

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-15 JDB 16-15HZ PAD
JDB 15-10HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.045365/-104.757703
Survey Program: MWD+IFR

Standard Planning Report

22 July, 2018

Project: WELD-NAD83-UTMFT13N
Site: 1N-66W-15 JDB 16-15HZ PAD
Well: JDB 15-10HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1526.50	9-5/8
7454.00	8136.26	5-1/2

WELL DETAILS: JDB 15-10HZ

GL = 5152.00

RKB = 17" @ 5169.00usft (Drilling Rig)

SECTION DETAILS

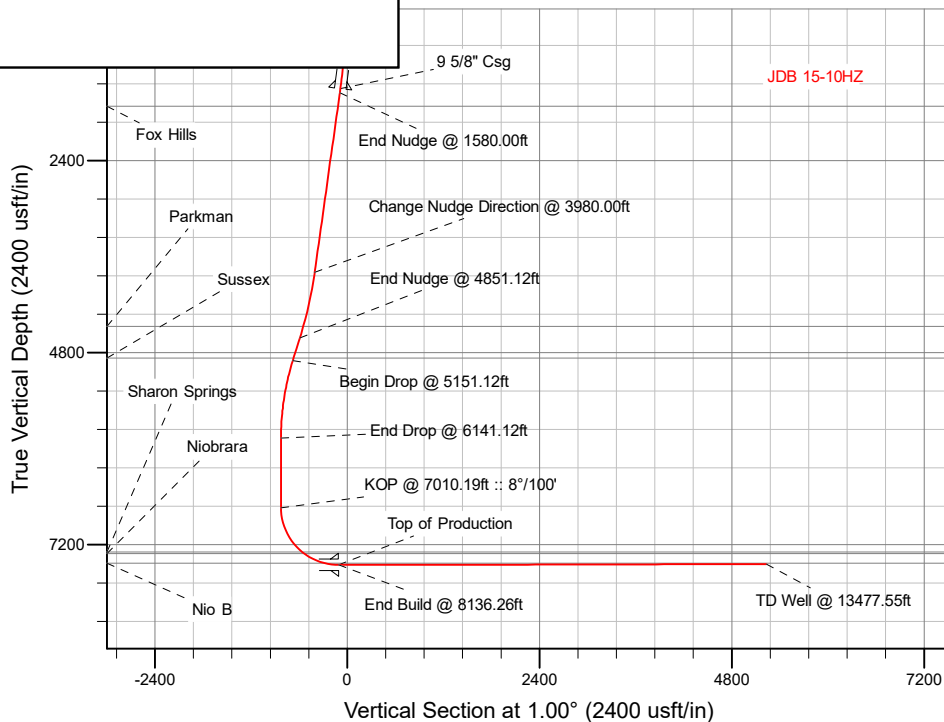
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1580.00	20.70	112.70	1550.17	-95.16	227.48	1.50	112.70	-91.17	
4	3980.00	20.70	112.70	3795.24	-422.54	1010.11	0.00	0.00	-404.84	
5	4851.12	19.80	151.00	4616.06	-611.82	1224.60	1.50	111.78	-590.35	
6	5151.12	19.80	151.00	4898.32	-700.70	1273.87	0.00	0.00	-678.36	
7	6141.12	0.00	0.00	5868.73	-848.82	1355.98	2.00	180.00	-825.03	
8	7010.19	0.00	0.00	6737.80	-848.82	1355.98	0.00	0.00	-825.03	
9	8136.26	90.09	1.00	7454.00	-131.66	1368.52	8.00	1.00	-107.76	
10	13477.55	90.09	1.00	7446.00	5208.80	1461.90	0.00	0.00	5233.52	JDB 15-10HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
JDB 15-10HZ_SHL	0.00	0.00	0.00	40.045365	-104.757703
JDB 15-10HZ_BHL	7446.00	5208.80	1461.90	40.059669	-104.752478

FORMATION TOP DETAILS

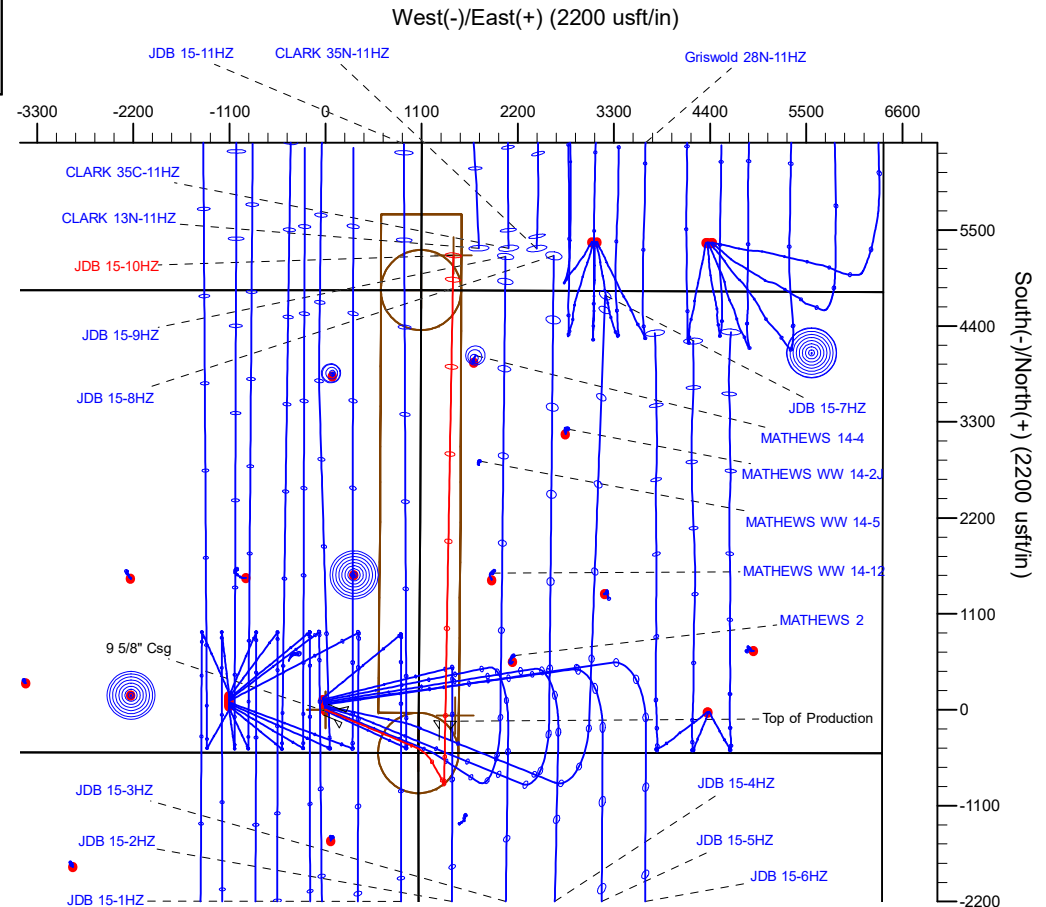
TVDPATH	MDPATH	Formation
1719.00	1760.48	Fox Hills
4472.00	4698.25	Parkman
4868.00	5118.90	Sussex
7292.00	7643.91	Sharon Springs
7312.00	7676.39	Niobrara
7436.00	7974.29	Nio B



SHL
494' FSL
1065' FEL

HEEL
370' FSL
305' FWL

TOE
400' FSL
369' FWL



Plan: Permit Rev-1 (JDB 15-10HZ/Plan A)

Date: 7/22/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-10HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Site:	1N-66W-15 JDB 16-15HZ PAD	North Reference:	True
Well:	JDB 15-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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		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 15-10HZ					
Well Position	+N/-S	-131.09 usft	Northing:	14,543,345.02 usft	Latitude:	40.045365
	+E/-W	31.90 usft	Easting:	1,708,227.28 usft	Longitude:	-104.757703
Position Uncertainty	3.28 usft		Wellhead Elevation:		Ground Level:	5,152.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/10/2018	8.06	66.54	52,084.66377847

Design	Permit Rev-1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	1.00

Plan Survey Tool Program	Date	7/22/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio
2	1,500.00	13,477.55	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio

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Well:	JDB 15-10HZ	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,580.00	20.70	112.70	1,550.17	-95.16	227.48	1.50	1.50	0.00	112.70	
3,980.00	20.70	112.70	3,795.24	-422.54	1,010.11	0.00	0.00	0.00	0.00	
4,851.12	19.80	151.00	4,616.06	-611.82	1,224.60	1.50	-0.10	4.40	111.78	
5,151.12	19.80	151.00	4,898.32	-700.70	1,273.87	0.00	0.00	0.00	0.00	
6,141.12	0.00	0.00	5,868.73	-848.82	1,355.98	2.00	-2.00	0.00	180.00	
7,010.19	0.00	0.00	6,737.80	-848.82	1,355.98	0.00	0.00	0.00	0.00	
8,136.26	90.09	1.00	7,454.00	-131.66	1,368.52	8.00	8.00	0.09	1.00	
13,477.55	90.09	1.00	7,446.00	5,208.80	1,461.90	0.00	0.00	0.00	0.00	JDB 15-10HZ_BHL

Corporate Planning Report

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Well:	JDB 15-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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
Begin Nudge @ 200.00ft									
300.00	1.50	112.70	299.99	-0.51	1.21	-0.48	1.50	1.50	0.00
400.00	3.00	112.70	399.91	-2.02	4.83	-1.94	1.50	1.50	0.00
500.00	4.50	112.70	499.69	-4.54	10.86	-4.35	1.50	1.50	0.00
600.00	6.00	112.70	599.27	-8.08	19.30	-7.74	1.50	1.50	0.00
700.00	7.50	112.70	698.57	-12.61	30.15	-12.08	1.50	1.50	0.00
800.00	9.00	112.70	797.54	-18.15	43.38	-17.39	1.50	1.50	0.00
900.00	10.50	112.70	896.09	-24.68	59.01	-23.65	1.50	1.50	0.00
1,000.00	12.00	112.70	994.16	-32.21	77.00	-30.86	1.50	1.50	0.00
1,100.00	13.50	112.70	1,091.70	-40.73	97.36	-39.02	1.50	1.50	0.00
1,200.00	15.00	112.70	1,188.62	-50.23	120.07	-48.12	1.50	1.50	0.00
1,300.00	16.50	112.70	1,284.86	-60.70	145.11	-58.16	1.50	1.50	0.00
1,400.00	18.00	112.70	1,380.36	-72.15	172.47	-69.12	1.50	1.50	0.00
1,500.00	19.50	112.70	1,475.05	-84.55	202.12	-81.01	1.50	1.50	0.00
1,526.50	19.90	112.70	1,500.00	-88.00	210.36	-84.31	1.50	1.50	0.00
9 5/8" Csg									
1,580.00	20.70	112.70	1,550.17	-95.16	227.48	-91.17	1.50	1.50	0.00
End Nudge @ 1580.00ft									
1,600.00	20.70	112.70	1,568.88	-97.89	234.01	-93.79	0.00	0.00	0.00
1,700.00	20.70	112.70	1,662.43	-111.53	266.62	-106.86	0.00	0.00	0.00
1,760.48	20.70	112.70	1,719.00	-119.78	286.34	-114.76	0.00	0.00	0.00
Fox Hills									
1,800.00	20.70	112.70	1,755.97	-125.17	299.23	-119.93	0.00	0.00	0.00
1,900.00	20.70	112.70	1,849.52	-138.81	331.83	-133.00	0.00	0.00	0.00
2,000.00	20.70	112.70	1,943.06	-152.45	364.44	-146.07	0.00	0.00	0.00
2,100.00	20.70	112.70	2,036.61	-166.09	397.05	-159.14	0.00	0.00	0.00
2,200.00	20.70	112.70	2,130.15	-179.73	429.66	-172.21	0.00	0.00	0.00
2,300.00	20.70	112.70	2,223.69	-193.37	462.27	-185.28	0.00	0.00	0.00
2,400.00	20.70	112.70	2,317.24	-207.01	494.88	-198.35	0.00	0.00	0.00
2,500.00	20.70	112.70	2,410.78	-220.65	527.49	-211.41	0.00	0.00	0.00
2,600.00	20.70	112.70	2,504.33	-234.30	560.10	-224.48	0.00	0.00	0.00
2,700.00	20.70	112.70	2,597.87	-247.94	592.71	-237.55	0.00	0.00	0.00
2,800.00	20.70	112.70	2,691.42	-261.58	625.32	-250.62	0.00	0.00	0.00
2,900.00	20.70	112.70	2,784.96	-275.22	657.93	-263.69	0.00	0.00	0.00
3,000.00	20.70	112.70	2,878.51	-288.86	690.54	-276.76	0.00	0.00	0.00
3,100.00	20.70	112.70	2,972.05	-302.50	723.15	-289.83	0.00	0.00	0.00
3,200.00	20.70	112.70	3,065.59	-316.14	755.76	-302.90	0.00	0.00	0.00
3,300.00	20.70	112.70	3,159.14	-329.78	788.37	-315.97	0.00	0.00	0.00
3,400.00	20.70	112.70	3,252.68	-343.42	820.98	-329.04	0.00	0.00	0.00
3,500.00	20.70	112.70	3,346.23	-357.06	853.59	-342.11	0.00	0.00	0.00
3,600.00	20.70	112.70	3,439.77	-370.70	886.19	-355.18	0.00	0.00	0.00
3,700.00	20.70	112.70	3,533.32	-384.34	918.80	-368.25	0.00	0.00	0.00
3,800.00	20.70	112.70	3,626.86	-397.98	951.41	-381.32	0.00	0.00	0.00
3,900.00	20.70	112.70	3,720.40	-411.63	984.02	-394.39	0.00	0.00	0.00
3,980.00	20.70	112.70	3,795.24	-422.54	1,010.11	-404.84	0.00	0.00	0.00
Change Nudge Direction @ 3980.00ft									
4,000.00	20.59	113.49	3,813.96	-425.30	1,016.60	-407.50	1.50	-0.55	3.96
4,100.00	20.10	117.57	3,907.72	-440.27	1,047.96	-421.91	1.50	-0.49	4.08
4,200.00	19.70	121.82	4,001.76	-457.11	1,077.51	-438.23	1.50	-0.39	4.25
4,300.00	19.41	126.22	4,095.99	-475.82	1,105.25	-456.46	1.50	-0.29	4.40
4,400.00	19.23	130.72	4,190.36	-496.39	1,131.14	-476.57	1.50	-0.18	4.50

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-10HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Site:	1N-66W-15 JDB 16-15HZ PAD	North Reference:	True
Well:	JDB 15-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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	19.16	135.28	4,284.81	-518.79	1,155.17	-498.55	1.50	-0.07	4.56
4,600.00	19.21	139.84	4,379.26	-543.02	1,177.33	-522.40	1.50	0.04	4.56
4,698.25	19.36	144.28	4,472.00	-568.60	1,197.26	-547.61	1.50	0.15	4.52
Parkman									
4,700.00	19.36	144.36	4,473.65	-569.07	1,197.60	-548.08	1.50	0.21	4.48
4,800.00	19.62	148.79	4,567.93	-596.90	1,215.96	-575.59	1.50	0.26	4.43
4,851.12	19.80	151.00	4,616.06	-611.82	1,224.60	-590.35	1.50	0.34	4.33
End Nudge @ 4851.12ft									
4,900.00	19.80	151.00	4,662.04	-626.30	1,232.63	-604.69	0.00	0.00	0.00
5,000.00	19.80	151.00	4,756.13	-655.92	1,249.05	-634.02	0.00	0.00	0.00
5,100.00	19.80	151.00	4,850.22	-685.55	1,265.48	-663.36	0.00	0.00	0.00
5,118.90	19.80	151.00	4,868.00	-691.15	1,268.58	-668.90	0.00	0.00	0.00
Sussex									
5,151.12	19.80	151.00	4,898.32	-700.70	1,273.87	-678.36	0.00	0.00	0.00
Begin Drop @ 5151.12ft									
5,200.00	18.82	151.00	4,944.45	-714.83	1,281.71	-692.36	2.00	-2.00	0.00
5,300.00	16.82	151.00	5,039.64	-741.60	1,296.54	-718.86	2.00	-2.00	0.00
5,400.00	14.82	151.00	5,135.85	-765.45	1,309.76	-742.47	2.00	-2.00	0.00
5,500.00	12.82	151.00	5,232.95	-786.34	1,321.34	-763.16	2.00	-2.00	0.00
5,600.00	10.82	151.00	5,330.82	-804.26	1,331.28	-780.90	2.00	-2.00	0.00
5,700.00	8.82	151.00	5,429.35	-819.18	1,339.55	-795.68	2.00	-2.00	0.00
5,800.00	6.82	151.00	5,528.42	-831.08	1,346.15	-807.46	2.00	-2.00	0.00
5,900.00	4.82	151.00	5,627.89	-839.95	1,351.06	-816.25	2.00	-2.00	0.00
6,000.00	2.82	151.00	5,727.67	-845.79	1,354.29	-822.02	2.00	-2.00	0.00
6,100.00	0.82	151.00	5,827.61	-848.57	1,355.84	-824.77	2.00	-2.00	0.00
6,141.12	0.00	0.00	5,868.73	-848.82	1,355.98	-825.03	2.00	-2.00	0.00
End Drop @ 6141.12ft									
6,200.00	0.00	0.00	5,927.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,300.00	0.00	0.00	6,027.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,400.00	0.00	0.00	6,127.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,500.00	0.00	0.00	6,227.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,600.00	0.00	0.00	6,327.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,700.00	0.00	0.00	6,427.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,800.00	0.00	0.00	6,527.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
6,900.00	0.00	0.00	6,627.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
7,000.00	0.00	0.00	6,727.61	-848.82	1,355.98	-825.03	0.00	0.00	0.00
7,010.19	0.00	0.00	6,737.80	-848.82	1,355.98	-825.03	0.00	0.00	0.00
KOP @ 7010.19ft :: 8°/100'									
7,100.00	7.18	1.00	6,827.37	-843.20	1,356.08	-819.41	8.00	8.00	0.00
7,200.00	15.18	1.00	6,925.40	-823.82	1,356.42	-800.02	8.00	8.00	0.00
7,300.00	23.18	1.00	7,019.77	-790.99	1,356.99	-767.19	8.00	8.00	0.00
7,400.00	31.18	1.00	7,108.65	-745.35	1,357.79	-721.54	8.00	8.00	0.00
7,500.00	39.18	1.00	7,190.31	-687.78	1,358.80	-663.97	8.00	8.00	0.00
7,600.00	47.18	1.00	7,263.17	-619.42	1,359.99	-595.59	8.00	8.00	0.00
7,643.91	50.70	1.00	7,292.00	-586.32	1,360.57	-562.49	8.00	8.00	0.00
Sharon Springs									
7,676.39	53.30	1.00	7,312.00	-560.73	1,361.02	-536.89	8.00	8.00	0.00
Niobrara									
7,700.00	55.18	1.00	7,325.80	-541.57	1,361.35	-517.73	8.00	8.00	0.00
7,800.00	63.18	1.00	7,376.98	-455.77	1,362.85	-431.92	8.00	8.00	0.00
7,900.00	71.18	1.00	7,415.73	-363.69	1,364.46	-339.82	8.00	8.00	0.00
7,974.29	77.13	1.00	7,436.00	-292.26	1,365.71	-268.38	8.00	8.00	0.00
Nio B									

Corporate Planning Report

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Well:	JDB 15-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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)
8,000.00	79.18	1.00	7,441.28	-267.10	1,366.15	-243.22	8.00	8.00	0.00
8,100.00	87.18	1.00	7,453.13	-167.91	1,367.89	-144.01	8.00	8.00	0.00
8,136.26	90.09	1.00	7,454.00	-131.67	1,368.52	-107.76	8.00	8.00	0.00
End Build @ 8136.26ft - Top of Production									
8,200.00	90.09	1.00	7,453.90	-67.94	1,369.63	-44.02	0.00	0.00	0.00
8,300.00	90.09	1.00	7,453.75	32.05	1,371.38	55.98	0.00	0.00	0.00
8,400.00	90.09	1.00	7,453.60	132.03	1,373.13	155.98	0.00	0.00	0.00
8,500.00	90.09	1.00	7,453.45	232.02	1,374.88	255.98	0.00	0.00	0.00
8,600.00	90.09	1.00	7,453.30	332.00	1,376.63	355.98	0.00	0.00	0.00
8,700.00	90.09	1.00	7,453.15	431.99	1,378.38	455.98	0.00	0.00	0.00
8,800.00	90.09	1.00	7,453.00	531.97	1,380.12	555.98	0.00	0.00	0.00
8,900.00	90.09	1.00	7,452.85	631.96	1,381.87	655.98	0.00	0.00	0.00
9,000.00	90.09	1.00	7,452.70	731.94	1,383.62	755.98	0.00	0.00	0.00
9,100.00	90.09	1.00	7,452.55	831.92	1,385.37	855.98	0.00	0.00	0.00
9,200.00	90.09	1.00	7,452.40	931.91	1,387.12	955.98	0.00	0.00	0.00
9,300.00	90.09	1.00	7,452.25	1,031.89	1,388.86	1,055.98	0.00	0.00	0.00
9,400.00	90.09	1.00	7,452.10	1,131.88	1,390.61	1,155.98	0.00	0.00	0.00
9,500.00	90.09	1.00	7,451.95	1,231.86	1,392.36	1,255.98	0.00	0.00	0.00
9,600.00	90.09	1.00	7,451.81	1,331.85	1,394.11	1,355.98	0.00	0.00	0.00
9,700.00	90.09	1.00	7,451.66	1,431.83	1,395.86	1,455.98	0.00	0.00	0.00
9,800.00	90.09	1.00	7,451.51	1,531.82	1,397.61	1,555.98	0.00	0.00	0.00
9,900.00	90.09	1.00	7,451.36	1,631.80	1,399.35	1,655.98	0.00	0.00	0.00
10,000.00	90.09	1.00	7,451.21	1,731.79	1,401.10	1,755.98	0.00	0.00	0.00
10,100.00	90.09	1.00	7,451.06	1,831.77	1,402.85	1,855.98	0.00	0.00	0.00
10,200.00	90.09	1.00	7,450.91	1,931.76	1,404.60	1,955.97	0.00	0.00	0.00
10,300.00	90.09	1.00	7,450.76	2,031.74	1,406.35	2,055.97	0.00	0.00	0.00
10,400.00	90.09	1.00	7,450.61	2,131.72	1,408.10	2,155.97	0.00	0.00	0.00
10,500.00	90.09	1.00	7,450.46	2,231.71	1,409.84	2,255.97	0.00	0.00	0.00
10,600.00	90.09	1.00	7,450.31	2,331.69	1,411.59	2,355.97	0.00	0.00	0.00
10,700.00	90.09	1.00	7,450.16	2,431.68	1,413.34	2,455.97	0.00	0.00	0.00
10,800.00	90.09	1.00	7,450.01	2,531.66	1,415.09	2,555.97	0.00	0.00	0.00
10,900.00	90.09	1.00	7,449.86	2,631.65	1,416.84	2,655.97	0.00	0.00	0.00
11,000.00	90.09	1.00	7,449.71	2,731.63	1,418.59	2,755.97	0.00	0.00	0.00
11,100.00	90.09	1.00	7,449.56	2,831.62	1,420.33	2,855.97	0.00	0.00	0.00
11,200.00	90.09	1.00	7,449.41	2,931.60	1,422.08	2,955.97	0.00	0.00	0.00
11,300.00	90.09	1.00	7,449.26	3,031.59	1,423.83	3,055.97	0.00	0.00	0.00
11,400.00	90.09	1.00	7,449.11	3,131.57	1,425.58	3,155.97	0.00	0.00	0.00
11,500.00	90.09	1.00	7,448.96	3,231.56	1,427.33	3,255.97	0.00	0.00	0.00
11,600.00	90.09	1.00	7,448.81	3,331.54	1,429.08	3,355.97	0.00	0.00	0.00
11,700.00	90.09	1.00	7,448.66	3,431.52	1,430.82	3,455.97	0.00	0.00	0.00
11,800.00	90.09	1.00	7,448.51	3,531.51	1,432.57	3,555.97	0.00	0.00	0.00
11,900.00	90.09	1.00	7,448.36	3,631.49	1,434.32	3,655.97	0.00	0.00	0.00
12,000.00	90.09	1.00	7,448.21	3,731.48	1,436.07	3,755.97	0.00	0.00	0.00
12,100.00	90.09	1.00	7,448.06	3,831.46	1,437.82	3,855.97	0.00	0.00	0.00
12,200.00	90.09	1.00	7,447.91	3,931.45	1,439.56	3,955.97	0.00	0.00	0.00
12,300.00	90.09	1.00	7,447.76	4,031.43	1,441.31	4,055.97	0.00	0.00	0.00
12,400.00	90.09	1.00	7,447.61	4,131.42	1,443.06	4,155.97	0.00	0.00	0.00
12,500.00	90.09	1.00	7,447.46	4,231.40	1,444.81	4,255.97	0.00	0.00	0.00
12,600.00	90.09	1.00	7,447.31	4,331.39	1,446.56	4,355.97	0.00	0.00	0.00
12,700.00	90.09	1.00	7,447.16	4,431.37	1,448.31	4,455.97	0.00	0.00	0.00
12,800.00	90.09	1.00	7,447.01	4,531.36	1,450.05	4,555.97	0.00	0.00	0.00
12,900.00	90.09	1.00	7,446.86	4,631.34	1,451.80	4,655.97	0.00	0.00	0.00
13,000.00	90.09	1.00	7,446.72	4,731.32	1,453.55	4,755.97	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-10HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5169.00usft (Drilling Rig)
Site:	1N-66W-15 JDB 16-15HZ PAD	North Reference:	True
Well:	JDB 15-10HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	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)	
13,100.00	90.09	1.00	7,446.57	4,831.31	1,455.30	4,855.97	0.00	0.00	0.00	
13,200.00	90.09	1.00	7,446.42	4,931.29	1,457.05	4,955.97	0.00	0.00	0.00	
13,300.00	90.09	1.00	7,446.27	5,031.28	1,458.80	5,055.97	0.00	0.00	0.00	
13,400.00	90.09	1.00	7,446.12	5,131.26	1,460.54	5,155.97	0.00	0.00	0.00	
13,477.55	90.09	1.00	7,446.00	5,208.80	1,461.90	5,233.52	0.00	0.00	0.00	
TD Well @ 13477.55ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.50	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,136.26	7,454.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,760.48	1,719.00	Fox Hills				
4,698.25	4,472.00	Parkman				
5,118.90	4,868.00	Sussex				
7,643.91	7,292.00	Sharon Springs				
7,676.39	7,312.00	Niobrara				
7,974.29	7,436.00	Nio B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Begin Nudge @ 200.00ft	
1,580.00	1,550.17	-95.16	227.48	End Nudge @ 1580.00ft	
3,980.00	3,795.24	-422.54	1,010.11	Change Nudge Direction @ 3980.00ft	
4,851.12	4,616.06	-611.82	1,224.60	End Nudge @ 4851.12ft	
5,151.12	4,898.32	-700.70	1,273.87	Begin Drop @ 5151.12ft	
6,141.12	5,868.73	-848.82	1,355.98	End Drop @ 6141.12ft	
7,010.19	6,737.80	-848.82	1,355.98	KOP @ 7010.19ft :: 8°/100'	
8,136.26	7,454.00	-131.66	1,368.52	End Build @ 8136.26ft	
13,477.55	7,446.00	5,208.80	1,461.90	TD Well @ 13477.55ft	