

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
1N-66W-15 JDB 16-15HZ PAD  
JDB 15-5HZ**

## **Plan A**

### **Plan: Permit Rev-1**

SHL Lat/Long: 40.045565/-104.757766  
Survey Program: MWD+IFR

## **Standard Planning Report**

**22 July, 2018**

Project: WELD-NAD83-UTMFT13N  
 Site: 1N-66W-15 JDB 16-15HZ PAD  
 Well: JDB 15-5HZ  
 Wellbore: Plan A  
 Design: Permit Rev-1

# US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1523.46	9-5/8
7451.00	8594.92	5-1/2

WELL DETAILS: JDB 15-5HZ  
 GL = 5152.00  
 RKB = 17" @ 5169.00usft (Drilling Rig)

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	2063.33	27.20	82.20	1995.99	57.33	418.49	1.50	82.20	-59.88	
4	7430.49	27.20	82.20	6769.62	390.28	2849.11	0.00	0.00	-407.68	
5	8594.92	89.37	180.35	7451.00	-319.47	3187.20	8.00	97.54	299.99	
6	14057.28	89.37	180.35	7511.00	-5781.40	3153.83	0.00	0.00	5762.03	JDB 15-5HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
JDB 15-5HZ_SHL	0.00	0.00	0.00	40.045565	-104.757766
JDB 15-5HZ_BHL	7511.00	-5781.40	3153.83	40.029688	-104.746500

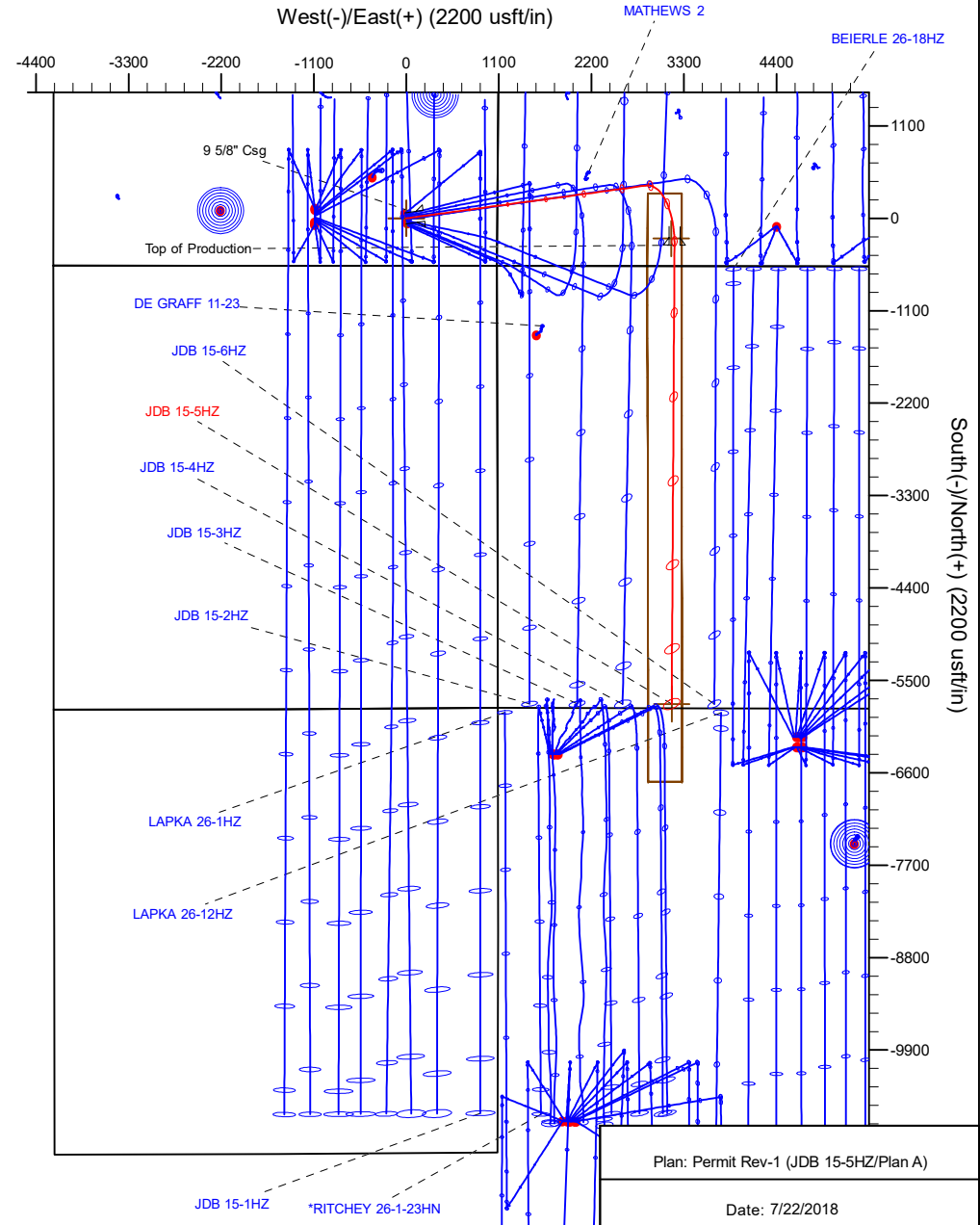
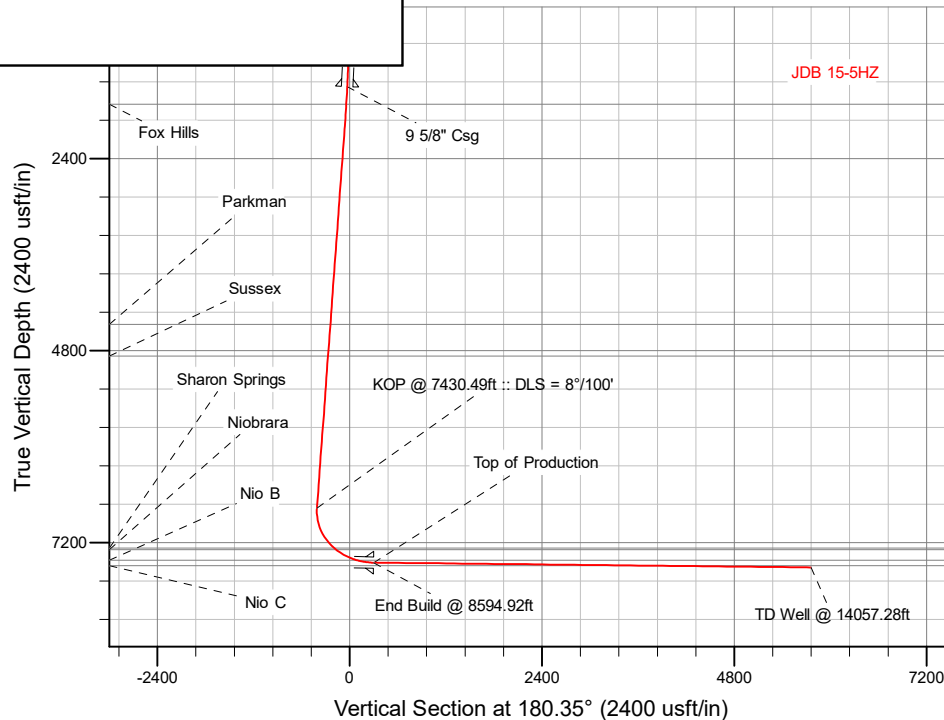
## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1719.00	1757.86	Fox Hills
4472.00	4847.20	Parkman
4868.00	5292.43	Sussex
7270.00	8050.74	Sharon Springs
7290.00	8083.69	Niobrara
7420.00	8379.45	Nio B
7488.00	11963.24	Nio C

**SHL**  
**567' FSL**  
**1083' FEL**

**HEEL**  
**255' FSL**  
**2106' FWL**

**TOE**  
**50' FSL**  
**2065' FWL**



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well JDB 15-5HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 JDB 16-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JDB 15-5HZ	<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-66W-15 JDB 16-15HZ PAD			
Site Position:		Northing:	14,543,476.02 usft	Latitude:	40.045725
From:	Lat/Long	Easting:	1,708,195.02 usft	Longitude:	-104.757817
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.16 °

Well	JDB 15-5HZ					
Well Position	+N/-S	-58.26 usft	Northing:	14,543,417.80 usft	Latitude:	40.045565
	+E/-W	14.27 usft	Easting:	1,708,209.45 usft	Longitude:	-104.757766
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,152.00 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	7/10/2018	8.06	66.55	52,084.76162817

<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	180.35

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/22/2018			
<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+II Fixed:v2:crustal field declination	
2	1,500.00	14,057.28	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declination	

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,063.33	27.20	82.20	1,995.99	57.33	418.49	1.50	1.50	0.00	82.20	
7,430.49	27.20	82.20	6,769.62	390.28	2,849.11	0.00	0.00	0.00	0.00	
8,594.92	89.37	180.35	7,451.00	-319.47	3,187.20	8.00	5.34	8.43	97.54	
14,057.28	89.37	180.35	7,511.00	-5,781.40	3,153.83	0.00	0.00	0.00	0.00	JDB 15-5HZ_BHL

# Corporate Planning Report

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<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 JDB 16-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JDB 15-5HZ	<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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	82.20	300.00	0.04	0.32	-0.05	1.50	1.50	0.00
400.00	2.25	82.20	399.96	0.40	2.92	-0.42	1.50	1.50	0.00
500.00	3.75	82.20	499.82	1.11	8.10	-1.16	1.50	1.50	0.00
600.00	5.25	82.20	599.51	2.17	15.88	-2.27	1.50	1.50	0.00
700.00	6.75	82.20	698.96	3.59	26.23	-3.75	1.50	1.50	0.00
800.00	8.25	82.20	798.10	5.36	39.16	-5.60	1.50	1.50	0.00
900.00	9.75	82.20	896.87	7.49	54.66	-7.82	1.50	1.50	0.00
1,000.00	11.25	82.20	995.19	9.96	72.72	-10.40	1.50	1.50	0.00
1,100.00	12.75	82.20	1,093.00	12.78	93.31	-13.35	1.50	1.50	0.00
1,200.00	14.25	82.20	1,190.24	15.95	116.44	-16.66	1.50	1.50	0.00
1,300.00	15.75	82.20	1,286.83	19.46	142.08	-20.33	1.50	1.50	0.00
1,400.00	17.25	82.20	1,382.71	23.32	170.22	-24.36	1.50	1.50	0.00
1,500.00	18.75	82.20	1,477.81	27.51	200.84	-28.74	1.50	1.50	0.00
1,523.46	19.10	82.20	1,500.00	28.54	208.38	-29.82	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	82.20	1,572.07	32.04	233.91	-33.47	1.50	1.50	0.00
1,700.00	21.75	82.20	1,665.43	36.90	269.41	-38.55	1.50	1.50	0.00
1,757.86	22.62	82.20	1,719.00	39.87	291.06	-41.65	1.50	1.50	0.00
Fox Hills									
1,800.00	23.25	82.20	1,757.81	42.10	307.32	-43.97	1.50	1.50	0.00
1,900.00	24.75	82.20	1,849.16	47.62	347.62	-49.74	1.50	1.50	0.00
2,000.00	26.25	82.20	1,939.42	53.46	390.27	-55.84	1.50	1.50	0.00
2,063.33	27.20	82.20	1,995.99	57.33	418.49	-59.88	1.50	1.50	0.00
End Nudge @ 2063.33ft									
2,100.00	27.20	82.20	2,028.60	59.60	435.10	-62.26	0.00	0.00	0.00
2,200.00	27.20	82.20	2,117.54	65.80	480.38	-68.74	0.00	0.00	0.00
2,300.00	27.20	82.20	2,206.48	72.01	525.67	-75.22	0.00	0.00	0.00
2,400.00	27.20	82.20	2,295.42	78.21	570.96	-81.70	0.00	0.00	0.00
2,500.00	27.20	82.20	2,384.36	84.41	616.24	-88.18	0.00	0.00	0.00
2,600.00	27.20	82.20	2,473.31	90.62	661.53	-94.66	0.00	0.00	0.00
2,700.00	27.20	82.20	2,562.25	96.82	706.82	-101.14	0.00	0.00	0.00
2,800.00	27.20	82.20	2,651.19	103.03	752.10	-107.62	0.00	0.00	0.00
2,900.00	27.20	82.20	2,740.13	109.23	797.39	-114.10	0.00	0.00	0.00
3,000.00	27.20	82.20	2,829.07	115.43	842.68	-120.58	0.00	0.00	0.00
3,100.00	27.20	82.20	2,918.01	121.64	887.96	-127.06	0.00	0.00	0.00
3,200.00	27.20	82.20	3,006.96	127.84	933.25	-133.54	0.00	0.00	0.00
3,300.00	27.20	82.20	3,095.90	134.04	978.54	-140.02	0.00	0.00	0.00
3,400.00	27.20	82.20	3,184.84	140.25	1,023.82	-146.50	0.00	0.00	0.00
3,500.00	27.20	82.20	3,273.78	146.45	1,069.11	-152.98	0.00	0.00	0.00
3,600.00	27.20	82.20	3,362.72	152.65	1,114.40	-159.46	0.00	0.00	0.00
3,700.00	27.20	82.20	3,451.66	158.86	1,159.69	-165.94	0.00	0.00	0.00
3,800.00	27.20	82.20	3,540.61	165.06	1,204.97	-172.42	0.00	0.00	0.00
3,900.00	27.20	82.20	3,629.55	171.26	1,250.26	-178.90	0.00	0.00	0.00
4,000.00	27.20	82.20	3,718.49	177.47	1,295.55	-185.38	0.00	0.00	0.00
4,100.00	27.20	82.20	3,807.43	183.67	1,340.83	-191.86	0.00	0.00	0.00
4,200.00	27.20	82.20	3,896.37	189.87	1,386.12	-198.34	0.00	0.00	0.00
4,300.00	27.20	82.20	3,985.31	196.08	1,431.41	-204.82	0.00	0.00	0.00
4,400.00	27.20	82.20	4,074.26	202.28	1,476.69	-211.30	0.00	0.00	0.00

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 JDB 16-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JDB 15-5HZ	<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)	
4,500.00	27.20	82.20	4,163.20	208.49	1,521.98	-217.78	0.00	0.00	0.00	
4,600.00	27.20	82.20	4,252.14	214.69	1,567.27	-224.26	0.00	0.00	0.00	
4,700.00	27.20	82.20	4,341.08	220.89	1,612.55	-230.74	0.00	0.00	0.00	
4,800.00	27.20	82.20	4,430.02	227.10	1,657.84	-237.22	0.00	0.00	0.00	
4,847.20	27.20	82.20	4,472.00	230.02	1,679.22	-240.28	0.00	0.00	0.00	
<b>Parkman</b>										
4,900.00	27.20	82.20	4,518.96	233.30	1,703.13	-243.70	0.00	0.00	0.00	
5,000.00	27.20	82.20	4,607.90	239.50	1,748.41	-250.18	0.00	0.00	0.00	
5,100.00	27.20	82.20	4,696.85	245.71	1,793.70	-256.66	0.00	0.00	0.00	
5,200.00	27.20	82.20	4,785.79	251.91	1,838.99	-263.14	0.00	0.00	0.00	
5,292.43	27.20	82.20	4,868.00	257.64	1,880.85	-269.13	0.00	0.00	0.00	
<b>Sussex</b>										
5,300.00	27.20	82.20	4,874.73	258.11	1,884.28	-269.62	0.00	0.00	0.00	
5,400.00	27.20	82.20	4,963.67	264.32	1,929.56	-276.10	0.00	0.00	0.00	
5,500.00	27.20	82.20	5,052.61	270.52	1,974.85	-282.58	0.00	0.00	0.00	
5,600.00	27.20	82.20	5,141.55	276.72	2,020.14	-289.06	0.00	0.00	0.00	
5,700.00	27.20	82.20	5,230.50	282.93	2,065.42	-295.54	0.00	0.00	0.00	
5,800.00	27.20	82.20	5,319.44	289.13	2,110.71	-302.02	0.00	0.00	0.00	
5,900.00	27.20	82.20	5,408.38	295.33	2,156.00	-308.50	0.00	0.00	0.00	
6,000.00	27.20	82.20	5,497.32	301.54	2,201.28	-314.98	0.00	0.00	0.00	
6,100.00	27.20	82.20	5,586.26	307.74	2,246.57	-321.46	0.00	0.00	0.00	
6,200.00	27.20	82.20	5,675.20	313.95	2,291.86	-327.94	0.00	0.00	0.00	
6,300.00	27.20	82.20	5,764.15	320.15	2,337.14	-334.42	0.00	0.00	0.00	
6,400.00	27.20	82.20	5,853.09	326.35	2,382.43	-340.90	0.00	0.00	0.00	
6,500.00	27.20	82.20	5,942.03	332.56	2,427.72	-347.38	0.00	0.00	0.00	
6,600.00	27.20	82.20	6,030.97	338.76	2,473.01	-353.86	0.00	0.00	0.00	
6,700.00	27.20	82.20	6,119.91	344.96	2,518.29	-360.34	0.00	0.00	0.00	
6,800.00	27.20	82.20	6,208.85	351.17	2,563.58	-366.82	0.00	0.00	0.00	
6,900.00	27.20	82.20	6,297.80	357.37	2,608.87	-373.30	0.00	0.00	0.00	
7,000.00	27.20	82.20	6,386.74	363.57	2,654.15	-379.78	0.00	0.00	0.00	
7,100.00	27.20	82.20	6,475.68	369.78	2,699.44	-386.26	0.00	0.00	0.00	
7,200.00	27.20	82.20	6,564.62	375.98	2,744.73	-392.74	0.00	0.00	0.00	
7,300.00	27.20	82.20	6,653.56	382.18	2,790.01	-399.22	0.00	0.00	0.00	
7,400.00	27.20	82.20	6,742.50	388.39	2,835.30	-405.70	0.00	0.00	0.00	
7,430.49	27.20	82.20	6,769.62	390.28	2,849.11	-407.68	0.00	0.00	0.00	
<b>KOP @ 7430.49ft :: DLS = 8°/100'</b>										
7,500.00	26.99	94.42	6,831.55	391.22	2,880.60	-408.81	8.00	-0.29	17.58	
7,600.00	28.51	111.34	6,920.18	380.77	2,925.54	-398.63	8.00	1.52	16.92	
7,700.00	31.87	125.83	7,006.72	356.59	2,969.24	-374.72	8.00	3.36	14.49	
7,800.00	36.56	137.39	7,089.48	319.16	3,010.88	-337.54	8.00	4.69	11.57	
7,900.00	42.13	146.48	7,166.85	269.19	3,049.63	-287.82	8.00	5.57	9.08	
8,000.00	48.27	153.71	7,237.32	207.68	3,084.73	-226.52	8.00	6.14	7.24	
8,050.74	51.54	156.86	7,270.00	172.42	3,100.93	-191.36	8.00	6.44	6.20	
<b>Sharon Springs</b>										
8,083.69	53.71	158.75	7,290.00	148.18	3,110.82	-167.18	8.00	6.57	5.74	
<b>Niobrara</b>										
8,100.00	54.79	159.65	7,299.53	135.80	3,115.52	-154.83	8.00	6.64	5.50	
8,200.00	61.55	164.69	7,352.26	54.96	3,141.38	-74.15	8.00	6.76	5.04	
8,300.00	68.48	169.11	7,394.49	-33.26	3,161.81	13.94	8.00	6.93	4.42	
8,379.46	74.06	172.32	7,420.00	-107.48	3,173.91	88.09	8.00	7.02	4.05	
<b>Nio B</b>										
8,400.00	75.51	173.12	7,425.39	-127.15	3,176.42	107.74	8.00	7.06	3.89	
8,500.00	82.61	176.89	7,444.37	-224.88	3,184.93	205.42	8.00	7.10	3.77	

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<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 JDB 16-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JDB 15-5HZ	<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)	
8,594.92	89.37	180.35	7,451.00	-319.47	3,187.20	299.99	8.00	7.13	3.65	
End Build @ 8594.92ft - Top of Production										
8,600.00	89.37	180.35	7,451.06	-324.55	3,187.17	305.07	0.00	0.00	0.00	
8,700.00	89.37	180.35	7,452.16	-424.54	3,186.55	405.07	0.00	0.00	0.00	
8,800.00	89.37	180.35	7,453.26	-524.53	3,185.94	505.06	0.00	0.00	0.00	
8,900.00	89.37	180.35	7,454.36	-624.53	3,185.33	605.06	0.00	0.00	0.00	
9,000.00	89.37	180.35	7,455.45	-724.52	3,184.72	705.05	0.00	0.00	0.00	
9,100.00	89.37	180.35	7,456.55	-824.51	3,184.11	805.04	0.00	0.00	0.00	
9,200.00	89.37	180.35	7,457.65	-924.50	3,183.50	905.04	0.00	0.00	0.00	
9,300.00	89.37	180.35	7,458.75	-1,024.49	3,182.89	1,005.03	0.00	0.00	0.00	
9,400.00	89.37	180.35	7,459.85	-1,124.49	3,182.28	1,105.03	0.00	0.00	0.00	
9,500.00	89.37	180.35	7,460.95	-1,224.48	3,181.67	1,205.02	0.00	0.00	0.00	
9,600.00	89.37	180.35	7,462.04	-1,324.47	3,181.06	1,305.01	0.00	0.00	0.00	
9,700.00	89.37	180.35	7,463.14	-1,424.46	3,180.45	1,405.01	0.00	0.00	0.00	
9,800.00	89.37	180.35	7,464.24	-1,524.45	3,179.84	1,505.00	0.00	0.00	0.00	
9,900.00	89.37	180.35	7,465.34	-1,624.45	3,179.23	1,605.00	0.00	0.00	0.00	
10,000.00	89.37	180.35	7,466.44	-1,724.44	3,178.61	1,704.99	0.00	0.00	0.00	
10,100.00	89.37	180.35	7,467.54	-1,824.43	3,178.00	1,804.98	0.00	0.00	0.00	
10,200.00	89.37	180.35	7,468.63	-1,924.42	3,177.39	1,904.98	0.00	0.00	0.00	
10,300.00	89.37	180.35	7,469.73	-2,024.41	3,176.78	2,004.97	0.00	0.00	0.00	
10,400.00	89.37	180.35	7,470.83	-2,124.41	3,176.17	2,104.97	0.00	0.00	0.00	
10,500.00	89.37	180.35	7,471.93	-2,224.40	3,175.56	2,204.96	0.00	0.00	0.00	
10,600.00	89.37	180.35	7,473.03	-2,324.39	3,174.95	2,304.95	0.00	0.00	0.00	
10,700.00	89.37	180.35	7,474.13	-2,424.38	3,174.34	2,404.95	0.00	0.00	0.00	
10,800.00	89.37	180.35	7,475.22	-2,524.38	3,173.73	2,504.94	0.00	0.00	0.00	
10,900.00	89.37	180.35	7,476.32	-2,624.37	3,173.12	2,604.94	0.00	0.00	0.00	
11,000.00	89.37	180.35	7,477.42	-2,724.36	3,172.51	2,704.93	0.00	0.00	0.00	
11,100.00	89.37	180.35	7,478.52	-2,824.35	3,171.90	2,804.92	0.00	0.00	0.00	
11,200.00	89.37	180.35	7,479.62	-2,924.34	3,171.28	2,904.92	0.00	0.00	0.00	
11,300.00	89.37	180.35	7,480.72	-3,024.34	3,170.67	3,004.91	0.00	0.00	0.00	
11,400.00	89.37	180.35	7,481.81	-3,124.33	3,170.06	3,104.90	0.00	0.00	0.00	
11,500.00	89.37	180.35	7,482.91	-3,224.32	3,169.45	3,204.90	0.00	0.00	0.00	
11,600.00	89.37	180.35	7,484.01	-3,324.31	3,168.84	3,304.89	0.00	0.00	0.00	
11,700.00	89.37	180.35	7,485.11	-3,424.30	3,168.23	3,404.89	0.00	0.00	0.00	
11,800.00	89.37	180.35	7,486.21	-3,524.30	3,167.62	3,504.88	0.00	0.00	0.00	
11,900.00	89.37	180.35	7,487.31	-3,624.29	3,167.01	3,604.87	0.00	0.00	0.00	
11,963.24	89.37	180.35	7,488.00	-3,687.52	3,166.62	3,668.11	0.00	0.00	0.00	
Nio C										
12,000.00	89.37	180.35	7,488.40	-3,724.28	3,166.40	3,704.87	0.00	0.00	0.00	
12,100.00	89.37	180.35	7,489.50	-3,824.27	3,165.79	3,804.86	0.00	0.00	0.00	
12,200.00	89.37	180.35	7,490.60	-3,924.26	3,165.18	3,904.86	0.00	0.00	0.00	
12,300.00	89.37	180.35	7,491.70	-4,024.26	3,164.57	4,004.85	0.00	0.00	0.00	
12,400.00	89.37	180.35	7,492.80	-4,124.25	3,163.96	4,104.84	0.00	0.00	0.00	
12,500.00	89.37	180.35	7,493.90	-4,224.24	3,163.34	4,204.84	0.00	0.00	0.00	
12,600.00	89.37	180.35	7,494.99	-4,324.23	3,162.73	4,304.83	0.00	0.00	0.00	
12,700.00	89.37	180.35	7,496.09	-4,424.23	3,162.12	4,404.83	0.00	0.00	0.00	
12,800.00	89.37	180.35	7,497.19	-4,524.22	3,161.51	4,504.82	0.00	0.00	0.00	
12,900.00	89.37	180.35	7,498.29	-4,624.21	3,160.90	4,604.81	0.00	0.00	0.00	
13,000.00	89.37	180.35	7,499.39	-4,724.20	3,160.29	4,704.81	0.00	0.00	0.00	
13,100.00	89.37	180.35	7,500.49	-4,824.19	3,159.68	4,804.80	0.00	0.00	0.00	
13,200.00	89.37	180.35	7,501.58	-4,924.19	3,159.07	4,904.80	0.00	0.00	0.00	
13,300.00	89.37	180.35	7,502.68	-5,024.18	3,158.46	5,004.79	0.00	0.00	0.00	
13,400.00	89.37	180.35	7,503.78	-5,124.17	3,157.85	5,104.78	0.00	0.00	0.00	
13,500.00	89.37	180.35	7,504.88	-5,224.16	3,157.24	5,204.78	0.00	0.00	0.00	

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well JDB 15-5HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 5169.00usft (Drilling Rig)
<b>Site:</b>	1N-66W-15 JDB 16-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JDB 15-5HZ	<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)	
13,600.00	89.37	180.35	7,505.98	-5,324.15	3,156.63	5,304.77	0.00	0.00	0.00	
13,700.00	89.37	180.35	7,507.08	-5,424.15	3,156.02	5,404.77	0.00	0.00	0.00	
13,800.00	89.37	180.35	7,508.17	-5,524.14	3,155.40	5,504.76	0.00	0.00	0.00	
13,900.00	89.37	180.35	7,509.27	-5,624.13	3,154.79	5,604.75	0.00	0.00	0.00	
14,000.00	89.37	180.35	7,510.37	-5,724.12	3,154.18	5,704.75	0.00	0.00	0.00	
14,057.28	89.37	180.35	7,511.00	-5,781.40	3,153.83	5,762.03	0.00	0.00	0.00	
TD Well @ 14057.28ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,594.92	7,451.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,757.86	1,719.00	Fox Hills			
4,847.20	4,472.00	Parkman			
5,292.43	4,868.00	Sussex			
8,050.74	7,270.00	Sharon Springs			
8,083.69	7,290.00	Niobrara			
8,379.46	7,420.00	Nio B			
11,963.24	7,488.00	Nio C			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft	
2,063.33	1,995.99	57.33	418.49	End Nudge @ 2063.33ft	
7,430.49	6,769.62	390.28	2,849.11	KOP @ 7430.49ft :: DLS = 8°/100'	
8,594.92	7,451.00	-319.47	3,187.20	End Build @ 8594.92ft	
14,057.28	7,511.00	-5,781.40	3,153.83	TD Well @ 14057.28ft	