

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-12H

Wellbore #1

Plan: Design #2

Standard Planning Report

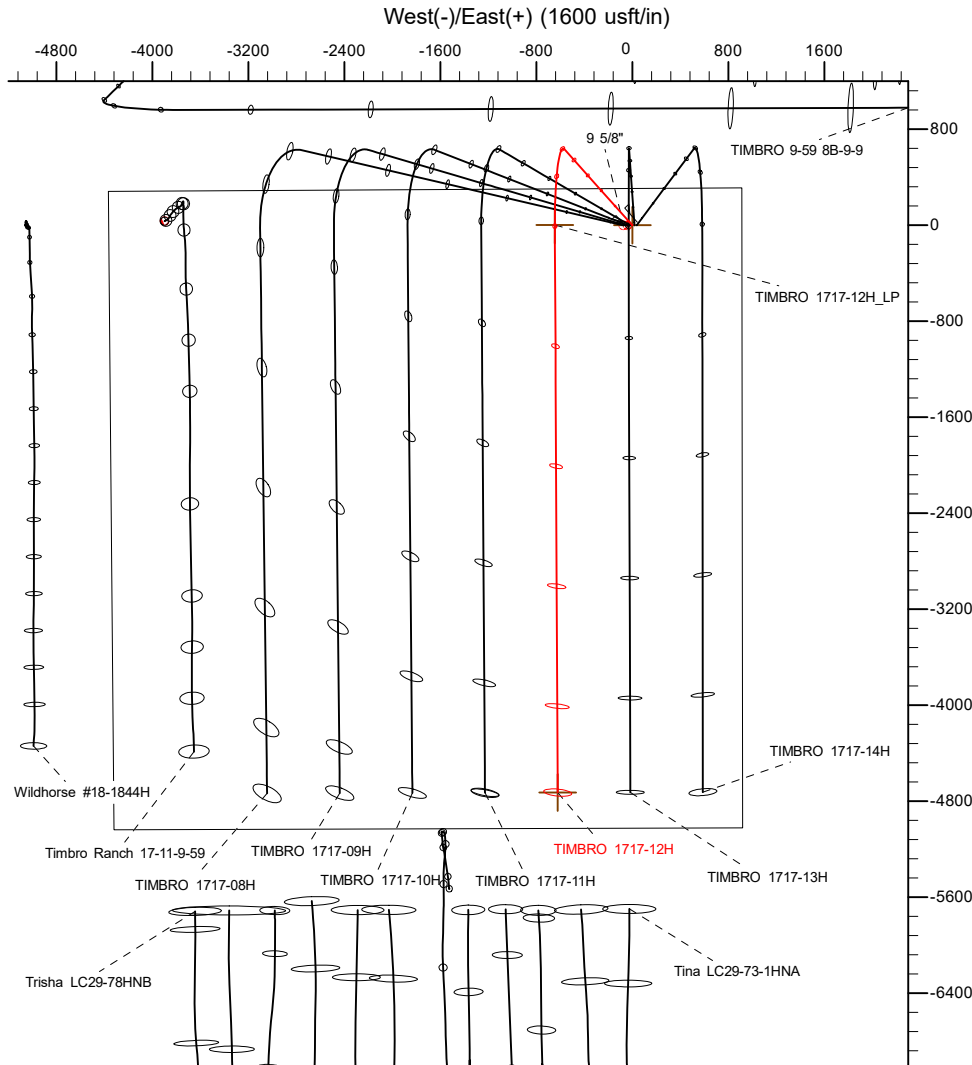
24 February, 2020

Project: WATTENBERG FIELD
 Site: 9N-59W-17 TIMBRO 1717 PAD
 Well: TIMBRO 1717-12H
 Wellbore: Wellbore #1
 Design: Design #2

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1500.00	1511.57	9 5/8"	9-5/8



SHL
306' FNL
913' FEL

LP
300' FNL
1558' FEL

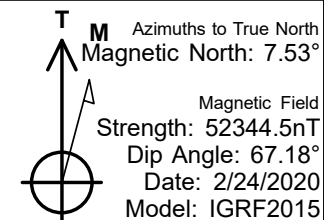
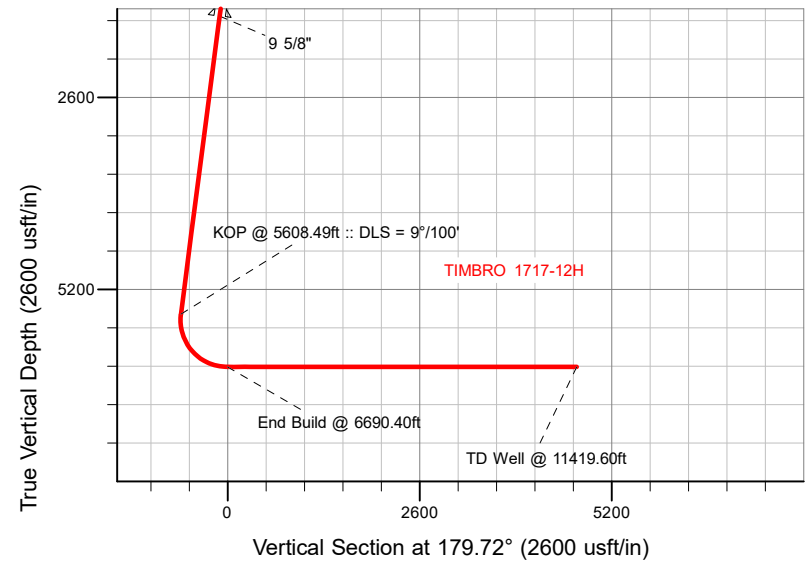
BHL
300' FSL
1541' FEL

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	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	893.00	9.86	318.25	890.57	31.57	-28.18	2.00	318.25	-31.71	
4	5608.49	9.86	318.25	5536.41	634.00	-565.87	0.00	0.00	-636.76	
5	6690.40	90.00	179.72	6250.00	2.25	-644.92	9.00	-138.11	-5.40	
6	11419.60	90.00	179.72	6250.00	-4726.90	-621.81	0.00	0.00	4723.80	TIMBRO 1717-12H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-12H_SHL	0.00	0.00	0.00	40.756951	-103.995903
TIMBRO 1717-12H_BHL	6250.00	-4726.90	-621.81	40.743977	-103.998147



WELL DETAILS: TIMBRO 1717-12H

GL = 5010'

RKB = 20' @ 5030.00usft (RIG)

Plan: Design #2 (TIMBRO 1717-12H/Wellbore #1)

Date: 2/24/2020

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5030.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5030.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-12H	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 1717-12H				
Well Position	+N/-S	0.00 usft	Northing:	1,522,136.43 usft	Latitude:	40.756951
	+E/-W	0.00 usft	Easting:	3,416,680.90 usft	Longitude:	-103.995903
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,010.00 usft
Grid Convergence:		0.97 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/24/2020	7.53	67.18	52,344.51330830

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	179.72	

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	11,419.60	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' @ 5030.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-12H	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
893.00	9.86	318.25	890.57	31.57	-28.18	2.00	2.00	0.00	318.25	
5,608.49	9.86	318.25	5,536.41	634.00	-565.87	0.00	0.00	0.00	0.00	
6,690.40	90.00	179.72	6,250.00	2.25	-644.92	9.00	7.41	-12.80	-138.11	
11,419.60	90.00	179.72	6,250.00	-4,726.90	-621.81	0.00	0.00	0.00	0.00	TIMBRO 1717-12H_E

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5030.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5030.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-12H	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
Begin Nudge @ 400.00ft									
500.00	2.00	318.25	499.98	1.30	-1.16	-1.31	2.00	2.00	0.00
600.00	4.00	318.25	599.84	5.21	-4.65	-5.23	2.00	2.00	0.00
700.00	6.00	318.25	699.45	11.71	-10.45	-11.76	2.00	2.00	0.00
800.00	8.00	318.25	798.70	20.80	-18.56	-20.89	2.00	2.00	0.00
893.00	9.86	318.25	890.57	31.57	-28.18	-31.71	2.00	2.00	0.00
Hold Tangent @ 893.00ft									
900.00	9.86	318.25	897.47	32.46	-28.98	-32.61	0.00	0.00	0.00
1,000.00	9.86	318.25	995.99	45.24	-40.38	-45.44	0.00	0.00	0.00
1,100.00	9.86	318.25	1,094.51	58.02	-51.78	-58.27	0.00	0.00	0.00
1,200.00	9.86	318.25	1,193.04	70.79	-63.18	-71.10	0.00	0.00	0.00
1,300.00	9.86	318.25	1,291.56	83.57	-74.59	-83.93	0.00	0.00	0.00
1,400.00	9.86	318.25	1,390.08	96.34	-85.99	-96.76	0.00	0.00	0.00
1,500.00	9.86	318.25	1,488.60	109.12	-97.39	-109.59	0.00	0.00	0.00
1,511.57	9.86	318.25	1,500.00	110.60	-98.71	-111.08	0.00	0.00	0.00
9 5/8"									
1,600.00	9.86	318.25	1,587.13	121.89	-108.79	-122.42	0.00	0.00	0.00
1,700.00	9.86	318.25	1,685.65	134.67	-120.20	-135.25	0.00	0.00	0.00
1,800.00	9.86	318.25	1,784.17	147.44	-131.60	-148.09	0.00	0.00	0.00
1,900.00	9.86	318.25	1,882.70	160.22	-143.00	-160.92	0.00	0.00	0.00
2,000.00	9.86	318.25	1,981.22	173.00	-154.40	-173.75	0.00	0.00	0.00
2,100.00	9.86	318.25	2,079.74	185.77	-165.81	-186.58	0.00	0.00	0.00
2,200.00	9.86	318.25	2,178.26	198.55	-177.21	-199.41	0.00	0.00	0.00
2,300.00	9.86	318.25	2,276.79	211.32	-188.61	-212.24	0.00	0.00	0.00
2,400.00	9.86	318.25	2,375.31	224.10	-200.01	-225.07	0.00	0.00	0.00
2,500.00	9.86	318.25	2,473.83	236.87	-211.42	-237.90	0.00	0.00	0.00
2,600.00	9.86	318.25	2,572.36	249.65	-222.82	-250.73	0.00	0.00	0.00
2,700.00	9.86	318.25	2,670.88	262.42	-234.22	-263.57	0.00	0.00	0.00
2,800.00	9.86	318.25	2,769.40	275.20	-245.63	-276.40	0.00	0.00	0.00
2,900.00	9.86	318.25	2,867.93	287.98	-257.03	-289.23	0.00	0.00	0.00
3,000.00	9.86	318.25	2,966.45	300.75	-268.43	-302.06	0.00	0.00	0.00
3,100.00	9.86	318.25	3,064.97	313.53	-279.83	-314.89	0.00	0.00	0.00
3,200.00	9.86	318.25	3,163.49	326.30	-291.24	-327.72	0.00	0.00	0.00
3,300.00	9.86	318.25	3,262.02	339.08	-302.64	-340.55	0.00	0.00	0.00
3,400.00	9.86	318.25	3,360.54	351.85	-314.04	-353.38	0.00	0.00	0.00
3,500.00	9.86	318.25	3,459.06	364.63	-325.44	-366.22	0.00	0.00	0.00
3,600.00	9.86	318.25	3,557.59	377.40	-336.85	-379.05	0.00	0.00	0.00
3,700.00	9.86	318.25	3,656.11	390.18	-348.25	-391.88	0.00	0.00	0.00
3,800.00	9.86	318.25	3,754.63	402.96	-359.65	-404.71	0.00	0.00	0.00
3,900.00	9.86	318.25	3,853.15	415.73	-371.05	-417.54	0.00	0.00	0.00
4,000.00	9.86	318.25	3,951.68	428.51	-382.46	-430.37	0.00	0.00	0.00
4,100.00	9.86	318.25	4,050.20	441.28	-393.86	-443.20	0.00	0.00	0.00
4,200.00	9.86	318.25	4,148.72	454.06	-405.26	-456.03	0.00	0.00	0.00
4,300.00	9.86	318.25	4,247.25	466.83	-416.67	-468.86	0.00	0.00	0.00
4,400.00	9.86	318.25	4,345.77	479.61	-428.07	-481.70	0.00	0.00	0.00
4,500.00	9.86	318.25	4,444.29	492.39	-439.47	-494.53	0.00	0.00	0.00
4,600.00	9.86	318.25	4,542.81	505.16	-450.87	-507.36	0.00	0.00	0.00
4,700.00	9.86	318.25	4,641.34	517.94	-462.28	-520.19	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5030.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5030.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-12H	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)
4,800.00	9.86	318.25	4,739.86	530.71	-473.68	-533.02	0.00	0.00	0.00
4,900.00	9.86	318.25	4,838.38	543.49	-485.08	-545.85	0.00	0.00	0.00
5,000.00	9.86	318.25	4,936.91	556.26	-496.48	-558.68	0.00	0.00	0.00
5,100.00	9.86	318.25	5,035.43	569.04	-507.89	-571.51	0.00	0.00	0.00
5,200.00	9.86	318.25	5,133.95	581.81	-519.29	-584.34	0.00	0.00	0.00
5,300.00	9.86	318.25	5,232.48	594.59	-530.69	-597.18	0.00	0.00	0.00
5,400.00	9.86	318.25	5,331.00	607.37	-542.09	-610.01	0.00	0.00	0.00
5,500.00	9.86	318.25	5,429.52	620.14	-553.50	-622.84	0.00	0.00	0.00
5,600.00	9.86	318.25	5,528.04	632.92	-564.90	-635.67	0.00	0.00	0.00
5,608.49	9.86	318.25	5,536.41	634.00	-565.87	-636.76	0.00	0.00	0.00
KOP @ 5608.49ft :: DLS = 9°/100'									
5,700.00	6.62	262.21	5,627.09	639.14	-576.33	-641.95	9.00	-3.54	-61.24
5,800.00	11.83	213.05	5,725.90	629.75	-587.66	-632.61	9.00	5.21	-49.16
5,900.00	19.93	198.22	5,822.04	604.91	-598.60	-607.83	9.00	8.10	-14.83
6,000.00	28.57	191.92	5,913.15	565.24	-608.89	-568.21	9.00	8.63	-6.30
6,100.00	37.36	188.39	5,996.97	511.72	-618.28	-514.74	9.00	8.80	-3.53
6,200.00	46.23	186.05	6,071.46	445.67	-626.53	-448.72	9.00	8.87	-2.34
6,300.00	55.13	184.32	6,134.76	368.70	-633.44	-371.79	9.00	8.90	-1.73
6,400.00	64.05	182.93	6,185.34	282.72	-638.84	-285.84	9.00	8.92	-1.39
6,500.00	72.98	181.74	6,221.93	189.84	-642.60	-192.98	9.00	8.93	-1.19
6,600.00	81.92	180.66	6,243.64	92.35	-644.62	-95.50	9.00	8.94	-1.08
6,690.40	90.00	179.72	6,250.00	2.25	-644.92	-5.40	9.00	8.94	-1.04
End Build @ 6690.40ft									
6,700.00	90.00	179.72	6,250.00	-7.35	-644.87	4.20	0.00	0.00	0.00
6,800.00	90.00	179.72	6,250.00	-107.35	-644.38	104.20	0.00	0.00	0.00
6,900.00	90.00	179.72	6,250.00	-207.35	-643.89	204.20	0.00	0.00	0.00
7,000.00	90.00	179.72	6,250.00	-307.34	-643.40	304.20	0.00	0.00	0.00
7,100.00	90.00	179.72	6,250.00	-407.34	-642.92	404.20	0.00	0.00	0.00
7,200.00	90.00	179.72	6,250.00	-507.34	-642.43	504.20	0.00	0.00	0.00
7,300.00	90.00	179.72	6,250.00	-607.34	-641.94	604.20	0.00	0.00	0.00
7,400.00	90.00	179.72	6,250.00	-707.34	-641.45	704.20	0.00	0.00	0.00
7,500.00	90.00	179.72	6,250.00	-807.34	-640.96	804.20	0.00	0.00	0.00
7,600.00	90.00	179.72	6,250.00	-907.34	-640.47	904.20	0.00	0.00	0.00
7,700.00	90.00	179.72	6,250.00	-1,007.34	-639.98	1,004.20	0.00	0.00	0.00
7,800.00	90.00	179.72	6,250.00	-1,107.34	-639.49	1,104.20	0.00	0.00	0.00
7,900.00	90.00	179.72	6,250.00	-1,207.33	-639.01	1,204.20	0.00	0.00	0.00
8,000.00	90.00	179.72	6,250.00	-1,307.33	-638.52	1,304.20	0.00	0.00	0.00
8,100.00	90.00	179.72	6,250.00	-1,407.33	-638.03	1,404.20	0.00	0.00	0.00
8,200.00	90.00	179.72	6,250.00	-1,507.33	-637.54	1,504.20	0.00	0.00	0.00
8,300.00	90.00	179.72	6,250.00	-1,607.33	-637.05	1,604.20	0.00	0.00	0.00
8,400.00	90.00	179.72	6,250.00	-1,707.33	-636.56	1,704.20	0.00	0.00	0.00
8,500.00	90.00	179.72	6,250.00	-1,807.33	-636.07	1,804.20	0.00	0.00	0.00
8,600.00	90.00	179.72	6,250.00	-1,907.33	-635.58	1,904.20	0.00	0.00	0.00
8,700.00	90.00	179.72	6,250.00	-2,007.32	-635.10	2,004.20	0.00	0.00	0.00
8,800.00	90.00	179.72	6,250.00	-2,107.32	-634.61	2,104.20	0.00	0.00	0.00
8,900.00	90.00	179.72	6,250.00	-2,207.32	-634.12	2,204.20	0.00	0.00	0.00
9,000.00	90.00	179.72	6,250.00	-2,307.32	-633.63	2,304.20	0.00	0.00	0.00
9,100.00	90.00	179.72	6,250.00	-2,407.32	-633.14	2,404.20	0.00	0.00	0.00
9,200.00	90.00	179.72	6,250.00	-2,507.32	-632.65	2,504.20	0.00	0.00	0.00
9,300.00	90.00	179.72	6,250.00	-2,607.32	-632.16	2,604.20	0.00	0.00	0.00
9,400.00	90.00	179.72	6,250.00	-2,707.32	-631.68	2,704.20	0.00	0.00	0.00
9,500.00	90.00	179.72	6,250.00	-2,807.32	-631.19	2,804.20	0.00	0.00	0.00
9,600.00	90.00	179.72	6,250.00	-2,907.31	-630.70	2,904.20	0.00	0.00	0.00
9,700.00	90.00	179.72	6,250.00	-3,007.31	-630.21	3,004.20	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5030.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5030.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-12H	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)	
9,800.00	90.00	179.72	6,250.00	-3,107.31	-629.72	3,104.20	0.00	0.00	0.00	
9,900.00	90.00	179.72	6,250.00	-3,207.31	-629.23	3,204.20	0.00	0.00	0.00	
10,000.00	90.00	179.72	6,250.00	-3,307.31	-628.74	3,304.20	0.00	0.00	0.00	
10,100.00	90.00	179.72	6,250.00	-3,407.31	-628.25	3,404.20	0.00	0.00	0.00	
10,200.00	90.00	179.72	6,250.00	-3,507.31	-627.77	3,504.20	0.00	0.00	0.00	
10,300.00	90.00	179.72	6,250.00	-3,607.31	-627.28	3,604.20	0.00	0.00	0.00	
10,400.00	90.00	179.72	6,250.00	-3,707.30	-626.79	3,704.20	0.00	0.00	0.00	
10,500.00	90.00	179.72	6,250.00	-3,807.30	-626.30	3,804.20	0.00	0.00	0.00	
10,600.00	90.00	179.72	6,250.00	-3,907.30	-625.81	3,904.20	0.00	0.00	0.00	
10,700.00	90.00	179.72	6,250.00	-4,007.30	-625.32	4,004.20	0.00	0.00	0.00	
10,800.00	90.00	179.72	6,250.00	-4,107.30	-624.83	4,104.20	0.00	0.00	0.00	
10,900.00	90.00	179.72	6,250.00	-4,207.30	-624.35	4,204.20	0.00	0.00	0.00	
11,000.00	90.00	179.72	6,250.00	-4,307.30	-623.86	4,304.20	0.00	0.00	0.00	
11,100.00	90.00	179.72	6,250.00	-4,407.30	-623.37	4,404.20	0.00	0.00	0.00	
11,200.00	90.00	179.72	6,250.00	-4,507.29	-622.88	4,504.20	0.00	0.00	0.00	
11,300.00	90.00	179.72	6,250.00	-4,607.29	-622.39	4,604.20	0.00	0.00	0.00	
11,400.00	90.00	179.72	6,250.00	-4,707.29	-621.90	4,704.20	0.00	0.00	0.00	
11,419.60	90.00	179.72	6,250.00	-4,726.90	-621.81	4,723.80	0.00	0.00	0.00	
TD Well @ 11419.60ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,511.57	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	
400.00	400.00	0.00	0.00	Begin Nudge @ 400.00ft	
893.00	890.57	31.57	-28.18	Hold Tangent @ 893.00ft	
5,608.49	5,536.41	634.00	-565.87	KOP @ 5608.49ft :: DLS = 9°/100'	
6,690.40	6,250.00	2.25	-644.92	End Build @ 6690.40ft	
11,419.60	6,250.00	-4,726.90	-621.81	TD Well @ 11419.60ft	