

# **VERDAD RESOURCES**

**WATTENBERG FIELD  
2N-64W-24 ARNOLD PAD  
HELEN 2536-09H**

**Plan B**

**Plan: Design #2**

## **Standard Planning Report**

**14 December, 2021**

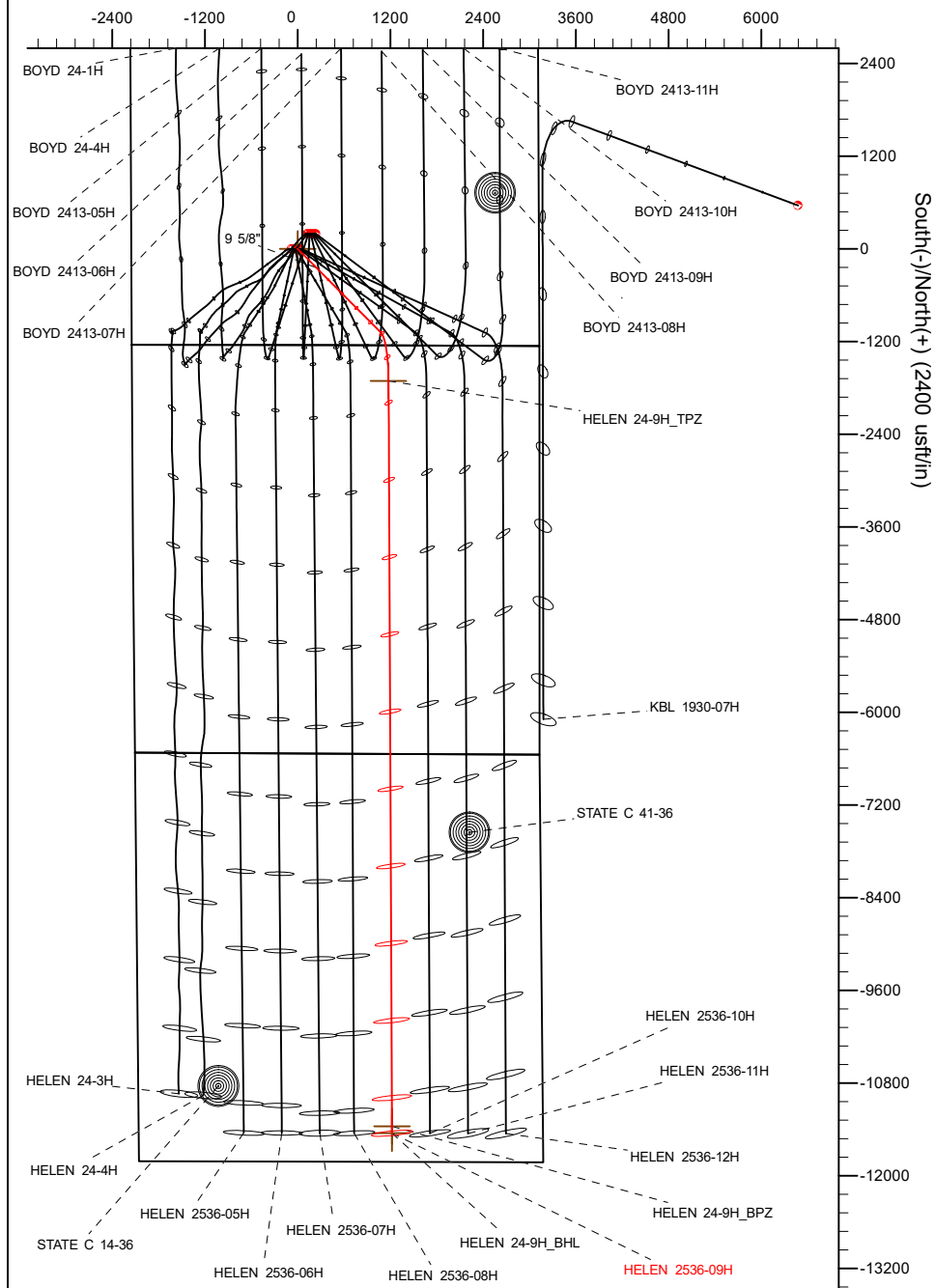
Project: WATTENBERG FIELD  
Site: 2N-64W-24 ARNOLD PAD  
Well: HELEN 2536-09H  
Wellbore: Plan B  
Design: Design #2

# VERDAD RESOURCES

## CASING DETAILS

TVD	MD	Name	Size
1908.00	1948.38	9 5/8"	9-5/8

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



South(-)/North(+) (2400 usft/in)

SHL  
1243' FSL  
2153' FWL

TPZ  
460' FNL  
1954' FEL

BPZ  
460' FSL  
1954' FEL

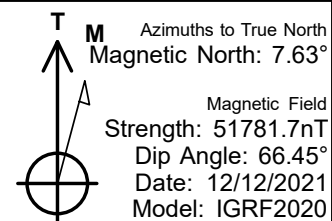
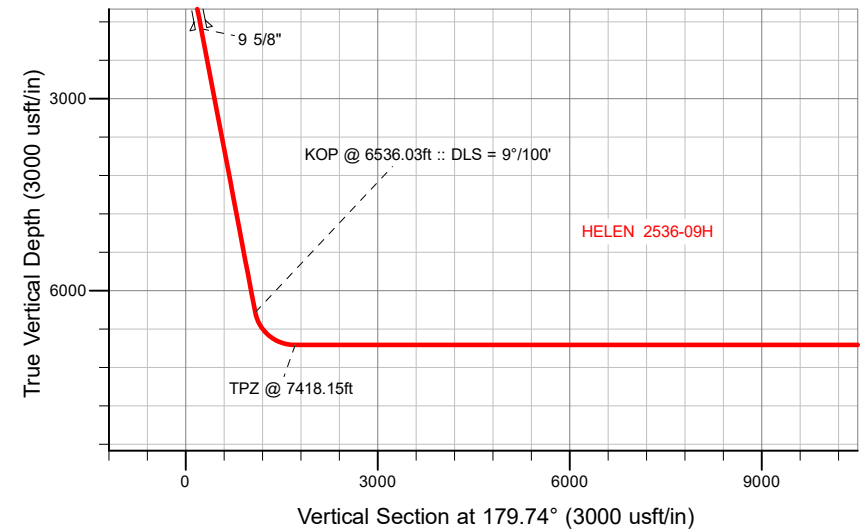
BHL  
370' FSL  
1954' FEL

## 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	262.75	0.00	0.00	262.75	0.00	0.00	0.00	0.00	0.00	
3	1012.25	14.99	135.12	1003.73	-69.08	68.79	2.00	135.12	69.39	
4	6536.03	14.99	135.12	6339.54	-1081.45	1076.93	0.00	0.00	1086.33	
5	7418.15	90.00	179.74	6850.00	-1706.74	1175.82	9.00	45.61	1712.06	
6	17159.27	90.00	179.74	6850.00	-11447.76	1220.72	0.00	0.00	11453.18	HELEN 24-9H_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HELEN 24-9H_SHL	0.00	0.00	0.00	40.120058	-104.501433
HELEN 24-9H_TPZ	6850.00	-1706.74	1175.82	40.115373	-104.497232
HELEN 24-9H_BPZ	6850.00	-11357.79	1220.16	40.088879	-104.497072
HELEN 24-9H_BHL	6850.00	-11447.76	1220.72	40.088632	-104.497070



WELL DETAILS: HELEN 2536-09H

GL = 4924'

RKB = 20' @ 4944.00usft (Drilling Rig)

Plan: Design #2 (HELEN 2536-09H/Plan B)

Date: 12/14/2021

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HELEN 2536-09H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Site:</b>	2N-64W-24 ARNOLD PAD	<b>North Reference:</b>	True
<b>Well:</b>	HELEN 2536-09H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Design #2		

<b>Project</b>	WATTENBERG FIELD		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 2536-09H				
Well Position	+N/-S	0.00 usft	Northing:	1,288,153.45 usft	Latitude:	40.120058
	+E/-W	0.00 usft	Easting:	3,279,253.74 usft	Longitude:	-104.501433
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,924.00 usft
Grid Convergence:		0.65 °				

<b>Wellbore</b>	Plan B				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF202013	12/12/2021	7.63	66.45	51,781.65567186

<b>Design</b>	Design #2				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
		0.00	0.00	0.00	179.74

<b>Plan Survey Tool Program</b>		<b>Date</b>	12/14/2021		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	1,908.00	Design #2 (Plan B)	ISCWSA MWD	
				Fixed:v2:standard declination	
2	1,908.00	17,159.27	Design #2 (Plan B)	ISCWSA MWD	
				Fixed:v2:standard declination	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-09H
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 2536-09H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Design #2		

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	
262.75	0.00	0.00	262.75	0.00	0.00	0.00	0.00	0.00	0.00	
1,012.25	14.99	135.12	1,003.73	-69.08	68.79	2.00	2.00	0.00	135.12	
6,536.03	14.99	135.12	6,339.54	-1,081.45	1,076.93	0.00	0.00	0.00	0.00	
7,418.15	90.00	179.74	6,850.00	-1,706.74	1,175.82	9.00	8.50	5.06	45.61	
17,159.27	90.00	179.74	6,850.00	-11,447.76	1,220.72	0.00	0.00	0.00	0.00	HELEN 24-9H_BHL

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HELEN 2536-09H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Site:</b>	2N-64W-24 ARNOLD PAD	<b>North Reference:</b>	True
<b>Well:</b>	HELEN 2536-09H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Design #2		

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
262.75	0.00	0.00	262.75	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 262.75ft</b>									
300.00	0.74	135.12	300.00	-0.17	0.17	0.17	2.00	2.00	0.00
400.00	2.74	135.12	399.95	-2.33	2.32	2.34	2.00	2.00	0.00
500.00	4.74	135.12	499.73	-6.96	6.93	6.99	2.00	2.00	0.00
600.00	6.74	135.12	599.22	-14.05	13.99	14.11	2.00	2.00	0.00
700.00	8.74	135.12	698.30	-23.60	23.50	23.71	2.00	2.00	0.00
800.00	10.74	135.12	796.86	-35.59	35.44	35.75	2.00	2.00	0.00
900.00	12.74	135.12	894.76	-50.01	49.81	50.24	2.00	2.00	0.00
1,000.00	14.74	135.12	991.89	-66.85	66.57	67.15	2.00	2.00	0.00
1,012.25	14.99	135.12	1,003.73	-69.08	68.79	69.39	2.00	2.00	0.00
<b>Hold Tangent @ 1012.25ft</b>									
1,100.00	14.99	135.12	1,088.49	-85.16	84.80	85.54	0.00	0.00	0.00
1,200.00	14.99	135.12	1,185.09	-103.49	103.05	103.95	0.00	0.00	0.00
1,300.00	14.99	135.12	1,281.69	-121.81	121.31	122.36	0.00	0.00	0.00
1,400.00	14.99	135.12	1,378.28	-140.14	139.56	140.77	0.00	0.00	0.00
1,500.00	14.99	135.12	1,474.88	-158.47	157.81	159.18	0.00	0.00	0.00
1,600.00	14.99	135.12	1,571.48	-176.80	176.06	177.59	0.00	0.00	0.00
1,700.00	14.99	135.12	1,668.08	-195.13	194.31	196.01	0.00	0.00	0.00
1,800.00	14.99	135.12	1,764.67	-213.45	212.56	214.42	0.00	0.00	0.00
1,900.00	14.99	135.12	1,861.27	-231.78	230.81	232.83	0.00	0.00	0.00
1,948.38	14.99	135.12	1,908.00	-240.65	239.64	241.73	0.00	0.00	0.00
<b>9 5/8"</b>									
2,000.00	14.99	135.12	1,957.87	-250.11	249.06	251.24	0.00	0.00	0.00
2,100.00	14.99	135.12	2,054.46	-268.44	267.31	269.65	0.00	0.00	0.00
2,200.00	14.99	135.12	2,151.06	-286.76	285.56	288.06	0.00	0.00	0.00
2,300.00	14.99	135.12	2,247.66	-305.09	303.82	306.47	0.00	0.00	0.00
2,400.00	14.99	135.12	2,344.26	-323.42	322.07	324.88	0.00	0.00	0.00
2,500.00	14.99	135.12	2,440.85	-341.75	340.32	343.29	0.00	0.00	0.00
2,600.00	14.99	135.12	2,537.45	-360.07	358.57	361.70	0.00	0.00	0.00
2,700.00	14.99	135.12	2,634.05	-378.40	376.82	380.11	0.00	0.00	0.00
2,800.00	14.99	135.12	2,730.64	-396.73	395.07	398.52	0.00	0.00	0.00
2,900.00	14.99	135.12	2,827.24	-415.06	413.32	416.93	0.00	0.00	0.00
3,000.00	14.99	135.12	2,923.84	-433.38	431.57	435.34	0.00	0.00	0.00
3,100.00	14.99	135.12	3,020.43	-451.71	449.82	453.75	0.00	0.00	0.00
3,200.00	14.99	135.12	3,117.03	-470.04	468.07	472.16	0.00	0.00	0.00
3,300.00	14.99	135.12	3,213.63	-488.37	486.33	490.57	0.00	0.00	0.00
3,400.00	14.99	135.12	3,310.23	-506.69	504.58	508.98	0.00	0.00	0.00
3,500.00	14.99	135.12	3,406.82	-525.02	522.83	527.39	0.00	0.00	0.00
3,600.00	14.99	135.12	3,503.42	-543.35	541.08	545.80	0.00	0.00	0.00
3,700.00	14.99	135.12	3,600.02	-561.68	559.33	564.21	0.00	0.00	0.00
3,800.00	14.99	135.12	3,696.61	-580.01	577.58	582.62	0.00	0.00	0.00
3,900.00	14.99	135.12	3,793.21	-598.33	595.83	601.03	0.00	0.00	0.00
4,000.00	14.99	135.12	3,889.81	-616.66	614.08	619.44	0.00	0.00	0.00
4,100.00	14.99	135.12	3,986.41	-634.99	632.33	637.85	0.00	0.00	0.00
4,200.00	14.99	135.12	4,083.00	-653.32	650.58	656.26	0.00	0.00	0.00
4,300.00	14.99	135.12	4,179.60	-671.64	668.84	674.67	0.00	0.00	0.00
4,400.00	14.99	135.12	4,276.20	-689.97	687.09	693.08	0.00	0.00	0.00
4,500.00	14.99	135.12	4,372.79	-708.30	705.34	711.49	0.00	0.00	0.00
4,600.00	14.99	135.12	4,469.39	-726.63	723.59	729.90	0.00	0.00	0.00

# Planning Report

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<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Site:</b>	2N-64W-24 ARNOLD PAD	<b>North Reference:</b>	True
<b>Well:</b>	HELEN 2536-09H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Design #2		

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	14.99	135.12	4,565.99	-744.95	741.84	748.31	0.00	0.00	0.00
4,800.00	14.99	135.12	4,662.59	-763.28	760.09	766.72	0.00	0.00	0.00
4,900.00	14.99	135.12	4,759.18	-781.61	778.34	785.13	0.00	0.00	0.00
5,000.00	14.99	135.12	4,855.78	-799.94	796.59	803.54	0.00	0.00	0.00
5,100.00	14.99	135.12	4,952.38	-818.26	814.84	821.95	0.00	0.00	0.00
5,200.00	14.99	135.12	5,048.97	-836.59	833.09	840.36	0.00	0.00	0.00
5,300.00	14.99	135.12	5,145.57	-854.92	851.35	858.77	0.00	0.00	0.00
5,400.00	14.99	135.12	5,242.17	-873.25	869.60	877.18	0.00	0.00	0.00
5,500.00	14.99	135.12	5,338.77	-891.57	887.85	895.59	0.00	0.00	0.00
5,600.00	14.99	135.12	5,435.36	-909.90	906.10	914.00	0.00	0.00	0.00
5,700.00	14.99	135.12	5,531.96	-928.23	924.35	932.41	0.00	0.00	0.00
5,800.00	14.99	135.12	5,628.56	-946.56	942.60	950.83	0.00	0.00	0.00
5,900.00	14.99	135.12	5,725.15	-964.89	960.85	969.24	0.00	0.00	0.00
6,000.00	14.99	135.12	5,821.75	-983.21	979.10	987.65	0.00	0.00	0.00
6,100.00	14.99	135.12	5,918.35	-1,001.54	997.35	1,006.06	0.00	0.00	0.00
6,200.00	14.99	135.12	6,014.95	-1,019.87	1,015.60	1,024.47	0.00	0.00	0.00
6,300.00	14.99	135.12	6,111.54	-1,038.20	1,033.86	1,042.88	0.00	0.00	0.00
6,400.00	14.99	135.12	6,208.14	-1,056.52	1,052.11	1,061.29	0.00	0.00	0.00
6,500.00	14.99	135.12	6,304.74	-1,074.85	1,070.36	1,079.70	0.00	0.00	0.00
6,536.03	14.99	135.12	6,339.54	-1,081.45	1,076.93	1,086.33	0.00	0.00	0.00
KOP @ 6536.03ft :: DLS = 9°/100'									
6,550.00	15.89	138.40	6,353.01	-1,084.17	1,079.48	1,089.05	9.00	6.47	23.49
6,600.00	19.45	147.55	6,400.65	-1,096.32	1,088.49	1,101.24	9.00	7.11	18.30
6,650.00	23.32	153.87	6,447.20	-1,112.23	1,097.32	1,117.20	9.00	7.74	12.63
6,700.00	27.38	158.44	6,492.39	-1,131.82	1,105.91	1,136.83	9.00	8.11	9.14
6,750.00	31.54	161.90	6,535.91	-1,154.95	1,114.20	1,160.00	9.00	8.34	6.91
6,800.00	35.78	164.61	6,577.52	-1,181.49	1,122.15	1,186.57	9.00	8.48	5.43
6,850.00	40.08	166.82	6,616.95	-1,211.27	1,129.70	1,216.39	9.00	8.58	4.42
6,900.00	44.40	168.66	6,653.96	-1,244.11	1,136.82	1,249.26	9.00	8.65	3.69
6,950.00	48.75	170.24	6,688.32	-1,279.81	1,143.44	1,284.98	9.00	8.70	3.16
7,000.00	53.12	171.63	6,719.82	-1,318.14	1,149.54	1,323.34	9.00	8.74	2.76
7,050.00	57.51	172.86	6,748.27	-1,358.87	1,155.08	1,364.09	9.00	8.77	2.46
7,100.00	61.90	173.97	6,773.49	-1,401.74	1,160.02	1,406.99	9.00	8.79	2.23
7,150.00	66.31	175.00	6,795.32	-1,446.50	1,164.33	1,451.77	9.00	8.81	2.06
7,200.00	70.72	175.96	6,813.63	-1,492.87	1,167.99	1,498.16	9.00	8.82	1.92
7,250.00	75.13	176.87	6,828.30	-1,540.56	1,170.97	1,545.86	9.00	8.83	1.82
7,300.00	79.55	177.75	6,839.26	-1,589.28	1,173.25	1,594.59	9.00	8.84	1.75
7,350.00	83.97	178.60	6,846.42	-1,638.73	1,174.83	1,644.04	9.00	8.84	1.70
7,400.00	88.40	179.43	6,849.75	-1,688.60	1,175.68	1,693.92	9.00	8.84	1.67
7,418.15	90.00	179.74	6,850.00	-1,706.74	1,175.82	1,712.06	9.00	8.84	1.66
TPZ @ 7418.15ft									
7,500.00	90.00	179.74	6,850.00	-1,788.59	1,176.19	1,793.91	0.00	0.00	0.00
7,600.00	90.00	179.74	6,850.00	-1,888.59	1,176.65	1,893.91	0.00	0.00	0.00
7,700.00	90.00	179.74	6,850.00	-1,988.59	1,177.12	1,993.91	0.00	0.00	0.00
7,800.00	90.00	179.74	6,850.00	-2,088.59	1,177.58	2,093.91	0.00	0.00	0.00
7,900.00	90.00	179.74	6,850.00	-2,188.59	1,178.04	2,193.91	0.00	0.00	0.00
8,000.00	90.00	179.74	6,850.00	-2,288.59	1,178.50	2,293.91	0.00	0.00	0.00
8,100.00	90.00	179.74	6,850.00	-2,388.59	1,178.96	2,393.91	0.00	0.00	0.00
8,200.00	90.00	179.74	6,850.00	-2,488.59	1,179.42	2,493.91	0.00	0.00	0.00
8,300.00	90.00	179.74	6,850.00	-2,588.59	1,179.88	2,593.91	0.00	0.00	0.00
8,400.00	90.00	179.74	6,850.00	-2,688.59	1,180.34	2,693.91	0.00	0.00	0.00
8,500.00	90.00	179.74	6,850.00	-2,788.58	1,180.80	2,793.91	0.00	0.00	0.00
8,600.00	90.00	179.74	6,850.00	-2,888.58	1,181.26	2,893.91	0.00	0.00	0.00
8,700.00	90.00	179.74	6,850.00	-2,988.58	1,181.73	2,993.91	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HELEN 2536-09H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Site:</b>	2N-64W-24 ARNOLD PAD	<b>North Reference:</b>	True
<b>Well:</b>	HELEN 2536-09H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Design #2		

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)	
8,800.00	90.00	179.74	6,850.00	-3,088.58	1,182.19	3,093.91	0.00	0.00	0.00	
8,900.00	90.00	179.74	6,850.00	-3,188.58	1,182.65	3,193.91	0.00	0.00	0.00	
9,000.00	90.00	179.74	6,850.00	-3,288.58	1,183.11	3,293.91	0.00	0.00	0.00	
9,100.00	90.00	179.74	6,850.00	-3,388.58	1,183.57	3,393.91	0.00	0.00	0.00	
9,200.00	90.00	179.74	6,850.00	-3,488.58	1,184.03	3,493.91	0.00	0.00	0.00	
9,300.00	90.00	179.74	6,850.00	-3,588.58	1,184.49	3,593.91	0.00	0.00	0.00	
9,400.00	90.00	179.74	6,850.00	-3,688.57	1,184.95	3,693.91	0.00	0.00	0.00	
9,500.00	90.00	179.74	6,850.00	-3,788.57	1,185.41	3,793.91	0.00	0.00	0.00	
9,600.00	90.00	179.74	6,850.00	-3,888.57	1,185.87	3,893.91	0.00	0.00	0.00	
9,700.00	90.00	179.74	6,850.00	-3,988.57	1,186.33	3,993.91	0.00	0.00	0.00	
9,800.00	90.00	179.74	6,850.00	-4,088.57	1,186.80	4,093.91	0.00	0.00	0.00	
9,900.00	90.00	179.74	6,850.00	-4,188.57	1,187.26	4,193.91	0.00	0.00	0.00	
10,000.00	90.00	179.74	6,850.00	-4,288.57	1,187.72	4,293.91	0.00	0.00	0.00	
10,100.00	90.00	179.74	6,850.00	-4,388.57	1,188.18	4,393.91	0.00	0.00	0.00	
10,200.00	90.00	179.74	6,850.00	-4,488.57	1,188.64	4,493.91	0.00	0.00	0.00	
10,300.00	90.00	179.74	6,850.00	-4,588.57	1,189.10	4,593.91	0.00	0.00	0.00	
10,400.00	90.00	179.74	6,850.00	-4,688.56	1,189.56	4,693.91	0.00	0.00	0.00	
10,500.00	90.00	179.74	6,850.00	-4,788.56	1,190.02	4,793.91	0.00	0.00	0.00	
10,600.00	90.00	179.74	6,850.00	-4,888.56	1,190.48	4,893.91	0.00	0.00	0.00	
10,700.00	90.00	179.74	6,850.00	-4,988.56	1,190.94	4,993.91	0.00	0.00	0.00	
10,800.00	90.00	179.74	6,850.00	-5,088.56	1,191.41	5,093.91	0.00	0.00	0.00	
10,900.00	90.00	179.74	6,850.00	-5,188.56	1,191.87	5,193.91	0.00	0.00	0.00	
11,000.00	90.00	179.74	6,850.00	-5,288.56	1,192.33	5,293.91	0.00	0.00	0.00	
11,100.00	90.00	179.74	6,850.00	-5,388.56	1,192.79	5,393.91	0.00	0.00	0.00	
11,200.00	90.00	179.74	6,850.00	-5,488.56	1,193.25	5,493.91	0.00	0.00	0.00	
11,300.00	90.00	179.74	6,850.00	-5,588.55	1,193.71	5,593.91	0.00	0.00	0.00	
11,400.00	90.00	179.74	6,850.00	-5,688.55	1,194.17	5,693.91	0.00	0.00	0.00	
11,500.00	90.00	179.74	6,850.00	-5,788.55	1,194.63	5,793.91	0.00	0.00	0.00	
11,600.00	90.00	179.74	6,850.00	-5,888.55	1,195.09	5,893.91	0.00	0.00	0.00	
11,700.00	90.00	179.74	6,850.00	-5,988.55	1,195.55	5,993.91	0.00	0.00	0.00	
11,800.00	90.00	179.74	6,850.00	-6,088.55	1,196.02	6,093.91	0.00	0.00	0.00	
11,900.00	90.00	179.74	6,850.00	-6,188.55	1,196.48	6,193.91	0.00	0.00	0.00	
12,000.00	90.00	179.74	6,850.00	-6,288.55	1,196.94	6,293.91	0.00	0.00	0.00	
12,100.00	90.00	179.74	6,850.00	-6,388.55	1,197.40	6,393.91	0.00	0.00	0.00	
12,200.00	90.00	179.74	6,850.00	-6,488.55	1,197.86	6,493.91	0.00	0.00	0.00	
12,300.00	90.00	179.74	6,850.00	-6,588.54	1,198.32	6,593.91	0.00	0.00	0.00	
12,400.00	90.00	179.74	6,850.00	-6,688.54	1,198.78	6,693.91	0.00	0.00	0.00	
12,500.00	90.00	179.74	6,850.00	-6,788.54	1,199.24	6,793.91	0.00	0.00	0.00	
12,600.00	90.00	179.74	6,850.00	-6,888.54	1,199.70	6,893.91	0.00	0.00	0.00	
12,700.00	90.00	179.74	6,850.00	-6,988.54	1,200.16	6,993.91	0.00	0.00	0.00	
12,800.00	90.00	179.74	6,850.00	-7,088.54	1,200.63	7,093.91	0.00	0.00	0.00	
12,900.00	90.00	179.74	6,850.00	-7,188.54	1,201.09	7,193.91	0.00	0.00	0.00	
13,000.00	90.00	179.74	6,850.00	-7,288.54	1,201.55	7,293.91	0.00	0.00	0.00	
13,100.00	90.00	179.74	6,850.00	-7,388.54	1,202.01	7,393.91	0.00	0.00	0.00	
13,200.00	90.00	179.74	6,850.00	-7,488.53	1,202.47	7,493.91	0.00	0.00	0.00	
13,300.00	90.00	179.74	6,850.00	-7,588.53	1,202.93	7,593.91	0.00	0.00	0.00	
13,400.00	90.00	179.74	6,850.00	-7,688.53	1,203.39	7,693.91	0.00	0.00	0.00	
13,500.00	90.00	179.74	6,850.00	-7,788.53	1,203.85	7,793.91	0.00	0.00	0.00	
13,600.00	90.00	179.74	6,850.00	-7,888.53	1,204.31	7,893.91	0.00	0.00	0.00	
13,700.00	90.00	179.74	6,850.00	-7,988.53	1,204.77	7,993.91	0.00	0.00	0.00	
13,800.00	90.00	179.74	6,850.00	-8,088.53	1,205.24	8,093.91	0.00	0.00	0.00	
13,900.00	90.00	179.74	6,850.00	-8,188.53	1,205.70	8,193.91	0.00	0.00	0.00	
14,000.00	90.00	179.74	6,850.00	-8,288.53	1,206.16	8,293.91	0.00	0.00	0.00	
14,100.00	90.00	179.74	6,850.00	-8,388.52	1,206.62	8,393.91	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well HELEN 2536-09H
<b>Company:</b>	VERDAD RESOURCES	<b>TVD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Project:</b>	WATTENBERG FIELD	<b>MD Reference:</b>	RKB = 20' @ 4944.00usft (Drilling Rig)
<b>Site:</b>	2N-64W-24 ARNOLD PAD	<b>North Reference:</b>	True
<b>Well:</b>	HELEN 2536-09H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan B		
<b>Design:</b>	Design #2		

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)	
14,200.00	90.00	179.74	6,850.00	-8,488.52	1,207.08	8,493.91	0.00	0.00	0.00	
14,300.00	90.00	179.74	6,850.00	-8,588.52	1,207.54	8,593.91	0.00	0.00	0.00	
14,400.00	90.00	179.74	6,850.00	-8,688.52	1,208.00	8,693.91	0.00	0.00	0.00	
14,500.00	90.00	179.74	6,850.00	-8,788.52	1,208.46	8,793.91	0.00	0.00	0.00	
14,600.00	90.00	179.74	6,850.00	-8,888.52	1,208.92	8,893.91	0.00	0.00	0.00	
14,700.00	90.00	179.74	6,850.00	-8,988.52	1,209.38	8,993.91	0.00	0.00	0.00	
14,800.00	90.00	179.74	6,850.00	-9,088.52	1,209.85	9,093.91	0.00	0.00	0.00	
14,900.00	90.00	179.74	6,850.00	-9,188.52	1,210.31	9,193.91	0.00	0.00	0.00	
15,000.00	90.00	179.74	6,850.00	-9,288.52	1,210.77	9,293.91	0.00	0.00	0.00	
15,100.00	90.00	179.74	6,850.00	-9,388.51	1,211.23	9,393.91	0.00	0.00	0.00	
15,200.00	90.00	179.74	6,850.00	-9,488.51	1,211.69	9,493.91	0.00	0.00	0.00	
15,300.00	90.00	179.74	6,850.00	-9,588.51	1,212.15	9,593.91	0.00	0.00	0.00	
15,400.00	90.00	179.74	6,850.00	-9,688.51	1,212.61	9,693.91	0.00	0.00	0.00	
15,500.00	90.00	179.74	6,850.00	-9,788.51	1,213.07	9,793.91	0.00	0.00	0.00	
15,600.00	90.00	179.74	6,850.00	-9,888.51	1,213.53	9,893.91	0.00	0.00	0.00	
15,700.00	90.00	179.74	6,850.00	-9,988.51	1,213.99	9,993.91	0.00	0.00	0.00	
15,800.00	90.00	179.74	6,850.00	-10,088.51	1,214.46	10,093.91	0.00	0.00	0.00	
15,900.00	90.00	179.74	6,850.00	-10,188.51	1,214.92	10,193.91	0.00	0.00	0.00	
16,000.00	90.00	179.74	6,850.00	-10,288.50	1,215.38	10,293.91	0.00	0.00	0.00	
16,100.00	90.00	179.74	6,850.00	-10,388.50	1,215.84	10,393.91	0.00	0.00	0.00	
16,200.00	90.00	179.74	6,850.00	-10,488.50	1,216.30	10,493.91	0.00	0.00	0.00	
16,300.00	90.00	179.74	6,850.00	-10,588.50	1,216.76	10,593.91	0.00	0.00	0.00	
16,400.00	90.00	179.74	6,850.00	-10,688.50	1,217.22	10,693.91	0.00	0.00	0.00	
16,500.00	90.00	179.74	6,850.00	-10,788.50	1,217.68	10,793.91	0.00	0.00	0.00	
16,600.00	90.00	179.74	6,850.00	-10,888.50	1,218.14	10,893.91	0.00	0.00	0.00	
16,700.00	90.00	179.74	6,850.00	-10,988.50	1,218.60	10,993.91	0.00	0.00	0.00	
16,800.00	90.00	179.74	6,850.00	-11,088.50	1,219.07	11,093.91	0.00	0.00	0.00	
16,900.00	90.00	179.74	6,850.00	-11,188.50	1,219.53	11,193.91	0.00	0.00	0.00	
17,000.00	90.00	179.74	6,850.00	-11,288.49	1,219.99	11,293.91	0.00	0.00	0.00	
17,069.30	90.00	179.74	6,850.00	-11,357.79	1,220.31	11,363.21	0.00	0.00	0.00	
BPZ @ 17069.30ft										
17,100.00	90.00	179.74	6,850.00	-11,388.49	1,220.45	11,393.91	0.00	0.00	0.00	
17,159.27	90.00	179.74	6,850.00	-11,447.76	1,220.72	11,453.19	0.00	0.00	0.00	
TD Well @ 17159.27ft										

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,948.38	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 2536-09H
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 2536-09H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan B		
Design:	Design #2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
262.75	262.75	0.00	0.00	Begin Nudge @ 262.75ft
1,012.25	1,003.73	-69.08	68.79	Hold Tangent @ 1012.25ft
6,536.03	6,339.54	-1,081.45	1,076.93	KOP @ 6536.03ft :: DLS = 9°/100'
7,418.15	6,850.00	-1,706.74	1,175.82	TPZ @ 7418.15ft
17,069.30	6,850.00	-11,357.79	1,220.31	BPZ @ 17069.30ft
17,159.27	6,850.00	-11,447.76	1,220.72	TD Well @ 17159.27ft