

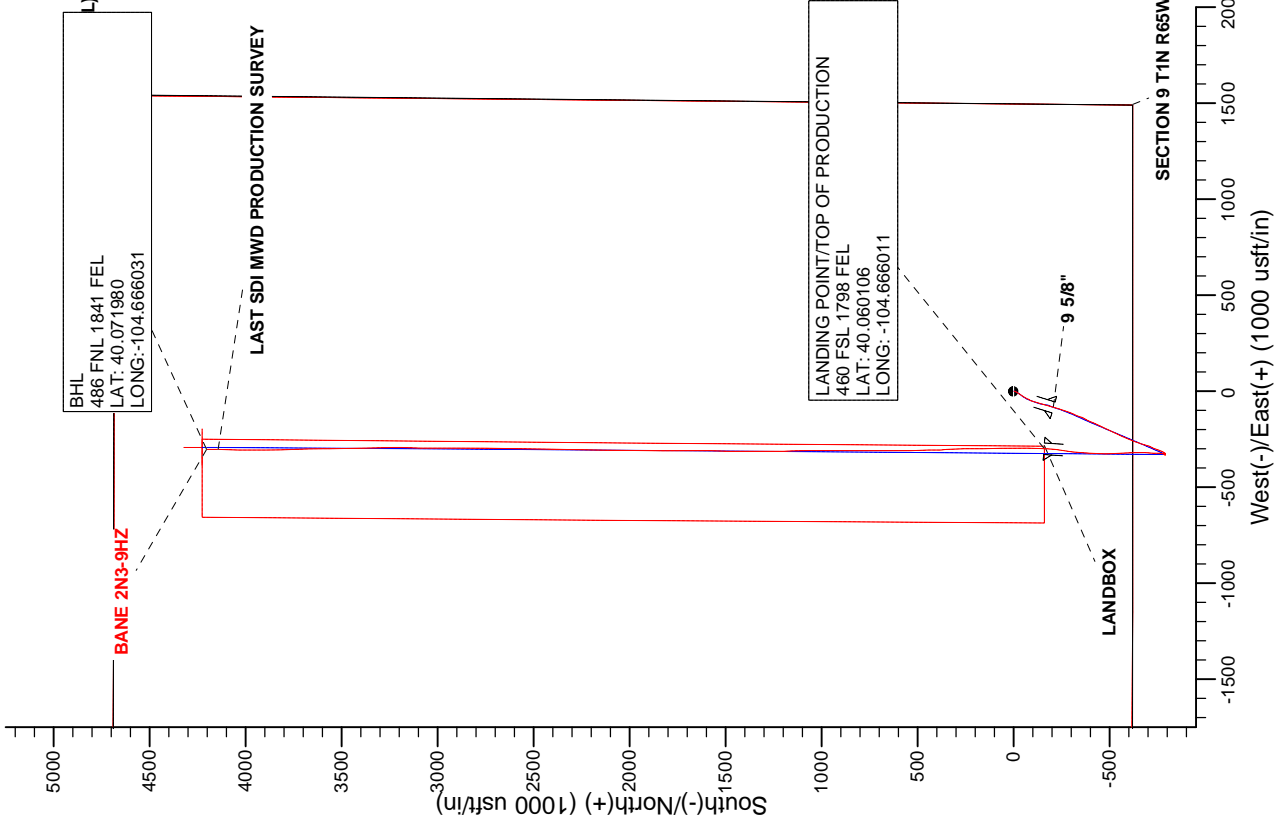
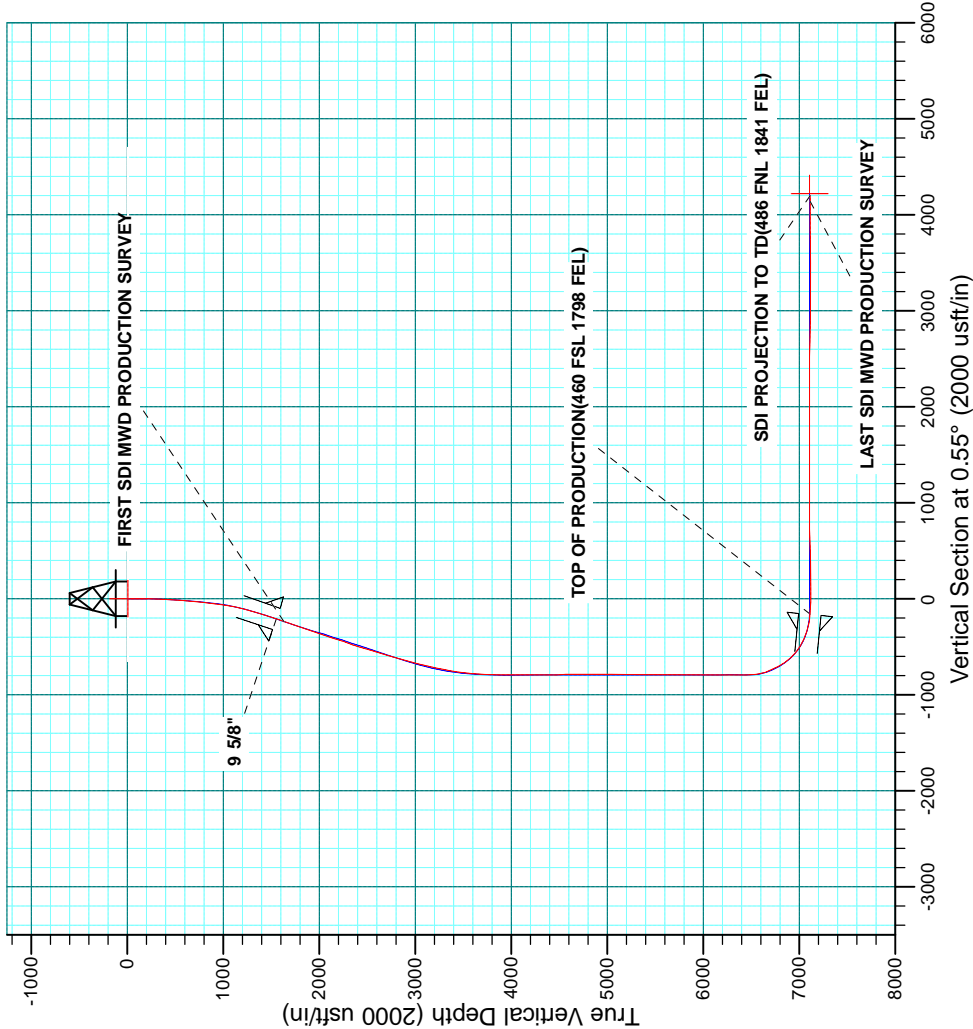


Project: WELD-NAD83-UTMT13N
Site: 1N-65W-09 Bane Pad
Well: BANE 2N3-9HZ
Wellbore: Plan A
Design: Plan A



WELL DETAILS: BANE 2N3-9HZ					
GL 4964 & KB 25 @ 4989.00usft (HP 307)					
+N-S 0.00	+E-W 0.00	Northing 14548919.74	Easting 1734165.05	Latitude 40.060443	Longitude -104.664950

PROJECT DETAILS: WELD-NAD83-UTMT13N
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Location: Zone 13N (108 W to 102 W)
System Datum: Mean Sea Level





US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-65W-09 Bane Pad

BANE 2N3-9HZ

Plan A

Design: Plan A

Standard Survey Report

01 September, 2015



Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BANE 2N3-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Site:	1N-65W-09 Bane Pad	MD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Well:	BANE 2N3-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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-65W-09 Bane Pad			
Site Position:		Northing:	14,548,919.51 usft	Latitude:	40.060443
From:	Lat/Long	Easting:	1,734,104.05 usft	Longitude:	-104.665168
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.22 °

Well		BANE 2N3-9HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,548,919.74 usft	Latitude:	40.060443
	+E/-W	0.00 usft	Easting:	1,734,165.04 usft	Longitude:	-104.664950
Position Uncertainty		2.68 usft	Wellhead Elevation:	usft	Ground Level:	4,964.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/16/2014	8.33	66.68	52,611

Design	Plan A				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.55	

Survey Program	Date	9/1/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,567.00	Survey #1 CATHEDRAL MWD SURFACE	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,668.00	11,947.00	Survey #2 SDI MWD PRODUCTION (Plan	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

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	
20.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	
109.00	0.30	133.50	109.00	-0.16	0.17	-0.16	0.34	0.34	0.00	
168.00	0.40	136.30	168.00	-0.42	0.42	-0.41	0.17	0.17	4.75	
226.00	0.20	89.20	226.00	-0.56	0.66	-0.55	0.52	-0.34	-81.21	
283.00	0.90	179.70	283.00	-1.01	0.77	-1.00	1.62	1.23	158.77	
344.00	2.10	187.50	343.97	-2.59	0.62	-2.59	1.99	1.97	12.79	
408.00	3.00	196.30	407.91	-5.36	0.00	-5.36	1.53	1.41	13.75	
469.00	3.40	202.30	468.81	-8.57	-1.13	-8.58	0.85	0.66	9.84	
533.00	4.20	208.60	532.67	-12.38	-2.98	-12.41	1.41	1.25	9.84	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BANE 2N3-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Site:	1N-65W-09 Bane Pad	MD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Well:	BANE 2N3-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)
597.00	5.40	211.80	596.45	-17.00	-5.69	-17.05	1.92	1.88	5.00
661.00	5.80	212.40	660.14	-22.29	-9.01	-22.38	0.63	0.63	0.94
725.00	6.60	212.10	723.77	-28.14	-12.69	-28.26	1.25	1.25	-0.47
789.00	7.20	213.70	787.30	-34.59	-16.87	-34.75	0.98	0.94	2.50
853.00	7.80	213.20	850.76	-41.56	-21.48	-41.76	0.94	0.94	-0.78
917.00	8.70	211.80	914.09	-49.31	-26.40	-49.56	1.44	1.41	-2.19
980.00	10.20	211.80	976.24	-58.10	-31.86	-58.40	2.38	2.38	0.00
1,044.00	10.60	207.70	1,039.19	-68.13	-37.58	-68.48	1.31	0.63	-6.41
1,107.00	11.60	204.40	1,101.01	-79.03	-42.89	-79.43	1.88	1.59	-5.24
1,171.00	13.20	200.90	1,163.51	-91.71	-48.15	-92.17	2.76	2.50	-5.47
1,234.00	14.90	197.40	1,224.63	-106.16	-53.14	-106.67	3.02	2.70	-5.56
1,298.00	16.90	196.30	1,286.18	-122.95	-58.21	-123.50	3.16	3.13	-1.72
1,362.00	17.80	194.80	1,347.26	-141.33	-63.32	-141.93	1.57	1.41	-2.34
1,426.00	18.10	195.30	1,408.15	-160.38	-68.45	-161.03	0.53	0.47	0.78
1,489.00	18.50	195.90	1,467.96	-179.43	-73.77	-180.13	0.70	0.63	0.95
1,567.00	19.30	197.50	1,541.76	-203.63	-81.03	-204.40	1.22	1.03	2.05
1,582.00	19.40	197.44	1,555.91	-208.37	-82.53	-209.15	0.70	0.69	-0.37
9 5/8"									
1,668.00	20.00	197.14	1,636.87	-236.05	-91.14	-236.91	0.70	0.69	-0.35
FIRST SDI MWD PRODUCTION SURVEY									
1,763.00	20.50	201.18	1,726.01	-267.09	-101.94	-268.05	1.56	0.53	4.25
1,858.00	20.58	200.97	1,814.97	-298.19	-113.93	-299.27	0.11	0.08	-0.22
1,952.00	19.78	199.18	1,903.20	-328.64	-125.06	-329.83	1.08	-0.85	-1.90
2,047.00	19.94	203.16	1,992.55	-358.72	-136.72	-360.01	1.43	0.17	4.19
2,141.00	19.73	202.40	2,080.97	-388.12	-149.07	-389.54	0.35	-0.22	-0.81
2,236.00	20.46	205.93	2,170.19	-417.88	-162.44	-419.42	1.49	0.77	3.72
2,330.00	20.37	205.77	2,258.29	-447.39	-176.74	-449.07	0.11	-0.10	-0.17
2,425.00	19.60	205.27	2,347.57	-476.69	-190.73	-478.50	0.83	-0.81	-0.53
2,519.00	18.89	205.70	2,436.31	-504.66	-204.06	-506.59	0.77	-0.76	0.46
2,614.00	17.65	206.12	2,526.52	-531.45	-217.07	-533.51	1.31	-1.31	0.44
2,709.00	18.60	205.08	2,616.81	-558.10	-229.83	-560.28	1.06	1.00	-1.09
2,803.00	18.04	201.78	2,706.05	-585.20	-241.58	-587.49	1.25	-0.60	-3.51
2,898.00	16.27	202.01	2,796.82	-611.20	-252.03	-613.59	1.86	-1.86	0.24
2,992.00	16.23	199.89	2,887.06	-635.76	-261.43	-638.24	0.63	-0.04	-2.26
3,087.00	14.68	199.12	2,978.62	-659.62	-269.89	-662.18	1.65	-1.63	-0.81
3,181.00	15.78	197.90	3,069.32	-683.03	-277.72	-685.67	1.22	1.17	-1.30
3,276.00	14.56	197.53	3,161.01	-706.71	-285.29	-709.42	1.29	-1.28	-0.39
3,370.00	13.16	206.20	3,252.28	-727.58	-293.58	-730.37	2.66	-1.49	9.22
3,464.00	10.31	201.52	3,344.31	-745.02	-301.39	-747.87	3.19	-3.03	-4.98
3,559.00	9.02	199.74	3,437.96	-759.93	-307.02	-762.85	1.39	-1.36	-1.87
3,653.00	6.81	208.81	3,531.06	-771.75	-312.20	-774.72	2.69	-2.35	9.65
3,748.00	4.23	205.89	3,625.61	-779.84	-316.44	-782.85	2.73	-2.72	-3.07
3,843.00	3.50	210.48	3,720.40	-785.49	-319.44	-788.52	0.83	-0.77	4.83

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BANE 2N3-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Site:	1N-65W-09 Bane Pad	MD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Well:	BANE 2N3-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)	
3,937.00	1.25	228.18	3,814.31	-788.65	-321.66	-791.70	2.49	-2.39	18.83	
4,032.00	1.22	252.35	3,909.29	-789.65	-323.40	-792.72	0.55	-0.03	25.44	
4,126.00	1.31	292.37	4,003.27	-789.54	-325.35	-792.63	0.93	0.10	42.57	
4,220.00	0.69	277.19	4,097.25	-789.06	-326.90	-792.17	0.71	-0.66	-16.15	
4,315.00	0.57	270.64	4,192.25	-788.99	-327.94	-792.10	0.15	-0.13	-6.89	
4,409.00	0.56	281.67	4,286.24	-788.89	-328.86	-792.01	0.12	-0.01	11.73	
4,504.00	0.65	310.64	4,381.24	-788.44	-329.72	-791.57	0.33	0.09	30.49	
4,598.00	1.09	50.01	4,475.23	-787.52	-329.44	-790.65	1.44	0.47	105.71	
4,693.00	1.05	46.80	4,570.21	-786.35	-328.12	-789.46	0.08	-0.04	-3.38	
4,787.00	0.99	78.58	4,664.20	-785.59	-326.69	-788.69	0.60	-0.06	33.81	
4,882.00	1.13	38.02	4,759.19	-784.69	-325.31	-787.78	0.79	0.15	-42.69	
4,976.00	0.11	239.81	4,853.18	-784.01	-324.82	-787.09	1.31	-1.09	-168.31	
5,071.00	0.61	2.77	4,948.18	-783.55	-324.87	-786.63	0.71	0.53	129.43	
5,165.00	0.99	308.15	5,042.17	-782.55	-325.49	-785.64	0.86	0.40	-58.11	
5,260.00	0.54	90.83	5,137.17	-782.05	-325.68	-785.14	1.53	-0.47	150.19	
5,354.00	1.68	213.31	5,231.15	-783.21	-326.00	-786.30	2.15	1.21	130.30	
5,449.00	1.38	202.01	5,326.12	-785.43	-327.19	-788.54	0.45	-0.32	-11.89	
5,543.00	0.97	209.77	5,420.10	-787.17	-328.01	-790.28	0.47	-0.44	8.26	
5,637.00	0.50	166.60	5,514.09	-788.26	-328.31	-791.38	0.74	-0.50	-45.93	
5,732.00	0.29	78.04	5,609.09	-788.61	-327.98	-791.73	0.60	-0.22	-93.22	
5,826.00	1.09	8.37	5,703.08	-787.68	-327.62	-790.79	1.09	0.85	-74.12	
5,921.00	1.10	245.46	5,798.08	-787.16	-328.31	-790.28	2.03	0.01	-129.38	
6,016.00	0.74	287.10	5,893.06	-787.36	-329.73	-790.49	0.77	-0.38	43.83	
6,110.00	1.11	212.42	5,987.05	-787.95	-330.80	-791.09	1.23	0.39	-79.45	
6,205.00	0.96	185.71	6,082.04	-789.52	-331.37	-792.67	0.53	-0.16	-28.12	
6,299.00	0.52	169.20	6,176.03	-790.72	-331.37	-793.87	0.52	-0.47	-17.56	
6,394.00	0.93	112.97	6,271.02	-791.45	-330.58	-794.59	0.81	0.43	-59.19	
6,488.00	0.82	94.97	6,365.01	-791.80	-329.21	-794.93	0.31	-0.12	-19.15	
6,582.00	0.71	51.69	6,459.01	-791.50	-328.08	-794.61	0.61	-0.12	-46.04	
6,677.00	9.84	8.75	6,553.51	-783.10	-326.38	-786.19	9.82	9.61	-45.20	
6,771.00	17.57	7.18	6,644.77	-761.05	-323.38	-764.12	8.23	8.22	-1.67	
6,866.00	24.76	4.33	6,733.30	-726.94	-320.08	-729.98	7.64	7.57	-3.00	
6,960.00	31.92	1.87	6,815.99	-682.41	-317.78	-685.43	7.72	7.62	-2.62	
7,055.00	40.56	357.35	6,892.55	-626.34	-318.39	-629.37	9.51	9.09	-4.76	
7,149.00	50.67	355.01	6,958.22	-559.42	-322.98	-562.49	10.90	10.76	-2.49	
7,244.00	59.49	0.10	7,012.57	-481.70	-326.11	-484.81	10.27	9.28	5.36	
7,338.00	68.05	4.73	7,054.10	-397.57	-322.44	-400.65	10.12	9.11	4.93	
7,433.00	74.68	6.46	7,084.44	-308.04	-313.64	-311.04	7.19	6.98	1.82	
7,527.00	80.62	6.02	7,104.53	-216.80	-303.67	-219.70	6.34	6.32	-0.47	
7,585.00	84.35	3.67	7,112.12	-159.52	-298.82	-162.38	7.59	6.44	-4.06	
TOP OF PRODUCTION(460 FSL 1798 FEL)										
7,622.00	86.74	2.18	7,114.99	-122.68	-296.94	-125.52	7.59	6.45	-4.01	
7,717.00	87.51	0.33	7,119.76	-27.83	-294.86	-30.66	2.11	0.81	-1.95	
7,811.00	90.17	359.16	7,121.66	66.14	-295.28	63.31	3.09	2.83	-1.24	

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Site:	1N-65W-09 Bane Pad	MD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Well:	BANE 2N3-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)	
7,905.00	90.91	358.93	7,120.77	160.13	-296.85	157.27	0.82	0.79	-0.24	
8,000.00	89.93	357.63	7,120.08	255.08	-299.70	252.19	1.71	-1.03	-1.37	
8,094.00	89.93	357.51	7,120.19	348.99	-303.68	346.06	0.13	0.00	-0.13	
8,189.00	91.21	359.33	7,119.25	443.95	-306.30	440.98	2.34	1.35	1.92	
8,283.00	91.98	359.02	7,116.63	537.90	-307.65	534.92	0.88	0.82	-0.33	
8,378.00	91.51	359.16	7,113.74	632.84	-309.16	629.84	0.52	-0.49	0.15	
8,473.00	91.14	0.68	7,111.54	727.81	-309.30	724.81	1.65	-0.39	1.60	
8,567.00	90.37	0.66	7,110.30	821.80	-308.20	818.80	0.82	-0.82	-0.02	
8,662.00	91.11	0.10	7,109.07	916.79	-307.57	913.79	0.98	0.78	-0.59	
8,756.00	89.83	359.67	7,108.30	1,010.78	-307.75	1,007.78	1.44	-1.36	-0.46	
8,851.00	90.27	359.09	7,108.22	1,105.78	-308.78	1,102.76	0.77	0.46	-0.61	
8,945.00	89.50	359.12	7,108.41	1,199.76	-310.25	1,196.73	0.82	-0.82	0.03	
9,040.00	89.63	359.05	7,109.13	1,294.75	-311.77	1,291.70	0.16	0.14	-0.07	
9,135.00	90.07	0.67	7,109.38	1,389.74	-312.00	1,386.68	1.77	0.46	1.71	
9,229.00	91.24	0.80	7,108.30	1,483.73	-310.79	1,480.68	1.25	1.24	0.14	
9,324.00	89.80	0.39	7,107.44	1,578.72	-309.81	1,575.67	1.58	-1.52	-0.43	
9,418.00	89.77	2.37	7,107.79	1,672.68	-307.54	1,669.65	2.11	-0.03	2.11	
9,513.00	89.50	359.41	7,108.40	1,767.66	-306.07	1,764.64	3.13	-0.28	-3.12	
9,608.00	90.97	359.22	7,108.01	1,862.65	-307.20	1,859.62	1.56	1.55	-0.20	
9,702.00	90.91	0.04	7,106.47	1,956.63	-307.81	1,953.59	0.87	-0.06	0.87	
9,797.00	89.70	0.73	7,105.96	2,051.63	-307.17	2,048.59	1.47	-1.27	0.73	
9,891.00	89.39	1.28	7,106.71	2,145.61	-305.52	2,142.58	0.67	-0.33	0.59	
9,985.00	91.08	1.96	7,106.32	2,239.57	-302.87	2,236.56	1.94	1.80	0.72	
10,080.00	89.87	1.14	7,105.54	2,334.53	-300.30	2,331.54	1.54	-1.27	-0.86	
10,174.00	88.69	1.28	7,106.72	2,428.50	-298.31	2,425.52	1.26	-1.26	0.15	
10,269.00	90.13	359.30	7,107.70	2,523.48	-297.83	2,520.51	2.58	1.52	-2.08	
10,363.00	88.49	0.71	7,108.83	2,617.47	-297.82	2,614.49	2.30	-1.74	1.50	
10,458.00	89.40	2.15	7,110.58	2,712.42	-295.45	2,709.46	1.79	0.96	1.52	
10,552.00	88.49	0.69	7,112.31	2,806.37	-293.12	2,803.43	1.83	-0.97	-1.55	
10,647.00	88.93	359.46	7,114.45	2,901.35	-293.00	2,898.40	1.37	0.46	-1.29	
10,742.00	90.57	359.85	7,114.86	2,996.34	-293.57	2,993.39	1.77	1.73	0.41	
10,836.00	89.40	0.25	7,114.89	3,090.34	-293.49	3,087.38	1.32	-1.24	0.43	
10,931.00	88.56	0.46	7,116.58	3,185.32	-292.90	3,182.36	0.91	-0.88	0.22	
11,025.00	89.60	359.27	7,118.09	3,279.31	-293.12	3,276.34	1.68	1.11	-1.27	
11,120.00	90.64	359.51	7,117.89	3,374.30	-294.13	3,371.32	1.12	1.09	0.25	
11,214.00	90.00	359.06	7,117.36	3,468.29	-295.31	3,465.30	0.83	-0.68	-0.48	
11,309.00	91.21	359.86	7,116.36	3,563.28	-296.20	3,560.27	1.53	1.27	0.84	
11,403.00	88.86	358.00	7,116.30	3,657.25	-297.96	3,654.22	3.19	-2.50	-1.98	
11,498.00	89.90	358.23	7,117.33	3,752.19	-301.08	3,749.13	1.12	1.09	0.24	
11,592.00	91.31	358.16	7,116.34	3,846.14	-304.04	3,843.04	1.50	1.50	-0.07	
11,687.00	90.30	359.53	7,115.00	3,941.11	-305.96	3,937.99	1.79	-1.06	1.44	
11,781.00	89.60	1.13	7,115.08	4,035.10	-305.42	4,031.98	1.86	-0.74	1.70	
11,889.00	90.91	1.06	7,114.60	4,143.08	-303.35	4,139.98	1.21	1.21	-0.06	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BANE 2N3-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Site:	1N-65W-09 Bane Pad	MD Reference:	GL 4964 & KB 25 @ 4989.00usft (HP 307)
Well:	BANE 2N3-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)
LAST SDI MWD PRODUCTION SURVEY									
11,947.00	90.91	1.06	7,113.68	4,201.06	-302.28	4,197.97	0.00	0.00	0.00
SDI PROJECTION TO TD(486 FNL 1841 FEL)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,582.00	1,555.91	9 5/8"	9.625	13.500	
7,585.00	7,112.12	TOP OF PRODUCTION(460 FSL 1798 FEL)	0.000	7.875	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,668.00	1,636.87	-236.05	-91.14	FIRST SDI MWD PRODUCTION SURVEY	
11,889.00	7,114.60	4,143.08	-303.35	LAST SDI MWD PRODUCTION SURVEY	
11,947.00	7,113.68	4,201.06	-302.28	SDI PROJECTION TO TD(486 FNL 1841 FEL)	

Checked By: _____ Approved By: _____ Date: _____