

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD PAD
HELEN 2536-12H**

Plan A

Plan: Design #1

Standard Planning Report

14 December, 2021

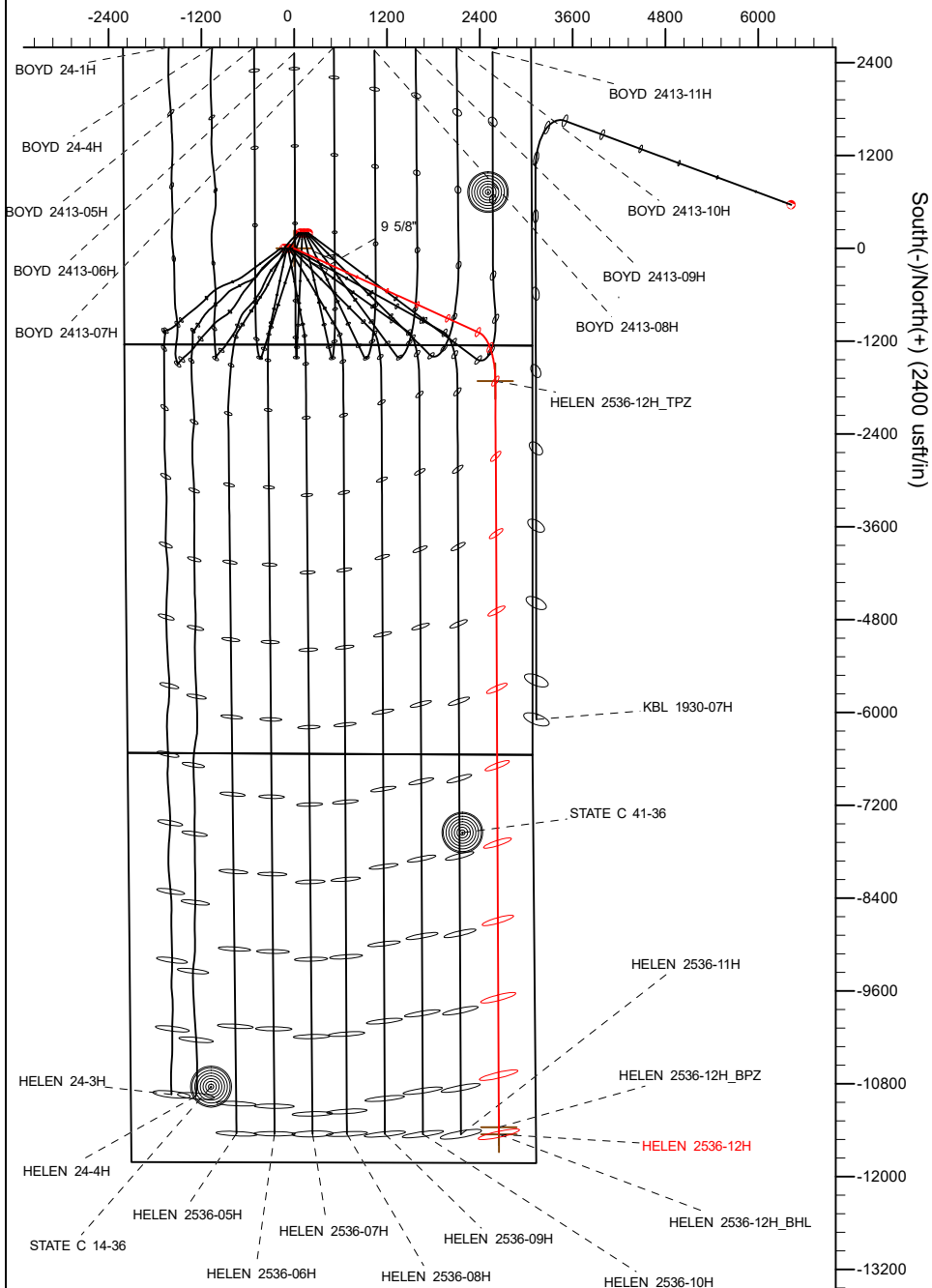
Project: WATTENBERG FIELD
Site: 2N-64W-24 ARNOLD PAD
Well: HELEN 2536-12H
Wellbore: Plan A
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1908.00	2000.54	9 5/8"	9-5/8

West(-)/East(+) (2400 usft/in)



SHL
1243' FSL
2201' FWL

TPZ
460' FNL
480' FEL

BPZ
460' FSL
480' FEL

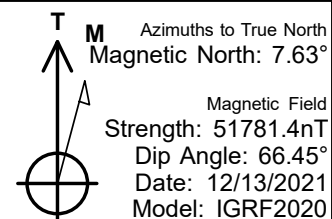
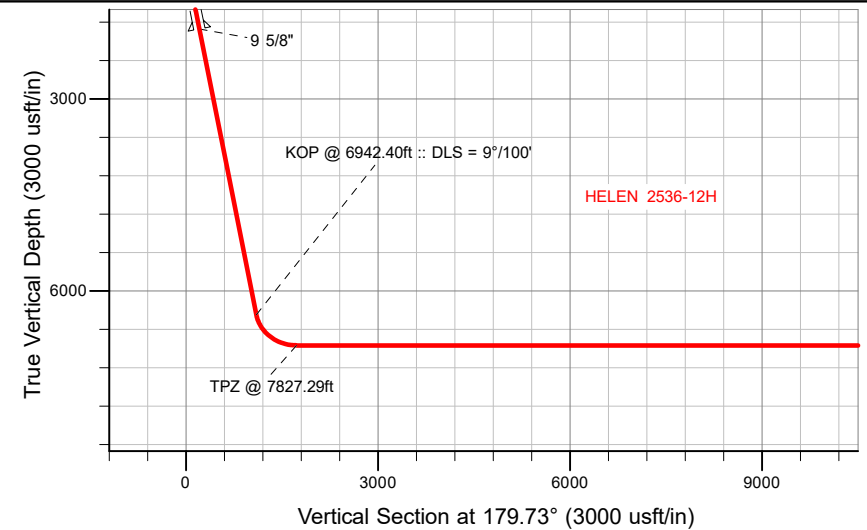
BHL
370' FSL
480' FEL

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	201.00	0.00	0.00	201.00	0.00	0.00	0.00	0.00	0.00	
3	1473.00	25.44	114.48	1431.62	-115.11	252.81	2.00	114.48	116.30	
4	6942.40	25.44	114.48	6370.68	-1088.67	2391.08	0.00	0.00	1099.92	
5	7827.29	90.00	179.73	6850.00	-1713.94	2601.07	9.00	67.40	1726.17	
6	17564.76	90.00	179.73	6850.00	-11451.30	2646.53	0.00	0.00	11463.64	HELEN 2536-12H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HELEN 2536-12H_SHL	0.00	0.00	0.00	40.120058	-104.501261
HELEN 2536-12H_TPZ	6850.00	-1713.94	2601.07	40.115353	-104.491962
HELEN 2536-12H_BPZ	6850.00	-11361.32	2646.24	40.088869	-104.491803
HELEN 2536-12H_BHL	6850.00	-11451.30	2646.53	40.088622	-104.491802



WELL DETAILS: HELEN 2536-12H

GL = 4924'

RKB = 20' @ 4944.00usft (Drilling Rig)

Plan: Design #1 (HELEN 2536-12H/Plan A)

Date: 12/14/2021

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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		2N-64W-24 ARNOLD PAD			
Site Position:		Northing:	1,288,352.75 usft	Latitude:	40.120602
From:	Lat/Long	Easting:	3,279,352.74 usft	Longitude:	-104.501071
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well		HELEN 2536-12H				
Well Position	+N/-S	0.00 usft	Northing:	1,288,154.00 usft	Latitude:	40.120058
	+E/-W	0.00 usft	Easting:	3,279,301.84 usft	Longitude:	-104.501261
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,924.00 usft
Grid Convergence:		0.65 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	12/13/2021	7.63	66.45	51,781.38358846

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	179.73	

Plan Survey Tool Program		Date	12/14/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,908.00	Design #1 (Plan A)	ISCWSA MWD	
				Fixed:v2:standard declination	
2	1,908.00	17,564.76	Design #1 (Plan A)	ISCWSA MWD	
				Fixed:v2:standard declination	

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Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Design #1		

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	
201.00	0.00	0.00	201.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,473.00	25.44	114.48	1,431.62	-115.11	252.81	2.00	2.00	0.00	114.48	
6,942.40	25.44	114.48	6,370.68	-1,088.67	2,391.08	0.00	0.00	0.00	0.00	
7,827.29	90.00	179.73	6,850.00	-1,713.94	2,601.07	9.00	7.30	7.37	67.40	
17,564.76	90.00	179.73	6,850.00	-11,451.30	2,646.53	0.00	0.00	0.00	0.00	HELEN 2536-12H_BH

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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
201.00	0.00	0.00	201.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 201.00ft									
300.00	1.98	114.48	299.98	-0.71	1.56	0.72	2.00	2.00	0.00
400.00	3.98	114.48	399.84	-2.86	6.29	2.89	2.00	2.00	0.00
500.00	5.98	114.48	499.46	-6.46	14.19	6.53	2.00	2.00	0.00
600.00	7.98	114.48	598.71	-11.50	25.25	11.61	2.00	2.00	0.00
700.00	9.98	114.48	697.48	-17.96	39.45	18.15	2.00	2.00	0.00
800.00	11.98	114.48	795.64	-25.85	56.79	26.12	2.00	2.00	0.00
900.00	13.98	114.48	893.08	-35.16	77.23	35.53	2.00	2.00	0.00
1,000.00	15.98	114.48	989.68	-45.87	100.75	46.35	2.00	2.00	0.00
1,100.00	17.98	114.48	1,085.32	-57.97	127.33	58.57	2.00	2.00	0.00
1,200.00	19.98	114.48	1,179.88	-71.45	156.93	72.19	2.00	2.00	0.00
1,300.00	21.98	114.48	1,273.24	-86.28	189.51	87.18	2.00	2.00	0.00
1,400.00	23.98	114.48	1,365.30	-102.46	225.04	103.52	2.00	2.00	0.00
1,473.00	25.44	114.48	1,431.62	-115.11	252.81	116.30	2.00	2.00	0.00
Hold Tangent @ 1473.00ft									
1,500.00	25.44	114.48	1,456.00	-119.91	263.37	121.15	0.00	0.00	0.00
1,600.00	25.44	114.48	1,546.30	-137.71	302.46	139.14	0.00	0.00	0.00
1,700.00	25.44	114.48	1,636.60	-155.51	341.56	157.12	0.00	0.00	0.00
1,800.00	25.44	114.48	1,726.91	-173.31	380.65	175.10	0.00	0.00	0.00
1,900.00	25.44	114.48	1,817.21	-191.11	419.75	193.09	0.00	0.00	0.00
2,000.00	25.44	114.48	1,907.51	-208.91	458.84	211.07	0.00	0.00	0.00
2,000.54	25.44	114.48	1,908.00	-209.01	459.05	211.17	0.00	0.00	0.00
9 5/8"									
2,100.00	25.44	114.48	1,997.82	-226.71	497.94	229.06	0.00	0.00	0.00
2,200.00	25.44	114.48	2,088.12	-244.51	537.03	247.04	0.00	0.00	0.00
2,300.00	25.44	114.48	2,178.43	-262.31	576.13	265.03	0.00	0.00	0.00
2,400.00	25.44	114.48	2,268.73	-280.11	615.22	283.01	0.00	0.00	0.00
2,500.00	25.44	114.48	2,359.03	-297.91	654.32	300.99	0.00	0.00	0.00
2,600.00	25.44	114.48	2,449.34	-315.71	693.41	318.98	0.00	0.00	0.00
2,700.00	25.44	114.48	2,539.64	-333.51	732.51	336.96	0.00	0.00	0.00
2,800.00	25.44	114.48	2,629.94	-351.31	771.60	354.95	0.00	0.00	0.00
2,900.00	25.44	114.48	2,720.25	-369.11	810.70	372.93	0.00	0.00	0.00
3,000.00	25.44	114.48	2,810.55	-386.91	849.79	390.91	0.00	0.00	0.00
3,100.00	25.44	114.48	2,900.85	-404.71	888.89	408.90	0.00	0.00	0.00
3,200.00	25.44	114.48	2,991.16	-422.51	927.98	426.88	0.00	0.00	0.00
3,300.00	25.44	114.48	3,081.46	-440.32	967.08	444.87	0.00	0.00	0.00
3,400.00	25.44	114.48	3,171.76	-458.12	1,006.17	462.85	0.00	0.00	0.00
3,500.00	25.44	114.48	3,262.07	-475.92	1,045.27	480.84	0.00	0.00	0.00
3,600.00	25.44	114.48	3,352.37	-493.72	1,084.36	498.82	0.00	0.00	0.00
3,700.00	25.44	114.48	3,442.68	-511.52	1,123.46	516.80	0.00	0.00	0.00
3,800.00	25.44	114.48	3,532.98	-529.32	1,162.55	534.79	0.00	0.00	0.00
3,900.00	25.44	114.48	3,623.28	-547.12	1,201.65	552.77	0.00	0.00	0.00
4,000.00	25.44	114.48	3,713.59	-564.92	1,240.74	570.76	0.00	0.00	0.00
4,100.00	25.44	114.48	3,803.89	-582.72	1,279.84	588.74	0.00	0.00	0.00
4,200.00	25.44	114.48	3,894.19	-600.52	1,318.93	606.73	0.00	0.00	0.00
4,300.00	25.44	114.48	3,984.50	-618.32	1,358.03	624.71	0.00	0.00	0.00
4,400.00	25.44	114.48	4,074.80	-636.12	1,397.12	642.69	0.00	0.00	0.00
4,500.00	25.44	114.48	4,165.10	-653.92	1,436.22	660.68	0.00	0.00	0.00
4,600.00	25.44	114.48	4,255.41	-671.72	1,475.31	678.66	0.00	0.00	0.00
4,700.00	25.44	114.48	4,345.71	-689.52	1,514.41	696.65	0.00	0.00	0.00

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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	25.44	114.48	4,436.01	-707.32	1,553.50	714.63	0.00	0.00	0.00	
4,900.00	25.44	114.48	4,526.32	-725.12	1,592.60	732.61	0.00	0.00	0.00	
5,000.00	25.44	114.48	4,616.62	-742.92	1,631.69	750.60	0.00	0.00	0.00	
5,100.00	25.44	114.48	4,706.93	-760.72	1,670.79	768.58	0.00	0.00	0.00	
5,200.00	25.44	114.48	4,797.23	-778.52	1,709.88	786.57	0.00	0.00	0.00	
5,300.00	25.44	114.48	4,887.53	-796.32	1,748.98	804.55	0.00	0.00	0.00	
5,400.00	25.44	114.48	4,977.84	-814.12	1,788.07	822.54	0.00	0.00	0.00	
5,500.00	25.44	114.48	5,068.14	-831.92	1,827.17	840.52	0.00	0.00	0.00	
5,600.00	25.44	114.48	5,158.44	-849.72	1,866.26	858.50	0.00	0.00	0.00	
5,700.00	25.44	114.48	5,248.75	-867.52	1,905.36	876.49	0.00	0.00	0.00	
5,800.00	25.44	114.48	5,339.05	-885.32	1,944.45	894.47	0.00	0.00	0.00	
5,900.00	25.44	114.48	5,429.35	-903.12	1,983.55	912.46	0.00	0.00	0.00	
6,000.00	25.44	114.48	5,519.66	-920.92	2,022.64	930.44	0.00	0.00	0.00	
6,100.00	25.44	114.48	5,609.96	-938.72	2,061.74	948.42	0.00	0.00	0.00	
6,200.00	25.44	114.48	5,700.26	-956.52	2,100.83	966.41	0.00	0.00	0.00	
6,300.00	25.44	114.48	5,790.57	-974.32	2,139.93	984.39	0.00	0.00	0.00	
6,400.00	25.44	114.48	5,880.87	-992.12	2,179.02	1,002.38	0.00	0.00	0.00	
6,500.00	25.44	114.48	5,971.18	-1,009.92	2,218.12	1,020.36	0.00	0.00	0.00	
6,600.00	25.44	114.48	6,061.48	-1,027.72	2,257.21	1,038.35	0.00	0.00	0.00	
6,700.00	25.44	114.48	6,151.78	-1,045.52	2,296.31	1,056.33	0.00	0.00	0.00	
6,800.00	25.44	114.48	6,242.09	-1,063.32	2,335.40	1,074.31	0.00	0.00	0.00	
6,900.00	25.44	114.48	6,332.39	-1,081.12	2,374.50	1,092.30	0.00	0.00	0.00	
6,942.40	25.44	114.48	6,370.68	-1,088.67	2,391.08	1,099.92	0.00	0.00	0.00	
KOP @ 6942.40ft :: DLS = 9°/100'										
6,950.00	25.71	115.94	6,377.53	-1,090.07	2,394.04	1,101.33	9.00	3.55	19.15	
7,000.00	27.82	124.78	6,422.19	-1,101.47	2,413.39	1,112.83	9.00	4.22	17.68	
7,050.00	30.41	132.34	6,465.89	-1,116.66	2,432.34	1,128.11	9.00	5.19	15.14	
7,100.00	33.38	138.76	6,508.34	-1,135.53	2,450.77	1,147.07	9.00	5.93	12.83	
7,150.00	36.62	144.20	6,549.31	-1,157.98	2,468.57	1,169.60	9.00	6.49	10.88	
7,200.00	40.08	148.85	6,588.52	-1,183.87	2,485.63	1,195.57	9.00	6.92	9.29	
7,250.00	43.70	152.86	6,625.74	-1,213.03	2,501.84	1,224.81	9.00	7.24	8.02	
7,300.00	47.44	156.36	6,660.74	-1,245.28	2,517.12	1,257.13	9.00	7.48	7.01	
7,350.00	51.28	159.47	6,693.30	-1,280.44	2,531.35	1,292.35	9.00	7.67	6.21	
7,400.00	55.19	162.25	6,723.23	-1,318.27	2,544.45	1,330.25	9.00	7.82	5.57	
7,450.00	59.15	164.78	6,750.34	-1,358.55	2,556.35	1,370.58	9.00	7.93	5.06	
7,500.00	63.16	167.11	6,774.45	-1,401.03	2,566.97	1,413.11	9.00	8.02	4.66	
7,550.00	67.21	169.28	6,795.43	-1,445.44	2,576.24	1,457.56	9.00	8.09	4.34	
7,600.00	71.29	171.32	6,813.15	-1,491.52	2,584.11	1,503.68	9.00	8.15	4.08	
7,650.00	75.38	173.26	6,827.49	-1,538.97	2,590.52	1,551.16	9.00	8.19	3.89	
7,700.00	79.49	175.14	6,838.36	-1,587.51	2,595.45	1,599.73	9.00	8.22	3.75	
7,750.00	83.62	176.96	6,845.70	-1,636.84	2,598.85	1,649.07	9.00	8.24	3.65	
7,800.00	87.75	178.76	6,849.47	-1,686.65	2,600.71	1,698.89	9.00	8.26	3.59	
7,827.29	90.00	179.73	6,850.00	-1,713.94	2,601.07	1,726.17	9.00	8.26	3.57	
TPZ @ 7827.29ft										
7,900.00	90.00	179.73	6,850.00	-1,786.64	2,601.41	1,798.88	0.00	0.00	0.00	
8,000.00	90.00	179.73	6,850.00	-1,886.64	2,601.87	1,898.88	0.00	0.00	0.00	
8,100.00	90.00	179.73	6,850.00	-1,986.64	2,602.34	1,998.88	0.00	0.00	0.00	
8,200.00	90.00	179.73	6,850.00	-2,086.64	2,602.81	2,098.88	0.00	0.00	0.00	
8,300.00	90.00	179.73	6,850.00	-2,186.64	2,603.27	2,198.88	0.00	0.00	0.00	
8,400.00	90.00	179.73	6,850.00	-2,286.64	2,603.74	2,298.88	0.00	0.00	0.00	
8,500.00	90.00	179.73	6,850.00	-2,386.64	2,604.21	2,398.88	0.00	0.00	0.00	
8,600.00	90.00	179.73	6,850.00	-2,486.63	2,604.67	2,498.88	0.00	0.00	0.00	
8,700.00	90.00	179.73	6,850.00	-2,586.63	2,605.14	2,598.88	0.00	0.00	0.00	
8,800.00	90.00	179.73	6,850.00	-2,686.63	2,605.61	2,698.88	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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)	
8,900.00	90.00	179.73	6,850.00	-2,786.63	2,606.07	2,798.88	0.00	0.00	0.00	
9,000.00	90.00	179.73	6,850.00	-2,886.63	2,606.54	2,898.88	0.00	0.00	0.00	
9,100.00	90.00	179.73	6,850.00	-2,986.63	2,607.01	2,998.88	0.00	0.00	0.00	
9,200.00	90.00	179.73	6,850.00	-3,086.63	2,607.48	3,098.88	0.00	0.00	0.00	
9,300.00	90.00	179.73	6,850.00	-3,186.63	2,607.94	3,198.88	0.00	0.00	0.00	
9,400.00	90.00	179.73	6,850.00	-3,286.63	2,608.41	3,298.88	0.00	0.00	0.00	
9,500.00	90.00	179.73	6,850.00	-3,386.62	2,608.88	3,398.88	0.00	0.00	0.00	
9,600.00	90.00	179.73	6,850.00	-3,486.62	2,609.34	3,498.88	0.00	0.00	0.00	
9,700.00	90.00	179.73	6,850.00	-3,586.62	2,609.81	3,598.88	0.00	0.00	0.00	
9,800.00	90.00	179.73	6,850.00	-3,686.62	2,610.28	3,698.88	0.00	0.00	0.00	
9,900.00	90.00	179.73	6,850.00	-3,786.62	2,610.74	3,798.88	0.00	0.00	0.00	
10,000.00	90.00	179.73	6,850.00	-3,886.62	2,611.21	3,898.88	0.00	0.00	0.00	
10,100.00	90.00	179.73	6,850.00	-3,986.62	2,611.68	3,998.88	0.00	0.00	0.00	
10,200.00	90.00	179.73	6,850.00	-4,086.62	2,612.14	4,098.88	0.00	0.00	0.00	
10,300.00	90.00	179.73	6,850.00	-4,186.62	2,612.61	4,198.88	0.00	0.00	0.00	
10,400.00	90.00	179.73	6,850.00	-4,286.61	2,613.08	4,298.88	0.00	0.00	0.00	
10,500.00	90.00	179.73	6,850.00	-4,386.61	2,613.55	4,398.88	0.00	0.00	0.00	
10,600.00	90.00	179.73	6,850.00	-4,486.61	2,614.01	4,498.88	0.00	0.00	0.00	
10,700.00	90.00	179.73	6,850.00	-4,586.61	2,614.48	4,598.88	0.00	0.00	0.00	
10,800.00	90.00	179.73	6,850.00	-4,686.61	2,614.95	4,698.88	0.00	0.00	0.00	
10,900.00	90.00	179.73	6,850.00	-4,786.61	2,615.41	4,798.88	0.00	0.00	0.00	
11,000.00	90.00	179.73	6,850.00	-4,886.61	2,615.88	4,898.88	0.00	0.00	0.00	
11,100.00	90.00	179.73	6,850.00	-4,986.61	2,616.35	4,998.88	0.00	0.00	0.00	
11,200.00	90.00	179.73	6,850.00	-5,086.61	2,616.81	5,098.88	0.00	0.00	0.00	
11,300.00	90.00	179.73	6,850.00	-5,186.60	2,617.28	5,198.88	0.00	0.00	0.00	
11,400.00	90.00	179.73	6,850.00	-5,286.60	2,617.75	5,298.88	0.00	0.00	0.00	
11,500.00	90.00	179.73	6,850.00	-5,386.60	2,618.21	5,398.88	0.00	0.00	0.00	
11,600.00	90.00	179.73	6,850.00	-5,486.60	2,618.68	5,498.88	0.00	0.00	0.00	
11,700.00	90.00	179.73	6,850.00	-5,586.60	2,619.15	5,598.88	0.00	0.00	0.00	
11,800.00	90.00	179.73	6,850.00	-5,686.60	2,619.61	5,698.88	0.00	0.00	0.00	
11,900.00	90.00	179.73	6,850.00	-5,786.60	2,620.08	5,798.88	0.00	0.00	0.00	
12,000.00	90.00	179.73	6,850.00	-5,886.60	2,620.55	5,898.88	0.00	0.00	0.00	
12,100.00	90.00	179.73	6,850.00	-5,986.60	2,621.02	5,998.88	0.00	0.00	0.00	
12,200.00	90.00	179.73	6,850.00	-6,086.59	2,621.48	6,098.88	0.00	0.00	0.00	
12,300.00	90.00	179.73	6,850.00	-6,186.59	2,621.95	6,198.88	0.00	0.00	0.00	
12,400.00	90.00	179.73	6,850.00	-6,286.59	2,622.42	6,298.88	0.00	0.00	0.00	
12,500.00	90.00	179.73	6,850.00	-6,386.59	2,622.88	6,398.88	0.00	0.00	0.00	
12,600.00	90.00	179.73	6,850.00	-6,486.59	2,623.35	6,498.88	0.00	0.00	0.00	
12,700.00	90.00	179.73	6,850.00	-6,586.59	2,623.82	6,598.88	0.00	0.00	0.00	
12,800.00	90.00	179.73	6,850.00	-6,686.59	2,624.28	6,698.88	0.00	0.00	0.00	
12,900.00	90.00	179.73	6,850.00	-6,786.59	2,624.75	6,798.88	0.00	0.00	0.00	
13,000.00	90.00	179.73	6,850.00	-6,886.59	2,625.22	6,898.88	0.00	0.00	0.00	
13,100.00	90.00	179.73	6,850.00	-6,986.59	2,625.68	6,998.88	0.00	0.00	0.00	
13,200.00	90.00	179.73	6,850.00	-7,086.58	2,626.15	7,098.88	0.00	0.00	0.00	
13,300.00	90.00	179.73	6,850.00	-7,186.58	2,626.62	7,198.88	0.00	0.00	0.00	
13,400.00	90.00	179.73	6,850.00	-7,286.58	2,627.08	7,298.88	0.00	0.00	0.00	
13,500.00	90.00	179.73	6,850.00	-7,386.58	2,627.55	7,398.88	0.00	0.00	0.00	
13,600.00	90.00	179.73	6,850.00	-7,486.58	2,628.02	7,498.88	0.00	0.00	0.00	
13,700.00	90.00	179.73	6,850.00	-7,586.58	2,628.49	7,598.88	0.00	0.00	0.00	
13,800.00	90.00	179.73	6,850.00	-7,686.58	2,628.95	7,698.88	0.00	0.00	0.00	
13,900.00	90.00	179.73	6,850.00	-7,786.58	2,629.42	7,798.88	0.00	0.00	0.00	
14,000.00	90.00	179.73	6,850.00	-7,886.58	2,629.89	7,898.88	0.00	0.00	0.00	
14,100.00	90.00	179.73	6,850.00	-7,986.57	2,630.35	7,998.88	0.00	0.00	0.00	
14,200.00	90.00	179.73	6,850.00	-8,086.57	2,630.82	8,098.88	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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)	
14,300.00	90.00	179.73	6,850.00	-8,186.57	2,631.29	8,198.88	0.00	0.00	0.00	
14,400.00	90.00	179.73	6,850.00	-8,286.57	2,631.75	8,298.88	0.00	0.00	0.00	
14,500.00	90.00	179.73	6,850.00	-8,386.57	2,632.22	8,398.88	0.00	0.00	0.00	
14,600.00	90.00	179.73	6,850.00	-8,486.57	2,632.69	8,498.88	0.00	0.00	0.00	
14,700.00	90.00	179.73	6,850.00	-8,586.57	2,633.15	8,598.88	0.00	0.00	0.00	
14,800.00	90.00	179.73	6,850.00	-8,686.57	2,633.62	8,698.88	0.00	0.00	0.00	
14,900.00	90.00	179.73	6,850.00	-8,786.57	2,634.09	8,798.88	0.00	0.00	0.00	
15,000.00	90.00	179.73	6,850.00	-8,886.56	2,634.55	8,898.88	0.00	0.00	0.00	
15,100.00	90.00	179.73	6,850.00	-8,986.56	2,635.02	8,998.88	0.00	0.00	0.00	
15,200.00	90.00	179.73	6,850.00	-9,086.56	2,635.49	9,098.88	0.00	0.00	0.00	
15,300.00	90.00	179.73	6,850.00	-9,186.56	2,635.96	9,198.88	0.00	0.00	0.00	
15,400.00	90.00	179.73	6,850.00	-9,286.56	2,636.42	9,298.88	0.00	0.00	0.00	
15,500.00	90.00	179.73	6,850.00	-9,386.56	2,636.89	9,398.88	0.00	0.00	0.00	
15,600.00	90.00	179.73	6,850.00	-9,486.56	2,637.36	9,498.88	0.00	0.00	0.00	
15,700.00	90.00	179.73	6,850.00	-9,586.56	2,637.82	9,598.88	0.00	0.00	0.00	
15,800.00	90.00	179.73	6,850.00	-9,686.56	2,638.29	9,698.88	0.00	0.00	0.00	
15,900.00	90.00	179.73	6,850.00	-9,786.55	2,638.76	9,798.88	0.00	0.00	0.00	
16,000.00	90.00	179.73	6,850.00	-9,886.55	2,639.22	9,898.88	0.00	0.00	0.00	
16,100.00	90.00	179.73	6,850.00	-9,986.55	2,639.69	9,998.88	0.00	0.00	0.00	
16,200.00	90.00	179.73	6,850.00	-10,086.55	2,640.16	10,098.88	0.00	0.00	0.00	
16,300.00	90.00	179.73	6,850.00	-10,186.55	2,640.62	10,198.88	0.00	0.00	0.00	
16,400.00	90.00	179.73	6,850.00	-10,286.55	2,641.09	10,298.88	0.00	0.00	0.00	
16,500.00	90.00	179.73	6,850.00	-10,386.55	2,641.56	10,398.88	0.00	0.00	0.00	
16,600.00	90.00	179.73	6,850.00	-10,486.55	2,642.02	10,498.88	0.00	0.00	0.00	
16,700.00	90.00	179.73	6,850.00	-10,586.55	2,642.49	10,598.88	0.00	0.00	0.00	
16,800.00	90.00	179.73	6,850.00	-10,686.54	2,642.96	10,698.88	0.00	0.00	0.00	
16,900.00	90.00	179.73	6,850.00	-10,786.54	2,643.43	10,798.88	0.00	0.00	0.00	
17,000.00	90.00	179.73	6,850.00	-10,886.54	2,643.89	10,898.88	0.00	0.00	0.00	
17,100.00	90.00	179.73	6,850.00	-10,986.54	2,644.36	10,998.88	0.00	0.00	0.00	
17,200.00	90.00	179.73	6,850.00	-11,086.54	2,644.83	11,098.88	0.00	0.00	0.00	
17,300.00	90.00	179.73	6,850.00	-11,186.54	2,645.29	11,198.88	0.00	0.00	0.00	
17,400.00	90.00	179.73	6,850.00	-11,286.54	2,645.76	11,298.88	0.00	0.00	0.00	
17,474.78	90.00	179.73	6,850.00	-11,361.32	2,646.11	11,373.66	0.00	0.00	0.00	
BPZ @ 17474.78ft										
17,500.00	90.00	179.73	6,850.00	-11,386.54	2,646.23	11,398.88	0.00	0.00	0.00	
17,564.76	90.00	179.73	6,850.00	-11,451.30	2,646.53	11,463.64	0.00	0.00	0.00	
TD Well @ 17564.76ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
2,000.54	1,908.00	9 5/8"		9-5/8	13-1/2

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-12H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-12H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
201.00	201.00	0.00	0.00	Begin Nudge @ 201.00ft
1,473.00	1,431.62	-115.11	252.81	Hold Tangent @ 1473.00ft
6,942.40	6,370.68	-1,088.67	2,391.08	KOP @ 6942.40ft :: DLS = 9°/100'
7,827.29	6,850.00	-1,713.94	2,601.07	TPZ @ 7827.29ft
17,474.78	6,850.00	-11,361.32	2,646.11	BPZ @ 17474.78ft
17,564.76	6,850.00	-11,451.30	2,646.53	TD Well @ 17564.76ft