

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-10H

Wellbore #1

Plan: Design #2

Standard Planning Report

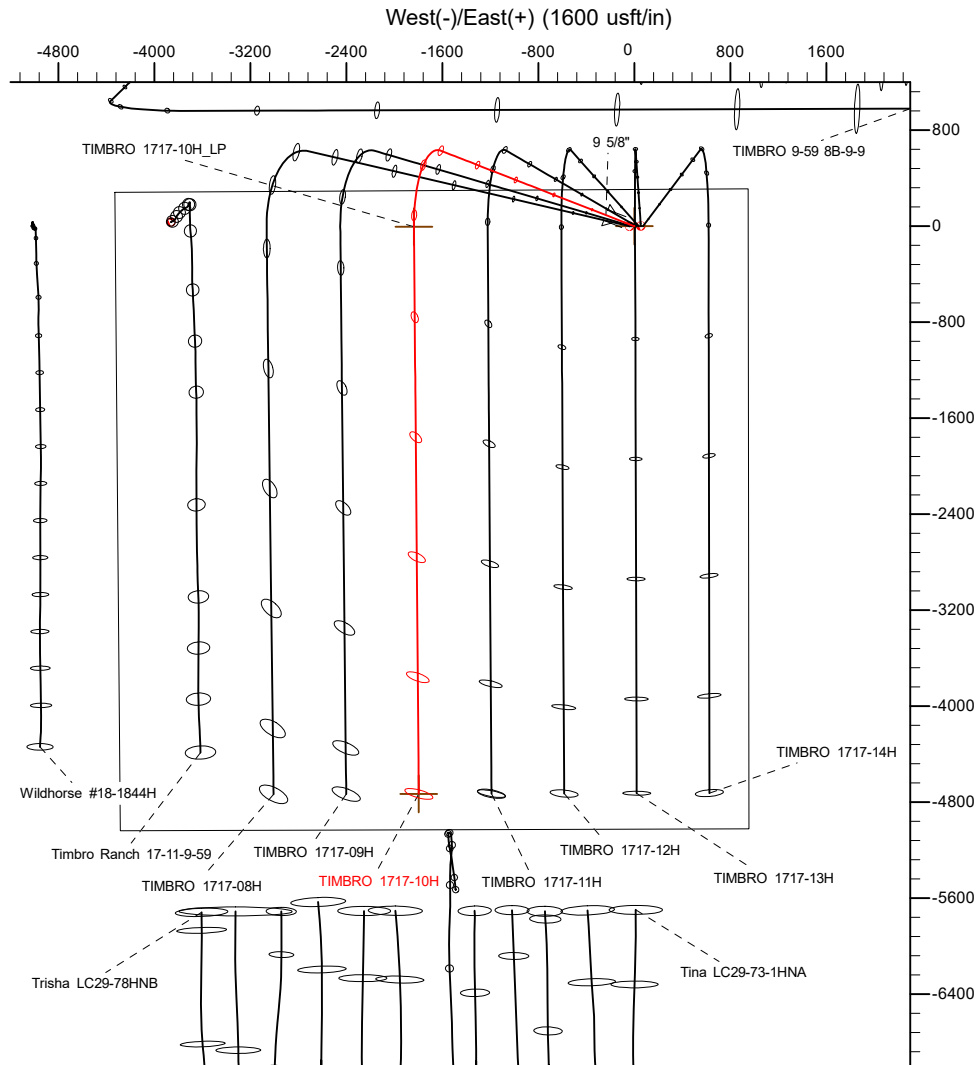
24 February, 2020

Project: WATTENBERG FIELD
 Site: 9N-59W-17 TIMBRO 1717 PAD
 Well: TIMBRO 1717-10H
 Wellbore: Wellbore #1
 Design: Design #2

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1500.00	1534.26	9 5/8"	9-5/8

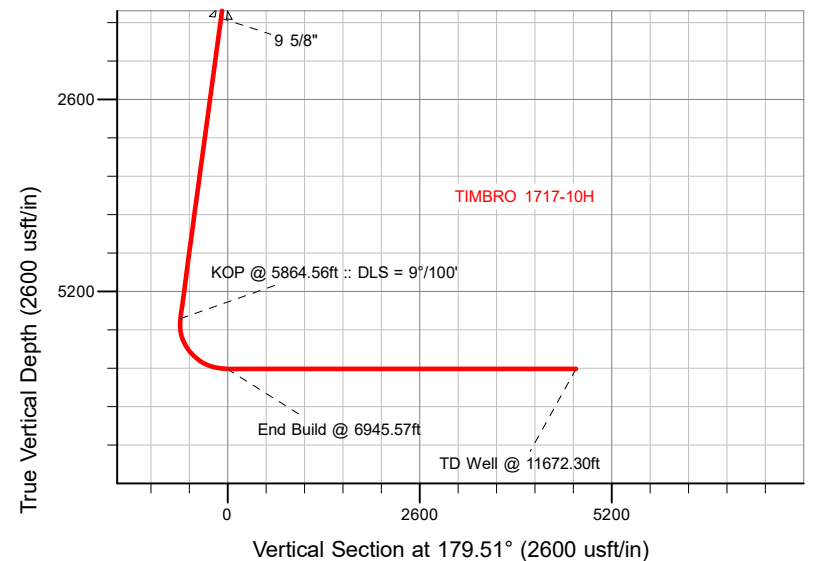


SECTION DETAILS

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	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1298.00	19.96	291.33	1277.94	62.59	-160.30	2.00	291.33	-63.96	
4	5864.56	19.96	291.33	5570.19	629.61	-1612.38	0.00	0.00	-643.38	
5	6945.57	90.00	179.51	6250.00	-3.81	-1836.13	9.00	-110.63	-11.89	
6	11672.30	90.00	179.51	6250.00	-4730.37	-1795.40	0.00	0.00	4714.85	TIMBRO 1717-10H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

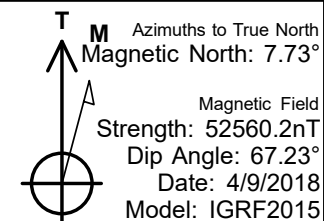
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-10H_SHL	0.00	0.00	0.00	40.756950	-103.996036
TIMBRO 1717-10H_BHL	6250.00	-4730.37	-1795.40	40.743967	-104.002516



SHL
306' FNL
950' FEL

LP
300' FNL
2490' FWL

BHL
300' FSL
2489' FWL



WELL DETAILS: TIMBRO 1717-10H

GL = 5010'

RKB = 20' @ 5030.00usft (RIG)

Plan: Design #2 (TIMBRO 1717-10H/Wellbore #1)

Date: 2/24/2020

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-10H
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 1717-10H	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 1717-10H				
Well Position	+N/-S	0.00 usft	Northing:	1,522,135.58 usft	Latitude:	40.756951
	+E/-W	0.00 usft	Easting:	3,416,643.89 usft	Longitude:	-103.996037
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	4/9/2018	7.73	67.23	52,560.16039140

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	179.51	

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	11,672.30	Design #2 (Wellbore #1)	ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	

HP

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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 1717-10H	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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,298.00	19.96	291.33	1,277.94	62.59	-160.30	2.00	2.00	0.00	291.33	
5,864.56	19.96	291.33	5,570.19	629.61	-1,612.38	0.00	0.00	0.00	0.00	
6,945.57	90.00	179.51	6,250.00	-3.81	-1,836.13	9.00	6.48	-10.34	-110.63	
11,672.30	90.00	179.51	6,250.00	-4,730.37	-1,795.40	0.00	0.00	0.00	0.00	TIMBRO 1717-10H_E

HP

Planning Report

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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 1717-10H	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
Begin Nudge @ 300.00ft									
400.00	2.00	291.33	399.98	0.63	-1.63	-0.65	2.00	2.00	0.00
500.00	4.00	291.33	499.84	2.54	-6.50	-2.59	2.00	2.00	0.00
600.00	6.00	291.33	599.45	5.71	-14.62	-5.83	2.00	2.00	0.00
700.00	8.00	291.33	698.70	10.14	-25.97	-10.36	2.00	2.00	0.00
800.00	10.00	291.33	797.47	15.83	-40.54	-16.18	2.00	2.00	0.00
900.00	12.00	291.33	895.62	22.77	-58.31	-23.27	2.00	2.00	0.00
1,000.00	14.00	291.33	993.06	30.95	-79.27	-31.63	2.00	2.00	0.00
1,100.00	16.00	291.33	1,089.64	40.37	-103.38	-41.25	2.00	2.00	0.00
1,200.00	18.00	291.33	1,185.27	51.00	-130.61	-52.12	2.00	2.00	0.00
1,298.00	19.96	291.33	1,277.94	62.59	-160.30	-63.96	2.00	2.00	0.00
Hold Tangent @ 1298.00ft									
1,300.00	19.96	291.33	1,279.82	62.84	-160.93	-64.22	0.00	0.00	0.00
1,400.00	19.96	291.33	1,373.81	75.26	-192.73	-76.90	0.00	0.00	0.00
1,500.00	19.96	291.33	1,467.80	87.68	-224.53	-89.59	0.00	0.00	0.00
1,534.26	19.96	291.33	1,500.00	91.93	-235.42	-93.94	0.00	0.00	0.00
9 5/8"									
1,600.00	19.96	291.33	1,561.80	100.09	-256.33	-102.28	0.00	0.00	0.00
1,700.00	19.96	291.33	1,655.79	112.51	-288.13	-114.97	0.00	0.00	0.00
1,800.00	19.96	291.33	1,749.78	124.93	-319.92	-127.66	0.00	0.00	0.00
1,900.00	19.96	291.33	1,843.77	137.34	-351.72	-140.35	0.00	0.00	0.00
2,000.00	19.96	291.33	1,937.77	149.76	-383.52	-153.03	0.00	0.00	0.00
2,100.00	19.96	291.33	2,031.76	162.18	-415.32	-165.72	0.00	0.00	0.00
2,200.00	19.96	291.33	2,125.75	174.59	-447.12	-178.41	0.00	0.00	0.00
2,300.00	19.96	291.33	2,219.75	187.01	-478.91	-191.10	0.00	0.00	0.00
2,400.00	19.96	291.33	2,313.74	199.43	-510.71	-203.79	0.00	0.00	0.00
2,500.00	19.96	291.33	2,407.73	211.84	-542.51	-216.47	0.00	0.00	0.00
2,600.00	19.96	291.33	2,501.73	224.26	-574.31	-229.16	0.00	0.00	0.00
2,700.00	19.96	291.33	2,595.72	236.68	-606.11	-241.85	0.00	0.00	0.00
2,800.00	19.96	291.33	2,689.71	249.09	-637.90	-254.54	0.00	0.00	0.00
2,900.00	19.96	291.33	2,783.71	261.51	-669.70	-267.23	0.00	0.00	0.00
3,000.00	19.96	291.33	2,877.70	273.93	-701.50	-279.92	0.00	0.00	0.00
3,100.00	19.96	291.33	2,971.69	286.34	-733.30	-292.60	0.00	0.00	0.00
3,200.00	19.96	291.33	3,065.69	298.76	-765.10	-305.29	0.00	0.00	0.00
3,300.00	19.96	291.33	3,159.68	311.18	-796.89	-317.98	0.00	0.00	0.00
3,400.00	19.96	291.33	3,253.67	323.59	-828.69	-330.67	0.00	0.00	0.00
3,500.00	19.96	291.33	3,347.66	336.01	-860.49	-343.36	0.00	0.00	0.00
3,600.00	19.96	291.33	3,441.66	348.43	-892.29	-356.05	0.00	0.00	0.00
3,700.00	19.96	291.33	3,535.65	360.84	-924.09	-368.73	0.00	0.00	0.00
3,800.00	19.96	291.33	3,629.64	373.26	-955.89	-381.42	0.00	0.00	0.00
3,900.00	19.96	291.33	3,723.64	385.68	-987.68	-394.11	0.00	0.00	0.00
4,000.00	19.96	291.33	3,817.63	398.09	-1,019.48	-406.80	0.00	0.00	0.00
4,100.00	19.96	291.33	3,911.62	410.51	-1,051.28	-419.49	0.00	0.00	0.00
4,200.00	19.96	291.33	4,005.62	422.93	-1,083.08	-432.17	0.00	0.00	0.00
4,300.00	19.96	291.33	4,099.61	435.34	-1,114.88	-444.86	0.00	0.00	0.00
4,400.00	19.96	291.33	4,193.61	447.76	-1,146.67	-457.55	0.00	0.00	0.00
4,500.00	19.96	291.33	4,287.60	460.18	-1,178.47	-470.24	0.00	0.00	0.00
4,600.00	19.96	291.33	4,381.59	472.59	-1,210.27	-482.93	0.00	0.00	0.00
4,700.00	19.96	291.33	4,475.58	485.01	-1,242.07	-495.62	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-10H
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 1717-10H	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	19.96	291.33	4,569.57	497.43	-1,273.87	-508.30	0.00	0.00	0.00
4,900.00	19.96	291.33	4,663.57	509.84	-1,305.66	-520.99	0.00	0.00	0.00
5,000.00	19.96	291.33	4,757.56	522.26	-1,337.46	-533.68	0.00	0.00	0.00
5,100.00	19.96	291.33	4,851.55	534.68	-1,369.26	-546.37	0.00	0.00	0.00
5,200.00	19.96	291.33	4,945.55	547.10	-1,401.06	-559.06	0.00	0.00	0.00
5,300.00	19.96	291.33	5,039.54	559.51	-1,432.86	-571.75	0.00	0.00	0.00
5,400.00	19.96	291.33	5,133.53	571.93	-1,464.65	-584.43	0.00	0.00	0.00
5,500.00	19.96	291.33	5,227.53	584.35	-1,496.45	-597.12	0.00	0.00	0.00
5,600.00	19.96	291.33	5,321.52	596.76	-1,528.25	-609.81	0.00	0.00	0.00
5,700.00	19.96	291.33	5,415.51	609.18	-1,560.05	-622.50	0.00	0.00	0.00
5,800.00	19.96	291.33	5,509.51	621.60	-1,591.85	-635.19	0.00	0.00	0.00
5,864.56	19.96	291.33	5,570.19	629.61	-1,612.38	-643.38	0.00	0.00	0.00
KOP @ 5864.56ft :: DLS = 9°/100'									
5,900.00	19.06	282.16	5,603.60	633.03	-1,623.67	-646.89	9.00	-2.53	-25.89
6,000.00	19.24	254.49	5,698.26	632.06	-1,655.58	-646.20	9.00	0.18	-27.67
6,100.00	23.10	231.75	5,791.65	615.48	-1,686.92	-629.88	9.00	3.85	-22.74
6,200.00	29.20	216.61	5,881.47	583.69	-1,716.93	-598.35	9.00	6.10	-15.14
6,300.00	36.44	206.68	5,965.52	537.47	-1,744.87	-552.37	9.00	7.24	-9.93
6,400.00	44.25	199.75	6,041.71	477.97	-1,770.05	-493.09	9.00	7.81	-6.93
6,500.00	52.38	194.56	6,108.18	406.66	-1,791.85	-421.96	9.00	8.13	-5.19
6,600.00	60.69	190.42	6,163.29	325.27	-1,809.72	-340.74	9.00	8.31	-4.15
6,700.00	69.11	186.90	6,205.67	235.83	-1,823.25	-251.41	9.00	8.42	-3.52
6,800.00	77.60	183.76	6,234.30	140.53	-1,832.07	-156.19	9.00	8.48	-3.14
6,900.00	86.11	180.82	6,248.45	41.72	-1,836.00	-57.42	9.00	8.52	-2.94
6,945.57	90.00	179.51	6,250.00	-3.81	-1,836.13	-11.89	9.00	8.53	-2.88
End Build @ 6945.57ft									
7,000.00	90.00	179.51	6,250.00	-58.24	-1,835.66	42.54	0.00	0.00	0.00
7,100.00	90.00	179.51	6,250.00	-158.24	-1,834.79	142.54	0.00	0.00	0.00
7,200.00	90.00	179.51	6,250.00	-258.24	-1,833.93	242.54	0.00	0.00	0.00
7,300.00	90.00	179.51	6,250.00	-358.23	-1,833.07	342.54	0.00	0.00	0.00
7,400.00	90.00	179.51	6,250.00	-458.23	-1,832.21	442.54	0.00	0.00	0.00
7,500.00	90.00	179.51	6,250.00	-558.22	-1,831.35	542.54	0.00	0.00	0.00
7,600.00	90.00	179.51	6,250.00	-658.22	-1,830.49	642.54	0.00	0.00	0.00
7,700.00	90.00	179.51	6,250.00	-758.22	-1,829.62	742.54	0.00	0.00	0.00
7,800.00	90.00	179.51	6,250.00	-858.21	-1,828.76	842.54	0.00	0.00	0.00
7,900.00	90.00	179.51	6,250.00	-958.21	-1,827.90	942.54	0.00	0.00	0.00
8,000.00	90.00	179.51	6,250.00	-1,058.21	-1,827.04	1,042.54	0.00	0.00	0.00
8,100.00	90.00	179.51	6,250.00	-1,158.20	-1,826.18	1,142.54	0.00	0.00	0.00
8,200.00	90.00	179.51	6,250.00	-1,258.20	-1,825.32	1,242.54	0.00	0.00	0.00
8,300.00	90.00	179.51	6,250.00	-1,358.20	-1,824.45	1,342.54	0.00	0.00	0.00
8,400.00	90.00	179.51	6,250.00	-1,458.19	-1,823.59	1,442.54	0.00	0.00	0.00
8,500.00	90.00	179.51	6,250.00	-1,558.19	-1,822.73	1,542.54	0.00	0.00	0.00
8,600.00	90.00	179.51	6,250.00	-1,658.18	-1,821.87	1,642.54	0.00	0.00	0.00
8,700.00	90.00	179.51	6,250.00	-1,758.18	-1,821.01	1,742.54	0.00	0.00	0.00
8,800.00	90.00	179.51	6,250.00	-1,858.18	-1,820.15	1,842.54	0.00	0.00	0.00
8,900.00	90.00	179.51	6,250.00	-1,958.17	-1,819.28	1,942.54	0.00	0.00	0.00
9,000.00	90.00	179.51	6,250.00	-2,058.17	-1,818.42	2,042.54	0.00	0.00	0.00
9,100.00	90.00	179.51	6,250.00	-2,158.17	-1,817.56	2,142.54	0.00	0.00	0.00
9,200.00	90.00	179.51	6,250.00	-2,258.16	-1,816.70	2,242.54	0.00	0.00	0.00
9,300.00	90.00	179.51	6,250.00	-2,358.16	-1,815.84	2,342.54	0.00	0.00	0.00
9,400.00	90.00	179.51	6,250.00	-2,458.15	-1,814.98	2,442.54	0.00	0.00	0.00
9,500.00	90.00	179.51	6,250.00	-2,558.15	-1,814.11	2,542.54	0.00	0.00	0.00
9,600.00	90.00	179.51	6,250.00	-2,658.15	-1,813.25	2,642.54	0.00	0.00	0.00
9,700.00	90.00	179.51	6,250.00	-2,758.14	-1,812.39	2,742.54	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-10H
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 1717-10H	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	179.51	6,250.00	-2,858.14	-1,811.53	2,842.54	0.00	0.00	0.00	
9,900.00	90.00	179.51	6,250.00	-2,958.14	-1,810.67	2,942.54	0.00	0.00	0.00	
10,000.00	90.00	179.51	6,250.00	-3,058.13	-1,809.81	3,042.54	0.00	0.00	0.00	
10,100.00	90.00	179.51	6,250.00	-3,158.13	-1,808.94	3,142.54	0.00	0.00	0.00	
10,200.00	90.00	179.51	6,250.00	-3,258.12	-1,808.08	3,242.54	0.00	0.00	0.00	
10,300.00	90.00	179.51	6,250.00	-3,358.12	-1,807.22	3,342.54	0.00	0.00	0.00	
10,400.00	90.00	179.51	6,250.00	-3,458.12	-1,806.36	3,442.54	0.00	0.00	0.00	
10,500.00	90.00	179.51	6,250.00	-3,558.11	-1,805.50	3,542.54	0.00	0.00	0.00	
10,600.00	90.00	179.51	6,250.00	-3,658.11	-1,804.64	3,642.54	0.00	0.00	0.00	
10,700.00	90.00	179.51	6,250.00	-3,758.11	-1,803.77	3,742.54	0.00	0.00	0.00	
10,800.00	90.00	179.51	6,250.00	-3,858.10	-1,802.91	3,842.54	0.00	0.00	0.00	
10,900.00	90.00	179.51	6,250.00	-3,958.10	-1,802.05	3,942.54	0.00	0.00	0.00	
11,000.00	90.00	179.51	6,250.00	-4,058.09	-1,801.19	4,042.54	0.00	0.00	0.00	
11,100.00	90.00	179.51	6,250.00	-4,158.09	-1,800.33	4,142.54	0.00	0.00	0.00	
11,200.00	90.00	179.51	6,250.00	-4,258.09	-1,799.47	4,242.54	0.00	0.00	0.00	
11,300.00	90.00	179.51	6,250.00	-4,358.08	-1,798.60	4,342.54	0.00	0.00	0.00	
11,400.00	90.00	179.51	6,250.00	-4,458.08	-1,797.74	4,442.54	0.00	0.00	0.00	
11,500.00	90.00	179.51	6,250.00	-4,558.08	-1,796.88	4,542.54	0.00	0.00	0.00	
11,600.00	90.00	179.51	6,250.00	-4,658.07	-1,796.02	4,642.54	0.00	0.00	0.00	
11,672.30	90.00	179.51	6,250.00	-4,730.37	-1,795.40	4,714.85	0.00	0.00	0.00	
TD Well @ 11672.30ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,534.26	1,500.00	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
1,298.00	1,277.94	62.59	-160.30	Hold Tangent @ 1298.00ft
5,864.56	5,570.19	629.61	-1,612.38	KOP @ 5864.56ft :: DLS = 9°/100'
6,945.57	6,250.00	-3.81	-1,836.13	End Build @ 6945.57ft
11,672.30	6,250.00	-4,730.37	-1,795.40	TD Well @ 11672.30ft