

VERDAD RESOURCES

WATTENBERG FIELD

9N-59W-01 TIMBRO 0101 PAD

TIMBRO 0101-09H

Wellbore #1

Plan: Design #1

Standard Planning Report

21 May, 2019

Project: WATTENBERG FIELD
 Site: 9N-59W-01 TIMBRO 0101 PAD
 Well: TIMBRO 0101-09H
 Wellbore: Wellbore #1
 Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1700.00	1712.57	9 5/8"	9-5/8

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	
916.00	9.32	333.55	913.95	33.86	-16.84	2.00	333.55	-34.08	
5383.34	9.32	333.55	5322.32	681.61	-339.09	0.00	0.00	-686.04	
6476.58	90.00	179.24	6050.00	51.17	-382.52	9.00	-154.01	-56.24	
11188.95	90.00	179.24	6050.00	-4660.78	-320.07	0.00	0.00	4656.13	TIMBRO 0101-09H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

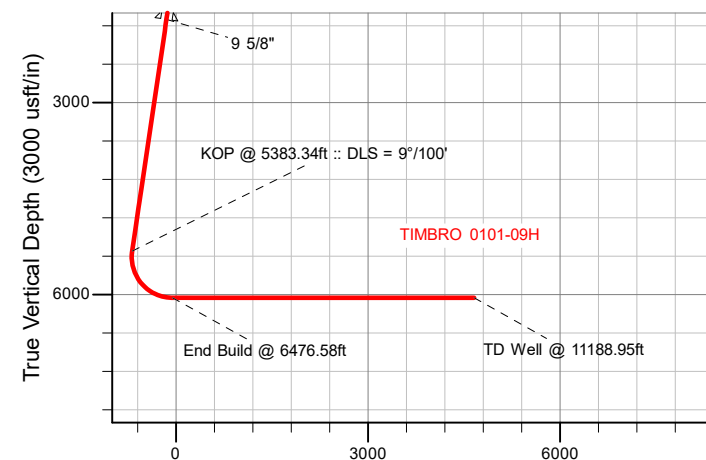
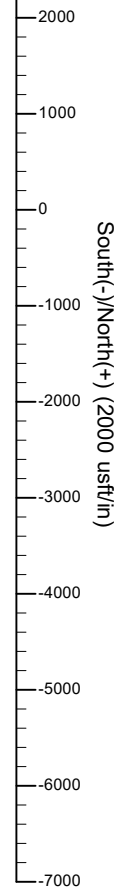
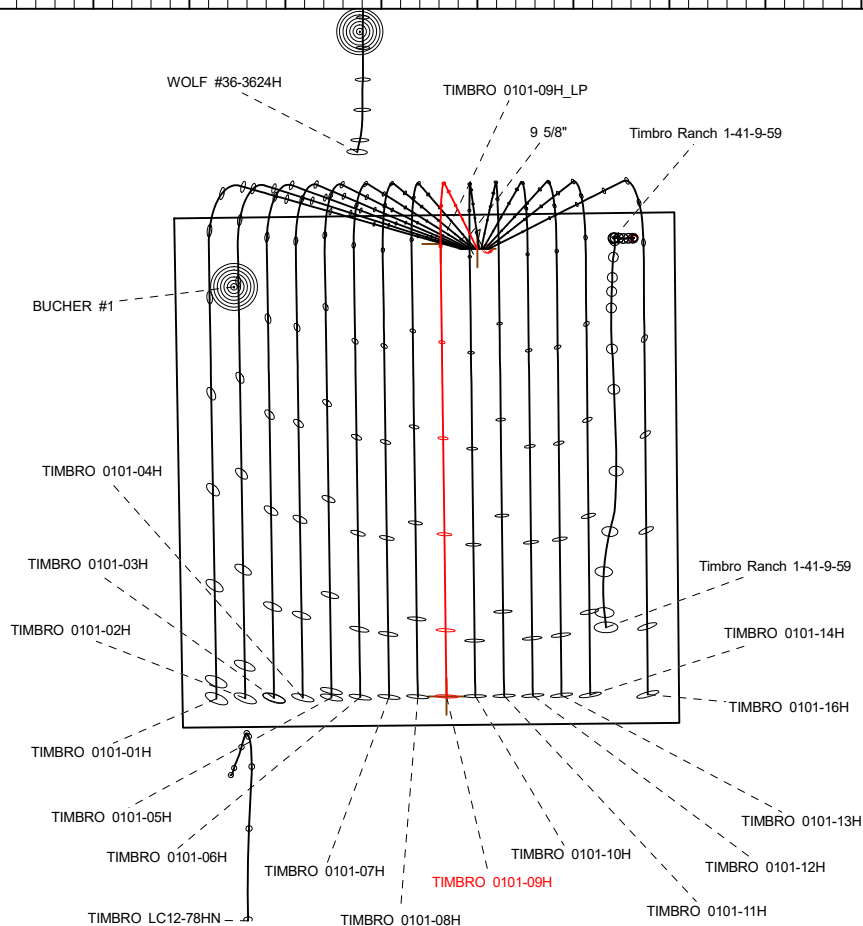
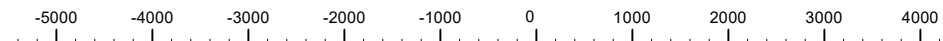
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
TIMBRO 0101-09H_SHL	0.00	0.00	0.00	40.786479	-103.924748
TIMBRO 0101-09H_BHL	6050.00	-4660.78	-320.07	40.773687	-103.925903

SHL
356' FNL
2057' FEL

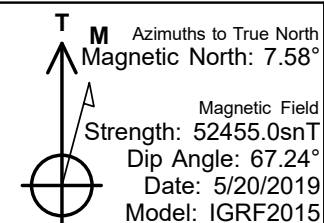
LP
300' FNL
2438' FEL

BHL
300' FSL
2422' FEL

West(-)/East(+) (2000 usft/in)



Vertical Section at 179.24° (3000 usft/in)



WELL DETAILS: TIMBRO 0101-09H

GL = 4941'

RKB = 24' @ 4965.00usft (RIG)

Plan: Design #1 (TIMBRO 0101-09H/Wellbore #1)

Date: 5/21/2019

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well TIMBRO 0101-09H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4965.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-09H	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-01 TIMBRO 0101 PAD			
Site Position:		Northing:	1,533,230.40 usft	Latitude:	40.786474
From:	Lat/Long	Easting:	3,436,039.96 usft	Longitude:	-103.925326
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.02 °

Well	TIMBRO 0101-09H					
Well Position	+N/-S	1.92 usft	Northing:	1,533,235.16 usft	Latitude:	40.786479
	+E/-W	159.98 usft	Easting:	3,436,199.88 usft	Longitude:	-103.924748
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,941.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/20/2019	7.58	67.24	52,455.03918004

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	179.24

Plan Survey Tool Program	Date	5/21/2019		
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	11,188.95	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	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
916.00	9.32	333.55	913.95	33.86	-16.84	2.00	2.00	0.00	333.55	
5,383.34	9.32	333.55	5,322.32	681.61	-339.09	0.00	0.00	0.00	0.00	
6,476.58	90.00	179.24	6,050.00	51.17	-382.52	9.00	7.38	-14.11	-154.01	
11,188.95	90.00	179.24	6,050.00	-4,660.79	-320.07	0.00	0.00	0.00	0.00	TIMBRO 0101-09H_E

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4965.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-09H	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 450.00ft									
500.00	1.00	333.55	500.00	0.39	-0.19	-0.39	2.00	2.00	0.00
600.00	3.00	333.55	599.93	3.52	-1.75	-3.54	2.00	2.00	0.00
700.00	5.00	333.55	699.68	9.76	-4.86	-9.82	2.00	2.00	0.00
800.00	7.00	333.55	799.13	19.12	-9.51	-19.24	2.00	2.00	0.00
900.00	9.00	333.55	898.15	31.58	-15.71	-31.78	2.00	2.00	0.00
916.00	9.32	333.55	913.95	33.86	-16.84	-34.08	2.00	2.00	0.00
Hold Tangent @ 916.00ft									
1,000.00	9.32	333.55	996.84	46.04	-22.90	-46.34	0.00	0.00	0.00
1,100.00	9.32	333.55	1,095.52	60.54	-30.12	-60.93	0.00	0.00	0.00
1,200.00	9.32	333.55	1,194.20	75.04	-37.33	-75.53	0.00	0.00	0.00
1,300.00	9.32	333.55	1,292.88	89.54	-44.54	-90.12	0.00	0.00	0.00
1,400.00	9.32	333.55	1,391.56	104.04	-51.76	-104.71	0.00	0.00	0.00
1,500.00	9.32	333.55	1,490.24	118.54	-58.97	-119.31	0.00	0.00	0.00
1,600.00	9.32	333.55	1,588.92	133.04	-66.18	-133.90	0.00	0.00	0.00
1,700.00	9.32	333.55	1,687.60	147.54	-73.40	-148.50	0.00	0.00	0.00
1,712.57	9.32	333.55	1,700.00	149.36	-74.30	-150.33	0.00	0.00	0.00
9 5/8"									
1,800.00	9.32	333.55	1,786.28	162.04	-80.61	-163.09	0.00	0.00	0.00
1,900.00	9.32	333.55	1,884.96	176.53	-87.82	-177.68	0.00	0.00	0.00
2,000.00	9.32	333.55	1,983.64	191.03	-95.04	-192.28	0.00	0.00	0.00
2,100.00	9.32	333.55	2,082.32	205.53	-102.25	-206.87	0.00	0.00	0.00
2,200.00	9.32	333.55	2,181.00	220.03	-109.47	-221.47	0.00	0.00	0.00
2,300.00	9.32	333.55	2,279.68	234.53	-116.68	-236.06	0.00	0.00	0.00
2,400.00	9.32	333.55	2,378.36	249.03	-123.89	-250.65	0.00	0.00	0.00
2,500.00	9.32	333.55	2,477.04	263.53	-131.11	-265.25	0.00	0.00	0.00
2,600.00	9.32	333.55	2,575.72	278.03	-138.32	-279.84	0.00	0.00	0.00
2,700.00	9.32	333.55	2,674.40	292.53	-145.53	-294.44	0.00	0.00	0.00
2,800.00	9.32	333.55	2,773.08	307.03	-152.75	-309.03	0.00	0.00	0.00
2,900.00	9.32	333.55	2,871.76	321.53	-159.96	-323.62	0.00	0.00	0.00
3,000.00	9.32	333.55	2,970.44	336.03	-167.17	-338.22	0.00	0.00	0.00
3,100.00	9.32	333.55	3,069.12	350.53	-174.39	-352.81	0.00	0.00	0.00
3,200.00	9.32	333.55	3,167.80	365.03	-181.60	-367.41	0.00	0.00	0.00
3,300.00	9.32	333.55	3,266.48	379.53	-188.81	-382.00	0.00	0.00	0.00
3,400.00	9.32	333.55	3,365.16	394.03	-196.03	-396.59	0.00	0.00	0.00
3,500.00	9.32	333.55	3,463.84	408.53	-203.24	-411.19	0.00	0.00	0.00
3,600.00	9.32	333.55	3,562.52	423.03	-210.45	-425.78	0.00	0.00	0.00
3,700.00	9.32	333.55	3,661.20	437.53	-217.67	-440.38	0.00	0.00	0.00
3,800.00	9.32	333.55	3,759.88	452.03	-224.88	-454.97	0.00	0.00	0.00
3,900.00	9.32	333.55	3,858.56	466.53	-232.09	-469.56	0.00	0.00	0.00
4,000.00	9.32	333.55	3,957.24	481.03	-239.31	-484.16	0.00	0.00	0.00
4,100.00	9.32	333.55	4,055.92	495.53	-246.52	-498.75	0.00	0.00	0.00
4,200.00	9.32	333.55	4,154.60	510.03	-253.73	-513.35	0.00	0.00	0.00
4,300.00	9.32	333.55	4,253.28	524.53	-260.95	-527.94	0.00	0.00	0.00
4,400.00	9.32	333.55	4,351.96	539.03	-268.16	-542.53	0.00	0.00	0.00
4,500.00	9.32	333.55	4,450.64	553.52	-275.37	-557.13	0.00	0.00	0.00
4,600.00	9.32	333.55	4,549.32	568.02	-282.59	-571.72	0.00	0.00	0.00

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4965.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-09H	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	9.32	333.55	4,648.00	582.52	-289.80	-586.32	0.00	0.00	0.00
4,800.00	9.32	333.55	4,746.68	597.02	-297.01	-600.91	0.00	0.00	0.00
4,900.00	9.32	333.55	4,845.36	611.52	-304.23	-615.50	0.00	0.00	0.00
5,000.00	9.32	333.55	4,944.04	626.02	-311.44	-630.10	0.00	0.00	0.00
5,100.00	9.32	333.55	5,042.72	640.52	-318.66	-644.69	0.00	0.00	0.00
5,200.00	9.32	333.55	5,141.40	655.02	-325.87	-659.29	0.00	0.00	0.00
5,300.00	9.32	333.55	5,240.08	669.52	-333.08	-673.88	0.00	0.00	0.00
5,383.34	9.32	333.55	5,322.32	681.61	-339.09	-686.04	0.00	0.00	0.00
KOP @ 5383.34ft :: DLS = 9°/100'									
5,400.00	8.00	328.82	5,338.79	683.81	-340.29	-688.26	9.00	-7.93	-28.37
5,500.00	4.58	241.83	5,438.34	687.88	-347.43	-692.43	9.00	-3.42	-86.99
5,600.00	11.82	199.11	5,537.33	676.29	-354.32	-680.93	9.00	7.24	-42.72
5,700.00	20.50	190.21	5,633.30	649.33	-360.79	-654.06	9.00	8.68	-8.90
5,800.00	29.37	186.50	5,723.89	607.65	-366.69	-612.46	9.00	8.87	-3.71
5,900.00	38.29	184.41	5,806.88	552.28	-371.86	-557.17	9.00	8.93	-2.09
6,000.00	47.24	183.01	5,880.22	484.59	-376.18	-489.54	9.00	8.95	-1.40
6,100.00	56.20	181.97	5,942.11	406.24	-379.54	-411.24	9.00	8.96	-1.04
6,200.00	65.17	181.13	5,991.01	319.16	-381.87	-324.20	9.00	8.97	-0.84
6,300.00	74.15	180.40	6,025.73	225.50	-383.10	-230.57	9.00	8.97	-0.73
6,400.00	83.13	179.73	6,045.41	127.56	-383.20	-132.64	9.00	8.98	-0.67
6,476.58	90.00	179.24	6,050.00	51.17	-382.52	-56.24	9.00	8.98	-0.64
End Build @ 6476.58ft									
6,500.00	90.00	179.24	6,050.00	27.75	-382.21	-32.82	0.00	0.00	0.00
6,600.00	90.00	179.24	6,050.00	-72.24	-380.88	67.18	0.00	0.00	0.00
6,700.00	90.00	179.24	6,050.00	-172.23	-379.56	167.18	0.00	0.00	0.00
6,800.00	90.00	179.24	6,050.00	-272.22	-378.23	267.18	0.00	0.00	0.00
6,900.00	90.00	179.24	6,050.00	-372.21	-376.91	367.18	0.00	0.00	0.00
7,000.00	90.00	179.24	6,050.00	-472.20	-375.58	467.18	0.00	0.00	0.00
7,100.00	90.00	179.24	6,050.00	-572.19	-374.25	567.18	0.00	0.00	0.00
7,200.00	90.00	179.24	6,050.00	-672.18	-372.93	667.18	0.00	0.00	0.00
7,300.00	90.00	179.24	6,050.00	-772.18	-371.60	767.18	0.00	0.00	0.00
7,400.00	90.00	179.24	6,050.00	-872.17	-370.28	867.18	0.00	0.00	0.00
7,500.00	90.00	179.24	6,050.00	-972.16	-368.95	967.18	0.00	0.00	0.00
7,600.00	90.00	179.24	6,050.00	-1,072.15	-367.63	1,067.18	0.00	0.00	0.00
7,700.00	90.00	179.24	6,050.00	-1,172.14	-366.30	1,167.18	0.00	0.00	0.00
7,800.00	90.00	179.24	6,050.00	-1,272.13	-364.98	1,267.18	0.00	0.00	0.00
7,900.00	90.00	179.24	6,050.00	-1,372.12	-363.65	1,367.18	0.00	0.00	0.00
8,000.00	90.00	179.24	6,050.00	-1,472.11	-362.33	1,467.18	0.00	0.00	0.00
8,100.00	90.00	179.24	6,050.00	-1,572.11	-361.00	1,567.18	0.00	0.00	0.00
8,200.00	90.00	179.24	6,050.00	-1,672.10	-359.68	1,667.18	0.00	0.00	0.00
8,300.00	90.00	179.24	6,050.00	-1,772.09	-358.35	1,767.18	0.00	0.00	0.00
8,400.00	90.00	179.24	6,050.00	-1,872.08	-357.03	1,867.18	0.00	0.00	0.00
8,500.00	90.00	179.24	6,050.00	-1,972.07	-355.70	1,967.18	0.00	0.00	0.00
8,600.00	90.00	179.24	6,050.00	-2,072.06	-354.38	2,067.18	0.00	0.00	0.00
8,700.00	90.00	179.24	6,050.00	-2,172.05	-353.05	2,167.18	0.00	0.00	0.00
8,800.00	90.00	179.24	6,050.00	-2,272.04	-351.73	2,267.18	0.00	0.00	0.00
8,900.00	90.00	179.24	6,050.00	-2,372.04	-350.40	2,367.18	0.00	0.00	0.00
9,000.00	90.00	179.24	6,050.00	-2,472.03	-349.08	2,467.18	0.00	0.00	0.00
9,100.00	90.00	179.24	6,050.00	-2,572.02	-347.75	2,567.18	0.00	0.00	0.00
9,200.00	90.00	179.24	6,050.00	-2,672.01	-346.43	2,667.18	0.00	0.00	0.00
9,300.00	90.00	179.24	6,050.00	-2,772.00	-345.10	2,767.18	0.00	0.00	0.00
9,400.00	90.00	179.24	6,050.00	-2,871.99	-343.78	2,867.18	0.00	0.00	0.00
9,500.00	90.00	179.24	6,050.00	-2,971.98	-342.45	2,967.18	0.00	0.00	0.00
9,600.00	90.00	179.24	6,050.00	-3,071.97	-341.13	3,067.18	0.00	0.00	0.00

Hewlett-Packard

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4965.00usft (RIG)
Site:	9N-59W-01 TIMBRO 0101 PAD	North Reference:	True
Well:	TIMBRO 0101-09H	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	179.24	6,050.00	-3,171.97	-339.80	3,167.18	0.00	0.00	0.00	
9,800.00	90.00	179.24	6,050.00	-3,271.96	-338.48	3,267.18	0.00	0.00	0.00	
9,900.00	90.00	179.24	6,050.00	-3,371.95	-337.15	3,367.18	0.00	0.00	0.00	
10,000.00	90.00	179.24	6,050.00	-3,471.94	-335.83	3,467.18	0.00	0.00	0.00	
10,100.00	90.00	179.24	6,050.00	-3,571.93	-334.50	3,567.18	0.00	0.00	0.00	
10,200.00	90.00	179.24	6,050.00	-3,671.92	-333.18	3,667.18	0.00	0.00	0.00	
10,300.00	90.00	179.24	6,050.00	-3,771.91	-331.85	3,767.18	0.00	0.00	0.00	
10,400.00	90.00	179.24	6,050.00	-3,871.90	-330.53	3,867.18	0.00	0.00	0.00	
10,500.00	90.00	179.24	6,050.00	-3,971.89	-329.20	3,967.18	0.00	0.00	0.00	
10,600.00	90.00	179.24	6,050.00	-4,071.89	-327.88	4,067.18	0.00	0.00	0.00	
10,700.00	90.00	179.24	6,050.00	-4,171.88	-326.55	4,167.18	0.00	0.00	0.00	
10,800.00	90.00	179.24	6,050.00	-4,271.87	-325.23	4,267.18	0.00	0.00	0.00	
10,900.00	90.00	179.24	6,050.00	-4,371.86	-323.90	4,367.18	0.00	0.00	0.00	
11,000.00	90.00	179.24	6,050.00	-4,471.85	-322.58	4,467.18	0.00	0.00	0.00	
11,100.00	90.00	179.24	6,050.00	-4,571.84	-321.25	4,567.18	0.00	0.00	0.00	
11,188.95	90.00	179.24	6,050.00	-4,660.79	-320.07	4,656.13	0.00	0.00	0.00	
TD Well @ 11188.95ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,712.57	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	
450.00	450.00	0.00	0.00	Begin Nudge @ 450.00ft	
916.00	913.95	33.86	-16.84	Hold Tangent @ 916.00ft	
5,383.34	5,322.32	681.61	-339.09	KOP @ 5383.34ft :: DLS = 9°/100'	
6,476.58	6,050.00	51.17	-382.52	End Build @ 6476.58ft	
11,188.95	6,050.00	-4,660.79	-320.07	TD Well @ 11188.95ft	