

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-13H

Wellbore #1

Plan: Design #2

Standard Planning Report

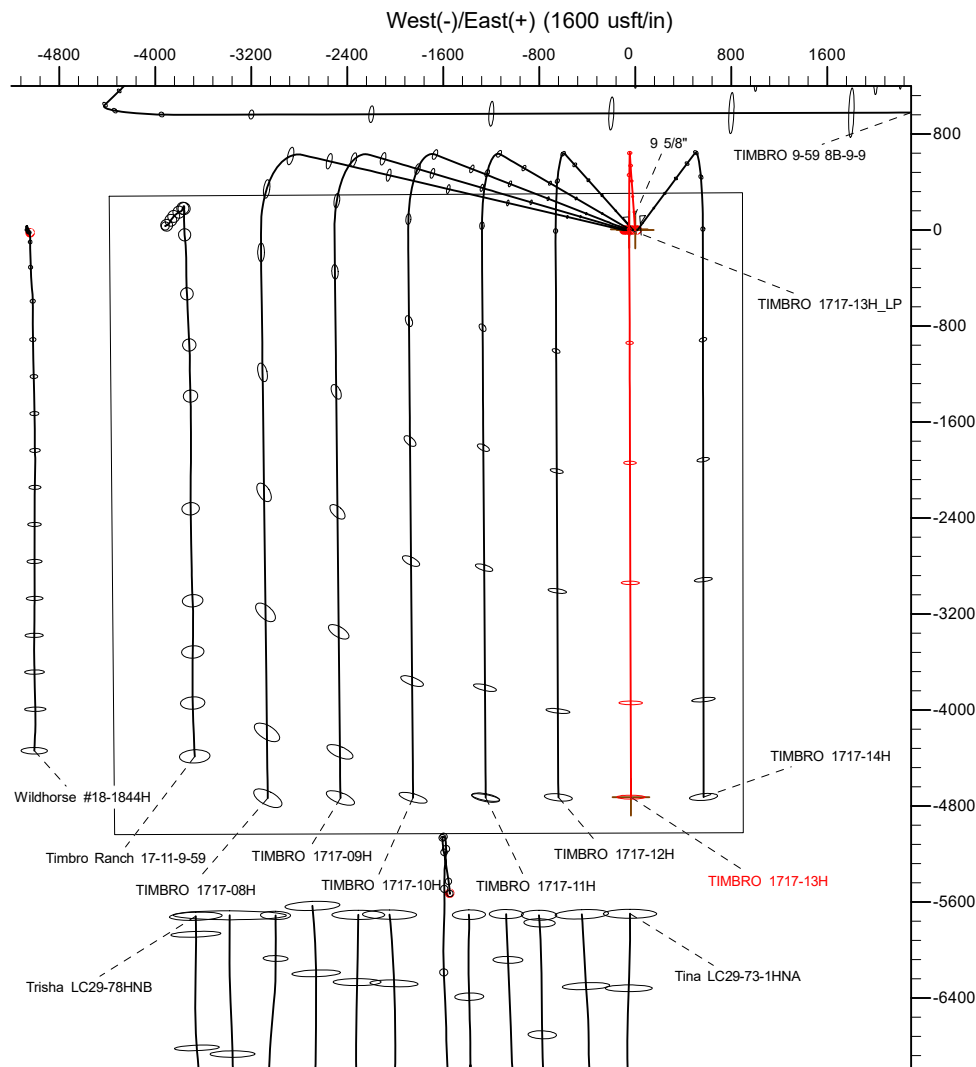
24 February, 2020

Project: WATTENBERG FIELD
Site: 9N-59W-17 TIMBRO 1717 PAD
Well: TIMBRO 1717-13H
Wellbore: Wellbore #1
Design: Design #2

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1500.00	1506.79	9 5/8"	9-5/8

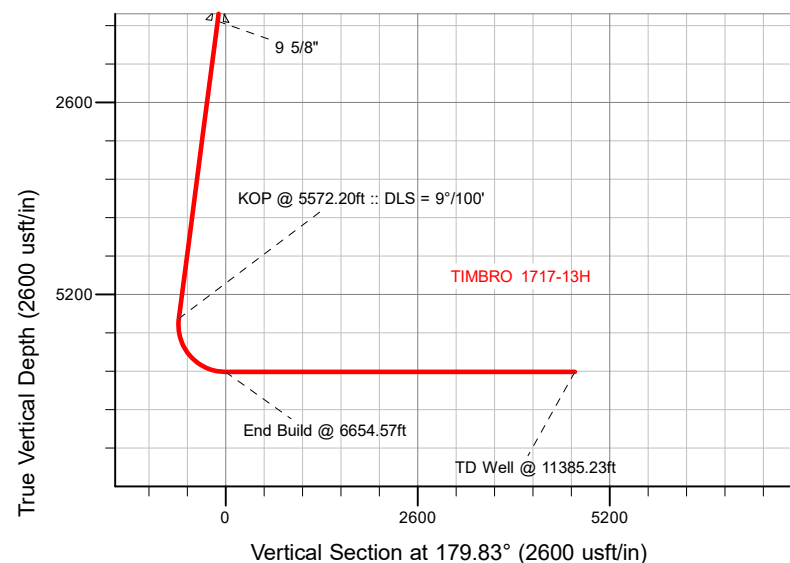


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	
3	821.50	7.43	356.00	820.46	24.00	-1.68	2.00	356.00	-24.00	
4	5572.20	7.43	356.00	5531.27	636.83	-44.53	0.00	0.00	-636.96	
5	6654.57	90.00	179.83	6250.00	5.52	-48.87	9.00	-176.14	-5.66	
6	11385.23	90.00	179.83	6250.00	-4725.12	-34.53	0.00	0.00	4725.00	TIMBRO 1717-13H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

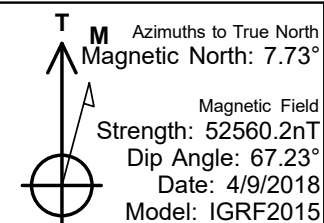
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-13H_SHL	0.00	0.00	0.00	40.756951	-103.995838
TIMBRO 1717-13H_BHL	6250.00	-4725.12	-34.53	40.743982	-103.995962



SHL
306' FNL
895' FEL

LP
300' FNL
944' FEL

BHL
300' FSL
935' FEL



WELL DETAILS: TIMBRO 1717-13H

GL = 5011'

RKB = 20' @ 5031.00usft (RIG)

Plan: Design #2 (TIMBRO 1717-13H/Wellbore #1)

Date: 2/24/2020

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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-17 TIMBRO 1717 PAD			
Site Position:		Northing:	1,522,135.25 usft	Latitude:	40.756951
From:	Lat/Long	Easting:	3,416,606.55 usft	Longitude:	-103.996171
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well		TIMBRO 1717-13H				
Well Position	+N/-S	0.00 usft	Northing:	1,522,136.81 usft	Latitude:	40.756951
	+E/-W	0.00 usft	Easting:	3,416,698.90 usft	Longitude:	-103.995838
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,011.00 usft
Grid Convergence:		0.97 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/9/2018	7.73	67.23	52,560.17227927

Design	Design #2				
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	179.83	

Plan Survey Tool Program		Date	2/24/2020		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Design #2 (Wellbore #1)	ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	
2	1,500.00	11,385.23	Design #2 (Wellbore #1)	ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	

HP

Planning Report

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Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
821.50	7.43	356.00	820.46	24.00	-1.68	2.00	2.00	0.00	356.00	
5,572.20	7.43	356.00	5,531.27	636.83	-44.53	0.00	0.00	0.00	0.00	
6,654.57	90.00	179.83	6,250.00	5.52	-48.87	9.00	7.63	-16.28	-176.14	
11,385.23	90.00	179.83	6,250.00	-4,725.12	-34.53	0.00	0.00	0.00	0.00	TIMBRO 1717-13H_E

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 450.00ft									
500.00	1.00	356.00	500.00	0.44	-0.03	-0.44	2.00	2.00	0.00
600.00	3.00	356.00	599.93	3.92	-0.27	-3.92	2.00	2.00	0.00
700.00	5.00	356.00	699.68	10.87	-0.76	-10.88	2.00	2.00	0.00
800.00	7.00	356.00	799.13	21.30	-1.49	-21.31	2.00	2.00	0.00
821.50	7.43	356.00	820.46	24.00	-1.68	-24.00	2.00	2.00	0.00
Hold Tangent @ 821.50ft									
900.00	7.43	356.00	898.30	34.12	-2.39	-34.13	0.00	0.00	0.00
1,000.00	7.43	356.00	997.46	47.02	-3.29	-47.03	0.00	0.00	0.00
1,100.00	7.43	356.00	1,096.62	59.92	-4.19	-59.93	0.00	0.00	0.00
1,200.00	7.43	356.00	1,195.78	72.82	-5.09	-72.84	0.00	0.00	0.00
1,300.00	7.43	356.00	1,294.94	85.72	-5.99	-85.74	0.00	0.00	0.00
1,400.00	7.43	356.00	1,394.10	98.62	-6.90	-98.64	0.00	0.00	0.00
1,500.00	7.43	356.00	1,493.26	111.52	-7.80	-111.54	0.00	0.00	0.00
1,506.79	7.43	356.00	1,500.00	112.40	-7.86	-112.42	0.00	0.00	0.00
9 5/8"									
1,600.00	7.43	356.00	1,592.42	124.42	-8.70	-124.45	0.00	0.00	0.00
1,700.00	7.43	356.00	1,691.58	137.32	-9.60	-137.35	0.00	0.00	0.00
1,800.00	7.43	356.00	1,790.74	150.22	-10.50	-150.25	0.00	0.00	0.00
1,900.00	7.43	356.00	1,889.90	163.12	-11.41	-163.15	0.00	0.00	0.00
2,000.00	7.43	356.00	1,989.06	176.02	-12.31	-176.06	0.00	0.00	0.00
2,100.00	7.43	356.00	2,088.22	188.92	-13.21	-188.96	0.00	0.00	0.00
2,200.00	7.43	356.00	2,187.39	201.82	-14.11	-201.86	0.00	0.00	0.00
2,300.00	7.43	356.00	2,286.55	214.72	-15.01	-214.77	0.00	0.00	0.00
2,400.00	7.43	356.00	2,385.71	227.62	-15.92	-227.67	0.00	0.00	0.00
2,500.00	7.43	356.00	2,484.87	240.52	-16.82	-240.57	0.00	0.00	0.00
2,600.00	7.43	356.00	2,584.03	253.42	-17.72	-253.47	0.00	0.00	0.00
2,700.00	7.43	356.00	2,683.19	266.32	-18.62	-266.38	0.00	0.00	0.00
2,800.00	7.43	356.00	2,782.35	279.22	-19.53	-279.28	0.00	0.00	0.00
2,900.00	7.43	356.00	2,881.51	292.12	-20.43	-292.18	0.00	0.00	0.00
3,000.00	7.43	356.00	2,980.67	305.02	-21.33	-305.08	0.00	0.00	0.00
3,100.00	7.43	356.00	3,079.83	317.92	-22.23	-317.99	0.00	0.00	0.00
3,200.00	7.43	356.00	3,178.99	330.82	-23.13	-330.89	0.00	0.00	0.00
3,300.00	7.43	356.00	3,278.15	343.72	-24.04	-343.79	0.00	0.00	0.00
3,400.00	7.43	356.00	3,377.31	356.62	-24.94	-356.69	0.00	0.00	0.00
3,500.00	7.43	356.00	3,476.47	369.52	-25.84	-369.60	0.00	0.00	0.00
3,600.00	7.43	356.00	3,575.63	382.42	-26.74	-382.50	0.00	0.00	0.00
3,700.00	7.43	356.00	3,674.79	395.32	-27.64	-395.40	0.00	0.00	0.00
3,800.00	7.43	356.00	3,773.95	408.22	-28.55	-408.30	0.00	0.00	0.00
3,900.00	7.43	356.00	3,873.11	421.12	-29.45	-421.21	0.00	0.00	0.00
4,000.00	7.43	356.00	3,972.27	434.02	-30.35	-434.11	0.00	0.00	0.00
4,100.00	7.43	356.00	4,071.43	446.92	-31.25	-447.01	0.00	0.00	0.00
4,200.00	7.43	356.00	4,170.59	459.82	-32.15	-459.91	0.00	0.00	0.00
4,300.00	7.43	356.00	4,269.75	472.72	-33.06	-472.82	0.00	0.00	0.00
4,400.00	7.43	356.00	4,368.91	485.62	-33.96	-485.72	0.00	0.00	0.00
4,500.00	7.43	356.00	4,468.07	498.52	-34.86	-498.62	0.00	0.00	0.00
4,600.00	7.43	356.00	4,567.23	511.42	-35.76	-511.53	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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	7.43	356.00	4,666.39	524.32	-36.66	-524.43	0.00	0.00	0.00
4,800.00	7.43	356.00	4,765.55	537.22	-37.57	-537.33	0.00	0.00	0.00
4,900.00	7.43	356.00	4,864.72	550.12	-38.47	-550.23	0.00	0.00	0.00
5,000.00	7.43	356.00	4,963.88	563.02	-39.37	-563.14	0.00	0.00	0.00
5,100.00	7.43	356.00	5,063.04	575.92	-40.27	-576.04	0.00	0.00	0.00
5,200.00	7.43	356.00	5,162.20	588.82	-41.17	-588.94	0.00	0.00	0.00
5,300.00	7.43	356.00	5,261.36	601.72	-42.08	-601.84	0.00	0.00	0.00
5,400.00	7.43	356.00	5,360.52	614.62	-42.98	-614.75	0.00	0.00	0.00
5,500.00	7.43	356.00	5,459.68	627.52	-43.88	-627.65	0.00	0.00	0.00
5,572.20	7.43	356.00	5,531.27	636.83	-44.53	-636.96	0.00	0.00	0.00
KOP @ 5572.20ft :: DLS = 9°/100'									
5,600.00	4.94	354.04	5,558.91	639.82	-44.78	-639.95	9.00	-8.97	-7.04
5,700.00	4.12	186.77	5,658.80	640.53	-45.65	-640.67	9.00	-0.82	-167.28
5,800.00	13.10	181.97	5,757.57	625.61	-46.47	-625.75	9.00	8.98	-4.80
5,900.00	22.09	181.05	5,852.79	595.42	-47.20	-595.56	9.00	9.00	-0.92
6,000.00	31.09	180.65	5,942.12	550.71	-47.85	-550.85	9.00	9.00	-0.40
6,100.00	40.09	180.42	6,023.36	492.57	-48.38	-492.71	9.00	9.00	-0.23
6,200.00	49.09	180.26	6,094.50	422.44	-48.78	-422.58	9.00	9.00	-0.16
6,300.00	58.09	180.14	6,153.79	342.04	-49.06	-342.19	9.00	9.00	-0.12
6,400.00	67.09	180.04	6,199.78	253.36	-49.19	-253.51	9.00	9.00	-0.10
6,500.00	76.09	179.95	6,231.33	158.58	-49.17	-158.72	9.00	9.00	-0.09
6,600.00	85.09	179.87	6,247.67	60.02	-49.02	-60.17	9.00	9.00	-0.08
6,654.57	90.00	179.83	6,250.00	5.52	-48.87	-5.66	9.00	9.00	-0.08
End Build @ 6654.57ft									
6,700.00	90.00	179.83	6,250.00	-39.91	-48.73	39.76	0.00	0.00	0.00
6,800.00	90.00	179.83	6,250.00	-139.91	-48.43	139.76	0.00	0.00	0.00
6,900.00	90.00	179.83	6,250.00	-239.91	-48.13	239.76	0.00	0.00	0.00
7,000.00	90.00	179.83	6,250.00	-339.91	-47.82	339.76	0.00	0.00	0.00
7,100.00	90.00	179.83	6,250.00	-439.91	-47.52	439.76	0.00	0.00	0.00
7,200.00	90.00	179.83	6,250.00	-539.91	-47.22	539.76	0.00	0.00	0.00
7,300.00	90.00	179.83	6,250.00	-639.91	-46.91	639.76	0.00	0.00	0.00
7,400.00	90.00	179.83	6,250.00	-739.91	-46.61	739.76	0.00	0.00	0.00
7,500.00	90.00	179.83	6,250.00	-839.91	-46.31	839.76	0.00	0.00	0.00
7,600.00	90.00	179.83	6,250.00	-939.90	-46.01	939.76	0.00	0.00	0.00
7,700.00	90.00	179.83	6,250.00	-1,039.90	-45.70	1,039.76	0.00	0.00	0.00
7,800.00	90.00	179.83	6,250.00	-1,139.90	-45.40	1,139.76	0.00	0.00	0.00
7,900.00	90.00	179.83	6,250.00	-1,239.90	-45.10	1,239.76	0.00	0.00	0.00
8,000.00	90.00	179.83	6,250.00	-1,339.90	-44.79	1,339.76	0.00	0.00	0.00
8,100.00	90.00	179.83	6,250.00	-1,439.90	-44.49	1,439.76	0.00	0.00	0.00
8,200.00	90.00	179.83	6,250.00	-1,539.90	-44.19	1,539.76	0.00	0.00	0.00
8,300.00	90.00	179.83	6,250.00	-1,639.90	-43.88	1,639.76	0.00	0.00	0.00
8,400.00	90.00	179.83	6,250.00	-1,739.90	-43.58	1,739.76	0.00	0.00	0.00
8,500.00	90.00	179.83	6,250.00	-1,839.90	-43.28	1,839.76	0.00	0.00	0.00
8,600.00	90.00	179.83	6,250.00	-1,939.90	-42.97	1,939.76	0.00	0.00	0.00
8,700.00	90.00	179.83	6,250.00	-2,039.90	-42.67	2,039.76	0.00	0.00	0.00
8,800.00	90.00	179.83	6,250.00	-2,139.90	-42.37	2,139.76	0.00	0.00	0.00
8,900.00	90.00	179.83	6,250.00	-2,239.90	-42.06	2,239.76	0.00	0.00	0.00
9,000.00	90.00	179.83	6,250.00	-2,339.90	-41.76	2,339.76	0.00	0.00	0.00
9,100.00	90.00	179.83	6,250.00	-2,439.90	-41.46	2,439.76	0.00	0.00	0.00
9,200.00	90.00	179.83	6,250.00	-2,539.90	-41.15	2,539.76	0.00	0.00	0.00
9,300.00	90.00	179.83	6,250.00	-2,639.90	-40.85	2,639.76	0.00	0.00	0.00
9,400.00	90.00	179.83	6,250.00	-2,739.90	-40.55	2,739.76	0.00	0.00	0.00
9,500.00	90.00	179.83	6,250.00	-2,839.90	-40.24	2,839.76	0.00	0.00	0.00
9,600.00	90.00	179.83	6,250.00	-2,939.90	-39.94	2,939.76	0.00	0.00	0.00

HP

Planning Report

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Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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	179.83	6,250.00	-3,039.90	-39.64	3,039.76	0.00	0.00	0.00	
9,800.00	90.00	179.83	6,250.00	-3,139.89	-39.33	3,139.76	0.00	0.00	0.00	
9,900.00	90.00	179.83	6,250.00	-3,239.89	-39.03	3,239.76	0.00	0.00	0.00	
10,000.00	90.00	179.83	6,250.00	-3,339.89	-38.73	3,339.76	0.00	0.00	0.00	
10,100.00	90.00	179.83	6,250.00	-3,439.89	-38.42	3,439.76	0.00	0.00	0.00	
10,200.00	90.00	179.83	6,250.00	-3,539.89	-38.12	3,539.76	0.00	0.00	0.00	
10,300.00	90.00	179.83	6,250.00	-3,639.89	-37.82	3,639.76	0.00	0.00	0.00	
10,400.00	90.00	179.83	6,250.00	-3,739.89	-37.51	3,739.76	0.00	0.00	0.00	
10,500.00	90.00	179.83	6,250.00	-3,839.89	-37.21	3,839.76	0.00	0.00	0.00	
10,600.00	90.00	179.83	6,250.00	-3,939.89	-36.91	3,939.76	0.00	0.00	0.00	
10,700.00	90.00	179.83	6,250.00	-4,039.89	-36.60	4,039.76	0.00	0.00	0.00	
10,800.00	90.00	179.83	6,250.00	-4,139.89	-36.30	4,139.76	0.00	0.00	0.00	
10,900.00	90.00	179.83	6,250.00	-4,239.89	-36.00	4,239.76	0.00	0.00	0.00	
11,000.00	90.00	179.83	6,250.00	-4,339.89	-35.69	4,339.76	0.00	0.00	0.00	
11,100.00	90.00	179.83	6,250.00	-4,439.89	-35.39	4,439.76	0.00	0.00	0.00	
11,200.00	90.00	179.83	6,250.00	-4,539.89	-35.09	4,539.76	0.00	0.00	0.00	
11,300.00	90.00	179.83	6,250.00	-4,639.89	-34.78	4,639.76	0.00	0.00	0.00	
11,385.23	90.00	179.83	6,250.00	-4,725.12	-34.53	4,725.00	0.00	0.00	0.00	
TD Well @ 11385.23ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,506.79	1,500.00	9 5/8"	9-5/8	13-1/2	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
450.00	450.00	0.00	0.00	Begin Nudge @ 450.00ft	
821.50	820.46	24.00	-1.68	Hold Tangent @ 821.50ft	
5,572.20	5,531.27	636.83	-44.53	KOP @ 5572.20ft :: DLS = 9°/100'	
6,654.57	6,250.00	5.52	-48.87	End Build @ 6654.57ft	
11,385.23	6,250.00	-4,725.12	-34.53	TD Well @ 11385.23ft	