

VERDAD RESOURCES

**WATTENBERG FIELD
2N-64W-24 ARNOLD PAD
HELEN 2536-11H**

Plan A

Plan: Design #1

Standard Planning Report

14 December, 2021

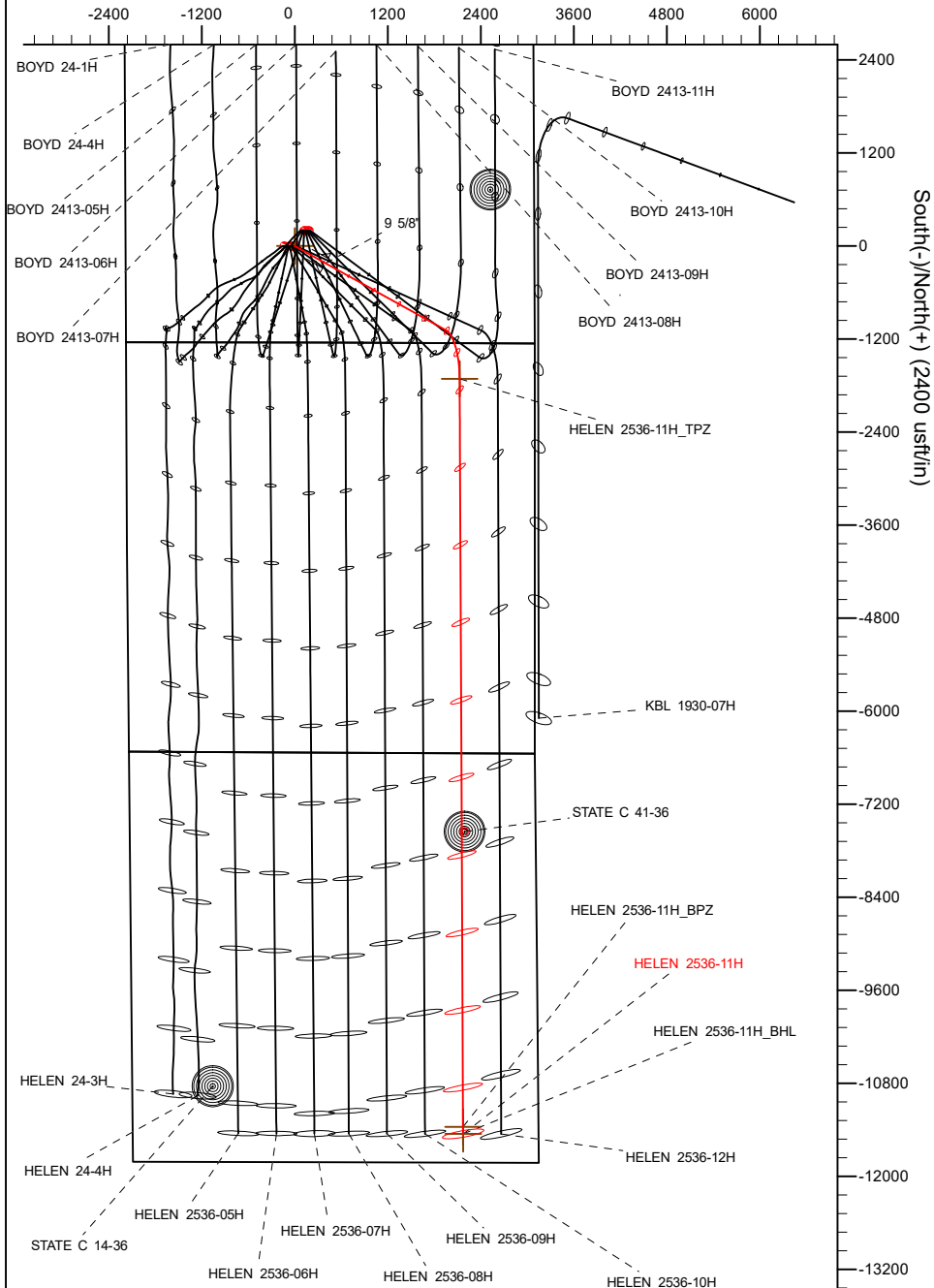
Project: WATTENBERG FIELD
Site: 2N-64W-24 ARNOLD PAD
Well: HELEN 2536-11H
Wellbore: Plan A
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1908.00	1982.13	9 5/8"	9-5/8

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



SHL
1243' FSL
2185' FWL

TPZ
460' FNL
971' FEL

BPZ
460' FSL
971' FEL

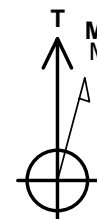
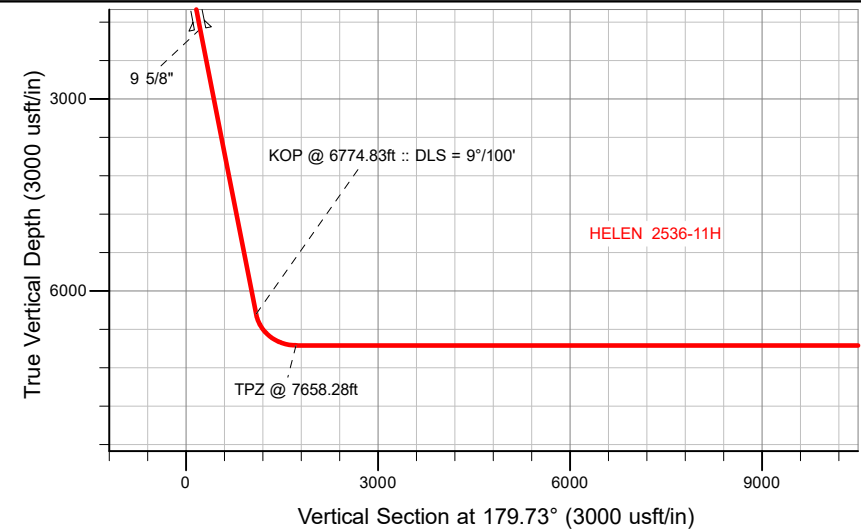
BHL
370' FSL
971' FEL

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	220.10	0.00	0.00	220.10	0.00	0.00	0.00	0.00	0.00	
3	1309.60	21.79	119.10	1283.53	-99.55	178.85	2.00	119.10	100.39	
4	6774.83	21.79	119.10	6358.27	-1086.19	1951.49	0.00	0.00	1095.37	
5	7658.28	90.00	179.73	6850.00	-1711.36	2125.75	9.00	62.41	1721.36	
6	17397.28	90.00	179.73	6850.00	-11450.25	2171.45	0.00	0.00	11460.36	HELEN 2536-11H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HELEN 2536-11H_SHL	0.00	0.00	0.00	40.120058	-104.501318
HELEN 2536-11H_TPZ	6850.00	-1711.36	2125.75	40.115360	-104.493717
HELEN 2536-11H_BPZ	6850.00	-11360.28	2171.16	40.088872	-104.493558
HELEN 2536-11H_BHL	6850.00	-11450.25	2171.45	40.088625	-104.493557



Azimuths to True North
Magnetic North: 7.63°
Magnetic Field
Strength: 51781.7nT
Dip Angle: 66.45°
Date: 12/12/2021
Model: IGRF2020

WELL DETAILS: HELEN 2536-11H

GL = 4924'

RKB = 20' @ 4944.00usft (Drilling Rig)

Plan: Design #1 (HELEN 2536-11H/Plan A)

Date: 12/14/2021

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-11H
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 2536-11H	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 2536-11H				
Well Position	+N/-S	0.00 usft	Northing:	1,288,153.82 usft	Latitude:	40.120058
	+E/-W	0.00 usft	Easting:	3,279,285.90 usft	Longitude:	-104.501318
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	12/12/2021	7.63	66.45	51,781.66746834

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	17,397.28	Design #1 (Plan A)	ISCWSA MWD	
				Fixed:v2:standard declination	

Planning Report

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Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-11H	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	
220.10	0.00	0.00	220.10	0.00	0.00	0.00	0.00	0.00	0.00	
1,309.60	21.79	119.10	1,283.53	-99.55	178.85	2.00	2.00	0.00	119.10	
6,774.83	21.79	119.10	6,358.27	-1,086.19	1,951.49	0.00	0.00	0.00	0.00	
7,658.28	90.00	179.73	6,850.00	-1,711.36	2,125.75	9.00	7.72	6.86	62.41	
17,397.29	90.00	179.73	6,850.00	-11,450.25	2,171.45	0.00	0.00	0.00	0.00	HELEN 2536-11H_BH

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 4944.00usft (Drilling Rig)
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Site:	2N-64W-24 ARNOLD PAD	North Reference:	True
Well:	HELEN 2536-11H	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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
220.10	0.00	0.00	220.10	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 220.10ft									
300.00	1.60	119.10	299.99	-0.54	0.97	0.55	2.00	2.00	0.00
400.00	3.60	119.10	399.88	-2.75	4.93	2.77	2.00	2.00	0.00
500.00	5.60	119.10	499.55	-6.64	11.94	6.70	2.00	2.00	0.00
600.00	7.60	119.10	598.89	-12.23	21.98	12.34	2.00	2.00	0.00
700.00	9.60	119.10	697.76	-19.50	35.04	19.67	2.00	2.00	0.00
800.00	11.60	119.10	796.05	-28.45	51.11	28.69	2.00	2.00	0.00
900.00	13.60	119.10	893.64	-39.05	70.17	39.38	2.00	2.00	0.00
1,000.00	15.60	119.10	990.40	-51.31	92.19	51.74	2.00	2.00	0.00
1,100.00	17.60	119.10	1,086.23	-65.20	117.15	65.75	2.00	2.00	0.00
1,200.00	19.60	119.10	1,181.00	-80.71	145.01	81.39	2.00	2.00	0.00
1,309.60	21.79	119.10	1,283.53	-99.55	178.85	100.39	2.00	2.00	0.00
Hold Tangent @ 1309.60ft									
1,400.00	21.79	119.10	1,367.47	-115.87	208.17	116.85	0.00	0.00	0.00
1,500.00	21.79	119.10	1,460.32	-133.92	240.61	135.05	0.00	0.00	0.00
1,600.00	21.79	119.10	1,553.18	-151.97	273.04	153.26	0.00	0.00	0.00
1,700.00	21.79	119.10	1,646.03	-170.03	305.48	171.46	0.00	0.00	0.00
1,800.00	21.79	119.10	1,738.89	-188.08	337.91	189.67	0.00	0.00	0.00
1,900.00	21.79	119.10	1,831.74	-206.13	370.35	207.87	0.00	0.00	0.00
1,982.13	21.79	119.10	1,908.00	-220.96	396.98	222.83	0.00	0.00	0.00
9 5/8"									
2,000.00	21.79	119.10	1,924.60	-224.18	402.78	226.08	0.00	0.00	0.00
2,100.00	21.79	119.10	2,017.45	-242.24	435.22	244.29	0.00	0.00	0.00
2,200.00	21.79	119.10	2,110.31	-260.29	467.65	262.49	0.00	0.00	0.00
2,300.00	21.79	119.10	2,203.16	-278.34	500.09	280.70	0.00	0.00	0.00
2,400.00	21.79	119.10	2,296.02	-296.40	532.52	298.90	0.00	0.00	0.00
2,500.00	21.79	119.10	2,388.87	-314.45	564.96	317.11	0.00	0.00	0.00
2,600.00	21.79	119.10	2,481.73	-332.50	597.39	335.31	0.00	0.00	0.00
2,700.00	21.79	119.10	2,574.58	-350.56	629.83	353.52	0.00	0.00	0.00
2,800.00	21.79	119.10	2,667.44	-368.61	662.26	371.73	0.00	0.00	0.00
2,900.00	21.79	119.10	2,760.29	-386.66	694.70	389.93	0.00	0.00	0.00
3,000.00	21.79	119.10	2,853.15	-404.72	727.13	408.14	0.00	0.00	0.00
3,100.00	21.79	119.10	2,946.00	-422.77	759.57	426.34	0.00	0.00	0.00
3,200.00	21.79	119.10	3,038.86	-440.82	792.00	444.55	0.00	0.00	0.00
3,300.00	21.79	119.10	3,131.71	-458.87	824.43	462.75	0.00	0.00	0.00
3,400.00	21.79	119.10	3,224.57	-476.93	856.87	480.96	0.00	0.00	0.00
3,500.00	21.79	119.10	3,317.42	-494.98	889.30	499.17	0.00	0.00	0.00
3,600.00	21.79	119.10	3,410.28	-513.03	921.74	517.37	0.00	0.00	0.00
3,700.00	21.79	119.10	3,503.13	-531.09	954.17	535.58	0.00	0.00	0.00
3,800.00	21.79	119.10	3,595.99	-549.14	986.61	553.78	0.00	0.00	0.00
3,900.00	21.79	119.10	3,688.84	-567.19	1,019.04	571.99	0.00	0.00	0.00
4,000.00	21.79	119.10	3,781.70	-585.25	1,051.48	590.19	0.00	0.00	0.00
4,100.00	21.79	119.10	3,874.55	-603.30	1,083.91	608.40	0.00	0.00	0.00
4,200.00	21.79	119.10	3,967.41	-621.35	1,116.35	626.61	0.00	0.00	0.00
4,300.00	21.79	119.10	4,060.26	-639.41	1,148.78	644.81	0.00	0.00	0.00
4,400.00	21.79	119.10	4,153.12	-657.46	1,181.22	663.02	0.00	0.00	0.00
4,500.00	21.79	119.10	4,245.97	-675.51	1,213.65	681.22	0.00	0.00	0.00
4,600.00	21.79	119.10	4,338.83	-693.56	1,246.09	699.43	0.00	0.00	0.00
4,700.00	21.79	119.10	4,431.68	-711.62	1,278.52	717.63	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 2536-11H	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	21.79	119.10	4,524.54	-729.67	1,310.96	735.84	0.00	0.00	0.00
4,900.00	21.79	119.10	4,617.39	-747.72	1,343.39	754.05	0.00	0.00	0.00
5,000.00	21.79	119.10	4,710.25	-765.78	1,375.83	772.25	0.00	0.00	0.00
5,100.00	21.79	119.10	4,803.10	-783.83	1,408.26	790.46	0.00	0.00	0.00
5,200.00	21.79	119.10	4,895.96	-801.88	1,440.70	808.66	0.00	0.00	0.00
5,300.00	21.79	119.10	4,988.81	-819.94	1,473.13	826.87	0.00	0.00	0.00
5,400.00	21.79	119.10	5,081.67	-837.99	1,505.57	845.07	0.00	0.00	0.00
5,500.00	21.79	119.10	5,174.52	-856.04	1,538.00	863.28	0.00	0.00	0.00
5,600.00	21.79	119.10	5,267.38	-874.09	1,570.44	881.49	0.00	0.00	0.00
5,700.00	21.79	119.10	5,360.24	-892.15	1,602.87	899.69	0.00	0.00	0.00
5,800.00	21.79	119.10	5,453.09	-910.20	1,635.31	917.90	0.00	0.00	0.00
5,900.00	21.79	119.10	5,545.95	-928.25	1,667.74	936.10	0.00	0.00	0.00
6,000.00	21.79	119.10	5,638.80	-946.31	1,700.18	954.31	0.00	0.00	0.00
6,100.00	21.79	119.10	5,731.66	-964.36	1,732.61	972.51	0.00	0.00	0.00
6,200.00	21.79	119.10	5,824.51	-982.41	1,765.05	990.72	0.00	0.00	0.00
6,300.00	21.79	119.10	5,917.37	-1,000.47	1,797.48	1,008.93	0.00	0.00	0.00
6,400.00	21.79	119.10	6,010.22	-1,018.52	1,829.92	1,027.13	0.00	0.00	0.00
6,500.00	21.79	119.10	6,103.08	-1,036.57	1,862.35	1,045.34	0.00	0.00	0.00
6,600.00	21.79	119.10	6,195.93	-1,054.63	1,894.79	1,063.54	0.00	0.00	0.00
6,700.00	21.79	119.10	6,288.79	-1,072.68	1,927.22	1,081.75	0.00	0.00	0.00
6,774.83	21.79	119.10	6,358.27	-1,086.19	1,951.49	1,095.37	0.00	0.00	0.00
KOP @ 6774.83ft :: DLS = 9°/100'									
6,800.00	22.92	124.26	6,381.55	-1,091.22	1,959.63	1,100.44	9.00	4.50	20.50
6,850.00	25.60	133.08	6,427.14	-1,104.09	1,975.57	1,113.38	9.00	5.35	17.65
6,900.00	28.71	140.23	6,471.64	-1,120.70	1,991.15	1,130.07	9.00	6.22	14.29
6,950.00	32.12	146.03	6,514.76	-1,140.97	2,006.27	1,150.41	9.00	6.83	11.60
7,000.00	35.75	150.79	6,556.24	-1,164.75	2,020.84	1,174.26	9.00	7.26	9.53
7,050.00	39.54	154.77	6,595.83	-1,191.92	2,034.76	1,201.49	9.00	7.58	7.96
7,100.00	43.45	158.15	6,633.28	-1,222.29	2,047.94	1,231.93	9.00	7.81	6.76
7,150.00	47.44	161.07	6,668.36	-1,255.68	2,060.32	1,265.38	9.00	7.98	5.84
7,200.00	51.49	163.64	6,700.85	-1,291.89	2,071.81	1,301.64	9.00	8.11	5.13
7,250.00	55.60	165.93	6,730.55	-1,330.69	2,082.34	1,340.49	9.00	8.21	4.58
7,300.00	59.75	168.01	6,757.28	-1,371.85	2,091.85	1,381.69	9.00	8.29	4.15
7,350.00	63.92	169.91	6,780.88	-1,415.10	2,100.27	1,424.98	9.00	8.35	3.81
7,400.00	68.12	171.69	6,801.20	-1,460.18	2,107.56	1,470.10	9.00	8.40	3.55
7,450.00	72.33	173.36	6,818.11	-1,506.83	2,113.68	1,516.77	9.00	8.43	3.35
7,500.00	76.56	174.96	6,831.52	-1,554.73	2,118.57	1,564.70	9.00	8.46	3.19
7,550.00	80.80	176.50	6,841.33	-1,603.61	2,122.22	1,613.59	9.00	8.48	3.08
7,600.00	85.05	178.00	6,847.49	-1,653.16	2,124.60	1,663.15	9.00	8.49	3.01
7,650.00	89.30	179.49	6,849.95	-1,703.08	2,125.69	1,713.07	9.00	8.50	2.97
7,658.28	90.00	179.73	6,850.00	-1,711.36	2,125.75	1,721.36	9.00	8.50	2.96
TPZ @ 7658.28ft									
7,700.00	90.00	179.73	6,850.00	-1,753.07	2,125.94	1,763.07	0.00	0.00	0.00
7,800.00	90.00	179.73	6,850.00	-1,853.07	2,126.41	1,863.07	0.00	0.00	0.00
7,900.00	90.00	179.73	6,850.00	-1,953.07	2,126.88	1,963.07	0.00	0.00	0.00
8,000.00	90.00	179.73	6,850.00	-2,053.07	2,127.35	2,063.07	0.00	0.00	0.00
8,100.00	90.00	179.73	6,850.00	-2,153.07	2,127.82	2,163.07	0.00	0.00	0.00
8,200.00	90.00	179.73	6,850.00	-2,253.07	2,128.29	2,263.07	0.00	0.00	0.00
8,300.00	90.00	179.73	6,850.00	-2,353.07	2,128.76	2,363.07	0.00	0.00	0.00
8,400.00	90.00	179.73	6,850.00	-2,453.07	2,129.23	2,463.07	0.00	0.00	0.00
8,500.00	90.00	179.73	6,850.00	-2,553.07	2,129.70	2,563.07	0.00	0.00	0.00
8,600.00	90.00	179.73	6,850.00	-2,653.06	2,130.16	2,663.07	0.00	0.00	0.00
8,700.00	90.00	179.73	6,850.00	-2,753.06	2,130.63	2,763.07	0.00	0.00	0.00
8,800.00	90.00	179.73	6,850.00	-2,853.06	2,131.10	2,863.07	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-11H
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 2536-11H	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	-2,953.06	2,131.57	2,963.07	0.00	0.00	0.00	
9,000.00	90.00	179.73	6,850.00	-3,053.06	2,132.04	3,063.07	0.00	0.00	0.00	
9,100.00	90.00	179.73	6,850.00	-3,153.06	2,132.51	3,163.07	0.00	0.00	0.00	
9,200.00	90.00	179.73	6,850.00	-3,253.06	2,132.98	3,263.07	0.00	0.00	0.00	
9,300.00	90.00	179.73	6,850.00	-3,353.06	2,133.45	3,363.07	0.00	0.00	0.00	
9,400.00	90.00	179.73	6,850.00	-3,453.06	2,133.92	3,463.07	0.00	0.00	0.00	
9,500.00	90.00	179.73	6,850.00	-3,553.05	2,134.39	3,563.07	0.00	0.00	0.00	
9,600.00	90.00	179.73	6,850.00	-3,653.05	2,134.86	3,663.07	0.00	0.00	0.00	
9,700.00	90.00	179.73	6,850.00	-3,753.05	2,135.33	3,763.07	0.00	0.00	0.00	
9,800.00	90.00	179.73	6,850.00	-3,853.05	2,135.80	3,863.07	0.00	0.00	0.00	
9,900.00	90.00	179.73	6,850.00	-3,953.05	2,136.26	3,963.07	0.00	0.00	0.00	
10,000.00	90.00	179.73	6,850.00	-4,053.05	2,136.73	4,063.07	0.00	0.00	0.00	
10,100.00	90.00	179.73	6,850.00	-4,153.05	2,137.20	4,163.07	0.00	0.00	0.00	
10,200.00	90.00	179.73	6,850.00	-4,253.05	2,137.67	4,263.07	0.00	0.00	0.00	
10,300.00	90.00	179.73	6,850.00	-4,353.05	2,138.14	4,363.07	0.00	0.00	0.00	
10,400.00	90.00	179.73	6,850.00	-4,453.04	2,138.61	4,463.07	0.00	0.00	0.00	
10,500.00	90.00	179.73	6,850.00	-4,553.04	2,139.08	4,563.07	0.00	0.00	0.00	
10,600.00	90.00	179.73	6,850.00	-4,653.04	2,139.55	4,663.07	0.00	0.00	0.00	
10,700.00	90.00	179.73	6,850.00	-4,753.04	2,140.02	4,763.07	0.00	0.00	0.00	
10,800.00	90.00	179.73	6,850.00	-4,853.04	2,140.49	4,863.07	0.00	0.00	0.00	
10,900.00	90.00	179.73	6,850.00	-4,953.04	2,140.96	4,963.07	0.00	0.00	0.00	
11,000.00	90.00	179.73	6,850.00	-5,053.04	2,141.43	5,063.07	0.00	0.00	0.00	
11,100.00	90.00	179.73	6,850.00	-5,153.04	2,141.90	5,163.07	0.00	0.00	0.00	
11,200.00	90.00	179.73	6,850.00	-5,253.04	2,142.37	5,263.07	0.00	0.00	0.00	
11,300.00	90.00	179.73	6,850.00	-5,353.03	2,142.83	5,363.07	0.00	0.00	0.00	
11,400.00	90.00	179.73	6,850.00	-5,453.03	2,143.30	5,463.07	0.00	0.00	0.00	
11,500.00	90.00	179.73	6,850.00	-5,553.03	2,143.77	5,563.07	0.00	0.00	0.00	
11,600.00	90.00	179.73	6,850.00	-5,653.03	2,144.24	5,663.07	0.00	0.00	0.00	
11,700.00	90.00	179.73	6,850.00	-5,753.03	2,144.71	5,763.07	0.00	0.00	0.00	
11,800.00	90.00	179.73	6,850.00	-5,853.03	2,145.18	5,863.07	0.00	0.00	0.00	
11,900.00	90.00	179.73	6,850.00	-5,953.03	2,145.65	5,963.07	0.00	0.00	0.00	
12,000.00	90.00	179.73	6,850.00	-6,053.03	2,146.12	6,063.07	0.00	0.00	0.00	
12,100.00	90.00	179.73	6,850.00	-6,153.03	2,146.59	6,163.07	0.00	0.00	0.00	
12,200.00	90.00	179.73	6,850.00	-6,253.02	2,147.06	6,263.07	0.00	0.00	0.00	
12,300.00	90.00	179.73	6,850.00	-6,353.02	2,147.53	6,363.07	0.00	0.00	0.00	
12,400.00	90.00	179.73	6,850.00	-6,453.02	2,148.00	6,463.07	0.00	0.00	0.00	
12,500.00	90.00	179.73	6,850.00	-6,553.02	2,148.47	6,563.07	0.00	0.00	0.00	
12,600.00	90.00	179.73	6,850.00	-6,653.02	2,148.93	6,663.07	0.00	0.00	0.00	
12,700.00	90.00	179.73	6,850.00	-6,753.02	2,149.40	6,763.07	0.00	0.00	0.00	
12,800.00	90.00	179.73	6,850.00	-6,853.02	2,149.87	6,863.07	0.00	0.00	0.00	
12,900.00	90.00	179.73	6,850.00	-6,953.02	2,150.34	6,963.07	0.00	0.00	0.00	
13,000.00	90.00	179.73	6,850.00	-7,053.02	2,150.81	7,063.07	0.00	0.00	0.00	
13,100.00	90.00	179.73	6,850.00	-7,153.02	2,151.28	7,163.07	0.00	0.00	0.00	
13,200.00	90.00	179.73	6,850.00	-7,253.01	2,151.75	7,263.07	0.00	0.00	0.00	
13,300.00	90.00	179.73	6,850.00	-7,353.01	2,152.22	7,363.07	0.00	0.00	0.00	
13,400.00	90.00	179.73	6,850.00	-7,453.01	2,152.69	7,463.07	0.00	0.00	0.00	
13,500.00	90.00	179.73	6,850.00	-7,553.01	2,153.16	7,563.07	0.00	0.00	0.00	
13,600.00	90.00	179.73	6,850.00	-7,653.01	2,153.63	7,663.07	0.00	0.00	0.00	
13,700.00	90.00	179.73	6,850.00	-7,753.01	2,154.10	7,763.07	0.00	0.00	0.00	
13,800.00	90.00	179.73	6,850.00	-7,853.01	2,154.57	7,863.07	0.00	0.00	0.00	
13,900.00	90.00	179.73	6,850.00	-7,953.01	2,155.04	7,963.07	0.00	0.00	0.00	
14,000.00	90.00	179.73	6,850.00	-8,053.01	2,155.50	8,063.07	0.00	0.00	0.00	
14,100.00	90.00	179.73	6,850.00	-8,153.00	2,155.97	8,163.07	0.00	0.00	0.00	
14,200.00	90.00	179.73	6,850.00	-8,253.00	2,156.44	8,263.07	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well HELEN 2536-11H
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 2536-11H	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	-8,353.00	2,156.91	8,363.07	0.00	0.00	0.00	
14,400.00	90.00	179.73	6,850.00	-8,453.00	2,157.38	8,463.07	0.00	0.00	0.00	
14,500.00	90.00	179.73	6,850.00	-8,553.00	2,157.85	8,563.07	0.00	0.00	0.00	
14,600.00	90.00	179.73	6,850.00	-8,653.00	2,158.32	8,663.07	0.00	0.00	0.00	
14,700.00	90.00	179.73	6,850.00	-8,753.00	2,158.79	8,763.07	0.00	0.00	0.00	
14,800.00	90.00	179.73	6,850.00	-8,853.00	2,159.26	8,863.07	0.00	0.00	0.00	
14,900.00	90.00	179.73	6,850.00	-8,953.00	2,159.73	8,963.07	0.00	0.00	0.00	
15,000.00	90.00	179.73	6,850.00	-9,052.99	2,160.20	9,063.07	0.00	0.00	0.00	
15,100.00	90.00	179.73	6,850.00	-9,152.99	2,160.67	9,163.07	0.00	0.00	0.00	
15,200.00	90.00	179.73	6,850.00	-9,252.99	2,161.14	9,263.07	0.00	0.00	0.00	
15,300.00	90.00	179.73	6,850.00	-9,352.99	2,161.60	9,363.07	0.00	0.00	0.00	
15,400.00	90.00	179.73	6,850.00	-9,452.99	2,162.07	9,463.07	0.00	0.00	0.00	
15,500.00	90.00	179.73	6,850.00	-9,552.99	2,162.54	9,563.07	0.00	0.00	0.00	
15,600.00	90.00	179.73	6,850.00	-9,652.99	2,163.01	9,663.07	0.00	0.00	0.00	
15,700.00	90.00	179.73	6,850.00	-9,752.99	2,163.48	9,763.07	0.00	0.00	0.00	
15,800.00	90.00	179.73	6,850.00	-9,852.99	2,163.95	9,863.07	0.00	0.00	0.00	
15,900.00	90.00	179.73	6,850.00	-9,952.98	2,164.42	9,963.07	0.00	0.00	0.00	
16,000.00	90.00	179.73	6,850.00	-10,052.98	2,164.89	10,063.07	0.00	0.00	0.00	
16,100.00	90.00	179.73	6,850.00	-10,152.98	2,165.36	10,163.07	0.00	0.00	0.00	
16,200.00	90.00	179.73	6,850.00	-10,252.98	2,165.83	10,263.07	0.00	0.00	0.00	
16,300.00	90.00	179.73	6,850.00	-10,352.98	2,166.30	10,363.07	0.00	0.00	0.00	
16,400.00	90.00	179.73	6,850.00	-10,452.98	2,166.77	10,463.07	0.00	0.00	0.00	
16,500.00	90.00	179.73	6,850.00	-10,552.98	2,167.24	10,563.07	0.00	0.00	0.00	
16,600.00	90.00	179.73	6,850.00	-10,652.98	2,167.71	10,663.07	0.00	0.00	0.00	
16,700.00	90.00	179.73	6,850.00	-10,752.98	2,168.17	10,763.07	0.00	0.00	0.00	
16,800.00	90.00	179.73	6,850.00	-10,852.97	2,168.64	10,863.07	0.00	0.00	0.00	
16,900.00	90.00	179.73	6,850.00	-10,952.97	2,169.11	10,963.07	0.00	0.00	0.00	
17,000.00	90.00	179.73	6,850.00	-11,052.97	2,169.58	11,063.07	0.00	0.00	0.00	
17,100.00	90.00	179.73	6,850.00	-11,152.97	2,170.05	11,163.07	0.00	0.00	0.00	
17,200.00	90.00	179.73	6,850.00	-11,252.97	2,170.52	11,263.07	0.00	0.00	0.00	
17,300.00	90.00	179.73	6,850.00	-11,352.97	2,170.99	11,363.07	0.00	0.00	0.00	
17,307.31	90.00	179.73	6,850.00	-11,360.28	2,171.02	11,370.38	0.00	0.00	0.00	
BPZ @ 17307.31ft										
17,397.29	90.00	179.73	6,850.00	-11,450.25	2,171.45	11,460.36	0.00	0.00	0.00	
TD Well @ 17397.28ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,982.13	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 2536-11H
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 2536-11H	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)	
220.10	220.10	0.00	0.00	Begin Nudge @ 220.10ft
1,309.60	1,283.53	-99.55	178.85	Hold Tangent @ 1309.60ft
6,774.83	6,358.27	-1,086.19	1,951.49	KOP @ 6774.83ft :: DLS = 9°/100'
7,658.28	6,850.00	-1,711.36	2,125.75	TPZ @ 7658.28ft
17,307.31	6,850.00	-11,360.28	2,171.02	BPZ @ 17307.31ft
17,397.29	6,850.00	-11,450.25	2,171.45	TD Well @ 17397.28ft