

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-09H

Wellbore #1

Plan: Design #2

Standard Planning Report

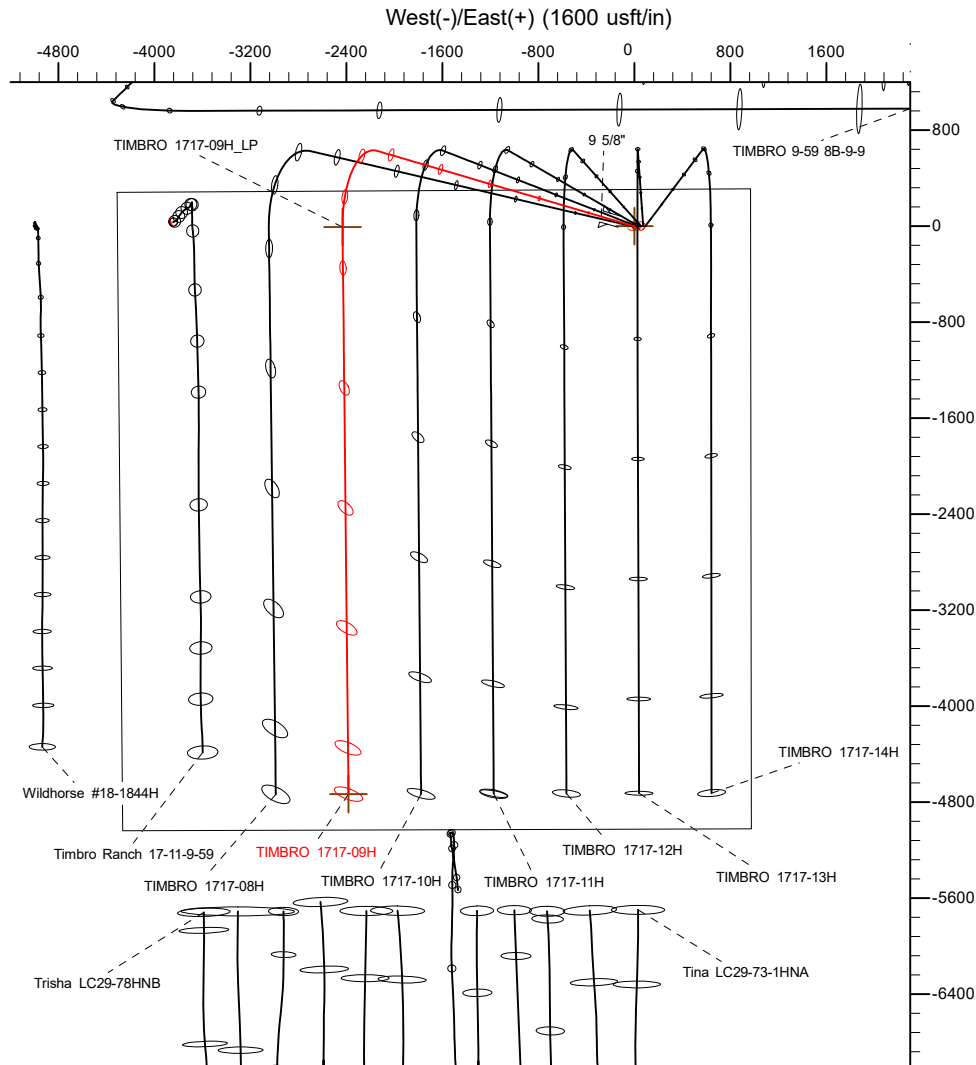
24 February, 2020

Project: WATTENBERG FIELD
 Site: 9N-59W-17 TIMBRO 1717 PAD
 Well: TIMBRO 1717-09H
 Wellbore: Wellbore #1
 Design: Design #2

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1500.00	1543.35	9 5/8"	9-5/8

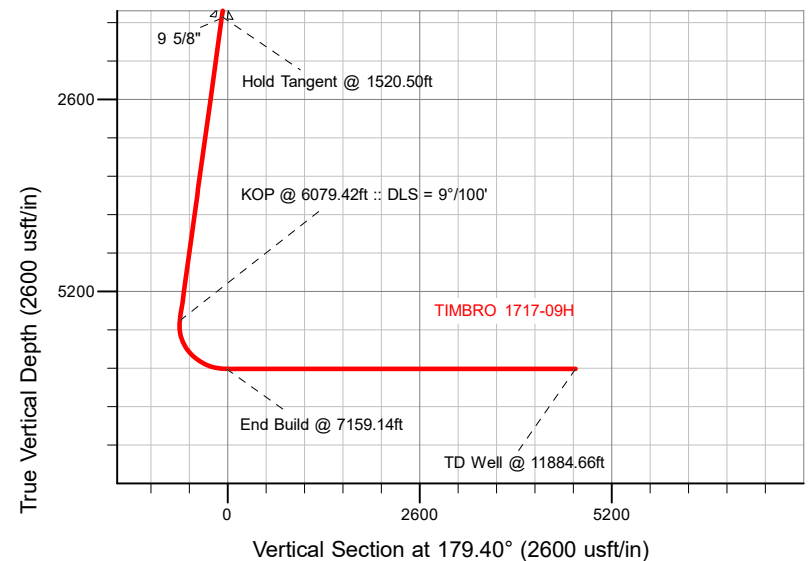


SECTION DETAILS

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	251.00	0.00	0.00	251.00	0.00	0.00	0.00	0.00	0.00	
3	1520.50	25.39	286.34	1479.36	77.85	-265.53	2.00	286.34	-80.62	
4	6079.42	25.39	286.34	5597.93	627.79	-2141.34	0.00	0.00	-650.18	
5	7159.14	90.00	179.40	6250.00	-6.88	-2430.82	9.00	-105.38	-18.57	
6	11884.66	90.00	179.40	6250.00	-4732.14	-2381.71	0.00	0.00	4706.94	TIMBRO 1717-09H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

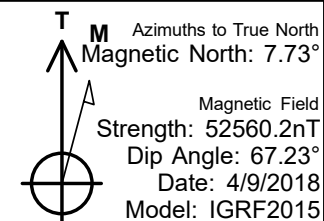
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-09H_SHL	0.00	0.00	0.00	40.756950	-103.996105
TIMBRO 1717-09H_BHL	6250.00	-4732.14	-2381.71	40.743961	-104.004700



SHL
306' FNL
969' FEL

LP
300' FNL
1876' FWL

BHL
300' FSL
1884' FWL



WELL DETAILS: TIMBRO 1717-09H

GL = 5010'

RKB = 20' @ 5030.00usft (RIG)

Plan: Design #2 (TIMBRO 1717-09H/Wellbore #1)

Date: 2/24/2020

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-09H
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 1717-09H	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 1717-09H				
Well Position	+N/-S	0.00 usft	Northing:	1,522,135.19 usft	Latitude:	40.756950
	+E/-W	0.00 usft	Easting:	3,416,624.92 usft	Longitude:	-103.996105
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	52,560.15353126

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	179.40	

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	11,884.66	Design #2 (Wellbore #1)	ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-09H
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 1717-09H	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	
251.00	0.00	0.00	251.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,520.50	25.39	286.34	1,479.36	77.85	-265.53	2.00	2.00	0.00	286.34	
6,079.42	25.39	286.34	5,597.93	627.79	-2,141.34	0.00	0.00	0.00	0.00	
7,159.14	90.00	179.40	6,250.00	-6.88	-2,430.82	9.00	5.98	-9.90	-105.38	
11,884.66	90.00	179.40	6,250.00	-4,732.14	-2,381.71	0.00	0.00	0.00	0.00	TIMBRO 1717-09H_E

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-09H
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 1717-09H	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
251.00	0.00	0.00	251.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 251.00ft									
300.00	0.98	286.34	300.00	0.12	-0.40	-0.12	2.00	2.00	0.00
400.00	2.98	286.34	399.93	1.09	-3.72	-1.13	2.00	2.00	0.00
500.00	4.98	286.34	499.69	3.04	-10.38	-3.15	2.00	2.00	0.00
600.00	6.98	286.34	599.14	5.97	-20.37	-6.19	2.00	2.00	0.00
700.00	8.98	286.34	698.16	9.88	-33.70	-10.23	2.00	2.00	0.00
800.00	10.98	286.34	796.65	14.75	-50.33	-15.28	2.00	2.00	0.00
900.00	12.98	286.34	894.46	20.59	-70.24	-21.33	2.00	2.00	0.00
1,000.00	14.98	286.34	991.50	27.39	-93.42	-28.37	2.00	2.00	0.00
1,100.00	16.98	286.34	1,087.63	35.13	-119.84	-36.39	2.00	2.00	0.00
1,200.00	18.98	286.34	1,182.74	43.82	-149.46	-45.38	2.00	2.00	0.00
1,300.00	20.98	286.34	1,276.71	53.43	-182.25	-55.34	2.00	2.00	0.00
1,400.00	22.98	286.34	1,369.44	63.96	-218.16	-66.24	2.00	2.00	0.00
1,500.00	24.98	286.34	1,460.81	75.39	-257.16	-78.08	2.00	2.00	0.00
1,520.50	25.39	286.34	1,479.36	77.85	-265.53	-80.62	2.00	2.00	0.00
Hold Tangent @ 1520.50ft									
1,543.35	25.39	286.34	1,500.00	80.60	-274.93	-83.48	0.00	0.00	0.00
9 5/8"									
1,600.00	25.39	286.34	1,551.18	87.44	-298.24	-90.56	0.00	0.00	0.00
1,700.00	25.39	286.34	1,641.52	99.50	-339.39	-103.05	0.00	0.00	0.00
1,800.00	25.39	286.34	1,731.86	111.56	-380.54	-115.54	0.00	0.00	0.00
1,900.00	25.39	286.34	1,822.20	123.63	-421.68	-128.04	0.00	0.00	0.00
2,000.00	25.39	286.34	1,912.54	135.69	-462.83	-140.53	0.00	0.00	0.00
2,100.00	25.39	286.34	2,002.88	147.75	-503.97	-153.02	0.00	0.00	0.00
2,200.00	25.39	286.34	2,093.22	159.82	-545.12	-165.52	0.00	0.00	0.00
2,300.00	25.39	286.34	2,183.57	171.88	-586.27	-178.01	0.00	0.00	0.00
2,400.00	25.39	286.34	2,273.91	183.94	-627.41	-190.50	0.00	0.00	0.00
2,500.00	25.39	286.34	2,364.25	196.01	-668.56	-203.00	0.00	0.00	0.00
2,600.00	25.39	286.34	2,454.59	208.07	-709.70	-215.49	0.00	0.00	0.00
2,700.00	25.39	286.34	2,544.93	220.13	-750.85	-227.98	0.00	0.00	0.00
2,800.00	25.39	286.34	2,635.27	232.20	-791.99	-240.48	0.00	0.00	0.00
2,900.00	25.39	286.34	2,725.61	244.26	-833.14	-252.97	0.00	0.00	0.00
3,000.00	25.39	286.34	2,815.95	256.32	-874.29	-265.46	0.00	0.00	0.00
3,100.00	25.39	286.34	2,906.29	268.38	-915.43	-277.96	0.00	0.00	0.00
3,200.00	25.39	286.34	2,996.63	280.45	-956.58	-290.45	0.00	0.00	0.00
3,300.00	25.39	286.34	3,086.98	292.51	-997.72	-302.94	0.00	0.00	0.00
3,400.00	25.39	286.34	3,177.32	304.57	-1,038.87	-315.44	0.00	0.00	0.00
3,500.00	25.39	286.34	3,267.66	316.64	-1,080.02	-327.93	0.00	0.00	0.00
3,600.00	25.39	286.34	3,358.00	328.70	-1,121.16	-340.42	0.00	0.00	0.00
3,700.00	25.39	286.34	3,448.34	340.76	-1,162.31	-352.92	0.00	0.00	0.00
3,800.00	25.39	286.34	3,538.68	352.83	-1,203.45	-365.41	0.00	0.00	0.00
3,900.00	25.39	286.34	3,629.02	364.89	-1,244.60	-377.90	0.00	0.00	0.00
4,000.00	25.39	286.34	3,719.36	376.95	-1,285.75	-390.40	0.00	0.00	0.00
4,100.00	25.39	286.34	3,809.70	389.02	-1,326.89	-402.89	0.00	0.00	0.00
4,200.00	25.39	286.34	3,900.04	401.08	-1,368.04	-415.38	0.00	0.00	0.00
4,300.00	25.39	286.34	3,990.39	413.14	-1,409.18	-427.88	0.00	0.00	0.00
4,400.00	25.39	286.34	4,080.73	425.21	-1,450.33	-440.37	0.00	0.00	0.00
4,500.00	25.39	286.34	4,171.07	437.27	-1,491.47	-452.86	0.00	0.00	0.00
4,600.00	25.39	286.34	4,261.41	449.33	-1,532.62	-465.36	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-09H
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 1717-09H	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	25.39	286.34	4,351.75	461.39	-1,573.77	-477.85	0.00	0.00	0.00
4,800.00	25.39	286.34	4,442.09	473.46	-1,614.91	-490.34	0.00	0.00	0.00
4,900.00	25.39	286.34	4,532.43	485.52	-1,656.06	-502.84	0.00	0.00	0.00
5,000.00	25.39	286.34	4,622.77	497.58	-1,697.20	-515.33	0.00	0.00	0.00
5,100.00	25.39	286.34	4,713.11	509.65	-1,738.35	-527.82	0.00	0.00	0.00
5,200.00	25.39	286.34	4,803.45	521.71	-1,779.50	-540.32	0.00	0.00	0.00
5,300.00	25.39	286.34	4,893.80	533.77	-1,820.64	-552.81	0.00	0.00	0.00
5,400.00	25.39	286.34	4,984.14	545.84	-1,861.79	-565.30	0.00	0.00	0.00
5,500.00	25.39	286.34	5,074.48	557.90	-1,902.93	-577.80	0.00	0.00	0.00
5,600.00	25.39	286.34	5,164.82	569.96	-1,944.08	-590.29	0.00	0.00	0.00
5,700.00	25.39	286.34	5,255.16	582.03	-1,985.22	-602.78	0.00	0.00	0.00
5,800.00	25.39	286.34	5,345.50	594.09	-2,026.37	-615.28	0.00	0.00	0.00
5,900.00	25.39	286.34	5,435.84	606.15	-2,067.52	-627.77	0.00	0.00	0.00
6,000.00	25.39	286.34	5,526.18	618.21	-2,108.66	-640.26	0.00	0.00	0.00
6,079.42	25.39	286.34	5,597.93	627.79	-2,141.34	-650.18	0.00	0.00	0.00
KOP @ 6079.42ft :: DLS = 9°/100'									
6,100.00	24.96	282.10	5,616.56	629.95	-2,149.82	-652.42	9.00	-2.10	-20.58
6,200.00	24.68	260.57	5,707.51	630.95	-2,191.13	-653.86	9.00	-0.28	-21.54
6,300.00	27.33	240.85	5,797.55	616.32	-2,231.86	-639.66	9.00	2.66	-19.71
6,400.00	32.20	225.53	5,884.45	586.41	-2,271.01	-610.16	9.00	4.87	-15.32
6,500.00	38.45	214.28	5,966.08	541.96	-2,307.61	-566.09	9.00	6.25	-11.25
6,600.00	45.51	205.89	6,040.43	484.06	-2,340.77	-508.54	9.00	7.06	-8.38
6,700.00	53.04	199.38	6,105.66	414.14	-2,369.66	-438.93	9.00	7.53	-6.51
6,800.00	60.87	194.06	6,160.18	333.92	-2,393.58	-358.96	9.00	7.82	-5.32
6,900.00	68.87	189.51	6,202.64	245.37	-2,411.94	-270.62	9.00	8.00	-4.55
7,000.00	76.98	185.43	6,231.98	150.68	-2,424.28	-176.06	9.00	8.11	-4.08
7,100.00	85.15	181.61	6,247.50	52.18	-2,430.30	-77.63	9.00	8.17	-3.82
7,159.14	90.00	179.40	6,250.00	-6.88	-2,430.82	-18.57	9.00	8.19	-3.73
End Build @ 7159.14ft									
7,200.00	90.00	179.40	6,250.00	-47.74	-2,430.40	22.28	0.00	0.00	0.00
7,300.00	90.00	179.40	6,250.00	-147.73	-2,429.36	122.28	0.00	0.00	0.00
7,400.00	90.00	179.40	6,250.00	-247.73	-2,428.32	222.28	0.00	0.00	0.00
7,500.00	90.00	179.40	6,250.00	-347.72	-2,427.28	322.28	0.00	0.00	0.00
7,600.00	90.00	179.40	6,250.00	-447.72	-2,426.24	422.28	0.00	0.00	0.00
7,700.00	90.00	179.40	6,250.00	-547.71	-2,425.20	522.28	0.00	0.00	0.00
7,800.00	90.00	179.40	6,250.00	-647.71	-2,424.16	622.28	0.00	0.00	0.00
7,900.00	90.00	179.40	6,250.00	-747.70	-2,423.12	722.28	0.00	0.00	0.00
8,000.00	90.00	179.40	6,250.00	-847.69	-2,422.08	822.28	0.00	0.00	0.00
8,100.00	90.00	179.40	6,250.00	-947.69	-2,421.04	922.28	0.00	0.00	0.00
8,200.00	90.00	179.40	6,250.00	-1,047.68	-2,420.00	1,022.28	0.00	0.00	0.00
8,300.00	90.00	179.40	6,250.00	-1,147.68	-2,418.97	1,122.28	0.00	0.00	0.00
8,400.00	90.00	179.40	6,250.00	-1,247.67	-2,417.93	1,222.28	0.00	0.00	0.00
8,500.00	90.00	179.40	6,250.00	-1,347.67	-2,416.89	1,322.28	0.00	0.00	0.00
8,600.00	90.00	179.40	6,250.00	-1,447.66	-2,415.85	1,422.28	0.00	0.00	0.00
8,700.00	90.00	179.40	6,250.00	-1,547.66	-2,414.81	1,522.28	0.00	0.00	0.00
8,800.00	90.00	179.40	6,250.00	-1,647.65	-2,413.77	1,622.28	0.00	0.00	0.00
8,900.00	90.00	179.40	6,250.00	-1,747.65	-2,412.73	1,722.28	0.00	0.00	0.00
9,000.00	90.00	179.40	6,250.00	-1,847.64	-2,411.69	1,822.28	0.00	0.00	0.00
9,100.00	90.00	179.40	6,250.00	-1,947.64	-2,410.65	1,922.28	0.00	0.00	0.00
9,200.00	90.00	179.40	6,250.00	-2,047.63	-2,409.61	2,022.28	0.00	0.00	0.00
9,300.00	90.00	179.40	6,250.00	-2,147.62	-2,408.57	2,122.28	0.00	0.00	0.00
9,400.00	90.00	179.40	6,250.00	-2,247.62	-2,407.53	2,222.28	0.00	0.00	0.00
9,500.00	90.00	179.40	6,250.00	-2,347.61	-2,406.49	2,322.28	0.00	0.00	0.00
9,600.00	90.00	179.40	6,250.00	-2,447.61	-2,405.45	2,422.28	0.00	0.00	0.00

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-09H
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 1717-09H	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	179.40	6,250.00	-2,547.60	-2,404.41	2,522.28	0.00	0.00	0.00	
9,800.00	90.00	179.40	6,250.00	-2,647.60	-2,403.37	2,622.28	0.00	0.00	0.00	
9,900.00	90.00	179.40	6,250.00	-2,747.59	-2,402.33	2,722.28	0.00	0.00	0.00	
10,000.00	90.00	179.40	6,250.00	-2,847.59	-2,401.30	2,822.28	0.00	0.00	0.00	
10,100.00	90.00	179.40	6,250.00	-2,947.58	-2,400.26	2,922.28	0.00	0.00	0.00	
10,200.00	90.00	179.40	6,250.00	-3,047.58	-2,399.22	3,022.28	0.00	0.00	0.00	
10,300.00	90.00	179.40	6,250.00	-3,147.57	-2,398.18	3,122.28	0.00	0.00	0.00	
10,400.00	90.00	179.40	6,250.00	-3,247.57	-2,397.14	3,222.28	0.00	0.00	0.00	
10,500.00	90.00	179.40	6,250.00	-3,347.56	-2,396.10	3,322.28	0.00	0.00	0.00	
10,600.00	90.00	179.40	6,250.00	-3,447.55	-2,395.06	3,422.28	0.00	0.00	0.00	
10,700.00	90.00	179.40	6,250.00	-3,547.55	-2,394.02	3,522.28	0.00	0.00	0.00	
10,800.00	90.00	179.40	6,250.00	-3,647.54	-2,392.98	3,622.28	0.00	0.00	0.00	
10,900.00	90.00	179.40	6,250.00	-3,747.54	-2,391.94	3,722.28	0.00	0.00	0.00	
11,000.00	90.00	179.40	6,250.00	-3,847.53	-2,390.90	3,822.28	0.00	0.00	0.00	
11,100.00	90.00	179.40	6,250.00	-3,947.53	-2,389.86	3,922.28	0.00	0.00	0.00	
11,200.00	90.00	179.40	6,250.00	-4,047.52	-2,388.82	4,022.28	0.00	0.00	0.00	
11,300.00	90.00	179.40	6,250.00	-4,147.52	-2,387.78	4,122.28	0.00	0.00	0.00	
11,400.00	90.00	179.40	6,250.00	-4,247.51	-2,386.74	4,222.28	0.00	0.00	0.00	
11,500.00	90.00	179.40	6,250.00	-4,347.51	-2,385.70	4,322.28	0.00	0.00	0.00	
11,600.00	90.00	179.40	6,250.00	-4,447.50	-2,384.66	4,422.28	0.00	0.00	0.00	
11,700.00	90.00	179.40	6,250.00	-4,547.49	-2,383.63	4,522.28	0.00	0.00	0.00	
11,800.00	90.00	179.40	6,250.00	-4,647.49	-2,382.59	4,622.28	0.00	0.00	0.00	
11,884.66	90.00	179.40	6,250.00	-4,732.14	-2,381.71	4,706.94	0.00	0.00	0.00	
TD Well @ 11884.66ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,543.35	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)		
251.00	251.00	0.00	0.00	Begin Nudge @ 251.00ft	
1,520.50	1,479.36	77.85	-265.53	Hold Tangent @ 1520.50ft	
6,079.42	5,597.93	627.79	-2,141.34	KOP @ 6079.42ft :: DLS = 9°/100'	
7,159.14	6,250.00	-6.88	-2,430.82	End Build @ 7159.14ft	
11,884.66	6,250.00	-4,732.14	-2,381.71	TD Well @ 11884.66ft	