



US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-66W-24 GRACIE 15-24HZ PAD
GRACIE 24-9HZ**

PLan A

Plan: Permit Rev-2

Standard Planning Report

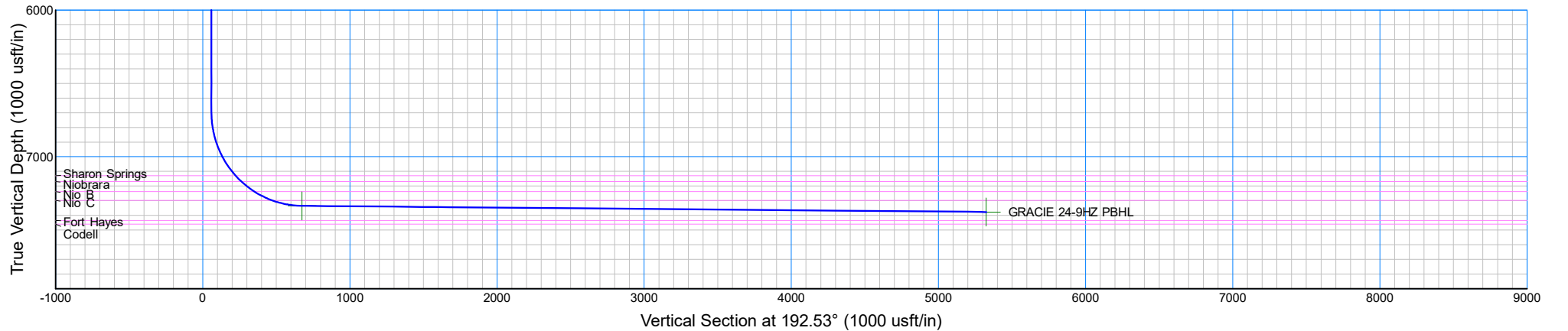
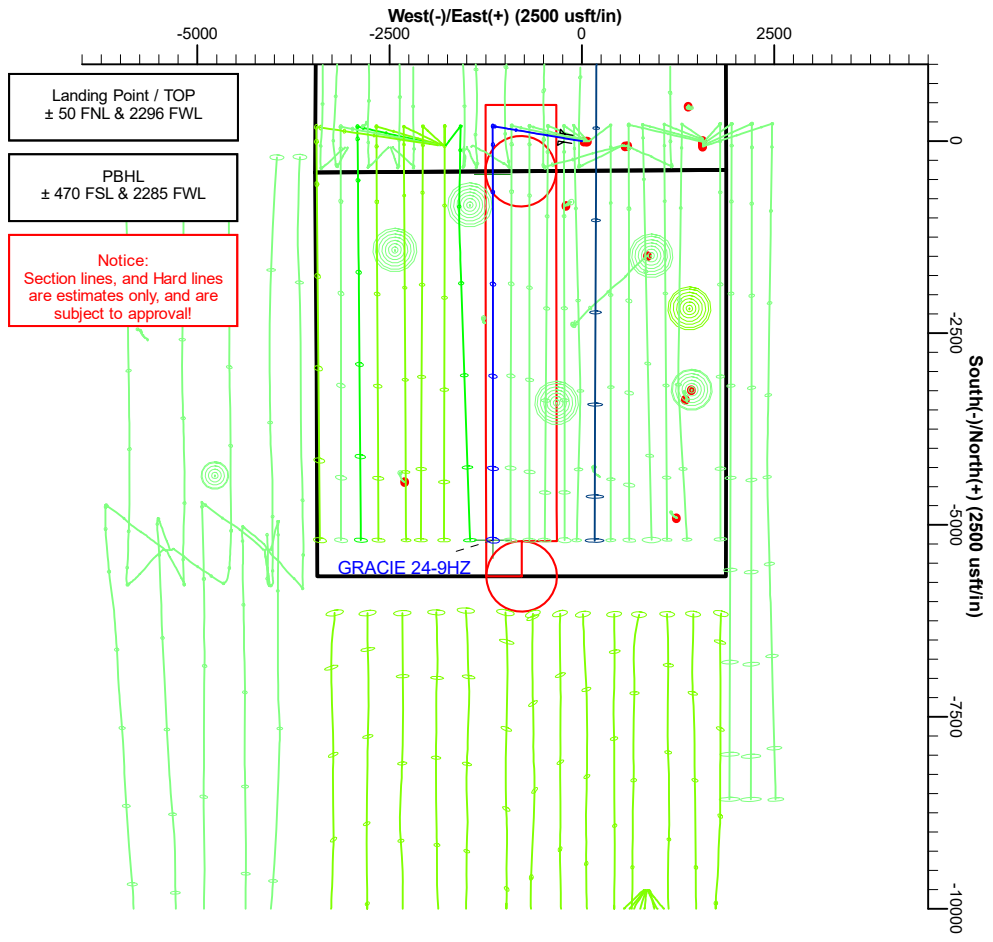
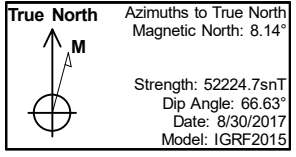
12 September, 2017

Well: GRACIE 24-9HZ	Plan: Permit Rev-2	Field: WELD-NAD83-UTMFT13N	Site: 2N-66W-24 GRACIE 15-24HZ PAD
Borehole: PPlan A	Plan Date: 6:45, September 12 2017	Datum: UTM (US Survey Ft)	RKB: 5071ft
Grid Conv: 0.18	VSec: 192.53deg	Zone: Zone 13N (108 W to 102 W)	GL: 5054.00ft
Latitude: 40.117617		Longitude: -104.722568	
Northing / Y: 14569684.01		Easting / X: 1717978.35	
Model: IGRF2015		Date: 30-Aug-17	DEC: 8.14°
DIP: 66.63°		FS: 52224.74856196nT	North Ref: True

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	Build 1.5°/100 DLS
3	1633.33	20.00	279.62	1606.42	38.50	-227.12	1.50	279.62	11.70	Hold Inc
4	3719.50	20.00	279.62	3566.78	157.77	-930.59	0.00	0.00	47.94	Drop 1.5°/100 DLS
5	5052.83	0.00	0.00	4873.20	196.27	-1157.71	1.50	180.00	59.64	Vertical Point
6	6878.04	0.00	0.00	6698.40	196.27	-1157.71	0.00	0.00	59.64	KOP, Build 10°/100 DLS
7	7872.42	89.49	179.98	7335.00	-434.74	-1157.46	9.00	179.98	675.55	Landing Target
8	12635.30	89.49	179.98	7377.00	-5197.43	-1155.63	0.00	0.00	5324.35	PBHL/TD

Target Details									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
GRACIE 24-9HZ HEEL	7335.00	-434.76	-1157.46	14569245.64	1716822.25	40.116401	-104.726771		
GRACIE 24-9HZ PBHL	7377.00	-5197.43	-1155.63	14564483.00	1716838.94	40.103344	-104.726701		

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
1484.00	1503.83	Fox Hills
4201.00	4377.12	Parkman
4689.00	4868.57	Sussex
7129.00	7350.95	Sharon Springs
7169.00	7407.64	Niobrara
7238.00	7521.95	Nio B
7298.00	7659.86	Nio C



Database:	PLANNING	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5071.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5071.00usft (D Rig)
Site:	2N-66W-24 GRACIE 15-24HZ PAD	North Reference:	True
Well:	GRACIE 24-9HZ	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	2N-66W-24 GRACIE 15-24HZ PAD				
Site Position:		Northing:	14,569,684.01 usft	Latitude:	40.117617
From:	Lat/Long	Easting:	1,717,978.34 usft	Longitude:	-104.722568
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	GRACIE 24-9HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,569,684.01 usft	Latitude:	40.117617
	+E/-W	0.00 usft	Easting:	1,717,978.34 usft	Longitude:	-104.722568
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,054.00 usft

Wellbore	PLan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/30/2017	8.14	66.63	52,224.74856196

Design	Permit Rev-2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	192.53

Plan Survey Tool Program	Date	9/11/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	12,635.30	Permit Rev-2 (PLan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,633.33	20.00	279.62	1,606.42	38.50	-227.12	1.50	1.50	0.00	279.62	
3,719.50	20.00	279.62	3,566.78	157.77	-930.59	0.00	0.00	0.00	0.00	
5,052.83	0.00	0.00	4,873.20	196.27	-1,157.71	1.50	-1.50	0.00	180.00	
6,878.04	0.00	0.00	6,698.40	196.27	-1,157.71	0.00	0.00	0.00	0.00	
7,872.42	89.49	179.98	7,335.00	-434.74	-1,157.46	9.00	9.00	18.10	179.98	
12,635.30	89.49	179.98	7,377.00	-5,197.43	-1,155.63	0.00	0.00	0.00	0.00	GRACIE 24-9HZ PBH

Database:	PLANNING	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5071.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5071.00usft (D Rig)
Site:	2N-66W-24 GRACIE 15-24HZ PAD	North Reference:	True
Well:	GRACIE 24-9HZ	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	0.00
100.00	0.00	0.00	100.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.5°/100 DLS										
400.00	1.50	279.62	399.99	0.22	-1.29	0.07	1.50	1.50	0.00	0.00
500.00	3.00	279.62	499.91	0.87	-5.16	0.27	1.50	1.50	0.00	0.00
600.00	4.50	279.62	599.69	1.97	-11.61	0.60	1.50	1.50	0.00	0.00
700.00	6.00	279.62	699.27	3.50	-20.63	1.06	1.50	1.50	0.00	0.00
800.00	7.50	279.62	798.57	5.46	-32.22	1.66	1.50	1.50	0.00	0.00
900.00	9.00	279.62	897.54	7.86	-46.37	2.39	1.50	1.50	0.00	0.00
1,000.00	10.50	279.62	996.09	10.69	-63.06	3.25	1.50	1.50	0.00	0.00
1,100.00	12.00	279.62	1,094.16	13.95	-82.30	4.24	1.50	1.50	0.00	0.00
1,200.00	13.50	279.62	1,191.70	17.64	-104.05	5.36	1.50	1.50	0.00	0.00
1,300.00	15.00	279.62	1,288.62	21.75	-128.32	6.61	1.50	1.50	0.00	0.00
1,400.00	16.50	279.62	1,384.86	26.29	-155.08	7.99	1.50	1.50	0.00	0.00
1,500.00	18.00	279.62	1,480.36	31.25	-184.32	9.49	1.50	1.50	0.00	0.00
1,503.83	18.06	279.62	1,484.00	31.45	-185.49	9.55	1.50	1.50	0.00	0.00
Fox Hills										
1,600.00	19.50	279.62	1,575.05	36.62	-216.01	11.13	1.50	1.50	0.00	0.00
1,633.33	20.00	279.62	1,606.42	38.50	-227.12	11.70	1.50	1.50	0.00	0.00
Hold Inc										
1,700.00	20.00	279.62	1,669.07	42.32	-249.60	12.86	0.00	0.00	0.00	0.00
1,800.00	20.00	279.62	1,763.04	48.03	-283.32	14.59	0.00	0.00	0.00	0.00
1,839.34	20.00	279.62	1,800.00	50.28	-296.58	15.28	0.00	0.00	0.00	0.00
Surface Csg										
1,900.00	20.00	279.62	1,857.01	53.75	-317.04	16.33	0.00	0.00	0.00	0.00
2,000.00	20.00	279.62	1,950.97	59.47	-350.76	18.07	0.00	0.00	0.00	0.00
2,100.00	20.00	279.62	2,044.94	65.18	-384.48	19.81	0.00	0.00	0.00	0.00
2,200.00	20.00	279.62	2,138.91	70.90	-418.20	21.54	0.00	0.00	0.00	0.00
2,300.00	20.00	279.62	2,232.88	76.62	-451.92	23.28	0.00	0.00	0.00	0.00
2,400.00	20.00	279.62	2,326.85	82.33	-485.64	25.02	0.00	0.00	0.00	0.00
2,500.00	20.00	279.62	2,420.82	88.05	-519.36	26.75	0.00	0.00	0.00	0.00
2,600.00	20.00	279.62	2,514.79	93.77	-553.08	28.49	0.00	0.00	0.00	0.00
2,700.00	20.00	279.62	2,608.76	99.48	-586.81	30.23	0.00	0.00	0.00	0.00
2,800.00	20.00	279.62	2,702.73	105.20	-620.53	31.96	0.00	0.00	0.00	0.00
2,900.00	20.00	279.62	2,796.70	110.92	-654.25	33.70	0.00	0.00	0.00	0.00
3,000.00	20.00	279.62	2,890.67	116.63	-687.97	35.44	0.00	0.00	0.00	0.00
3,100.00	20.00	279.62	2,984.64	122.35	-721.69	37.18	0.00	0.00	0.00	0.00
3,200.00	20.00	279.62	3,078.61	128.07	-755.41	38.91	0.00	0.00	0.00	0.00
3,300.00	20.00	279.62	3,172.58	133.78	-789.13	40.65	0.00	0.00	0.00	0.00
3,400.00	20.00	279.62	3,266.54	139.50	-822.85	42.39	0.00	0.00	0.00	0.00
3,500.00	20.00	279.62	3,360.51	145.22	-856.57	44.12	0.00	0.00	0.00	0.00
3,600.00	20.00	279.62	3,454.48	150.93	-890.29	45.86	0.00	0.00	0.00	0.00
3,700.00	20.00	279.62	3,548.45	156.65	-924.01	47.60	0.00	0.00	0.00	0.00
3,719.50	20.00	279.62	3,566.78	157.77	-930.59	47.94	0.00	0.00	0.00	0.00
Drop 1.5°/100 DLS										
3,800.00	18.79	279.62	3,642.71	162.23	-956.95	49.29	1.50	-1.50	0.00	0.00
3,900.00	17.29	279.62	3,737.79	167.41	-987.48	50.87	1.50	-1.50	0.00	0.00
4,000.00	15.79	279.62	3,833.64	172.17	-1,015.55	52.31	1.50	-1.50	0.00	0.00
4,100.00	14.29	279.62	3,930.21	176.51	-1,041.14	53.63	1.50	-1.50	0.00	0.00
4,200.00	12.79	279.62	4,027.43	180.42	-1,064.23	54.82	1.50	-1.50	0.00	0.00
4,300.00	11.29	279.62	4,125.23	183.91	-1,084.80	55.88	1.50	-1.50	0.00	0.00

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5071.00usft (D Rig)
Site:	2N-66W-24 GRACIE 15-24HZ PAD	North Reference:	True
Well:	GRACIE 24-9HZ	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)	
4,377.12	10.14	279.62	4,201.00	186.31	-1,098.93	56.61	1.50	-1.50	0.00	
Parkman										
4,400.00	9.79	279.62	4,223.54	186.97	-1,102.84	56.81	1.50	-1.50	0.00	
4,500.00	8.29	279.62	4,322.29	189.59	-1,118.33	57.61	1.50	-1.50	0.00	
4,600.00	6.79	279.62	4,421.42	191.79	-1,131.27	58.27	1.50	-1.50	0.00	
4,700.00	5.29	279.62	4,520.87	193.55	-1,141.65	58.81	1.50	-1.50	0.00	
4,800.00	3.79	279.62	4,620.55	194.87	-1,149.46	59.21	1.50	-1.50	0.00	
4,868.57	2.76	279.62	4,689.00	195.53	-1,153.33	59.41	1.50	-1.50	0.00	
Sussex										
4,900.00	2.29	279.62	4,720.40	195.76	-1,154.69	59.48	1.50	-1.50	0.00	
5,000.00	0.79	279.62	4,820.37	196.21	-1,157.35	59.62	1.50	-1.50	0.00	
5,052.83	0.00	0.00	4,873.20	196.27	-1,157.71	59.64	1.50	-1.50	0.00	
Vertical Point										
5,100.00	0.00	0.00	4,920.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,020.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,120.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,220.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,320.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,420.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,520.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,620.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,720.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,820.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,920.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,020.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,120.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,220.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,320.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,420.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,520.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,620.36	196.27	-1,157.71	59.64	0.00	0.00	0.00	
6,878.04	0.00	0.00	6,698.40	196.27	-1,157.71	59.64	0.00	0.00	0.00	
KOP, Build 10°/100 DLS										
6,900.00	1.98	179.98	6,720.36	195.89	-1,157.71	60.01	9.00	9.00	0.00	
7,000.00	10.98	179.98	6,819.62	184.62	-1,157.70	71.00	9.00	9.00	0.00	
7,100.00	19.98	179.98	6,915.89	157.97	-1,157.69	97.02	9.00	9.00	0.00	
7,200.00	28.98	179.98	7,006.81	116.58	-1,157.68	137.42	9.00	9.00	0.00	
7,300.00	37.98	179.98	7,090.14	61.47	-1,157.65	191.21	9.00	9.00	0.00	
7,350.95	42.56	179.98	7,129.00	28.55	-1,157.64	223.34	9.00	9.00	0.00	
Sharon Springs										
7,400.00	46.98	179.98	7,163.82	-5.99	-1,157.63	257.06	9.00	9.00	0.00	
7,407.64	47.66	179.98	7,169.00	-11.61	-1,157.63	262.54	9.00	9.00	0.00	
Niobrara										
7,500.00	55.98	179.98	7,226.04	-84.14	-1,157.60	333.34	9.00	9.00	0.00	
7,521.95	57.95	179.98	7,238.00	-102.54	-1,157.59	351.30	9.00	9.00	0.00	
Nio B										
7,600.00	64.98	179.98	7,275.26	-171.07	-1,157.57	418.19	9.00	9.00	0.00	
7,659.86	70.36	179.98	7,298.00	-226.42	-1,157.54	472.22	9.00	9.00	0.00	
Nio C										
7,700.00	73.98	179.98	7,310.29	-264.62	-1,157.53	509.51	9.00	9.00	0.00	
7,800.00	82.98	179.98	7,330.24	-362.51	-1,157.49	605.05	9.00	9.00	0.00	
7,872.42	89.49	179.98	7,335.00	-434.73	-1,157.46	675.55	9.00	9.00	0.00	
Landing Target										

Database:	PLANNING	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5071.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5071.00usft (D Rig)
Site:	2N-66W-24 GRACIE 15-24HZ PAD	North Reference:	True
Well:	GRACIE 24-9HZ	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)
7,900.00	89.49	179.98	7,335.24	-462.31	-1,157.45	702.47	0.00	0.00	0.00
8,000.00	89.49	179.98	7,336.12	-562.31	-1,157.41	800.07	0.00	0.00	0.00
8,100.00	89.49	179.98	7,337.00	-662.30	-1,157.38	897.68	0.00	0.00	0.00
8,200.00	89.49	179.98	7,337.88	-762.30	-1,157.34	995.28	0.00	0.00	0.00
8,300.00	89.49	179.98	7,338.77	-862.30	-1,157.30	1,092.89	0.00	0.00	0.00
8,400.00	89.49	179.98	7,339.65	-962.29	-1,157.26	1,190.49	0.00	0.00	0.00
8,500.00	89.49	179.98	7,340.53	-1,062.29	-1,157.22	1,288.10	0.00	0.00	0.00
8,600.00	89.49	179.98	7,341.41	-1,162.28	-1,157.18	1,385.70	0.00	0.00	0.00
8,700.00	89.49	179.98	7,342.29	-1,262.28	-1,157.14	1,483.31	0.00	0.00	0.00
8,800.00	89.49	179.98	7,343.18	-1,362.28	-1,157.11	1,580.91	0.00	0.00	0.00
8,900.00	89.49	179.98	7,344.06	-1,462.27	-1,157.07	1,678.52	0.00	0.00	0.00
9,000.00	89.49	179.98	7,344.94	-1,562.27	-1,157.03	1,776.12	0.00	0.00	0.00
9,100.00	89.49	179.98	7,345.82	-1,662.27	-1,156.99	1,873.73	0.00	0.00	0.00
9,200.00	89.49	179.98	7,346.70	-1,762.26	-1,156.95	1,971.33	0.00	0.00	0.00
9,300.00	89.49	179.98	7,347.59	-1,862.26	-1,156.91	2,068.94	0.00	0.00	0.00
9,400.00	89.49	179.98	7,348.47	-1,962.25	-1,156.87	2,166.54	0.00	0.00	0.00
9,500.00	89.49	179.98	7,349.35	-2,062.25	-1,156.84	2,264.15	0.00	0.00	0.00
9,600.00	89.49	179.98	7,350.23	-2,162.25	-1,156.80	2,361.75	0.00	0.00	0.00
9,700.00	89.49	179.98	7,351.11	-2,262.24	-1,156.76	2,459.36	0.00	0.00	0.00
9,800.00	89.49	179.98	7,351.99	-2,362.24	-1,156.72	2,556.96	0.00	0.00	0.00
9,900.00	89.49	179.98	7,352.88	-2,462.23	-1,156.68	2,654.57	0.00	0.00	0.00
10,000.00	89.49	179.98	7,353.76	-2,562.23	-1,156.64	2,752.17	0.00	0.00	0.00
10,100.00	89.49	179.98	7,354.64	-2,662.23	-1,156.60	2,849.78	0.00	0.00	0.00
10,200.00	89.49	179.98	7,355.52	-2,762.22	-1,156.57	2,947.38	0.00	0.00	0.00
10,300.00	89.49	179.98	7,356.40	-2,862.22	-1,156.53	3,044.99	0.00	0.00	0.00
10,400.00	89.49	179.98	7,357.29	-2,962.21	-1,156.49	3,142.59	0.00	0.00	0.00
10,500.00	89.49	179.98	7,358.17	-3,062.21	-1,156.45	3,240.20	0.00	0.00	0.00
10,600.00	89.49	179.98	7,359.05	-3,162.21	-1,156.41	3,337.80	0.00	0.00	0.00
10,700.00	89.49	179.98	7,359.93	-3,262.20	-1,156.37	3,435.41	0.00	0.00	0.00
10,800.00	89.49	179.98	7,360.81	-3,362.20	-1,156.34	3,533.01	0.00	0.00	0.00
10,900.00	89.49	179.98	7,361.70	-3,462.20	-1,156.30	3,630.62	0.00	0.00	0.00
11,000.00	89.49	179.98	7,362.58	-3,562.19	-1,156.26	3,728.22	0.00	0.00	0.00
11,100.00	89.49	179.98	7,363.46	-3,662.19	-1,156.22	3,825.83	0.00	0.00	0.00
11,200.00	89.49	179.98	7,364.34	-3,762.18	-1,156.18	3,923.43	0.00	0.00	0.00
11,300.00	89.49	179.98	7,365.22	-3,862.18	-1,156.14	4,021.03	0.00	0.00	0.00
11,400.00	89.49	179.98	7,366.11	-3,962.18	-1,156.10	4,118.64	0.00	0.00	0.00
11,500.00	89.49	179.98	7,366.99	-4,062.17	-1,156.07	4,216.24	0.00	0.00	0.00
11,600.00	89.49	179.98	7,367.87	-4,162.17	-1,156.03	4,313.85	0.00	0.00	0.00
11,700.00	89.49	179.98	7,368.75	-4,262.16	-1,155.99	4,411.45	0.00	0.00	0.00
11,800.00	89.49	179.98	7,369.63	-4,362.16	-1,155.95	4,509.06	0.00	0.00	0.00
11,900.00	89.49	179.98	7,370.52	-4,462.16	-1,155.91	4,606.66	0.00	0.00	0.00
12,000.00	89.49	179.98	7,371.40	-4,562.15	-1,155.87	4,704.27	0.00	0.00	0.00
12,100.00	89.49	179.98	7,372.28	-4,662.15	-1,155.83	4,801.87	0.00	0.00	0.00
12,200.00	89.49	179.98	7,373.16	-4,762.14	-1,155.80	4,899.48	0.00	0.00	0.00
12,300.00	89.49	179.98	7,374.04	-4,862.14	-1,155.76	4,997.08	0.00	0.00	0.00
12,400.00	89.49	179.98	7,374.92	-4,962.14	-1,155.72	5,094.69	0.00	0.00	0.00
12,500.00	89.49	179.98	7,375.81	-5,062.13	-1,155.68	5,192.29	0.00	0.00	0.00
12,600.00	89.49	179.98	7,376.69	-5,162.13	-1,155.64	5,289.90	0.00	0.00	0.00
12,635.30	89.49	179.98	7,377.00	-5,197.43	-1,155.63	5,324.35	0.00	0.00	0.00
PBHL/TD									

Database:	PLANNING	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5071.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5071.00usft (D Rig)
Site:	2N-66W-24 GRACIE 15-24HZ PAD	North Reference:	True
Well:	GRACIE 24-9HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLan A		
Design:	Permit Rev-2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
GRACIE 24-9HZ HEEL	0.00	0.00	7,335.00	-434.76	-1,157.46	14,569,245.64	1,716,822.25	40.116423	-104.726708
- plan misses target center by 0.01usft at 7872.45usft MD (7335.00 TVD, -434.76 N, -1157.46 E)									
- Point									
GRACIE 24-9HZ PBHL	0.00	0.00	7,377.00	-5,197.43	-1,155.63	14,564,483.00	1,716,838.94	40.103344	-104.726701
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
1,839.34	1,800.00	Surface Csg	9-5/8	13-1/2	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
1,503.83	1,484.00	Fox Hills				
4,377.12	4,201.00	Parkman				
4,868.57	4,689.00	Sussex				
7,350.95	7,129.00	Sharon Springs				
7,407.64	7,169.00	Niobrara				
7,521.95	7,238.00	Nio B				
7,659.86	7,298.00	Nio C				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
300.00	300.00	0.00	0.00	Build 1.5°/100 DLS	
1,633.33	1,606.42	38.50	-227.12	Hold Inc	
3,719.50	3,566.78	157.77	-930.59	Drop 1.5°/100 DLS	
5,052.83	4,873.20	196.27	-1,157.71	Vertical Point	
6,878.04	6,698.40	196.27	-1,157.71	KOP, Build 10°/100 DLS	
7,872.42	7,335.00	-434.73	-1,157.46	Landing Target	
12,635.30	7,377.00	-5,197.43	-1,155.63	PBHL/TD	