

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-17 TIMBRO 1717 PAD

TIMBRO 1717-13H

Wellbore #1

Plan: Design #1

Standard Planning Report

10 April, 2018

Project: WATTENBERG FIELD
Site: 9N-59W-17 TIMBRO 1717 PAD
Well: TIMBRO 1717-13H
Wellbore: Wellbore #1
Design: Design #1

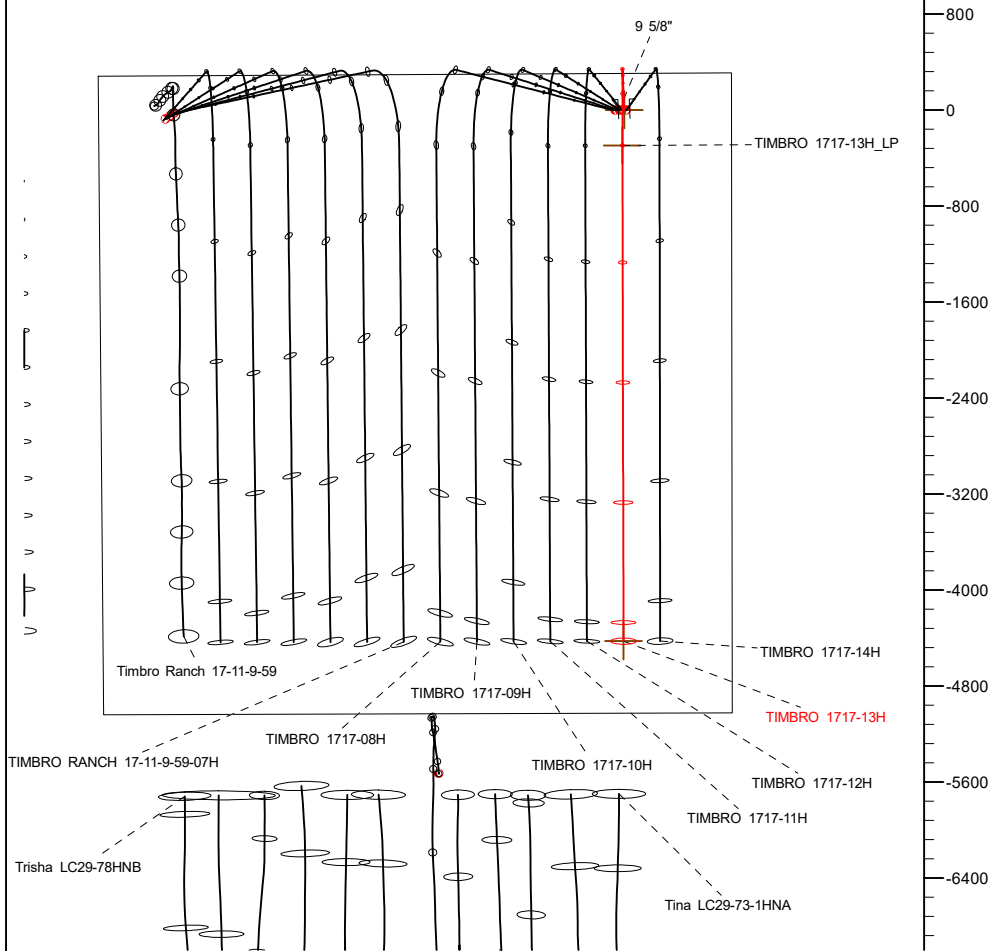
VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1700.00	1702.81	9 5/8"	9-5/8

West(-)/East(+) (1600 usft/in)

-4800 -4000 -3200 -2400 -1600 -800 0 800 1600 2400

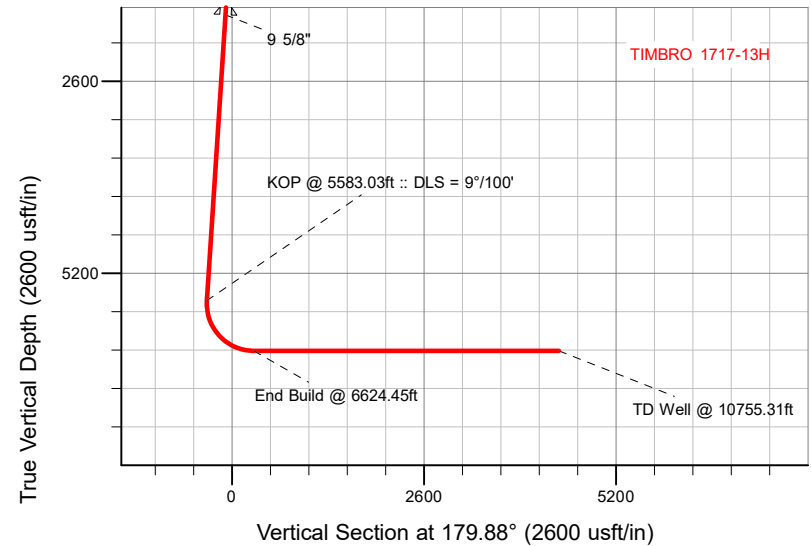


SECTION DETAILS

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	436.50	3.73	357.72	436.37	6.06	-0.24	2.00	357.72	-6.06	
4	5583.03	3.73	357.72	5572.00	340.61	-13.56	0.00	0.00	-340.63	
5	6624.45	90.00	179.88	6250.00	-294.67	-13.86	9.00	-177.84	294.64	
6	10755.31	90.00	179.88	6250.00	-4425.53	-5.02	0.00	0.00	4425.51	TIMBRO 1717-13H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

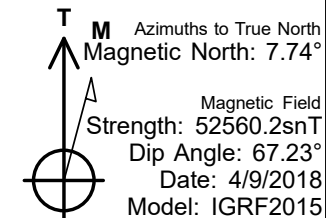
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 1717-13H_SHL	0.00	0.00	0.00	40.756953	-103.995837
TIMBRO 1717-13H_BHL	6250.00	-4425.53	-5.02	40.744806	-103.995855



SHL
306' FNL
895' FEL

LP
600' FNL
910' FEL

BHL
600' FSL
905' FEL



WELL DETAILS: TIMBRO 1717-13H

GL = 5011'

RKB = 20' @ 5031.00usft (RIG)

Plan: Design #1 (TIMBRO 1717-13H/Wellbore #1)

Created By: _____ Date: 4/10/2018
Reviewed: _____ Date: _____

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	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 1717-13H					
Well Position	+N/-S	0.50 usft	Northing:	1,522,137.32 usft	Latitude:	40.756953
	+E/-W	92.50 usft	Easting:	3,416,699.03 usft	Longitude:	-103.995838
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,011.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/9/2018	7.73	67.23	52,560.17303881

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	179.88

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	10,755.31	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	
436.50	3.73	357.72	436.37	6.06	-0.24	2.00	2.00	0.00	357.72	
5,583.03	3.73	357.72	5,572.00	340.61	-13.56	0.00	0.00	0.00	0.00	
6,624.45	90.00	179.88	6,250.00	-294.67	-13.86	9.00	8.28	-17.08	-177.84	
10,755.31	90.00	179.88	6,250.00	-4,425.53	-5.02	0.00	0.00	0.00	0.00	TIMBRO 1717-13H_E

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	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	357.72	300.00	0.44	-0.02	-0.44	2.00	2.00	0.00
400.00	3.00	357.72	399.93	3.92	-0.16	-3.92	2.00	2.00	0.00
436.50	3.73	357.72	436.37	6.06	-0.24	-6.06	2.00	2.00	0.00
End Tangent @ 436.50ft									
500.00	3.73	357.72	499.73	10.19	-0.41	-10.19	0.00	0.00	0.00
600.00	3.73	357.72	599.52	16.69	-0.66	-16.69	0.00	0.00	0.00
700.00	3.73	357.72	699.31	23.19	-0.92	-23.19	0.00	0.00	0.00
800.00	3.73	357.72	799.10	29.69	-1.18	-29.69	0.00	0.00	0.00
900.00	3.73	357.72	898.89	36.19	-1.44	-36.20	0.00	0.00	0.00
1,000.00	3.73	357.72	998.67	42.69	-1.70	-42.70	0.00	0.00	0.00
1,100.00	3.73	357.72	1,098.46	49.19	-1.96	-49.20	0.00	0.00	0.00
1,200.00	3.73	357.72	1,198.25	55.69	-2.22	-55.70	0.00	0.00	0.00
1,300.00	3.73	357.72	1,298.04	62.19	-2.48	-62.20	0.00	0.00	0.00
1,400.00	3.73	357.72	1,397.83	68.69	-2.74	-68.70	0.00	0.00	0.00
1,500.00	3.73	357.72	1,497.62	75.19	-2.99	-75.20	0.00	0.00	0.00
1,600.00	3.73	357.72	1,597.40	81.70	-3.25	-81.70	0.00	0.00	0.00
1,700.00	3.73	357.72	1,697.19	88.20	-3.51	-88.20	0.00	0.00	0.00
1,702.81	3.73	357.72	1,700.00	88.38	-3.52	-88.39	0.00	0.00	0.00
9 5/8"									
1,800.00	3.73	357.72	1,796.98	94.70	-3.77	-94.70	0.00	0.00	0.00
1,900.00	3.73	357.72	1,896.77	101.20	-4.03	-101.20	0.00	0.00	0.00
2,000.00	3.73	357.72	1,996.56	107.70	-4.29	-107.71	0.00	0.00	0.00
2,100.00	3.73	357.72	2,096.34	114.20	-4.55	-114.21	0.00	0.00	0.00
2,200.00	3.73	357.72	2,196.13	120.70	-4.81	-120.71	0.00	0.00	0.00
2,300.00	3.73	357.72	2,295.92	127.20	-5.06	-127.21	0.00	0.00	0.00
2,400.00	3.73	357.72	2,395.71	133.70	-5.32	-133.71	0.00	0.00	0.00
2,500.00	3.73	357.72	2,495.50	140.20	-5.58	-140.21	0.00	0.00	0.00
2,600.00	3.73	357.72	2,595.29	146.70	-5.84	-146.71	0.00	0.00	0.00
2,700.00	3.73	357.72	2,695.07	153.20	-6.10	-153.21	0.00	0.00	0.00
2,800.00	3.73	357.72	2,794.86	159.70	-6.36	-159.71	0.00	0.00	0.00
2,900.00	3.73	357.72	2,894.65	166.20	-6.62	-166.21	0.00	0.00	0.00
3,000.00	3.73	357.72	2,994.44	172.70	-6.88	-172.71	0.00	0.00	0.00
3,100.00	3.73	357.72	3,094.23	179.20	-7.13	-179.21	0.00	0.00	0.00
3,200.00	3.73	357.72	3,194.01	185.70	-7.39	-185.72	0.00	0.00	0.00
3,300.00	3.73	357.72	3,293.80	192.20	-7.65	-192.22	0.00	0.00	0.00
3,400.00	3.73	357.72	3,393.59	198.70	-7.91	-198.72	0.00	0.00	0.00
3,500.00	3.73	357.72	3,493.38	205.20	-8.17	-205.22	0.00	0.00	0.00
3,600.00	3.73	357.72	3,593.17	211.70	-8.43	-211.72	0.00	0.00	0.00
3,700.00	3.73	357.72	3,692.96	218.20	-8.69	-218.22	0.00	0.00	0.00
3,800.00	3.73	357.72	3,792.74	224.70	-8.95	-224.72	0.00	0.00	0.00
3,900.00	3.73	357.72	3,892.53	231.20	-9.21	-231.22	0.00	0.00	0.00
4,000.00	3.73	357.72	3,992.32	237.70	-9.46	-237.72	0.00	0.00	0.00
4,100.00	3.73	357.72	4,092.11	244.20	-9.72	-244.22	0.00	0.00	0.00
4,200.00	3.73	357.72	4,191.90	250.70	-9.98	-250.72	0.00	0.00	0.00
4,300.00	3.73	357.72	4,291.68	257.20	-10.24	-257.22	0.00	0.00	0.00
4,400.00	3.73	357.72	4,391.47	263.70	-10.50	-263.73	0.00	0.00	0.00
4,500.00	3.73	357.72	4,491.26	270.20	-10.76	-270.23	0.00	0.00	0.00
4,600.00	3.73	357.72	4,591.05	276.70	-11.02	-276.73	0.00	0.00	0.00

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	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	3.73	357.72	4,690.84	283.21	-11.28	-283.23	0.00	0.00	0.00
4,800.00	3.73	357.72	4,790.63	289.71	-11.53	-289.73	0.00	0.00	0.00
4,900.00	3.73	357.72	4,890.41	296.21	-11.79	-296.23	0.00	0.00	0.00
5,000.00	3.73	357.72	4,990.20	302.71	-12.05	-302.73	0.00	0.00	0.00
5,100.00	3.73	357.72	5,089.99	309.21	-12.31	-309.23	0.00	0.00	0.00
5,200.00	3.73	357.72	5,189.78	315.71	-12.57	-315.73	0.00	0.00	0.00
5,300.00	3.73	357.72	5,289.57	322.21	-12.83	-322.23	0.00	0.00	0.00
5,400.00	3.73	357.72	5,389.35	328.71	-13.09	-328.73	0.00	0.00	0.00
5,500.00	3.73	357.72	5,489.14	335.21	-13.35	-335.24	0.00	0.00	0.00
5,583.03	3.73	357.72	5,572.00	340.61	-13.56	-340.63	0.00	0.00	0.00
KOP @ 5583.03ft :: DLS = 9°/100'									
5,600.00	2.20	356.22	5,588.94	341.48	-13.60	-341.51	9.00	-8.99	-8.83
5,700.00	6.80	181.06	5,688.76	337.47	-13.84	-337.50	9.00	4.60	-175.17
5,800.00	15.80	180.37	5,786.72	317.90	-14.04	-317.93	9.00	9.00	-0.68
5,900.00	24.80	180.18	5,880.41	283.24	-14.20	-283.27	9.00	9.00	-0.19
6,000.00	33.80	180.09	5,967.53	234.35	-14.30	-234.38	9.00	9.00	-0.09
6,100.00	42.80	180.03	6,045.93	172.44	-14.36	-172.47	9.00	9.00	-0.06
6,200.00	51.80	179.99	6,113.67	99.02	-14.37	-99.05	9.00	9.00	-0.04
6,300.00	60.80	179.96	6,169.10	15.91	-14.33	-15.94	9.00	9.00	-0.03
6,400.00	69.80	179.93	6,210.84	-74.85	-14.24	74.82	9.00	9.00	-0.03
6,500.00	78.80	179.91	6,237.88	-171.02	-14.10	170.99	9.00	9.00	-0.02
6,600.00	87.80	179.88	6,249.53	-270.23	-13.92	270.20	9.00	9.00	-0.02
6,624.45	90.00	179.88	6,250.00	-294.67	-13.86	294.64	9.00	9.00	-0.02
End Build @ 6624.45ft									
6,700.00	90.00	179.88	6,250.00	-370.22	-13.70	370.20	0.00	0.00	0.00
6,800.00	90.00	179.88	6,250.00	-470.22	-13.49	470.20	0.00	0.00	0.00
6,900.00	90.00	179.88	6,250.00	-570.22	-13.27	570.20	0.00	0.00	0.00
7,000.00	90.00	179.88	6,250.00	-670.22	-13.06	670.20	0.00	0.00	0.00
7,100.00	90.00	179.88	6,250.00	-770.22	-12.85	770.20	0.00	0.00	0.00
7,200.00	90.00	179.88	6,250.00	-870.22	-12.63	870.20	0.00	0.00	0.00
7,300.00	90.00	179.88	6,250.00	-970.22	-12.42	970.20	0.00	0.00	0.00
7,400.00	90.00	179.88	6,250.00	-1,070.22	-12.20	1,070.20	0.00	0.00	0.00
7,500.00	90.00	179.88	6,250.00	-1,170.22	-11.99	1,170.20	0.00	0.00	0.00
7,600.00	90.00	179.88	6,250.00	-1,270.22	-11.77	1,270.20	0.00	0.00	0.00
7,700.00	90.00	179.88	6,250.00	-1,370.22	-11.56	1,370.20	0.00	0.00	0.00
7,800.00	90.00	179.88	6,250.00	-1,470.22	-11.35	1,470.20	0.00	0.00	0.00
7,900.00	90.00	179.88	6,250.00	-1,570.22	-11.13	1,570.20	0.00	0.00	0.00
8,000.00	90.00	179.88	6,250.00	-1,670.22	-10.92	1,670.20	0.00	0.00	0.00
8,100.00	90.00	179.88	6,250.00	-1,770.22	-10.70	1,770.20	0.00	0.00	0.00
8,200.00	90.00	179.88	6,250.00	-1,870.22	-10.49	1,870.20	0.00	0.00	0.00
8,300.00	90.00	179.88	6,250.00	-1,970.22	-10.27	1,970.20	0.00	0.00	0.00
8,400.00	90.00	179.88	6,250.00	-2,070.22	-10.06	2,070.20	0.00	0.00	0.00
8,500.00	90.00	179.88	6,250.00	-2,170.22	-9.85	2,170.20	0.00	0.00	0.00
8,600.00	90.00	179.88	6,250.00	-2,270.22	-9.63	2,270.20	0.00	0.00	0.00
8,700.00	90.00	179.88	6,250.00	-2,370.22	-9.42	2,370.20	0.00	0.00	0.00
8,800.00	90.00	179.88	6,250.00	-2,470.22	-9.20	2,470.20	0.00	0.00	0.00
8,900.00	90.00	179.88	6,250.00	-2,570.22	-8.99	2,570.20	0.00	0.00	0.00
9,000.00	90.00	179.88	6,250.00	-2,670.22	-8.78	2,670.20	0.00	0.00	0.00
9,100.00	90.00	179.88	6,250.00	-2,770.22	-8.56	2,770.20	0.00	0.00	0.00
9,200.00	90.00	179.88	6,250.00	-2,870.22	-8.35	2,870.20	0.00	0.00	0.00
9,300.00	90.00	179.88	6,250.00	-2,970.22	-8.13	2,970.20	0.00	0.00	0.00
9,400.00	90.00	179.88	6,250.00	-3,070.22	-7.92	3,070.20	0.00	0.00	0.00
9,500.00	90.00	179.88	6,250.00	-3,170.22	-7.70	3,170.20	0.00	0.00	0.00
9,600.00	90.00	179.88	6,250.00	-3,270.22	-7.49	3,270.20	0.00	0.00	0.00

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 1717-13H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5031.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5031.00usft (RIG)
Site:	9N-59W-17 TIMBRO 1717 PAD	North Reference:	True
Well:	TIMBRO 1717-13H	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	179.88	6,250.00	-3,370.22	-7.28	3,370.20	0.00	0.00	0.00	
9,800.00	90.00	179.88	6,250.00	-3,470.22	-7.06	3,470.20	0.00	0.00	0.00	
9,900.00	90.00	179.88	6,250.00	-3,570.22	-6.85	3,570.20	0.00	0.00	0.00	
10,000.00	90.00	179.88	6,250.00	-3,670.22	-6.63	3,670.20	0.00	0.00	0.00	
10,100.00	90.00	179.88	6,250.00	-3,770.22	-6.42	3,770.20	0.00	0.00	0.00	
10,200.00	90.00	179.88	6,250.00	-3,870.22	-6.20	3,870.20	0.00	0.00	0.00	
10,300.00	90.00	179.88	6,250.00	-3,970.22	-5.99	3,970.20	0.00	0.00	0.00	
10,400.00	90.00	179.88	6,250.00	-4,070.22	-5.78	4,070.20	0.00	0.00	0.00	
10,500.00	90.00	179.88	6,250.00	-4,170.22	-5.56	4,170.20	0.00	0.00	0.00	
10,600.00	90.00	179.88	6,250.00	-4,270.22	-5.35	4,270.20	0.00	0.00	0.00	
10,700.00	90.00	179.88	6,250.00	-4,370.22	-5.13	4,370.20	0.00	0.00	0.00	
10,755.31	90.00	179.88	6,250.00	-4,425.53	-5.02	4,425.51	0.00	0.00	0.00	
TD Well @ 10755.31ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,702.81	1,700.00	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)		
250.00	250.00	0.00	0.00	Begin Tangent @ 250.00ft	
436.50	436.37	6.06	-0.24	End Tangent @ 436.50ft	
5,583.03	5,572.00	340.61	-13.56	KOP @ 5583.03ft :: DLS = 9°/100'	
6,624.45	6,250.00	-294.67	-13.86	End Build @ 6624.45ft	
10,755.31	6,250.00	-4,425.53	-5.02	TD Well @ 10755.31ft	