

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-09H

Wellbore #1

Plan: Design #1

Standard Planning Report

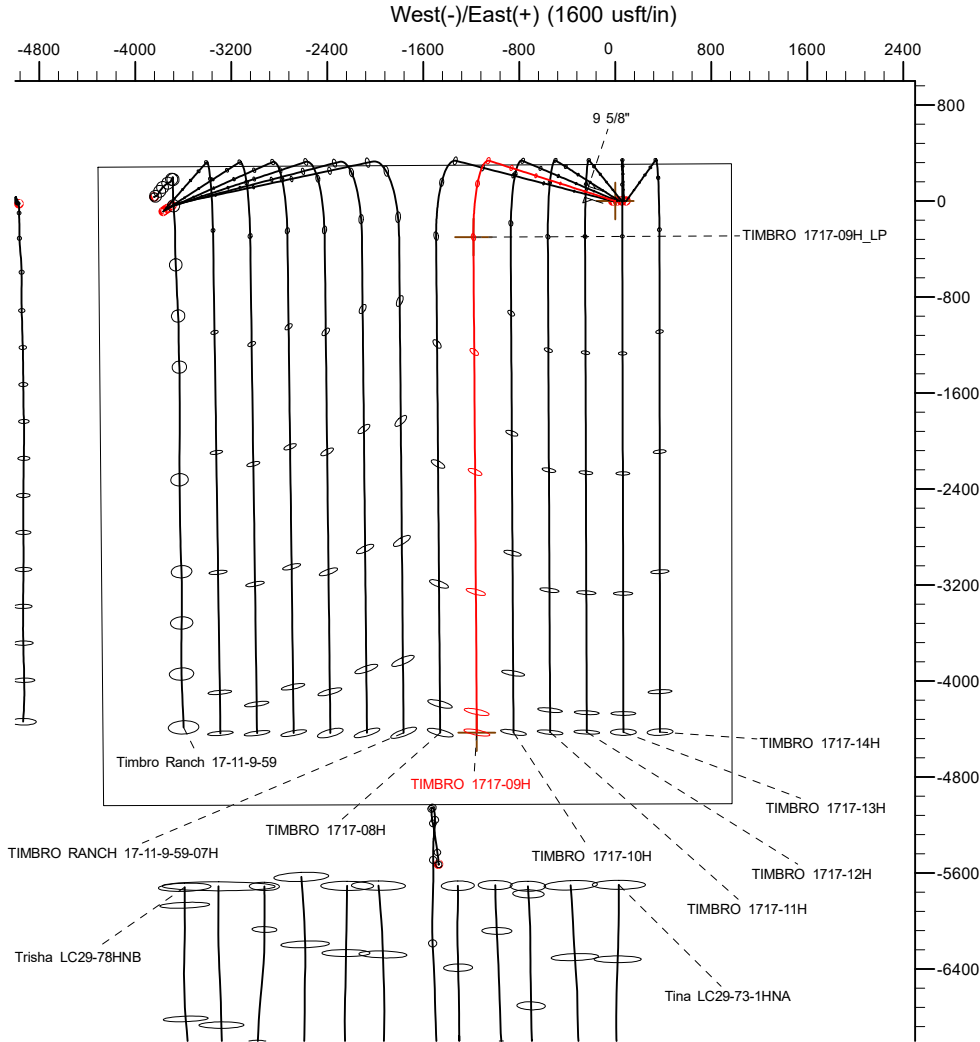
10 April, 2018

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

VERDAD RESOURCES

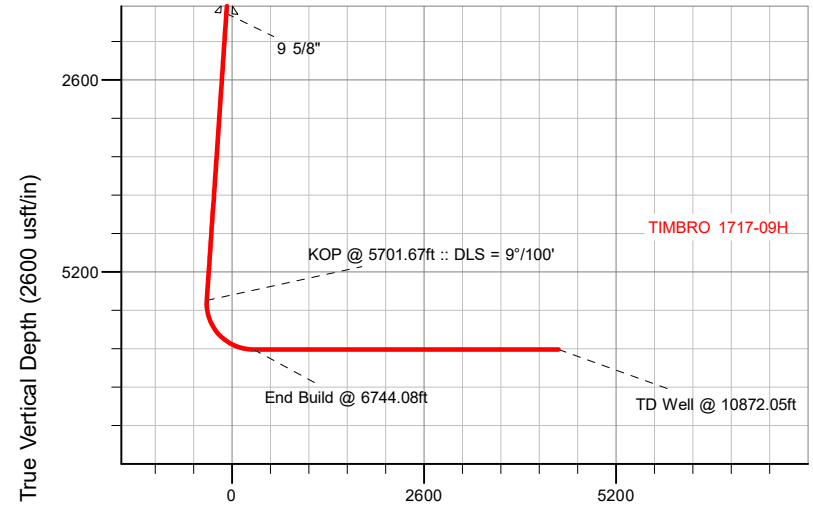
CASING DETAILS

TVD	MD	Name	Size
1700.00	1724.57	9 5/8"	9-5/8



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	867.00	12.34	287.75	862.24	20.18	-63.04	2.00	287.75	-20.62	
4	5701.67	12.34	287.75	5585.21	335.17	-1047.08	0.00	0.00	-342.47	
5	6744.08	90.00	179.60	6250.00	-300.98	-1180.85	9.00	-107.76	292.73	
6	10872.05	90.00	179.60	6250.00	-4428.85	-1152.07	0.00	0.00	4420.70	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	40.756952	-103.996105
TIMBRO 1717-09H_BHL	6250.00	-4428.85	-1152.07	40.744795	-104.000262



SHL
306' FNL
969' FEL

LP
600' FNL
2150' FEL

BHL
600' FSL
2126' FEL

Vertical Section at 179.60° (2600 usft/in)

WELL DETAILS: TIMBRO 1717-09H	
GL = 5010'	
RKB = 20' @ 5030.00usft (RIG)	
Plan: Design #1 (TIMBRO 1717-09H/Wellbore #1)	
Created By: _____	Date: 4/09/2018
Reviewed: _____	Date: _____

T
M Azimuths to True North
 Magnetic North: 7.74°

Magnetic Field
 Strength: 52560.2snT
 Dip Angle: 67.23°
 Date: 4/9/2018
 Model: IGRF2015

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Planning Report

Database:	EDM 5000.14 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 #1		

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 "	Grid Convergence:	0.97 °

Well	TIMBRO 1717-09H					
Well Position	+N/-S	0.10 usft	Northing:	1,522,135.66 usft	Latitude:	40.756952
	+E/-W	18.48 usft	Easting:	3,416,625.02 usft	Longitude:	-103.996105
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,010.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/9/2018	7.73	67.23	52,560.15422980

Design	Design #1			
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	179.60

Plan Survey Tool Program	Date	4/10/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,700.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination
2	1,700.00	10,872.05	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
867.00	12.34	287.75	862.24	20.18	-63.04	2.00	2.00	0.00	287.75	
5,701.67	12.34	287.75	5,585.21	335.17	-1,047.08	0.00	0.00	0.00	0.00	
6,744.08	90.00	179.60	6,250.00	-300.98	-1,180.85	9.00	7.45	-10.37	-107.76	
10,872.05	90.00	179.60	6,250.00	-4,428.85	-1,152.07	0.00	0.00	0.00	0.00	TIMBRO 1717-09H_E

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Planning Report

Database:	EDM 5000.14 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 #1		

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Tangent @ 250.00ft									
300.00	1.00	287.75	300.00	0.13	-0.42	-0.14	2.00	2.00	0.00
400.00	3.00	287.75	399.93	1.20	-3.74	-1.22	2.00	2.00	0.00
500.00	5.00	287.75	499.68	3.32	-10.38	-3.40	2.00	2.00	0.00
600.00	7.00	287.75	599.13	6.51	-20.34	-6.65	2.00	2.00	0.00
700.00	9.00	287.75	698.15	10.75	-33.59	-10.99	2.00	2.00	0.00
800.00	11.00	287.75	796.63	16.05	-50.13	-16.40	2.00	2.00	0.00
867.00	12.34	287.75	862.24	20.18	-63.04	-20.62	2.00	2.00	0.00
End Tangent @ 867.00ft									
900.00	12.34	287.75	894.48	22.33	-69.75	-22.81	0.00	0.00	0.00
1,000.00	12.34	287.75	992.17	28.84	-90.11	-29.47	0.00	0.00	0.00
1,100.00	12.34	287.75	1,089.86	35.36	-110.46	-36.13	0.00	0.00	0.00
1,200.00	12.34	287.75	1,187.55	41.87	-130.81	-42.79	0.00	0.00	0.00
1,300.00	12.34	287.75	1,285.24	48.39	-151.17	-49.44	0.00	0.00	0.00
1,400.00	12.34	287.75	1,382.93	54.90	-171.52	-56.10	0.00	0.00	0.00
1,500.00	12.34	287.75	1,480.62	61.42	-191.88	-62.76	0.00	0.00	0.00
1,600.00	12.34	287.75	1,578.31	67.94	-212.23	-69.42	0.00	0.00	0.00
1,700.00	12.34	287.75	1,676.00	74.45	-232.58	-76.07	0.00	0.00	0.00
1,724.57	12.34	287.75	1,700.00	76.05	-237.58	-77.71	0.00	0.00	0.00
9 5/8"									
1,800.00	12.34	287.75	1,773.69	80.97	-252.94	-82.73	0.00	0.00	0.00
1,900.00	12.34	287.75	1,871.38	87.48	-273.29	-89.39	0.00	0.00	0.00
2,000.00	12.34	287.75	1,969.06	94.00	-293.65	-96.04	0.00	0.00	0.00
2,100.00	12.34	287.75	2,066.75	100.51	-314.00	-102.70	0.00	0.00	0.00
2,200.00	12.34	287.75	2,164.44	107.03	-334.35	-109.36	0.00	0.00	0.00
2,300.00	12.34	287.75	2,262.13	113.54	-354.71	-116.02	0.00	0.00	0.00
2,400.00	12.34	287.75	2,359.82	120.06	-375.06	-122.67	0.00	0.00	0.00
2,500.00	12.34	287.75	2,457.51	126.57	-395.41	-129.33	0.00	0.00	0.00
2,600.00	12.34	287.75	2,555.20	133.09	-415.77	-135.99	0.00	0.00	0.00
2,700.00	12.34	287.75	2,652.89	139.60	-436.12	-142.65	0.00	0.00	0.00
2,800.00	12.34	287.75	2,750.58	146.12	-456.48	-149.30	0.00	0.00	0.00
2,900.00	12.34	287.75	2,848.27	152.63	-476.83	-155.96	0.00	0.00	0.00
3,000.00	12.34	287.75	2,945.96	159.15	-497.18	-162.62	0.00	0.00	0.00
3,100.00	12.34	287.75	3,043.65	165.67	-517.54	-169.27	0.00	0.00	0.00
3,200.00	12.34	287.75	3,141.34	172.18	-537.89	-175.93	0.00	0.00	0.00
3,300.00	12.34	287.75	3,239.03	178.70	-558.25	-182.59	0.00	0.00	0.00
3,400.00	12.34	287.75	3,336.72	185.21	-578.60	-189.25	0.00	0.00	0.00
3,500.00	12.34	287.75	3,434.41	191.73	-598.95	-195.90	0.00	0.00	0.00
3,600.00	12.34	287.75	3,532.10	198.24	-619.31	-202.56	0.00	0.00	0.00
3,700.00	12.34	287.75	3,629.79	204.76	-639.66	-209.22	0.00	0.00	0.00
3,800.00	12.34	287.75	3,727.48	211.27	-660.01	-215.88	0.00	0.00	0.00
3,900.00	12.34	287.75	3,825.17	217.79	-680.37	-222.53	0.00	0.00	0.00
4,000.00	12.34	287.75	3,922.86	224.30	-700.72	-229.19	0.00	0.00	0.00
4,100.00	12.34	287.75	4,020.55	230.82	-721.08	-235.85	0.00	0.00	0.00
4,200.00	12.34	287.75	4,118.24	237.33	-741.43	-242.50	0.00	0.00	0.00
4,300.00	12.34	287.75	4,215.93	243.85	-761.78	-249.16	0.00	0.00	0.00
4,400.00	12.34	287.75	4,313.62	250.36	-782.14	-255.82	0.00	0.00	0.00
4,500.00	12.34	287.75	4,411.31	256.88	-802.49	-262.48	0.00	0.00	0.00
4,600.00	12.34	287.75	4,509.00	263.40	-822.85	-269.13	0.00	0.00	0.00

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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 1717-09H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	12.34	287.75	4,606.69	269.91	-843.20	-275.79	0.00	0.00	0.00
4,800.00	12.34	287.75	4,704.38	276.43	-863.55	-282.45	0.00	0.00	0.00
4,900.00	12.34	287.75	4,802.07	282.94	-883.91	-289.10	0.00	0.00	0.00
5,000.00	12.34	287.75	4,899.75	289.46	-904.26	-295.76	0.00	0.00	0.00
5,100.00	12.34	287.75	4,997.44	295.97	-924.62	-302.42	0.00	0.00	0.00
5,200.00	12.34	287.75	5,095.13	302.49	-944.97	-309.08	0.00	0.00	0.00
5,300.00	12.34	287.75	5,192.82	309.00	-965.32	-315.73	0.00	0.00	0.00
5,400.00	12.34	287.75	5,290.51	315.52	-985.68	-322.39	0.00	0.00	0.00
5,500.00	12.34	287.75	5,388.20	322.03	-1,006.03	-329.05	0.00	0.00	0.00
5,600.00	12.34	287.75	5,485.89	328.55	-1,026.38	-335.71	0.00	0.00	0.00
5,700.00	12.34	287.75	5,583.58	335.06	-1,046.74	-342.36	0.00	0.00	0.00
5,701.67	12.34	287.75	5,585.21	335.17	-1,047.08	-342.47	0.00	0.00	0.00
KOP @ 5701.67ft :: DLS = 9°/100'									
5,800.00	12.76	246.20	5,681.38	333.99	-1,067.06	-341.43	9.00	0.43	-42.25
5,900.00	18.22	218.76	5,777.84	317.31	-1,087.00	-324.89	9.00	5.46	-27.45
6,000.00	25.71	205.18	5,870.57	285.42	-1,106.05	-293.14	9.00	7.49	-13.58
6,100.00	33.90	197.62	5,957.30	239.12	-1,123.76	-246.96	9.00	8.19	-7.56
6,200.00	42.39	192.76	6,035.89	179.54	-1,139.68	-187.49	9.00	8.49	-4.86
6,300.00	51.03	189.28	6,104.41	108.15	-1,153.43	-116.20	9.00	8.64	-3.48
6,400.00	59.75	186.56	6,161.16	26.71	-1,164.66	-34.84	9.00	8.72	-2.72
6,500.00	68.52	184.29	6,204.75	-62.78	-1,173.10	54.59	9.00	8.77	-2.27
6,600.00	77.31	182.28	6,234.11	-158.11	-1,178.54	149.88	9.00	8.79	-2.01
6,700.00	86.12	180.41	6,248.51	-256.94	-1,180.84	248.69	9.00	8.81	-1.87
6,744.08	90.00	179.60	6,250.00	-300.98	-1,180.85	292.73	9.00	8.81	-1.83
End Build @ 6744.08ft									
6,800.00	90.00	179.60	6,250.00	-356.90	-1,180.46	348.65	0.00	0.00	0.00
6,900.00	90.00	179.60	6,250.00	-456.90	-1,179.76	448.65	0.00	0.00	0.00
7,000.00	90.00	179.60	6,250.00	-556.90	-1,179.06	548.65	0.00	0.00	0.00
7,100.00	90.00	179.60	6,250.00	-656.89	-1,178.36	648.65	0.00	0.00	0.00
7,200.00	90.00	179.60	6,250.00	-756.89	-1,177.67	748.65	0.00	0.00	0.00
7,300.00	90.00	179.60	6,250.00	-856.89	-1,176.97	848.65	0.00	0.00	0.00
7,400.00	90.00	179.60	6,250.00	-956.89	-1,176.27	948.65	0.00	0.00	0.00
7,500.00	90.00	179.60	6,250.00	-1,056.88	-1,175.58	1,048.65	0.00	0.00	0.00
7,600.00	90.00	179.60	6,250.00	-1,156.88	-1,174.88	1,148.65	0.00	0.00	0.00
7,700.00	90.00	179.60	6,250.00	-1,256.88	-1,174.18	1,248.65	0.00	0.00	0.00
7,800.00	90.00	179.60	6,250.00	-1,356.88	-1,173.49	1,348.65	0.00	0.00	0.00
7,900.00	90.00	179.60	6,250.00	-1,456.87	-1,172.79	1,448.65	0.00	0.00	0.00
8,000.00	90.00	179.60	6,250.00	-1,556.87	-1,172.09	1,548.65	0.00	0.00	0.00
8,100.00	90.00	179.60	6,250.00	-1,656.87	-1,171.39	1,648.65	0.00	0.00	0.00
8,200.00	90.00	179.60	6,250.00	-1,756.87	-1,170.70	1,748.65	0.00	0.00	0.00
8,300.00	90.00	179.60	6,250.00	-1,856.86	-1,170.00	1,848.65	0.00	0.00	0.00
8,400.00	90.00	179.60	6,250.00	-1,956.86	-1,169.30	1,948.65	0.00	0.00	0.00
8,500.00	90.00	179.60	6,250.00	-2,056.86	-1,168.61	2,048.65	0.00	0.00	0.00
8,600.00	90.00	179.60	6,250.00	-2,156.86	-1,167.91	2,148.65	0.00	0.00	0.00
8,700.00	90.00	179.60	6,250.00	-2,256.85	-1,167.21	2,248.65	0.00	0.00	0.00
8,800.00	90.00	179.60	6,250.00	-2,356.85	-1,166.52	2,348.65	0.00	0.00	0.00
8,900.00	90.00	179.60	6,250.00	-2,456.85	-1,165.82	2,448.65	0.00	0.00	0.00
9,000.00	90.00	179.60	6,250.00	-2,556.85	-1,165.12	2,548.65	0.00	0.00	0.00
9,100.00	90.00	179.60	6,250.00	-2,656.84	-1,164.42	2,648.65	0.00	0.00	0.00
9,200.00	90.00	179.60	6,250.00	-2,756.84	-1,163.73	2,748.65	0.00	0.00	0.00
9,300.00	90.00	179.60	6,250.00	-2,856.84	-1,163.03	2,848.65	0.00	0.00	0.00
9,400.00	90.00	179.60	6,250.00	-2,956.84	-1,162.33	2,948.65	0.00	0.00	0.00
9,500.00	90.00	179.60	6,250.00	-3,056.83	-1,161.64	3,048.65	0.00	0.00	0.00
9,600.00	90.00	179.60	6,250.00	-3,156.83	-1,160.94	3,148.65	0.00	0.00	0.00

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 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 #1		

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	179.60	6,250.00	-3,256.83	-1,160.24	3,248.65	0.00	0.00	0.00	
9,800.00	90.00	179.60	6,250.00	-3,356.83	-1,159.55	3,348.65	0.00	0.00	0.00	
9,900.00	90.00	179.60	6,250.00	-3,456.82	-1,158.85	3,448.65	0.00	0.00	0.00	
10,000.00	90.00	179.60	6,250.00	-3,556.82	-1,158.15	3,548.65	0.00	0.00	0.00	
10,100.00	90.00	179.60	6,250.00	-3,656.82	-1,157.45	3,648.65	0.00	0.00	0.00	
10,200.00	90.00	179.60	6,250.00	-3,756.82	-1,156.76	3,748.65	0.00	0.00	0.00	
10,300.00	90.00	179.60	6,250.00	-3,856.82	-1,156.06	3,848.65	0.00	0.00	0.00	
10,400.00	90.00	179.60	6,250.00	-3,956.81	-1,155.36	3,948.65	0.00	0.00	0.00	
10,500.00	90.00	179.60	6,250.00	-4,056.81	-1,154.67	4,048.65	0.00	0.00	0.00	
10,600.00	90.00	179.60	6,250.00	-4,156.81	-1,153.97	4,148.65	0.00	0.00	0.00	
10,700.00	90.00	179.60	6,250.00	-4,256.81	-1,153.27	4,248.65	0.00	0.00	0.00	
10,800.00	90.00	179.60	6,250.00	-4,356.80	-1,152.58	4,348.65	0.00	0.00	0.00	
10,872.05	90.00	179.60	6,250.00	-4,428.85	-1,152.07	4,420.70	0.00	0.00	0.00	
TD Well @ 10872.05ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,724.57	1,700.00	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	
250.00	250.00	0.00	0.00	Begin Tangent @ 250.00ft	
867.00	862.24	20.18	-63.04	End Tangent @ 867.00ft	
5,701.67	5,585.21	335.17	-1,047.08	KOP @ 5701.67ft :: DLS = 9°/100'	
6,744.08	6,250.00	-300.98	-1,180.85	End Build @ 6744.08ft	
10,872.05	6,250.00	-4,428.85	-1,152.07	TD Well @ 10872.05ft	