

VERDAD RESOURCES

WATTENBERG FIELD

2N-64W-24 ARNOLD-BOYD PAD

BOYD 2413-09H

Plan A

Plan: Design #1

Standard Planning Report

14 December, 2021

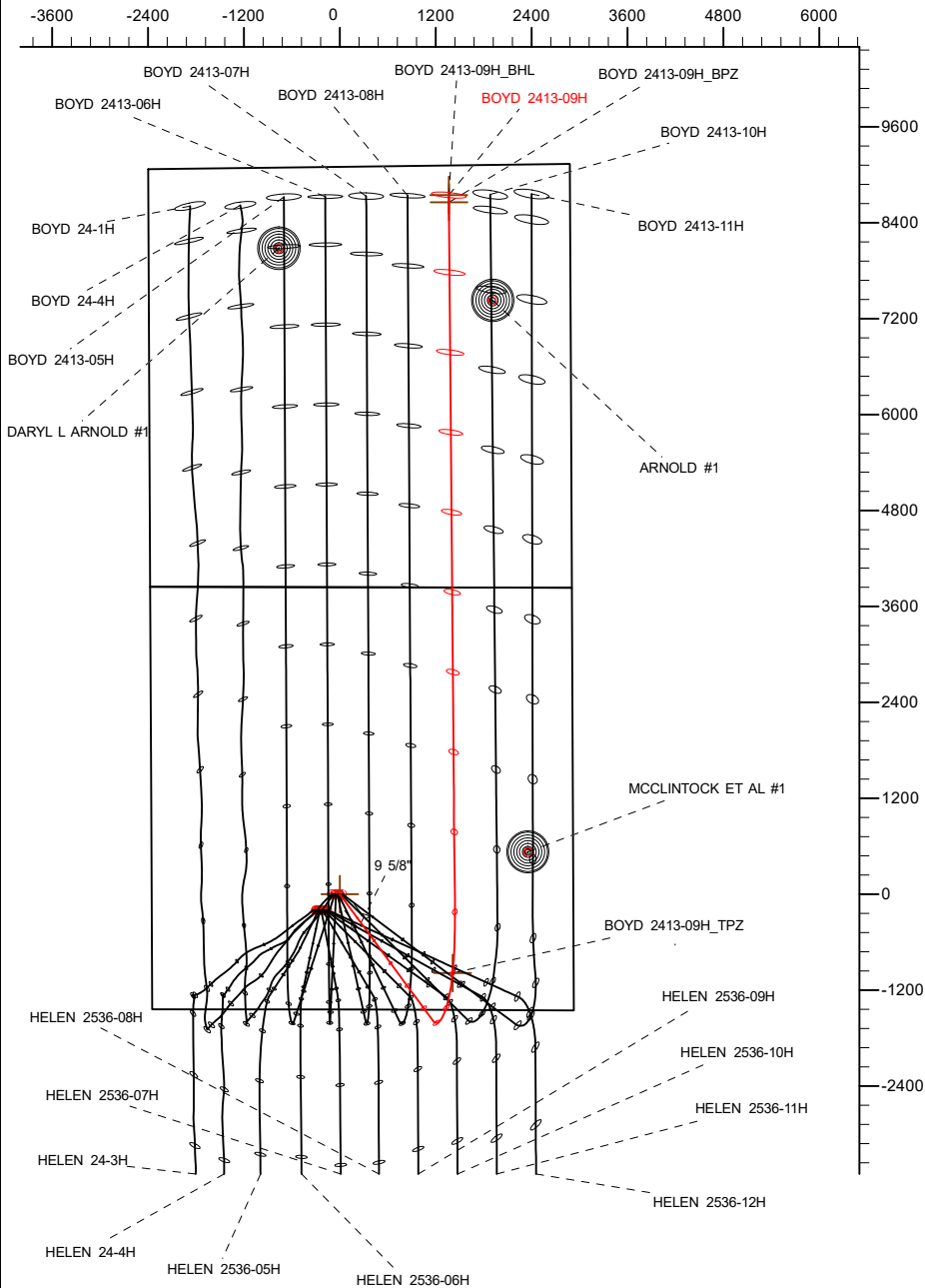
Project: WATTENBERG FIELD
Site: 2N-64W-24 ARNOLD-BOYD PAD
Well: BOYD 2413-09H
Wellbore: Plan A
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1934.00	2002.80	9 5/8"	9-5/8

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



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

SHL
1441' FSL
2355' FWL

TPZ
460' FSL
1515' FEL

BPZ
460' FNL
1515' FEL

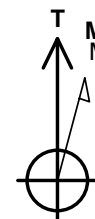
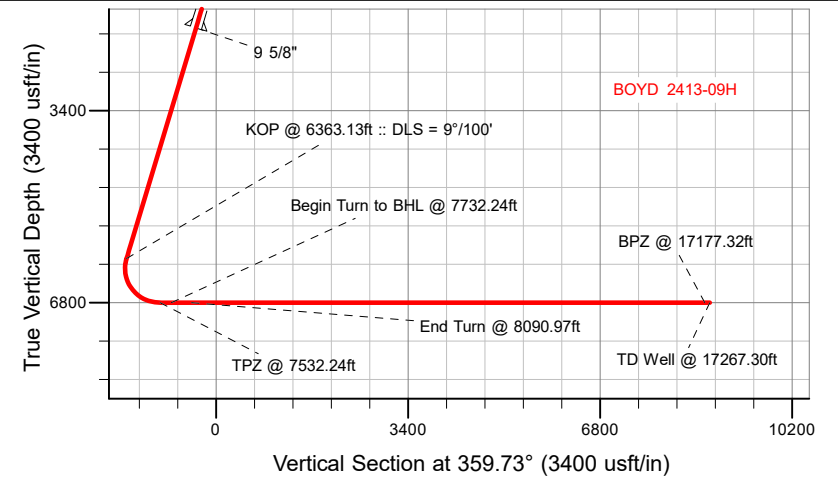
BHL
370' FNL
1515' FEL

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	230.90	0.00	0.00	230.90	0.00	0.00	0.00	0.00	0.00	
3	1253.40	20.45	143.61	1231.83	-145.34	107.11	2.00	143.61	-145.84	
4	6363.13	20.45	143.61	6019.53	-1582.49	1166.29	0.00	0.00	-1587.97	
5	7532.24	90.00	4.90	6800.00	-986.85	1410.10	9.00	-136.85	-993.48	
6	7732.24	90.00	4.90	6800.00	-787.58	1427.18	0.00	0.00	-794.30	
7	8090.97	90.00	359.52	6800.00	-429.25	1441.01	1.50	-90.00	-436.03	
8	17267.30	90.00	359.52	6800.00	8746.76	1363.97	0.00	0.00	8740.24	BOYD 2413-09H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BOYD 2413-09H_SHL	0.00	0.00	0.00	40.120602	-104.500712
BOYD 2413-09H_TPZ	6800.00	-986.85	1410.10	40.117893	-104.495670
BOYD 2413-09H_BPZ	6800.00	8656.78	1364.26	40.144366	-104.495832
BOYD 2413-09H_BHL	6800.00	8746.76	1363.97	40.144613	-104.495833



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 2413-09H

GL = 4924'

RKB = 20 @ 4944.00usft (Drilling Rig)

Plan: Design #1 (BOYD 2413-09H/Plan A)

Date: 12/14/2021

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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 2413-09H				
Well Position	+N/-S	0.00 usft	Northing:	1,288,353.88 usft	Latitude:	40.120602
	+E/-W	0.00 usft	Easting:	3,279,453.13 usft	Longitude:	-104.500712
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	51,781.72538127

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	17,267.30	Design #1 (Plan A)	ISCWSA MWD	
				Fixed:v2:standard declination	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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	
230.90	0.00	0.00	230.90	0.00	0.00	0.00	0.00	0.00	0.00	
1,253.40	20.45	143.61	1,231.83	-145.34	107.11	2.00	2.00	0.00	143.61	
6,363.13	20.45	143.61	6,019.53	-1,582.49	1,166.29	0.00	0.00	0.00	0.00	
7,532.24	90.00	4.90	6,800.00	-986.85	1,410.10	9.00	5.95	-11.86	-136.85	
7,732.24	90.00	4.90	6,800.00	-787.58	1,427.18	0.00	0.00	0.00	0.00	
8,090.97	90.00	359.52	6,800.00	-429.25	1,441.01	1.50	0.00	-1.50	-90.00	
17,267.30	90.00	359.52	6,800.00	8,746.76	1,363.97	0.00	0.00	0.00	0.00	BOYD 2413-09H_BHI

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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
230.90	0.00	0.00	230.90	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 230.90ft									
300.00	1.38	143.61	299.99	-0.67	0.49	-0.67	2.00	2.00	0.00
400.00	3.38	143.61	399.90	-4.02	2.96	-4.03	2.00	2.00	0.00
500.00	5.38	143.61	499.60	-10.17	7.49	-10.20	2.00	2.00	0.00
600.00	7.38	143.61	598.98	-19.11	14.09	-19.18	2.00	2.00	0.00
700.00	9.38	143.61	697.91	-30.85	22.74	-30.96	2.00	2.00	0.00
800.00	11.38	143.61	796.26	-45.35	33.43	-45.51	2.00	2.00	0.00
900.00	13.38	143.61	893.93	-62.62	46.15	-62.83	2.00	2.00	0.00
1,000.00	15.38	143.61	990.79	-82.61	60.88	-82.89	2.00	2.00	0.00
1,100.00	17.38	143.61	1,086.73	-105.31	77.61	-105.68	2.00	2.00	0.00
1,200.00	19.38	143.61	1,181.62	-130.70	96.32	-131.15	2.00	2.00	0.00
1,253.40	20.45	143.61	1,231.83	-145.34	107.11	-145.84	2.00	2.00	0.00
Hold Tangent @ 1253.40ft									
1,300.00	20.45	143.61	1,275.49	-158.45	116.77	-158.99	0.00	0.00	0.00
1,400.00	20.45	143.61	1,369.19	-186.57	137.50	-187.22	0.00	0.00	0.00
1,500.00	20.45	143.61	1,462.89	-214.70	158.23	-215.44	0.00	0.00	0.00
1,600.00	20.45	143.61	1,556.58	-242.82	178.96	-243.66	0.00	0.00	0.00
1,700.00	20.45	143.61	1,650.28	-270.95	199.69	-271.89	0.00	0.00	0.00
1,800.00	20.45	143.61	1,743.98	-299.07	220.42	-300.11	0.00	0.00	0.00
1,900.00	20.45	143.61	1,837.68	-327.20	241.15	-328.33	0.00	0.00	0.00
2,000.00	20.45	143.61	1,931.38	-355.33	261.87	-356.56	0.00	0.00	0.00
2,002.80	20.45	143.61	1,934.00	-356.11	262.45	-357.35	0.00	0.00	0.00
9 5/8"									
2,100.00	20.45	143.61	2,025.07	-383.45	282.60	-384.78	0.00	0.00	0.00
2,200.00	20.45	143.61	2,118.77	-411.58	303.33	-413.00	0.00	0.00	0.00
2,300.00	20.45	143.61	2,212.47	-439.70	324.06	-441.23	0.00	0.00	0.00
2,400.00	20.45	143.61	2,306.17	-467.83	344.79	-469.45	0.00	0.00	0.00
2,500.00	20.45	143.61	2,399.86	-495.96	365.52	-497.67	0.00	0.00	0.00
2,600.00	20.45	143.61	2,493.56	-524.08	386.24	-525.90	0.00	0.00	0.00
2,700.00	20.45	143.61	2,587.26	-552.21	406.97	-554.12	0.00	0.00	0.00
2,800.00	20.45	143.61	2,680.96	-580.33	427.70	-582.34	0.00	0.00	0.00
2,900.00	20.45	143.61	2,774.66	-608.46	448.43	-610.56	0.00	0.00	0.00
3,000.00	20.45	143.61	2,868.35	-636.58	469.16	-638.79	0.00	0.00	0.00
3,100.00	20.45	143.61	2,962.05	-664.71	489.89	-667.01	0.00	0.00	0.00
3,200.00	20.45	143.61	3,055.75	-692.84	510.62	-695.23	0.00	0.00	0.00
3,300.00	20.45	143.61	3,149.45	-720.96	531.34	-723.46	0.00	0.00	0.00
3,400.00	20.45	143.61	3,243.14	-749.09	552.07	-751.68	0.00	0.00	0.00
3,500.00	20.45	143.61	3,336.84	-777.21	572.80	-779.90	0.00	0.00	0.00
3,600.00	20.45	143.61	3,430.54	-805.34	593.53	-808.13	0.00	0.00	0.00
3,700.00	20.45	143.61	3,524.24	-833.46	614.26	-836.35	0.00	0.00	0.00
3,800.00	20.45	143.61	3,617.94	-861.59	634.99	-864.57	0.00	0.00	0.00
3,900.00	20.45	143.61	3,711.63	-889.72	655.72	-892.80	0.00	0.00	0.00
4,000.00	20.45	143.61	3,805.33	-917.84	676.44	-921.02	0.00	0.00	0.00
4,100.00	20.45	143.61	3,899.03	-945.97	697.17	-949.24	0.00	0.00	0.00
4,200.00	20.45	143.61	3,992.73	-974.09	717.90	-977.47	0.00	0.00	0.00
4,300.00	20.45	143.61	4,086.42	-1,002.22	738.63	-1,005.69	0.00	0.00	0.00
4,400.00	20.45	143.61	4,180.12	-1,030.35	759.36	-1,033.91	0.00	0.00	0.00
4,500.00	20.45	143.61	4,273.82	-1,058.47	780.09	-1,062.14	0.00	0.00	0.00
4,600.00	20.45	143.61	4,367.52	-1,086.60	800.82	-1,090.36	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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	20.45	143.61	4,461.21	-1,114.72	821.54	-1,118.58	0.00	0.00	0.00
4,800.00	20.45	143.61	4,554.91	-1,142.85	842.27	-1,146.81	0.00	0.00	0.00
4,900.00	20.45	143.61	4,648.61	-1,170.97	863.00	-1,175.03	0.00	0.00	0.00
5,000.00	20.45	143.61	4,742.31	-1,199.10	883.73	-1,203.25	0.00	0.00	0.00
5,100.00	20.45	143.61	4,836.01	-1,227.23	904.46	-1,231.47	0.00	0.00	0.00
5,200.00	20.45	143.61	4,929.70	-1,255.35	925.19	-1,259.70	0.00	0.00	0.00
5,300.00	20.45	143.61	5,023.40	-1,283.48	945.92	-1,287.92	0.00	0.00	0.00
5,400.00	20.45	143.61	5,117.10	-1,311.60	966.64	-1,316.14	0.00	0.00	0.00
5,500.00	20.45	143.61	5,210.80	-1,339.73	987.37	-1,344.37	0.00	0.00	0.00
5,600.00	20.45	143.61	5,304.49	-1,367.85	1,008.10	-1,372.59	0.00	0.00	0.00
5,700.00	20.45	143.61	5,398.19	-1,395.98	1,028.83	-1,400.81	0.00	0.00	0.00
5,800.00	20.45	143.61	5,491.89	-1,424.11	1,049.56	-1,429.04	0.00	0.00	0.00
5,900.00	20.45	143.61	5,585.59	-1,452.23	1,070.29	-1,457.26	0.00	0.00	0.00
6,000.00	20.45	143.61	5,679.29	-1,480.36	1,091.02	-1,485.48	0.00	0.00	0.00
6,100.00	20.45	143.61	5,772.98	-1,508.48	1,111.74	-1,513.71	0.00	0.00	0.00
6,200.00	20.45	143.61	5,866.68	-1,536.61	1,132.47	-1,541.93	0.00	0.00	0.00
6,300.00	20.45	143.61	5,960.38	-1,564.74	1,153.20	-1,570.15	0.00	0.00	0.00
6,363.13	20.45	143.61	6,019.53	-1,582.49	1,166.29	-1,587.97	0.00	0.00	0.00
KOP @ 6363.13ft :: DLS = 9°/100'									
6,400.00	18.17	136.32	6,054.33	-1,591.84	1,174.08	-1,597.35	9.00	-6.20	-19.78
6,450.00	15.65	123.43	6,102.18	-1,601.19	1,185.10	-1,606.76	9.00	-5.04	-25.77
6,500.00	14.12	106.88	6,150.52	-1,606.68	1,196.56	-1,612.30	9.00	-3.05	-33.11
6,550.00	13.91	88.24	6,199.06	-1,608.27	1,208.41	-1,613.94	9.00	-0.41	-37.28
6,600.00	15.08	70.81	6,247.49	-1,605.94	1,220.57	-1,611.67	9.00	2.34	-34.86
6,650.00	17.36	56.83	6,295.52	-1,599.72	1,232.97	-1,605.51	9.00	4.54	-27.95
6,700.00	20.36	46.43	6,342.84	-1,589.64	1,245.52	-1,595.49	9.00	6.01	-20.81
6,750.00	23.83	38.76	6,389.17	-1,575.76	1,258.15	-1,581.67	9.00	6.93	-15.33
6,800.00	27.57	33.01	6,434.22	-1,558.17	1,270.79	-1,564.14	9.00	7.50	-11.51
6,850.00	31.51	28.57	6,477.72	-1,536.98	1,283.34	-1,543.01	9.00	7.87	-8.89
6,900.00	35.56	25.03	6,519.39	-1,512.32	1,295.75	-1,518.41	9.00	8.11	-7.07
6,950.00	39.70	22.14	6,558.98	-1,484.34	1,307.93	-1,490.49	9.00	8.28	-5.78
7,000.00	43.90	19.71	6,596.25	-1,453.21	1,319.80	-1,459.41	9.00	8.40	-4.85
7,050.00	48.15	17.63	6,630.96	-1,419.12	1,331.29	-1,425.38	9.00	8.49	-4.16
7,100.00	52.43	15.81	6,662.90	-1,382.29	1,342.34	-1,388.60	9.00	8.55	-3.64
7,150.00	56.73	14.19	6,691.88	-1,342.95	1,352.87	-1,349.31	9.00	8.60	-3.24
7,200.00	61.05	12.72	6,717.71	-1,301.32	1,362.81	-1,307.73	9.00	8.64	-2.94
7,250.00	65.38	11.37	6,740.23	-1,257.68	1,372.12	-1,264.13	9.00	8.67	-2.70
7,300.00	69.73	10.11	6,759.32	-1,212.29	1,380.72	-1,218.78	9.00	8.69	-2.52
7,350.00	74.09	8.92	6,774.84	-1,165.42	1,388.58	-1,171.96	9.00	8.71	-2.38
7,400.00	78.45	7.78	6,786.71	-1,117.38	1,395.63	-1,123.95	9.00	8.72	-2.28
7,450.00	82.81	6.68	6,794.85	-1,068.45	1,401.83	-1,075.05	9.00	8.73	-2.21
7,500.00	87.18	5.59	6,799.21	-1,018.94	1,407.15	-1,025.56	9.00	8.74	-2.17
7,532.24	90.00	4.90	6,800.00	-986.85	1,410.10	-993.48	9.00	8.74	-2.15
TPZ @ 7532.24ft									
7,600.00	90.00	4.90	6,800.00	-919.34	1,415.89	-926.00	0.00	0.00	0.00
7,700.00	90.00	4.90	6,800.00	-819.70	1,424.43	-826.41	0.00	0.00	0.00
7,732.24	90.00	4.90	6,800.00	-787.58	1,427.18	-794.30	0.00	0.00	0.00
Begin Turn to BHL @ 7732.24ft									
7,800.00	90.00	3.88	6,800.00	-720.02	1,432.37	-726.76	1.50	0.00	-1.50
7,900.00	90.00	2.38	6,800.00	-620.17	1,437.84	-626.94	1.50	0.00	-1.50
8,000.00	90.00	0.88	6,800.00	-520.22	1,440.69	-527.00	1.50	0.00	-1.50
8,090.97	90.00	359.52	6,800.00	-429.25	1,441.01	-436.03	1.50	0.00	-1.50
End Turn @ 8090.97ft									
8,100.00	90.00	359.52	6,800.00	-420.22	1,440.93	-427.00	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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)
8,200.00	90.00	359.52	6,800.00	-320.22	1,440.09	-327.01	0.00	0.00	0.00
8,300.00	90.00	359.52	6,800.00	-220.23	1,439.25	-227.01	0.00	0.00	0.00
8,400.00	90.00	359.52	6,800.00	-120.23	1,438.41	-127.01	0.00	0.00	0.00
8,500.00	90.00	359.52	6,800.00	-20.23	1,437.57	-27.01	0.00	0.00	0.00
8,600.00	90.00	359.52	6,800.00	79.76	1,436.73	72.99	0.00	0.00	0.00
8,700.00	90.00	359.52	6,800.00	179.76	1,435.89	172.99	0.00	0.00	0.00
8,800.00	90.00	359.52	6,800.00	279.76	1,435.05	272.99	0.00	0.00	0.00
8,900.00	90.00	359.52	6,800.00	379.75	1,434.21	372.99	0.00	0.00	0.00
9,000.00	90.00	359.52	6,800.00	479.75	1,433.37	472.99	0.00	0.00	0.00
9,100.00	90.00	359.52	6,800.00	579.75	1,432.54	572.99	0.00	0.00	0.00
9,200.00	90.00	359.52	6,800.00	679.74	1,431.70	672.99	0.00	0.00	0.00
9,300.00	90.00	359.52	6,800.00	779.74	1,430.86	772.99	0.00	0.00	0.00
9,400.00	90.00	359.52	6,800.00	879.74	1,430.02	872.99	0.00	0.00	0.00
9,500.00	90.00	359.52	6,800.00	979.73	1,429.18	972.99	0.00	0.00	0.00
9,600.00	90.00	359.52	6,800.00	1,079.73	1,428.34	1,072.99	0.00	0.00	0.00
9,700.00	90.00	359.52	6,800.00	1,179.72	1,427.50	1,172.98	0.00	0.00	0.00
9,800.00	90.00	359.52	6,800.00	1,279.72	1,426.66	1,272.98	0.00	0.00	0.00
9,900.00	90.00	359.52	6,800.00	1,379.72	1,425.82	1,372.98	0.00	0.00	0.00
10,000.00	90.00	359.52	6,800.00	1,479.71	1,424.98	1,472.98	0.00	0.00	0.00
10,100.00	90.00	359.52	6,800.00	1,579.71	1,424.14	1,572.98	0.00	0.00	0.00
10,200.00	90.00	359.52	6,800.00	1,679.71	1,423.30	1,672.98	0.00	0.00	0.00
10,300.00	90.00	359.52	6,800.00	1,779.70	1,422.46	1,772.98	0.00	0.00	0.00
10,400.00	90.00	359.52	6,800.00	1,879.70	1,421.62	1,872.98	0.00	0.00	0.00
10,500.00	90.00	359.52	6,800.00	1,979.70	1,420.78	1,972.98	0.00	0.00	0.00
10,600.00	90.00	359.52	6,800.00	2,079.69	1,419.94	2,072.98	0.00	0.00	0.00
10,700.00	90.00	359.52	6,800.00	2,179.69	1,419.10	2,172.98	0.00	0.00	0.00
10,800.00	90.00	359.52	6,800.00	2,279.69	1,418.26	2,272.98	0.00	0.00	0.00
10,900.00	90.00	359.52	6,800.00	2,379.68	1,417.42	2,372.98	0.00	0.00	0.00
11,000.00	90.00	359.52	6,800.00	2,479.68	1,416.58	2,472.98	0.00	0.00	0.00
11,100.00	90.00	359.52	6,800.00	2,579.68	1,415.75	2,572.98	0.00	0.00	0.00
11,200.00	90.00	359.52	6,800.00	2,679.67	1,414.91	2,672.97	0.00	0.00	0.00
11,300.00	90.00	359.52	6,800.00	2,779.67	1,414.07	2,772.97	0.00	0.00	0.00
11,400.00	90.00	359.52	6,800.00	2,879.66	1,413.23	2,872.97	0.00	0.00	0.00
11,500.00	90.00	359.52	6,800.00	2,979.66	1,412.39	2,972.97	0.00	0.00	0.00
11,600.00	90.00	359.52	6,800.00	3,079.66	1,411.55	3,072.97	0.00	0.00	0.00
11,700.00	90.00	359.52	6,800.00	3,179.65	1,410.71	3,172.97	0.00	0.00	0.00
11,800.00	90.00	359.52	6,800.00	3,279.65	1,409.87	3,272.97	0.00	0.00	0.00
11,900.00	90.00	359.52	6,800.00	3,379.65	1,409.03	3,372.97	0.00	0.00	0.00
12,000.00	90.00	359.52	6,800.00	3,479.64	1,408.19	3,472.97	0.00	0.00	0.00
12,100.00	90.00	359.52	6,800.00	3,579.64	1,407.35	3,572.97	0.00	0.00	0.00
12,200.00	90.00	359.52	6,800.00	3,679.64	1,406.51	3,672.97	0.00	0.00	0.00
12,300.00	90.00	359.52	6,800.00	3,779.63	1,405.67	3,772.97	0.00	0.00	0.00
12,400.00	90.00	359.52	6,800.00	3,879.63	1,404.83	3,872.97	0.00	0.00	0.00
12,500.00	90.00	359.52	6,800.00	3,979.63	1,403.99	3,972.97	0.00	0.00	0.00
12,600.00	90.00	359.52	6,800.00	4,079.62	1,403.15	4,072.97	0.00	0.00	0.00
12,700.00	90.00	359.52	6,800.00	4,179.62	1,402.31	4,172.96	0.00	0.00	0.00
12,800.00	90.00	359.52	6,800.00	4,279.62	1,401.47	4,272.96	0.00	0.00	0.00
12,900.00	90.00	359.52	6,800.00	4,379.61	1,400.63	4,372.96	0.00	0.00	0.00
13,000.00	90.00	359.52	6,800.00	4,479.61	1,399.79	4,472.96	0.00	0.00	0.00
13,100.00	90.00	359.52	6,800.00	4,579.60	1,398.96	4,572.96	0.00	0.00	0.00
13,200.00	90.00	359.52	6,800.00	4,679.60	1,398.12	4,672.96	0.00	0.00	0.00
13,300.00	90.00	359.52	6,800.00	4,779.60	1,397.28	4,772.96	0.00	0.00	0.00
13,400.00	90.00	359.52	6,800.00	4,879.59	1,396.44	4,872.96	0.00	0.00	0.00
13,500.00	90.00	359.52	6,800.00	4,979.59	1,395.60	4,972.96	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BOYD 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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)	
13,600.00	90.00	359.52	6,800.00	5,079.59	1,394.76	5,072.96	0.00	0.00	0.00	
13,700.00	90.00	359.52	6,800.00	5,179.58	1,393.92	5,172.96	0.00	0.00	0.00	
13,800.00	90.00	359.52	6,800.00	5,279.58	1,393.08	5,272.96	0.00	0.00	0.00	
13,900.00	90.00	359.52	6,800.00	5,379.58	1,392.24	5,372.96	0.00	0.00	0.00	
14,000.00	90.00	359.52	6,800.00	5,479.57	1,391.40	5,472.96	0.00	0.00	0.00	
14,100.00	90.00	359.52	6,800.00	5,579.57	1,390.56	5,572.95	0.00	0.00	0.00	
14,200.00	90.00	359.52	6,800.00	5,679.57	1,389.72	5,672.95	0.00	0.00	0.00	
14,300.00	90.00	359.52	6,800.00	5,779.56	1,388.88	5,772.95	0.00	0.00	0.00	
14,400.00	90.00	359.52	6,800.00	5,879.56	1,388.04	5,872.95	0.00	0.00	0.00	
14,500.00	90.00	359.52	6,800.00	5,979.56	1,387.20	5,972.95	0.00	0.00	0.00	
14,600.00	90.00	359.52	6,800.00	6,079.55	1,386.36	6,072.95	0.00	0.00	0.00	
14,700.00	90.00	359.52	6,800.00	6,179.55	1,385.52	6,172.95	0.00	0.00	0.00	
14,800.00	90.00	359.52	6,800.00	6,279.55	1,384.68	6,272.95	0.00	0.00	0.00	
14,900.00	90.00	359.52	6,800.00	6,379.54	1,383.84	6,372.95	0.00	0.00	0.00	
15,000.00	90.00	359.52	6,800.00	6,479.54	1,383.00	6,472.95	0.00	0.00	0.00	
15,100.00	90.00	359.52	6,800.00	6,579.53	1,382.17	6,572.95	0.00	0.00	0.00	
15,200.00	90.00	359.52	6,800.00	6,679.53	1,381.33	6,672.95	0.00	0.00	0.00	
15,300.00	90.00	359.52	6,800.00	6,779.53	1,380.49	6,772.95	0.00	0.00	0.00	
15,400.00	90.00	359.52	6,800.00	6,879.52	1,379.65	6,872.95	0.00	0.00	0.00	
15,500.00	90.00	359.52	6,800.00	6,979.52	1,378.81	6,972.95	0.00	0.00	0.00	
15,600.00	90.00	359.52	6,800.00	7,079.52	1,377.97	7,072.94	0.00	0.00	0.00	
15,700.00	90.00	359.52	6,800.00	7,179.51	1,377.13	7,172.94	0.00	0.00	0.00	
15,800.00	90.00	359.52	6,800.00	7,279.51	1,376.29	7,272.94	0.00	0.00	0.00	
15,900.00	90.00	359.52	6,800.00	7,379.51	1,375.45	7,372.94	0.00	0.00	0.00	
16,000.00	90.00	359.52	6,800.00	7,479.50	1,374.61	7,472.94	0.00	0.00	0.00	
16,100.00	90.00	359.52	6,800.00	7,579.50	1,373.77	7,572.94	0.00	0.00	0.00	
16,200.00	90.00	359.52	6,800.00	7,679.50	1,372.93	7,672.94	0.00	0.00	0.00	
16,300.00	90.00	359.52	6,800.00	7,779.49	1,372.09	7,772.94	0.00	0.00	0.00	
16,400.00	90.00	359.52	6,800.00	7,879.49	1,371.25	7,872.94	0.00	0.00	0.00	
16,500.00	90.00	359.52	6,800.00	7,979.49	1,370.41	7,972.94	0.00	0.00	0.00	
16,600.00	90.00	359.52	6,800.00	8,079.48	1,369.57	8,072.94	0.00	0.00	0.00	
16,700.00	90.00	359.52	6,800.00	8,179.48	1,368.73	8,172.94	0.00	0.00	0.00	
16,800.00	90.00	359.52	6,800.00	8,279.47	1,367.89	8,272.94	0.00	0.00	0.00	
16,900.00	90.00	359.52	6,800.00	8,379.47	1,367.05	8,372.94	0.00	0.00	0.00	
17,000.00	90.00	359.52	6,800.00	8,479.47	1,366.21	8,472.94	0.00	0.00	0.00	
17,100.00	90.00	359.52	6,800.00	8,579.46	1,365.38	8,572.93	0.00	0.00	0.00	
17,177.32	90.00	359.52	6,800.00	8,656.78	1,364.73	8,650.25	0.00	0.00	0.00	
BPZ @ 17177.32ft										
17,200.00	90.00	359.52	6,800.00	8,679.46	1,364.54	8,672.93	0.00	0.00	0.00	
17,267.30	90.00	359.52	6,800.00	8,746.76	1,363.97	8,740.24	0.00	0.00	0.00	
TD Well @ 17267.30ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
2,002.80	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 2413-09H
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-BOYD PAD	North Reference:	True
Well:	BOYD 2413-09H	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)	
230.90	230.90	0.00	0.00	Begin Nudge @ 230.90ft
1,253.40	1,231.83	-145.34	107.11	Hold Tangent @ 1253.40ft
6,363.13	6,019.53	-1,582.49	1,166.29	KOP @ 6363.13ft :: DLS = 9°/100'
7,532.24	6,800.00	-986.85	1,410.10	TPZ @ 7532.24ft
7,732.24	6,800.00	-787.58	1,427.18	Begin Turn to BHL @ 7732.24ft
8,090.97	6,800.00	-429.25	1,441.01	End Turn @ 8090.97ft
17,177.32	6,800.00	8,656.78	1,364.73	BPZ @ 17177.32ft
17,267.30	6,800.00	8,746.76	1,363.97	TD Well @ 17267.30ft