

VERDAD RESOURCES

WATTENBERG FIELD

1N-64W-19 ONION 1918 PAD

ONION 1918-04H

Wellbore #1

Plan: Design #1

Standard Planning Report

21 May, 2019

Project: WATTENBERG FIELD
Site: 1N-64W-19 ONION 1918 PAD
Well: ONION 1918-04H
Wellbore: Wellbore #1
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

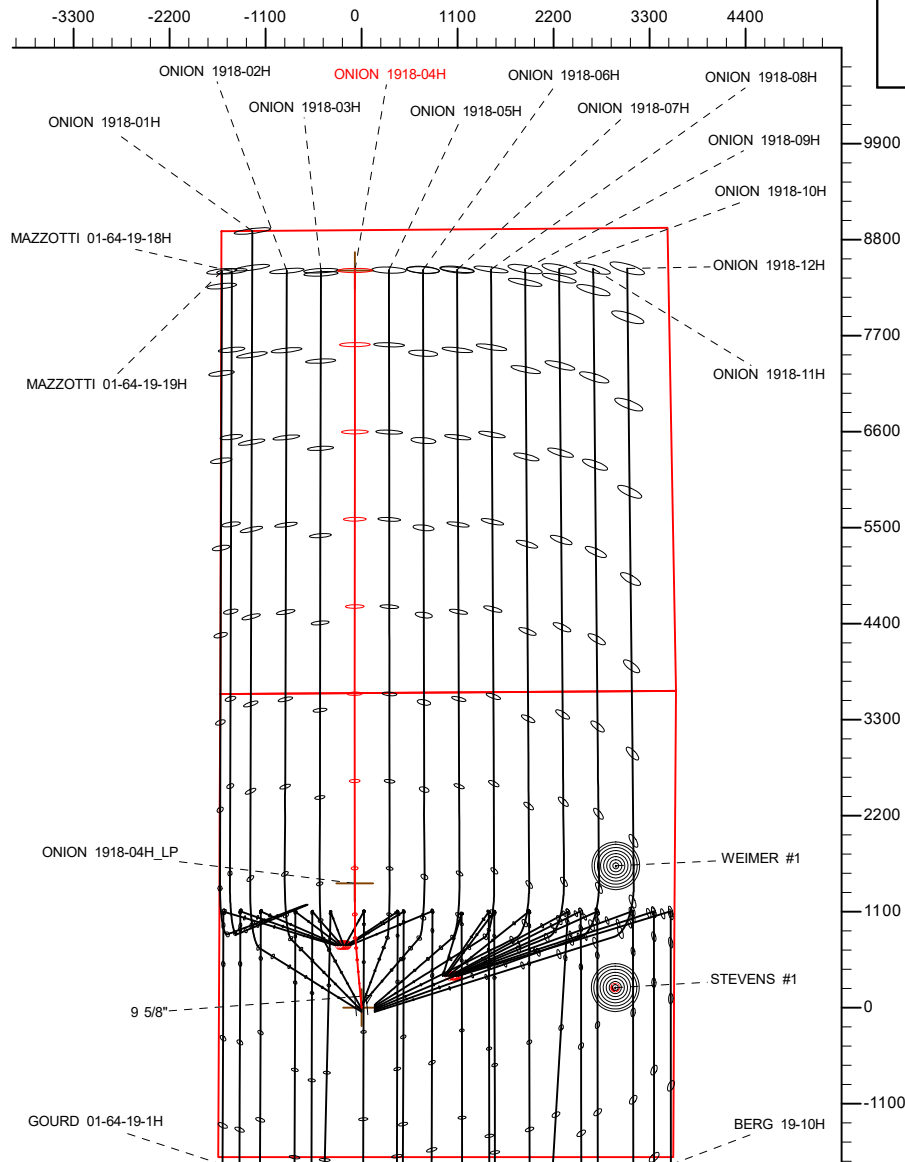
TVD	MD	Name	Size
1700.00	1708.31	9 5/8"	9-5/8

SHL
1713' FSL
1635' FWL

LP
2180' FNL
1549' FWL

BHL
460' FNL
1530' FWL

West(-)/East(+) (2200 usft/in)

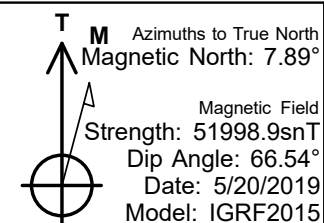
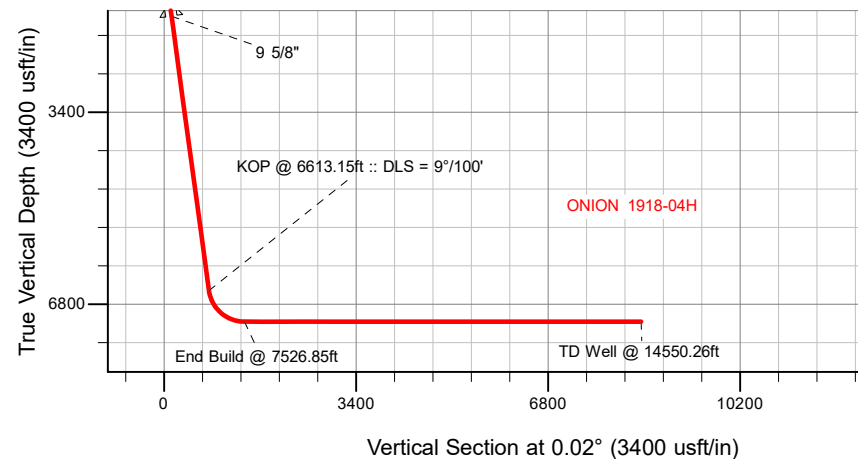


SECTION DETAILS

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	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	
940.00	7.80	354.79	938.80	26.40	-2.41	2.00	354.79	26.40	
6613.15	7.80	354.79	6559.46	793.15	-72.32	0.00	0.00	793.12	
7526.85	90.00	0.02	7110.00	1423.93	-78.95	9.00	5.28	1423.90	
14550.26	90.00	0.02	7110.00	8447.34	-76.11	0.00	0.00	8447.31	ONION 1918-04H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
ONION 1918-04H_SHL	0.00	0.00	0.00	40.034258	-104.596976
ONION 1918-04H_BHL	7110.00	8447.34	-76.11	40.057447	-104.597248



WELL DETAILS: ONION 1918-04H

GL = 5013'

RKB = 24' @ 5037.00usft (RIG)

Plan: Design #1 (ONION 1918-04H/Wellbore #1)

Date: 5/21/2019

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-04H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5037.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5037.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-04H	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		1N-64W-19 ONION 1918 PAD			
Site Position:		Northing:	1,256,565.51 usft	Latitude:	40.034126
From:	Lat/Long	Easting:	3,252,854.15 usft	Longitude:	-104.596977
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	ONION 1918-04H					
Well Position	+N/-S	48.00 usft	Northing:	1,256,613.51 usft	Latitude:	40.034258
	+E/-W	0.22 usft	Easting:	3,252,853.88 usft	Longitude:	-104.596977
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,013.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/20/2019	7.89	66.54	51,998.94779485

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	0.02

Plan Survey Tool Program	Date	5/20/2019		
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	14,550.26	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	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	
940.00	7.80	354.79	938.80	26.40	-2.41	2.00	2.00	0.00	354.79	
6,613.15	7.80	354.79	6,559.46	793.15	-72.32	0.00	0.00	0.00	0.00	
7,526.85	90.00	0.02	7,110.00	1,423.93	-78.95	9.00	9.00	0.57	5.28	
14,550.26	90.00	0.02	7,110.00	8,447.34	-76.11	0.00	0.00	0.00	0.00	ONION 1918-04H_BF

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-04H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5037.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5037.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-04H	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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 550.00ft									
600.00	1.00	354.79	600.00	0.43	-0.04	0.43	2.00	2.00	0.00
700.00	3.00	354.79	699.93	3.91	-0.36	3.91	2.00	2.00	0.00
800.00	5.00	354.79	799.68	10.86	-0.99	10.86	2.00	2.00	0.00
900.00	7.00	354.79	899.13	21.27	-1.94	21.26	2.00	2.00	0.00
940.00	7.80	354.79	938.80	26.40	-2.41	26.40	2.00	2.00	0.00
Hold Tangent @ 940.00ft									
1,000.00	7.80	354.79	998.24	34.51	-3.15	34.50	0.00	0.00	0.00
1,100.00	7.80	354.79	1,097.32	48.02	-4.38	48.02	0.00	0.00	0.00
1,200.00	7.80	354.79	1,196.39	61.54	-5.61	61.53	0.00	0.00	0.00
1,300.00	7.80	354.79	1,295.47	75.05	-6.84	75.05	0.00	0.00	0.00
1,400.00	7.80	354.79	1,394.54	88.57	-8.08	88.56	0.00	0.00	0.00
1,500.00	7.80	354.79	1,493.62	102.08	-9.31	102.08	0.00	0.00	0.00
1,600.00	7.80	354.79	1,592.69	115.60	-10.54	115.59	0.00	0.00	0.00
1,700.00	7.80	354.79	1,691.76	129.11	-11.77	129.11	0.00	0.00	0.00
1,708.31	7.80	354.79	1,700.00	130.24	-11.88	130.23	0.00	0.00	0.00
9 5/8"									
1,800.00	7.80	354.79	1,790.84	142.63	-13.01	142.62	0.00	0.00	0.00
1,900.00	7.80	354.79	1,889.91	156.14	-14.24	156.14	0.00	0.00	0.00
2,000.00	7.80	354.79	1,988.99	169.66	-15.47	169.65	0.00	0.00	0.00
2,100.00	7.80	354.79	2,088.06	183.18	-16.70	183.17	0.00	0.00	0.00
2,200.00	7.80	354.79	2,187.14	196.69	-17.93	196.68	0.00	0.00	0.00
2,300.00	7.80	354.79	2,286.21	210.21	-19.17	210.20	0.00	0.00	0.00
2,400.00	7.80	354.79	2,385.29	223.72	-20.40	223.71	0.00	0.00	0.00
2,500.00	7.80	354.79	2,484.36	237.24	-21.63	237.23	0.00	0.00	0.00
2,600.00	7.80	354.79	2,583.44	250.75	-22.86	250.75	0.00	0.00	0.00
2,700.00	7.80	354.79	2,682.51	264.27	-24.10	264.26	0.00	0.00	0.00
2,800.00	7.80	354.79	2,781.59	277.78	-25.33	277.78	0.00	0.00	0.00
2,900.00	7.80	354.79	2,880.66	291.30	-26.56	291.29	0.00	0.00	0.00
3,000.00	7.80	354.79	2,979.74	304.82	-27.79	304.81	0.00	0.00	0.00
3,100.00	7.80	354.79	3,078.81	318.33	-29.03	318.32	0.00	0.00	0.00
3,200.00	7.80	354.79	3,177.89	331.85	-30.26	331.84	0.00	0.00	0.00
3,300.00	7.80	354.79	3,276.96	345.36	-31.49	345.35	0.00	0.00	0.00
3,400.00	7.80	354.79	3,376.04	358.88	-32.72	358.87	0.00	0.00	0.00
3,500.00	7.80	354.79	3,475.11	372.39	-33.96	372.38	0.00	0.00	0.00
3,600.00	7.80	354.79	3,574.19	385.91	-35.19	385.90	0.00	0.00	0.00
3,700.00	7.80	354.79	3,673.26	399.42	-36.42	399.41	0.00	0.00	0.00
3,800.00	7.80	354.79	3,772.34	412.94	-37.65	412.93	0.00	0.00	0.00
3,900.00	7.80	354.79	3,871.41	426.45	-38.89	426.44	0.00	0.00	0.00
4,000.00	7.80	354.79	3,970.48	439.97	-40.12	439.96	0.00	0.00	0.00
4,100.00	7.80	354.79	4,069.56	453.49	-41.35	453.47	0.00	0.00	0.00
4,200.00	7.80	354.79	4,168.63	467.00	-42.58	466.99	0.00	0.00	0.00
4,300.00	7.80	354.79	4,267.71	480.52	-43.81	480.50	0.00	0.00	0.00
4,400.00	7.80	354.79	4,366.78	494.03	-45.05	494.02	0.00	0.00	0.00
4,500.00	7.80	354.79	4,465.86	507.55	-46.28	507.53	0.00	0.00	0.00
4,600.00	7.80	354.79	4,564.93	521.06	-47.51	521.05	0.00	0.00	0.00

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Planning Report

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Well:	ONION 1918-04H	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	7.80	354.79	4,664.01	534.58	-48.74	534.56	0.00	0.00	0.00
4,800.00	7.80	354.79	4,763.08	548.09	-49.98	548.08	0.00	0.00	0.00
4,900.00	7.80	354.79	4,862.16	561.61	-51.21	561.59	0.00	0.00	0.00
5,000.00	7.80	354.79	4,961.23	575.12	-52.44	575.11	0.00	0.00	0.00
5,100.00	7.80	354.79	5,060.31	588.64	-53.67	588.62	0.00	0.00	0.00
5,200.00	7.80	354.79	5,159.38	602.16	-54.91	602.14	0.00	0.00	0.00
5,300.00	7.80	354.79	5,258.46	615.67	-56.14	615.65	0.00	0.00	0.00
5,400.00	7.80	354.79	5,357.53	629.19	-57.37	629.17	0.00	0.00	0.00
5,500.00	7.80	354.79	5,456.61	642.70	-58.60	642.68	0.00	0.00	0.00
5,600.00	7.80	354.79	5,555.68	656.22	-59.84	656.20	0.00	0.00	0.00
5,700.00	7.80	354.79	5,654.76	669.73	-61.07	669.71	0.00	0.00	0.00
5,800.00	7.80	354.79	5,753.83	683.25	-62.30	683.23	0.00	0.00	0.00
5,900.00	7.80	354.79	5,852.91	696.76	-63.53	696.74	0.00	0.00	0.00
6,000.00	7.80	354.79	5,951.98	710.28	-64.77	710.26	0.00	0.00	0.00
6,100.00	7.80	354.79	6,051.06	723.80	-66.00	723.77	0.00	0.00	0.00
6,200.00	7.80	354.79	6,150.13	737.31	-67.23	737.29	0.00	0.00	0.00
6,300.00	7.80	354.79	6,249.21	750.83	-68.46	750.80	0.00	0.00	0.00
6,400.00	7.80	354.79	6,348.28	764.34	-69.70	764.32	0.00	0.00	0.00
6,500.00	7.80	354.79	6,447.35	777.86	-70.93	777.83	0.00	0.00	0.00
6,600.00	7.80	354.79	6,546.43	791.37	-72.16	791.35	0.00	0.00	0.00
6,613.15	7.80	354.79	6,559.46	793.15	-72.32	793.12	0.00	0.00	0.00
KOP @ 6613.15ft :: DLS = 9°/100'									
6,700.00	15.60	357.46	6,644.44	810.71	-73.38	810.69	9.00	8.98	3.07
6,800.00	24.59	358.46	6,738.25	845.02	-74.53	844.99	9.00	8.99	1.00
6,900.00	33.59	358.95	6,825.55	893.58	-75.61	893.55	9.00	9.00	0.49
7,000.00	42.59	359.24	6,904.17	955.19	-76.56	955.17	9.00	9.00	0.30
7,100.00	51.59	359.46	6,972.19	1,028.35	-77.38	1,028.33	9.00	9.00	0.21
7,200.00	60.59	359.62	7,027.93	1,111.26	-78.05	1,111.23	9.00	9.00	0.16
7,300.00	69.59	359.76	7,070.01	1,201.85	-78.54	1,201.83	9.00	9.00	0.14
7,400.00	78.58	359.88	7,097.40	1,297.92	-78.84	1,297.89	9.00	9.00	0.12
7,500.00	87.58	359.99	7,109.43	1,397.09	-78.95	1,397.06	9.00	9.00	0.11
7,526.85	90.00	0.02	7,110.00	1,423.93	-78.95	1,423.90	9.00	9.00	0.11
End Build @ 7526.85ft									
7,600.00	90.00	0.02	7,110.00	1,497.08	-78.92	1,497.06	0.00	0.00	0.00
7,700.00	90.00	0.02	7,110.00	1,597.08	-78.88	1,597.06	0.00	0.00	0.00
7,800.00	90.00	0.02	7,110.00	1,697.08	-78.84	1,697.06	0.00	0.00	0.00
7,900.00	90.00	0.02	7,110.00	1,797.08	-78.79	1,797.06	0.00	0.00	0.00
8,000.00	90.00	0.02	7,110.00	1,897.08	-78.75	1,897.06	0.00	0.00	0.00
8,100.00	90.00	0.02	7,110.00	1,997.08	-78.71	1,997.06	0.00	0.00	0.00
8,200.00	90.00	0.02	7,110.00	2,097.08	-78.67	2,097.06	0.00	0.00	0.00
8,300.00	90.00	0.02	7,110.00	2,197.08	-78.63	2,197.06	0.00	0.00	0.00
8,400.00	90.00	0.02	7,110.00	2,297.08	-78.59	2,297.06	0.00	0.00	0.00
8,500.00	90.00	0.02	7,110.00	2,397.08	-78.55	2,397.06	0.00	0.00	0.00
8,600.00	90.00	0.02	7,110.00	2,497.08	-78.51	2,497.06	0.00	0.00	0.00
8,700.00	90.00	0.02	7,110.00	2,597.08	-78.47	2,597.06	0.00	0.00	0.00
8,800.00	90.00	0.02	7,110.00	2,697.08	-78.43	2,697.06	0.00	0.00	0.00
8,900.00	90.00	0.02	7,110.00	2,797.08	-78.39	2,797.06	0.00	0.00	0.00
9,000.00	90.00	0.02	7,110.00	2,897.08	-78.35	2,897.06	0.00	0.00	0.00
9,100.00	90.00	0.02	7,110.00	2,997.08	-78.31	2,997.06	0.00	0.00	0.00
9,200.00	90.00	0.02	7,110.00	3,097.08	-78.27	3,097.06	0.00	0.00	0.00
9,300.00	90.00	0.02	7,110.00	3,197.08	-78.23	3,197.06	0.00	0.00	0.00
9,400.00	90.00	0.02	7,110.00	3,297.08	-78.19	3,297.06	0.00	0.00	0.00
9,500.00	90.00	0.02	7,110.00	3,397.08	-78.15	3,397.06	0.00	0.00	0.00
9,600.00	90.00	0.02	7,110.00	3,497.08	-78.11	3,497.06	0.00	0.00	0.00

Planning Report

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	0.02	7,110.00	3,597.08	-78.07	3,597.06	0.00	0.00	0.00	
9,800.00	90.00	0.02	7,110.00	3,697.08	-78.03	3,697.06	0.00	0.00	0.00	
9,900.00	90.00	0.02	7,110.00	3,797.08	-77.99	3,797.06	0.00	0.00	0.00	
10,000.00	90.00	0.02	7,110.00	3,897.08	-77.95	3,897.06	0.00	0.00	0.00	
10,100.00	90.00	0.02	7,110.00	3,997.08	-77.91	3,997.06	0.00	0.00	0.00	
10,200.00	90.00	0.02	7,110.00	4,097.08	-77.87	4,097.06	0.00	0.00	0.00	
10,300.00	90.00	0.02	7,110.00	4,197.08	-77.83	4,197.06	0.00	0.00	0.00	
10,400.00	90.00	0.02	7,110.00	4,297.08	-77.79	4,297.06	0.00	0.00	0.00	
10,500.00	90.00	0.02	7,110.00	4,397.08	-77.75	4,397.06	0.00	0.00	0.00	
10,600.00	90.00	0.02	7,110.00	4,497.08	-77.70	4,497.06	0.00	0.00	0.00	
10,700.00	90.00	0.02	7,110.00	4,597.08	-77.66	4,597.06	0.00	0.00	0.00	
10,800.00	90.00	0.02	7,110.00	4,697.08	-77.62	4,697.06	0.00	0.00	0.00	
10,900.00	90.00	0.02	7,110.00	4,797.08	-77.58	4,797.06	0.00	0.00	0.00	
11,000.00	90.00	0.02	7,110.00	4,897.08	-77.54	4,897.06	0.00	0.00	0.00	
11,100.00	90.00	0.02	7,110.00	4,997.08	-77.50	4,997.06	0.00	0.00	0.00	
11,200.00	90.00	0.02	7,110.00	5,097.08	-77.46	5,097.06	0.00	0.00	0.00	
11,300.00	90.00	0.02	7,110.00	5,197.08	-77.42	5,197.06	0.00	0.00	0.00	
11,400.00	90.00	0.02	7,110.00	5,297.08	-77.38	5,297.06	0.00	0.00	0.00	
11,500.00	90.00	0.02	7,110.00	5,397.08	-77.34	5,397.06	0.00	0.00	0.00	
11,600.00	90.00	0.02	7,110.00	5,497.08	-77.30	5,497.06	0.00	0.00	0.00	
11,700.00	90.00	0.02	7,110.00	5,597.08	-77.26	5,597.06	0.00	0.00	0.00	
11,800.00	90.00	0.02	7,110.00	5,697.08	-77.22	5,697.06	0.00	0.00	0.00	
11,900.00	90.00	0.02	7,110.00	5,797.08	-77.18	5,797.06	0.00	0.00	0.00	
12,000.00	90.00	0.02	7,110.00	5,897.08	-77.14	5,897.06	0.00	0.00	0.00	
12,100.00	90.00	0.02	7,110.00	5,997.08	-77.10	5,997.06	0.00	0.00	0.00	
12,200.00	90.00	0.02	7,110.00	6,097.08	-77.06	6,097.06	0.00	0.00	0.00	
12,300.00	90.00	0.02	7,110.00	6,197.08	-77.02	6,197.06	0.00	0.00	0.00	
12,400.00	90.00	0.02	7,110.00	6,297.08	-76.98	6,297.06	0.00	0.00	0.00	
12,500.00	90.00	0.02	7,110.00	6,397.08	-76.94	6,397.06	0.00	0.00	0.00	
12,600.00	90.00	0.02	7,110.00	6,497.08	-76.90	6,497.06	0.00	0.00	0.00	
12,700.00	90.00	0.02	7,110.00	6,597.08	-76.86	6,597.06	0.00	0.00	0.00	
12,800.00	90.00	0.02	7,110.00	6,697.08	-76.82	6,697.06	0.00	0.00	0.00	
12,900.00	90.00	0.02	7,110.00	6,797.08	-76.78	6,797.06	0.00	0.00	0.00	
13,000.00	90.00	0.02	7,110.00	6,897.08	-76.74	6,897.06	0.00	0.00	0.00	
13,100.00	90.00	0.02	7,110.00	6,997.08	-76.70	6,997.06	0.00	0.00	0.00	
13,200.00	90.00	0.02	7,110.00	7,097.08	-76.65	7,097.06	0.00	0.00	0.00	
13,300.00	90.00	0.02	7,110.00	7,197.08	-76.61	7,197.06	0.00	0.00	0.00	
13,400.00	90.00	0.02	7,110.00	7,297.08	-76.57	7,297.06	0.00	0.00	0.00	
13,500.00	90.00	0.02	7,110.00	7,397.08	-76.53	7,397.06	0.00	0.00	0.00	
13,600.00	90.00	0.02	7,110.00	7,497.08	-76.49	7,497.06	0.00	0.00	0.00	
13,700.00	90.00	0.02	7,110.00	7,597.08	-76.45	7,597.06	0.00	0.00	0.00	
13,800.00	90.00	0.02	7,110.00	7,697.08	-76.41	7,697.06	0.00	0.00	0.00	
13,900.00	90.00	0.02	7,110.00	7,797.08	-76.37	7,797.06	0.00	0.00	0.00	
14,000.00	90.00	0.02	7,110.00	7,897.08	-76.33	7,897.06	0.00	0.00	0.00	
14,100.00	90.00	0.02	7,110.00	7,997.08	-76.29	7,997.06	0.00	0.00	0.00	
14,200.00	90.00	0.02	7,110.00	8,097.08	-76.25	8,097.06	0.00	0.00	0.00	
14,300.00	90.00	0.02	7,110.00	8,197.08	-76.21	8,197.06	0.00	0.00	0.00	
14,400.00	90.00	0.02	7,110.00	8,297.08	-76.17	8,297.06	0.00	0.00	0.00	
14,500.00	90.00	0.02	7,110.00	8,397.08	-76.13	8,397.06	0.00	0.00	0.00	
14,550.26	90.00	0.02	7,110.00	8,447.34	-76.11	8,447.31	0.00	0.00	0.00	
TD Well @ 14550.26ft										

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-04H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5037.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5037.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-04H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,708.31	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)		
550.00	550.00	0.00	0.00	Begin Nudge @ 550.00ft	
940.00	938.80	26.40	-2.41	Hold Tangent @ 940.00ft	
6,613.15	6,559.46	793.15	-72.32	KOP @ 6613.15ft :: DLS = 9°/100'	
7,526.85	7,110.00	1,423.93	-78.95	End Build @ 7526.85ft	
14,550.26	7,110.00	8,447.34	-76.11	TD Well @ 14550.26ft	