

VERDAD RESOURCES

WATTENBERG FIELD

2N-64W-24 ARNOLD-BOYD PAD

BOYD 2413-07H

Plan A

Plan: Design #1

Standard Planning Report

14 December, 2021

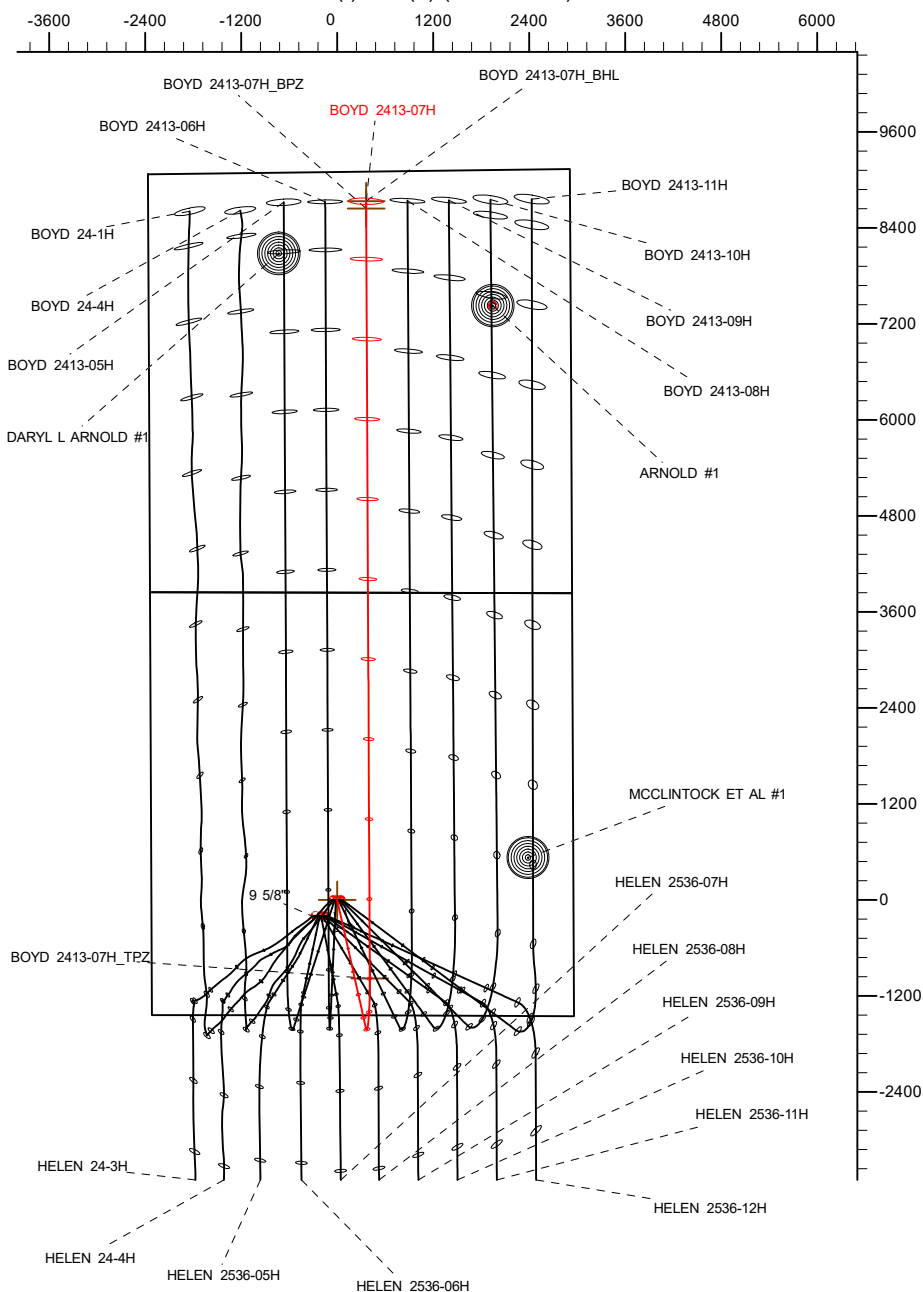
Project: WATTENBERG FIELD
Site: 2N-64W-24 ARNOLD-BOYD PAD
Well: BOYD 2413-07H
Wellbore: Plan A
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1934.00	1985.22	9 5/8"	9-5/8

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



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

SHL
1441' FSL
2323' FWL

TPZ
460' FSL
2550' FEL

BPZ
460' FNL
2550' FEL

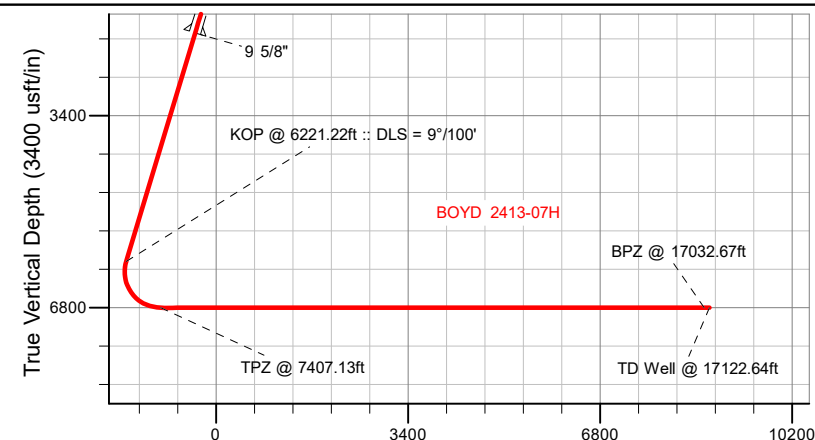
BHL
370' FNL
2550' FEL

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	261.50	0.00	0.00	261.50	0.00	0.00	0.00	0.00	0.00	
3	1118.50	17.14	167.39	1105.77	-124.16	27.78	2.00	167.39	-124.29	
4	6221.22	17.14	167.39	5981.87	-1591.70	356.08	0.00	0.00	-1593.36	
5	7407.13	90.00	359.73	6800.00	-981.79	407.12	9.00	-167.11	-983.69	
6	17122.64	90.00	359.73	6800.00	8733.61	361.19	0.00	0.00	8731.81	BOYD 2413-07H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BOYD 2413-07H_SHL	0.00	0.00	0.00	40.120602	-104.500827
BOYD 2413-07H_TPZ	6800.00	-981.79	407.12	40.117907	-104.499371
BOYD 2413-07H_BPZ	6800.00	8643.64	361.47	40.144330	-104.499534
BOYD 2413-07H_BHL	6800.00	8733.61	361.19	40.144577	-104.499535



Vertical Section at 359.73° (3400 usft/in)



Azimuths to True North
Magnetic North: 7.63°

Magnetic Field
Strength: 51781.7nT
Dip Angle: 66.45°
Date: 12/13/2021
Model: IGRF2020

WELL DETAILS: BOYD 2413-07H

GL = 4924'

RKB = 20' @ 4944.00usft (Drilling Rig)

Plan: Design #1 (BOYD 2413-07H/Plan A)

Date: 12/14/2021

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-07H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-07H	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-BOYD PAD			
Site Position:		Northing:	1,288,353.17 usft	Latitude:	40.120602
From:	Lat/Long	Easting:	3,279,389.09 usft	Longitude:	-104.500941
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well		BOYD 2413-07H				
Well Position	+N/-S	0.00 usft	Northing:	1,288,353.52 usft	Latitude:	40.120602
	+E/-W	0.00 usft	Easting:	3,279,420.97 usft	Longitude:	-104.500827
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	51,781.71359155

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	359.73	

Plan Survey Tool Program	Date	12/14/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,934.00	Design #1 (Plan A)	ISCWSA MWD	Fixed:v2:standard declination
2	1,934.00	17,122.64	Design #1 (Plan A)	ISCWSA MWD	Fixed:v2:standard declination

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Well:	BOYD 2413-07H	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	
261.50	0.00	0.00	261.50	0.00	0.00	0.00	0.00	0.00	0.00	
1,118.50	17.14	167.39	1,105.77	-124.16	27.78	2.00	2.00	0.00	167.39	
6,221.22	17.14	167.39	5,981.87	-1,591.70	356.08	0.00	0.00	0.00	0.00	
7,407.13	90.00	359.73	6,800.00	-981.79	407.12	9.00	6.14	-14.14	-167.11	
17,122.64	90.00	359.73	6,800.00	8,733.61	361.19	0.00	0.00	0.00	0.00	BOYD 2413-07H_BHI

Planning Report

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Site:	2N-64W-24 ARNOLD-BOYD PAD	North Reference:	True
Well:	BOYD 2413-07H	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
261.50	0.00	0.00	261.50	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 261.50ft									
300.00	0.77	167.39	300.00	-0.25	0.06	-0.25	2.00	2.00	0.00
400.00	2.77	167.39	399.95	-3.27	0.73	-3.27	2.00	2.00	0.00
500.00	4.77	167.39	499.72	-9.68	2.17	-9.69	2.00	2.00	0.00
600.00	6.77	167.39	599.21	-19.49	4.36	-19.51	2.00	2.00	0.00
700.00	8.77	167.39	698.29	-32.69	7.31	-32.72	2.00	2.00	0.00
800.00	10.77	167.39	796.83	-49.25	11.02	-49.30	2.00	2.00	0.00
900.00	12.77	167.39	894.73	-69.15	15.47	-69.22	2.00	2.00	0.00
1,000.00	14.77	167.39	991.85	-92.38	20.67	-92.47	2.00	2.00	0.00
1,100.00	16.77	167.39	1,088.08	-118.90	26.60	-119.02	2.00	2.00	0.00
1,118.50	17.14	167.39	1,105.77	-124.16	27.78	-124.29	2.00	2.00	0.00
Hold Tangent @ 1118.50ft									
1,200.00	17.14	167.39	1,183.66	-147.60	33.02	-147.76	0.00	0.00	0.00
1,300.00	17.14	167.39	1,279.21	-176.36	39.45	-176.55	0.00	0.00	0.00
1,400.00	17.14	167.39	1,374.77	-205.12	45.89	-205.34	0.00	0.00	0.00
1,500.00	17.14	167.39	1,470.33	-233.88	52.32	-234.13	0.00	0.00	0.00
1,600.00	17.14	167.39	1,565.89	-262.64	58.76	-262.92	0.00	0.00	0.00
1,700.00	17.14	167.39	1,661.45	-291.40	65.19	-291.71	0.00	0.00	0.00
1,800.00	17.14	167.39	1,757.01	-320.16	71.62	-320.50	0.00	0.00	0.00
1,900.00	17.14	167.39	1,852.57	-348.92	78.06	-349.29	0.00	0.00	0.00
1,985.22	17.14	167.39	1,934.00	-373.43	83.54	-373.82	0.00	0.00	0.00
9 5/8"									
2,000.00	17.14	167.39	1,948.13	-377.68	84.49	-378.08	0.00	0.00	0.00
2,100.00	17.14	167.39	2,043.68	-406.44	90.92	-406.87	0.00	0.00	0.00
2,200.00	17.14	167.39	2,139.24	-435.20	97.36	-435.66	0.00	0.00	0.00
2,300.00	17.14	167.39	2,234.80	-463.96	103.79	-464.45	0.00	0.00	0.00
2,400.00	17.14	167.39	2,330.36	-492.72	110.23	-493.24	0.00	0.00	0.00
2,500.00	17.14	167.39	2,425.92	-521.48	116.66	-522.03	0.00	0.00	0.00
2,600.00	17.14	167.39	2,521.48	-550.24	123.09	-550.81	0.00	0.00	0.00
2,700.00	17.14	167.39	2,617.04	-579.00	129.53	-579.60	0.00	0.00	0.00
2,800.00	17.14	167.39	2,712.60	-607.76	135.96	-608.39	0.00	0.00	0.00
2,900.00	17.14	167.39	2,808.15	-636.52	142.40	-637.18	0.00	0.00	0.00
3,000.00	17.14	167.39	2,903.71	-665.28	148.83	-665.97	0.00	0.00	0.00
3,100.00	17.14	167.39	2,999.27	-694.04	155.26	-694.76	0.00	0.00	0.00
3,200.00	17.14	167.39	3,094.83	-722.80	161.70	-723.55	0.00	0.00	0.00
3,300.00	17.14	167.39	3,190.39	-751.56	168.13	-752.34	0.00	0.00	0.00
3,400.00	17.14	167.39	3,285.95	-780.32	174.57	-781.13	0.00	0.00	0.00
3,500.00	17.14	167.39	3,381.51	-809.08	181.00	-809.92	0.00	0.00	0.00
3,600.00	17.14	167.39	3,477.07	-837.84	187.43	-838.71	0.00	0.00	0.00
3,700.00	17.14	167.39	3,572.62	-866.60	193.87	-867.50	0.00	0.00	0.00
3,800.00	17.14	167.39	3,668.18	-895.36	200.30	-896.29	0.00	0.00	0.00
3,900.00	17.14	167.39	3,763.74	-924.12	206.73	-925.08	0.00	0.00	0.00
4,000.00	17.14	167.39	3,859.30	-952.88	213.17	-953.87	0.00	0.00	0.00
4,100.00	17.14	167.39	3,954.86	-981.64	219.60	-982.66	0.00	0.00	0.00
4,200.00	17.14	167.39	4,050.42	-1,010.40	226.04	-1,011.45	0.00	0.00	0.00
4,300.00	17.14	167.39	4,145.98	-1,039.16	232.47	-1,040.24	0.00	0.00	0.00
4,400.00	17.14	167.39	4,241.54	-1,067.92	238.90	-1,069.03	0.00	0.00	0.00
4,500.00	17.14	167.39	4,337.09	-1,096.68	245.34	-1,097.82	0.00	0.00	0.00
4,600.00	17.14	167.39	4,432.65	-1,125.44	251.77	-1,126.61	0.00	0.00	0.00

Planning Report

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Site:	2N-64W-24 ARNOLD-BOYD PAD	North Reference:	True
Well:	BOYD 2413-07H	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)
4,700.00	17.14	167.39	4,528.21	-1,154.20	258.21	-1,155.40	0.00	0.00	0.00
4,800.00	17.14	167.39	4,623.77	-1,182.96	264.64	-1,184.19	0.00	0.00	0.00
4,900.00	17.14	167.39	4,719.33	-1,211.72	271.07	-1,212.98	0.00	0.00	0.00
5,000.00	17.14	167.39	4,814.89	-1,240.48	277.51	-1,241.77	0.00	0.00	0.00
5,100.00	17.14	167.39	4,910.45	-1,269.24	283.94	-1,270.56	0.00	0.00	0.00
5,200.00	17.14	167.39	5,006.01	-1,298.00	290.37	-1,299.35	0.00	0.00	0.00
5,300.00	17.14	167.39	5,101.56	-1,326.76	296.81	-1,328.14	0.00	0.00	0.00
5,400.00	17.14	167.39	5,197.12	-1,355.52	303.24	-1,356.93	0.00	0.00	0.00
5,500.00	17.14	167.39	5,292.68	-1,384.28	309.68	-1,385.72	0.00	0.00	0.00
5,600.00	17.14	167.39	5,388.24	-1,413.04	316.11	-1,414.51	0.00	0.00	0.00
5,700.00	17.14	167.39	5,483.80	-1,441.80	322.54	-1,443.30	0.00	0.00	0.00
5,800.00	17.14	167.39	5,579.36	-1,470.56	328.98	-1,472.09	0.00	0.00	0.00
5,900.00	17.14	167.39	5,674.92	-1,499.32	335.41	-1,500.88	0.00	0.00	0.00
6,000.00	17.14	167.39	5,770.48	-1,528.08	341.85	-1,529.67	0.00	0.00	0.00
6,100.00	17.14	167.39	5,866.03	-1,556.84	348.28	-1,558.46	0.00	0.00	0.00
6,200.00	17.14	167.39	5,961.59	-1,585.60	354.71	-1,587.25	0.00	0.00	0.00
6,221.22	17.14	167.39	5,981.87	-1,591.70	356.08	-1,593.36	0.00	0.00	0.00
KOP @ 6221.22ft :: DLS = 9°/100'									
6,250.00	14.63	165.10	6,009.55	-1,599.35	357.94	-1,601.02	9.00	-8.73	-7.95
6,300.00	10.35	158.57	6,058.36	-1,609.64	361.20	-1,611.32	9.00	-8.56	-13.07
6,350.00	6.37	143.57	6,107.82	-1,616.05	364.49	-1,617.75	9.00	-7.95	-30.00
6,400.00	3.82	99.40	6,157.64	-1,618.56	367.79	-1,620.27	9.00	-5.10	-88.34
6,450.00	5.39	44.01	6,207.50	-1,617.14	371.07	-1,618.87	9.00	3.14	-110.78
6,500.00	9.16	23.84	6,257.09	-1,611.81	374.31	-1,613.55	9.00	7.54	-40.33
6,550.00	13.39	15.80	6,306.12	-1,602.59	377.50	-1,604.35	9.00	8.45	-16.08
6,600.00	17.75	11.61	6,354.27	-1,589.55	380.61	-1,591.32	9.00	8.72	-8.38
6,650.00	22.17	9.04	6,401.26	-1,572.76	383.63	-1,574.55	9.00	8.83	-5.14
6,700.00	26.61	7.29	6,446.79	-1,552.32	386.53	-1,554.13	9.00	8.88	-3.50
6,750.00	31.06	6.01	6,490.58	-1,528.38	389.31	-1,530.19	9.00	8.92	-2.56
6,800.00	35.53	5.02	6,532.36	-1,501.06	391.93	-1,502.89	9.00	8.93	-1.97
6,850.00	40.01	4.23	6,571.87	-1,470.54	394.39	-1,472.39	9.00	8.95	-1.58
6,900.00	44.48	3.58	6,608.88	-1,437.01	396.67	-1,438.87	9.00	8.96	-1.31
6,950.00	48.97	3.02	6,643.14	-1,400.68	398.76	-1,402.54	9.00	8.96	-1.12
7,000.00	53.45	2.53	6,674.46	-1,361.76	400.64	-1,363.64	9.00	8.97	-0.98
7,050.00	57.94	2.10	6,702.64	-1,320.51	402.30	-1,322.39	9.00	8.97	-0.87
7,100.00	62.42	1.70	6,727.49	-1,277.16	403.73	-1,279.05	9.00	8.97	-0.79
7,150.00	66.91	1.34	6,748.88	-1,232.00	404.93	-1,233.89	9.00	8.98	-0.73
7,200.00	71.40	1.00	6,766.67	-1,185.29	405.88	-1,187.19	9.00	8.98	-0.68
7,250.00	75.89	0.68	6,780.75	-1,137.33	406.58	-1,139.24	9.00	8.98	-0.64
7,300.00	80.38	0.37	6,791.02	-1,088.42	407.03	-1,090.32	9.00	8.98	-0.62
7,350.00	84.87	0.07	6,797.44	-1,038.84	407.22	-1,040.75	9.00	8.98	-0.60
7,400.00	89.36	359.77	6,799.96	-988.92	407.15	-990.83	9.00	8.98	-0.59
7,407.13	90.00	359.73	6,800.00	-981.79	407.12	-983.69	9.00	8.98	-0.59
TPZ @ 7407.13ft									
7,500.00	90.00	359.73	6,800.00	-888.92	406.68	-890.83	0.00	0.00	0.00
7,600.00	90.00	359.73	6,800.00	-788.92	406.20	-790.83	0.00	0.00	0.00
7,700.00	90.00	359.73	6,800.00	-688.92	405.73	-690.83	0.00	0.00	0.00
7,800.00	90.00	359.73	6,800.00	-588.92	405.26	-590.83	0.00	0.00	0.00
7,900.00	90.00	359.73	6,800.00	-488.93	404.79	-490.83	0.00	0.00	0.00
8,000.00	90.00	359.73	6,800.00	-388.93	404.31	-390.83	0.00	0.00	0.00
8,100.00	90.00	359.73	6,800.00	-288.93	403.84	-290.83	0.00	0.00	0.00
8,200.00	90.00	359.73	6,800.00	-188.93	403.37	-190.83	0.00	0.00	0.00
8,300.00	90.00	359.73	6,800.00	-88.93	402.89	-90.83	0.00	0.00	0.00
8,400.00	90.00	359.73	6,800.00	11.07	402.42	9.17	0.00	0.00	0.00

Planning Report

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Well:	BOYD 2413-07H	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)	
8,500.00	90.00	359.73	6,800.00	111.07	401.95	109.17	0.00	0.00	0.00	
8,600.00	90.00	359.73	6,800.00	211.07	401.48	209.17	0.00	0.00	0.00	
8,700.00	90.00	359.73	6,800.00	311.07	401.00	309.17	0.00	0.00	0.00	
8,800.00	90.00	359.73	6,800.00	411.06	400.53	409.17	0.00	0.00	0.00	
8,900.00	90.00	359.73	6,800.00	511.06	400.06	509.17	0.00	0.00	0.00	
9,000.00	90.00	359.73	6,800.00	611.06	399.59	609.17	0.00	0.00	0.00	
9,100.00	90.00	359.73	6,800.00	711.06	399.11	709.17	0.00	0.00	0.00	
9,200.00	90.00	359.73	6,800.00	811.06	398.64	809.17	0.00	0.00	0.00	
9,300.00	90.00	359.73	6,800.00	911.06	398.17	909.17	0.00	0.00	0.00	
9,400.00	90.00	359.73	6,800.00	1,011.06	397.70	1,009.17	0.00	0.00	0.00	
9,500.00	90.00	359.73	6,800.00	1,111.06	397.22	1,109.17	0.00	0.00	0.00	
9,600.00	90.00	359.73	6,800.00	1,211.06	396.75	1,209.17	0.00	0.00	0.00	
9,700.00	90.00	359.73	6,800.00	1,311.05	396.28	1,309.17	0.00	0.00	0.00	
9,800.00	90.00	359.73	6,800.00	1,411.05	395.80	1,409.17	0.00	0.00	0.00	
9,900.00	90.00	359.73	6,800.00	1,511.05	395.33	1,509.17	0.00	0.00	0.00	
10,000.00	90.00	359.73	6,800.00	1,611.05	394.86	1,609.17	0.00	0.00	0.00	
10,100.00	90.00	359.73	6,800.00	1,711.05	394.39	1,709.17	0.00	0.00	0.00	
10,200.00	90.00	359.73	6,800.00	1,811.05	393.91	1,809.17	0.00	0.00	0.00	
10,300.00	90.00	359.73	6,800.00	1,911.05	393.44	1,909.17	0.00	0.00	0.00	
10,400.00	90.00	359.73	6,800.00	2,011.05	392.97	2,009.17	0.00	0.00	0.00	
10,500.00	90.00	359.73	6,800.00	2,111.05	392.50	2,109.17	0.00	0.00	0.00	
10,600.00	90.00	359.73	6,800.00	2,211.04	392.02	2,209.17	0.00	0.00	0.00	
10,700.00	90.00	359.73	6,800.00	2,311.04	391.55	2,309.17	0.00	0.00	0.00	
10,800.00	90.00	359.73	6,800.00	2,411.04	391.08	2,409.17	0.00	0.00	0.00	
10,900.00	90.00	359.73	6,800.00	2,511.04	390.60	2,509.17	0.00	0.00	0.00	
11,000.00	90.00	359.73	6,800.00	2,611.04	390.13	2,609.17	0.00	0.00	0.00	
11,100.00	90.00	359.73	6,800.00	2,711.04	389.66	2,709.17	0.00	0.00	0.00	
11,200.00	90.00	359.73	6,800.00	2,811.04	389.19	2,809.17	0.00	0.00	0.00	
11,300.00	90.00	359.73	6,800.00	2,911.04	388.71	2,909.17	0.00	0.00	0.00	
11,400.00	90.00	359.73	6,800.00	3,011.04	388.24	3,009.17	0.00	0.00	0.00	
11,500.00	90.00	359.73	6,800.00	3,111.03	387.77	3,109.17	0.00	0.00	0.00	
11,600.00	90.00	359.73	6,800.00	3,211.03	387.30	3,209.17	0.00	0.00	0.00	
11,700.00	90.00	359.73	6,800.00	3,311.03	386.82	3,309.17	0.00	0.00	0.00	
11,800.00	90.00	359.73	6,800.00	3,411.03	386.35	3,409.17	0.00	0.00	0.00	
11,900.00	90.00	359.73	6,800.00	3,511.03	385.88	3,509.17	0.00	0.00	0.00	
12,000.00	90.00	359.73	6,800.00	3,611.03	385.41	3,609.17	0.00	0.00	0.00	
12,100.00	90.00	359.73	6,800.00	3,711.03	384.93	3,709.17	0.00	0.00	0.00	
12,200.00	90.00	359.73	6,800.00	3,811.03	384.46	3,809.17	0.00	0.00	0.00	
12,300.00	90.00	359.73	6,800.00	3,911.03	383.99	3,909.17	0.00	0.00	0.00	
12,400.00	90.00	359.73	6,800.00	4,011.02	383.51	4,009.17	0.00	0.00	0.00	
12,500.00	90.00	359.73	6,800.00	4,111.02	383.04	4,109.17	0.00	0.00	0.00	
12,600.00	90.00	359.73	6,800.00	4,211.02	382.57	4,209.17	0.00	0.00	0.00	
12,700.00	90.00	359.73	6,800.00	4,311.02	382.10	4,309.17	0.00	0.00	0.00	
12,800.00	90.00	359.73	6,800.00	4,411.02	381.62	4,409.17	0.00	0.00	0.00	
12,900.00	90.00	359.73	6,800.00	4,511.02	381.15	4,509.17	0.00	0.00	0.00	
13,000.00	90.00	359.73	6,800.00	4,611.02	380.68	4,609.17	0.00	0.00	0.00	
13,100.00	90.00	359.73	6,800.00	4,711.02	380.21	4,709.17	0.00	0.00	0.00	
13,200.00	90.00	359.73	6,800.00	4,811.02	379.73	4,809.17	0.00	0.00	0.00	
13,300.00	90.00	359.73	6,800.00	4,911.01	379.26	4,909.17	0.00	0.00	0.00	
13,400.00	90.00	359.73	6,800.00	5,011.01	378.79	5,009.17	0.00	0.00	0.00	
13,500.00	90.00	359.73	6,800.00	5,111.01	378.31	5,109.17	0.00	0.00	0.00	
13,600.00	90.00	359.73	6,800.00	5,211.01	377.84	5,209.17	0.00	0.00	0.00	
13,700.00	90.00	359.73	6,800.00	5,311.01	377.37	5,309.17	0.00	0.00	0.00	
13,800.00	90.00	359.73	6,800.00	5,411.01	376.90	5,409.17	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-07H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-07H	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)
13,900.00	90.00	359.73	6,800.00	5,511.01	376.42	5,509.17	0.00	0.00	0.00
14,000.00	90.00	359.73	6,800.00	5,611.01	375.95	5,609.17	0.00	0.00	0.00
14,100.00	90.00	359.73	6,800.00	5,711.01	375.48	5,709.17	0.00	0.00	0.00
14,200.00	90.00	359.73	6,800.00	5,811.00	375.01	5,809.17	0.00	0.00	0.00
14,300.00	90.00	359.73	6,800.00	5,911.00	374.53	5,909.17	0.00	0.00	0.00
14,400.00	90.00	359.73	6,800.00	6,011.00	374.06	6,009.17	0.00	0.00	0.00
14,500.00	90.00	359.73	6,800.00	6,111.00	373.59	6,109.17	0.00	0.00	0.00
14,600.00	90.00	359.73	6,800.00	6,211.00	373.12	6,209.17	0.00	0.00	0.00
14,700.00	90.00	359.73	6,800.00	6,311.00	372.64	6,309.17	0.00	0.00	0.00
14,800.00	90.00	359.73	6,800.00	6,411.00	372.17	6,409.17	0.00	0.00	0.00
14,900.00	90.00	359.73	6,800.00	6,511.00	371.70	6,509.17	0.00	0.00	0.00
15,000.00	90.00	359.73	6,800.00	6,611.00	371.22	6,609.17	0.00	0.00	0.00
15,100.00	90.00	359.73	6,800.00	6,710.99	370.75	6,709.17	0.00	0.00	0.00
15,200.00	90.00	359.73	6,800.00	6,810.99	370.28	6,809.17	0.00	0.00	0.00
15,300.00	90.00	359.73	6,800.00	6,910.99	369.81	6,909.17	0.00	0.00	0.00
15,400.00	90.00	359.73	6,800.00	7,010.99	369.33	7,009.17	0.00	0.00	0.00
15,500.00	90.00	359.73	6,800.00	7,110.99	368.86	7,109.17	0.00	0.00	0.00
15,600.00	90.00	359.73	6,800.00	7,210.99	368.39	7,209.17	0.00	0.00	0.00
15,700.00	90.00	359.73	6,800.00	7,310.99	367.92	7,309.17	0.00	0.00	0.00
15,800.00	90.00	359.73	6,800.00	7,410.99	367.44	7,409.17	0.00	0.00	0.00
15,900.00	90.00	359.73	6,800.00	7,510.99	366.97	7,509.17	0.00	0.00	0.00
16,000.00	90.00	359.73	6,800.00	7,610.98	366.50	7,609.17	0.00	0.00	0.00
16,100.00	90.00	359.73	6,800.00	7,710.98	366.03	7,709.17	0.00	0.00	0.00
16,200.00	90.00	359.73	6,800.00	7,810.98	365.55	7,809.17	0.00	0.00	0.00
16,300.00	90.00	359.73	6,800.00	7,910.98	365.08	7,909.17	0.00	0.00	0.00
16,400.00	90.00	359.73	6,800.00	8,010.98	364.61	8,009.17	0.00	0.00	0.00
16,500.00	90.00	359.73	6,800.00	8,110.98	364.13	8,109.17	0.00	0.00	0.00
16,600.00	90.00	359.73	6,800.00	8,210.98	363.66	8,209.17	0.00	0.00	0.00
16,700.00	90.00	359.73	6,800.00	8,310.98	363.19	8,309.17	0.00	0.00	0.00
16,800.00	90.00	359.73	6,800.00	8,410.98	362.72	8,409.17	0.00	0.00	0.00
16,900.00	90.00	359.73	6,800.00	8,510.97	362.24	8,509.17	0.00	0.00	0.00
17,000.00	90.00	359.73	6,800.00	8,610.97	361.77	8,609.17	0.00	0.00	0.00
17,032.67	90.00	359.73	6,800.00	8,643.64	361.62	8,641.84	0.00	0.00	0.00
BPZ @ 17032.67ft									
17,100.00	90.00	359.73	6,800.00	8,710.97	361.30	8,709.17	0.00	0.00	0.00
17,122.64	90.00	359.73	6,800.00	8,733.61	361.19	8,731.81	0.00	0.00	0.00
TD Well @ 17122.64ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,985.22	1,934.00	9 5/8"		9-5/8	13-1/2

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-07H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-07H	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)	
261.50	261.50	0.00	0.00	Begin Nudge @ 261.50ft
1,118.50	1,105.77	-124.16	27.78	Hold Tangent @ 1118.50ft
6,221.22	5,981.87	-1,591.70	356.08	KOP @ 6221.22ft :: DLS = 9°/100'
7,407.13	6,800.00	-981.79	407.12	TPZ @ 7407.13ft
17,032.67	6,800.00	8,643.64	361.62	BPZ @ 17032.67ft
17,122.64	6,800.00	8,733.61	361.19	TD Well @ 17122.64ft