

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

5N-67W-09 RAINBOW 24-9HZ PAD

RAINBOW 9-2HZ

Plan A

Plan: Permit Rev-3

Standard Planning Report

31 August, 2022

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well RAINBOW 9-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4966.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4966.00usft (RIG)
Site:	5N-67W-09 RAINBOW 24-9HZ PAD	North Reference:	True
Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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		5N-67W-09 RAINBOW 24-9HZ PAD			
Site Position:		Northing:	14,677,926.65 usft	Latitude:	40.415144
From:	Lat/Long	Easting:	1,669,365.10 usft	Longitude:	-104.895999
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well		RAINBOW 9-2HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,677,921.67 usft	Latitude:	40.415130
	+E/-W	0.00 usft	Easting:	1,669,379.30 usft	Longitude:	-104.895948
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,949.00 usft
Grid Convergence:		0.07 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	8/28/2022	7.80	66.60	51,820.26355079

Design	Permit Rev-3				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	6,913.00	0.00	0.00	90.06	

Plan Survey Tool Program	Date	8/31/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Permit Rev-3 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio	
2	1,500.00	15,388.20	Permit Rev-3 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio	

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Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	
290.00	0.00	0.00	290.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,712.67	21.34	326.45	1,680.00	218.26	-144.74	1.50	1.50	0.00	326.45	
6,515.48	21.34	326.45	6,153.52	1,674.84	-1,110.66	0.00	0.00	0.00	0.00	
7,788.94	90.42	89.59	6,969.00	1,948.76	-405.70	8.00	5.42	9.67	121.17	
13,900.00	90.42	89.59	6,923.96	1,992.27	5,705.04	0.00	0.00	0.00	0.00	RAINBOW 9-2HZ_Tg
14,105.85	90.42	92.68	6,922.45	1,988.19	5,910.82	1.50	0.00	1.50	90.03	
15,029.00	90.42	92.68	6,915.68	1,945.03	6,832.94	0.00	0.00	0.00	0.00	
15,207.91	90.43	90.00	6,914.35	1,940.85	7,011.77	1.50	0.01	-1.50	-89.78	
15,388.20	90.43	90.00	6,913.00	1,940.86	7,192.07	0.00	0.00	0.00	0.00	RAINBOW 9-2HZ_BH

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4966.00usft (RIG)
Site:	5N-67W-09 RAINBOW 24-9HZ PAD	North Reference:	True
Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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
290.00	0.00	0.00	290.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 290.00ft									
300.00	0.15	326.45	300.00	0.01	-0.01	-0.01	1.50	1.50	0.00
400.00	1.65	326.45	399.98	1.32	-0.88	-0.88	1.50	1.50	0.00
500.00	3.15	326.45	499.89	4.81	-3.19	-3.19	1.50	1.50	0.00
600.00	4.65	326.45	599.66	10.48	-6.95	-6.96	1.50	1.50	0.00
700.00	6.15	326.45	699.21	18.32	-12.15	-12.17	1.50	1.50	0.00
800.00	7.65	326.45	798.49	28.33	-18.79	-18.82	1.50	1.50	0.00
808.59	7.78	326.45	807.00	29.29	-19.43	-19.46	1.50	1.50	0.00
Fox Hills									
900.00	9.15	326.45	897.41	40.51	-26.86	-26.90	1.50	1.50	0.00
1,000.00	10.65	326.45	995.92	54.84	-36.36	-36.42	1.50	1.50	0.00
1,100.00	12.15	326.45	1,093.94	71.31	-47.29	-47.36	1.50	1.50	0.00
1,200.00	13.65	326.45	1,191.42	89.91	-59.62	-59.72	1.50	1.50	0.00
1,300.00	15.15	326.45	1,288.27	110.64	-73.37	-73.48	1.50	1.50	0.00
1,400.00	16.65	326.45	1,384.44	133.47	-88.51	-88.65	1.50	1.50	0.00
1,500.00	18.15	326.45	1,479.86	158.39	-105.04	-105.20	1.50	1.50	0.00
1,521.21	18.47	326.45	1,500.00	163.94	-108.72	-108.89	1.50	1.50	0.00
9 5/8"									
1,600.00	19.65	326.45	1,574.47	185.39	-122.94	-123.13	1.50	1.50	0.00
1,700.00	21.15	326.45	1,668.20	214.43	-142.20	-142.43	1.50	1.50	0.00
1,712.67	21.34	326.45	1,680.00	218.26	-144.74	-144.97	1.50	1.50	0.00
Hold Tangent @ 1712.67ft									
1,800.00	21.34	326.45	1,761.35	244.75	-162.30	-162.56	0.00	0.00	0.00
1,900.00	21.34	326.45	1,854.49	275.07	-182.41	-182.70	0.00	0.00	0.00
2,000.00	21.34	326.45	1,947.63	305.40	-202.52	-202.84	0.00	0.00	0.00
2,100.00	21.34	326.45	2,040.78	335.73	-222.64	-222.99	0.00	0.00	0.00
2,200.00	21.34	326.45	2,133.92	366.06	-242.75	-243.13	0.00	0.00	0.00
2,300.00	21.34	326.45	2,227.07	396.38	-262.86	-263.27	0.00	0.00	0.00
2,400.00	21.34	326.45	2,320.21	426.71	-282.97	-283.42	0.00	0.00	0.00
2,500.00	21.34	326.45	2,413.35	457.04	-303.08	-303.56	0.00	0.00	0.00
2,600.00	21.34	326.45	2,506.50	487.37	-323.19	-323.70	0.00	0.00	0.00
2,700.00	21.34	326.45	2,599.64	517.70	-343.31	-343.85	0.00	0.00	0.00
2,800.00	21.34	326.45	2,692.78	548.02	-363.42	-363.99	0.00	0.00	0.00
2,900.00	21.34	326.45	2,785.93	578.35	-383.53	-384.13	0.00	0.00	0.00
3,000.00	21.34	326.45	2,879.07	608.68	-403.64	-404.28	0.00	0.00	0.00
3,100.00	21.34	326.45	2,972.22	639.01	-423.75	-424.42	0.00	0.00	0.00
3,200.00	21.34	326.45	3,065.36	669.33	-443.86	-444.56	0.00	0.00	0.00
3,300.00	21.34	326.45	3,158.50	699.66	-463.97	-464.71	0.00	0.00	0.00
3,400.00	21.34	326.45	3,251.65	729.99	-484.09	-484.85	0.00	0.00	0.00
3,500.00	21.34	326.45	3,344.79	760.32	-504.20	-504.99	0.00	0.00	0.00
3,600.00	21.34	326.45	3,437.93	790.64	-524.31	-525.14	0.00	0.00	0.00
3,700.00	21.34	326.45	3,531.08	820.97	-544.42	-545.28	0.00	0.00	0.00
3,735.35	21.34	326.45	3,564.00	831.69	-551.53	-552.40	0.00	0.00	0.00
Parkman									
3,800.00	21.34	326.45	3,624.22	851.30	-564.53	-565.42	0.00	0.00	0.00
3,900.00	21.34	326.45	3,717.37	881.63	-584.64	-585.57	0.00	0.00	0.00
4,000.00	21.34	326.45	3,810.51	911.96	-604.76	-605.71	0.00	0.00	0.00
4,100.00	21.34	326.45	3,903.65	942.28	-624.87	-625.85	0.00	0.00	0.00
4,200.00	21.34	326.45	3,996.80	972.61	-644.98	-646.00	0.00	0.00	0.00
4,300.00	21.34	326.45	4,089.94	1,002.94	-665.09	-666.14	0.00	0.00	0.00

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Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
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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)
4,301.14	21.34	326.45	4,091.00	1,003.28	-665.32	-666.37	0.00	0.00	0.00
Sussex									
4,400.00	21.34	326.45	4,183.08	1,033.27	-685.20	-686.28	0.00	0.00	0.00
4,500.00	21.34	326.45	4,276.23	1,063.59	-705.31	-706.43	0.00	0.00	0.00
4,600.00	21.34	326.45	4,369.37	1,093.92	-725.42	-726.57	0.00	0.00	0.00
4,700.00	21.34	326.45	4,462.52	1,124.25	-745.54	-746.71	0.00	0.00	0.00
4,800.00	21.34	326.45	4,555.66	1,154.58	-765.65	-766.86	0.00	0.00	0.00
4,900.00	21.34	326.45	4,648.80	1,184.90	-785.76	-787.00	0.00	0.00	0.00
5,000.00	21.34	326.45	4,741.95	1,215.23	-805.87	-807.14	0.00	0.00	0.00
5,100.00	21.34	326.45	4,835.09	1,245.56	-825.98	-827.29	0.00	0.00	0.00
5,200.00	21.34	326.45	4,928.23	1,275.89	-846.09	-847.43	0.00	0.00	0.00
5,300.00	21.34	326.45	5,021.38	1,306.22	-866.21	-867.57	0.00	0.00	0.00
5,400.00	21.34	326.45	5,114.52	1,336.54	-886.32	-887.72	0.00	0.00	0.00
5,500.00	21.34	326.45	5,207.67	1,366.87	-906.43	-907.86	0.00	0.00	0.00
5,600.00	21.34	326.45	5,300.81	1,397.20	-926.54	-928.00	0.00	0.00	0.00
5,700.00	21.34	326.45	5,393.95	1,427.53	-946.65	-948.15	0.00	0.00	0.00
5,800.00	21.34	326.45	5,487.10	1,457.85	-966.76	-968.29	0.00	0.00	0.00
5,900.00	21.34	326.45	5,580.24	1,488.18	-986.87	-988.43	0.00	0.00	0.00
6,000.00	21.34	326.45	5,673.38	1,518.51	-1,006.99	-1,008.58	0.00	0.00	0.00
6,100.00	21.34	326.45	5,766.53	1,548.84	-1,027.10	-1,028.72	0.00	0.00	0.00
6,200.00	21.34	326.45	5,859.67	1,579.16	-1,047.21	-1,048.86	0.00	0.00	0.00
6,300.00	21.34	326.45	5,952.82	1,609.49	-1,067.32	-1,069.01	0.00	0.00	0.00
6,400.00	21.34	326.45	6,045.96	1,639.82	-1,087.43	-1,089.15	0.00	0.00	0.00
6,500.00	21.34	326.45	6,139.10	1,670.15	-1,107.54	-1,109.29	0.00	0.00	0.00
6,515.48	21.34	326.45	6,153.52	1,674.84	-1,110.66	-1,112.41	0.00	0.00	0.00
KOP @ 6515.48ft :: DLS = 8°/100'									
6,550.00	20.04	333.36	6,185.82	1,685.37	-1,116.78	-1,118.55	8.00	-3.75	20.01
6,600.00	18.71	344.75	6,233.00	1,700.77	-1,122.74	-1,124.52	8.00	-2.66	22.78
6,650.00	18.15	357.30	6,280.46	1,716.30	-1,125.21	-1,127.01	8.00	-1.12	25.10
6,700.00	18.43	10.04	6,327.95	1,731.87	-1,124.20	-1,126.02	8.00	0.56	25.47
6,750.00	19.52	21.90	6,375.25	1,747.41	-1,119.71	-1,121.54	8.00	2.17	23.73
6,800.00	21.29	32.21	6,422.12	1,762.84	-1,111.75	-1,113.60	8.00	3.53	20.63
6,850.00	23.58	40.81	6,468.35	1,778.10	-1,100.37	-1,102.23	8.00	4.59	17.20
6,900.00	26.27	47.86	6,513.70	1,793.10	-1,085.62	-1,087.50	8.00	5.37	14.09
6,950.00	29.24	53.63	6,557.95	1,807.77	-1,067.58	-1,069.47	8.00	5.94	11.53
7,000.00	32.41	58.38	6,600.89	1,822.04	-1,046.33	-1,048.24	8.00	6.35	9.52
7,050.00	35.73	62.36	6,642.30	1,835.84	-1,021.97	-1,023.90	8.00	6.65	7.96
7,100.00	39.17	65.74	6,682.00	1,849.11	-994.63	-996.57	8.00	6.87	6.75
7,150.00	42.69	68.65	6,719.77	1,861.77	-964.44	-966.39	8.00	7.04	5.81
7,200.00	46.27	71.19	6,755.44	1,873.78	-931.54	-933.50	8.00	7.17	5.08
7,250.00	49.90	73.44	6,788.84	1,885.06	-896.09	-898.07	8.00	7.27	4.50
7,300.00	53.57	75.46	6,819.80	1,895.56	-858.28	-860.26	8.00	7.34	4.04
7,350.00	57.28	77.30	6,848.17	1,905.24	-818.27	-820.27	8.00	7.41	3.68
7,400.00	61.00	78.99	6,873.81	1,914.04	-776.27	-778.28	8.00	7.45	3.38
7,415.09	62.13	79.48	6,881.00	1,916.52	-763.24	-765.24	8.00	7.48	3.22
Sharon Springs									
7,450.00	64.75	80.56	6,896.61	1,921.93	-732.49	-734.50	8.00	7.50	3.11
7,455.66	65.18	80.74	6,899.00	1,922.76	-727.43	-729.44	8.00	7.51	3.03
Niobrara									
7,500.00	68.51	82.04	6,916.44	1,928.86	-687.12	-689.14	8.00	7.53	2.95
7,550.00	72.29	83.45	6,933.20	1,934.80	-640.41	-642.43	8.00	7.55	2.81
7,600.00	76.07	84.79	6,946.83	1,939.72	-592.56	-594.59	8.00	7.57	2.69
7,650.00	79.87	86.10	6,957.25	1,943.60	-543.82	-545.86	8.00	7.58	2.61

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Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	83.66	87.37	6,964.42	1,946.42	-494.43	-496.47	8.00	7.59	2.54
7,750.00	87.46	88.62	6,968.28	1,948.16	-444.62	-446.66	8.00	7.60	2.51
7,788.94	90.42	89.59	6,969.00	1,948.76	-405.70	-407.74	8.00	7.60	2.49
End Build @ 7788.94ft									
7,800.00	90.42	89.59	6,968.92	1,948.84	-394.64	-396.68	0.00	0.00	0.00
7,900.00	90.42	89.59	6,968.18	1,949.56	-294.64	-296.68	0.00	0.00	0.00
8,000.00	90.42	89.59	6,967.45	1,950.27	-194.65	-196.69	0.00	0.00	0.00
8,100.00	90.42	89.59	6,966.71	1,950.98	-94.65	-96.70	0.00	0.00	0.00
8,200.00	90.42	89.59	6,965.97	1,951.69	5.34	3.30	0.00	0.00	0.00
8,300.00	90.42	89.59	6,965.24	1,952.40	105.34	103.29	0.00	0.00	0.00
8,400.00	90.42	89.59	6,964.50	1,953.11	205.33	203.29	0.00	0.00	0.00
8,500.00	90.42	89.59	6,963.76	1,953.83	305.33	303.28	0.00	0.00	0.00
8,600.00	90.42	89.59	6,963.02	1,954.54	405.32	403.27	0.00	0.00	0.00
8,700.00	90.42	89.59	6,962.29	1,955.25	505.31	503.27	0.00	0.00	0.00
8,800.00	90.42	89.59	6,961.55	1,955.96	605.31	603.26	0.00	0.00	0.00
8,900.00	90.42	89.59	6,960.81	1,956.67	705.30	703.25	0.00	0.00	0.00
9,000.00	90.42	89.59	6,960.08	1,957.39	805.30	803.25	0.00	0.00	0.00
9,100.00	90.42	89.59	6,959.34	1,958.10	905.29	903.24	0.00	0.00	0.00
9,200.00	90.42	89.59	6,958.60	1,958.81	1,005.29	1,003.24	0.00	0.00	0.00
9,300.00	90.42	89.59	6,957.87	1,959.52	1,105.28	1,103.23	0.00	0.00	0.00
9,400.00	90.42	89.59	6,957.13	1,960.23	1,205.28	1,203.22	0.00	0.00	0.00
9,500.00	90.42	89.59	6,956.39	1,960.95	1,305.27	1,303.22	0.00	0.00	0.00
9,600.00	90.42	89.59	6,955.65	1,961.66	1,405.27	1,403.21	0.00	0.00	0.00
9,700.00	90.42	89.59	6,954.92	1,962.37	1,505.26	1,503.21	0.00	0.00	0.00
9,800.00	90.42	89.59	6,954.18	1,963.08	1,605.26	1,603.20	0.00	0.00	0.00
9,900.00	90.42	89.59	6,953.44	1,963.79	1,705.25	1,703.19	0.00	0.00	0.00
10,000.00	90.42	89.59	6,952.71	1,964.51	1,805.25	1,803.19	0.00	0.00	0.00
10,100.00	90.42	89.59	6,951.97	1,965.22	1,905.24	1,903.18	0.00	0.00	0.00
10,200.00	90.42	89.59	6,951.23	1,965.93	2,005.24	2,003.18	0.00	0.00	0.00
10,300.00	90.42	89.59	6,950.49	1,966.64	2,105.23	2,103.17	0.00	0.00	0.00
10,400.00	90.42	89.59	6,949.76	1,967.35	2,205.23	2,203.16	0.00	0.00	0.00
10,500.00	90.42	89.59	6,949.02	1,968.07	2,305.22	2,303.16	0.00	0.00	0.00
10,600.00	90.42	89.59	6,948.28	1,968.78	2,405.22	2,403.15	0.00	0.00	0.00
10,700.00	90.42	89.59	6,947.55	1,969.49	2,505.21	2,503.15	0.00	0.00	0.00
10,800.00	90.42	89.59	6,946.81	1,970.20	2,605.20	2,603.14	0.00	0.00	0.00
10,900.00	90.42	89.59	6,946.07	1,970.91	2,705.20	2,703.13	0.00	0.00	0.00
11,000.00	90.42	89.59	6,945.34	1,971.62	2,805.19	2,803.13	0.00	0.00	0.00
11,100.00	90.42	89.59	6,944.60	1,972.34	2,905.19	2,903.12	0.00	0.00	0.00
11,200.00	90.42	89.59	6,943.86	1,973.05	3,005.18	3,003.12	0.00	0.00	0.00
11,300.00	90.42	89.59	6,943.12	1,973.76	3,105.18	3,103.11	0.00	0.00	0.00
11,400.00	90.42	89.59	6,942.39	1,974.47	3,205.17	3,203.10	0.00	0.00	0.00
11,500.00	90.42	89.59	6,941.65	1,975.18	3,305.17	3,303.10	0.00	0.00	0.00
11,600.00	90.42	89.59	6,940.91	1,975.90	3,405.16	3,403.09	0.00	0.00	0.00
11,700.00	90.42	89.59	6,940.18	1,976.61	3,505.16	3,503.09	0.00	0.00	0.00
11,800.00	90.42	89.59	6,939.44	1,977.32	3,605.15	3,603.08	0.00	0.00	0.00
11,900.00	90.42	89.59	6,938.70	1,978.03	3,705.15	3,703.07	0.00	0.00	0.00
12,000.00	90.42	89.59	6,937.96	1,978.74	3,805.14	3,803.07	0.00	0.00	0.00
12,100.00	90.42	89.59	6,937.23	1,979.46	3,905.14	3,903.06	0.00	0.00	0.00
12,200.00	90.42	89.59	6,936.49	1,980.17	4,005.13	4,003.06	0.00	0.00	0.00
12,300.00	90.42	89.59	6,935.75	1,980.88	4,105.13	4,103.05	0.00	0.00	0.00
12,400.00	90.42	89.59	6,935.02	1,981.59	4,205.12	4,203.04	0.00	0.00	0.00
12,500.00	90.42	89.59	6,934.28	1,982.30	4,305.12	4,303.04	0.00	0.00	0.00
12,600.00	90.42	89.59	6,933.54	1,983.02	4,405.11	4,403.03	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well RAINBOW 9-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4966.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4966.00usft (RIG)
Site:	5N-67W-09 RAINBOW 24-9HZ PAD	North Reference:	True
Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
12,700.00	90.42	89.59	6,932.80	1,983.73	4,505.10	4,503.03	0.00	0.00	0.00
12,800.00	90.42	89.59	6,932.07	1,984.44	4,605.10	4,603.02	0.00	0.00	0.00
12,900.00	90.42	89.59	6,931.33	1,985.15	4,705.09	4,703.01	0.00	0.00	0.00
13,000.00	90.42	89.59	6,930.59	1,985.86	4,805.09	4,803.01	0.00	0.00	0.00
13,100.00	90.42	89.59	6,929.86	1,986.57	4,905.08	4,903.00	0.00	0.00	0.00
13,200.00	90.42	89.59	6,929.12	1,987.29	5,005.08	5,002.99	0.00	0.00	0.00
13,300.00	90.42	89.59	6,928.38	1,988.00	5,105.07	5,102.99	0.00	0.00	0.00
13,400.00	90.42	89.59	6,927.65	1,988.71	5,205.07	5,202.98	0.00	0.00	0.00
13,500.00	90.42	89.59	6,926.91	1,989.42	5,305.06	5,302.98	0.00	0.00	0.00
13,600.00	90.42	89.59	6,926.17	1,990.13	5,405.06	5,402.97	0.00	0.00	0.00
13,700.00	90.42	89.59	6,925.43	1,990.85	5,505.05	5,502.96	0.00	0.00	0.00
13,800.00	90.42	89.59	6,924.70	1,991.56	5,605.05	5,602.96	0.00	0.00	0.00
13,900.00	90.42	89.59	6,923.96	1,992.27	5,705.04	5,702.95	0.00	0.00	0.00
Begin Turn for MIN @ 13900.00ft									
14,000.00	90.42	91.09	6,923.22	1,991.67	5,805.03	5,802.95	1.50	0.00	1.50
14,105.85	90.42	92.68	6,922.45	1,988.19	5,910.82	5,908.74	1.50	0.00	1.50
End Turn @ 14105.85ft									
14,200.00	90.42	92.68	6,921.76	1,983.79	6,004.87	6,002.78	0.00	0.00	0.00
14,300.00	90.42	92.68	6,921.02	1,979.11	6,104.75	6,102.68	0.00	0.00	0.00
14,400.00	90.42	92.68	6,920.29	1,974.44	6,204.64	6,202.57	0.00	0.00	0.00
14,500.00	90.42	92.68	6,919.56	1,969.76	6,304.53	6,302.46	0.00	0.00	0.00
14,600.00	90.42	92.68	6,918.82	1,965.08	6,404.42	6,402.36	0.00	0.00	0.00
14,700.00	90.42	92.68	6,918.09	1,960.41	6,504.31	6,502.25	0.00	0.00	0.00
14,800.00	90.42	92.68	6,917.36	1,955.73	6,604.19	6,602.14	0.00	0.00	0.00
14,900.00	90.42	92.68	6,916.63	1,951.06	6,704.08	6,702.03	0.00	0.00	0.00
15,000.00	90.42	92.68	6,915.89	1,946.38	6,803.97	6,801.93	0.00	0.00	0.00
15,029.00	90.42	92.68	6,915.68	1,945.03	6,832.94	6,830.90	0.00	0.00	0.00
Begin Turn to BHL @ 15029.00ft									
15,100.00	90.42	91.61	6,915.16	1,942.37	6,903.88	6,901.85	1.50	0.01	-1.50
15,207.91	90.43	90.00	6,914.35	1,940.85	7,011.78	7,009.74	1.50	0.01	-1.50
End Turn @ 15207.91ft									
15,300.00	90.43	90.00	6,913.66	1,940.85	7,103.86	7,101.83	0.00	0.00	0.00
15,388.20	90.43	90.00	6,913.00	1,940.86	7,192.06	7,190.02	0.00	0.00	0.00
TD Well @ 15388.20ft									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,521.21	1,500.00	9 5/8"	9-5/8	13-1/2
15,388.20	6,913.00	5.5" CSG	5-1/2	7-7/8

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well RAINBOW 9-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4966.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4966.00usft (RIG)
Site:	5N-67W-09 RAINBOW 24-9HZ PAD	North Reference:	True
Well:	RAINBOW 9-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
808.59	807.00	Fox Hills				
3,735.35	3,564.00	Parkman				
4,301.14	4,091.00	Sussex				
7,415.09	6,881.00	Sharon Springs				
7,455.66	6,899.00	Niobrara				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
290.00	290.00	0.00	0.00	Begin Nudge @ 290.00ft	
1,712.67	1,680.00	218.26	-144.74	Hold Tangent @ 1712.67ft	
6,515.48	6,153.52	1,674.84	-1,110.66	KOP @ 6515.48ft :: DLS = 8°/100'	
7,788.94	6,969.00	1,948.76	-405.70	End Build @ 7788.94ft	
13,900.00	6,923.96	1,992.27	5,705.04	Begin Turn for MIN @ 13900.00ft	
14,105.85	6,922.45	1,988.19	5,910.82	End Turn @ 14105.85ft	
15,029.00	6,915.68	1,945.03	6,832.94	Begin Turn to BHL @ 15029.00ft	
15,207.91	6,914.35	1,940.85	7,011.78	End Turn @ 15207.91ft	
15,388.20	6,913.00	1,940.86	7,192.06	TD Well @ 15388.20ft	