

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-11H

Wellbore #1

Plan: Design #2

Standard Planning Report

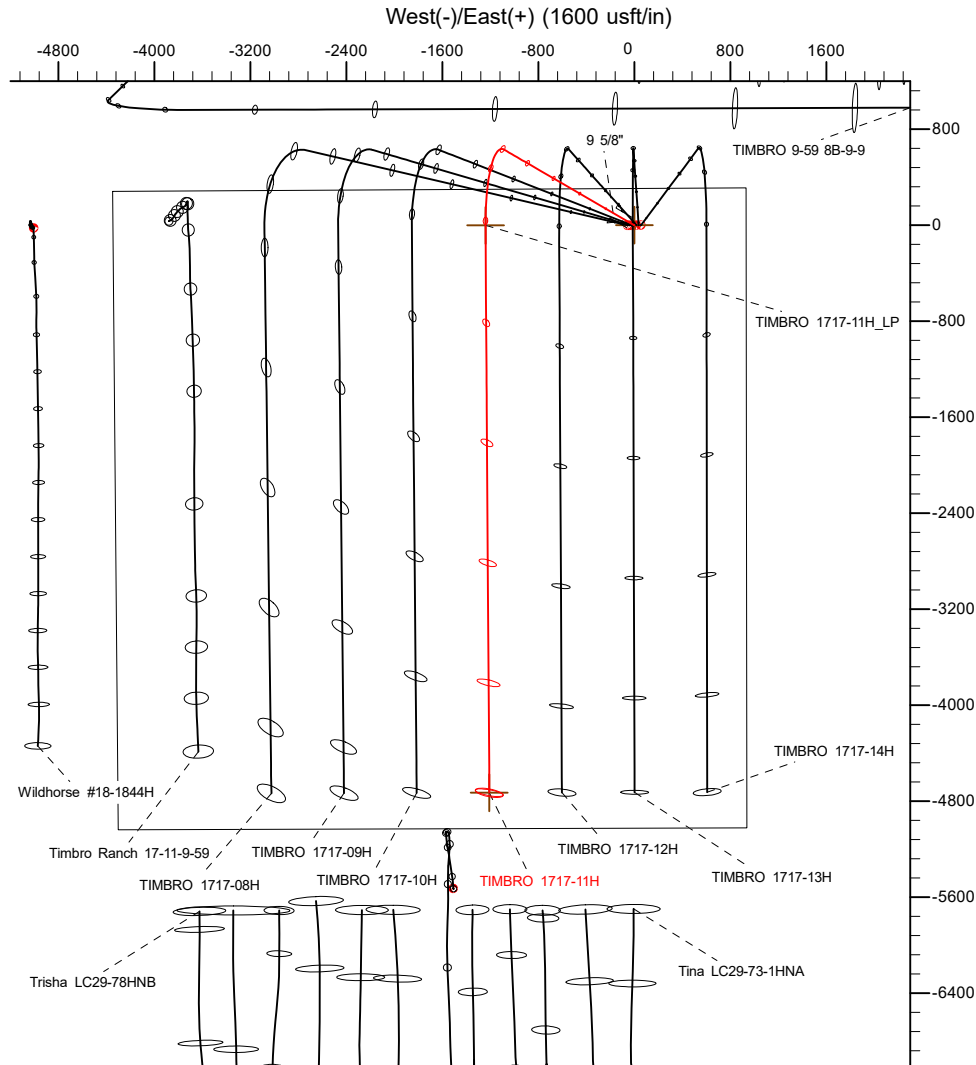
24 February, 2020

Project: WATTENBERG FIELD
 Site: 9N-59W-17 TIMBRO 1717 PAD
 Well: TIMBRO 1717-11H
 Wellbore: Wellbore #1
 Design: Design #2

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1500.00	1522.11	9 5/8"	9-5/8

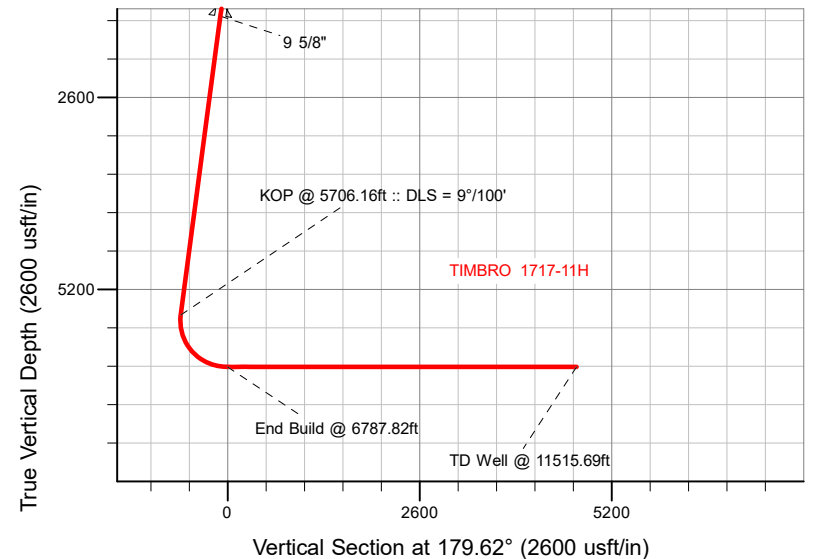


SECTION DETAILS

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	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	
3	1079.00	14.58	300.16	1071.16	46.35	-79.77	2.00	300.16	-46.88	
4	5706.16	14.58	300.16	5549.31	631.57	-1086.88	0.00	0.00	-638.76	
5	6787.82	90.00	179.62	6250.00	-0.86	-1239.64	9.00	-119.73	-7.36	
6	11515.69	90.00	179.62	6250.00	-4728.62	-1208.09	0.00	0.00	4720.51	TIMBRO 1717-11H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

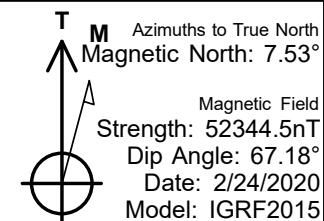
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-11H_SHL	0.00	0.00	0.00	40.756951	-103.995971
TIMBRO 1717-11H_BHL	6250.00	-4728.62	-1208.09	40.743972	-104.000331



SHL
306' FNL
932' FEL

LP
300' FNL
2172' FEL

BHL
300' FSL
2146' FEL



WELL DETAILS: TIMBRO 1717-11H

GL = 5010'

RKB = 20' @ 5030.00usft (RIG)

Plan: Design #2 (TIMBRO 1717-11H/Wellbore #1)

Date: 2/24/2020

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-11H
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 1717-11H	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 1717-11H				
Well Position	+N/-S	0.00 usft	Northing:	1,522,136.00 usft	Latitude:	40.756951
	+E/-W	0.00 usft	Easting:	3,416,661.90 usft	Longitude:	-103.995972
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	52,344.50644864

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	179.62	

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	11,515.69	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 1717-11H	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	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,079.00	14.58	300.16	1,071.16	46.35	-79.77	2.00	2.00	0.00	300.16	
5,706.16	14.58	300.16	5,549.31	631.57	-1,086.88	0.00	0.00	0.00	0.00	
6,787.82	90.00	179.62	6,250.00	-0.86	-1,239.64	9.00	6.97	-11.14	-119.73	
11,515.69	90.00	179.62	6,250.00	-4,728.62	-1,208.09	0.00	0.00	0.00	0.00	TIMBRO 1717-11H_B

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 1717-11H	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
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 350.00ft									
400.00	1.00	300.16	400.00	0.22	-0.38	-0.22	2.00	2.00	0.00
500.00	3.00	300.16	499.93	1.97	-3.39	-2.00	2.00	2.00	0.00
600.00	5.00	300.16	599.68	5.48	-9.43	-5.54	2.00	2.00	0.00
700.00	7.00	300.16	699.13	10.73	-18.46	-10.85	2.00	2.00	0.00
800.00	9.00	300.16	798.15	17.72	-30.50	-17.92	2.00	2.00	0.00
900.00	11.00	300.16	896.63	26.44	-45.51	-26.75	2.00	2.00	0.00
1,000.00	13.00	300.16	994.44	36.89	-63.48	-37.31	2.00	2.00	0.00
1,079.00	14.58	300.16	1,071.16	46.35	-79.77	-46.88	2.00	2.00	0.00
Hold Tangent @ 1079.00ft									
1,100.00	14.58	300.16	1,091.48	49.01	-84.34	-49.56	0.00	0.00	0.00
1,200.00	14.58	300.16	1,188.26	61.65	-106.10	-62.36	0.00	0.00	0.00
1,300.00	14.58	300.16	1,285.04	74.30	-127.87	-75.15	0.00	0.00	0.00
1,400.00	14.58	300.16	1,381.82	86.95	-149.63	-87.94	0.00	0.00	0.00
1,500.00	14.58	300.16	1,478.60	99.60	-171.40	-100.73	0.00	0.00	0.00
1,522.11	14.58	300.16	1,500.00	102.39	-176.21	-103.56	0.00	0.00	0.00
9 5/8"									
1,600.00	14.58	300.16	1,575.38	112.24	-193.16	-113.52	0.00	0.00	0.00
1,700.00	14.58	300.16	1,672.16	124.89	-214.93	-126.31	0.00	0.00	0.00
1,800.00	14.58	300.16	1,768.94	137.54	-236.69	-139.10	0.00	0.00	0.00
1,900.00	14.58	300.16	1,865.72	150.19	-258.46	-151.90	0.00	0.00	0.00
2,000.00	14.58	300.16	1,962.50	162.83	-280.22	-164.69	0.00	0.00	0.00
2,100.00	14.58	300.16	2,059.28	175.48	-301.99	-177.48	0.00	0.00	0.00
2,200.00	14.58	300.16	2,156.06	188.13	-323.76	-190.27	0.00	0.00	0.00
2,300.00	14.58	300.16	2,252.84	200.78	-345.52	-203.06	0.00	0.00	0.00
2,400.00	14.58	300.16	2,349.62	213.42	-367.29	-215.85	0.00	0.00	0.00
2,500.00	14.58	300.16	2,446.40	226.07	-389.05	-228.65	0.00	0.00	0.00
2,600.00	14.58	300.16	2,543.18	238.72	-410.82	-241.44	0.00	0.00	0.00
2,700.00	14.58	300.16	2,639.96	251.36	-432.58	-254.23	0.00	0.00	0.00
2,800.00	14.58	300.16	2,736.74	264.01	-454.35	-267.02	0.00	0.00	0.00
2,900.00	14.58	300.16	2,833.52	276.66	-476.11	-279.81	0.00	0.00	0.00
3,000.00	14.58	300.16	2,930.30	289.31	-497.88	-292.60	0.00	0.00	0.00
3,100.00	14.58	300.16	3,027.08	301.95	-519.64	-305.39	0.00	0.00	0.00
3,200.00	14.58	300.16	3,123.86	314.60	-541.41	-318.19	0.00	0.00	0.00
3,300.00	14.58	300.16	3,220.64	327.25	-563.17	-330.98	0.00	0.00	0.00
3,400.00	14.58	300.16	3,317.41	339.90	-584.94	-343.77	0.00	0.00	0.00
3,500.00	14.58	300.16	3,414.19	352.54	-606.70	-356.56	0.00	0.00	0.00
3,600.00	14.58	300.16	3,510.97	365.19	-628.47	-369.35	0.00	0.00	0.00
3,700.00	14.58	300.16	3,607.75	377.84	-650.24	-382.14	0.00	0.00	0.00
3,800.00	14.58	300.16	3,704.53	390.49	-672.00	-394.93	0.00	0.00	0.00
3,900.00	14.58	300.16	3,801.31	403.13	-693.77	-407.73	0.00	0.00	0.00
4,000.00	14.58	300.16	3,898.09	415.78	-715.53	-420.52	0.00	0.00	0.00
4,100.00	14.58	300.16	3,994.87	428.43	-737.30	-433.31	0.00	0.00	0.00
4,200.00	14.58	300.16	4,091.65	441.08	-759.06	-446.10	0.00	0.00	0.00
4,300.00	14.58	300.16	4,188.43	453.72	-780.83	-458.89	0.00	0.00	0.00
4,400.00	14.58	300.16	4,285.21	466.37	-802.59	-471.68	0.00	0.00	0.00
4,500.00	14.58	300.16	4,381.99	479.02	-824.36	-484.47	0.00	0.00	0.00
4,600.00	14.58	300.16	4,478.77	491.67	-846.12	-497.27	0.00	0.00	0.00

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 1717-11H	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	14.58	300.16	4,575.55	504.31	-867.89	-510.06	0.00	0.00	0.00	
4,800.00	14.58	300.16	4,672.33	516.96	-889.65	-522.85	0.00	0.00	0.00	
4,900.00	14.58	300.16	4,769.11	529.61	-911.42	-535.64	0.00	0.00	0.00	
5,000.00	14.58	300.16	4,865.89	542.26	-933.19	-548.43	0.00	0.00	0.00	
5,100.00	14.58	300.16	4,962.67	554.90	-954.95	-561.22	0.00	0.00	0.00	
5,200.00	14.58	300.16	5,059.45	567.55	-976.72	-574.02	0.00	0.00	0.00	
5,300.00	14.58	300.16	5,156.23	580.20	-998.48	-586.81	0.00	0.00	0.00	
5,400.00	14.58	300.16	5,253.01	592.84	-1,020.25	-599.60	0.00	0.00	0.00	
5,500.00	14.58	300.16	5,349.79	605.49	-1,042.01	-612.39	0.00	0.00	0.00	
5,600.00	14.58	300.16	5,446.57	618.14	-1,063.78	-625.18	0.00	0.00	0.00	
5,700.00	14.58	300.16	5,543.35	630.79	-1,085.54	-637.97	0.00	0.00	0.00	
5,706.16	14.58	300.16	5,549.31	631.57	-1,086.88	-638.76	0.00	0.00	0.00	
KOP @ 5706.16ft :: DLS = 9°/100'										
5,800.00	12.67	264.62	5,640.66	636.54	-1,107.38	-643.87	9.00	-2.03	-37.88	
5,900.00	16.12	230.45	5,737.68	626.66	-1,129.05	-634.13	9.00	3.44	-34.16	
6,000.00	22.76	211.89	5,832.01	601.34	-1,150.01	-608.96	9.00	6.65	-18.57	
6,100.00	30.59	201.89	5,921.34	561.22	-1,169.76	-568.97	9.00	7.83	-10.00	
6,200.00	38.89	195.74	6,003.47	507.29	-1,187.80	-515.15	9.00	8.30	-6.14	
6,300.00	47.42	191.50	6,076.37	440.86	-1,203.69	-448.83	9.00	8.52	-4.24	
6,400.00	56.06	188.29	6,138.25	363.58	-1,217.03	-371.64	9.00	8.64	-3.21	
6,500.00	64.77	185.68	6,187.59	277.35	-1,227.51	-285.48	9.00	8.71	-2.61	
6,600.00	73.52	183.42	6,223.16	184.29	-1,234.86	-192.47	9.00	8.75	-2.26	
6,700.00	82.29	181.36	6,244.10	86.69	-1,238.90	-94.91	9.00	8.77	-2.06	
6,787.82	90.00	179.62	6,250.00	-0.86	-1,239.64	-7.36	9.00	8.78	-1.98	
End Build @ 6787.82ft										
6,800.00	90.00	179.62	6,250.00	-13.03	-1,239.55	4.81	0.00	0.00	0.00	
6,900.00	90.00	179.62	6,250.00	-113.03	-1,238.89	104.81	0.00	0.00	0.00	
7,000.00	90.00	179.62	6,250.00	-213.03	-1,238.22	204.81	0.00	0.00	0.00	
7,100.00	90.00	179.62	6,250.00	-313.03	-1,237.55	304.81	0.00	0.00	0.00	
7,200.00	90.00	179.62	6,250.00	-413.03	-1,236.89	404.81	0.00	0.00	0.00	
7,300.00	90.00	179.62	6,250.00	-513.02	-1,236.22	504.81	0.00	0.00	0.00	
7,400.00	90.00	179.62	6,250.00	-613.02	-1,235.55	604.81	0.00	0.00	0.00	
7,500.00	90.00	179.62	6,250.00	-713.02	-1,234.88	704.81	0.00	0.00	0.00	
7,600.00	90.00	179.62	6,250.00	-813.02	-1,234.22	804.81	0.00	0.00	0.00	
7,700.00	90.00	179.62	6,250.00	-913.01	-1,233.55	904.81	0.00	0.00	0.00	
7,800.00	90.00	179.62	6,250.00	-1,013.01	-1,232.88	1,004.81	0.00	0.00	0.00	
7,900.00	90.00	179.62	6,250.00	-1,113.01	-1,232.21	1,104.81	0.00	0.00	0.00	
8,000.00	90.00	179.62	6,250.00	-1,213.01	-1,231.55	1,204.81	0.00	0.00	0.00	
8,100.00	90.00	179.62	6,250.00	-1,313.01	-1,230.88	1,304.81	0.00	0.00	0.00	
8,200.00	90.00	179.62	6,250.00	-1,413.00	-1,230.21	1,404.81	0.00	0.00	0.00	
8,300.00	90.00	179.62	6,250.00	-1,513.00	-1,229.55	1,504.81	0.00	0.00	0.00	
8,400.00	90.00	179.62	6,250.00	-1,613.00	-1,228.88	1,604.81	0.00	0.00	0.00	
8,500.00	90.00	179.62	6,250.00	-1,713.00	-1,228.21	1,704.81	0.00	0.00	0.00	
8,600.00	90.00	179.62	6,250.00	-1,812.99	-1,227.54	1,804.81	0.00	0.00	0.00	
8,700.00	90.00	179.62	6,250.00	-1,912.99	-1,226.88	1,904.81	0.00	0.00	0.00	
8,800.00	90.00	179.62	6,250.00	-2,012.99	-1,226.21	2,004.81	0.00	0.00	0.00	
8,900.00	90.00	179.62	6,250.00	-2,112.99	-1,225.54	2,104.81	0.00	0.00	0.00	
9,000.00	90.00	179.62	6,250.00	-2,212.99	-1,224.87	2,204.81	0.00	0.00	0.00	
9,100.00	90.00	179.62	6,250.00	-2,312.98	-1,224.21	2,304.81	0.00	0.00	0.00	
9,200.00	90.00	179.62	6,250.00	-2,412.98	-1,223.54	2,404.81	0.00	0.00	0.00	
9,300.00	90.00	179.62	6,250.00	-2,512.98	-1,222.87	2,504.81	0.00	0.00	0.00	
9,400.00	90.00	179.62	6,250.00	-2,612.98	-1,222.21	2,604.81	0.00	0.00	0.00	
9,500.00	90.00	179.62	6,250.00	-2,712.97	-1,221.54	2,704.81	0.00	0.00	0.00	
9,600.00	90.00	179.62	6,250.00	-2,812.97	-1,220.87	2,804.81	0.00	0.00	0.00	

HP

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-11H
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 1717-11H	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	179.62	6,250.00	-2,912.97	-1,220.20	2,904.81	0.00	0.00	0.00	
9,800.00	90.00	179.62	6,250.00	-3,012.97	-1,219.54	3,004.81	0.00	0.00	0.00	
9,900.00	90.00	179.62	6,250.00	-3,112.97	-1,218.87	3,104.81	0.00	0.00	0.00	
10,000.00	90.00	179.62	6,250.00	-3,212.96	-1,218.20	3,204.81	0.00	0.00	0.00	
10,100.00	90.00	179.62	6,250.00	-3,312.96	-1,217.53	3,304.81	0.00	0.00	0.00	
10,200.00	90.00	179.62	6,250.00	-3,412.96	-1,216.87	3,404.81	0.00	0.00	0.00	
10,300.00	90.00	179.62	6,250.00	-3,512.96	-1,216.20	3,504.81	0.00	0.00	0.00	
10,400.00	90.00	179.62	6,250.00	-3,612.95	-1,215.53	3,604.81	0.00	0.00	0.00	
10,500.00	90.00	179.62	6,250.00	-3,712.95	-1,214.87	3,704.81	0.00	0.00	0.00	
10,600.00	90.00	179.62	6,250.00	-3,812.95	-1,214.20	3,804.81	0.00	0.00	0.00	
10,700.00	90.00	179.62	6,250.00	-3,912.95	-1,213.53	3,904.81	0.00	0.00	0.00	
10,800.00	90.00	179.62	6,250.00	-4,012.95	-1,212.86	4,004.81	0.00	0.00	0.00	
10,900.00	90.00	179.62	6,250.00	-4,112.94	-1,212.20	4,104.81	0.00	0.00	0.00	
11,000.00	90.00	179.62	6,250.00	-4,212.94	-1,211.53	4,204.81	0.00	0.00	0.00	
11,100.00	90.00	179.62	6,250.00	-4,312.94	-1,210.86	4,304.81	0.00	0.00	0.00	
11,200.00	90.00	179.62	6,250.00	-4,412.94	-1,210.19	4,404.81	0.00	0.00	0.00	
11,300.00	90.00	179.62	6,250.00	-4,512.93	-1,209.53	4,504.81	0.00	0.00	0.00	
11,400.00	90.00	179.62	6,250.00	-4,612.93	-1,208.86	4,604.81	0.00	0.00	0.00	
11,500.00	90.00	179.62	6,250.00	-4,712.93	-1,208.19	4,704.81	0.00	0.00	0.00	
11,515.69	90.00	179.62	6,250.00	-4,728.62	-1,208.09	4,720.51	0.00	0.00	0.00	
TD Well @ 11515.69ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,522.11	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)		
350.00	350.00	0.00	0.00	Begin Nudge @ 350.00ft	
1,079.00	1,071.16	46.35	-79.77	Hold Tangent @ 1079.00ft	
5,706.16	5,549.31	631.57	-1,086.88	KOP @ 5706.16ft :: DLS = 9°/100'	
6,787.82	6,250.00	-0.86	-1,239.64	End Build @ 6787.82ft	
11,515.69	6,250.00	-4,728.62	-1,208.09	TD Well @ 11515.69ft	