

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-15 JDB 16-15HZ PAD
JDB 15-9HZ**

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.045405/-104.757715
Survey Program: MWD+IFR

Standard Planning Report

22 July, 2018

Project: WELD-NAD83-UTMFT13N
Site: 1N-66W-15 JDB 16-15HZ PAD
Well: JDB 15-9HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1523.20	9-5/8
7508.00	8259.36	5-1/2

WELL DETAILS: JDB 15-9HZ

GL = 5152.00

RKB = 17" @ 5169.00usft (Drilling Rig)

SECTION DETAILS

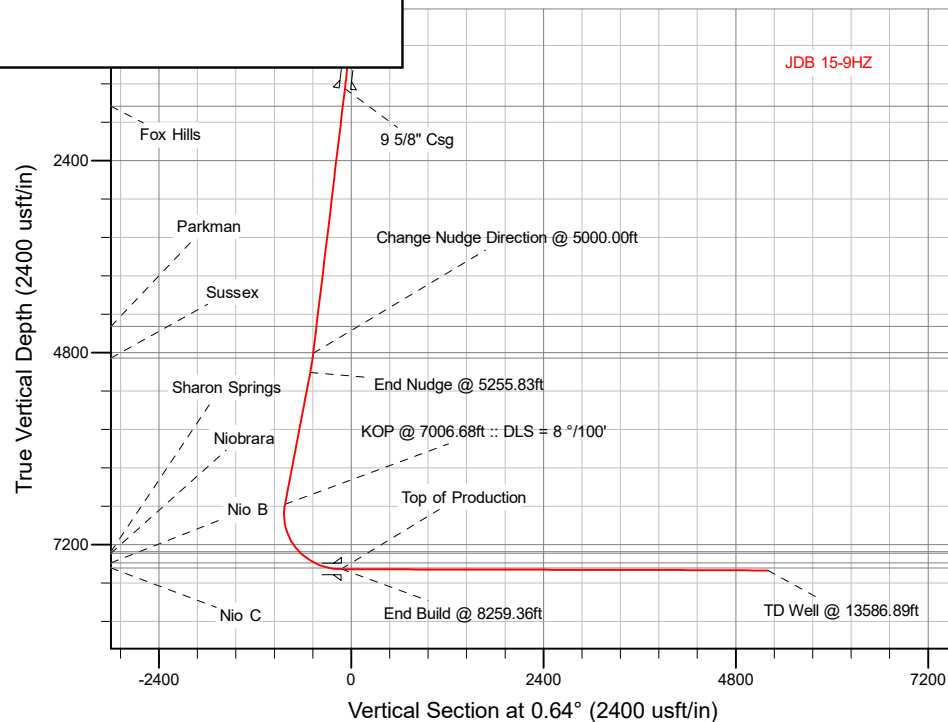
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1446.67	17.95	112.30	1427.19	-70.55	172.02	1.50	112.30	-68.62	
4	5000.00	17.95	112.30	4807.57	-486.09	1185.21	0.00	0.00	-472.82	
5	5255.83	19.65	123.00	5049.81	-524.49	1257.78	1.50	68.89	-510.41	
6	7006.68	19.65	123.00	6698.70	-845.15	1751.56	0.00	0.00	-825.54	
7	8259.36	89.84	0.64	7508.00	-145.34	2002.76	8.00	-120.87	-122.96	
8	13586.89	89.84	0.64	7523.00	5181.83	2062.25	0.00	0.00	5204.54	JDB 15-9HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
JDB 15-9HZ_SHL	0.00	0.00	0.00	40.045405	-104.757715
JDB 15-9HZ_BHL	7523.00	5181.83	2062.25	40.059635	-104.750345

FORMATION TOP DETAILS

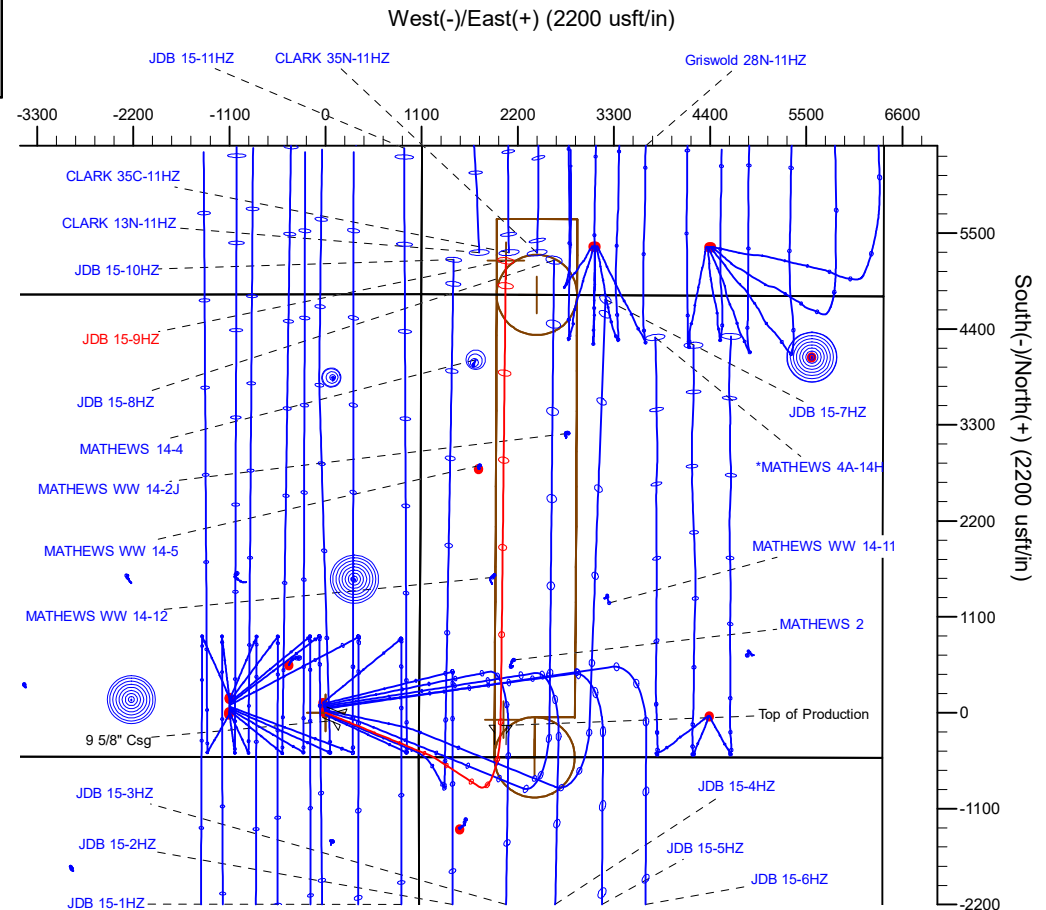
TVDPATH	MDPATH	Formation
1719.00	1753.41	Fox Hills
4472.00	4647.27	Parkman
4868.00	5063.59	Sussex
7291.00	7675.48	Sharon Springs
7311.00	7704.66	Niobrara
7431.00	7918.80	Nio B
7492.00	8106.44	Nio C



SHL
509' FSL
1068' FEL

HEEL
370' FSL
943' FWL

TOE
390' FSL
966' FWL



Plan: Permit Rev-1 (JDB 15-9HZ/Plan A)

Date: 7/22/2018

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-9HZ
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 15-9HZ	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 15-9HZ				
Well Position	+N-S	-116.53 usft	Northing:	14,543,359.57 usft	Latitude:	40.045405
	+E-W	28.55 usft	Easting:	1,708,223.88 usft	Longitude:	-104.757715
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	52,084.68341169

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	0.64

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	13,586.89	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio

Corporate
Planning Report

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Well:	JDB 15-9HZ	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,446.67	17.95	112.30	1,427.19	-70.55	172.02	1.50	1.50	0.00	112.30	
5,000.00	17.95	112.30	4,807.57	-486.09	1,185.21	0.00	0.00	0.00	0.00	
5,255.83	19.65	123.00	5,049.81	-524.49	1,257.78	1.50	0.66	4.18	68.89	
7,006.68	19.65	123.00	6,698.70	-845.15	1,751.56	0.00	0.00	0.00	0.00	
8,259.36	89.84	0.64	7,508.00	-145.34	2,002.76	8.00	5.60	-9.77	-120.87	
13,586.89	89.84	0.64	7,523.00	5,181.83	2,062.25	0.00	0.00	0.00	0.00	JDB 15-9HZ_BHL

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-9HZ
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 15-9HZ	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
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	112.30	300.00	-0.12	0.30	-0.12	1.50	1.50	0.00
400.00	2.25	112.30	399.96	-1.12	2.72	-1.09	1.50	1.50	0.00
500.00	3.75	112.30	499.82	-3.10	7.57	-3.02	1.50	1.50	0.00
600.00	5.25	112.30	599.51	-6.08	14.83	-5.91	1.50	1.50	0.00
700.00	6.75	112.30	698.96	-10.05	24.50	-9.77	1.50	1.50	0.00
800.00	8.25	112.30	798.10	-15.00	36.57	-14.59	1.50	1.50	0.00
900.00	9.75	112.30	896.87	-20.94	51.05	-20.36	1.50	1.50	0.00
1,000.00	11.25	112.30	995.19	-27.85	67.91	-27.09	1.50	1.50	0.00
1,100.00	12.75	112.30	1,093.00	-35.74	87.14	-34.76	1.50	1.50	0.00
1,200.00	14.25	112.30	1,190.24	-44.60	108.74	-43.38	1.50	1.50	0.00
1,300.00	15.75	112.30	1,286.83	-54.42	132.68	-52.93	1.50	1.50	0.00
1,400.00	17.25	112.30	1,382.71	-65.19	158.96	-63.42	1.50	1.50	0.00
1,446.67	17.95	112.30	1,427.19	-70.55	172.02	-68.62	1.50	1.50	0.00
End Nudge @ 1446.67ft									
1,500.00	17.95	112.30	1,477.92	-76.79	187.22	-74.69	0.00	0.00	0.00
1,523.20	17.95	112.30	1,500.00	-79.50	193.84	-77.33	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	17.95	112.30	1,573.06	-88.48	215.74	-86.07	0.00	0.00	0.00
1,700.00	17.95	112.30	1,668.19	-100.17	244.25	-97.44	0.00	0.00	0.00
1,753.41	17.95	112.30	1,719.00	-106.42	259.48	-103.52	0.00	0.00	0.00
Fox Hills									
1,800.00	17.95	112.30	1,763.32	-111.87	272.77	-108.82	0.00	0.00	0.00
1,900.00	17.95	112.30	1,858.46	-123.56	301.28	-120.19	0.00	0.00	0.00
2,000.00	17.95	112.30	1,953.59	-135.26	329.79	-131.57	0.00	0.00	0.00
2,100.00	17.95	112.30	2,048.72	-146.95	358.31	-142.94	0.00	0.00	0.00
2,200.00	17.95	112.30	2,143.85	-158.65	386.82	-154.32	0.00	0.00	0.00
2,300.00	17.95	112.30	2,238.99	-170.34	415.33	-165.69	0.00	0.00	0.00
2,400.00	17.95	112.30	2,334.12	-182.04	443.85	-177.07	0.00	0.00	0.00
2,500.00	17.95	112.30	2,429.25	-193.73	472.36	-188.44	0.00	0.00	0.00
2,600.00	17.95	112.30	2,524.38	-205.42	500.88	-199.82	0.00	0.00	0.00
2,700.00	17.95	112.30	2,619.52	-217.12	529.39	-211.19	0.00	0.00	0.00
2,800.00	17.95	112.30	2,714.65	-228.81	557.90	-222.57	0.00	0.00	0.00
2,900.00	17.95	112.30	2,809.78	-240.51	586.42	-233.94	0.00	0.00	0.00
3,000.00	17.95	112.30	2,904.91	-252.20	614.93	-245.32	0.00	0.00	0.00
3,100.00	17.95	112.30	3,000.05	-263.90	643.44	-256.69	0.00	0.00	0.00
3,200.00	17.95	112.30	3,095.18	-275.59	671.96	-268.07	0.00	0.00	0.00
3,300.00	17.95	112.30	3,190.31	-287.28	700.47	-279.44	0.00	0.00	0.00
3,400.00	17.95	112.30	3,285.44	-298.98	728.99	-290.82	0.00	0.00	0.00
3,500.00	17.95	112.30	3,380.58	-310.67	757.50	-302.19	0.00	0.00	0.00
3,600.00	17.95	112.30	3,475.71	-322.37	786.01	-313.57	0.00	0.00	0.00
3,700.00	17.95	112.30	3,570.84	-334.06	814.53	-324.94	0.00	0.00	0.00
3,800.00	17.95	112.30	3,665.97	-345.76	843.04	-336.32	0.00	0.00	0.00
3,900.00	17.95	112.30	3,761.11	-357.45	871.55	-347.69	0.00	0.00	0.00
4,000.00	17.95	112.30	3,856.24	-369.14	900.07	-359.07	0.00	0.00	0.00
4,100.00	17.95	112.30	3,951.37	-380.84	928.58	-370.44	0.00	0.00	0.00
4,200.00	17.95	112.30	4,046.50	-392.53	957.10	-381.82	0.00	0.00	0.00
4,300.00	17.95	112.30	4,141.64	-404.23	985.61	-393.19	0.00	0.00	0.00
4,400.00	17.95	112.30	4,236.77	-415.92	1,014.12	-404.57	0.00	0.00	0.00
4,500.00	17.95	112.30	4,331.90	-427.62	1,042.64	-415.94	0.00	0.00	0.00

Planning Report

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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 15-9HZ	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)
4,600.00	17.95	112.30	4,427.03	-439.31	1,071.15	-427.32	0.00	0.00	0.00
4,647.27	17.95	112.30	4,472.00	-444.84	1,084.63	-432.70	0.00	0.00	0.00
Parkman									
4,700.00	17.95	112.30	4,522.17	-451.01	1,099.66	-438.69	0.00	0.00	0.00
4,800.00	17.95	112.30	4,617.30	-462.70	1,128.18	-450.07	0.00	0.00	0.00
4,900.00	17.95	112.30	4,712.43	-474.39	1,156.69	-461.44	0.00	0.00	0.00
5,000.00	17.95	112.30	4,807.57	-486.09	1,185.21	-472.82	0.00	0.00	0.00
Change Nudge Direction @ 5000.00ft									
5,063.59	18.31	115.13	4,868.00	-494.05	1,203.32	-480.58	1.50	0.57	4.45
Sussex									
5,100.00	18.54	116.70	4,902.54	-499.08	1,213.67	-485.49	1.50	0.62	4.32
5,200.00	19.23	120.83	4,997.16	-514.66	1,242.01	-500.76	1.50	0.69	4.12
5,255.83	19.65	123.00	5,049.81	-524.49	1,257.78	-510.41	1.50	0.76	3.89
End Nudge @ 5255.83ft									
5,300.00	19.65	123.00	5,091.41	-532.58	1,270.24	-518.36	0.00	0.00	0.00
5,400.00	19.65	123.00	5,185.58	-550.89	1,298.44	-536.36	0.00	0.00	0.00
5,500.00	19.65	123.00	5,279.76	-569.21	1,326.64	-554.35	0.00	0.00	0.00
5,600.00	19.65	123.00	5,373.94	-587.52	1,354.84	-572.35	0.00	0.00	0.00
5,700.00	19.65	123.00	5,468.11	-605.84	1,383.05	-590.35	0.00	0.00	0.00
5,800.00	19.65	123.00	5,562.29	-624.15	1,411.25	-608.35	0.00	0.00	0.00
5,900.00	19.65	123.00	5,656.47	-642.47	1,439.45	-626.35	0.00	0.00	0.00
6,000.00	19.65	123.00	5,750.64	-660.78	1,467.65	-644.35	0.00	0.00	0.00
6,100.00	19.65	123.00	5,844.82	-679.10	1,495.86	-662.35	0.00	0.00	0.00
6,200.00	19.65	123.00	5,939.00	-697.41	1,524.06	-680.34	0.00	0.00	0.00
6,300.00	19.65	123.00	6,033.17	-715.73	1,552.26	-698.34	0.00	0.00	0.00
6,400.00	19.65	123.00	6,127.35	-734.04	1,580.46	-716.34	0.00	0.00	0.00
6,500.00	19.65	123.00	6,221.53	-752.36	1,608.66	-734.34	0.00	0.00	0.00
6,600.00	19.65	123.00	6,315.70	-770.67	1,636.87	-752.34	0.00	0.00	0.00
6,700.00	19.65	123.00	6,409.88	-788.99	1,665.07	-770.34	0.00	0.00	0.00
6,800.00	19.65	123.00	6,504.05	-807.30	1,693.27	-788.34	0.00	0.00	0.00
6,900.00	19.65	123.00	6,598.23	-825.61	1,721.47	-806.33	0.00	0.00	0.00
7,000.00	19.65	123.00	6,692.41	-843.93	1,749.68	-824.33	0.00	0.00	0.00
7,006.68	19.65	123.00	6,698.70	-845.15	1,751.56	-825.54	0.00	0.00	0.00
KOP @ 7006.68ft :: DLS = 8 °/100'									
7,100.00	17.02	100.60	6,787.38	-856.23	1,778.18	-836.31	8.00	-2.82	-24.00
7,200.00	17.51	73.46	6,883.03	-854.64	1,807.03	-834.40	8.00	0.49	-27.14
7,300.00	21.16	51.75	6,977.50	-839.16	1,835.67	-818.60	8.00	3.65	-21.71
7,400.00	26.70	37.41	7,068.95	-810.09	1,863.54	-789.23	8.00	5.54	-14.34
7,500.00	33.20	28.02	7,155.59	-768.01	1,890.09	-746.85	8.00	6.50	-9.39
7,600.00	40.20	21.49	7,235.75	-713.72	1,914.82	-692.29	8.00	6.99	-6.53
7,675.48	45.67	17.72	7,291.00	-665.30	1,931.98	-643.68	8.00	7.24	-5.00
Sharon Springs									
7,700.00	47.47	16.65	7,307.86	-648.29	1,937.23	-626.61	8.00	7.34	-4.38
7,704.66	47.81	16.45	7,311.00	-644.98	1,938.22	-623.29	8.00	7.36	-4.23
Niobrara									
7,800.00	54.89	12.83	7,370.52	-572.98	1,956.90	-551.09	8.00	7.43	-3.80
7,900.00	62.42	9.65	7,422.50	-489.27	1,973.44	-467.20	8.00	7.53	-3.18
7,918.80	63.84	9.10	7,431.00	-472.73	1,976.17	-450.62	8.00	7.57	-2.90
Nio B									
8,000.00	70.01	6.89	7,462.81	-398.78	1,986.52	-376.57	8.00	7.60	-2.73
8,100.00	77.64	4.38	7,490.65	-303.28	1,995.90	-280.97	8.00	7.63	-2.51
8,106.44	78.13	4.22	7,492.00	-297.00	1,996.37	-274.68	8.00	7.64	-2.42
Nio C									

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Site:	1N-66W-15 JDB 16-15HZ PAD	North Reference:	True
Well:	JDB 15-9HZ	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)
8,200.00	85.29	2.01	7,505.48	-204.62	2,001.39	-182.25	8.00	7.65	-2.36
8,259.36	89.84	0.64	7,508.00	-145.35	2,002.76	-122.97	8.00	7.66	-2.31
End Build @ 8259.36ft - Top of Production									
8,300.00	89.84	0.64	7,508.11	-104.71	2,003.21	-82.33	0.00	0.00	0.00
8,400.00	89.84	0.64	7,508.39	-4.72	2,004.33	17.67	0.00	0.00	0.00
8,500.00	89.84	0.64	7,508.68	95.28	2,005.45	117.67	0.00	0.00	0.00
8,600.00	89.84	0.64	7,508.96	195.27	2,006.56	217.67	0.00	0.00	0.00
8,700.00	89.84	0.64	7,509.24	295.26	2,007.68	317.67	0.00	0.00	0.00
8,800.00	89.84	0.64	7,509.52	395.26	2,008.80	417.67	0.00	0.00	0.00
8,900.00	89.84	0.64	7,509.80	495.25	2,009.91	517.67	0.00	0.00	0.00
9,000.00	89.84	0.64	7,510.08	595.24	2,011.03	617.67	0.00	0.00	0.00
9,100.00	89.84	0.64	7,510.37	695.24	2,012.15	717.67	0.00	0.00	0.00
9,200.00	89.84	0.64	7,510.65	795.23	2,013.26	817.67	0.00	0.00	0.00
9,300.00	89.84	0.64	7,510.93	895.23	2,014.38	917.67	0.00	0.00	0.00
9,400.00	89.84	0.64	7,511.21	995.22	2,015.50	1,017.67	0.00	0.00	0.00
9,500.00	89.84	0.64	7,511.49	1,095.21	2,016.61	1,117.67	0.00	0.00	0.00
9,600.00	89.84	0.64	7,511.77	1,195.21	2,017.73	1,217.67	0.00	0.00	0.00
9,700.00	89.84	0.64	7,512.06	1,295.20	2,018.85	1,317.67	0.00	0.00	0.00
9,800.00	89.84	0.64	7,512.34	1,395.19	2,019.96	1,417.67	0.00	0.00	0.00
9,900.00	89.84	0.64	7,512.62	1,495.19	2,021.08	1,517.67	0.00	0.00	0.00
10,000.00	89.84	0.64	7,512.90	1,595.18	2,022.20	1,617.67	0.00	0.00	0.00
10,100.00	89.84	0.64	7,513.18	1,695.17	2,023.31	1,717.67	0.00	0.00	0.00
10,200.00	89.84	0.64	7,513.46	1,795.17	2,024.43	1,817.67	0.00	0.00	0.00
10,300.00	89.84	0.64	7,513.74	1,895.16	2,025.55	1,917.67	0.00	0.00	0.00
10,400.00	89.84	0.64	7,514.03	1,995.15	2,026.66	2,017.67	0.00	0.00	0.00
10,500.00	89.84	0.64	7,514.31	2,095.15	2,027.78	2,117.66	0.00	0.00	0.00
10,600.00	89.84	0.64	7,514.59	2,195.14	2,028.90	2,217.66	0.00	0.00	0.00
10,700.00	89.84	0.64	7,514.87	2,295.13	2,030.01	2,317.66	0.00	0.00	0.00
10,800.00	89.84	0.64	7,515.15	2,395.13	2,031.13	2,417.66	0.00	0.00	0.00
10,900.00	89.84	0.64	7,515.43	2,495.12	2,032.25	2,517.66	0.00	0.00	0.00
11,000.00	89.84	0.64	7,515.72	2,595.11	2,033.36	2,617.66	0.00	0.00	0.00
11,100.00	89.84	0.64	7,516.00	2,695.11	2,034.48	2,717.66	0.00	0.00	0.00
11,200.00	89.84	0.64	7,516.28	2,795.10	2,035.60	2,817.66	0.00	0.00	0.00
11,300.00	89.84	0.64	7,516.56	2,895.09	2,036.71	2,917.66	0.00	0.00	0.00
11,400.00	89.84	0.64	7,516.84	2,995.09	2,037.83	3,017.66	0.00	0.00	0.00
11,500.00	89.84	0.64	7,517.12	3,095.08	2,038.95	3,117.66	0.00	0.00	0.00
11,600.00	89.84	0.64	7,517.41	3,195.07	2,040.06	3,217.66	0.00	0.00	0.00
11,700.00	89.84	0.64	7,517.69	3,295.07	2,041.18	3,317.66	0.00	0.00	0.00
11,800.00	89.84	0.64	7,517.97	3,395.06	2,042.30	3,417.66	0.00	0.00	0.00
11,900.00	89.84	0.64	7,518.25	3,495.05	2,043.41	3,517.66	0.00	0.00	0.00
12,000.00	89.84	0.64	7,518.53	3,595.05	2,044.53	3,617.66	0.00	0.00	0.00
12,100.00	89.84	0.64	7,518.81	3,695.04	2,045.65	3,717.66	0.00	0.00	0.00
12,200.00	89.84	0.64	7,519.09	3,795.03	2,046.76	3,817.66	0.00	0.00	0.00
12,300.00	89.84	0.64	7,519.38	3,895.03	2,047.88	3,917.66	0.00	0.00	0.00
12,400.00	89.84	0.64	7,519.66	3,995.02	2,049.00	4,017.66	0.00	0.00	0.00
12,500.00	89.84	0.64	7,519.94	4,095.01	2,050.11	4,117.66	0.00	0.00	0.00
12,600.00	89.84	0.64	7,520.22	4,195.01	2,051.23	4,217.66	0.00	0.00	0.00
12,700.00	89.84	0.64	7,520.50	4,295.00	2,052.35	4,317.66	0.00	0.00	0.00
12,800.00	89.84	0.64	7,520.78	4,394.99	2,053.46	4,417.66	0.00	0.00	0.00
12,900.00	89.84	0.64	7,521.07	4,494.99	2,054.58	4,517.66	0.00	0.00	0.00
13,000.00	89.84	0.64	7,521.35	4,594.98	2,055.70	4,617.65	0.00	0.00	0.00
13,100.00	89.84	0.64	7,521.63	4,694.97	2,056.81	4,717.65	0.00	0.00	0.00
13,200.00	89.84	0.64	7,521.91	4,794.97	2,057.93	4,817.65	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well JDB 15-9HZ
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 15-9HZ	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)	
13,300.00	89.84	0.64	7,522.19	4,894.96	2,059.05	4,917.65	0.00	0.00	0.00	
13,400.00	89.84	0.64	7,522.47	4,994.95	2,060.16	5,017.65	0.00	0.00	0.00	
13,500.00	89.84	0.64	7,522.76	5,094.95	2,061.28	5,117.65	0.00	0.00	0.00	
13,586.89	89.84	0.64	7,523.00	5,181.83	2,062.25	5,204.54	0.00	0.00	0.00	
TD Well @ 13586.89ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.20	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,259.36	7,508.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,753.41	1,719.00	Fox Hills				
4,647.27	4,472.00	Parkman				
5,063.59	4,868.00	Sussex				
7,675.48	7,291.00	Sharon Springs				
7,704.66	7,311.00	Niobrara				
7,918.80	7,431.00	Nio B				
8,106.44	7,492.00	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	
1,446.67	1,427.19	-70.55	172.02	End Nudge @ 1446.67ft	
5,000.00	4,807.57	-486.09	1,185.21	Change Nudge Direction @ 5000.00ft	
5,255.83	5,049.81	-524.49	1,257.78	End Nudge @ 5255.83ft	
7,006.68	6,698.70	-845.15	1,751.56	KOP @ 7006.68ft :: DLS = 8 °/100'	
8,259.36	7,508.00	-145.34	2,002.76	End Build @ 8259.36ft	
13,586.89	7,523.00	5,181.83	2,062.25	TD Well @ 13586.89ft	