

VERDAD RESOURCES

WATTENBERG FIELD

2N-63W-19 KBL PAD

KBL 1918-01H

Wellbore #1

Plan: Design #1

Standard Planning Report

10 July, 2019

Project: WATTENBERG FIELD
Site: 2N-63W-19 KBL PAD
Well: KBL 1918-01H
Wellbore: Wellbore #1
Design: Design #1

VERDAD RESOURCES

CASING DETAILS

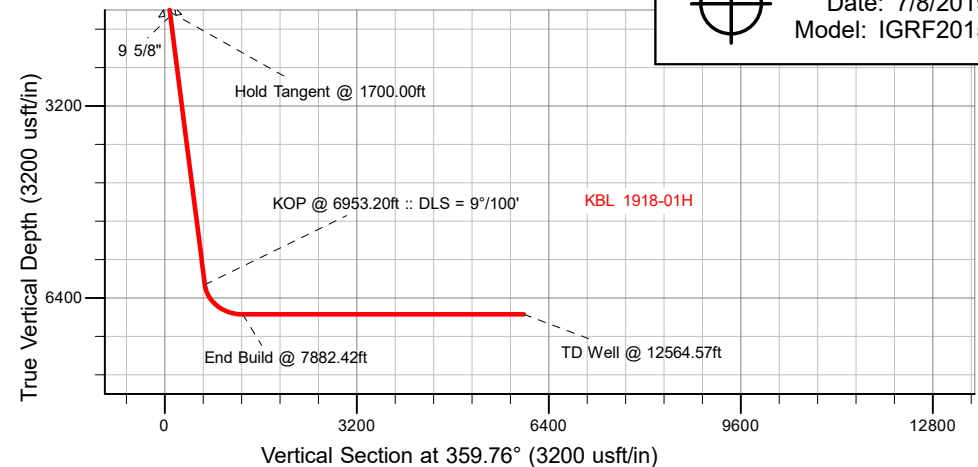
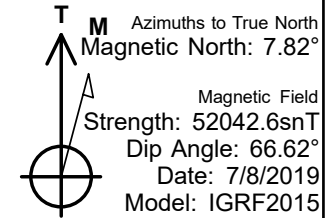
TVD	MD	Name	Size
1700.00	1778.06	9 5/8"	9-5/8

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1700.00	30.00	282.58	1632.39	83.59	-374.59	2.00	282.58	85.16	
4	6953.20	30.00	282.58	6181.80	655.67	-2938.14	0.00	0.00	667.98	
5	7882.42	90.00	359.76	6675.00	1287.19	-3218.45	9.00	78.85	1300.66	
6	12564.57	90.00	359.76	6675.00	5969.30	-3238.17	0.00	0.00	5982.81	KBL 1918-01H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N-S	+E-W	Latitude	Longitude
KBL 1918-01H_SHL	0.00	0.00	0.00	40.121610	-104.478606
KBL 1918-01H_BHL	6675.00	5969.30	-3238.17	40.137996	-104.490188

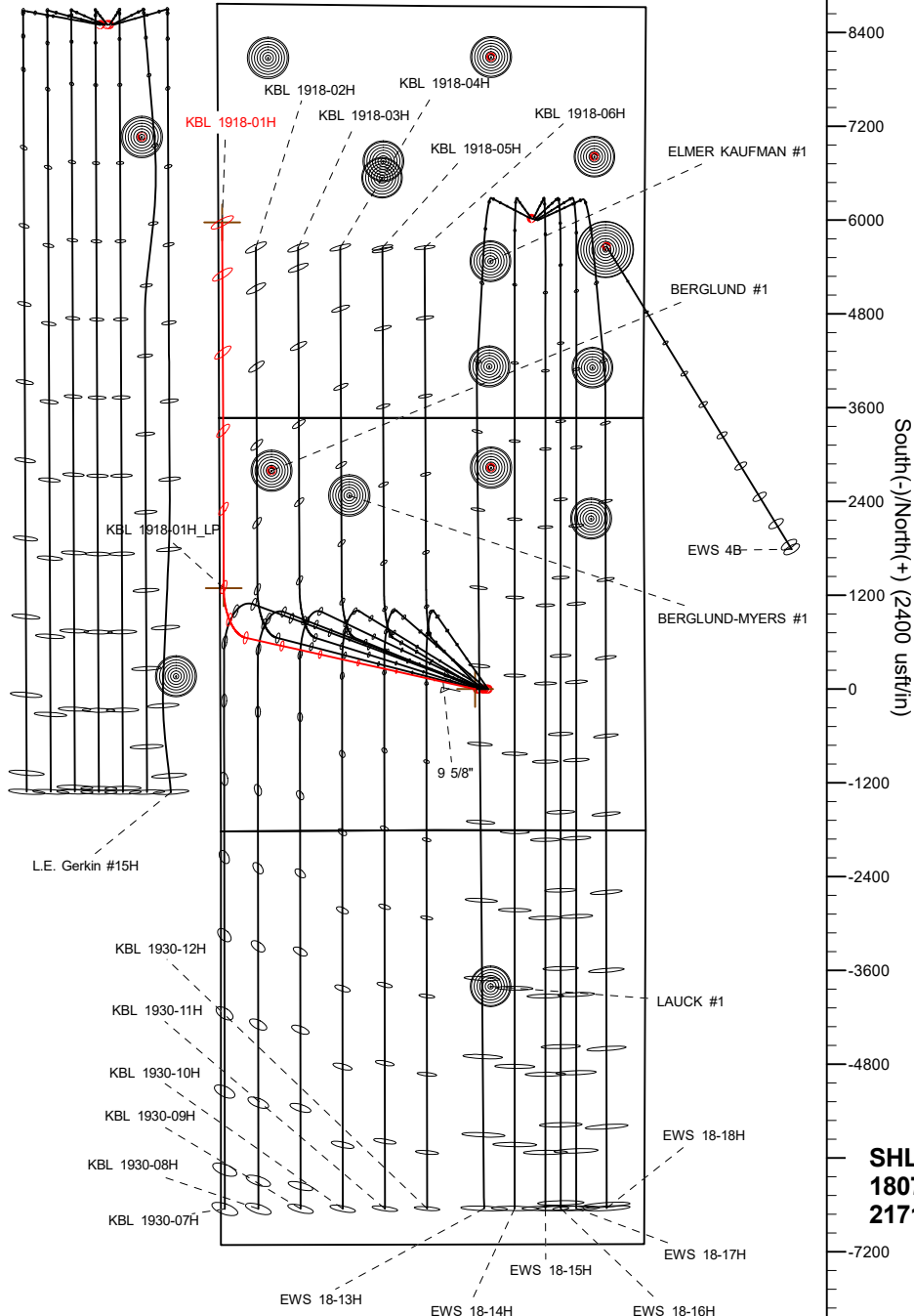


WELL DETAILS: KBL 1918-01H

GL = 4866'
RKB = 24' @ 4890.00usft (RIG)

Plan: Design #1 (KBL 1918-01H/Wellbore #1)

Date: 7/10/2019



SHL
1807' FSL
2171' FEL

LP
2180' FNL
50' FWL

BHL
2500' FSL
50' FWL

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well KBL 1918-01H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4890.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4890.00usft (RIG)
Site:	2N-63W-19 KBL PAD	North Reference:	True
Well:	KBL 1918-01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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-63W-19 KBL PAD			
Site Position:		Northing:	1,288,791.50 usft	Latitude:	40.121610
From:	Lat/Long	Easting:	3,285,630.62 usft	Longitude:	-104.478606
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.66 °

Well	KBL 1918-01H					
Well Position	+N/-S	0.00 usft	Northing:	1,288,791.49 usft	Latitude:	40.121610
	+E/-W	0.00 usft	Easting:	3,285,630.62 usft	Longitude:	-104.478606
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,866.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/8/2019	7.82	66.62	52,042.55757713

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	359.76

Plan Survey Tool Program	Date	7/10/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	
2	1,500.00	12,564.57	Design #1 (Wellbore #1)	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	30.00	282.58	1,632.39	83.59	-374.59	2.00	2.00	0.00	282.58	
6,953.20	30.00	282.58	6,181.80	655.67	-2,938.14	0.00	0.00	0.00	0.00	
7,882.42	90.00	359.76	6,675.00	1,287.19	-3,218.45	9.00	6.46	8.31	78.85	
12,564.57	90.00	359.76	6,675.00	5,969.30	-3,238.17	0.00	0.00	0.00	0.00	KBL 1918-01H_BHL

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4890.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4890.00usft (RIG)
Site:	2N-63W-19 KBL PAD	North Reference:	True
Well:	KBL 1918-01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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
Begin Nudge @ 200.00ft									
300.00	2.00	282.58	299.98	0.38	-1.70	0.39	2.00	2.00	0.00
400.00	4.00	282.58	399.84	1.52	-6.81	1.55	2.00	2.00	0.00
500.00	6.00	282.58	499.45	3.42	-15.32	3.48	2.00	2.00	0.00
600.00	8.00	282.58	598.70	6.07	-27.21	6.19	2.00	2.00	0.00
700.00	10.00	282.58	697.47	9.48	-42.48	9.66	2.00	2.00	0.00
800.00	12.00	282.58	795.62	13.63	-61.10	13.89	2.00	2.00	0.00
900.00	14.00	282.58	893.06	18.53	-83.05	18.88	2.00	2.00	0.00
1,000.00	16.00	282.58	989.64	24.17	-108.31	24.62	2.00	2.00	0.00
1,100.00	18.00	282.58	1,085.27	30.54	-136.85	31.11	2.00	2.00	0.00
1,200.00	20.00	282.58	1,179.82	37.63	-168.62	38.34	2.00	2.00	0.00
1,300.00	22.00	282.58	1,273.17	45.43	-203.59	46.29	2.00	2.00	0.00
1,400.00	24.00	282.58	1,365.21	53.94	-241.73	54.96	2.00	2.00	0.00
1,500.00	26.00	282.58	1,455.84	63.15	-282.97	64.33	2.00	2.00	0.00
1,600.00	28.00	282.58	1,544.94	73.04	-327.28	74.41	2.00	2.00	0.00
1,700.00	30.00	282.58	1,632.39	83.59	-374.59	85.16	2.00	2.00	0.00
Hold Tangent @ 1700.00ft									
1,778.06	30.00	282.58	1,700.00	92.10	-412.69	93.82	0.00	0.00	0.00
9 5/8"									
1,800.00	30.00	282.58	1,719.00	94.48	-423.39	96.26	0.00	0.00	0.00
1,900.00	30.00	282.58	1,805.60	105.37	-472.19	107.35	0.00	0.00	0.00
2,000.00	30.00	282.58	1,892.20	116.26	-520.99	118.45	0.00	0.00	0.00
2,100.00	30.00	282.58	1,978.80	127.16	-569.79	129.54	0.00	0.00	0.00
2,200.00	30.00	282.58	2,065.41	138.05	-618.59	140.64	0.00	0.00	0.00
2,300.00	30.00	282.58	2,152.01	148.94	-667.39	151.73	0.00	0.00	0.00
2,400.00	30.00	282.58	2,238.61	159.83	-716.19	162.82	0.00	0.00	0.00
2,500.00	30.00	282.58	2,325.21	170.72	-764.99	173.92	0.00	0.00	0.00
2,600.00	30.00	282.58	2,411.82	181.61	-813.79	185.01	0.00	0.00	0.00
2,700.00	30.00	282.58	2,498.42	192.50	-862.59	196.11	0.00	0.00	0.00
2,800.00	30.00	282.58	2,585.02	203.39	-911.39	207.20	0.00	0.00	0.00
2,900.00	30.00	282.58	2,671.63	214.28	-960.19	218.30	0.00	0.00	0.00
3,000.00	30.00	282.58	2,758.23	225.17	-1,008.99	229.39	0.00	0.00	0.00
3,100.00	30.00	282.58	2,844.83	236.06	-1,057.79	240.49	0.00	0.00	0.00
3,200.00	30.00	282.58	2,931.43	246.95	-1,106.59	251.58	0.00	0.00	0.00
3,300.00	30.00	282.58	3,018.04	257.84	-1,155.39	262.67	0.00	0.00	0.00
3,400.00	30.00	282.58	3,104.64	268.73	-1,204.19	273.77	0.00	0.00	0.00
3,500.00	30.00	282.58	3,191.24	279.62	-1,252.99	284.86	0.00	0.00	0.00
3,600.00	30.00	282.58	3,277.84	290.51	-1,301.79	295.96	0.00	0.00	0.00
3,700.00	30.00	282.58	3,364.45	301.40	-1,350.59	307.05	0.00	0.00	0.00
3,800.00	30.00	282.58	3,451.05	312.29	-1,399.39	318.15	0.00	0.00	0.00
3,900.00	30.00	282.58	3,537.65	323.18	-1,448.19	329.24	0.00	0.00	0.00
4,000.00	30.00	282.58	3,624.25	334.07	-1,496.99	340.34	0.00	0.00	0.00
4,100.00	30.00	282.58	3,710.86	344.96	-1,545.79	351.43	0.00	0.00	0.00
4,200.00	30.00	282.58	3,797.46	355.85	-1,594.59	362.52	0.00	0.00	0.00
4,300.00	30.00	282.58	3,884.06	366.74	-1,643.39	373.62	0.00	0.00	0.00
4,400.00	30.00	282.58	3,970.66	377.63	-1,692.19	384.71	0.00	0.00	0.00
4,500.00	30.00	282.58	4,057.27	388.52	-1,740.98	395.81	0.00	0.00	0.00
4,600.00	30.00	282.58	4,143.87	399.41	-1,789.78	406.90	0.00	0.00	0.00
4,700.00	30.00	282.58	4,230.47	410.30	-1,838.58	418.00	0.00	0.00	0.00
4,800.00	30.00	282.58	4,317.07	421.19	-1,887.38	429.09	0.00	0.00	0.00

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4890.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4890.00usft (RIG)
Site:	2N-63W-19 KBL PAD	North Reference:	True
Well:	KBL 1918-01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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)
4,900.00	30.00	282.58	4,403.68	432.08	-1,936.18	440.19	0.00	0.00	0.00
5,000.00	30.00	282.58	4,490.28	442.97	-1,984.98	451.28	0.00	0.00	0.00
5,100.00	30.00	282.58	4,576.88	453.86	-2,033.78	462.37	0.00	0.00	0.00
5,200.00	30.00	282.58	4,663.48	464.75	-2,082.58	473.47	0.00	0.00	0.00
5,300.00	30.00	282.58	4,750.09	475.64	-2,131.38	484.56	0.00	0.00	0.00
5,400.00	30.00	282.58	4,836.69	486.53	-2,180.18	495.66	0.00	0.00	0.00
5,500.00	30.00	282.58	4,923.29	497.42	-2,228.98	506.75	0.00	0.00	0.00
5,600.00	30.00	282.58	5,009.89	508.31	-2,277.78	517.85	0.00	0.00	0.00
5,700.00	30.00	282.58	5,096.50	519.20	-2,326.58	528.94	0.00	0.00	0.00
5,800.00	30.00	282.58	5,183.10	530.09	-2,375.38	540.04	0.00	0.00	0.00
5,900.00	30.00	282.58	5,269.70	540.98	-2,424.18	551.13	0.00	0.00	0.00
6,000.00	30.00	282.58	5,356.30	551.87	-2,472.98	562.22	0.00	0.00	0.00
6,100.00	30.00	282.58	5,442.91	562.76	-2,521.78	573.32	0.00	0.00	0.00
6,200.00	30.00	282.58	5,529.51	573.65	-2,570.58	584.41	0.00	0.00	0.00
6,300.00	30.00	282.58	5,616.11	584.54	-2,619.38	595.51	0.00	0.00	0.00
6,400.00	30.00	282.58	5,702.71	595.43	-2,668.18	606.60	0.00	0.00	0.00
6,500.00	30.00	282.58	5,789.32	606.32	-2,716.98	617.70	0.00	0.00	0.00
6,600.00	30.00	282.58	5,875.92	617.21	-2,765.78	628.79	0.00	0.00	0.00
6,700.00	30.00	282.58	5,962.52	628.10	-2,814.58	639.89	0.00	0.00	0.00
6,800.00	30.00	282.58	6,049.12	638.99	-2,863.38	650.98	0.00	0.00	0.00
6,900.00	30.00	282.58	6,135.73	649.88	-2,912.18	662.07	0.00	0.00	0.00
6,953.20	30.00	282.58	6,181.80	655.67	-2,938.14	667.98	0.00	0.00	0.00
KOP @ 6953.20ft :: DLS = 9°/100'									
7,000.00	31.06	290.61	6,222.13	662.48	-2,960.87	674.87	9.00	2.28	17.15
7,100.00	34.81	305.71	6,306.18	688.27	-3,008.30	700.87	9.00	3.75	15.10
7,200.00	40.07	317.76	6,385.65	728.84	-3,053.21	741.63	9.00	5.26	12.05
7,300.00	46.32	327.24	6,458.59	783.20	-3,094.50	796.16	9.00	6.25	9.49
7,400.00	53.21	334.86	6,523.20	850.00	-3,131.15	863.11	9.00	6.88	7.61
7,500.00	60.49	341.18	6,577.89	927.59	-3,162.26	940.83	9.00	7.29	6.32
7,600.00	68.04	346.64	6,621.30	1,014.07	-3,187.07	1,027.41	9.00	7.54	5.46
7,700.00	75.74	351.53	6,652.38	1,107.31	-3,204.96	1,120.73	9.00	7.71	4.90
7,800.00	83.54	356.10	6,670.36	1,205.01	-3,215.49	1,218.47	9.00	7.80	4.57
7,882.42	90.00	359.76	6,675.00	1,287.19	-3,218.45	1,300.66	9.00	7.84	4.43
End Build @ 7882.42ft									
7,900.00	90.00	359.76	6,675.00	1,304.77	-3,218.52	1,318.24	0.00	0.00	0.00
8,000.00	90.00	359.76	6,675.00	1,404.77	-3,218.95	1,418.24	0.00	0.00	0.00
8,100.00	90.00	359.76	6,675.00	1,504.77	-3,219.37	1,518.24	0.00	0.00	0.00
8,200.00	90.00	359.76	6,675.00	1,604.77	-3,219.79	1,618.24	0.00	0.00	0.00
8,300.00	90.00	359.76	6,675.00	1,704.77	-3,220.21	1,718.24	0.00	0.00	0.00
8,400.00	90.00	359.76	6,675.00	1,804.77	-3,220.63	1,818.24	0.00	0.00	0.00
8,500.00	90.00	359.76	6,675.00	1,904.77	-3,221.05	1,918.24	0.00	0.00	0.00
8,600.00	90.00	359.76	6,675.00	2,004.76	-3,221.47	2,018.24	0.00	0.00	0.00
8,700.00	90.00	359.76	6,675.00	2,104.76	-3,221.89	2,118.24	0.00	0.00	0.00
8,800.00	90.00	359.76	6,675.00	2,204.76	-3,222.32	2,218.24	0.00	0.00	0.00
8,900.00	90.00	359.76	6,675.00	2,304.76	-3,222.74	2,318.24	0.00	0.00	0.00
9,000.00	90.00	359.76	6,675.00	2,404.76	-3,223.16	2,418.24	0.00	0.00	0.00
9,100.00	90.00	359.76	6,675.00	2,504.76	-3,223.58	2,518.24	0.00	0.00	0.00
9,200.00	90.00	359.76	6,675.00	2,604.76	-3,224.00	2,618.24	0.00	0.00	0.00
9,300.00	90.00	359.76	6,675.00	2,704.76	-3,224.42	2,718.24	0.00	0.00	0.00
9,400.00	90.00	359.76	6,675.00	2,804.76	-3,224.84	2,818.24	0.00	0.00	0.00
9,500.00	90.00	359.76	6,675.00	2,904.76	-3,225.26	2,918.24	0.00	0.00	0.00
9,600.00	90.00	359.76	6,675.00	3,004.76	-3,225.69	3,018.24	0.00	0.00	0.00
9,700.00	90.00	359.76	6,675.00	3,104.75	-3,226.11	3,118.24	0.00	0.00	0.00
9,800.00	90.00	359.76	6,675.00	3,204.75	-3,226.53	3,218.24	0.00	0.00	0.00

Hewlett-Packard

Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well KBL 1918-01H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 24' @ 4890.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 24' @ 4890.00usft (RIG)
Site:	2N-63W-19 KBL PAD	North Reference:	True
Well:	KBL 1918-01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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)	
9,900.00	90.00	359.76	6,675.00	3,304.75	-3,226.95	3,318.24	0.00	0.00	0.00	
10,000.00	90.00	359.76	6,675.00	3,404.75	-3,227.37	3,418.24	0.00	0.00	0.00	
10,100.00	90.00	359.76	6,675.00	3,504.75	-3,227.79	3,518.24	0.00	0.00	0.00	
10,200.00	90.00	359.76	6,675.00	3,604.75	-3,228.21	3,618.24	0.00	0.00	0.00	
10,300.00	90.00	359.76	6,675.00	3,704.75	-3,228.63	3,718.24	0.00	0.00	0.00	
10,400.00	90.00	359.76	6,675.00	3,804.75	-3,229.06	3,818.24	0.00	0.00	0.00	
10,500.00	90.00	359.76	6,675.00	3,904.75	-3,229.48	3,918.24	0.00	0.00	0.00	
10,600.00	90.00	359.76	6,675.00	4,004.75	-3,229.90	4,018.24	0.00	0.00	0.00	
10,700.00	90.00	359.76	6,675.00	4,104.75	-3,230.32	4,118.24	0.00	0.00	0.00	
10,800.00	90.00	359.76	6,675.00	4,204.75	-3,230.74	4,218.24	0.00	0.00	0.00	
10,900.00	90.00	359.76	6,675.00	4,304.74	-3,231.16	4,318.24	0.00	0.00	0.00	
11,000.00	90.00	359.76	6,675.00	4,404.74	-3,231.58	4,418.24	0.00	0.00	0.00	
11,100.00	90.00	359.76	6,675.00	4,504.74	-3,232.00	4,518.24	0.00	0.00	0.00	
11,200.00	90.00	359.76	6,675.00	4,604.74	-3,232.43	4,618.24	0.00	0.00	0.00	
11,300.00	90.00	359.76	6,675.00	4,704.74	-3,232.85	4,718.24	0.00	0.00	0.00	
11,400.00	90.00	359.76	6,675.00	4,804.74	-3,233.27	4,818.24	0.00	0.00	0.00	
11,500.00	90.00	359.76	6,675.00	4,904.74	-3,233.69	4,918.24	0.00	0.00	0.00	
11,600.00	90.00	359.76	6,675.00	5,004.74	-3,234.11	5,018.24	0.00	0.00	0.00	
11,700.00	90.00	359.76	6,675.00	5,104.74	-3,234.53	5,118.24	0.00	0.00	0.00	
11,800.00	90.00	359.76	6,675.00	5,204.74	-3,234.95	5,218.24	0.00	0.00	0.00	
11,900.00	90.00	359.76	6,675.00	5,304.74	-3,235.37	5,318.24	0.00	0.00	0.00	
12,000.00	90.00	359.76	6,675.00	5,404.73	-3,235.80	5,418.24	0.00	0.00	0.00	
12,100.00	90.00	359.76	6,675.00	5,504.73	-3,236.22	5,518.24	0.00	0.00	0.00	
12,200.00	90.00	359.76	6,675.00	5,604.73	-3,236.64	5,618.24	0.00	0.00	0.00	
12,300.00	90.00	359.76	6,675.00	5,704.73	-3,237.06	5,718.24	0.00	0.00	0.00	
12,400.00	90.00	359.76	6,675.00	5,804.73	-3,237.48	5,818.24	0.00	0.00	0.00	
12,500.00	90.00	359.76	6,675.00	5,904.73	-3,237.90	5,918.24	0.00	0.00	0.00	
12,564.57	90.00	359.76	6,675.00	5,969.30	-3,238.17	5,982.81	0.00	0.00	0.00	
TD Well @ 12564.57ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,778.06	1,700.00	9 5/8"		9-5/8	13-1/2

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
200.00	200.00	+N/-S (usft)	+E/-W (usft)	Begin Nudge @ 200.00ft	
1,700.00	1,632.39	83.59	-374.59	Hold Tangent @ 1700.00ft	
6,953.20	6,181.80	655.67	-2,938.14	KOP @ 6953.20ft :: DLS = 9°/100'	
7,882.42	6,675.00	1,287.19	-3,218.45	End Build @ 7882.42ft	
12,564.57	6,675.00	5,969.30	-3,238.17	TD Well @ 12564.57ft	