0.00
5,400.00	11.25	42.70	5,309.21	691.02	637.65	-683.96	0.00	0.00	0.00
5,420.92	11.25	42.70	5,329.72	694.02	640.42	-686.93	0.00	0.00	0.00
KOP @ 5420.92ft :: DLS = 9°/100'									
5,500.00	7.84	81.72	5,407.77	700.47	651.00	-693.27	9.00	-4.31	49.34
5,600.00	11.11	135.32	5,506.57	694.59	664.56	-687.24	9.00	3.27	53.60
5,700.00	18.61	155.45	5,603.22	673.19	677.99	-665.69	9.00	7.50	20.13
5,800.00	27.02	163.84	5,695.34	636.78	690.97	-629.15	9.00	8.41	8.39
5,900.00	35.71	168.42	5,780.66	586.27	703.17	-578.51	9.00	8.68	4.58
6,000.00	44.50	171.38	5,857.08	522.91	714.31	-515.02	9.00	8.80	2.96
6,100.00	53.36	173.54	5,922.72	448.24	724.10	-440.25	9.00	8.85	2.16
6,200.00	62.24	175.24	5,975.96	364.11	732.30	-356.04	9.00	8.88	1.71
6,300.00	71.14	176.69	6,015.49	272.59	738.71	-264.45	9.00	8.90	1.45
6,400.00	80.05	177.99	6,040.34	175.94	743.17	-167.76	9.00	8.91	1.30
6,500.00	88.97	179.22	6,049.90	76.53	745.58	-68.32	9.00	8.92	1.23
6,511.56	90.00	179.37	6,050.00	64.97	745.72	-56.76	9.00	8.92	1.22
End Build @ 6511.56ft									
6,600.00	90.00	179.37	6,050.00	-23.47	746.70	31.67	0.00	0.00	0.00
6,700.00	90.00	179.37	6,050.00	-123.46	747.81	131.67	0.00	0.00	0.00
6,800.00	90.00	179.37	6,050.00	-223.45	748.91	231.67	0.00	0.00	0.00
6,900.00	90.00	179.37	6,050.00	-323.45	750.02	331.67	0.00	0.00	0.00
7,000.00	90.00	179.37	6,050.00	-423.44	751.13	431.67	0.00	0.00	0.00
7,100.00	90.00	179.37	6,050.00	-523.43	752.24	531.67	0.00	0.00	0.00
7,200.00	90.00	179.37	6,050.00	-623.43	753.35	631.67	0.00	0.00	0.00
7,300.00	90.00	179.37	6,050.00	-723.42	754.45	731.67	0.00	0.00	0.00
7,400.00	90.00	179.37	6,050.00	-823.42	755.56	831.67	0.00	0.00	0.00
7,500.00	90.00	179.37	6,050.00	-923.41	756.67	931.67	0.00	0.00	0.00
7,600.00	90.00	179.37	6,050.00	-1,023.40	757.78	1,031.67	0.00	0.00	0.00
7,700.00	90.00	179.37	6,050.00	-1,123.40	758.89	1,131.67	0.00	0.00	0.00
7,800.00	90.00	179.37	6,050.00	-1,223.39	760.00	1,231.67	0.00	0.00	0.00
7,900.00	90.00	179.37	6,050.00	-1,323.39	761.10	1,331.67	0.00	0.00	0.00
8,000.00	90.00	179.37	6,050.00	-1,423.38	762.21	1,431.67	0.00	0.00	0.00
8,100.00	90.00	179.37	6,050.00	-1,523.37	763.32	1,531.67	0.00	0.00	0.00
8,200.00	90.00	179.37	6,050.00	-1,623.37	764.43	1,631.67	0.00	0.00	0.00
8,300.00	90.00	179.37	6,050.00	-1,723.36	765.54	1,731.67	0.00	0.00	0.00
8,400.00	90.00	179.37	6,050.00	-1,823.36	766.64	1,831.67	0.00	0.00	0.00
8,500.00	90.00	179.37	6,050.00	-1,923.35	767.75	1,931.67	0.00	0.00	0.00
8,600.00	90.00	179.37	6,050.00	-2,023.34	768.86	2,031.67	0.00	0.00	0.00
8,700.00	90.00	179.37	6,050.00	-2,123.34	769.97	2,131.67	0.00	0.00	0.00
8,800.00	90.00	179.37	6,050.00	-2,223.33	771.08	2,231.67	0.00	0.00	0.00
8,900.00	90.00	179.37	6,050.00	-2,323.32	772.18	2,331.67	0.00	0.00	0.00
9,000.00	90.00	179.37	6,050.00	-2,423.32	773.29	2,431.67	0.00	0.00	0.00
9,100.00	90.00	179.37	6,050.00	-2,523.31	774.40	2,531.67	0.00	0.00	0.00
9,200.00	90.00	179.37	6,050.00	-2,623.31	775.51	2,631.67	0.00	0.00	0.00
9,300.00	90.00	179.37	6,050.00	-2,723.30	776.62	2,731.67	0.00	0.00	0.00
9,400.00	90.00	179.37	6,050.00	-2,823.29	777.72	2,831.67	0.00	0.00	0.00
9,500.00	90.00	179.37	6,050.00	-2,923.29	778.83	2,931.67	0.00	0.00	0.00
9,600.00	90.00	179.37	6,050.00	-3,023.28	779.94	3,031.67	0.00	0.00	0.00
9,700.00	90.00	179.37	6,050.00	-3,123.28	781.05	3,131.67	0.00	0.00	0.00

Hewlett-Packard

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4963.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4963.00usft (RIG)
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Well:	TIMBRO 0101-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)	
9,800.00	90.00	179.37	6,050.00	-3,223.27	782.16	3,231.67	0.00	0.00	0.00	
9,900.00	90.00	179.37	6,050.00	-3,323.26	783.26	3,331.67	0.00	0.00	0.00	
10,000.00	90.00	179.37	6,050.00	-3,423.26	784.37	3,431.67	0.00	0.00	0.00	
10,100.00	90.00	179.37	6,050.00	-3,523.25	785.48	3,531.67	0.00	0.00	0.00	
10,200.00	90.00	179.37	6,050.00	-3,623.24	786.59	3,631.67	0.00	0.00	0.00	
10,300.00	90.00	179.37	6,050.00	-3,723.24	787.70	3,731.67	0.00	0.00	0.00	
10,400.00	90.00	179.37	6,050.00	-3,823.23	788.80	3,831.67	0.00	0.00	0.00	
10,500.00	90.00	179.37	6,050.00	-3,923.23	789.91	3,931.67	0.00	0.00	0.00	
10,600.00	90.00	179.37	6,050.00	-4,023.22	791.02	4,031.67	0.00	0.00	0.00	
10,700.00	90.00	179.37	6,050.00	-4,123.21	792.13	4,131.67	0.00	0.00	0.00	
10,800.00	90.00	179.37	6,050.00	-4,223.21	793.24	4,231.67	0.00	0.00	0.00	
10,900.00	90.00	179.37	6,050.00	-4,323.20	794.34	4,331.67	0.00	0.00	0.00	
11,000.00	90.00	179.37	6,050.00	-4,423.20	795.45	4,431.67	0.00	0.00	0.00	
11,100.00	90.00	179.37	6,050.00	-4,523.19	796.56	4,531.67	0.00	0.00	0.00	
11,200.00	90.00	179.37	6,050.00	-4,623.18	797.67	4,631.67	0.00	0.00	0.00	
11,226.70	90.00	179.37	6,050.00	-4,649.88	797.96	4,658.37	0.00	0.00	0.00	
TD Well @ 11226.70ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,720.09	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)		
300.00	300.00	0.00	0.00	Begin Nudge @ 300.00ft	
862.50	858.89	40.45	37.33	Hold Tangent @ 862.50ft	
5,420.92	5,329.72	694.02	640.42	KOP @ 5420.92ft :: DLS = 9°/100'	
6,511.56	6,050.00	64.97	745.72	End Build @ 6511.56ft	
11,226.70	6,050.00	-4,649.88	797.96	TD Well @ 11226.70ft	