

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
3N-65W-21 MOSER FED 3-21HZ PAD  
MOSER 21-2HZ**

**Plan A**

**Plan: Permit Rev-1**

## **Standard Planning Report**

**11 May, 2022**

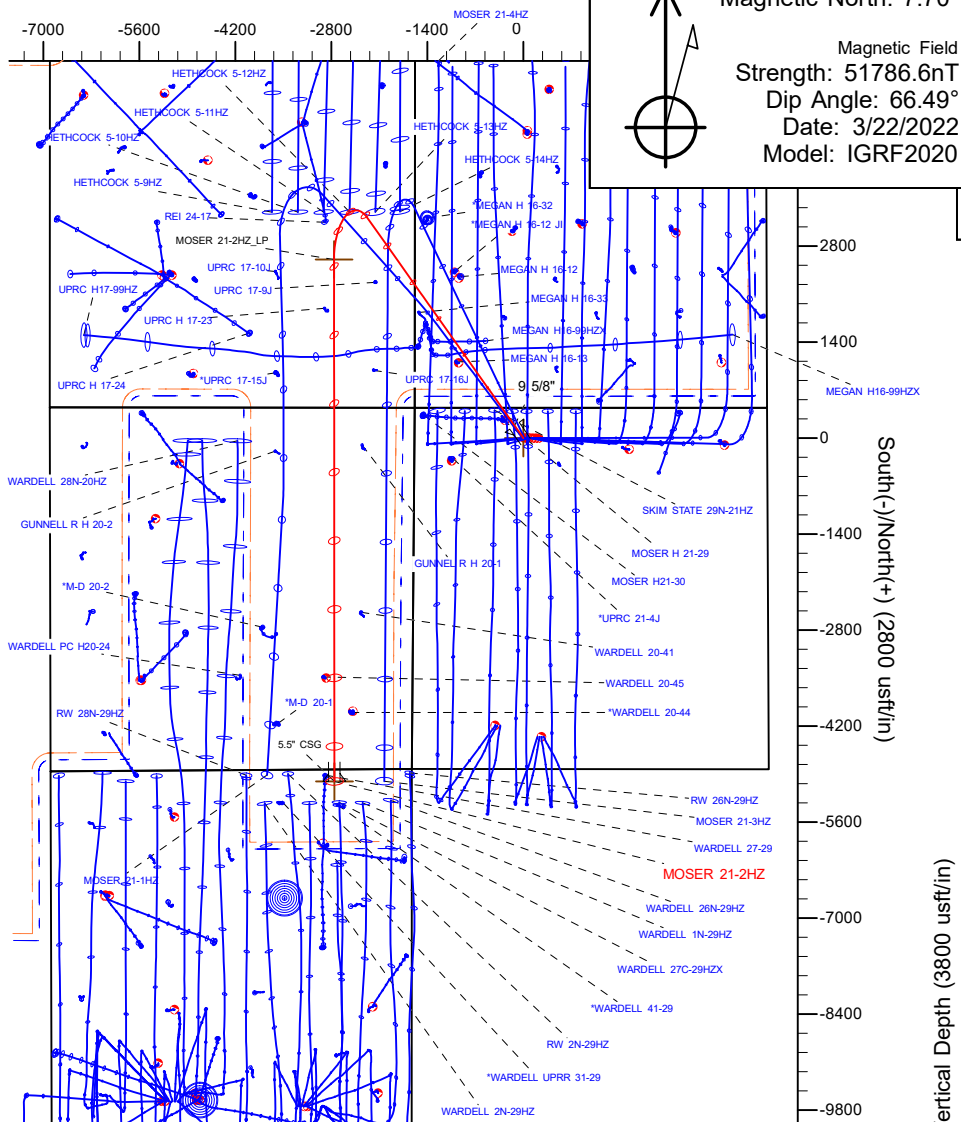
Project: WELD-NAD83-UTMFT13N  
Site: 3N-65W-21 MOSER FED 3-21HZ PAD  
Well: MOSER 21-2HZ  
Wellbore: Plan A  
Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

## CASING DETAILS

TVD	MD	Name	Size
1500.00	1525.25	9 5/8"	9-5/8
7195.00	16711.00	5.5" CSG	5-1/2

West(-)/East(+) (2800 usft/in)



## 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	220.00	0.00	0.00	220.00	0.00	0.00	0.00	0.00	0.00	
3	2920.00	40.50	324.70	2700.71	746.91	-528.84	1.50	324.70	-747.28	
4	7572.97	40.50	324.70	6238.85	3213.17	-2275.05	0.00	0.00	-3214.76	
5	9100.49	90.20	179.96	7221.00	2603.44	-2761.04	8.00	-136.98	-2605.36	
6	16711.00	90.20	179.96	7195.00	-5007.03	-2755.66	0.00	0.00	5005.11	MOSER 21-2HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
MOSER 21-2HZ_SHL	0.00	14605907.18	1731959.14	40.216958	-104.672082
MOSER 21-2HZ_LP	7221.00	14608500.40	1729188.50	40.224107	-104.681974
MOSER 21-2HZ_BHL	7195.00	14600890.00	1729222.00	40.203208	-104.681951

## WELL DETAILS: MOSER 21-2HZ

GL = 4844'

RKB = 17' @ 4861.00usft (RIG)

Plan: Permit Rev-1 (MOSER 21-2HZ/Plan A)

Date: 5/12/2022

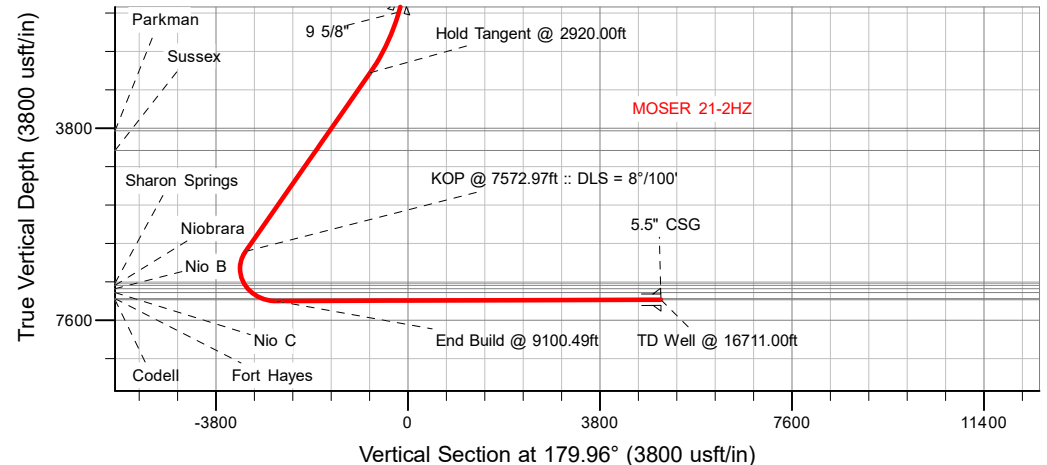
## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1058.00	1064.87	Fox Hills
3851.00	4432.73	Parkman
4239.00	4942.99	Sussex
6866.00	8304.73	Sharon Springs
6913.00	8364.66	Niobrara
6977.00	8451.69	Nio B
7052.00	8565.99	Nio C
7173.00	8819.07	Fort Hayes
7195.00	8893.24	Codell

SHL  
442' FNL  
1590' FWL

LP  
2161' FSL  
1179' FEL

BHL  
175' FNL  
1129' FEL



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<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		3N-65W-21 MOSER FED 3-21HZ PAD			
Site Position:		Northing:	14,605,907.26 usft	Latitude:	40.216958
From:	Map	Easting:	1,731,944.15 usft	Longitude:	-104.672136
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well		MOSER 21-2HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,605,907.18 usft	Latitude:	40.216958
	+E/-W	0.00 usft	Easting:	1,731,959.14 usft	Longitude:	-104.672082
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,844.00 usft
Grid Convergence:		0.21 °				

<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>
	IGRF202013	3/22/2022	7.70	66.49	51,786.63623080

<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	179.96	

<b>Plan Survey Tool Program</b>		<b>Date</b>	5/10/2022		
<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	16,711.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well MOSER 21-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4861.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4861.00usft (RIG)
Site:	3N-65W-21 MOSER FED 3-21HZ PAD	North Reference:	True
Well:	MOSER 21-2HZ	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	
220.00	0.00	0.00	220.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,920.00	40.50	324.70	2,700.71	746.91	-528.84	1.50	1.50	0.00	324.70	
7,572.97	40.50	324.70	6,238.86	3,213.17	-2,275.05	0.00	0.00	0.00	0.00	
9,100.49	90.20	179.96	7,221.00	2,603.44	-2,761.04	8.00	3.25	-9.48	-136.98	
16,711.00	90.20	179.96	7,195.00	-5,007.03	-2,755.66	0.00	0.00	0.00	0.00	MOSER 21-2HZ_BHL

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<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
220.00	0.00	0.00	220.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 220.00ft</b>									
300.00	1.20	324.70	299.99	0.68	-0.48	-0.68	1.50	1.50	0.00
400.00	2.70	324.70	399.93	3.46	-2.45	-3.46	1.50	1.50	0.00
500.00	4.20	324.70	499.75	8.37	-5.93	-8.38	1.50	1.50	0.00
600.00	5.70	324.70	599.37	15.41	-10.91	-15.42	1.50	1.50	0.00
700.00	7.20	324.70	698.74	24.58	-17.40	-24.59	1.50	1.50	0.00
800.00	8.70	324.70	797.77	35.87	-25.40	-35.89	1.50	1.50	0.00
900.00	10.20	324.70	896.41	49.27	-34.88	-49.29	1.50	1.50	0.00
1,000.00	11.70	324.70	994.59	64.77	-45.86	-64.80	1.50	1.50	0.00
1,064.87	12.67	324.70	1,058.00	75.95	-53.77	-75.98	1.50	1.50	0.00
<b>Fox Hills</b>									
1,100.00	13.20	324.70	1,092.24	82.37	-58.32	-82.41	1.50	1.50	0.00
1,200.00	14.70	324.70	1,189.28	102.04	-72.25	-102.09	1.50	1.50	0.00
1,300.00	16.20	324.70	1,285.67	123.78	-87.64	-123.84	1.50	1.50	0.00
1,400.00	17.70	324.70	1,381.32	147.57	-104.49	-147.65	1.50	1.50	0.00
1,500.00	19.20	324.70	1,476.18	173.40	-122.78	-173.49	1.50	1.50	0.00
1,525.25	19.58	324.70	1,500.00	180.24	-127.62	-180.33	1.50	1.50	0.00
<b>9 5/8"</b>									
1,600.00	20.70	324.70	1,570.17	201.25	-142.49	-201.35	1.50	1.50	0.00
1,700.00	22.20	324.70	1,663.25	231.09	-163.62	-231.21	1.50	1.50	0.00
1,800.00	23.70	324.70	1,755.33	262.91	-186.15	-263.04	1.50	1.50	0.00
1,900.00	25.20	324.70	1,846.36	296.69	-210.07	-296.84	1.50	1.50	0.00
2,000.00	26.70	324.70	1,936.27	332.41	-235.36	-332.57	1.50	1.50	0.00
2,100.00	28.20	324.70	2,025.01	370.03	-261.99	-370.21	1.50	1.50	0.00
2,200.00	29.70	324.70	2,112.51	409.53	-289.96	-409.73	1.50	1.50	0.00
2,300.00	31.20	324.70	2,198.72	450.89	-319.25	-451.11	1.50	1.50	0.00
2,400.00	32.70	324.70	2,283.57	494.08	-349.83	-494.32	1.50	1.50	0.00
2,500.00	34.20	324.70	2,367.00	539.06	-381.68	-539.33	1.50	1.50	0.00
2,600.00	35.70	324.70	2,448.96	585.81	-414.78	-586.10	1.50	1.50	0.00
2,700.00	37.20	324.70	2,529.40	634.30	-449.11	-634.61	1.50	1.50	0.00
2,800.00	38.70	324.70	2,608.25	684.49	-484.65	-684.83	1.50	1.50	0.00
2,900.00	40.20	324.70	2,685.47	736.35	-521.36	-736.71	1.50	1.50	0.00
2,920.00	40.50	324.70	2,700.71	746.91	-528.84	-747.28	1.50	1.50	0.00
<b>Hold Tangent @ 2920.00ft</b>									
3,000.00	40.50	324.70	2,761.54	789.32	-558.87	-789.71	0.00	0.00	0.00
3,100.00	40.50	324.70	2,837.58	842.32	-596.40	-842.74	0.00	0.00	0.00
3,200.00	40.50	324.70	2,913.62	895.33	-633.93	-895.77	0.00	0.00	0.00
3,300.00	40.50	324.70	2,989.66	948.33	-671.45	-948.80	0.00	0.00	0.00
3,400.00	40.50	324.70	3,065.70	1,001.33	-708.98	-1,001.83	0.00	0.00	0.00
3,500.00	40.50	324.70	3,141.74	1,054.34	-746.51	-1,054.86	0.00	0.00	0.00
3,600.00	40.50	324.70	3,217.78	1,107.34	-784.04	-1,107.89	0.00	0.00	0.00
3,700.00	40.50	324.70	3,293.83	1,160.34	-821.57	-1,160.92	0.00	0.00	0.00
3,800.00	40.50	324.70	3,369.87	1,213.35	-859.10	-1,213.95	0.00	0.00	0.00
3,900.00	40.50	324.70	3,445.91	1,266.35	-896.63	-1,266.98	0.00	0.00	0.00
4,000.00	40.50	324.70	3,521.95	1,319.36	-934.16	-1,320.01	0.00	0.00	0.00
4,100.00	40.50	324.70	3,597.99	1,372.36	-971.69	-1,373.04	0.00	0.00	0.00
4,200.00	40.50	324.70	3,674.03	1,425.36	-1,009.21	-1,426.07	0.00	0.00	0.00
4,300.00	40.50	324.70	3,750.07	1,478.37	-1,046.74	-1,479.10	0.00	0.00	0.00
4,400.00	40.50	324.70	3,826.11	1,531.37	-1,084.27	-1,532.13	0.00	0.00	0.00
4,432.73	40.50	324.70	3,851.00	1,548.72	-1,096.56	-1,549.49	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<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)
Parkman									
4,500.00	40.50	324.70	3,902.15	1,584.38	-1,121.80	-1,585.16	0.00	0.00	0.00
4,600.00	40.50	324.70	3,978.19	1,637.38	-1,159.33	-1,638.19	0.00	0.00	0.00
4,700.00	40.50	324.70	4,054.23	1,690.38	-1,196.86	-1,691.22	0.00	0.00	0.00
4,800.00	40.50	324.70	4,130.27	1,743.39	-1,234.39	-1,744.25	0.00	0.00	0.00
4,900.00	40.50	324.70	4,206.31	1,796.39	-1,271.92	-1,797.28	0.00	0.00	0.00
4,942.99	40.50	324.70	4,239.00	1,819.18	-1,288.05	-1,820.07	0.00	0.00	0.00
Sussex									
5,000.00	40.50	324.70	4,282.35	1,849.40	-1,309.44	-1,850.31	0.00	0.00	0.00
5,100.00	40.50	324.70	4,358.39	1,902.40	-1,346.97	-1,903.34	0.00	0.00	0.00
5,200.00	40.50	324.70	4,434.43	1,955.40	-1,384.50	-1,956.37	0.00	0.00	0.00
5,300.00	40.50	324.70	4,510.48	2,008.41	-1,422.03	-2,009.40	0.00	0.00	0.00
5,400.00	40.50	324.70	4,586.52	2,061.41	-1,459.56	-2,062.43	0.00	0.00	0.00
5,500.00	40.50	324.70	4,662.56	2,114.41	-1,497.09	-2,115.46	0.00	0.00	0.00
5,600.00	40.50	324.70	4,738.60	2,167.42	-1,534.62	-2,168.49	0.00	0.00	0.00
5,700.00	40.50	324.70	4,814.64	2,220.42	-1,572.15	-2,221.52	0.00	0.00	0.00
5,800.00	40.50	324.70	4,890.68	2,273.43	-1,609.68	-2,274.55	0.00	0.00	0.00
5,900.00	40.50	324.70	4,966.72	2,326.43	-1,647.20	-2,327.58	0.00	0.00	0.00
6,000.00	40.50	324.70	5,042.76	2,379.43	-1,684.73	-2,380.61	0.00	0.00	0.00
6,100.00	40.50	324.70	5,118.80	2,432.44	-1,722.26	-2,433.64	0.00	0.00	0.00
6,200.00	40.50	324.70	5,194.84	2,485.44	-1,759.79	-2,486.67	0.00	0.00	0.00
6,300.00	40.50	324.70	5,270.88	2,538.45	-1,797.32	-2,539.70	0.00	0.00	0.00
6,400.00	40.50	324.70	5,346.92	2,591.45	-1,834.85	-2,592.73	0.00	0.00	0.00
6,500.00	40.50	324.70	5,422.96	2,644.45	-1,872.38	-2,645.76	0.00	0.00	0.00
6,600.00	40.50	324.70	5,499.00	2,697.46	-1,909.91	-2,698.79	0.00	0.00	0.00
6,700.00	40.50	324.70	5,575.04	2,750.46	-1,947.44	-2,751.82	0.00	0.00	0.00
6,800.00	40.50	324.70	5,651.08	2,803.47	-1,984.96	-2,804.85	0.00	0.00	0.00
6,900.00	40.50	324.70	5,727.12	2,856.47	-2,022.49	-2,857.88	0.00	0.00	0.00
7,000.00	40.50	324.70	5,803.17	2,909.47	-2,060.02	-2,910.91	0.00	0.00	0.00
7,100.00	40.50	324.70	5,879.21	2,962.48	-2,097.55	-2,963.94	0.00	0.00	0.00
7,200.00	40.50	324.70	5,955.25	3,015.48	-2,135.08	-3,016.97	0.00	0.00	0.00
7,300.00	40.50	324.70	6,031.29	3,068.49	-2,172.61	-3,070.00	0.00	0.00	0.00
7,400.00	40.50	324.70	6,107.33	3,121.49	-2,210.14	-3,123.03	0.00	0.00	0.00
7,500.00	40.50	324.70	6,183.37	3,174.49	-2,247.67	-3,176.06	0.00	0.00	0.00
7,572.97	40.50	324.70	6,238.86	3,213.17	-2,275.05	-3,214.76	0.00	0.00	0.00
KOP @ 7572.97ft :: DLS = 8°/100'									
7,600.00	38.94	322.35	6,259.65	3,227.06	-2,285.31	-3,228.66	8.00	-5.76	-8.68
7,650.00	36.20	317.58	6,299.28	3,250.41	-2,304.88	-3,252.02	8.00	-5.49	-9.55
7,700.00	33.67	312.16	6,340.28	3,270.62	-2,325.12	-3,272.24	8.00	-5.06	-10.83
7,750.00	31.41	306.02	6,382.44	3,287.59	-2,345.94	-3,289.23	8.00	-4.52	-12.28
7,800.00	29.48	299.10	6,425.56	3,301.24	-2,367.24	-3,302.89	8.00	-3.86	-13.84
7,850.00	27.95	291.40	6,469.42	3,311.50	-2,388.91	-3,313.17	8.00	-3.06	-15.40
7,900.00	26.89	283.01	6,513.82	3,318.33	-2,410.84	-3,320.01	8.00	-2.12	-16.77
7,950.00	26.36	274.16	6,558.54	3,321.68	-2,432.94	-3,323.38	8.00	-1.07	-17.71
8,000.00	26.38	265.15	6,603.35	3,321.54	-2,455.09	-3,323.26	8.00	0.05	-18.03
8,050.00	26.97	256.32	6,648.05	3,317.92	-2,477.18	-3,319.65	8.00	1.16	-17.65
8,100.00	28.07	248.00	6,692.41	3,310.83	-2,499.11	-3,312.58	8.00	2.21	-16.66
8,150.00	29.64	240.36	6,736.21	3,300.31	-2,520.77	-3,302.07	8.00	3.13	-15.27
8,200.00	31.60	233.51	6,779.25	3,286.40	-2,542.06	-3,288.17	8.00	3.92	-13.70
8,250.00	33.89	227.44	6,821.32	3,269.18	-2,562.86	-3,270.96	8.00	4.57	-12.15
8,300.00	36.44	222.08	6,862.20	3,248.72	-2,583.09	-3,250.52	8.00	5.10	-10.71
8,304.73	36.69	221.61	6,866.00	3,246.62	-2,584.97	-3,248.43	8.00	5.35	-9.99
Sharon Springs									

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<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)
8,350.00	39.20	217.36	6,901.71	3,225.13	-2,602.63	-3,226.95	8.00	5.54	-9.39
8,364.66	40.04	216.08	6,913.00	3,217.64	-2,608.22	-3,219.46	8.00	5.75	-8.72
Niobrara									
8,400.00	42.13	213.18	6,939.64	3,198.53	-2,621.41	-3,200.36	8.00	5.91	-8.21
8,450.00	45.19	209.46	6,975.81	3,169.04	-2,639.31	-3,170.88	8.00	6.13	-7.45
8,451.69	45.30	209.34	6,977.00	3,167.99	-2,639.90	-3,169.83	8.00	6.25	-7.03
Nio B									
8,500.00	48.37	206.11	7,010.05	3,136.80	-2,656.27	-3,138.65	8.00	6.35	-6.67
8,550.00	51.63	203.09	7,042.19	3,101.98	-2,672.19	-3,103.84	8.00	6.52	-6.05
8,565.99	52.69	202.18	7,052.00	3,090.32	-2,677.04	-3,092.19	8.00	6.62	-5.68
Nio C									
8,600.00	54.96	200.33	7,072.08	3,064.74	-2,686.99	-3,066.61	8.00	6.69	-5.44
8,650.00	58.35	197.79	7,099.56	3,025.26	-2,700.61	-3,027.15	8.00	6.78	-5.08
8,700.00	61.79	195.43	7,124.50	2,983.74	-2,712.98	-2,985.64	8.00	6.87	-4.72
8,750.00	65.27	193.22	7,146.79	2,940.38	-2,724.04	-2,942.28	8.00	6.95	-4.43
8,800.00	68.77	191.12	7,166.31	2,895.39	-2,733.73	-2,897.30	8.00	7.01	-4.18
8,819.07	70.12	190.35	7,173.00	2,877.85	-2,737.05	-2,879.77	8.00	7.05	-4.04
Fort Hayes									
8,850.00	72.30	189.13	7,182.96	2,848.99	-2,742.01	-2,850.91	8.00	7.07	-3.96
8,893.24	75.37	187.47	7,195.00	2,807.90	-2,748.00	-2,809.82	8.00	7.10	-3.84
Codell									
8,900.00	75.85	187.21	7,196.68	2,801.41	-2,748.83	-2,803.33	8.00	7.11	-3.78
8,950.00	79.42	185.35	7,207.38	2,752.87	-2,754.17	-2,754.79	8.00	7.13	-3.72
9,000.00	82.99	183.54	7,215.03	2,703.62	-2,758.00	-2,705.54	8.00	7.15	-3.63
9,050.00	86.58	181.75	7,219.57	2,653.89	-2,760.29	-2,655.82	8.00	7.16	-3.58
9,100.49	90.20	179.96	7,221.00	2,603.44	-2,761.04	-2,605.36	8.00	7.17	-3.55
End Build @ 9100.49ft									
9,200.00	90.20	179.96	7,220.66	2,503.93	-2,760.97	-2,505.85	0.00	0.00	0.00
9,300.00	90.20	179.96	7,220.31	2,403.93	-2,760.90	-2,405.85	0.00	0.00	0.00
9,400.00	90.20	179.96	7,219.97	2,303.93	-2,760.83	-2,305.85	0.00	0.00	0.00
9,500.00	90.20	179.96	7,219.63	2,203.93	-2,760.76	-2,205.85	0.00	0.00	0.00
9,600.00	90.20	179.96	7,219.29	2,103.93	-2,760.69	-2,105.86	0.00	0.00	0.00
9,700.00	90.20	179.96	7,218.95	2,003.93	-2,760.62	-2,005.86	0.00	0.00	0.00
9,800.00	90.20	179.96	7,218.61	1,903.93	-2,760.55	-1,905.86	0.00	0.00	0.00
9,900.00	90.20	179.96	7,218.27	1,803.93	-2,760.48	-1,805.86	0.00	0.00	0.00
10,000.00	90.20	179.96	7,217.92	1,703.93	-2,760.41	-1,705.86	0.00	0.00	0.00
10,100.00	90.20	179.96	7,217.58	1,603.93	-2,760.34	-1,605.86	0.00	0.00	0.00
10,200.00	90.20	179.96	7,217.24	1,503.93	-2,760.27	-1,505.86	0.00	0.00	0.00
10,300.00	90.20	179.96	7,216.90	1,403.93	-2,760.20	-1,405.86	0.00	0.00	0.00
10,400.00	90.20	179.96	7,216.56	1,303.93	-2,760.13	-1,305.86	0.00	0.00	0.00
10,500.00	90.20	179.96	7,216.22	1,203.93	-2,760.05	-1,205.86	0.00	0.00	0.00
10,600.00	90.20	179.96	7,215.87	1,103.93	-2,759.98	-1,105.86	0.00	0.00	0.00
10,700.00	90.20	179.96	7,215.53	1,003.93	-2,759.91	-1,005.86	0.00	0.00	0.00
10,800.00	90.20	179.96	7,215.19	903.94	-2,759.84	-905.86	0.00	0.00	0.00
10,900.00	90.20	179.96	7,214.85	803.94	-2,759.77	-805.86	0.00	0.00	0.00
11,000.00	90.20	179.96	7,214.51	703.94	-2,759.70	-705.86	0.00	0.00	0.00
11,100.00	90.20	179.96	7,214.17	603.94	-2,759.63	-605.86	0.00	0.00	0.00
11,200.00	90.20	179.96	7,213.82	503.94	-2,759.56	-505.86	0.00	0.00	0.00
11,300.00	90.20	179.96	7,213.48	403.94	-2,759.49	-405.86	0.00	0.00	0.00
11,400.00	90.20	179.96	7,213.14	303.94	-2,759.42	-305.87	0.00	0.00	0.00
11,500.00	90.20	179.96	7,212.80	203.94	-2,759.35	-205.87	0.00	0.00	0.00
11,600.00	90.20	179.96	7,212.46	103.94	-2,759.28	-105.87	0.00	0.00	0.00
11,700.00	90.20	179.96	7,212.12	3.94	-2,759.21	-5.87	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

## Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
11,800.00	90.20	179.96	7,211.78	-96.06	-2,759.14	94.13	0.00	0.00	0.00
11,900.00	90.20	179.96	7,211.43	-196.06	-2,759.06	194.13	0.00	0.00	0.00
12,000.00	90.20	179.96	7,211.09	-296.06	-2,758.99	294.13	0.00	0.00	0.00
12,100.00	90.20	179.96	7,210.75	-396.06	-2,758.92	394.13	0.00	0.00	0.00
12,200.00	90.20	179.96	7,210.41	-496.06	-2,758.85	494.13	0.00	0.00	0.00
12,300.00	90.20	179.96	7,210.07	-596.06	-2,758.78	594.13	0.00	0.00	0.00
12,400.00	90.20	179.96	7,209.73	-696.05	-2,758.71	694.13	0.00	0.00	0.00
12,500.00	90.20	179.96	7,209.38	-796.05	-2,758.64	794.13	0.00	0.00	0.00
12,600.00	90.20	179.96	7,209.04	-896.05	-2,758.57	894.13	0.00	0.00	0.00
12,700.00	90.20	179.96	7,208.70	-996.05	-2,758.50	994.13	0.00	0.00	0.00
12,800.00	90.20	179.96	7,208.36	-1,096.05	-2,758.43	1,094.13	0.00	0.00	0.00
12,900.00	90.20	179.96	7,208.02	-1,196.05	-2,758.36	1,194.13	0.00	0.00	0.00
13,000.00	90.20	179.96	7,207.68	-1,296.05	-2,758.29	1,294.13	0.00	0.00	0.00
13,100.00	90.20	179.96	7,207.33	-1,396.05	-2,758.22	1,394.12	0.00	0.00	0.00
13,200.00	90.20	179.96	7,206.99	-1,496.05	-2,758.15	1,494.12	0.00	0.00	0.00
13,300.00	90.20	179.96	7,206.65	-1,596.05	-2,758.07	1,594.12	0.00	0.00	0.00
13,400.00	90.20	179.96	7,206.31	-1,696.05	-2,758.00	1,694.12	0.00	0.00	0.00
13,500.00	90.20	179.96	7,205.97	-1,796.05	-2,757.93	1,794.12	0.00	0.00	0.00
13,600.00	90.20	179.96	7,205.63	-1,896.05	-2,757.86	1,894.12	0.00	0.00	0.00
13,700.00	90.20	179.96	7,205.29	-1,996.05	-2,757.79	1,994.12	0.00	0.00	0.00
13,800.00	90.20	179.96	7,204.94	-2,096.05	-2,757.72	2,094.12	0.00	0.00	0.00
13,900.00	90.20	179.96	7,204.60	-2,196.05	-2,757.65	2,194.12	0.00	0.00	0.00
14,000.00	90.20	179.96	7,204.26	-2,296.05	-2,757.58	2,294.12	0.00	0.00	0.00
14,100.00	90.20	179.96	7,203.92	-2,396.04	-2,757.51	2,394.12	0.00	0.00	0.00
14,200.00	90.20	179.96	7,203.58	-2,496.04	-2,757.44	2,494.12	0.00	0.00	0.00
14,300.00	90.20	179.96	7,203.24	-2,596.04	-2,757.37	2,594.12	0.00	0.00	0.00
14,400.00	90.20	179.96	7,202.89	-2,696.04	-2,757.30	2,694.12	0.00	0.00	0.00
14,500.00	90.20	179.96	7,202.55	-2,796.04	-2,757.23	2,794.12	0.00	0.00	0.00
14,600.00	90.20	179.96	7,202.21	-2,896.04	-2,757.16	2,894.12	0.00	0.00	0.00
14,700.00	90.20	179.96	7,201.87	-2,996.04	-2,757.08	2,994.12	0.00	0.00	0.00
14,800.00	90.20	179.96	7,201.53	-3,096.04	-2,757.01	3,094.11	0.00	0.00	0.00
14,900.00	90.20	179.96	7,201.19	-3,196.04	-2,756.94	3,194.11	0.00	0.00	0.00
15,000.00	90.20	179.96	7,200.84	-3,296.04	-2,756.87	3,294.11	0.00	0.00	0.00
15,100.00	90.20	179.96	7,200.50	-3,396.04	-2,756.80	3,394.11	0.00	0.00	0.00
15,200.00	90.20	179.96	7,200.16	-3,496.04	-2,756.73	3,494.11	0.00	0.00	0.00
15,300.00	90.20	179.96	7,199.82	-3,596.04	-2,756.66	3,594.11	0.00	0.00	0.00
15,400.00	90.20	179.96	7,199.48	-3,696.04	-2,756.59	3,694.11	0.00	0.00	0.00
15,500.00	90.20	179.96	7,199.14	-3,796.04	-2,756.52	3,794.11	0.00	0.00	0.00
15,600.00	90.20	179.96	7,198.80	-3,896.04	-2,756.45	3,894.11	0.00	0.00	0.00
15,700.00	90.20	179.96	7,198.45	-3,996.03	-2,756.38	3,994.11	0.00	0.00	0.00
15,800.00	90.20	179.96	7,198.11	-4,096.03	-2,756.31	4,094.11	0.00	0.00	0.00
15,900.00	90.20	179.96	7,197.77	-4,196.03	-2,756.24	4,194.11	0.00	0.00	0.00
16,000.00	90.20	179.96	7,197.43	-4,296.03	-2,756.17	4,294.11	0.00	0.00	0.00
16,100.00	90.20	179.96	7,197.09	-4,396.03	-2,756.10	4,394.11	0.00	0.00	0.00
16,200.00	90.20	179.96	7,196.75	-4,496.03	-2,756.02	4,494.11	0.00	0.00	0.00
16,300.00	90.20	179.96	7,196.40	-4,596.03	-2,755.95	4,594.11	0.00	0.00	0.00
16,400.00	90.20	179.96	7,196.06	-4,696.03	-2,755.88	4,694.11	0.00	0.00	0.00
16,500.00	90.20	179.96	7,195.72	-4,796.03	-2,755.81	4,794.10	0.00	0.00	0.00
16,600.00	90.20	179.96	7,195.38	-4,896.03	-2,755.74	4,894.10	0.00	0.00	0.00
16,700.00	90.20	179.96	7,195.04	-4,996.03	-2,755.67	4,994.10	0.00	0.00	0.00
16,711.00	90.20	179.96	7,195.00	-5,007.03	-2,755.66	5,005.10	0.00	0.00	0.00

**TD Well @ 16711.00ft - 5.5" CSG**



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4861.00usft (RIG)
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	MOSER 21-2HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,525.25	1,500.00	9 5/8"		9-5/8	13-1/2
16,711.00	7,195.00	5.5" CSG		5-1/2	7-7/8

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,064.87	1,058.00	Fox Hills				
4,432.73	3,851.00	Parkman				
4,942.99	4,239.00	Sussex				
8,304.73	6,866.00	Sharon Springs				
8,364.66	6,913.00	Niobrara				
8,451.69	6,977.00	Nio B				
8,565.99	7,052.00	Nio C				
8,819.07	7,173.00	Fort Hayes				
8,893.24	7,195.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
220.00	220.00	0.00	0.00	Begin Nudge @ 220.00ft	
2,920.00	2,700.71	746.91	-528.84	Hold Tangent @ 2920.00ft	
7,572.97	6,238.86	3,213.17	-2,275.05	KOP @ 7572.97ft :: DLS = 8°/100'	
9,100.49	7,221.00	2,603.44	-2,761.04	End Build @ 9100.49ft	
16,711.00	7,195.00	-5,007.03	-2,755.66	TD Well @ 16711.00ft	