



# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-66W-24 GRACIE 15-24HZ PAD  
GRACIE 24-12HZ**

**PLan A**

**Plan: Permit Rev-2**

## **Standard Planning Report**

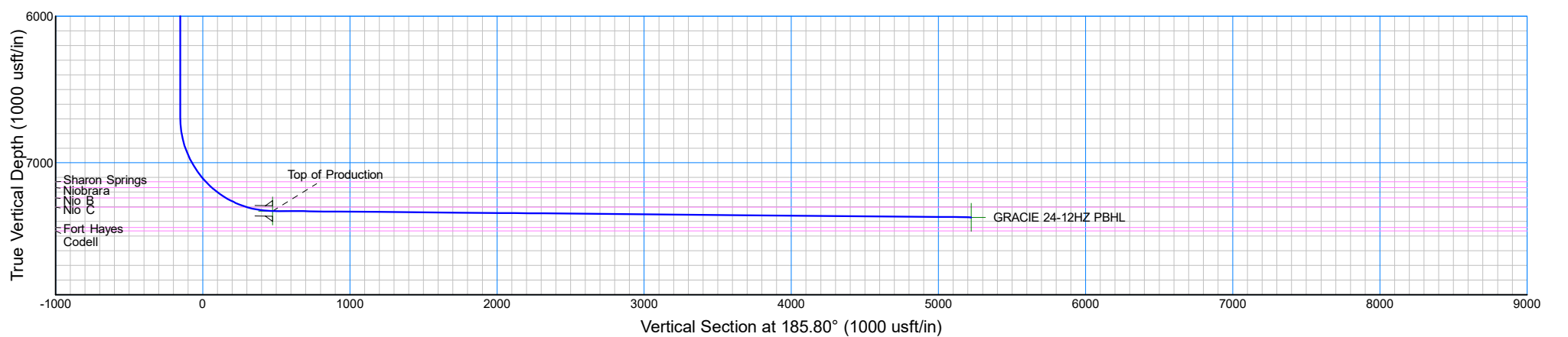
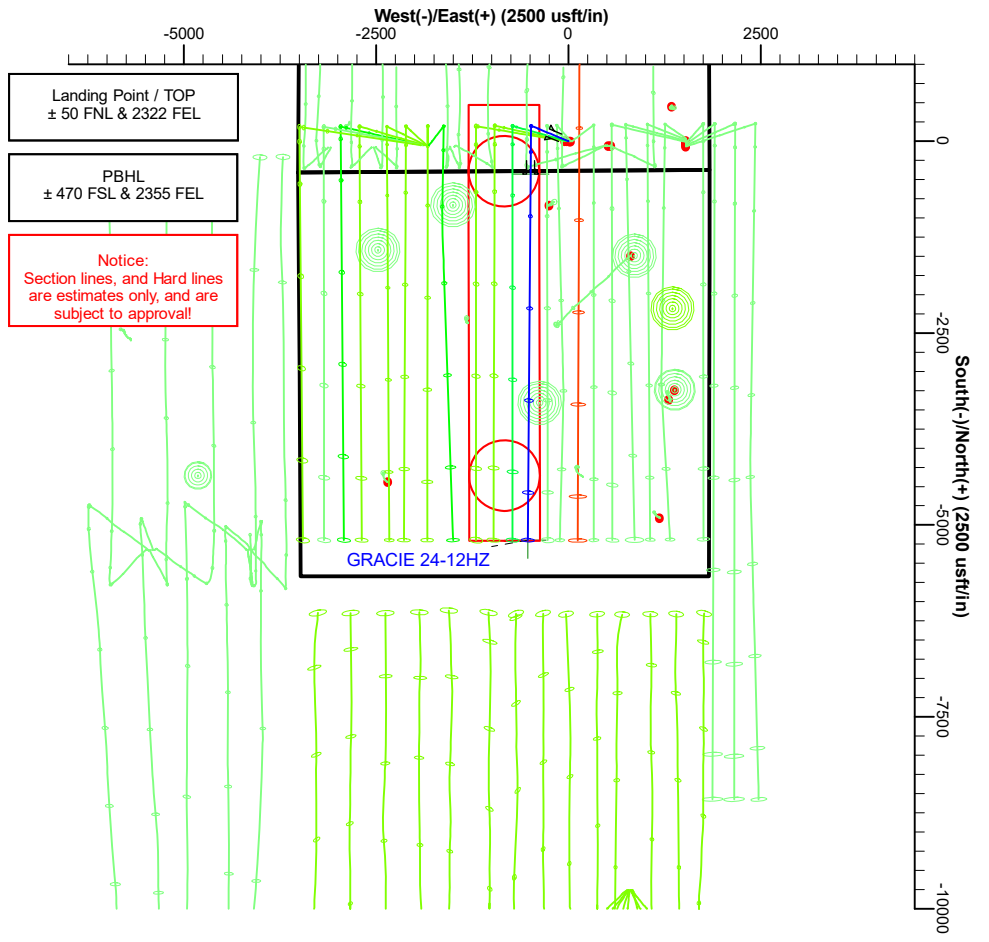
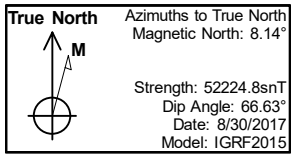
**12 September, 2017**

Well: GRACIE 24-12HZ	Plan: Permit Rev-2	Field: WELD-NAD83-UTMFT13N	Site: 2N-66W-24 GRACIE 15-24HZ PAD
Borehole: PPlan A	Plan Date: 6:53, September 12 2017	Datum: UTM (US Survey Ft)	RKB: 5071ft
Grid Conv: 0.18	VSec: 185.80deg	Zone: Zone 13N (108 W to 102 W)	GL: 5054.00ft
Latitude: 40.117616		Longitude: -104.722407	
Northing / Y: 14569683.79		Easting / X: 1718023.36	
Model: IGRF2015		Date: 30-Aug-17	DEC: 8.14°
DIP: 66.63°		FS: 52224.76501171nT North Ref: True	

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	1500.00	18.00	292.59	1480.36	71.81	-172.61	1.50	292.59	-54.01	Hold Inc
4	1995.88	18.00	292.59	1951.97	130.67	-314.09	0.00	0.00	-98.27	Drop 1.5°/100 DLS
5	3195.88	0.00	0.00	3132.33	202.47	-486.70	1.50	180.00	-152.28	Vertical Point
6	6755.96	0.00	0.00	6692.41	202.47	-486.70	0.00	0.00	-152.28	KOP, Build 10°/100 DLS
7	7750.22	89.48	180.43	7329.00	-428.39	-491.48	9.00	180.43	475.84	Landing Target
8	12519.34	89.48	180.43	7372.00	-5197.17	-527.62	0.00	0.00	5223.88	PBHL/TD

Target Details									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
GRACIE 24-12HZ HEEL	7329.00	-428.40	-491.47	14569253.86	1717533.23	40.116413	-104.724147		
GRACIE 24-12HZ PBHL	7372.00	-5197.17	-527.62	14564485.00	1717511.96	40.103344	-104.724294		

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1484.00	1503.83	Fox Hills
4201.00	4264.55	Parkman
4689.00	4752.55	Sussex
7129.00	7237.05	Sharon Springs
7169.00	7294.54	Niobrara
7239.00	7413.27	Nio B
7303.00	7573.29	Nio C



<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well GRACIE 24-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Site:</b>	2N-66W-24 GRACIE 15-24HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GRACIE 24-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLan A		
<b>Design:</b>	Permit Rev-2		

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

<b>Site</b>	2N-66W-24 GRACIE 15-24HZ PAD				
<b>Site Position:</b>		<b>Northing:</b>	14,569,684.01 usft	<b>Latitude:</b>	40.117617
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,717,978.34 usft	<b>Longitude:</b>	-104.722568
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.18 °

<b>Well</b>	GRACIE 24-12HZ					
<b>Well Position</b>	<b>+N/-S</b>	-0.36 usft	<b>Northing:</b>	14,569,683.78 usft	<b>Latitude:</b>	40.117616
	<b>+E/-W</b>	45.01 usft	<b>Easting:</b>	1,718,023.36 usft	<b>Longitude:</b>	-104.722407
<b>Position Uncertainty</b>		3.28 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,054.00 usft

<b>Wellbore</b>	PLan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	8/30/2017	8.14	66.63	52,224.76501171

<b>Design</b>	Permit Rev-2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	185.80

<b>Plan Survey Tool Program</b>	<b>Date</b>	9/11/2017			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	12,519.34	Permit Rev-2 (PLan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declination	

<b>Plan Sections</b>										
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	
1,500.00	18.00	292.59	1,480.36	71.81	-172.61	1.50	1.50	0.00	292.59	
1,995.88	18.00	292.59	1,951.97	130.67	-314.09	0.00	0.00	0.00	0.00	
3,195.88	0.00	0.00	3,132.33	202.47	-486.70	1.50	-1.50	0.00	180.00	
6,755.96	0.00	0.00	6,692.41	202.47	-486.70	0.00	0.00	0.00	0.00	
7,750.22	89.48	180.43	7,329.00	-428.39	-491.48	9.00	9.00	-18.06	180.43	
12,519.34	89.48	180.43	7,372.00	-5,197.17	-527.62	0.00	0.00	0.00	0.00	GRACIE 24-12HZ PB

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well GRACIE 24-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Site:</b>	2N-66W-24 GRACIE 15-24HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GRACIE 24-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLan A		
<b>Design:</b>	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Build 1.5°/100 DLS</b>									
400.00	1.50	292.59	399.99	0.50	-1.21	-0.38	1.50	1.50	0.00
500.00	3.00	292.59	499.91	2.01	-4.83	-1.51	1.50	1.50	0.00
600.00	4.50	292.59	599.69	4.52	-10.87	-3.40	1.50	1.50	0.00
700.00	6.00	292.59	699.27	8.04	-19.32	-6.04	1.50	1.50	0.00
800.00	7.50	292.59	798.57	12.55	-30.17	-9.44	1.50	1.50	0.00
900.00	9.00	292.59	897.54	18.06	-43.42	-13.59	1.50	1.50	0.00
1,000.00	10.50	292.59	996.09	24.57	-59.06	-18.48	1.50	1.50	0.00
1,100.00	12.00	292.59	1,094.16	32.06	-77.07	-24.11	1.50	1.50	0.00
1,200.00	13.50	292.59	1,191.70	40.54	-97.44	-30.49	1.50	1.50	0.00
1,300.00	15.00	292.59	1,288.62	49.99	-120.17	-37.60	1.50	1.50	0.00
1,400.00	16.50	292.59	1,384.86	60.42	-145.23	-45.44	1.50	1.50	0.00
1,500.00	18.00	292.59	1,480.36	71.81	-172.61	-54.01	1.50	1.50	0.00
<b>Hold Inc</b>									
1,503.83	18.00	292.59	1,484.00	72.26	-173.70	-54.35	0.00	0.00	0.00
<b>Fox Hills</b>									
1,600.00	18.00	292.59	1,575.46	83.68	-201.14	-62.93	0.00	0.00	0.00
1,700.00	18.00	292.59	1,670.57	95.55	-229.67	-71.86	0.00	0.00	0.00
1,800.00	18.00	292.59	1,765.67	107.42	-258.20	-80.79	0.00	0.00	0.00
1,836.09	18.00	292.59	1,800.00	111.70	-268.50	-84.01	0.00	0.00	0.00
<b>Surface Csg</b>									
1,900.00	18.00	292.59	1,860.78	119.29	-286.73	-89.71	0.00	0.00	0.00
1,995.88	18.00	292.59	1,951.97	130.67	-314.09	-98.27	0.00	0.00	0.00
<b>Drop 1.5°/100 DLS</b>									
2,000.00	17.94	292.59	1,955.89	131.15	-315.26	-98.64	1.50	-1.50	0.00
2,100.00	16.44	292.59	2,051.42	142.50	-342.55	-107.18	1.50	-1.50	0.00
2,200.00	14.94	292.59	2,147.69	152.89	-367.51	-114.99	1.50	-1.50	0.00
2,300.00	13.44	292.59	2,244.64	162.30	-390.14	-122.07	1.50	-1.50	0.00
2,400.00	11.94	292.59	2,342.19	170.74	-410.42	-128.41	1.50	-1.50	0.00
2,500.00	10.44	292.59	2,440.29	178.19	-428.34	-134.02	1.50	-1.50	0.00
2,600.00	8.94	292.59	2,538.86	184.66	-443.87	-138.88	1.50	-1.50	0.00
2,700.00	7.44	292.59	2,637.84	190.13	-457.02	-143.00	1.50	-1.50	0.00
2,800.00	5.94	292.59	2,737.15	194.60	-467.78	-146.36	1.50	-1.50	0.00
2,900.00	4.44	292.59	2,836.74	198.07	-476.13	-148.97	1.50	-1.50	0.00
3,000.00	2.94	292.59	2,936.53	200.55	-482.06	-150.83	1.50	-1.50	0.00
3,100.00	1.44	292.59	3,036.46	202.01	-485.59	-151.93	1.50	-1.50	0.00
3,195.88	0.00	0.00	3,132.33	202.47	-486.70	-152.28	1.50	-1.50	0.00
<b>Vertical Point</b>									
3,200.00	0.00	0.00	3,136.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,300.00	0.00	0.00	3,236.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,400.00	0.00	0.00	3,336.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,500.00	0.00	0.00	3,436.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,600.00	0.00	0.00	3,536.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,700.00	0.00	0.00	3,636.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,800.00	0.00	0.00	3,736.45	202.47	-486.70	-152.28	0.00	0.00	0.00
3,900.00	0.00	0.00	3,836.45	202.47	-486.70	-152.28	0.00	0.00	0.00
4,000.00	0.00	0.00	3,936.45	202.47	-486.70	-152.28	0.00	0.00	0.00
4,100.00	0.00	0.00	4,036.45	202.47	-486.70	-152.28	0.00	0.00	0.00
4,200.00	0.00	0.00	4,136.45	202.47	-486.70	-152.28	0.00	0.00	0.00

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well GRACIE 24-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Site:</b>	2N-66W-24 GRACIE 15-24HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GRACIE 24-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLan A		
<b>Design:</b>	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)	
4,264.55	0.00	0.00	4,201.00	202.47	-486.70	-152.28	0.00	0.00	0.00	
<b>Parkman</b>										
4,300.00	0.00	0.00	4,236.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,336.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,436.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,536.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,636.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,752.55	0.00	0.00	4,689.00	202.47	-486.70	-152.28	0.00	0.00	0.00	
<b>Sussex</b>										
4,800.00	0.00	0.00	4,736.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,836.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,936.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,036.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,136.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,236.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,336.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,436.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,536.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,636.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,736.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,836.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,936.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,036.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,136.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,236.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,336.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,436.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,536.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,636.45	202.47	-486.70	-152.28	0.00	0.00	0.00	
6,755.96	0.00	0.00	6,692.41	202.47	-486.70	-152.28	0.00	0.00	0.00	
<b>KOP, Build 10°/100 DLS</b>										
6,800.00	3.96	180.43	6,736.41	200.95	-486.71	-150.77	9.00	9.00	0.00	
6,900.00	12.96	180.43	6,835.22	186.25	-486.82	-136.13	9.00	9.00	0.00	
7,000.00	21.96	180.43	6,930.51	156.27	-487.05	-106.28	9.00	9.00	0.00	
7,100.00	30.96	180.43	7,019.94	111.76	-487.39	-61.96	9.00	9.00	0.00	
7,200.00	39.96	180.43	7,101.31	53.80	-487.83	-4.25	9.00	9.00	0.00	
7,237.05	43.30	180.43	7,129.00	29.19	-488.01	20.25	9.00	9.00	0.00	
<b>Sharon Springs</b>										
7,294.54	48.47	180.43	7,169.00	-12.07	-488.33	61.33	9.00	9.00	0.00	
<b>Niobrara</b>										
7,300.00	48.96	180.43	7,172.60	-16.17	-488.36	65.41	9.00	9.00	0.00	
7,400.00	57.96	180.43	7,232.08	-96.43	-488.97	145.33	9.00	9.00	0.00	
7,413.27	59.16	180.43	7,239.00	-107.76	-489.05	156.60	9.00	9.00	0.00	
<b>Nio B</b>										
7,500.00	66.96	180.43	7,278.26	-185.01	-489.64	233.52	9.00	9.00	0.00	
7,573.29	73.56	180.43	7,303.00	-253.95	-490.16	302.16	9.00	9.00	0.00	
<b>Nio C</b>										
7,600.00	75.96	180.43	7,310.02	-279.72	-490.36	327.82	9.00	9.00	0.00	
7,700.00	84.96	180.43	7,326.57	-378.24	-491.10	425.90	9.00	9.00	0.00	
7,750.22	89.48	180.43	7,329.00	-428.38	-491.48	475.83	9.00	9.00	0.00	
<b>Landing Target</b>										
7,750.24	89.48	180.43	7,329.00	-428.40	-491.48	475.85	2.16	2.16	0.00	
<b>Top of Production</b>										

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well GRACIE 24-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Site:</b>	2N-66W-24 GRACIE 15-24HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GRACIE 24-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLan A		
<b>Design:</b>	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)
7,800.00	89.48	180.43	7,329.45	-478.16	-491.86	525.39	0.00	0.00	0.00
7,900.00	89.48	180.43	7,330.35	-578.15	-492.62	624.95	0.00	0.00	0.00
8,000.00	89.48	180.43	7,331.26	-678.15	-493.38	724.51	0.00	0.00	0.00
8,100.00	89.48	180.43	7,332.16	-778.14	-494.13	824.07	0.00	0.00	0.00
8,200.00	89.48	180.43	7,333.06	-878.13	-494.89	923.63	0.00	0.00	0.00
8,300.00	89.48	180.43	7,333.96	-978.13	-495.65	1,023.18	0.00	0.00	0.00
8,400.00	89.48	180.43	7,334.86	-1,078.12	-496.41	1,122.74	0.00	0.00	0.00
8,500.00	89.48	180.43	7,335.76	-1,178.11	-497.16	1,222.30	0.00	0.00	0.00
8,600.00	89.48	180.43	7,336.67	-1,278.10	-497.92	1,321.86	0.00	0.00	0.00
8,700.00	89.48	180.43	7,337.57	-1,378.10	-498.68	1,421.42	0.00	0.00	0.00
8,800.00	89.48	180.43	7,338.47	-1,478.09	-499.44	1,520.98	0.00	0.00	0.00
8,900.00	89.48	180.43	7,339.37	-1,578.08	-500.20	1,620.53	0.00	0.00	0.00
9,000.00	89.48	180.43	7,340.27	-1,678.08	-500.95	1,720.09	0.00	0.00	0.00
9,100.00	89.48	180.43	7,341.17	-1,778.07	-501.71	1,819.65	0.00	0.00	0.00
9,200.00	89.48	180.43	7,342.07	-1,878.06	-502.47	1,919.21	0.00	0.00	0.00
9,300.00	89.48	180.43	7,342.98	-1,978.06	-503.23	2,018.77	0.00	0.00	0.00
9,400.00	89.48	180.43	7,343.88	-2,078.05	-503.98	2,118.33	0.00	0.00	0.00
9,500.00	89.48	180.43	7,344.78	-2,178.04	-504.74	2,217.88	0.00	0.00	0.00
9,600.00	89.48	180.43	7,345.68	-2,278.04	-505.50	2,317.44	0.00	0.00	0.00
9,700.00	89.48	180.43	7,346.58	-2,378.03	-506.26	2,417.00	0.00	0.00	0.00
9,800.00	89.48	180.43	7,347.48	-2,478.02	-507.02	2,516.56	0.00	0.00	0.00
9,900.00	89.48	180.43	7,348.39	-2,578.01	-507.77	2,616.12	0.00	0.00	0.00
10,000.00	89.48	180.43	7,349.29	-2,678.01	-508.53	2,715.68	0.00	0.00	0.00
10,100.00	89.48	180.43	7,350.19	-2,778.00	-509.29	2,815.23	0.00	0.00	0.00
10,200.00	89.48	180.43	7,351.09	-2,877.99	-510.05	2,914.79	0.00	0.00	0.00
10,300.00	89.48	180.43	7,351.99	-2,977.99	-510.80	3,014.35	0.00	0.00	0.00
10,400.00	89.48	180.43	7,352.89	-3,077.98	-511.56	3,113.91	0.00	0.00	0.00
10,500.00	89.48	180.43	7,353.79	-3,177.97	-512.32	3,213.47	0.00	0.00	0.00
10,600.00	89.48	180.43	7,354.70	-3,277.97	-513.08	3,313.02	0.00	0.00	0.00
10,700.00	89.48	180.43	7,355.60	-3,377.96	-513.84	3,412.58	0.00	0.00	0.00
10,800.00	89.48	180.43	7,356.50	-3,477.95	-514.59	3,512.14	0.00	0.00	0.00
10,900.00	89.48	180.43	7,357.40	-3,577.94	-515.35	3,611.70	0.00	0.00	0.00
11,000.00	89.48	180.43	7,358.30	-3,677.94	-516.11	3,711.26	0.00	0.00	0.00
11,100.00	89.48	180.43	7,359.20	-3,777.93	-516.87	3,810.82	0.00	0.00	0.00
11,200.00	89.48	180.43	7,360.11	-3,877.92	-517.63	3,910.37	0.00	0.00	0.00
11,300.00	89.48	180.43	7,361.01	-3,977.92	-518.38	4,009.93	0.00	0.00	0.00
11,400.00	89.48	180.43	7,361.91	-4,077.91	-519.14	4,109.49	0.00	0.00	0.00
11,500.00	89.48	180.43	7,362.81	-4,177.90	-519.90	4,209.05	0.00	0.00	0.00
11,600.00	89.48	180.43	7,363.71	-4,277.90	-520.66	4,308.61	0.00	0.00	0.00
11,700.00	89.48	180.43	7,364.61	-4,377.89	-521.41	4,408.17	0.00	0.00	0.00
11,800.00	89.48	180.43	7,365.51	-4,477.88	-522.17	4,507.72	0.00	0.00	0.00
11,900.00	89.48	180.43	7,366.42	-4,577.88	-522.93	4,607.28	0.00	0.00	0.00
12,000.00	89.48	180.43	7,367.32	-4,677.87	-523.69	4,706.84	0.00	0.00	0.00
12,100.00	89.48	180.43	7,368.22	-4,777.86	-524.45	4,806.40	0.00	0.00	0.00
12,200.00	89.48	180.43	7,369.12	-4,877.85	-525.20	4,905.96	0.00	0.00	0.00
12,300.00	89.48	180.43	7,370.02	-4,977.85	-525.96	5,005.52	0.00	0.00	0.00
12,400.00	89.48	180.43	7,370.92	-5,077.84	-526.72	5,105.07	0.00	0.00	0.00
12,500.00	89.48	180.43	7,371.83	-5,177.83	-527.48	5,204.63	0.00	0.00	0.00
12,519.34	89.48	180.43	7,372.00	-5,197.17	-527.62	5,223.88	0.00	0.00	0.00
<b>PBHL/TD</b>									

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well GRACIE 24-12HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	KB @ 5071.00usft (D Rig)
<b>Site:</b>	2N-66W-24 GRACIE 15-24HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GRACIE 24-12HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	PLan A		
<b>Design:</b>	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 24-12HZ HEEL - plan misses target center by 0.01usft at 7750.24usft MD (7329.00 TVD, -428.40 N, -491.48 E) - Point	0.00	0.00	7,329.00	-428.40	-491.47	14,569,253.85	1,717,533.23	40.116440	-104.724165
GRACIE 24-12HZ PBHL - plan hits target center - Point	0.00	0.00	7,372.00	-5,197.17	-527.62	14,564,484.99	1,717,511.96	40.103344	-104.724294

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
1,836.09	1,800.00	Surface Csg	9-5/8	13-1/2	
7,750.24	7,329.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
1,503.83	1,484.00	Fox Hills				
4,264.55	4,201.00	Parkman				
4,752.55	4,689.00	Sussex				
7,237.05	7,129.00	Sharon Springs				
7,294.54	7,169.00	Niobrara				
7,413.27	7,239.00	Nio B				
7,573.29	7,303.00	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	
1,500.00	1,480.36	71.81	-172.61	Hold Inc	
1,995.88	1,951.97	130.67	-314.09	Drop 1.5°/100 DLS	
3,195.88	3,132.33	202.47	-486.70	Vertical Point	
6,755.96	6,692.41	202.47	-486.70	KOP, Build 10°/100 DLS	
7,750.22	7,329.00	-428.38	-491.48	Landing Target	
12,519.34	7,372.00	-5,197.17	-527.62	PBHL/TD	