

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-67W-08 BERRY FARMS 8-8HZ PAD

BERRY FARMS 8-8HZ

Plan A

Plan: Permit Rev-2

Standard Planning Report

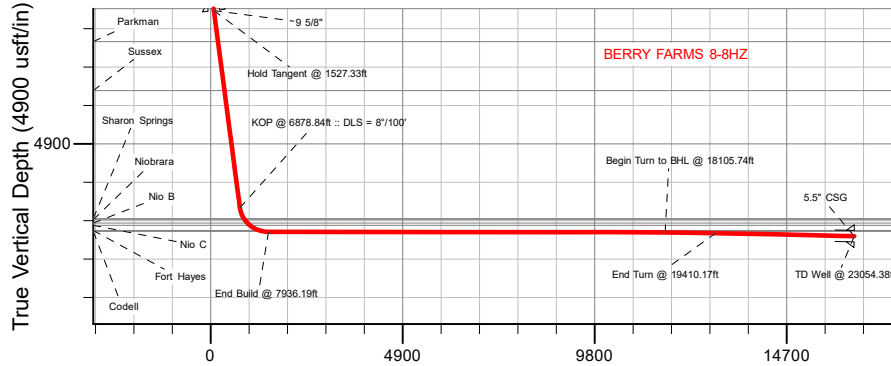
17 November, 2021

Project: WELD-NAD83-UTMFT13N
Site: 3N-67W-08 BERRY FARMS 8-8HZ PAD
Well: BERRY FARMS 8-8HZ
Wellbore: Plan A
Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Name	Size
1500.00	1526.50	9 5/8"	9-5/8
7259.00	23054.38	5.5" CSG	5-1/2



Vertical Section at 96.02° (4900 usft/in)

SHL
1422' FNL
879' FEL

LP
1683' FSL
360' FWL

BHL
360' FSL
360' FEL

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
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	
1527.33	19.91	164.67	1500.78	-220.19	60.36	1.50	164.67	83.12	
6878.84	19.91	164.67	6532.42	-1977.76	542.17	0.00	0.00	746.60	
7936.19	89.91	90.50	7146.00	-2197.49	1252.35	8.00	-75.10	1475.91	
18105.74	89.91	90.50	7161.15	-2287.00	11421.50	0.00	0.00	11598.36	BERRY FARMS 8-8HZ_Deflection
19410.17	88.71	110.04	7176.96	-2518.39	12698.71	1.50	93.61	12892.80	
23054.38	88.71	110.04	7259.00	-3766.58	16121.51	0.00	0.00	16427.63	BERRY FARMS 8-8HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
BERRY FARMS 8-8HZ_SHL	0.00	14615496.85	1666098.59	40.243720	-104.907968
BERRY FARMS 8-8HZ_LP	7146.00	14613300.66	1667353.22	40.237685	-104.903480
BERRY FARMS 8-8HZ_BHL	7259.00	14611747.00	1682224.00	40.233362	-104.850204

WELL DETAILS: BERRY FARMS 8-8HZ

GL = 4817'

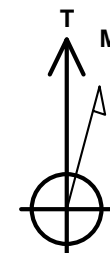
RKB = 17' @ 4834.00usft (RIG)

Plan: Permit Rev-2 (BERRY FARMS 8-8HZ/Plan A)

Date: 11/17/2021

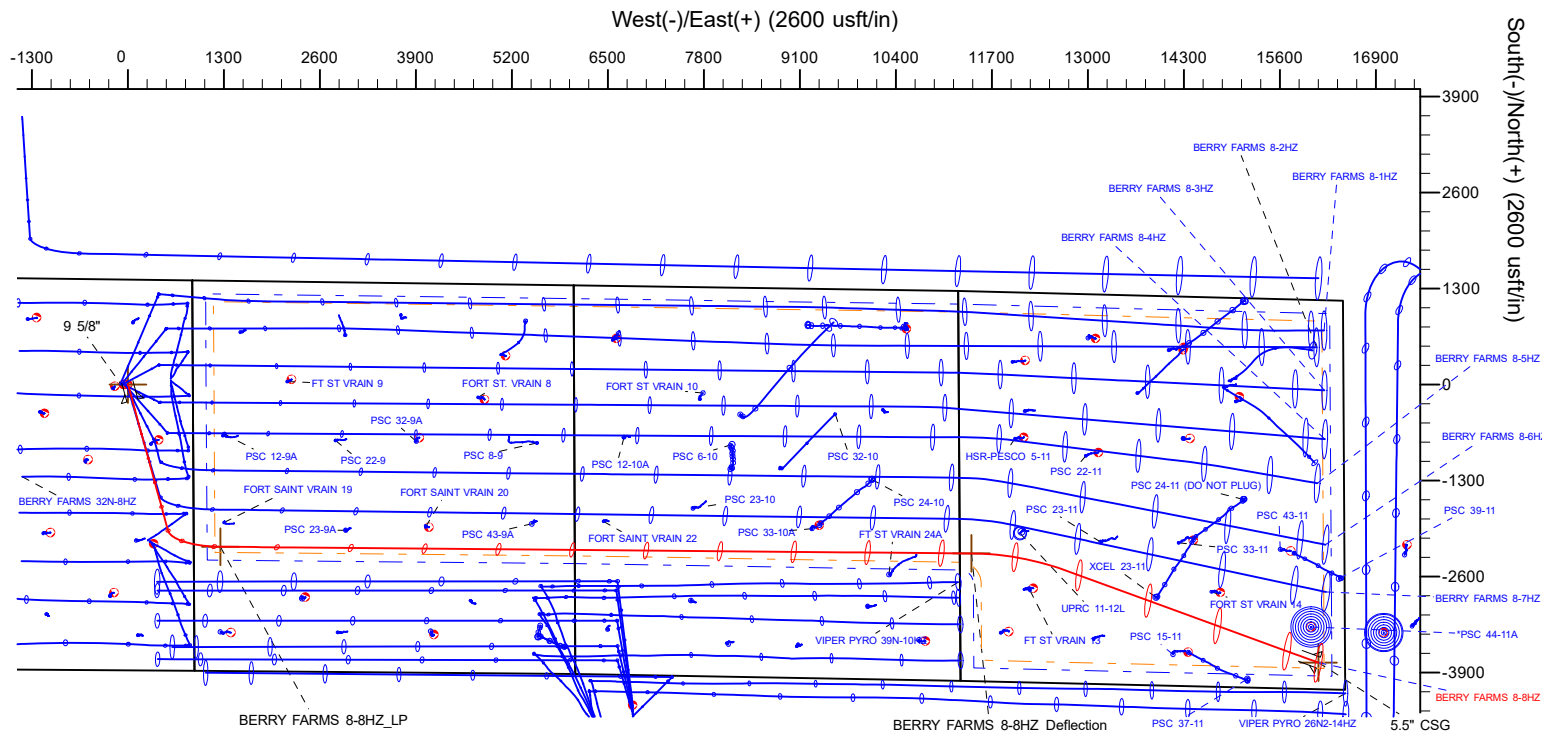
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
694.00	695.39	Fox Hills
2292.00	2368.85	Parkman
3538.00	3694.06	Sussex
6810.00	7189.95	Sharon Springs
6837.00	7223.51	Niobrara
6922.00	7336.99	Nio B
6982.00	7427.88	Nio C
7114.00	7716.13	Fort Hayes
7136.00	7814.01	Codell



Azimuths to True North
Magnetic North: 7.87°

Magnetic Field
Strength: 51819.4nT
Dip Angle: 66.49°
Date: 10/24/2021
Model: IGRF2020



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		3N-67W-08 BERRY FARMS 8-8HZ PAD			
Site Position:		Northing:	14,615,497.59 usft	Latitude:	40.243722
From:	Lat/Long	Easting:	1,665,993.52 usft	Longitude:	-104.908344
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well		BERRY FARMS 8-8HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,615,496.85 usft	Latitude:	40.243720
	+E/-W	0.00 usft	Easting:	1,666,098.59 usft	Longitude:	-104.907968
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,817.00 usft
Grid Convergence:		0.06 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	10/24/2021	7.87	66.49	51,819.37162312

Design	Permit Rev-2				
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	96.02	

Plan Survey Tool Program	Date	11/16/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination
2	2,000.00	23,054.38	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+I	Fixed:v2:Rockies, crustal dec +

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Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	
1,527.33	19.91	164.67	1,500.78	-220.19	60.36	1.50	1.50	0.00	164.67	
6,878.84	19.91	164.67	6,532.42	-1,977.76	542.17	0.00	0.00	0.00	0.00	
7,936.19	89.91	90.50	7,146.00	-2,197.49	1,252.35	8.00	6.62	-7.01	-75.10	
18,105.74	89.91	90.50	7,161.15	-2,287.00	11,421.50	0.00	0.00	0.00	0.00	BERRY FARMS 8-8H
19,410.17	88.71	110.04	7,176.96	-2,518.39	12,698.71	1.50	-0.09	1.50	93.61	
23,054.38	88.71	110.04	7,259.00	-3,766.58	16,121.51	0.00	0.00	0.00	0.00	BERRY FARMS 8-8H

Planning Report

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Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	1.50	164.67	299.99	-1.26	0.35	0.48	1.50	1.50	0.00
400.00	3.00	164.67	399.91	-5.05	1.38	1.91	1.50	1.50	0.00
500.00	4.50	164.67	499.69	-11.36	3.11	4.29	1.50	1.50	0.00
600.00	6.00	164.67	599.27	-20.18	5.53	7.62	1.50	1.50	0.00
695.39	7.43	164.67	694.00	-30.94	8.48	11.68	1.50	1.50	0.00
Fox Hills									
700.00	7.50	164.67	698.57	-31.52	8.64	11.90	1.50	1.50	0.00
800.00	9.00	164.67	797.54	-45.35	12.43	17.12	1.50	1.50	0.00
900.00	10.50	164.67	896.09	-61.69	16.91	23.29	1.50	1.50	0.00
1,000.00	12.00	164.67	994.16	-80.50	22.07	30.39	1.50	1.50	0.00
1,100.00	13.50	164.67	1,091.70	-101.78	27.90	38.42	1.50	1.50	0.00
1,200.00	15.00	164.67	1,188.62	-125.52	34.41	47.38	1.50	1.50	0.00
1,300.00	16.50	164.67	1,284.86	-151.70	41.59	57.27	1.50	1.50	0.00
1,400.00	18.00	164.67	1,380.36	-180.30	49.43	68.06	1.50	1.50	0.00
1,500.00	19.50	164.67	1,475.05	-211.30	57.92	79.76	1.50	1.50	0.00
1,526.50	19.90	164.67	1,500.00	-219.91	60.29	83.02	1.50	1.50	0.00
9 5/8"									
1,527.33	19.91	164.67	1,500.78	-220.19	60.36	83.12	1.50	1.50	0.00
Hold Tangent @ 1527.33ft									
1,600.00	19.91	164.67	1,569.10	-244.05	66.90	92.13	0.00	0.00	0.00
1,700.00	19.91	164.67	1,663.13	-276.89	75.91	104.53	0.00	0.00	0.00
1,800.00	19.91	164.67	1,757.15	-309.74	84.91	116.92	0.00	0.00	0.00
1,900.00	19.91	164.67	1,851.17	-342.58	93.91	129.32	0.00	0.00	0.00
2,000.00	19.91	164.67	1,945.20	-375.42	102.92	141.72	0.00	0.00	0.00
2,100.00	19.91	164.67	2,039.22	-408.27	111.92	154.12	0.00	0.00	0.00
2,200.00	19.91	164.67	2,133.24	-441.11	120.92	166.52	0.00	0.00	0.00
2,300.00	19.91	164.67	2,227.26	-473.95	129.92	178.91	0.00	0.00	0.00
2,368.85	19.91	164.67	2,292.00	-496.56	136.12	187.45	0.00	0.00	0.00
Parkman									
2,400.00	19.91	164.67	2,321.29	-506.79	138.93	191.31	0.00	0.00	0.00
2,500.00	19.91	164.67	2,415.31	-539.64	147.93	203.71	0.00	0.00	0.00
2,600.00	19.91	164.67	2,509.33	-572.48	156.93	216.11	0.00	0.00	0.00
2,700.00	19.91	164.67	2,603.36	-605.32	165.94	228.51	0.00	0.00	0.00
2,800.00	19.91	164.67	2,697.38	-638.16	174.94	240.90	0.00	0.00	0.00
2,900.00	19.91	164.67	2,791.40	-671.01	183.94	253.30	0.00	0.00	0.00
3,000.00	19.91	164.67	2,885.42	-703.85	192.95	265.70	0.00	0.00	0.00
3,100.00	19.91	164.67	2,979.45	-736.69	201.95	278.10	0.00	0.00	0.00
3,200.00	19.91	164.67	3,073.47	-769.53	210.95	290.50	0.00	0.00	0.00
3,300.00	19.91	164.67	3,167.49	-802.38	219.96	302.89	0.00	0.00	0.00
3,400.00	19.91	164.67	3,261.52	-835.22	228.96	315.29	0.00	0.00	0.00
3,500.00	19.91	164.67	3,355.54	-868.06	237.96	327.69	0.00	0.00	0.00
3,600.00	19.91	164.67	3,449.56	-900.91	246.97	340.09	0.00	0.00	0.00
3,694.06	19.91	164.67	3,538.00	-931.80	255.44	351.75	0.00	0.00	0.00
Sussex									
3,700.00	19.91	164.67	3,543.58	-933.75	255.97	352.49	0.00	0.00	0.00
3,800.00	19.91	164.67	3,637.61	-966.59	264.97	364.88	0.00	0.00	0.00
3,900.00	19.91	164.67	3,731.63	-999.43	273.98	377.28	0.00	0.00	0.00
4,000.00	19.91	164.67	3,825.65	-1,032.28	282.98	389.68	0.00	0.00	0.00
4,100.00	19.91	164.67	3,919.68	-1,065.12	291.98	402.08	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
4,200.00	19.91	164.67	4,013.70	-1,097.96	300.99	414.48	0.00	0.00	0.00
4,300.00	19.91	164.67	4,107.72	-1,130.80	309.99	426.87	0.00	0.00	0.00
4,400.00	19.91	164.67	4,201.74	-1,163.65	318.99	439.27	0.00	0.00	0.00
4,500.00	19.91	164.67	4,295.77	-1,196.49	328.00	451.67	0.00	0.00	0.00
4,600.00	19.91	164.67	4,389.79	-1,229.33	337.00	464.07	0.00	0.00	0.00
4,700.00	19.91	164.67	4,483.81	-1,262.17	346.00	476.47	0.00	0.00	0.00
4,800.00	19.91	164.67	4,577.84	-1,295.02	355.01	488.86	0.00	0.00	0.00
4,900.00	19.91	164.67	4,671.86	-1,327.86	364.01	501.26	0.00	0.00	0.00
5,000.00	19.91	164.67	4,765.88	-1,360.70	373.01	513.66	0.00	0.00	0.00
5,100.00	19.91	164.67	4,859.90	-1,393.55	382.02	526.06	0.00	0.00	0.00
5,200.00	19.91	164.67	4,953.93	-1,426.39	391.02	538.46	0.00	0.00	0.00
5,300.00	19.91	164.67	5,047.95	-1,459.23	400.02	550.85	0.00	0.00	0.00
5,400.00	19.91	164.67	5,141.97	-1,492.07	409.03	563.25	0.00	0.00	0.00
5,500.00	19.91	164.67	5,236.00	-1,524.92	418.03	575.65	0.00	0.00	0.00
5,600.00	19.91	164.67	5,330.02	-1,557.76	427.03	588.05	0.00	0.00	0.00
5,700.00	19.91	164.67	5,424.04	-1,590.60	436.03	600.45	0.00	0.00	0.00
5,800.00	19.91	164.67	5,518.06	-1,623.44	445.04	612.84	0.00	0.00	0.00
5,900.00	19.91	164.67	5,612.09	-1,656.29	454.04	625.24	0.00	0.00	0.00
6,000.00	19.91	164.67	5,706.11	-1,689.13	463.04	637.64	0.00	0.00	0.00
6,100.00	19.91	164.67	5,800.13	-1,721.97	472.05	650.04	0.00	0.00	0.00
6,200.00	19.91	164.67	5,894.16	-1,754.82	481.05	662.44	0.00	0.00	0.00
6,300.00	19.91	164.67	5,988.18	-1,787.66	490.05	674.83	0.00	0.00	0.00
6,400.00	19.91	164.67	6,082.20	-1,820.50	499.06	687.23	0.00	0.00	0.00
6,500.00	19.91	164.67	6,176.23	-1,853.34	508.06	699.63	0.00	0.00	0.00
6,600.00	19.91	164.67	6,270.25	-1,886.19	517.06	712.03	0.00	0.00	0.00
6,700.00	19.91	164.67	6,364.27	-1,919.03	526.07	724.43	0.00	0.00	0.00
6,800.00	19.91	164.67	6,458.29	-1,951.87	535.07	736.82	0.00	0.00	0.00
6,878.84	19.91	164.67	6,532.42	-1,977.76	542.17	746.60	0.00	0.00	0.00
KOP @ 6878.84ft :: DLS = 8°/100'									
6,900.00	20.41	159.97	6,552.29	-1,984.71	544.38	749.53	8.00	2.36	-22.19
6,950.00	22.04	149.87	6,598.91	-2,001.02	552.08	758.90	8.00	3.27	-20.21
7,000.00	24.21	141.29	6,644.90	-2,017.14	563.21	771.65	8.00	4.33	-17.16
7,050.00	26.78	134.15	6,690.04	-2,032.99	577.70	787.73	8.00	5.14	-14.28
7,100.00	29.64	128.24	6,734.11	-2,048.50	595.50	807.06	8.00	5.73	-11.83
7,150.00	32.73	123.32	6,776.88	-2,063.58	616.52	829.54	8.00	6.17	-9.85
7,189.95	35.31	119.95	6,810.00	-2,075.28	635.55	849.69	8.00	6.47	-8.43
Sharon Springs									
7,200.00	35.97	119.17	6,818.16	-2,078.17	640.64	855.06	8.00	6.60	-7.75
7,223.51	37.54	117.44	6,837.00	-2,084.83	653.03	868.08	8.00	6.68	-7.36
Niobrara									
7,250.00	39.34	115.64	6,857.75	-2,092.19	667.77	883.50	8.00	6.79	-6.81
7,300.00	42.80	112.58	6,895.44	-2,105.57	697.75	914.73	8.00	6.92	-6.11
7,336.99	45.41	110.57	6,922.00	-2,115.02	721.69	939.52	8.00	7.05	-5.44
Nio B									
7,350.00	46.33	109.90	6,931.06	-2,118.25	730.45	948.58	8.00	7.11	-5.11
7,400.00	49.92	107.53	6,964.43	-2,130.18	765.71	984.89	8.00	7.18	-4.75
7,427.88	51.94	106.31	6,982.00	-2,136.47	786.42	1,006.15	8.00	7.25	-4.37
Nio C									
7,450.00	53.55	105.39	6,995.39	-2,141.28	803.36	1,023.49	8.00	7.28	-4.16
7,500.00	57.22	103.44	7,023.79	-2,151.51	843.21	1,064.20	8.00	7.33	-3.89
7,550.00	60.91	101.65	7,049.49	-2,160.81	885.06	1,106.80	8.00	7.39	-3.58
7,600.00	64.63	99.99	7,072.36	-2,169.14	928.72	1,151.09	8.00	7.43	-3.33
7,650.00	68.36	98.42	7,092.30	-2,176.47	973.97	1,196.86	8.00	7.47	-3.13

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
7,700.00	72.11	96.93	7,109.21	-2,182.74	1,020.60	1,243.89	8.00	7.49	-2.97
7,716.13	73.32	96.47	7,114.00	-2,184.54	1,035.89	1,259.28	8.00	7.51	-2.89
Fort Hayes									
7,750.00	75.87	95.51	7,123.00	-2,187.95	1,068.37	1,291.94	8.00	7.52	-2.83
7,800.00	79.63	94.13	7,133.61	-2,192.05	1,117.05	1,340.78	8.00	7.53	-2.76
7,814.01	80.69	93.75	7,136.00	-2,192.99	1,130.82	1,354.57	8.00	7.54	-2.71
Codell									
7,850.00	83.41	92.78	7,140.98	-2,195.02	1,166.40	1,390.17	8.00	7.55	-2.68
7,900.00	87.18	91.46	7,145.08	-2,196.87	1,216.19	1,439.88	8.00	7.55	-2.65
7,936.19	89.91	90.50	7,146.00	-2,197.49	1,252.35	1,475.91	8.00	7.55	-2.63
End Build @ 7936.19ft									
8,000.00	89.91	90.50	7,146.09	-2,198.05	1,316.16	1,539.43	0.00	0.00	0.00
8,100.00	89.91	90.50	7,146.24	-2,198.93	1,416.16	1,638.96	0.00	0.00	0.00
8,200.00	89.91	90.50	7,146.39	-2,199.81	1,516.15	1,738.50	0.00	0.00	0.00
8,300.00	89.91	90.50	7,146.54	-2,200.69	1,616.15	1,838.04	0.00	0.00	0.00
8,400.00	89.91	90.50	7,146.69	-2,201.57	1,716.15	1,937.57	0.00	0.00	0.00
8,500.00	89.91	90.50	7,146.84	-2,202.45	1,816.14	2,037.11	0.00	0.00	0.00
8,600.00	89.91	90.50	7,146.99	-2,203.33	1,916.14	2,136.65	0.00	0.00	0.00
8,700.00	89.91	90.50	7,147.14	-2,204.21	2,016.13	2,236.18	0.00	0.00	0.00
8,800.00	89.91	90.50	7,147.28	-2,205.09	2,116.13	2,335.72	0.00	0.00	0.00
8,900.00	89.91	90.50	7,147.43	-2,205.97	2,216.13	2,435.26	0.00	0.00	0.00
9,000.00	89.91	90.50	7,147.58	-2,206.85	2,316.12	2,534.80	0.00	0.00	0.00
9,100.00	89.91	90.50	7,147.73	-2,207.73	2,416.12	2,634.33	0.00	0.00	0.00
9,200.00	89.91	90.50	7,147.88	-2,208.61	2,516.12	2,733.87	0.00	0.00	0.00
9,300.00	89.91	90.50	7,148.03	-2,209.49	2,616.11	2,833.41	0.00	0.00	0.00
9,400.00	89.91	90.50	7,148.18	-2,210.37	2,716.11	2,932.94	0.00	0.00	0.00
9,500.00	89.91	90.50	7,148.33	-2,211.25	2,816.10	3,032.48	0.00	0.00	0.00
9,600.00	89.91	90.50	7,148.48	-2,212.13	2,916.10	3,132.02	0.00	0.00	0.00
9,700.00	89.91	90.50	7,148.63	-2,213.01	3,016.10	3,231.55	0.00	0.00	0.00
9,800.00	89.91	90.50	7,148.77	-2,213.89	3,116.09	3,331.09	0.00	0.00	0.00
9,900.00	89.91	90.50	7,148.92	-2,214.77	3,216.09	3,430.63	0.00	0.00	0.00
10,000.00	89.91	90.50	7,149.07	-2,215.65	3,316.08	3,530.16	0.00	0.00	0.00
10,100.00	89.91	90.50	7,149.22	-2,216.53	3,416.08	3,629.70	0.00	0.00	0.00
10,200.00	89.91	90.50	7,149.37	-2,217.41	3,516.08	3,729.24	0.00	0.00	0.00
10,300.00	89.91	90.50	7,149.52	-2,218.29	3,616.07	3,828.77	0.00	0.00	0.00
10,400.00	89.91	90.50	7,149.67	-2,219.17	3,716.07	3,928.31	0.00	0.00	0.00
10,500.00	89.91	90.50	7,149.82	-2,220.05	3,816.06	4,027.85	0.00	0.00	0.00
10,600.00	89.91	90.50	7,149.97	-2,220.93	3,916.06	4,127.39	0.00	0.00	0.00
10,700.00	89.91	90.50	7,150.12	-2,221.81	4,016.06	4,226.92	0.00	0.00	0.00
10,800.00	89.91	90.50	7,150.26	-2,222.69	4,116.05	4,326.46	0.00	0.00	0.00
10,900.00	89.91	90.50	7,150.41	-2,223.57	4,216.05	4,426.00	0.00	0.00	0.00
11,000.00	89.91	90.50	7,150.56	-2,224.45	4,316.04	4,525.53	0.00	0.00	0.00
11,100.00	89.91	90.50	7,150.71	-2,225.33	4,416.04	4,625.07	0.00	0.00	0.00
11,200.00	89.91	90.50	7,150.86	-2,226.21	4,516.04	4,724.61	0.00	0.00	0.00
11,300.00	89.91	90.50	7,151.01	-2,227.09	4,616.03	4,824.14	0.00	0.00	0.00
11,400.00	89.91	90.50	7,151.16	-2,227.98	4,716.03	4,923.68	0.00	0.00	0.00
11,500.00	89.91	90.50	7,151.31	-2,228.86	4,816.02	5,023.22	0.00	0.00	0.00
11,600.00	89.91	90.50	7,151.46	-2,229.74	4,916.02	5,122.75	0.00	0.00	0.00
11,700.00	89.91	90.50	7,151.61	-2,230.62	5,016.02	5,222.29	0.00	0.00	0.00
11,800.00	89.91	90.50	7,151.75	-2,231.50	5,116.01	5,321.83	0.00	0.00	0.00
11,900.00	89.91	90.50	7,151.90	-2,232.38	5,216.01	5,421.36	0.00	0.00	0.00
12,000.00	89.91	90.50	7,152.05	-2,233.26	5,316.00	5,520.90	0.00	0.00	0.00
12,100.00	89.91	90.50	7,152.20	-2,234.14	5,416.00	5,620.44	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
12,200.00	89.91	90.50	7,152.35	-2,235.02	5,516.00	5,719.98	0.00	0.00	0.00
12,300.00	89.91	90.50	7,152.50	-2,235.90	5,615.99	5,819.51	0.00	0.00	0.00
12,400.00	89.91	90.50	7,152.65	-2,236.78	5,715.99	5,919.05	0.00	0.00	0.00
12,500.00	89.91	90.50	7,152.80	-2,237.66	5,815.98	6,018.59	0.00	0.00	0.00
12,600.00	89.91	90.50	7,152.95	-2,238.54	5,915.98	6,118.12	0.00	0.00	0.00
12,700.00	89.91	90.50	7,153.09	-2,239.42	6,015.98	6,217.66	0.00	0.00	0.00
12,800.00	89.91	90.50	7,153.24	-2,240.30	6,115.97	6,317.20	0.00	0.00	0.00
12,900.00	89.91	90.50	7,153.39	-2,241.18	6,215.97	6,416.73	0.00	0.00	0.00
13,000.00	89.91	90.50	7,153.54	-2,242.06	6,315.96	6,516.27	0.00	0.00	0.00
13,100.00	89.91	90.50	7,153.69	-2,242.94	6,415.96	6,615.81	0.00	0.00	0.00
13,200.00	89.91	90.50	7,153.84	-2,243.82	6,515.96	6,715.34	0.00	0.00	0.00
13,300.00	89.91	90.50	7,153.99	-2,244.70	6,615.95	6,814.88	0.00	0.00	0.00
13,400.00	89.91	90.50	7,154.14	-2,245.58	6,715.95	6,914.42	0.00	0.00	0.00
13,500.00	89.91	90.50	7,154.29	-2,246.46	6,815.94	7,013.96	0.00	0.00	0.00
13,600.00	89.91	90.50	7,154.44	-2,247.34	6,915.94	7,113.49	0.00	0.00	0.00
13,700.00	89.91	90.50	7,154.58	-2,248.22	7,015.94	7,213.03	0.00	0.00	0.00
13,800.00	89.91	90.50	7,154.73	-2,249.10	7,115.93	7,312.57	0.00	0.00	0.00
13,900.00	89.91	90.50	7,154.88	-2,249.98	7,215.93	7,412.10	0.00	0.00	0.00
14,000.00	89.91	90.50	7,155.03	-2,250.86	7,315.92	7,511.64	0.00	0.00	0.00
14,100.00	89.91	90.50	7,155.18	-2,251.74	7,415.92	7,611.18	0.00	0.00	0.00
14,200.00	89.91	90.50	7,155.33	-2,252.62	7,515.92	7,710.71	0.00	0.00	0.00
14,300.00	89.91	90.50	7,155.48	-2,253.50	7,615.91	7,810.25	0.00	0.00	0.00
14,400.00	89.91	90.50	7,155.63	-2,254.38	7,715.91	7,909.79	0.00	0.00	0.00
14,500.00	89.91	90.50	7,155.78	-2,255.26	7,815.90	8,009.32	0.00	0.00	0.00
14,600.00	89.91	90.50	7,155.93	-2,256.14	7,915.90	8,108.86	0.00	0.00	0.00
14,700.00	89.91	90.50	7,156.07	-2,257.02	8,015.90	8,208.40	0.00	0.00	0.00
14,800.00	89.91	90.50	7,156.22	-2,257.90	8,115.89	8,307.93	0.00	0.00	0.00
14,900.00	89.91	90.50	7,156.37	-2,258.78	8,215.89	8,407.47	0.00	0.00	0.00
15,000.00	89.91	90.50	7,156.52	-2,259.66	8,315.88	8,507.01	0.00	0.00	0.00
15,100.00	89.91	90.50	7,156.67	-2,260.54	8,415.88	8,606.55	0.00	0.00	0.00
15,200.00	89.91	90.50	7,156.82	-2,261.42	8,515.88	8,706.08	0.00	0.00	0.00
15,300.00	89.91	90.50	7,156.97	-2,262.30	8,615.87	8,805.62	0.00	0.00	0.00
15,400.00	89.91	90.50	7,157.12	-2,263.18	8,715.87	8,905.16	0.00	0.00	0.00
15,500.00	89.91	90.50	7,157.27	-2,264.06	8,815.86	9,004.69	0.00	0.00	0.00
15,600.00	89.91	90.50	7,157.42	-2,264.94	8,915.86	9,104.23	0.00	0.00	0.00
15,700.00	89.91	90.50	7,157.56	-2,265.82	9,015.86	9,203.77	0.00	0.00	0.00
15,800.00	89.91	90.50	7,157.71	-2,266.70	9,115.85	9,303.30	0.00	0.00	0.00
15,900.00	89.91	90.50	7,157.86	-2,267.58	9,215.85	9,402.84	0.00	0.00	0.00
16,000.00	89.91	90.50	7,158.01	-2,268.46	9,315.84	9,502.38	0.00	0.00	0.00
16,100.00	89.91	90.50	7,158.16	-2,269.35	9,415.84	9,601.91	0.00	0.00	0.00
16,200.00	89.91	90.50	7,158.31	-2,270.23	9,515.84	9,701.45	0.00	0.00	0.00
16,300.00	89.91	90.50	7,158.46	-2,271.11	9,615.83	9,800.99	0.00	0.00	0.00
16,400.00	89.91	90.50	7,158.61	-2,271.99	9,715.83	9,900.52	0.00	0.00	0.00
16,500.00	89.91	90.50	7,158.76	-2,272.87	9,815.82	10,000.06	0.00	0.00	0.00
16,600.00	89.91	90.50	7,158.90	-2,273.75	9,915.82	10,099.60	0.00	0.00	0.00
16,700.00	89.91	90.50	7,159.05	-2,274.63	10,015.82	10,199.14	0.00	0.00	0.00
16,800.00	89.91	90.50	7,159.20	-2,275.51	10,115.81	10,298.67	0.00	0.00	0.00
16,900.00	89.91	90.50	7,159.35	-2,276.39	10,215.81	10,398.21	0.00	0.00	0.00
17,000.00	89.91	90.50	7,159.50	-2,277.27	10,315.80	10,497.75	0.00	0.00	0.00
17,100.00	89.91	90.50	7,159.65	-2,278.15	10,415.80	10,597.28	0.00	0.00	0.00
17,200.00	89.91	90.50	7,159.80	-2,279.03	10,515.80	10,696.82	0.00	0.00	0.00
17,300.00	89.91	90.50	7,159.95	-2,279.91	10,615.79	10,796.36	0.00	0.00	0.00
17,400.00	89.91	90.50	7,160.10	-2,280.79	10,715.79	10,895.89	0.00	0.00	0.00
17,500.00	89.91	90.50	7,160.25	-2,281.67	10,815.78	10,995.43	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
17,600.00	89.91	90.50	7,160.39	-2,282.55	10,915.78	11,094.97	0.00	0.00	0.00
17,700.00	89.91	90.50	7,160.54	-2,283.43	11,015.78	11,194.50	0.00	0.00	0.00
17,800.00	89.91	90.50	7,160.69	-2,284.31	11,115.77	11,294.04	0.00	0.00	0.00
17,900.00	89.91	90.50	7,160.84	-2,285.19	11,215.77	11,393.58	0.00	0.00	0.00
18,000.00	89.91	90.50	7,160.99	-2,286.07	11,315.76	11,493.11	0.00	0.00	0.00
18,105.74	89.91	90.50	7,161.15	-2,287.00	11,421.50	11,598.36	0.00	0.00	0.00
Begin Turn to BHL @ 18105.74ft									
18,200.00	89.83	91.92	7,161.36	-2,288.99	11,515.74	11,692.29	1.50	-0.09	1.50
18,300.00	89.73	93.41	7,161.75	-2,293.64	11,615.63	11,792.12	1.50	-0.09	1.50
18,400.00	89.64	94.91	7,162.30	-2,300.89	11,715.36	11,892.06	1.50	-0.09	1.50
18,500.00	89.54	96.41	7,163.02	-2,310.75	11,814.86	11,992.05	1.50	-0.09	1.50
18,600.00	89.45	97.90	7,163.90	-2,323.21	11,914.08	12,092.02	1.50	-0.09	1.50
18,700.00	89.36	99.40	7,164.94	-2,338.25	12,012.93	12,191.91	1.50	-0.09	1.50
18,800.00	89.26	100.90	7,166.14	-2,355.87	12,111.36	12,291.64	1.50	-0.09	1.50
18,900.00	89.17	102.40	7,167.51	-2,376.06	12,209.29	12,391.15	1.50	-0.09	1.50
19,000.00	89.08	103.89	7,169.04	-2,398.79	12,306.65	12,490.36	1.50	-0.09	1.50
19,100.00	88.99	105.39	7,170.72	-2,424.07	12,403.39	12,589.21	1.50	-0.09	1.50
19,200.00	88.90	106.89	7,172.57	-2,451.86	12,499.43	12,687.64	1.50	-0.09	1.50
19,300.00	88.81	108.39	7,174.57	-2,482.15	12,594.71	12,785.57	1.50	-0.09	1.50
19,400.00	88.72	109.88	7,176.73	-2,514.92	12,689.16	12,882.93	1.50	-0.09	1.50
19,410.17	88.71	110.04	7,176.96	-2,518.39	12,698.71	12,892.80	1.50	-0.09	1.50
End Turn @ 19410.17ft									
19,500.00	88.71	110.04	7,178.98	-2,549.16	12,783.09	12,979.94	0.00	0.00	0.00
19,600.00	88.71	110.04	7,181.23	-2,583.41	12,877.01	13,076.93	0.00	0.00	0.00
19,700.00	88.71	110.04	7,183.48	-2,617.66	12,970.93	13,173.93	0.00	0.00	0.00
19,800.00	88.71	110.04	7,185.73	-2,651.91	13,064.86	13,270.93	0.00	0.00	0.00
19,900.00	88.71	110.04	7,187.98	-2,686.16	13,158.78	13,367.93	0.00	0.00	0.00
20,000.00	88.71	110.04	7,190.24	-2,720.41	13,252.71	13,464.93	0.00	0.00	0.00
20,100.00	88.71	110.04	7,192.49	-2,754.66	13,346.63	13,561.93	0.00	0.00	0.00
20,200.00	88.71	110.04	7,194.74	-2,788.92	13,440.56	13,658.93	0.00	0.00	0.00
20,300.00	88.71	110.04	7,196.99	-2,823.17	13,534.48	13,755.92	0.00	0.00	0.00
20,400.00	88.71	110.04	7,199.24	-2,857.42	13,628.40	13,852.92	0.00	0.00	0.00
20,500.00	88.71	110.04	7,201.49	-2,891.67	13,722.33	13,949.92	0.00	0.00	0.00
20,600.00	88.71	110.04	7,203.74	-2,925.92	13,816.25	14,046.92	0.00	0.00	0.00
20,700.00	88.71	110.04	7,206.00	-2,960.17	13,910.18	14,143.92	0.00	0.00	0.00
20,800.00	88.71	110.04	7,208.25	-2,994.43	14,004.10	14,240.92	0.00	0.00	0.00
20,900.00	88.71	110.04	7,210.50	-3,028.68	14,098.03	14,337.91	0.00	0.00	0.00
21,000.00	88.71	110.04	7,212.75	-3,062.93	14,191.95	14,434.91	0.00	0.00	0.00
21,100.00	88.71	110.04	7,215.00	-3,097.18	14,285.87	14,531.91	0.00	0.00	0.00
21,200.00	88.71	110.04	7,217.25	-3,131.43	14,379.80	14,628.91	0.00	0.00	0.00
21,300.00	88.71	110.04	7,219.50	-3,165.68	14,473.72	14,725.91	0.00	0.00	0.00
21,400.00	88.71	110.04	7,221.75	-3,199.93	14,567.65	14,822.91	0.00	0.00	0.00
21,500.00	88.71	110.04	7,224.01	-3,234.19	14,661.57	14,919.91	0.00	0.00	0.00
21,600.00	88.71	110.04	7,226.26	-3,268.44	14,755.50	15,016.90	0.00	0.00	0.00
21,700.00	88.71	110.04	7,228.51	-3,302.69	14,849.42	15,113.90	0.00	0.00	0.00
21,800.00	88.71	110.04	7,230.76	-3,336.94	14,943.34	15,210.90	0.00	0.00	0.00
21,900.00	88.71	110.04	7,233.01	-3,371.19	15,037.27	15,307.90	0.00	0.00	0.00
22,000.00	88.71	110.04	7,235.26	-3,405.44	15,131.19	15,404.90	0.00	0.00	0.00
22,100.00	88.71	110.04	7,237.51	-3,439.69	15,225.12	15,501.90	0.00	0.00	0.00
22,200.00	88.71	110.04	7,239.77	-3,473.95	15,319.04	15,598.89	0.00	0.00	0.00
22,300.00	88.71	110.04	7,242.02	-3,508.20	15,412.97	15,695.89	0.00	0.00	0.00
22,400.00	88.71	110.04	7,244.27	-3,542.45	15,506.89	15,792.89	0.00	0.00	0.00
22,500.00	88.71	110.04	7,246.52	-3,576.70	15,600.81	15,889.89	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
22,600.00	88.71	110.04	7,248.77	-3,610.95	15,694.74	15,986.89	0.00	0.00	0.00
22,700.00	88.71	110.04	7,251.02	-3,645.20	15,788.66	16,083.89	0.00	0.00	0.00
22,800.00	88.71	110.04	7,253.27	-3,679.45	15,882.59	16,180.89	0.00	0.00	0.00
22,900.00	88.71	110.04	7,255.52	-3,713.71	15,976.51	16,277.88	0.00	0.00	0.00
23,000.00	88.71	110.04	7,257.78	-3,747.96	16,070.44	16,374.88	0.00	0.00	0.00
23,054.38	88.71	110.04	7,259.00	-3,766.58	16,121.51	16,427.63	0.00	0.00	0.00
TD Well @ 23054.38ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,526.50	1,500.00	9 5/8"	9-5/8	13-1/2
23,054.38	7,259.00	5.5" CSG	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
695.39	694.00	Fox Hills			
2,368.85	2,292.00	Parkman			
3,694.06	3,538.00	Sussex			
7,189.95	6,810.00	Sharon Springs			
7,223.51	6,837.00	Niobrara			
7,336.99	6,922.00	Nio B			
7,427.88	6,982.00	Nio C			
7,716.13	7,114.00	Fort Hayes			
7,814.01	7,136.00	Codell			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft
1,527.33	1,500.78	-220.19	60.36	Hold Tangent @ 1527.33ft
6,878.84	6,532.42	-1,977.76	542.17	KOP @ 6878.84ft :: DLS = 8°/100'
7,936.19	7,146.00	-2,197.49	1,252.35	End Build @ 7936.19ft
18,105.74	7,161.15	-2,287.00	11,421.50	Begin Turn to BHL @ 18105.74ft
19,410.17	7,176.96	-2,518.39	12,698.71	End Turn @ 19410.17ft
23,054.38	7,259.00	-3,766.58	16,121.51	TD Well @ 23054.38ft