

VERDAD RESOURCES

WATTENBERG FIELD

1N-64W-19 ONION 1918 PAD

ONION 1918-08H

Wellbore #1

Plan: Design #1

Standard Planning Report

21 May, 2019

Project: WATTENBERG FIELD
Site: 1N-64W-19 ONION 1918 PAD
Well: ONION 1918-08H
Wellbore: Wellbore #1
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

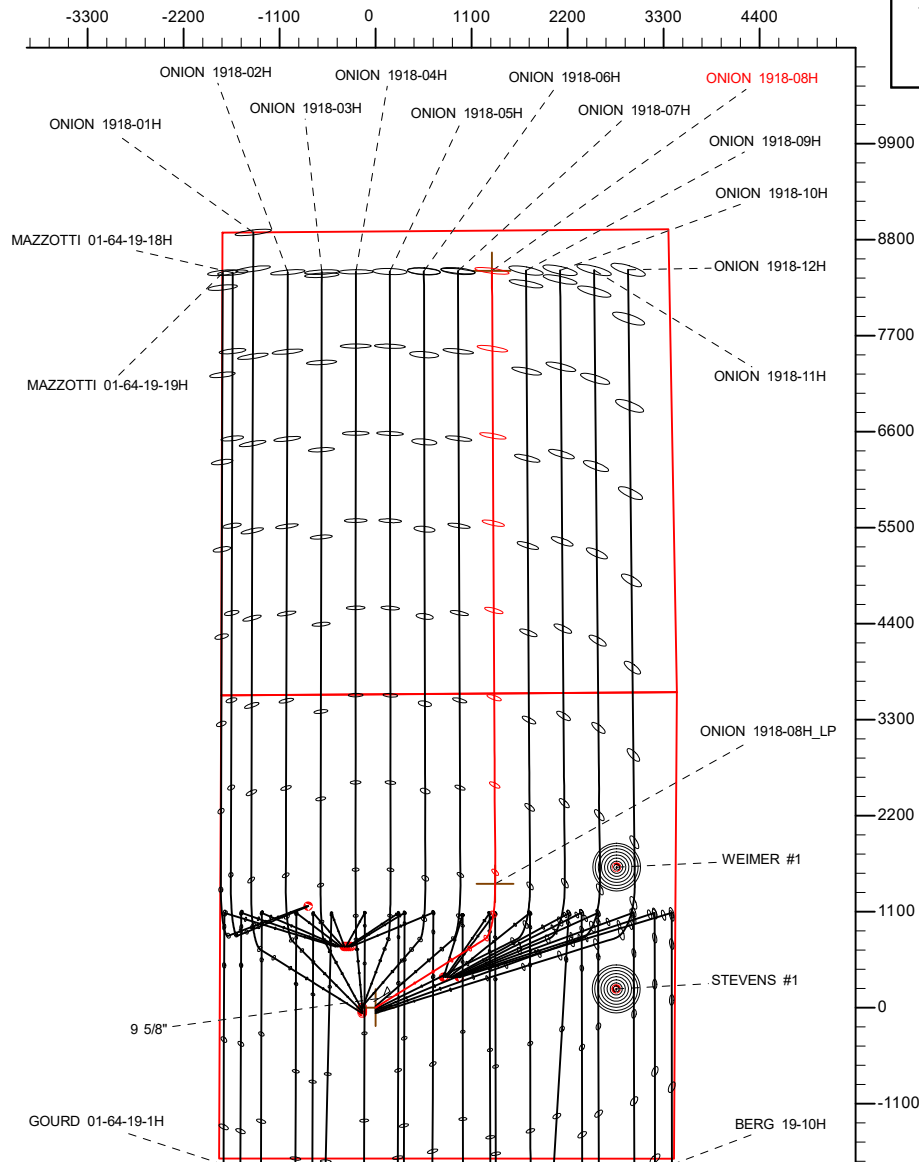
TVD	MD	Name	Size
1700.00	1726.42	9 5/8"	9-5/8

SHL
1729' FSL
1785' FWL

LP
2180' FNL
2069' FEL

BHL
460' FNL
2030' FEL

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

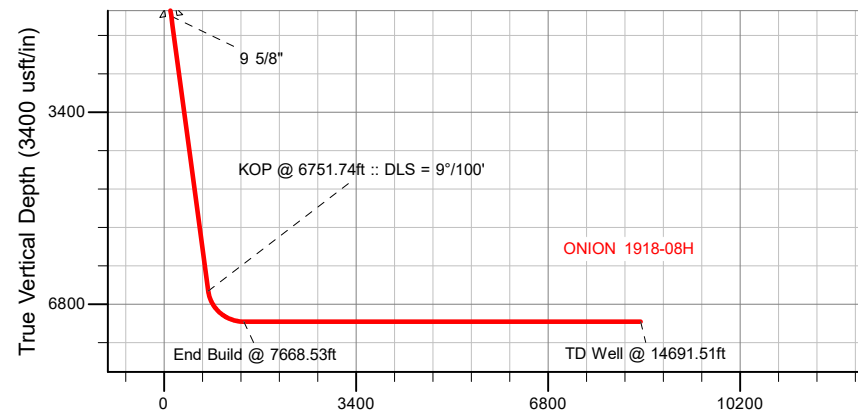


SECTION DETAILS

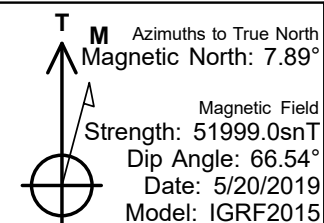
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
1116.50	14.33	57.92	1109.05	47.34	75.52	2.00	57.92	46.93	
6751.74	14.33	57.92	6568.96	788.10	1257.31	0.00	0.00	781.29	
7668.53	90.00	359.69	7110.00	1419.91	1371.43	9.00	-59.03	1412.47	
14691.51	90.00	359.69	7110.00	8442.79	1333.83	0.00	0.00	8435.45	ONION 1918-08H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
ONION 1918-08H_SHL	0.00	0.00	0.00	40.034301	-104.596440
ONION 1918-08H_BHL	7110.00	8442.79	1333.83	40.057478	-104.591675



Vertical Section at 359.69° (3400 usft/in)



WELL DETAILS: ONION 1918-08H

GL = 5012'

RKB = 24' @ 5036.00usft (RIG)

Plan: Design #1 (ONION 1918-08H/Wellbore #1)

Date: 5/21/2019

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-08H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5036.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5036.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-08H	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 1918-08H			
Well Position	+N/-S	63.96 usft	Northing:	1,256,631.00 usft
	+E/-W	150.31 usft	Easting:	3,253,003.80 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Ground Level: 5,012.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/20/2019	7.89	66.54	51,999.03435059

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	359.69

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	14,691.51	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,116.50	14.33	57.92	1,109.05	47.34	75.52	2.00	2.00	0.00	57.92	
6,751.74	14.33	57.92	6,568.96	788.10	1,257.31	0.00	0.00	0.00	0.00	
7,668.53	90.00	359.69	7,110.00	1,419.91	1,371.43	9.00	8.25	-6.35	-59.03	
14,691.51	90.00	359.69	7,110.00	8,442.79	1,333.83	0.00	0.00	0.00	0.00	ONION 1918-08H_BF

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-08H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5036.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5036.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-08H	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
Begin Nudge @ 400.00ft									
500.00	2.00	57.92	499.98	0.93	1.48	0.92	2.00	2.00	0.00
600.00	4.00	57.92	599.84	3.71	5.91	3.67	2.00	2.00	0.00
700.00	6.00	57.92	699.45	8.33	13.30	8.26	2.00	2.00	0.00
800.00	8.00	57.92	798.70	14.81	23.62	14.68	2.00	2.00	0.00
900.00	10.00	57.92	897.47	23.11	36.88	22.92	2.00	2.00	0.00
1,000.00	12.00	57.92	995.62	33.25	53.04	32.96	2.00	2.00	0.00
1,100.00	14.00	57.92	1,093.06	45.19	72.10	44.80	2.00	2.00	0.00
1,116.50	14.33	57.92	1,109.05	47.34	75.52	46.93	2.00	2.00	0.00
Hold Tangent @ 1116.50ft									
1,200.00	14.33	57.92	1,189.96	58.32	93.04	57.81	0.00	0.00	0.00
1,300.00	14.33	57.92	1,286.84	71.46	114.01	70.84	0.00	0.00	0.00
1,400.00	14.33	57.92	1,383.73	84.61	134.98	83.87	0.00	0.00	0.00
1,500.00	14.33	57.92	1,480.62	97.75	155.95	96.91	0.00	0.00	0.00
1,600.00	14.33	57.92	1,577.51	110.90	176.92	109.94	0.00	0.00	0.00
1,700.00	14.33	57.92	1,674.40	124.04	197.89	122.97	0.00	0.00	0.00
1,726.42	14.33	57.92	1,700.00	127.51	203.43	126.41	0.00	0.00	0.00
9 5/8"									
1,800.00	14.33	57.92	1,771.29	137.19	218.86	136.00	0.00	0.00	0.00
1,900.00	14.33	57.92	1,868.18	150.33	239.84	149.03	0.00	0.00	0.00
2,000.00	14.33	57.92	1,965.06	163.48	260.81	162.06	0.00	0.00	0.00
2,100.00	14.33	57.92	2,061.95	176.62	281.78	175.09	0.00	0.00	0.00
2,200.00	14.33	57.92	2,158.84	189.77	302.75	188.13	0.00	0.00	0.00
2,300.00	14.33	57.92	2,255.73	202.91	323.72	201.16	0.00	0.00	0.00
2,400.00	14.33	57.92	2,352.62	216.06	344.69	214.19	0.00	0.00	0.00
2,500.00	14.33	57.92	2,449.51	229.20	365.66	227.22	0.00	0.00	0.00
2,600.00	14.33	57.92	2,546.40	242.35	386.63	240.25	0.00	0.00	0.00
2,700.00	14.33	57.92	2,643.28	255.49	407.61	253.28	0.00	0.00	0.00
2,800.00	14.33	57.92	2,740.17	268.64	428.58	266.32	0.00	0.00	0.00
2,900.00	14.33	57.92	2,837.06	281.78	449.55	279.35	0.00	0.00	0.00
3,000.00	14.33	57.92	2,933.95	294.93	470.52	292.38	0.00	0.00	0.00
3,100.00	14.33	57.92	3,030.84	308.07	491.49	305.41	0.00	0.00	0.00
3,200.00	14.33	57.92	3,127.73	321.22	512.46	318.44	0.00	0.00	0.00
3,300.00	14.33	57.92	3,224.62	334.36	533.43	331.47	0.00	0.00	0.00
3,400.00	14.33	57.92	3,321.51	347.51	554.41	344.50	0.00	0.00	0.00
3,500.00	14.33	57.92	3,418.39	360.65	575.38	357.54	0.00	0.00	0.00
3,600.00	14.33	57.92	3,515.28	373.80	596.35	370.57	0.00	0.00	0.00
3,700.00	14.33	57.92	3,612.17	386.94	617.32	383.60	0.00	0.00	0.00
3,800.00	14.33	57.92	3,709.06	400.09	638.29	396.63	0.00	0.00	0.00
3,900.00	14.33	57.92	3,805.95	413.23	659.26	409.66	0.00	0.00	0.00
4,000.00	14.33	57.92	3,902.84	426.38	680.23	422.69	0.00	0.00	0.00
4,100.00	14.33	57.92	3,999.73	439.52	701.21	435.72	0.00	0.00	0.00
4,200.00	14.33	57.92	4,096.61	452.67	722.18	448.76	0.00	0.00	0.00
4,300.00	14.33	57.92	4,193.50	465.81	743.15	461.79	0.00	0.00	0.00
4,400.00	14.33	57.92	4,290.39	478.96	764.12	474.82	0.00	0.00	0.00
4,500.00	14.33	57.92	4,387.28	492.11	785.09	487.85	0.00	0.00	0.00
4,600.00	14.33	57.92	4,484.17	505.25	806.06	500.88	0.00	0.00	0.00
4,700.00	14.33	57.92	4,581.06	518.40	827.03	513.91	0.00	0.00	0.00

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Well:	ONION 1918-08H	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)
4,800.00	14.33	57.92	4,677.95	531.54	848.01	526.94	0.00	0.00	0.00
4,900.00	14.33	57.92	4,774.83	544.69	868.98	539.98	0.00	0.00	0.00
5,000.00	14.33	57.92	4,871.72	557.83	889.95	553.01	0.00	0.00	0.00
5,100.00	14.33	57.92	4,968.61	570.98	910.92	566.04	0.00	0.00	0.00
5,200.00	14.33	57.92	5,065.50	584.12	931.89	579.07	0.00	0.00	0.00
5,300.00	14.33	57.92	5,162.39	597.27	952.86	592.10	0.00	0.00	0.00
5,400.00	14.33	57.92	5,259.28	610.41	973.83	605.13	0.00	0.00	0.00
5,500.00	14.33	57.92	5,356.17	623.56	994.81	618.16	0.00	0.00	0.00
5,600.00	14.33	57.92	5,453.06	636.70	1,015.78	631.20	0.00	0.00	0.00
5,700.00	14.33	57.92	5,549.94	649.85	1,036.75	644.23	0.00	0.00	0.00
5,800.00	14.33	57.92	5,646.83	662.99	1,057.72	657.26	0.00	0.00	0.00
5,900.00	14.33	57.92	5,743.72	676.14	1,078.69	670.29	0.00	0.00	0.00
6,000.00	14.33	57.92	5,840.61	689.28	1,099.66	683.32	0.00	0.00	0.00
6,100.00	14.33	57.92	5,937.50	702.43	1,120.63	696.35	0.00	0.00	0.00
6,200.00	14.33	57.92	6,034.39	715.57	1,141.61	709.39	0.00	0.00	0.00
6,300.00	14.33	57.92	6,131.28	728.72	1,162.58	722.42	0.00	0.00	0.00
6,400.00	14.33	57.92	6,228.16	741.86	1,183.55	735.45	0.00	0.00	0.00
6,500.00	14.33	57.92	6,325.05	755.01	1,204.52	748.48	0.00	0.00	0.00
6,600.00	14.33	57.92	6,421.94	768.15	1,225.49	761.51	0.00	0.00	0.00
6,700.00	14.33	57.92	6,518.83	781.30	1,246.46	774.54	0.00	0.00	0.00
6,751.74	14.33	57.92	6,568.96	788.10	1,257.31	781.29	0.00	0.00	0.00
KOP @ 6751.74ft :: DLS = 9°/100'									
6,800.00	16.97	45.06	6,615.44	796.25	1,267.36	789.38	9.00	5.47	-26.64
6,900.00	24.03	28.84	6,709.12	824.45	1,287.56	817.47	9.00	7.06	-16.22
7,000.00	32.03	20.00	6,797.36	867.29	1,306.49	860.21	9.00	8.01	-8.84
7,100.00	40.43	14.46	6,877.97	923.73	1,323.70	916.55	9.00	8.39	-5.54
7,200.00	49.00	10.57	6,948.98	992.36	1,338.75	985.10	9.00	8.58	-3.89
7,300.00	57.68	7.59	7,008.64	1,071.50	1,351.28	1,064.18	9.00	8.68	-2.98
7,400.00	66.42	5.13	7,055.47	1,159.21	1,360.98	1,151.83	9.00	8.74	-2.46
7,500.00	75.19	2.99	7,088.33	1,253.31	1,367.62	1,245.90	9.00	8.77	-2.15
7,600.00	83.97	1.01	7,106.40	1,351.50	1,371.01	1,344.07	9.00	8.79	-1.98
7,668.53	90.00	359.69	7,110.00	1,419.91	1,371.43	1,412.47	9.00	8.79	-1.92
End Build @ 7668.53ft									
7,700.00	90.00	359.69	7,110.00	1,451.37	1,371.26	1,443.93	0.00	0.00	0.00
7,800.00	90.00	359.69	7,110.00	1,551.37	1,370.73	1,543.93	0.00	0.00	0.00
7,900.00	90.00	359.69	7,110.00	1,651.37	1,370.19	1,643.93	0.00	0.00	0.00
8,000.00	90.00	359.69	7,110.00	1,751.37	1,369.66	1,743.93	0.00	0.00	0.00
8,100.00	90.00	359.69	7,110.00	1,851.37	1,369.12	1,843.93	0.00	0.00	0.00
8,200.00	90.00	359.69	7,110.00	1,951.37	1,368.59	1,943.93	0.00	0.00	0.00
8,300.00	90.00	359.69	7,110.00	2,051.37	1,368.05	2,043.93	0.00	0.00	0.00
8,400.00	90.00	359.69	7,110.00	2,151.36	1,367.51	2,143.93	0.00	0.00	0.00
8,500.00	90.00	359.69	7,110.00	2,251.36	1,366.98	2,243.93	0.00	0.00	0.00
8,600.00	90.00	359.69	7,110.00	2,351.36	1,366.44	2,343.93	0.00	0.00	0.00
8,700.00	90.00	359.69	7,110.00	2,451.36	1,365.91	2,443.93	0.00	0.00	0.00
8,800.00	90.00	359.69	7,110.00	2,551.36	1,365.37	2,543.93	0.00	0.00	0.00
8,900.00	90.00	359.69	7,110.00	2,651.36	1,364.84	2,643.93	0.00	0.00	0.00
9,000.00	90.00	359.69	7,110.00	2,751.36	1,364.30	2,743.93	0.00	0.00	0.00
9,100.00	90.00	359.69	7,110.00	2,851.35	1,363.77	2,843.93	0.00	0.00	0.00
9,200.00	90.00	359.69	7,110.00	2,951.35	1,363.23	2,943.93	0.00	0.00	0.00
9,300.00	90.00	359.69	7,110.00	3,051.35	1,362.70	3,043.93	0.00	0.00	0.00
9,400.00	90.00	359.69	7,110.00	3,151.35	1,362.16	3,143.93	0.00	0.00	0.00
9,500.00	90.00	359.69	7,110.00	3,251.35	1,361.63	3,243.93	0.00	0.00	0.00
9,600.00	90.00	359.69	7,110.00	3,351.35	1,361.09	3,343.93	0.00	0.00	0.00
9,700.00	90.00	359.69	7,110.00	3,451.35	1,360.56	3,443.93	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)
9,800.00	90.00	359.69	7,110.00	3,551.34	1,360.02	3,543.93	0.00	0.00	0.00
9,900.00	90.00	359.69	7,110.00	3,651.34	1,359.48	3,643.93	0.00	0.00	0.00
10,000.00	90.00	359.69	7,110.00	3,751.34	1,358.95	3,743.93	0.00	0.00	0.00
10,100.00	90.00	359.69	7,110.00	3,851.34	1,358.41	3,843.93	0.00	0.00	0.00
10,200.00	90.00	359.69	7,110.00	3,951.34	1,357.88	3,943.93	0.00	0.00	0.00
10,300.00	90.00	359.69	7,110.00	4,051.34	1,357.34	4,043.93	0.00	0.00	0.00
10,400.00	90.00	359.69	7,110.00	4,151.34	1,356.81	4,143.93	0.00	0.00	0.00
10,500.00	90.00	359.69	7,110.00	4,251.33	1,356.27	4,243.93	0.00	0.00	0.00
10,600.00	90.00	359.69	7,110.00	4,351.33	1,355.74	4,343.93	0.00	0.00	0.00
10,700.00	90.00	359.69	7,110.00	4,451.33	1,355.20	4,443.93	0.00	0.00	0.00
10,800.00	90.00	359.69	7,110.00	4,551.33	1,354.67	4,543.93	0.00	0.00	0.00
10,900.00	90.00	359.69	7,110.00	4,651.33	1,354.13	4,643.93	0.00	0.00	0.00
11,000.00	90.00	359.69	7,110.00	4,751.33	1,353.60	4,743.93	0.00	0.00	0.00
11,100.00	90.00	359.69	7,110.00	4,851.33	1,353.06	4,843.93	0.00	0.00	0.00
11,200.00	90.00	359.69	7,110.00	4,951.32	1,352.53	4,943.93	0.00	0.00	0.00
11,300.00	90.00	359.69	7,110.00	5,051.32	1,351.99	5,043.93	0.00	0.00	0.00
11,400.00	90.00	359.69	7,110.00	5,151.32	1,351.46	5,143.93	0.00	0.00	0.00
11,500.00	90.00	359.69	7,110.00	5,251.32	1,350.92	5,243.93	0.00	0.00	0.00
11,600.00	90.00	359.69	7,110.00	5,351.32	1,350.38	5,343.93	0.00	0.00	0.00
11,700.00	90.00	359.69	7,110.00	5,451.32	1,349.85	5,443.93	0.00	0.00	0.00
11,800.00	90.00	359.69	7,110.00	5,551.32	1,349.31	5,543.93	0.00	0.00	0.00
11,900.00	90.00	359.69	7,110.00	5,651.31	1,348.78	5,643.93	0.00	0.00	0.00
12,000.00	90.00	359.69	7,110.00	5,751.31	1,348.24	5,743.93	0.00	0.00	0.00
12,100.00	90.00	359.69	7,110.00	5,851.31	1,347.71	5,843.93	0.00	0.00	0.00
12,200.00	90.00	359.69	7,110.00	5,951.31	1,347.17	5,943.93	0.00	0.00	0.00
12,300.00	90.00	359.69	7,110.00	6,051.31	1,346.64	6,043.93	0.00	0.00	0.00
12,400.00	90.00	359.69	7,110.00	6,151.31	1,346.10	6,143.93	0.00	0.00	0.00
12,500.00	90.00	359.69	7,110.00	6,251.31	1,345.57	6,243.93	0.00	0.00	0.00
12,600.00	90.00	359.69	7,110.00	6,351.30	1,345.03	6,343.93	0.00	0.00	0.00
12,700.00	90.00	359.69	7,110.00	6,451.30	1,344.50	6,443.93	0.00	0.00	0.00
12,800.00	90.00	359.69	7,110.00	6,551.30	1,343.96	6,543.93	0.00	0.00	0.00
12,900.00	90.00	359.69	7,110.00	6,651.30	1,343.43	6,643.93	0.00	0.00	0.00
13,000.00	90.00	359.69	7,110.00	6,751.30	1,342.89	6,743.93	0.00	0.00	0.00
13,100.00	90.00	359.69	7,110.00	6,851.30	1,342.35	6,843.93	0.00	0.00	0.00
13,200.00	90.00	359.69	7,110.00	6,951.30	1,341.82	6,943.93	0.00	0.00	0.00
13,300.00	90.00	359.69	7,110.00	7,051.29	1,341.28	7,043.93	0.00	0.00	0.00
13,400.00	90.00	359.69	7,110.00	7,151.29	1,340.75	7,143.93	0.00	0.00	0.00
13,500.00	90.00	359.69	7,110.00	7,251.29	1,340.21	7,243.93	0.00	0.00	0.00
13,600.00	90.00	359.69	7,110.00	7,351.29	1,339.68	7,343.93	0.00	0.00	0.00
13,700.00	90.00	359.69	7,110.00	7,451.29	1,339.14	7,443.93	0.00	0.00	0.00
13,800.00	90.00	359.69	7,110.00	7,551.29	1,338.61	7,543.93	0.00	0.00	0.00
13,900.00	90.00	359.69	7,110.00	7,651.29	1,338.07	7,643.93	0.00	0.00	0.00
14,000.00	90.00	359.69	7,110.00	7,751.28	1,337.54	7,743.93	0.00	0.00	0.00
14,100.00	90.00	359.69	7,110.00	7,851.28	1,337.00	7,843.93	0.00	0.00	0.00
14,200.00	90.00	359.69	7,110.00	7,951.28	1,336.47	7,943.93	0.00	0.00	0.00
14,300.00	90.00	359.69	7,110.00	8,051.28	1,335.93	8,043.93	0.00	0.00	0.00
14,400.00	90.00	359.69	7,110.00	8,151.28	1,335.40	8,143.93	0.00	0.00	0.00
14,500.00	90.00	359.69	7,110.00	8,251.28	1,334.86	8,243.93	0.00	0.00	0.00
14,600.00	90.00	359.69	7,110.00	8,351.28	1,334.32	8,343.93	0.00	0.00	0.00
14,691.51	90.00	359.69	7,110.00	8,442.79	1,333.83	8,435.45	0.00	0.00	0.00
TD Well @ 14691.51ft									

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well ONION 1918-08H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 5036.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 5036.00usft (RIG)
Site:	1N-64W-19 ONION 1918 PAD	North Reference:	True
Well:	ONION 1918-08H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,726.42	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)		
400.00	400.00	0.00	0.00	Begin Nudge @ 400.00ft	
1,116.50	1,109.05	47.34	75.52	Hold Tangent @ 1116.50ft	
6,751.74	6,568.96	788.10	1,257.31	KOP @ 6751.74ft :: DLS = 9°/100'	
7,668.53	7,110.00	1,419.91	1,371.43	End Build @ 7668.53ft	
14,691.51	7,110.00	8,442.79	1,333.83	TD Well @ 14691.51ft	