

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-68W-36 LIZZY B 8-36HZ PAD

LIZZY B NORTH 36-9HZ

Plan A

Plan: Permit Rev-1

Standard Planning Report

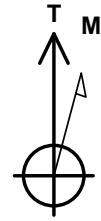
08 October, 2022

Project: WELD-NAD83-UTMFT13N
Site: 1N-68W-36 LIZZY B 8-36HZ PAD
Well: LIZZY B NORTH 36-9HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Name	Size
1500.00	1521.73	9 5/8"	9-5/8
7861.05	19372.72	5.5" CSG	5-1/2



Azimuths to True North
Magnetic North: 7.77°

Magnetic Field
Strength: 51590.5nT
Dip Angle: 66.26°
Date: 10/2/2022
Model: IGRF2020

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	280.40	0.00	0.00	280.40	0.00	0.00	0.00	0.00	0.00	
3	1866.40	23.79	303.37	1821.22	178.52	-271.05	1.50	303.37	178.33	
4	7943.77	23.79	303.37	7382.20	1526.97	-2318.41	0.00	0.00	1525.35	
5	8911.53	90.24	0.04	7905.00	2228.31	-2511.37	8.00	58.88	2226.56	
6	19372.72	90.24	0.04	7861.05	12689.41	-2503.94	0.00	0.00	12687.66	LIZZY B NORTH 36-9HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
LIZZY B NORTH 36-9HZ_SHL	0.00	14529933.11	1655508.62	40.008774	-104.946103
LIZZY B NORTH 36-9HZ_LP	7905.00	14532159.90	1652995.90	40.014893	-104.955073
LIZZY B NORTH 36-9HZ_BHL	7861.05	14542621.00	1652997.01	40.043621	-104.955050

WELL DETAILS: LIZZY B NORTH 36-9HZ

GL = 5110'

RKB = 17' @ 5127.00usft (RIG)

Plan: Permit Rev-1 (LIZZY B NORTH 36-9HZ/Plan A)

Date: 10/9/2022

FORMATION TOP DETAILS

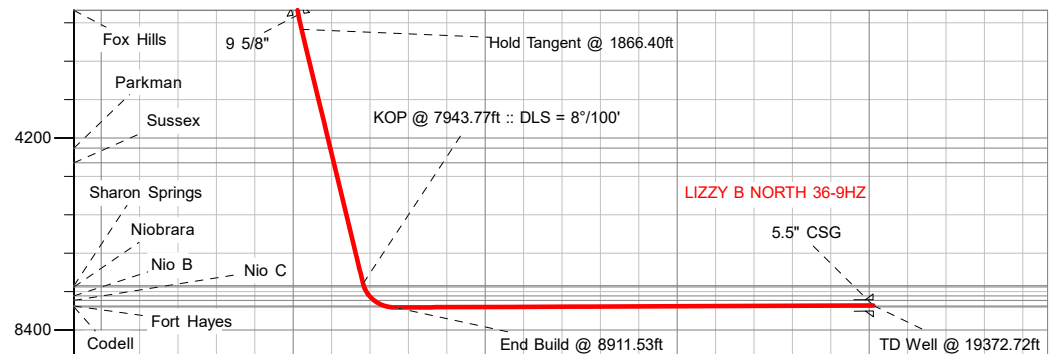
TVDPath	MDPath	Formation
1412.00	1429.24	Fox Hills
4418.00	4704.32	Parkman
4742.00	5058.40	Sussex
7428.00	7994.27	Sharon Springs
7460.00	8030.20	Niobrara
7653.00	8266.90	Nio B
7751.00	8413.71	Nio C
7874.00	8689.91	Fort Hayes
7896.00	8790.91	Codell

SHL
2224' FNL
993' FEL

LP
1' FSL
1772' FWL

BHL
195' FNL
1714' FWL

True Vertical Depth (4200 usft/in)



Vertical Section at 0.04° (4200 usft/in)

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well LIZZY B NORTH 36-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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		1N-68W-36 LIZZY B 8-36HZ PAD			
Site Position:		Northing:	14,530,017.45 usft	Latitude:	40.009006
From:	Map	Easting:	1,655,593.92 usft	Longitude:	-104.945799
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well		LIZZY B NORTH 36-9HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,529,933.11 usft	Latitude:	40.008774
	+E/-W	0.00 usft	Easting:	1,655,508.62 usft	Longitude:	-104.946103
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,110.00 usft
Grid Convergence:		0.03 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	10/2/2022	7.77	66.26	51,590.47827421

Design	Permit Rev-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	0.04	

Plan Survey Tool Program	Date	10/6/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio	
2	1,500.00	19,372.72	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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	
280.40	0.00	0.00	280.40	0.00	0.00	0.00	0.00	0.00	0.00	
1,866.40	23.79	303.37	1,821.22	178.52	-271.05	1.50	1.50	0.00	303.37	
7,943.77	23.79	303.37	7,382.20	1,526.97	-2,318.41	0.00	0.00	0.00	0.00	
8,911.53	90.24	0.04	7,905.00	2,228.31	-2,511.37	8.00	6.87	5.86	58.88	
19,372.72	90.24	0.04	7,861.05	12,689.41	-2,503.94	0.00	0.00	0.00	0.00	LIZZY B NORTH 36-9

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well LIZZY B NORTH 36-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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
280.40	0.00	0.00	280.40	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 280.40ft									
300.00	0.29	303.37	300.00	0.03	-0.04	0.03	1.50	1.50	0.00
400.00	1.79	303.37	399.98	1.03	-1.56	1.03	1.50	1.50	0.00
500.00	3.29	303.37	499.88	3.47	-5.27	3.47	1.50	1.50	0.00
600.00	4.79	303.37	599.63	7.35	-11.16	7.34	1.50	1.50	0.00
700.00	6.29	303.37	699.16	12.66	-19.23	12.65	1.50	1.50	0.00
800.00	7.79	303.37	798.40	19.41	-29.47	19.39	1.50	1.50	0.00
900.00	9.29	303.37	897.29	27.58	-41.88	27.55	1.50	1.50	0.00
1,000.00	10.79	303.37	995.75	37.17	-56.44	37.13	1.50	1.50	0.00
1,100.00	12.29	303.37	1,093.73	48.18	-73.15	48.13	1.50	1.50	0.00
1,200.00	13.79	303.37	1,191.14	60.59	-92.00	60.53	1.50	1.50	0.00
1,300.00	15.29	303.37	1,287.94	74.41	-112.97	74.33	1.50	1.50	0.00
1,400.00	16.79	303.37	1,384.04	89.61	-136.05	89.51	1.50	1.50	0.00
1,429.24	17.23	303.37	1,412.00	94.31	-143.20	94.21	1.50	1.50	0.00
Fox Hills									
1,500.00	18.29	303.37	1,479.38	106.19	-161.23	106.08	1.50	1.50	0.00
1,521.74	18.62	303.37	1,500.00	109.97	-166.97	109.86	1.50	1.50	0.00
9 5/8"									
1,600.00	19.79	303.37	1,573.91	124.14	-188.48	124.00	1.50	1.50	0.00
1,700.00	21.29	303.37	1,667.54	143.44	-217.78	143.29	1.50	1.50	0.00
1,800.00	22.79	303.37	1,760.23	164.08	-249.13	163.91	1.50	1.50	0.00
1,866.40	23.79	303.37	1,821.22	178.52	-271.05	178.33	1.50	1.50	0.00
Hold Tangent @ 1866.40ft									
1,900.00	23.79	303.37	1,851.96	185.98	-282.37	185.78	0.00	0.00	0.00
2,000.00	23.79	303.37	1,943.47	208.17	-316.06	207.95	0.00	0.00	0.00
2,100.00	23.79	303.37	2,034.97	230.35	-349.75	230.11	0.00	0.00	0.00
2,200.00	23.79	303.37	2,126.47	252.54	-383.44	252.27	0.00	0.00	0.00
2,300.00	23.79	303.37	2,217.98	274.73	-417.12	274.44	0.00	0.00	0.00
2,400.00	23.79	303.37	2,309.48	296.92	-450.81	296.60	0.00	0.00	0.00
2,500.00	23.79	303.37	2,400.98	319.11	-484.50	318.77	0.00	0.00	0.00
2,600.00	23.79	303.37	2,492.49	341.29	-518.19	340.93	0.00	0.00	0.00
2,700.00	23.79	303.37	2,583.99	363.48	-551.88	363.10	0.00	0.00	0.00
2,800.00	23.79	303.37	2,675.49	385.67	-585.57	385.26	0.00	0.00	0.00
2,900.00	23.79	303.37	2,766.99	407.86	-619.25	407.43	0.00	0.00	0.00
3,000.00	23.79	303.37	2,858.50	430.05	-652.94	429.59	0.00	0.00	0.00
3,100.00	23.79	303.37	2,950.00	452.23	-686.63	451.75	0.00	0.00	0.00
3,200.00	23.79	303.37	3,041.50	474.42	-720.32	473.92	0.00	0.00	0.00
3,300.00	23.79	303.37	3,133.01	496.61	-754.01	496.08	0.00	0.00	0.00
3,400.00	23.79	303.37	3,224.51	518.80	-787.69	518.25	0.00	0.00	0.00
3,500.00	23.79	303.37	3,316.01	540.99	-821.38	540.41	0.00	0.00	0.00
3,600.00	23.79	303.37	3,407.52	563.17	-855.07	562.58	0.00	0.00	0.00
3,700.00	23.79	303.37	3,499.02	585.36	-888.76	584.74	0.00	0.00	0.00
3,800.00	23.79	303.37	3,590.52	607.55	-922.45	606.91	0.00	0.00	0.00
3,900.00	23.79	303.37	3,682.02	629.74	-956.14	629.07	0.00	0.00	0.00
4,000.00	23.79	303.37	3,773.53	651.93	-989.82	651.23	0.00	0.00	0.00
4,100.00	23.79	303.37	3,865.03	674.11	-1,023.51	673.40	0.00	0.00	0.00
4,200.00	23.79	303.37	3,956.53	696.30	-1,057.20	695.56	0.00	0.00	0.00
4,300.00	23.79	303.37	4,048.04	718.49	-1,090.89	717.73	0.00	0.00	0.00
4,400.00	23.79	303.37	4,139.54	740.68	-1,124.58	739.89	0.00	0.00	0.00
4,500.00	23.79	303.37	4,231.04	762.87	-1,158.26	762.06	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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)
4,600.00	23.79	303.37	4,322.55	785.05	-1,191.95	784.22	0.00	0.00	0.00
4,700.00	23.79	303.37	4,414.05	807.24	-1,225.64	806.39	0.00	0.00	0.00
4,704.32	23.79	303.37	4,418.00	808.20	-1,227.10	807.34	0.00	0.00	0.00
Parkman									
4,800.00	23.79	303.37	4,505.55	829.43	-1,259.33	828.55	0.00	0.00	0.00
4,900.00	23.79	303.37	4,597.05	851.62	-1,293.02	850.71	0.00	0.00	0.00
5,000.00	23.79	303.37	4,688.56	873.80	-1,326.71	872.88	0.00	0.00	0.00
5,058.41	23.79	303.37	4,742.00	886.76	-1,346.38	885.82	0.00	0.00	0.00
Sussex									
5,100.00	23.79	303.37	4,780.06	895.99	-1,360.39	895.04	0.00	0.00	0.00
5,200.00	23.79	303.37	4,871.56	918.18	-1,394.08	917.21	0.00	0.00	0.00
5,300.00	23.79	303.37	4,963.07	940.37	-1,427.77	939.37	0.00	0.00	0.00
5,400.00	23.79	303.37	5,054.57	962.56	-1,461.46	961.54	0.00	0.00	0.00
5,500.00	23.79	303.37	5,146.07	984.74	-1,495.15	983.70	0.00	0.00	0.00
5,600.00	23.79	303.37	5,237.58	1,006.93	-1,528.83	1,005.87	0.00	0.00	0.00
5,700.00	23.79	303.37	5,329.08	1,029.12	-1,562.52	1,028.03	0.00	0.00	0.00
5,800.00	23.79	303.37	5,420.58	1,051.31	-1,596.21	1,050.19	0.00	0.00	0.00
5,900.00	23.79	303.37	5,512.08	1,073.50	-1,629.90	1,072.36	0.00	0.00	0.00
6,000.00	23.79	303.37	5,603.59	1,095.68	-1,663.59	1,094.52	0.00	0.00	0.00
6,100.00	23.79	303.37	5,695.09	1,117.87	-1,697.28	1,116.69	0.00	0.00	0.00
6,200.00	23.79	303.37	5,786.59	1,140.06	-1,730.96	1,138.85	0.00	0.00	0.00
6,300.00	23.79	303.37	5,878.10	1,162.25	-1,764.65	1,161.02	0.00	0.00	0.00
6,400.00	23.79	303.37	5,969.60	1,184.44	-1,798.34	1,183.18	0.00	0.00	0.00
6,500.00	23.79	303.37	6,061.10	1,206.62	-1,832.03	1,205.35	0.00	0.00	0.00
6,600.00	23.79	303.37	6,152.61	1,228.81	-1,865.72	1,227.51	0.00	0.00	0.00
6,700.00	23.79	303.37	6,244.11	1,251.00	-1,899.40	1,249.67	0.00	0.00	0.00
6,800.00	23.79	303.37	6,335.61	1,273.19	-1,933.09	1,271.84	0.00	0.00	0.00
6,900.00	23.79	303.37	6,427.12	1,295.38	-1,966.78	1,294.00	0.00	0.00	0.00
7,000.00	23.79	303.37	6,518.62	1,317.56	-2,000.47	1,316.17	0.00	0.00	0.00
7,100.00	23.79	303.37	6,610.12	1,339.75	-2,034.16	1,338.33	0.00	0.00	0.00
7,200.00	23.79	303.37	6,701.62	1,361.94	-2,067.85	1,360.50	0.00	0.00	0.00
7,300.00	23.79	303.37	6,793.13	1,384.13	-2,101.53	1,382.66	0.00	0.00	0.00
7,400.00	23.79	303.37	6,884.63	1,406.32	-2,135.22	1,404.82	0.00	0.00	0.00
7,500.00	23.79	303.37	6,976.13	1,428.50	-2,168.91	1,426.99	0.00	0.00	0.00
7,600.00	23.79	303.37	7,067.64	1,450.69	-2,202.60	1,449.15	0.00	0.00	0.00
7,700.00	23.79	303.37	7,159.14	1,472.88	-2,236.29	1,471.32	0.00	0.00	0

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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)
8,300.00	45.20	338.52	7,676.79	1,687.41	-2,426.94	1,685.71	8.00	6.94	5.72
8,350.00	48.72	341.11	7,710.91	1,721.70	-2,439.53	1,720.00	8.00	7.05	5.18
8,400.00	52.30	343.43	7,742.71	1,758.45	-2,451.26	1,756.74	8.00	7.15	4.64
8,413.71	53.29	344.03	7,751.00	1,768.94	-2,454.32	1,767.22	8.00	7.21	4.36
Nio C									
8,450.00	55.92	345.53	7,772.02	1,797.47	-2,462.07	1,795.76	8.00	7.25	4.16
8,500.00	59.57	347.47	7,798.70	1,838.58	-2,471.93	1,836.86	8.00	7.30	3.87
8,550.00	63.24	349.26	7,822.63	1,881.57	-2,480.77	1,879.84	8.00	7.35	3.59
8,600.00	66.94	350.94	7,843.69	1,926.24	-2,488.55	1,924.50	8.00	7.40	3.36
8,650.00	70.66	352.53	7,861.76	1,972.36	-2,495.24	1,970.62	8.00	7.43	3.18
8,689.91	73.63	353.75	7,874.00	2,010.08	-2,499.78	2,008.33	8.00	7.45	3.05
Fort Hayes									
8,700.00	74.39	354.05	7,876.78	2,019.72	-2,500.81	2,017.97	8.00	7.47	2.99
8,750.00	78.13	355.51	7,888.66	2,068.08	-2,505.22	2,066.33	8.00	7.48	2.93
8,790.91	81.19	356.68	7,896.00	2,108.22	-2,507.95	2,106.47	8.00	7.49	2.86
Codell									
8,800.00	81.87	356.94	7,897.34	2,117.20	-2,508.45	2,115.45	8.00	7.50	2.82
8,850.00	85.62	358.34	7,902.78	2,166.85	-2,510.50	2,165.10	8.00	7.50	2.80
8,900.00	89.38	359.72	7,904.97	2,216.79	-2,511.34	2,215.03	8.00	7.51	2.77
8,911.53	90.24	0.04	7,905.00	2,228.31	-2,511.37	2,226.56	8.00	7.51	2.76
End Build @ 8911.53ft									
9,000.00	90.24	0.04	7,904.63	2,316.79	-2,511.31	2,315.03	0.00	0.00	0.00
9,100.00	90.24	0.04	7,904.21	2,416.78	-2,511.23	2,415.03	0.00	0.00	0.00
9,200.00	90.24	0.04	7,903.79	2,516.78	-2,511.16	2,515.03	0.00	0.00	0.00
9,300.00	90.24	0.04	7,903.37	2,616.78	-2,511.09	2,615.03	0.00	0.00	0.00
9,400.00	90.24	0.04	7,902.95	2,716.78	-2,511.02	2,715.03	0.00	0.00	0.00
9,500.00	90.24	0.04	7,902.53	2,816.78	-2,510.95	2,815.03	0.00	0.00	0.00
9,600.00	90.24	0.04	7,902.11	2,916.78	-2,510.88	2,915.03	0.00	0.00	0.00
9,700.00	90.24	0.04	7,901.69	3,016.78	-2,510.81	3,015.03	0.00	0.00	0.00
9,800.00	90.24	0.04	7,901.27	3,116.78	-2,510.74	3,115.02	0.00	0.00	0.00
9,900.00	90.24	0.04	7,900.85	3,216.78	-2,510.67	3,215.02	0.00	0.00	0.00
10,000.00	90.24	0.04	7,900.43	3,316.78	-2,510.60	3,315.02	0.00	0.00	0.00
10,100.00	90.24	0.04	7,900.01	3,416.78	-2,510.52	3,415.02	0.00	0.00	0.00
10,200.00	90.24	0.04	7,899.59	3,516.77	-2,510.45	3,515.02	0.00	0.00	0.00
10,300.00	90.24	0.04	7,899.17	3,616.77	-2,510.38	3,615.02	0.00	0.00	0.00
10,400.00	90.24	0.04	7,898.75	3,716.77	-2,510.31	3,715.02	0.00	0.00	0.00
10,500.00	90.24	0.04	7,898.33	3,816.77	-2,510.24	3,815.02	0.00	0.00	0.00
10,600.00	90.24	0.04	7,897.91	3,916.77	-2,510.17	3,915.02	0.00	0.00	0.00
10,700.00	90.24	0.04	7,897.49	4,016.77	-2,510.10	4,015.02	0.00	0.00	0.00
10,800.00	90.24	0.04	7,897.07	4,116.77	-2,510.03	4,115.02	0.00	0.00	0.00
10,900.00	90.24	0.04	7,896.65	4,216.77	-2,509.96	4,215.01	0.00	0.00	0.00
11,000.00	90.24	0.04	7,896.23	4,316.77	-2,509.89	4,315.01	0.00	0.00	0.00
11,100.00	90.24	0.04	7,895.81	4,416.77	-2,509.81	4,415.01	0.00	0.00	0.00
11,200.00	90.24	0.04	7,895.39	4,516.77	-2,509.74	4,515.01	0.00	0.00	0.00
11,300.00	90.24	0.04	7,894.97	4,616.76	-2,509.67	4,615.01	0.00	0.00	0.00
11,400.00	90.24	0.04	7,894.55	4,716.76	-2,509.60	4,715.01	0.00	0.00	0.00
11,500.00	90.24	0.04	7,894.13	4,816.76	-2,509.53	4,815.01	0.00	0.00	0.00
11,600.00	90.24	0.04	7,893.71	4,916.76	-2,509.46	4,915.01	0.00	0.00	0.00
11,700.00	90.24	0.04	7,893.29	5,016.76	-2,509.39	5,015.01	0.00	0.00	0.00
11,800.00	90.24	0.04	7,892.87	5,116.76	-2,509.32	5,115.01	0.00	0.00	0.00
11,900.00	90.24	0.04	7,892.45	5,216.76	-2,509.25	5,215.01	0.00	0.00	0.00
12,000.00	90.24	0.04	7,892.03	5,316.76	-2,509.18	5,315.00	0.00	0.00	0.00
12,100.00	90.24	0.04	7,891.61	5,416.76	-2,509.10	5,415.00	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well LIZZY B NORTH 36-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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)
12,200.00	90.24	0.04	7,891.19	5,516.76	-2,509.03	5,515.00	0.00	0.00	0.00
12,300.00	90.24	0.04	7,890.77	5,616.76	-2,508.96	5,615.00	0.00	0.00	0.00
12,400.00	90.24	0.04	7,890.35	5,716.75	-2,508.89	5,715.00	0.00	0.00	0.00
12,500.00	90.24	0.04	7,889.93	5,816.75	-2,508.82	5,815.00	0.00	0.00	0.00
12,600.00	90.24	0.04	7,889.51	5,916.75	-2,508.75	5,915.00	0.00	0.00	0.00
12,700.00	90.24	0.04	7,889.09	6,016.75	-2,508.68	6,015.00	0.00	0.00	0.00
12,800.00	90.24	0.04	7,888.67	6,116.75	-2,508.61	6,115.00	0.00	0.00	0.00
12,900.00	90.24	0.04	7,888.25	6,216.75	-2,508.54	6,215.00	0.00	0.00	0.00
13,000.00	90.24	0.04	7,887.83	6,316.75	-2,508.47	6,315.00	0.00	0.00	0.00
13,100.00	90.24	0.04	7,887.41	6,416.75	-2,508.39	6,415.00	0.00	0.00	0.00
13,200.00	90.24	0.04	7,886.99	6,516.75	-2,508.32	6,514.99	0.00	0.00	0.00
13,300.00	90.24	0.04	7,886.57	6,616.75	-2,508.25	6,614.99	0.00	0.00	0.00
13,400.00	90.24	0.04	7,886.15	6,716.75	-2,508.18	6,714.99	0.00	0.00	0.00
13,500.00	90.24	0.04	7,885.73	6,816.74	-2,508.11	6,814.99	0.00	0.00	0.00
13,600.00	90.24	0.04	7,885.31	6,916.74	-2,508.04	6,914.99	0.00	0.00	0.00
13,700.00	90.24	0.04	7,884.89	7,016.74	-2,507.97	7,014.99	0.00	0.00	0.00
13,800.00	90.24	0.04	7,884.47	7,116.74	-2,507.90	7,114.99	0.00	0.00	0.00
13,900.00	90.24	0.04	7,884.04	7,216.74	-2,507.83	7,214.99	0.00	0.00	0.00
14,000.00	90.24	0.04	7,883.62	7,316.74	-2,507.76	7,314.99	0.00	0.00	0.00
14,100.00	90.24	0.04	7,883.20	7,416.74	-2,507.68	7,414.99	0.00	0.00	0.00
14,200.00	90.24	0.04	7,882.78	7,516.74	-2,507.61	7,514.99	0.00	0.00	0.00
14,300.00	90.24	0.04	7,882.36	7,616.74	-2,507.54	7,614.98	0.00	0.00	0.00
14,400.00	90.24	0.04	7,881.94	7,716.74	-2,507.47	7,714.98	0.00	0.00	0.00
14,500.00	90.24	0.04	7,881.52	7,816.74	-2,507.40	7,814.98	0.00	0.00	0.00
14,600.00	90.24	0.04	7,881.10	7,916.73	-2,507.33	7,914.98	0.00	0.00	0.00
14,700.00	90.24	0.04	7,880.68	8,016.73	-2,507.26	8,014.98	0.00	0.00	0.00
14,800.00	90.24	0.04	7,880.26	8,116.73	-2,507.19	8,114.98	0.00	0.00	0.00
14,900.00	90.24	0.04	7,879.84	8,216.73	-2,507.12	8,214.98	0.00	0.00	0.00
15,000.00	90.24	0.04	7,879.42	8,316.73	-2,507.05	8,314.98	0.00	0.00	0.00
15,100.00	90.24	0.04	7,879.00	8,416.73	-2,506.97	8,414.98	0.00	0.00	0.00
15,200.00	90.24	0.04	7,878.58	8,516.73	-2,506.90	8,514.98	0.00	0.00	0.00
15,300.00	90.24	0.04	7,878.16	8,616.73	-2,506.83	8,614.98	0.00	0.00	0.00
15,400.00	90.24	0.04	7,877.74	8,716.73	-2,506.76	8,714.97	0.00	0.00	0.00
15,500.00	90.24	0.04	7,877.32	8,816.73	-2,506.69	8,814.97	0.00	0.00	0.00
15,600.00	90.24	0.04	7,876.90	8,916.73	-2,506.62	8,914.97	0.00	0.00	0.00
15,700.00	90.24	0.04	7,876.48	9,016.72	-2,506.55	9,014.97	0.00	0.00	0.00
15,800.00	90.24	0.04	7,876.06	9,116.72	-2,506.48	9,114.97	0.00	0.00	0.00
15,900.00	90.24	0.04	7,875.64	9,216.72	-2,506.41	9,214.97	0.00	0.00	0.00
16,000.00	90.24	0.04	7,875.22	9,316.72	-2,506.33	9,314.97	0.00	0.00	0.00
16,100.00	90.24	0.04	7,874.80	9,416.72	-2,506.26	9,414.97	0.00	0.00	0.00
16,200.00	90.24	0.04	7,874.38	9,516.72	-2,506.19	9,514.97	0.00	0.00	0.00
16,300.00	90.24	0.04	7,873.96	9,616.72	-2,506.12	9,614.97	0.00	0.00	0.00
16,400.00	90.24	0.04	7,873.54	9,716.72	-2,506.05	9,714.97	0.00	0.00	0.00
16,500.00	90.24	0.04	7,873.12	9,816.72	-2,505.98	9,814.97	0.00	0.00	0.00
16,600.00	90.24	0.04	7,872.70	9,916.72	-2,505.91	9,914.96	0.00	0.00	0.00
16,700.00	90.24	0.04	7,872.28	10,016.72	-2,505.84	10,014.96	0.00	0.00	0.00
16,800.00	90.24	0.04	7,871.86	10,116.71	-2,505.77	10,114.96	0.00	0.00	0.00
16,900.00	90.24	0.04	7,871.44	10,216.71	-2,505.70	10,214.96	0.00	0.00	0.00
17,000.00	90.24	0.04	7,871.02	10,316.71	-2,505.62	10,314.96	0.00	0.00	0.00
17,100.00	90.24	0.04	7,870.60	10,416.71	-2,505.55	10,414.96	0.00	0.00	0.00
17,200.00	90.24	0.04	7,870.18	10,516.71	-2,505.48	10,514.96	0.00	0.00	0.00
17,300.00	90.24	0.04	7,869.76	10,616.71	-2,505.41	10,614.96	0.00	0.00	0.00
17,400.00	90.24	0.04	7,869.34	10,716.71	-2,505.34	10,714.96	0.00	0.00	0.00
17,500.00	90.24	0.04	7,868.92	10,816.71	-2,505.27	10,814.96	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well LIZZY B NORTH 36-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-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)
17,600.00	90.24	0.04	7,868.50	10,916.71	-2,505.20	10,914.96	0.00	0.00	0.00
17,700.00	90.24	0.04	7,868.08	11,016.71	-2,505.13	11,014.95	0.00	0.00	0.00
17,800.00	90.24	0.04	7,867.66	11,116.71	-2,505.06	11,114.95	0.00	0.00	0.00
17,900.00	90.24	0.04	7,867.24	11,216.70	-2,504.99	11,214.95	0.00	0.00	0.00
18,000.00	90.24	0.04	7,866.82	11,316.70	-2,504.91	11,314.95	0.00	0.00	0.00
18,100.00	90.24	0.04	7,866.40	11,416.70	-2,504.84	11,414.95	0.00	0.00	0.00
18,200.00	90.24	0.04	7,865.98	11,516.70	-2,504.77	11,514.95	0.00	0.00	0.00
18,300.00	90.24	0.04	7,865.56	11,616.70	-2,504.70	11,614.95	0.00	0.00	0.00
18,400.00	90.24	0.04	7,865.14	11,716.70	-2,504.63	11,714.95	0.00	0.00	0.00
18,500.00	90.24	0.04	7,864.72	11,816.70	-2,504.56	11,814.95	0.00	0.00	0.00
18,600.00	90.24	0.04	7,864.30	11,916.70	-2,504.49	11,914.95	0.00	0.00	0.00
18,700.00	90.24	0.04	7,863.88	12,016.70	-2,504.42	12,014.95	0.00	0.00	0.00
18,800.00	90.24	0.04	7,863.46	12,116.70	-2,504.35	12,114.95	0.00	0.00	0.00
18,900.00	90.24	0.04	7,863.04	12,216.70	-2,504.28	12,214.94	0.00	0.00	0.00
19,000.00	90.24	0.04	7,862.62	12,316.69	-2,504.20	12,314.94	0.00	0.00	0.00
19,100.00	90.24	0.04	7,862.20	12,416.69	-2,504.13	12,414.94	0.00	0.00	0.00
19,200.00	90.24	0.04	7,861.78	12,516.69	-2,504.06	12,514.94	0.00	0.00	0.00
19,300.00	90.24	0.04	7,861.36	12,616.69	-2,503.99	12,614.94	0.00	0.00	0.00
19,372.72	90.24	0.04	7,861.05	12,689.41	-2,503.94	12,687.66	0.00	0.00	0.00
TD Well @ 19372.72ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,521.74	1,500.00	9 5/8"	9-5/8	13-1/2
19,372.72	7,861.05	5.5" CSG	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,429.24	1,412.00	Fox Hills			
4,704.32	4,418.00	Parkman			
5,058.41	4,742.00	Sussex			
7,994.28	7,428.00	Sharon Springs			
8,030.20	7,460.00	Niobrara			
8,266.90	7,653.00	Nio B			
8,413.71	7,751.00	Nio C			
8,689.91	7,874.00	Fort Hayes			
8,790.91	7,896.00	Codell			

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well LIZZY B NORTH 36-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5127.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5127.00usft (RIG)
Site:	1N-68W-36 LIZZY B 8-36HZ PAD	North Reference:	True
Well:	LIZZY B NORTH 36-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
280.40	280.40	0.00	0.00	Begin Nudge @ 280.40ft
1,866.40	1,821.22	178.52	-271.05	Hold Tangent @ 1866.40ft
7,943.77	7,382.20	1,526.97	-2,318.41	KOP @ 7943.77ft :: DLS = 8"/100'
8,911.53	7,905.00	2,228.31	-2,511.37	End Build @ 8911.53ft
19,372.72	7,861.05	12,689.41	-2,503.94	TD Well @ 19372.72ft