

VERDAD RESOURCES

**WATTENBERG FIELD
ARNOLD 02N-64W-24
BOYD 24-2H**

Wellbore #2

Plan: Design #1

Standard Planning Report

25 February, 2019

Project: WATTENBERG FIELD
Site: ARNOLD 02N-64W-24
Well: BOYD 24-2H
Wellbore: Wellbore #2
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1700.00	1755.96	9 5/8"	9-5/8
6950.00	7745.34	5 1/2"	5-1/2

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1342.00	21.84	222.35	1315.75	-151.96	-138.52	2.00	222.35	-151.33	
4	6568.78	21.84	222.35	6167.38	-1588.99	-1448.41	0.00	0.00	-1582.40	
5	7745.34	90.00	359.74	6950.00	-977.67	-1663.55	9.00	135.26	-970.11	
6	17340.94	90.00	359.74	6950.00	8617.84	-1707.28	0.00	0.00	8625.50	BOYD 24-2H_BHL

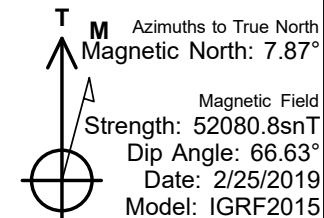
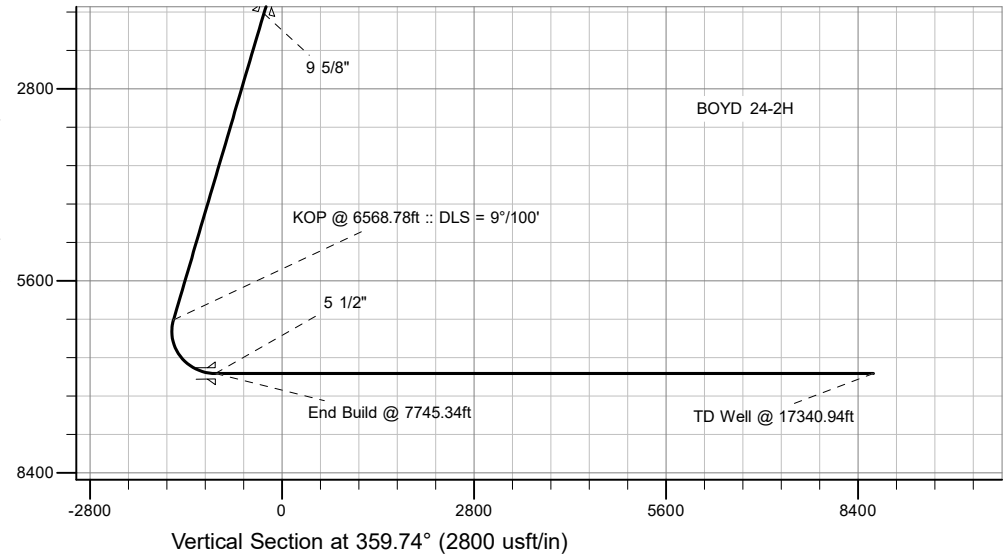
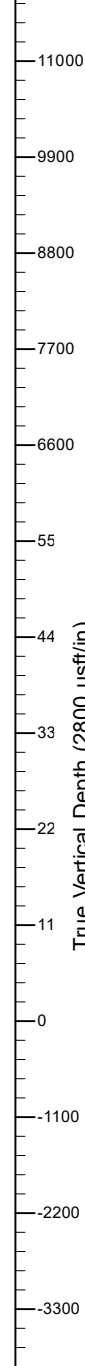
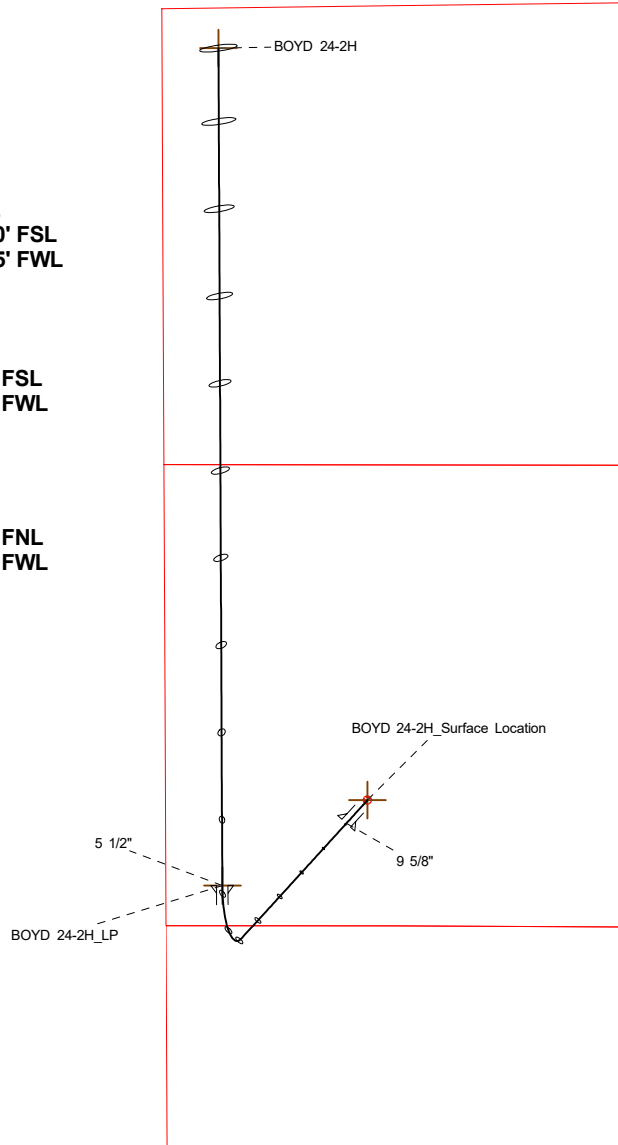
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BOYD 24-2H_Surface Location	0.00	0.00	0.00	40.120600	-104.500856
BOYD 24-2H_BHL	6950.00	8617.84	-1707.28	40.144257	-104.506963

SHL
1440' FSL
2315' FWL

LP
460' FSL
648' FWL

BHL
460' FNL
648' FWL



WELL DETAILS: BOYD 24-2H

GL = 4923'

RKB = 24' @ 4947.00usft (Drilling Rig)

Plan: Design #1 (BOYD 24-2H/Wellbore #2)

Created By: _____ Date: 2/25/2019
Reviewed: _____ Date: _____

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well BOYD 24-2H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Site:	ARNOLD 02N-64W-24	North Reference:	True
Well:	BOYD 24-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
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		ARNOLD 02N-64W-24			
Site Position:		Northing:	1,288,352.76 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 "	Grid Convergence:	0.65 °

Well	BOYD 24-2H					
Well Position	+N/-S	-0.75 usft	Northing:	1,288,352.69 usft	Latitude:	40.120600
	+E/-W	60.13 usft	Easting:	3,279,412.87 usft	Longitude:	-104.500856
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,923.00 usft

Wellbore	Wellbore #2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/25/2019	7.87	66.63	52,080.77136416

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	359.74

Plan Survey Tool Program	Date	2/25/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,700.00	Design #1 (Wellbore #2)	ISCWSA REV 2 MWD Fixed:v2:standard declination
2	1,700.00	17,340.94	Design #1 (Wellbore #2)	ISCWSA REV 2 MWD Fixed:v2:standard declination

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,342.00	21.84	222.35	1,315.75	-151.96	-138.52	2.00	2.00	0.00	222.35	
6,568.78	21.84	222.35	6,167.38	-1,588.99	-1,448.41	0.00	0.00	0.00	0.00	
7,745.34	90.00	359.74	6,950.00	-977.67	-1,663.55	9.00	5.79	11.68	135.26	
17,340.95	90.00	359.74	6,950.00	8,617.84	-1,707.28	0.00	0.00	0.00	0.00	BOYD 24-2H_BHL

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well BOYD 24-2H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Site:	ARNOLD 02N-64W-24	North Reference:	True
Well:	BOYD 24-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	1.00	222.35	300.00	-0.32	-0.29	-0.32	2.00	2.00	0.00
400.00	3.00	222.35	399.93	-2.90	-2.64	-2.89	2.00	2.00	0.00
500.00	5.00	222.35	499.68	-8.06	-7.34	-8.02	2.00	2.00	0.00
600.00	7.00	222.35	599.13	-15.78	-14.39	-15.72	2.00	2.00	0.00
700.00	9.00	222.35	698.15	-26.07	-23.76	-25.96	2.00	2.00	0.00
800.00	11.00	222.35	796.63	-38.90	-35.46	-38.74	2.00	2.00	0.00
900.00	13.00	222.35	894.44	-54.26	-49.46	-54.04	2.00	2.00	0.00
1,000.00	15.00	222.35	991.46	-72.14	-65.76	-71.84	2.00	2.00	0.00
1,100.00	17.00	222.35	1,087.58	-92.51	-84.33	-92.13	2.00	2.00	0.00
1,200.00	19.00	222.35	1,182.68	-115.35	-105.14	-114.87	2.00	2.00	0.00
1,300.00	21.00	222.35	1,276.65	-140.62	-128.18	-140.04	2.00	2.00	0.00
1,342.00	21.84	222.35	1,315.75	-151.96	-138.52	-151.33	2.00	2.00	0.00
Hold Tangent @ 1342.00ft									
1,400.00	21.84	222.35	1,369.58	-167.91	-153.05	-167.21	0.00	0.00	0.00
1,500.00	21.84	222.35	1,462.41	-195.40	-178.11	-194.59	0.00	0.00	0.00
1,600.00	21.84	222.35	1,555.23	-222.89	-203.17	-221.97	0.00	0.00	0.00
1,700.00	21.84	222.35	1,648.05	-250.39	-228.23	-249.35	0.00	0.00	0.00
1,755.96	21.84	222.35	1,700.00	-265.77	-242.26	-264.67	0.00	0.00	0.00
9 5/8"									
1,800.00	21.84	222.35	1,740.87	-277.88	-253.30	-276.73	0.00	0.00	0.00
1,900.00	21.84	222.35	1,833.70	-305.37	-278.36	-304.11	0.00	0.00	0.00
2,000.00	21.84	222.35	1,926.52	-332.87	-303.42	-331.49	0.00	0.00	0.00
2,100.00	21.84	222.35	2,019.34	-360.36	-328.48	-358.87	0.00	0.00	0.00
2,200.00	21.84	222.35	2,112.17	-387.85	-353.54	-386.25	0.00	0.00	0.00
2,300.00	21.84	222.35	2,204.99	-415.35	-378.60	-413.63	0.00	0.00	0.00
2,400.00	21.84	222.35	2,297.81	-442.84	-403.66	-441.01	0.00	0.00	0.00
2,500.00	21.84	222.35	2,390.63	-470.34	-428.72	-468.39	0.00	0.00	0.00
2,600.00	21.84	222.35	2,483.46	-497.83	-453.78	-495.76	0.00	0.00	0.00
2,700.00	21.84	222.35	2,576.28	-525.32	-478.85	-523.14	0.00	0.00	0.00
2,800.00	21.84	222.35	2,669.10	-552.82	-503.91	-550.52	0.00	0.00	0.00
2,900.00	21.84	222.35	2,761.92	-580.31	-528.97	-577.90	0.00	0.00	0.00
3,000.00	21.84	222.35	2,854.75	-607.80	-554.03	-605.28	0.00	0.00	0.00
3,100.00	21.84	222.35	2,947.57	-635.30	-579.09	-632.66	0.00	0.00	0.00
3,200.00	21.84	222.35	3,040.39	-662.79	-604.15	-660.04	0.00	0.00	0.00
3,300.00	21.84	222.35	3,133.21	-690.28	-629.21	-687.42	0.00	0.00	0.00
3,400.00	21.84	222.35	3,226.04	-717.78	-654.27	-714.80	0.00	0.00	0.00
3,500.00	21.84	222.35	3,318.86	-745.27	-679.33	-742.18	0.00	0.00	0.00
3,600.00	21.84	222.35	3,411.68	-772.76	-704.40	-769.56	0.00	0.00	0.00
3,700.00	21.84	222.35	3,504.50	-800.26	-729.46	-796.94	0.00	0.00	0.00
3,800.00	21.84	222.35	3,597.33	-827.75	-754.52	-824.32	0.00	0.00	0.00
3,900.00	21.84	222.35	3,690.15	-855.25	-779.58	-851.70	0.00	0.00	0.00
4,000.00	21.84	222.35	3,782.97	-882.74	-804.64	-879.08	0.00	0.00	0.00
4,100.00	21.84	222.35	3,875.80	-910.23	-829.70	-906.46	0.00	0.00	0.00
4,200.00	21.84	222.35	3,968.62	-937.73	-854.76	-933.84	0.00	0.00	0.00
4,300.00	21.84	222.35	4,061.44	-965.22	-879.82	-961.22	0.00	0.00	0.00
4,400.00	21.84	222.35	4,154.26	-992.71	-904.88	-988.60	0.00	0.00	0.00
4,500.00	21.84	222.35	4,247.09	-1,020.21	-929.95	-1,015.98	0.00	0.00	0.00
4,600.00	21.84	222.35	4,339.91	-1,047.70	-955.01	-1,043.36	0.00	0.00	0.00

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well BOYD 24-2H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Site:	ARNOLD 02N-64W-24	North Reference:	True
Well:	BOYD 24-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
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	21.84	222.35	4,432.73	-1,075.19	-980.07	-1,070.74	0.00	0.00	0.00	
4,800.00	21.84	222.35	4,525.55	-1,102.69	-1,005.13	-1,098.12	0.00	0.00	0.00	
4,900.00	21.84	222.35	4,618.38	-1,130.18	-1,030.19	-1,125.50	0.00	0.00	0.00	
5,000.00	21.84	222.35	4,711.20	-1,157.68	-1,055.25	-1,152.87	0.00	0.00	0.00	
5,100.00	21.84	222.35	4,804.02	-1,185.17	-1,080.31	-1,180.25	0.00	0.00	0.00	
5,200.00	21.84	222.35	4,896.84	-1,212.66	-1,105.37	-1,207.63	0.00	0.00	0.00	
5,300.00	21.84	222.35	4,989.67	-1,240.16	-1,130.44	-1,235.01	0.00	0.00	0.00	
5,400.00	21.84	222.35	5,082.49	-1,267.65	-1,155.50	-1,262.39	0.00	0.00	0.00	
5,500.00	21.84	222.35	5,175.31	-1,295.14	-1,180.56	-1,289.77	0.00	0.00	0.00	
5,600.00	21.84	222.35	5,268.14	-1,322.64	-1,205.62	-1,317.15	0.00	0.00	0.00	
5,700.00	21.84	222.35	5,360.96	-1,350.13	-1,230.68	-1,344.53	0.00	0.00	0.00	
5,800.00	21.84	222.35	5,453.78	-1,377.62	-1,255.74	-1,371.91	0.00	0.00	0.00	
5,900.00	21.84	222.35	5,546.60	-1,405.12	-1,280.80	-1,399.29	0.00	0.00	0.00	
6,000.00	21.84	222.35	5,639.43	-1,432.61	-1,305.86	-1,426.67	0.00	0.00	0.00	
6,100.00	21.84	222.35	5,732.25	-1,460.10	-1,330.92	-1,454.05	0.00	0.00	0.00	
6,200.00	21.84	222.35	5,825.07	-1,487.60	-1,355.99	-1,481.43	0.00	0.00	0.00	
6,300.00	21.84	222.35	5,917.89	-1,515.09	-1,381.05	-1,508.81	0.00	0.00	0.00	
6,400.00	21.84	222.35	6,010.72	-1,542.59	-1,406.11	-1,536.19	0.00	0.00	0.00	
6,500.00	21.84	222.35	6,103.54	-1,570.08	-1,431.17	-1,563.57	0.00	0.00	0.00	
6,568.78	21.84	222.35	6,167.38	-1,588.99	-1,448.41	-1,582.40	0.00	0.00	0.00	
KOP @ 6568.78ft :: DLS = 9°/100'										
6,600.00	19.94	228.16	6,196.55	-1,596.83	-1,456.29	-1,590.21	9.00	-6.09	18.60	
6,700.00	15.71	254.50	6,291.88	-1,611.86	-1,482.08	-1,605.11	9.00	-4.23	26.34	
6,800.00	15.94	287.94	6,388.29	-1,611.24	-1,508.25	-1,604.38	9.00	0.23	33.43	
6,900.00	20.49	313.16	6,483.40	-1,595.01	-1,534.13	-1,588.03	9.00	4.54	25.23	
7,000.00	27.26	327.97	6,574.88	-1,563.56	-1,559.09	-1,556.47	9.00	6.78	14.81	
7,100.00	35.00	336.94	6,660.46	-1,517.66	-1,582.52	-1,510.46	9.00	7.73	8.97	
7,200.00	43.18	342.93	6,738.04	-1,458.45	-1,603.84	-1,451.16	9.00	8.18	5.99	
7,300.00	51.58	347.31	6,805.71	-1,387.38	-1,622.53	-1,380.00	9.00	8.41	4.38	
7,400.00	60.12	350.77	6,861.80	-1,306.20	-1,638.12	-1,298.76	9.00	8.54	3.46	
7,500.00	68.73	353.68	6,904.94	-1,216.92	-1,650.23	-1,209.42	9.00	8.61	2.91	
7,600.00	77.38	356.26	6,934.06	-1,121.72	-1,658.57	-1,114.19	9.00	8.66	2.58	
7,700.00	86.06	358.67	6,948.45	-1,022.96	-1,662.92	-1,015.41	9.00	8.68	2.41	
7,745.34	90.00	359.74	6,950.00	-977.66	-1,663.55	-970.11	9.00	8.68	2.36	
End Build @ 7745.34ft - 5 1/2"										
7,800.00	90.00	359.74	6,950.00	-923.01	-1,663.80	-915.45	0.00	0.00	0.00	
7,900.00	90.00	359.74	6,950.00	-823.01	-1,664.25	-815.45	0.00	0.00	0.00	
8,000.00	90.00	359.74	6,950.00	-723.01	-1,664.71	-715.45	0.00	0.00	0.00	
8,100.00	90.00	359.74	6,950.00	-623.01	-1,665.16	-615.45	0.00	0.00	0.00	
8,200.00	90.00	359.74	6,950.00	-523.01	-1,665.62	-515.45	0.00	0.00	0.00	
8,300.00	90.00	359.74	6,950.00	-423.01	-1,666.08	-415.45	0.00	0.00	0.00	
8,400.00	90.00	359.74	6,950.00	-323.01	-1,666.53	-315.45	0.00	0.00	0.00	
8,500.00	90.00	359.74	6,950.00	-223.01	-1,666.99	-215.45	0.00	0.00	0.00	
8,600.00	90.00	359.74	6,950.00	-123.01	-1,667.44	-115.45	0.00	0.00	0.00	
8,700.00	90.00	359.74	6,950.00	-23.01	-1,667.90	-15.45	0.00	0.00	0.00	
8,800.00	90.00	359.74	6,950.00	76.98	-1,668.35	84.55	0.00	0.00	0.00	
8,900.00	90.00	359.74	6,950.00	176.98	-1,668.81	184.55	0.00	0.00	0.00	
9,000.00	90.00	359.74	6,950.00	276.98	-1,669.27	284.55	0.00	0.00	0.00	
9,100.00	90.00	359.74	6,950.00	376.98	-1,669.72	384.55	0.00	0.00	0.00	
9,200.00	90.00	359.74	6,950.00	476.98	-1,670.18	484.55	0.00	0.00	0.00	
9,300.00	90.00	359.74	6,950.00	576.98	-1,670.63	584.55	0.00	0.00	0.00	
9,400.00	90.00	359.74	6,950.00	676.98	-1,671.09	684.55	0.00	0.00	0.00	
9,500.00	90.00	359.74	6,950.00	776.98	-1,671.54	784.55	0.00	0.00	0.00	
9,600.00	90.00	359.74	6,950.00	876.98	-1,672.00	884.55	0.00	0.00	0.00	

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well BOYD 24-2H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Site:	ARNOLD 02N-64W-24	North Reference:	True
Well:	BOYD 24-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
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)	
9,700.00	90.00	359.74	6,950.00	976.98	-1,672.46	984.55	0.00	0.00	0.00	
9,800.00	90.00	359.74	6,950.00	1,076.97	-1,672.91	1,084.55	0.00	0.00	0.00	
9,900.00	90.00	359.74	6,950.00	1,176.97	-1,673.37	1,184.55	0.00	0.00	0.00	
10,000.00	90.00	359.74	6,950.00	1,276.97	-1,673.82	1,284.55	0.00	0.00	0.00	
10,100.00	90.00	359.74	6,950.00	1,376.97	-1,674.28	1,384.55	0.00	0.00	0.00	
10,200.00	90.00	359.74	6,950.00	1,476.97	-1,674.74	1,484.55	0.00	0.00	0.00	
10,300.00	90.00	359.74	6,950.00	1,576.97	-1,675.19	1,584.55	0.00	0.00	0.00	
10,400.00	90.00	359.74	6,950.00	1,676.97	-1,675.65	1,684.55	0.00	0.00	0.00	
10,500.00	90.00	359.74	6,950.00	1,776.97	-1,676.10	1,784.55	0.00	0.00	0.00	
10,600.00	90.00	359.74	6,950.00	1,876.97	-1,676.56	1,884.55	0.00	0.00	0.00	
10,700.00	90.00	359.74	6,950.00	1,976.96	-1,677.01	1,984.55	0.00	0.00	0.00	
10,800.00	90.00	359.74	6,950.00	2,076.96	-1,677.47	2,084.55	0.00	0.00	0.00	
10,900.00	90.00	359.74	6,950.00	2,176.96	-1,677.93	2,184.55	0.00	0.00	0.00	
11,000.00	90.00	359.74	6,950.00	2,276.96	-1,678.38	2,284.55	0.00	0.00	0.00	
11,100.00	90.00	359.74	6,950.00	2,376.96	-1,678.84	2,384.55	0.00	0.00	0.00	
11,200.00	90.00	359.74	6,950.00	2,476.96	-1,679.29	2,484.55	0.00	0.00	0.00	
11,300.00	90.00	359.74	6,950.00	2,576.96	-1,679.75	2,584.55	0.00	0.00	0.00	
11,400.00	90.00	359.74	6,950.00	2,676.96	-1,680.20	2,684.55	0.00	0.00	0.00	
11,500.00	90.00	359.74	6,950.00	2,776.96	-1,680.66	2,784.55	0.00	0.00	0.00	
11,600.00	90.00	359.74	6,950.00	2,876.96	-1,681.12	2,884.55	0.00	0.00	0.00	
11,700.00	90.00	359.74	6,950.00	2,976.95	-1,681.57	2,984.55	0.00	0.00	0.00	
11,800.00	90.00	359.74	6,950.00	3,076.95	-1,682.03	3,084.55	0.00	0.00	0.00	
11,900.00	90.00	359.74	6,950.00	3,176.95	-1,682.48	3,184.55	0.00	0.00	0.00	
12,000.00	90.00	359.74	6,950.00	3,276.95	-1,682.94	3,284.55	0.00	0.00	0.00	
12,100.00	90.00	359.74	6,950.00	3,376.95	-1,683.39	3,384.55	0.00	0.00	0.00	
12,200.00	90.00	359.74	6,950.00	3,476.95	-1,683.85	3,484.55	0.00	0.00	0.00	
12,300.00	90.00	359.74	6,950.00	3,576.95	-1,684.31	3,584.55	0.00	0.00	0.00	
12,400.00	90.00	359.74	6,950.00	3,676.95	-1,684.76	3,684.55	0.00	0.00	0.00	
12,500.00	90.00	359.74	6,950.00	3,776.95	-1,685.22	3,784.55	0.00	0.00	0.00	
12,600.00	90.00	359.74	6,950.00	3,876.94	-1,685.67	3,884.55	0.00	0.00	0.00	
12,700.00	90.00	359.74	6,950.00	3,976.94	-1,686.13	3,984.55	0.00	0.00	0.00	
12,800.00	90.00	359.74	6,950.00	4,076.94	-1,686.58	4,084.55	0.00	0.00	0.00	
12,900.00	90.00	359.74	6,950.00	4,176.94	-1,687.04	4,184.55	0.00	0.00	0.00	
13,000.00	90.00	359.74	6,950.00	4,276.94	-1,687.50	4,284.55	0.00	0.00	0.00	
13,100.00	90.00	359.74	6,950.00	4,376.94	-1,687.95	4,384.55	0.00	0.00	0.00	
13,200.00	90.00	359.74	6,950.00	4,476.94	-1,688.41	4,484.55	0.00	0.00	0.00	
13,300.00	90.00	359.74	6,950.00	4,576.94	-1,688.86	4,584.55	0.00	0.00	0.00	
13,400.00	90.00	359.74	6,950.00	4,676.94	-1,689.32	4,684.55	0.00	0.00	0.00	
13,500.00	90.00	359.74	6,950.00	4,776.94	-1,689.77	4,784.55	0.00	0.00	0.00	
13,600.00	90.00	359.74	6,950.00	4,876.93	-1,690.23	4,884.55	0.00	0.00	0.00	
13,700.00	90.00	359.74	6,950.00	4,976.93	-1,690.69	4,984.55	0.00	0.00	0.00	
13,800.00	90.00	359.74	6,950.00	5,076.93	-1,691.14	5,084.55	0.00	0.00	0.00	
13,900.00	90.00	359.74	6,950.00	5,176.93	-1,691.60	5,184.55	0.00	0.00	0.00	
14,000.00	90.00	359.74	6,950.00	5,276.93	-1,692.05	5,284.55	0.00	0.00	0.00	
14,100.00	90.00	359.74	6,950.00	5,376.93	-1,692.51	5,384.55	0.00	0.00	0.00	
14,200.00	90.00	359.74	6,950.00	5,476.93	-1,692.96	5,484.55	0.00	0.00	0.00	
14,300.00	90.00	359.74	6,950.00	5,576.93	-1,693.42	5,584.55	0.00	0.00	0.00	
14,400.00	90.00	359.74	6,950.00	5,676.93	-1,693.88	5,684.55	0.00	0.00	0.00	
14,500.00	90.00	359.74	6,950.00	5,776.93	-1,694.33	5,784.55	0.00	0.00	0.00	
14,600.00	90.00	359.74	6,950.00	5,876.92	-1,694.79	5,884.55	0.00	0.00	0.00	
14,700.00	90.00	359.74	6,950.00	5,976.92	-1,695.24	5,984.55	0.00	0.00	0.00	
14,800.00	90.00	359.74	6,950.00	6,076.92	-1,695.70	6,084.55	0.00	0.00	0.00	
14,900.00	90.00	359.74	6,950.00	6,176.92	-1,696.15	6,184.55	0.00	0.00	0.00	
15,000.00	90.00	359.74	6,950.00	6,276.92	-1,696.61	6,284.55	0.00	0.00	0.00	

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well BOYD 24-2H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4947.00usft (Drilling Rig)
Site:	ARNOLD 02N-64W-24	North Reference:	True
Well:	BOYD 24-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #2		
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)
15,100.00	90.00	359.74	6,950.00	6,376.92	-1,697.07	6,384.55	0.00	0.00	0.00
15,200.00	90.00	359.74	6,950.00	6,476.92	-1,697.52	6,484.55	0.00	0.00	0.00
15,300.00	90.00	359.74	6,950.00	6,576.92	-1,697.98	6,584.55	0.00	0.00	0.00
15,400.00	90.00	359.74	6,950.00	6,676.92	-1,698.43	6,684.55	0.00	0.00	0.00
15,500.00	90.00	359.74	6,950.00	6,776.91	-1,698.89	6,784.55	0.00	0.00	0.00
15,600.00	90.00	359.74	6,950.00	6,876.91	-1,699.34	6,884.55	0.00	0.00	0.00
15,700.00	90.00	359.74	6,950.00	6,976.91	-1,699.80	6,984.55	0.00	0.00	0.00
15,800.00	90.00	359.74	6,950.00	7,076.91	-1,700.26	7,084.55	0.00	0.00	0.00
15,900.00	90.00	359.74	6,950.00	7,176.91	-1,700.71	7,184.55	0.00	0.00	0.00
16,000.00	90.00	359.74	6,950.00	7,276.91	-1,701.17	7,284.55	0.00	0.00	0.00
16,100.00	90.00	359.74	6,950.00	7,376.91	-1,701.62	7,384.55	0.00	0.00	0.00
16,200.00	90.00	359.74	6,950.00	7,476.91	-1,702.08	7,484.55	0.00	0.00	0.00
16,300.00	90.00	359.74	6,950.00	7,576.91	-1,702.53	7,584.55	0.00	0.00	0.00
16,400.00	90.00	359.74	6,950.00	7,676.91	-1,702.99	7,684.55	0.00	0.00	0.00
16,500.00	90.00	359.74	6,950.00	7,776.90	-1,703.45	7,784.55	0.00	0.00	0.00
16,600.00	90.00	359.74	6,950.00	7,876.90	-1,703.90	7,884.55	0.00	0.00	0.00
16,700.00	90.00	359.74	6,950.00	7,976.90	-1,704.36	7,984.55	0.00	0.00	0.00
16,800.00	90.00	359.74	6,950.00	8,076.90	-1,704.81	8,084.55	0.00	0.00	0.00
16,900.00	90.00	359.74	6,950.00	8,176.90	-1,705.27	8,184.55	0.00	0.00	0.00
17,000.00	90.00	359.74	6,950.00	8,276.90	-1,705.73	8,284.55	0.00	0.00	0.00
17,100.00	90.00	359.74	6,950.00	8,376.90	-1,706.18	8,384.55	0.00	0.00	0.00
17,200.00	90.00	359.74	6,950.00	8,476.90	-1,706.64	8,484.55	0.00	0.00	0.00
17,300.00	90.00	359.74	6,950.00	8,576.90	-1,707.09	8,584.55	0.00	0.00	0.00
17,340.95	90.00	359.74	6,950.00	8,617.84	-1,707.28	8,625.50	0.00	0.00	0.00
TD Well @ 17340.94ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,755.96	1,700.00	9 5/8"	9-5/8	13-1/2	
7,745.34	6,950.00	5 1/2"	5-1/2	8-1/2	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,342.00	1,315.75	-151.96	-138.52	Hold Tangent @ 1342.00ft
6,568.78	6,167.38	-1,588.99	-1,448.41	KOP @ 6568.78ft :: DLS = 9°/100'
7,745.34	6,950.00	-977.67	-1,663.55	End Build @ 7745.34ft
17,340.95	6,950.00	8,617.84	-1,707.28	TD Well @ 17340.94ft