

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-67W-07 RANGER 18-7HZ PAD**

**RANGER 7-15HZ**

**Plan A**

**Plan: Permit Rev-1**

SHL Lat/Long: 40.070789/-104.936925

Survey Program: MWD+IFR+MSA

## **Standard Planning Report**

**16 May, 2018**

Project: WELD-NAD83-UTMFT13N  
Site: 1N-67W-07 RANGER 18-7HZ PAD  
Well: RANGER 7-15HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Size
1500.00	1508.05	9-5/8
7628.00	8053.02	5-1/2

WELL DETAILS: RANGER 7-15HZ

GL = 5112.00

RKB = 17" @ 5129.00usft (Drilling Rig)

## 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	325.00	0.00	0.00	325.00	0.00	0.00	0.00	0.00	0.00	
3	858.33	8.00	270.75	856.60	0.49	-37.17	1.50	270.75	0.40	
4	1875.00	8.00	270.75	1863.37	2.34	-178.65	0.00	0.00	1.93	
5	2275.00	0.00	0.00	2262.08	2.70	-206.53	2.00	180.00	2.23	
6	6924.73	0.00	0.00	6911.81	2.70	-206.53	0.00	0.00	2.23	
7	8053.02	90.26	0.13	7628.00	722.19	-204.95	8.00	0.13	721.72	
8	18729.08	90.26	0.13	7579.00	11398.11	-181.55	0.00	0.00	11397.67	RANGER 7-15HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
RANGER 7-15HZ_SHL	0.00	0.00	0.00	40.070789	-104.936925
RANGER 7-15HZ_BHL	7579.00	11398.11	-181.55	40.102090	-104.937574

## FORMATION TOP DETAILS

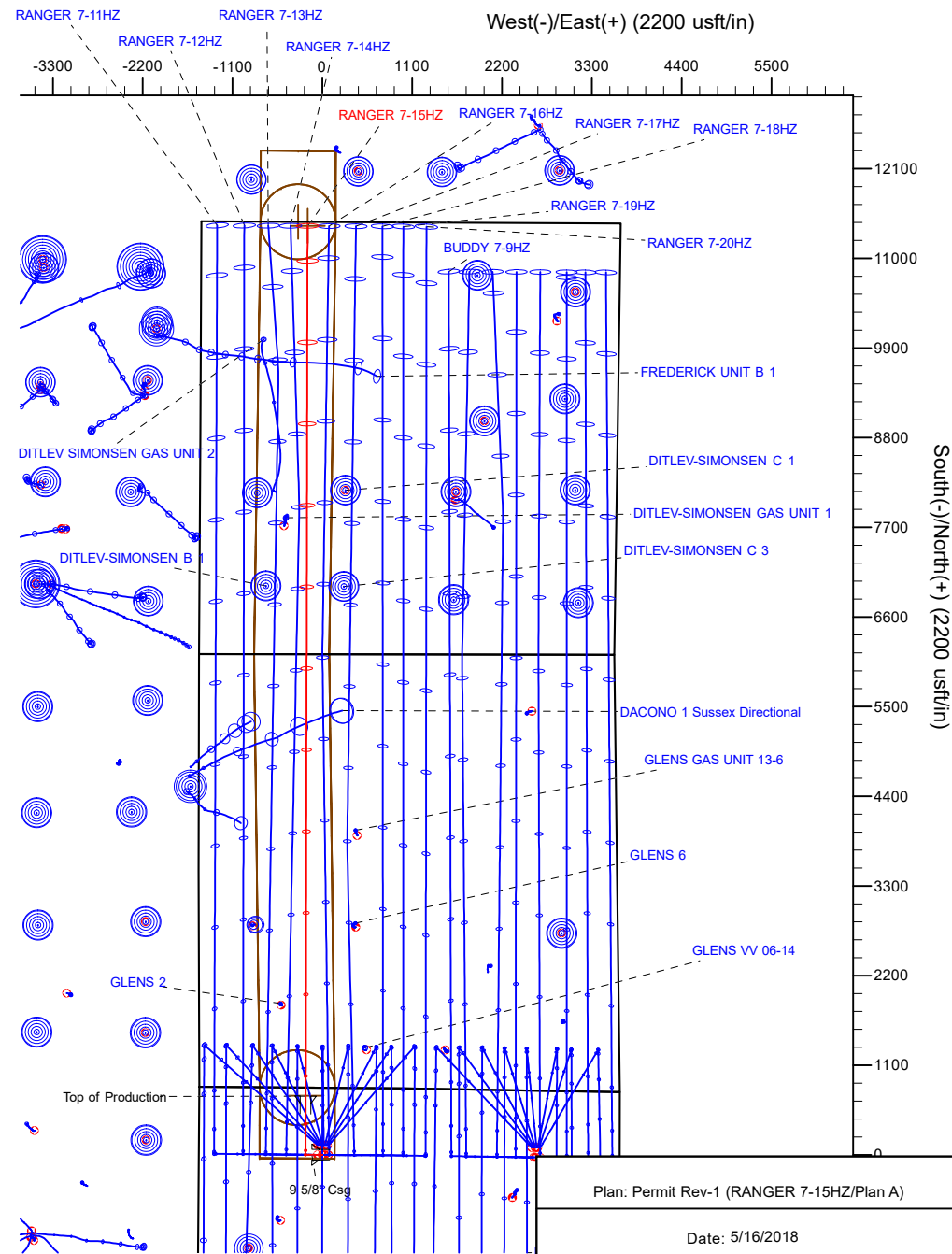
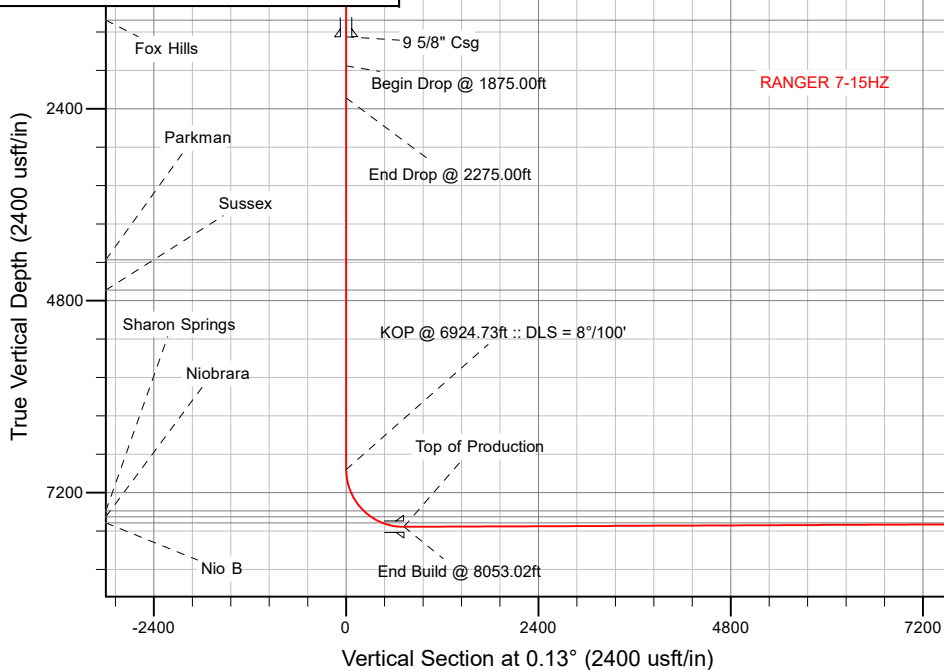
TVDPath	MDPath	Formation
1292.00	1298.01	Fox Hills
4288.00	4300.92	Parkman
4667.00	4679.92	Sussex
7427.00	7499.74	Sharon Springs
7502.00	7618.40	Niobrara
7578.00	7780.52	Nio B

**SHL**  
**825' FNL**  
**1514' FWL**

**HEEL**  
**101' FNL**  
**1303' FWL**

**TOE**  
**50' FNL**  
**1301' FWL**

-- End Nudge @ 858.33ft



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well RANGER 7-15HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

<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)		

Site		1N-67W-07 RANGER 18-7HZ PAD			
Site Position:		Northing:	14,552,637.51 usft	Latitude:	40.071120
From:	Lat/Long	Easting:	1,658,003.51 usft	Longitude:	-104.937136
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.04 °

Well		RANGER 7-15HZ				
Well Position	+N/-S	-120.53 usft	Northing:	14,552,517.02 usft	Latitude:	40.070789
	+E/-W	59.03 usft	Easting:	1,658,062.62 usft	Longitude:	-104.936925
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,112.00 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	5/3/2018	8.18	66.54	52,100.44100793

<b>Design</b>	Permit Rev-1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	0.13

<b>Plan Survey Tool Program</b>	<b>Date</b>	5/16/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
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	18,729.08	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate  
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well RANGER 7-15HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5129.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5129.00usft (Drilling Rig)
Site:	1N-67W-07 RANGER 18-7HZ PAD	North Reference:	True
Well:	RANGER 7-15HZ	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	
325.00	0.00	0.00	325.00	0.00	0.00	0.00	0.00	0.00	0.00	
858.33	8.00	270.75	856.60	0.49	-37.17	1.50	1.50	0.00	270.75	
1,875.00	8.00	270.75	1,863.37	2.34	-178.65	0.00	0.00	0.00	0.00	
2,275.00	0.00	0.00	2,262.08	2.70	-206.53	2.00	-2.00	0.00	180.00	
6,924.73	0.00	0.00	6,911.81	2.70	-206.53	0.00	0.00	0.00	0.00	
8,053.02	90.26	0.13	7,628.00	722.19	-204.95	8.00	8.00	0.01	0.13	
18,729.08	90.26	0.13	7,579.00	11,398.11	-181.55	0.00	0.00	0.00	0.00	RANGER 7-15HZ_BH

# Corporate Planning Report

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
325.00	0.00	0.00	325.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 325.00ft									
400.00	1.13	270.75	400.00	0.01	-0.74	0.01	1.50	1.50	0.00
500.00	2.63	270.75	499.94	0.05	-4.01	0.04	1.50	1.50	0.00
600.00	4.13	270.75	599.76	0.13	-9.89	0.11	1.50	1.50	0.00
700.00	5.63	270.75	699.40	0.24	-18.39	0.20	1.50	1.50	0.00
800.00	7.13	270.75	798.78	0.39	-29.49	0.32	1.50	1.50	0.00
858.33	8.00	270.75	856.60	0.49	-37.17	0.40	1.50	1.50	0.00
End Nudge @ 858.33ft									
900.00	8.00	270.75	897.86	0.56	-42.97	0.46	0.00	0.00	0.00
1,000.00	8.00	270.75	996.89	0.74	-56.88	0.62	0.00	0.00	0.00
1,100.00	8.00	270.75	1,095.92	0.93	-70.80	0.77	0.00	0.00	0.00
1,200.00	8.00	270.75	1,194.94	1.11	-84.72	0.92	0.00	0.00	0.00
1,298.01	8.00	270.75	1,292.00	1.29	-98.36	1.06	0.00	0.00	0.00
Fox Hills									
1,300.00	8.00	270.75	1,293.97	1.29	-98.63	1.07	0.00	0.00	0.00
1,400.00	8.00	270.75	1,393.00	1.47	-112.55	1.22	0.00	0.00	0.00
1,500.00	8.00	270.75	1,492.02	1.66	-126.47	1.37	0.00	0.00	0.00
1,508.05	8.00	270.75	1,500.00	1.67	-127.59	1.38	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	8.00	270.75	1,591.05	1.84	-140.38	1.52	0.00	0.00	0.00
1,700.00	8.00	270.75	1,690.08	2.02	-154.30	1.67	0.00	0.00	0.00
1,800.00	8.00	270.75	1,789.10	2.20	-168.21	1.82	0.00	0.00	0.00
1,875.00	8.00	270.75	1,863.37	2.34	-178.65	1.93	0.00	0.00	0.00
Begin Drop @ 1875.00ft									
1,900.00	7.50	270.75	1,888.15	2.38	-182.02	1.97	2.00	-2.00	0.00
2,000.00	5.50	270.75	1,987.50	2.53	-193.34	2.09	2.00	-2.00	0.00
2,100.00	3.50	270.75	2,087.19	2.63	-201.19	2.18	2.00	-2.00	0.00
2,200.00	1.50	270.75	2,187.08	2.69	-205.55	2.22	2.00	-2.00	0.00
2,275.00	0.00	0.00	2,262.08	2.70	-206.53	2.23	2.00	-2.00	0.00
End Drop @ 2275.00ft									
2,300.00	0.00	0.00	2,287.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,400.00	0.00	0.00	2,387.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,500.00	0.00	0.00	2,487.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,600.00	0.00	0.00	2,587.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,700.00	0.00	0.00	2,687.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,800.00	0.00	0.00	2,787.08	2.70	-206.53	2.23	0.00	0.00	0.00
2,900.00	0.00	0.00	2,887.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,000.00	0.00	0.00	2,987.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,100.00	0.00	0.00	3,087.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,200.00	0.00	0.00	3,187.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,300.00	0.00	0.00	3,287.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,400.00	0.00	0.00	3,387.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,500.00	0.00	0.00	3,487.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,600.00	0.00	0.00	3,587.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,700.00	0.00	0.00	3,687.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,800.00	0.00	0.00	3,787.08	2.70	-206.53	2.23	0.00	0.00	0.00
3,900.00	0.00	0.00	3,887.08	2.70	-206.53	2.23	0.00	0.00	0.00
4,000.00	0.00	0.00	3,987.08	2.70	-206.53	2.23	0.00	0.00	0.00

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)	
4,100.00	0.00	0.00	4,087.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,187.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,287.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,300.92	0.00	0.00	4,288.00	2.70	-206.53	2.23	0.00	0.00	0.00	
Parkman										
4,400.00	0.00	0.00	4,387.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,487.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,587.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,679.92	0.00	0.00	4,667.00	2.70	-206.53	2.23	0.00	0.00	0.00	
Sussex										
4,700.00	0.00	0.00	4,687.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,787.08	2.70	-206.53	2.23	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,887.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,987.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,087.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,187.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,287.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,387.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,487.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,587.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,687.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,787.08	2.70	-206.53	2.23	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,887.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,987.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,087.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,187.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,287.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,387.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,487.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,587.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,687.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,787.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,887.08	2.70	-206.53	2.23	0.00	0.00	0.00	
6,924.73	0.00	0.00	6,911.81	2.70	-206.53	2.23	0.00	0.00	0.00	
KOP @ 6924.73ft :: DLS = 8°/100'										
7,000.00	6.02	0.13	6,986.94	6.66	-206.52	6.19	8.00	8.00	0.00	
7,100.00	14.02	0.13	7,085.33	24.04	-206.48	23.57	8.00	8.00	0.00	
7,200.00	22.02	0.13	7,180.35	54.96	-206.41	54.49	8.00	8.00	0.00	
7,300.00	30.02	0.13	7,270.14	98.79	-206.32	98.32	8.00	8.00	0.00	
7,400.00	38.02	0.13	7,352.95	154.70	-206.19	154.23	8.00	8.00	0.00	
7,499.74	46.00	0.13	7,427.00	221.39	-206.05	220.92	8.00	8.00	0.00	
Sharon Springs										
7,500.00	46.02	0.13	7,427.18	221.58	-206.05	221.11	8.00	8.00	0.00	
7,600.00	54.02	0.13	7,491.38	298.15	-205.88	297.68	8.00	8.00	0.00	
7,618.40	55.49	0.13	7,502.00	313.18	-205.85	312.71	8.00	8.00	0.00	
Niobrara										
7,700.00	62.02	0.13	7,544.30	382.90	-205.69	382.44	8.00	8.00	0.00	
7,780.52	68.46	0.13	7,578.00	455.98	-205.53	455.52	8.00	8.00	0.00	
Nio B										
7,800.00	70.02	0.13	7,584.90	474.20	-205.49	473.73	8.00	8.00	0.00	
7,900.00	78.02	0.13	7,612.41	570.26	-205.28	569.79	8.00	8.00	0.00	
8,000.00	86.02	0.13	7,626.28	669.21	-205.07	668.74	8.00	8.00	0.00	
8,053.02	90.26	0.13	7,628.00	722.19	-204.95	721.72	8.00	8.00	0.00	

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
End Build @ 8053.02ft - Top of Production									
8,100.00	90.26	0.13	7,627.78	769.17	-204.85	768.70	0.00	0.00	0.00
8,200.00	90.26	0.13	7,627.32	869.17	-204.63	868.70	0.00	0.00	0.00
8,300.00	90.26	0.13	7,626.86	969.17	-204.41	968.70	0.00	0.00	0.00
8,400.00	90.26	0.13	7,626.40	1,069.16	-204.19	1,068.70	0.00	0.00	0.00
8,500.00	90.26	0.13	7,625.94	1,169.16	-203.97	1,168.70	0.00	0.00	0.00
8,600.00	90.26	0.13	7,625.49	1,269.16	-203.75	1,268.70	0.00	0.00	0.00
8,700.00	90.26	0.13	7,625.03	1,369.16	-203.53	1,368.70	0.00	0.00	0.00
8,800.00	90.26	0.13	7,624.57	1,469.16	-203.31	1,468.69	0.00	0.00	0.00
8,900.00	90.26	0.13	7,624.11	1,569.16	-203.09	1,568.69	0.00	0.00	0.00
9,000.00	90.26	0.13	7,623.65	1,669.16	-202.88	1,668.69	0.00	0.00	0.00
9,100.00	90.26	0.13	7,623.19	1,769.16	-202.66	1,768.69	0.00	0.00	0.00
9,200.00	90.26	0.13	7,622.73	1,869.15	-202.44	1,868.69	0.00	0.00	0.00
9,300.00	90.26	0.13	7,622.27	1,969.15	-202.22	1,968.69	0.00	0.00	0.00
9,400.00	90.26	0.13	7,621.81	2,069.15	-202.00	2,068.69	0.00	0.00	0.00
9,500.00	90.26	0.13	7,621.36	2,169.15	-201.78	2,168.69	0.00	0.00	0.00
9,600.00	90.26	0.13	7,620.90	2,269.15	-201.56	2,268.69	0.00	0.00	0.00
9,700.00	90.26	0.13	7,620.44	2,369.15	-201.34	2,368.68	0.00	0.00	0.00
9,800.00	90.26	0.13	7,619.98	2,469.15	-201.12	2,468.68	0.00	0.00	0.00
9,900.00	90.26	0.13	7,619.52	2,569.15	-200.90	2,568.68	0.00	0.00	0.00
10,000.00	90.26	0.13	7,619.06	2,669.14	-200.68	2,668.68	0.00	0.00	0.00
10,100.00	90.26	0.13	7,618.60	2,769.14	-200.46	2,768.68	0.00	0.00	0.00
10,200.00	90.26	0.13	7,618.14	2,869.14	-200.24	2,868.68	0.00	0.00	0.00
10,300.00	90.26	0.13	7,617.68	2,969.14	-200.03	2,968.68	0.00	0.00	0.00
10,400.00	90.26	0.13	7,617.22	3,069.14	-199.81	3,068.68	0.00	0.00	0.00
10,500.00	90.26	0.13	7,616.77	3,169.14	-199.59	3,168.68	0.00	0.00	0.00
10,600.00	90.26	0.13	7,616.31	3,269.14	-199.37	3,268.68	0.00	0.00	0.00
10,700.00	90.26	0.13	7,615.85	3,369.13	-199.15	3,368.67	0.00	0.00	0.00
10,800.00	90.26	0.13	7,615.39	3,469.13	-198.93	3,468.67	0.00	0.00	0.00
10,900.00	90.26	0.13	7,614.93	3,569.13	-198.71	3,568.67	0.00	0.00	0.00
11,000.00	90.26	0.13	7,614.47	3,669.13	-198.49	3,668.67	0.00	0.00	0.00
11,100.00	90.26	0.13	7,614.01	3,769.13	-198.27	3,768.67	0.00	0.00	0.00
11,200.00	90.26	0.13	7,613.55	3,869.13	-198.05	3,868.67	0.00	0.00	0.00
11,300.00	90.26	0.13	7,613.09	3,969.13	-197.83	3,968.67	0.00	0.00	0.00
11,400.00	90.26	0.13	7,612.64	4,069.13	-197.61	4,068.67	0.00	0.00	0.00
11,500.00	90.26	0.13	7,612.18	4,169.12	-197.40	4,168.67	0.00	0.00	0.00
11,600.00	90.26	0.13	7,611.72	4,269.12	-197.18	4,268.66	0.00	0.00	0.00
11,700.00	90.26	0.13	7,611.26	4,369.12	-196.96	4,368.66	0.00	0.00	0.00
11,800.00	90.26	0.13	7,610.80	4,469.12	-196.74	4,468.66	0.00	0.00	0.00
11,900.00	90.26	0.13	7,610.34	4,569.12	-196.52	4,568.66	0.00	0.00	0.00
12,000.00	90.26	0.13	7,609.88	4,669.12	-196.30	4,668.66	0.00	0.00	0.00
12,100.00	90.26	0.13	7,609.42	4,769.12	-196.08	4,768.66	0.00	0.00	0.00
12,200.00	90.26	0.13	7,608.96	4,869.12	-195.86	4,868.66	0.00	0.00	0.00
12,300.00	90.26	0.13	7,608.51	4,969.11	-195.64	4,968.66	0.00	0.00	0.00
12,400.00	90.26	0.13	7,608.05	5,069.11	-195.42	5,068.66	0.00	0.00	0.00
12,500.00	90.26	0.13	7,607.59	5,169.11	-195.20	5,168.66	0.00	0.00	0.00
12,600.00	90.26	0.13	7,607.13	5,269.11	-194.98	5,268.65	0.00	0.00	0.00
12,700.00	90.26	0.13	7,606.67	5,369.11	-194.76	5,368.65	0.00	0.00	0.00
12,800.00	90.26	0.13	7,606.21	5,469.11	-194.55	5,468.65	0.00	0.00	0.00
12,900.00	90.26	0.13	7,605.75	5,569.11	-194.33	5,568.65	0.00	0.00	0.00
13,000.00	90.26	0.13	7,605.29	5,669.11	-194.11	5,668.65	0.00	0.00	0.00
13,100.00	90.26	0.13	7,604.83	5,769.10	-193.89	5,768.65	0.00	0.00	0.00
13,200.00	90.26	0.13	7,604.37	5,869.10	-193.67	5,868.65	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well RANGER 7-15HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
13,300.00	90.26	0.13	7,603.92	5,969.10	-193.45	5,968.65	0.00	0.00	0.00
13,400.00	90.26	0.13	7,603.46	6,069.10	-193.23	6,068.65	0.00	0.00	0.00
13,500.00	90.26	0.13	7,603.00	6,169.10	-193.01	6,168.64	0.00	0.00	0.00
13,600.00	90.26	0.13	7,602.54	6,269.10	-192.79	6,268.64	0.00	0.00	0.00
13,700.00	90.26	0.13	7,602.08	6,369.10	-192.57	6,368.64	0.00	0.00	0.00
13,800.00	90.26	0.13	7,601.62	6,469.09	-192.35	6,468.64	0.00	0.00	0.00
13,900.00	90.26	0.13	7,601.16	6,569.09	-192.13	6,568.64	0.00	0.00	0.00
14,000.00	90.26	0.13	7,600.70	6,669.09	-191.92	6,668.64	0.00	0.00	0.00
14,100.00	90.26	0.13	7,600.24	6,769.09	-191.70	6,768.64	0.00	0.00	0.00
14,200.00	90.26	0.13	7,599.79	6,869.09	-191.48	6,868.64	0.00	0.00	0.00
14,300.00	90.26	0.13	7,599.33	6,969.09	-191.26	6,968.64	0.00	0.00	0.00
14,400.00	90.26	0.13	7,598.87	7,069.09	-191.04	7,068.64	0.00	0.00	0.00
14,500.00	90.26	0.13	7,598.41	7,169.09	-190.82	7,168.63	0.00	0.00	0.00
14,600.00	90.26	0.13	7,597.95	7,269.08	-190.60	7,268.63	0.00	0.00	0.00
14,700.00	90.26	0.13	7,597.49	7,369.08	-190.38	7,368.63	0.00	0.00	0.00
14,800.00	90.26	0.13	7,597.03	7,469.08	-190.16	7,468.63	0.00	0.00	0.00
14,900.00	90.26	0.13	7,596.57	7,569.08	-189.94	7,568.63	0.00	0.00	0.00
15,000.00	90.26	0.13	7,596.11	7,669.08	-189.72	7,668.63	0.00	0.00	0.00
15,100.00	90.26	0.13	7,595.66	7,769.08	-189.50	7,768.63	0.00	0.00	0.00
15,200.00	90.26	0.13	7,595.20	7,869.08	-189.28	7,868.63	0.00	0.00	0.00
15,300.00	90.26	0.13	7,594.74	7,969.08	-189.07	7,968.63	0.00	0.00	0.00
15,400.00	90.26	0.13	7,594.28	8,069.07	-188.85	8,068.63	0.00	0.00	0.00
15,500.00	90.26	0.13	7,593.82	8,169.07	-188.63	8,168.62	0.00	0.00	0.00
15,600.00	90.26	0.13	7,593.36	8,269.07	-188.41	8,268.62	0.00	0.00	0.00
15,700.00	90.26	0.13	7,592.90	8,369.07	-188.19	8,368.62	0.00	0.00	0.00
15,800.00	90.26	0.13	7,592.44	8,469.07	-187.97	8,468.62	0.00	0.00	0.00
15,900.00	90.26	0.13	7,591.98	8,569.07	-187.75	8,568.62	0.00	0.00	0.00
16,000.00	90.26	0.13	7,591.52	8,669.07	-187.53	8,668.62	0.00	0.00	0.00
16,100.00	90.26	0.13	7,591.07	8,769.07	-187.31	8,768.62	0.00	0.00	0.00
16,200.00	90.26	0.13	7,590.61	8,869.06	-187.09	8,868.62	0.00	0.00	0.00
16,300.00	90.26	0.13	7,590.15	8,969.06	-186.87	8,968.62	0.00	0.00	0.00
16,400.00	90.26	0.13	7,589.69	9,069.06	-186.65	9,068.61	0.00	0.00	0.00
16,500.00	90.26	0.13	7,589.23	9,169.06	-186.43	9,168.61	0.00	0.00	0.00
16,600.00	90.26	0.13	7,588.77	9,269.06	-186.22	9,268.61	0.00	0.00	0.00
16,700.00	90.26	0.13	7,588.31	9,369.06	-186.00	9,368.61	0.00	0.00	0.00
16,800.00	90.26	0.13	7,587.85	9,469.06	-185.78	9,468.61	0.00	0.00	0.00
16,900.00	90.26	0.13	7,587.39	9,569.05	-185.56	9,568.61	0.00	0.00	0.00
17,000.00	90.26	0.13	7,586.94	9,669.05	-185.34	9,668.61	0.00	0.00	0.00
17,100.00	90.26	0.13	7,586.48	9,769.05	-185.12	9,768.61	0.00	0.00	0.00
17,200.00	90.26	0.13	7,586.02	9,869.05	-184.90	9,868.61	0.00	0.00	0.00
17,300.00	90.26	0.13	7,585.56	9,969.05	-184.68	9,968.61	0.00	0.00	0.00
17,400.00	90.26	0.13	7,585.10	10,069.05	-184.46	10,068.60	0.00	0.00	0.00
17,500.00	90.26	0.13	7,584.64	10,169.05	-184.24	10,168.60	0.00	0.00	0.00
17,600.00	90.26	0.13	7,584.18	10,269.05	-184.02	10,268.60	0.00	0.00	0.00
17,700.00	90.26	0.13	7,583.72	10,369.04	-183.80	10,368.60	0.00	0.00	0.00
17,800.00	90.26	0.13	7,583.26	10,469.04	-183.59	10,468.60	0.00	0.00	0.00
17,900.00	90.26	0.13	7,582.81	10,569.04	-183.37	10,568.60	0.00	0.00	0.00
18,000.00	90.26	0.13	7,582.35	10,669.04	-183.15	10,668.60	0.00	0.00	0.00
18,100.00	90.26	0.13	7,581.89	10,769.04	-182.93	10,768.60	0.00	0.00	0.00
18,200.00	90.26	0.13	7,581.43	10,869.04	-182.71	10,868.60	0.00	0.00	0.00
18,300.00	90.26	0.13	7,580.97	10,969.04	-182.49	10,968.59	0.00	0.00	0.00
18,400.00	90.26	0.13	7,580.51	11,069.04	-182.27	11,068.59	0.00	0.00	0.00
18,500.00	90.26	0.13	7,580.05	11,169.03	-182.05	11,168.59	0.00	0.00	0.00
18,600.00	90.26	0.13	7,579.59	11,269.03	-181.83	11,268.59	0.00	0.00	0.00



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well RANGER 7-15HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5129.00usft (Drilling Rig)
<b>Site:</b>	1N-67W-07 RANGER 18-7HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	RANGER 7-15HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
18,700.00	90.26	0.13	7,579.13	11,369.03	-181.61	11,368.59	0.00	0.00	0.00
18,729.08	90.26	0.13	7,579.00	11,398.11	-181.55	11,397.67	0.00	0.00	0.00
TD Well @ 18729.08ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,508.05	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,053.02	7,628.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,298.01	1,292.00	Fox Hills				
4,300.92	4,288.00	Parkman				
4,679.92	4,667.00	Sussex				
7,499.74	7,427.00	Sharon Springs				
7,618.40	7,502.00	Niobrara				
7,780.52	7,578.00	Nio B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
325.00	325.00	0.00	0.00	Begin Nudge @ 325.00ft	
858.33	856.60	0.49	-37.17	End Nudge @ 858.33ft	
1,875.00	1,863.37	2.34	-178.65	Begin Drop @ 1875.00ft	
2,275.00	2,262.08	2.70	-206.53	End Drop @ 2275.00ft	
6,924.73	6,911.81	2.70	-206.53	KOP @ 6924.73ft :: DLS = 8°/100'	
8,053.02	7,628.00	722.19	-204.95	End Build @ 8053.02ft	
18,729.08	7,579.00	11,398.11	-181.55	TD Well @ 18729.08ft	