

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-65W-20 Sarchet 2-20HZ Pad
SARCHET 36G-20HZ**

Plan A

Plan: Permit Rev-3

Standard Planning Report

15 July, 2015

Project: WELD-NAD83-UTMFT13N

Site: 2N-65W-20 Sarchet 2-20HZ Pad

Well: SARCHET 36G-20HZ

Wellbore: Plan A

Design: Permit Rev-3

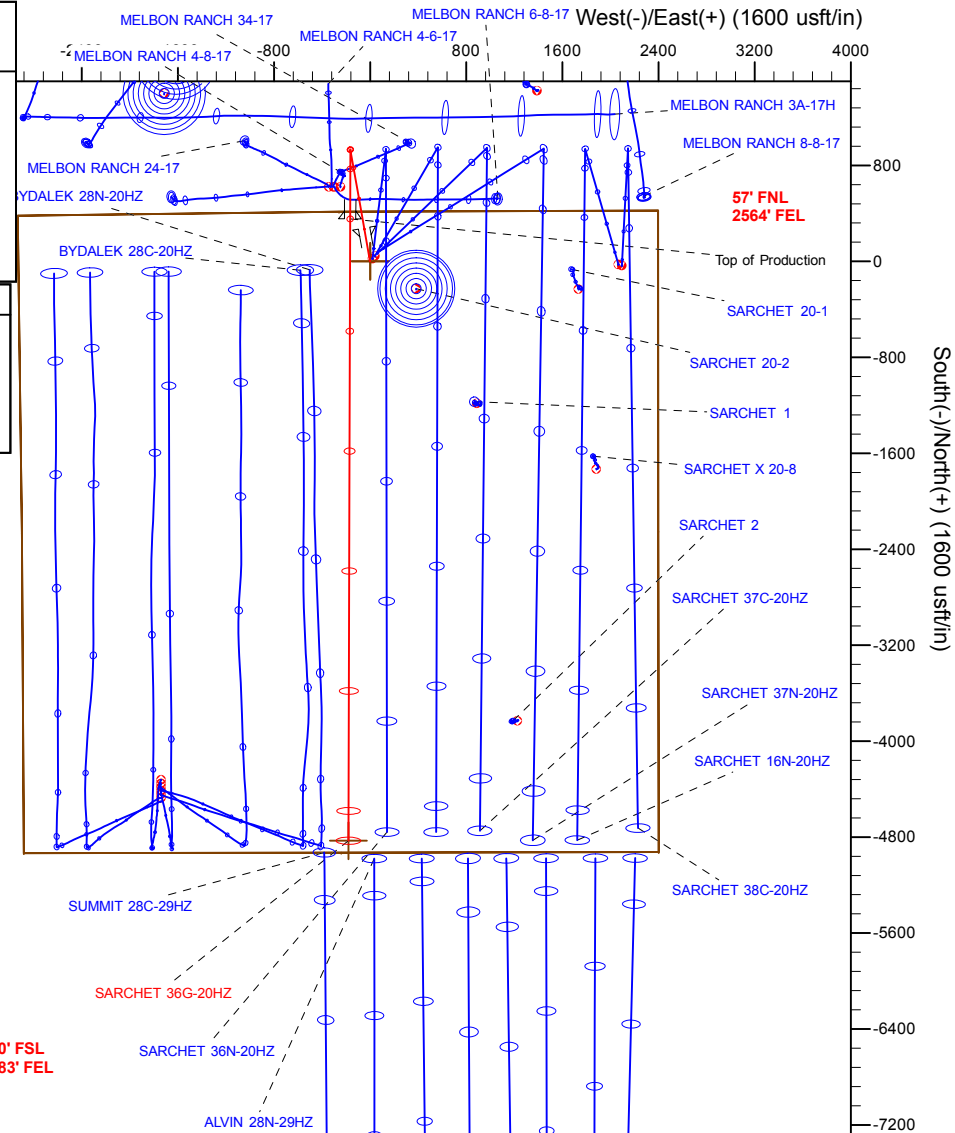
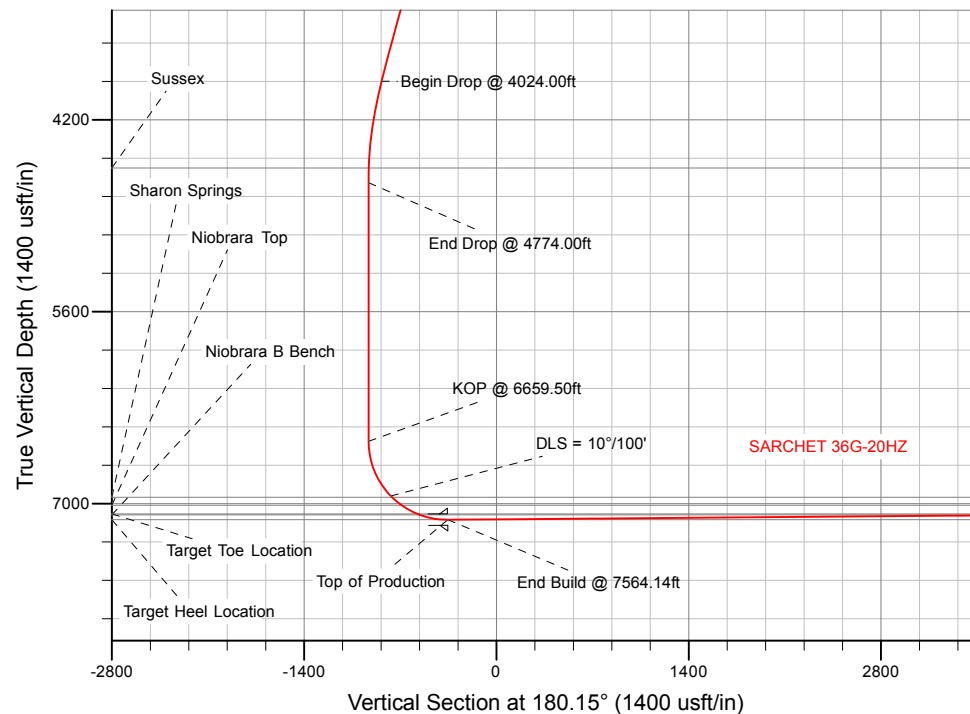
US ROCKIES WATTENBERG PLANNING

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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1250.00	15.00	350.00	1238.62	128.18	-22.60	1.50	350.00	-128.12	
4	4024.00	15.00	350.00	3918.09	835.23	-147.27	0.00	0.00	-834.84	
5	4774.00	0.00	0.00	4659.56	931.37	-164.22	2.00	180.00	-930.93	
6	6659.50	0.00	0.00	6545.06	931.37	-164.22	0.00	0.00	-930.93	
7	7564.14	90.46	180.15	7118.00	353.77	-165.78	10.00	180.15	-353.33	
8	12748.10	90.46	180.15	7076.00	-4830.00	-179.77	0.00	0.00	4830.45	SARCHET 36G-20HZ_Toe

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
SARCHET 36G-20HZ_SHL	0.00	0.00	0.00	40.130297	-104.686994
SARCHET 36G-20HZ_Toe	7076.00	-4830.00	-179.77	40.117033	-104.687637



WELL DETAILS: SARCHET 36G-20HZ

Ground Level: 4914.00

RKB = 17' @ 4931.00usft (D Rig)

Plan: Permit Rev-3 (SARCHET 36G-20HZ/Plan A)

Created By: Clint Eshelman

Date: 7/15/2015

Reviewed: _____

Date: _____

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 36G-20HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Site:	2N-65W-20 Sarchet 2-20HZ Pad	North Reference:	True
Well:	SARCHET 36G-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	2N-65W-20 Sarchet 2-20HZ Pad			
Site Position:		Northing:	14,574,334.44 usft	Latitude: 40.130297
From:	Lat/Long	Easting:	1,727,907.53 usft	Longitude: -104.686994
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.20 °

Well	SARCHET 36G-20HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,574,334.44 usft	Latitude:	40.130297
	+E/-W	0.00 usft	Easting:	1,727,907.53 usft	Longitude:	-104.686994
Position Uncertainty		4.02 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,914.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/2/2015	8.31	66.72	52,614

Design	Permit Rev-3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.15

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	
1,250.00	15.00	350.00	1,238.62	128.18	-22.60	1.50	1.50	0.00	350.00	
4,024.00	15.00	350.00	3,918.09	835.23	-147.27	0.00	0.00	0.00	0.00	
4,774.00	0.00	0.00	4,659.56	931.37	-164.22	2.00	-2.00	0.00	180.00	
6,659.50	0.00	0.00	6,545.06	931.37	-164.22	0.00	0.00	0.00	0.00	
7,564.14	90.46	180.15	7,118.00	353.77	-165.78	10.00	10.00	-19.88	180.15	
12,748.10	90.46	180.15	7,076.00	-4,830.00	-179.77	0.00	0.00	0.00	0.00	SARCHET 36G-20HZ

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 36G-20HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Site:	2N-65W-20 Sarchet 2-20HZ Pad	North Reference:	True
Well:	SARCHET 36G-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	350.00	300.00	0.32	-0.06	-0.32	1.50	1.50	0.00
400.00	2.25	350.00	399.96	2.90	-0.51	-2.90	1.50	1.50	0.00
500.00	3.75	350.00	499.82	8.05	-1.42	-8.05	1.50	1.50	0.00
600.00	5.25	350.00	599.51	15.78	-2.78	-15.77	1.50	1.50	0.00
700.00	6.75	350.00	698.96	26.07	-4.60	-26.06	1.50	1.50	0.00
800.00	8.25	350.00	798.10	38.93	-6.86	-38.91	1.50	1.50	0.00
900.00	9.75	350.00	896.87	54.33	-9.58	-54.31	1.50	1.50	0.00
1,000.00	11.25	350.00	995.19	72.28	-12.74	-72.25	1.50	1.50	0.00
1,100.00	12.75	350.00	1,093.00	92.75	-16.36	-92.71	1.50	1.50	0.00
1,200.00	14.25	350.00	1,190.24	115.74	-20.41	-115.69	1.50	1.50	0.00
1,250.00	15.00	350.00	1,238.62	128.18	-22.60	-128.12	1.50	1.50	0.00
End Nudge @ 1250.00ft									
1,300.00	15.00	350.00	1,286.91	140.92	-24.85	-140.86	0.00	0.00	0.00
1,400.00	15.00	350.00	1,383.50	166.41	-29.34	-166.33	0.00	0.00	0.00
1,500.00	15.00	350.00	1,480.10	191.90	-33.84	-191.81	0.00	0.00	0.00
1,600.00	15.00	350.00	1,576.69	217.39	-38.33	-217.29	0.00	0.00	0.00
1,700.00	15.00	350.00	1,673.28	242.88	-42.83	-242.76	0.00	0.00	0.00
1,800.00	15.00	350.00	1,769.88	268.36	-47.32	-268.24	0.00	0.00	0.00
1,831.19	15.00	350.00	1,800.00	276.31	-48.72	-276.19	0.00	0.00	0.00
9 5/8"									
1,900.00	15.00	350.00	1,866.47	293.85	-51.81	-293.72	0.00	0.00	0.00
2,000.00	15.00	350.00	1,963.06	319.34	-56.31	-319.19	0.00	0.00	0.00
2,100.00	15.00	350.00	2,059.65	344.83	-60.80	-344.67	0.00	0.00	0.00
2,200.00	15.00	350.00	2,156.25	370.32	-65.30	-370.15	0.00	0.00	0.00
2,300.00	15.00	350.00	2,252.84	395.81	-69.79	-395.62	0.00	0.00	0.00
2,400.00	15.00	350.00	2,349.43	421.30	-74.29	-421.10	0.00	0.00	0.00
2,500.00	15.00	350.00	2,446.02	446.79	-78.78	-446.58	0.00	0.00	0.00
2,600.00	15.00	350.00	2,542.62	472.27	-83.27	-472.05	0.00	0.00	0.00
2,700.00	15.00	350.00	2,639.21	497.76	-87.77	-497.53	0.00	0.00	0.00
2,800.00	15.00	350.00	2,735.80	523.25	-92.26	-523.01	0.00	0.00	0.00
2,900.00	15.00	350.00	2,832.39	548.74	-96.76	-548.48	0.00	0.00	0.00
3,000.00	15.00	350.00	2,928.99	574.23	-101.25	-573.96	0.00	0.00	0.00
3,100.00	15.00	350.00	3,025.58	599.72	-105.75	-599.44	0.00	0.00	0.00
3,200.00	15.00	350.00	3,122.17	625.21	-110.24	-624.92	0.00	0.00	0.00
3,300.00	15.00	350.00	3,218.76	650.69	-114.74	-650.39	0.00	0.00	0.00
3,400.00	15.00	350.00	3,315.36	676.18	-119.23	-675.87	0.00	0.00	0.00
3,500.00	15.00	350.00	3,411.95	701.67	-123.72	-701.35	0.00	0.00	0.00
3,600.00	15.00	350.00	3,508.54	727.16	-128.22	-726.82	0.00	0.00	0.00
3,700.00	15.00	350.00	3,605.13	752.65	-132.71	-752.30	0.00	0.00	0.00
3,800.00	15.00	350.00	3,701.73	778.14	-137.21	-777.78	0.00	0.00	0.00
3,900.00	15.00	350.00	3,798.32	803.63	-141.70	-803.25	0.00	0.00	0.00
4,000.00	15.00	350.00	3,894.91	829.12	-146.20	-828.73	0.00	0.00	0.00
4,024.00	15.00	350.00	3,918.09	835.23	-147.27	-834.84	0.00	0.00	0.00
Begin Drop @ 4024.00ft									
4,100.00	13.48	350.00	3,991.76	853.64	-150.52	-853.25	2.00	-2.00	0.00
4,200.00	11.48	350.00	4,089.39	874.92	-154.27	-874.52	2.00	-2.00	0.00
4,300.00	9.48	350.00	4,187.72	892.84	-157.43	-892.42	2.00	-2.00	0.00
4,400.00	7.48	350.00	4,286.62	907.36	-159.99	-906.94	2.00	-2.00	0.00
4,500.00	5.48	350.00	4,385.97	918.47	-161.95	-918.04	2.00	-2.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 36G-20HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Site:	2N-65W-20 Sarchet 2-20HZ Pad	North Reference:	True
Well:	SARCHET 36G-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	3.48	350.00	4,485.66	926.16	-163.31	-925.73	2.00	-2.00	0.00
4,665.42	2.17	350.00	4,551.00	929.34	-163.87	-928.91	2.00	-2.00	0.00
Sussex									
4,700.00	1.48	350.00	4,585.56	930.42	-164.06	-929.99	2.00	-2.00	0.00
4,774.00	0.00	0.00	4,659.56	931.37	-164.22	-930.93	2.00	-2.00	0.00
End Drop @ 4774.00ft									
4,800.00	0.00	0.00	4,685.56	931.37	-164.22	-930.93	0.00	0.00	0.00
4,900.00	0.00	0.00	4,785.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,000.00	0.00	0.00	4,885.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,100.00	0.00	0.00	4,985.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,200.00	0.00	0.00	5,085.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,300.00	0.00	0.00	5,185.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,400.00	0.00	0.00	5,285.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,500.00	0.00	0.00	5,385.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,600.00	0.00	0.00	5,485.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,700.00	0.00	0.00	5,585.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,800.00	0.00	0.00	5,685.56	931.37	-164.22	-930.93	0.00	0.00	0.00
5,900.00	0.00	0.00	5,785.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,000.00	0.00	0.00	5,885.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,100.00	0.00	0.00	5,985.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,200.00	0.00	0.00	6,085.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,300.00	0.00	0.00	6,185.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,400.00	0.00	0.00	6,285.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,500.00	0.00	0.00	6,385.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,600.00	0.00	0.00	6,485.56	931.37	-164.22	-930.93	0.00	0.00	0.00
6,659.50	0.00	0.00	6,545.06	931.37	-164.22	-930.93	0.00	0.00	0.00
KOP @ 6659.50ft									
6,700.00	4.05	180.15	6,585.52	929.93	-164.23	-929.50	10.00	10.00	0.00
6,800.00	14.05	180.15	6,684.15	914.22	-164.27	-913.79	10.00	10.00	0.00
6,900.00	24.05	180.15	6,778.56	881.63	-164.36	-881.19	10.00	10.00	0.00
7,000.00	34.05	180.15	6,865.86	833.13	-164.49	-832.70	10.00	10.00	0.00
7,100.00	44.05	180.15	6,943.43	770.21	-164.66	-769.78	10.00	10.00	0.00
DLS = 10°/100'									
7,115.51	45.60	180.15	6,954.42	759.28	-164.69	-758.85	10.00	10.00	0.00
Sharon Springs									
7,200.00	54.05	180.15	7,008.88	694.78	-164.86	-694.35	10.00	10.00	0.00
7,206.08	54.66	180.15	7,012.42	689.84	-164.88	-689.41	10.00	10.00	0.00
Niobrara Top									
7,300.00	64.05	180.15	7,060.25	609.13	-165.09	-608.69	10.00	10.00	0.00
7,355.31	69.58	180.15	7,082.01	558.30	-165.23	-557.87	10.00	10.00	0.00
Niobrara B Bench									
7,400.00	74.05	180.15	7,095.96	515.86	-165.35	-515.42	10.00	10.00	0.00
7,500.00	84.05	180.15	7,114.93	417.80	-165.61	-417.37	10.00	10.00	0.00
7,564.14	90.46	180.15	7,118.00	353.77	-165.78	-353.33	10.00	10.00	0.00
End Build @ 7564.14ft - Target Heel Location - Top of Production									
7,600.00	90.46	180.15	7,117.70	317.91	-165.88	-317.48	0.00	0.00	0.00
7,700.00	90.46	180.15	7,116.89	217.91	-166.15	-217.48	0.00	0.00	0.00
7,800.00	90.46	180.15	7,116.08	117.92	-166.42	-117.48	0.00	0.00	0.00
7,900.00	90.46	180.15	7,115.27	17.92	-166.69	-17.49	0.00	0.00	0.00
8,000.00	90.46	180.15	7,114.46	-82.07	-166.96	82.51	0.00	0.00	0.00
8,100.00	90.46	180.15	7,113.65	-182.07	-167.23	182.51	0.00	0.00	0.00
8,200.00	90.46	180.15	7,112.84	-282.07	-167.50	282.50	0.00	0.00	0.00
8,300.00	90.46	180.15	7,112.03	-382.06	-167.77	382.50	0.00	0.00	0.00

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 36G-20HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Site:	2N-65W-20 Sarchet 2-20HZ Pad	North Reference:	True
Well:	SARCHET 36G-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
8,400.00	90.46	180.15	7,111.22	-482.06	-168.04	482.50	0.00	0.00	0.00
8,500.00	90.46	180.15	7,110.41	-582.06	-168.31	582.49	0.00	0.00	0.00
8,600.00	90.46	180.15	7,109.60	-682.05	-168.58	682.49	0.00	0.00	0.00
8,700.00	90.46	180.15	7,108.79	-782.05	-168.85	782.49	0.00	0.00	0.00
8,800.00	90.46	180.15	7,107.98	-882.05	-169.12	882.49	0.00	0.00	0.00
8,900.00	90.46	180.15	7,107.17	-982.04	-169.39	982.48	0.00	0.00	0.00
9,000.00	90.46	180.15	7,106.36	-1,082.04	-169.66	1,082.48	0.00	0.00	0.00
9,100.00	90.46	180.15	7,105.55	-1,182.03	-169.93	1,182.48	0.00	0.00	0.00
9,200.00	90.46	180.15	7,104.74	-1,282.03	-170.20	1,282.47	0.00	0.00	0.00
9,300.00	90.46	180.15	7,103.93	-1,382.03	-170.47	1,382.47	0.00	0.00	0.00
9,400.00	90.46	180.15	7,103.12	-1,482.02	-170.74	1,482.47	0.00	0.00	0.00
9,500.00	90.46	180.15	7,102.31	-1,582.02	-171.01	1,582.46	0.00	0.00	0.00
9,600.00	90.46	180.15	7,101.50	-1,682.02	-171.28	1,682.46	0.00	0.00	0.00
9,700.00	90.46	180.15	7,100.69	-1,782.01	-171.55	1,782.46	0.00	0.00	0.00
9,800.00	90.46	180.15	7,099.88	-1,882.01	-171.82	1,882.45	0.00	0.00	0.00
9,900.00	90.46	180.15	7,099.07	-1,982.01	-172.09	1,982.45	0.00	0.00	0.00
10,000.00	90.46	180.15	7,098.26	-2,082.00	-172.36	2,082.45	0.00	0.00	0.00
10,100.00	90.46	180.15	7,097.45	-2,182.00	-172.63	2,182.44	0.00	0.00	0.00
10,200.00	90.46	180.15	7,096.64	-2,281.99	-172.90	2,282.44	0.00	0.00	0.00
10,300.00	90.46	180.15	7,095.83	-2,381.99	-173.16	2,382.44	0.00	0.00	0.00
10,400.00	90.46	180.15	7,095.02	-2,481.99	-173.43	2,482.43	0.00	0.00	0.00
10,500.00	90.46	180.15	7,094.21	-2,581.98	-173.70	2,582.43	0.00	0.00	0.00
10,600.00	90.46	180.15	7,093.40	-2,681.98	-173.97	2,682.43	0.00	0.00	0.00
10,700.00	90.46	180.15	7,092.59	-2,781.98	-174.24	2,782.42	0.00	0.00	0.00
10,800.00	90.46	180.15	7,091.78	-2,881.97	-174.51	2,882.42	0.00	0.00	0.00
10,900.00	90.46	180.15	7,090.97	-2,981.97	-174.78	2,982.42	0.00	0.00	0.00
11,000.00	90.46	180.15	7,090.16	-3,081.97	-175.05	3,082.41	0.00	0.00	0.00
11,100.00	90.46	180.15	7,089.35	-3,181.96	-175.32	3,182.41	0.00	0.00	0.00
11,200.00	90.46	180.15	7,088.54	-3,281.96	-175.59	3,282.41	0.00	0.00	0.00
11,300.00	90.46	180.15	7,087.73	-3,381.95	-175.86	3,382.40	0.00	0.00	0.00
11,400.00	90.46	180.15	7,086.92	-3,481.95	-176.13	3,482.40	0.00	0.00	0.00
11,500.00	90.46	180.15	7,086.11	-3,581.95	-176.40	3,582.40	0.00	0.00	0.00
11,600.00	90.46	180.15	7,085.30	-3,681.94	-176.67	3,682.39	0.00	0.00	0.00
11,700.00	90.46	180.15	7,084.49	-3,781.94	-176.94	3,782.39	0.00	0.00	0.00
11,800.00	90.46	180.15	7,083.68	-3,881.94	-177.21	3,882.39	0.00	0.00	0.00
11,900.00	90.46	180.15	7,082.87	-3,981.93	-177.48	3,982.38	0.00	0.00	0.00
12,000.00	90.46	180.15	7,082.06	-4,081.93	-177.75	4,082.38	0.00	0.00	0.00
12,100.00	90.46	180.15	7,081.25	-4,181.93	-178.02	4,182.38	0.00	0.00	0.00
12,200.00	90.46	180.15	7,080.44	-4,281.92	-178.29	4,282.37	0.00	0.00	0.00
12,300.00	90.46	180.15	7,079.63	-4,381.92	-178.56	4,382.37	0.00	0.00	0.00
12,400.00	90.46	180.15	7,078.82	-4,481.91	-178.83	4,482.37	0.00	0.00	0.00
12,500.00	90.46	180.15	7,078.01	-4,581.91	-179.10	4,582.36	0.00	0.00	0.00
12,600.00	90.46	180.15	7,077.20	-4,681.91	-179.37	4,682.36	0.00	0.00	0.00
12,700.00	90.46	180.15	7,076.39	-4,781.90	-179.64	4,782.36	0.00	0.00	0.00
12,748.10	90.46	180.15	7,076.00	-4,830.00	-179.77	4,830.45	0.00	0.00	0.00
TD Well @ 12748.10ft									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SARCHET 36G-20HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4931.00usft (D Rig)
Site:	2N-65W-20 Sarchet 2-20HZ Pad	North Reference:	True
Well:	SARCHET 36G-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
2N-R65W-Sec. 20_Secti	0.00	0.00	0.00	0.00	0.00	14,574,334.44	1,727,907.53	40.130297	-104.686994
- plan hits target center									
- Polygon									
Point 1			0.00	381.31	-2,931.37	14,574,705.42	1,724,974.83		
Point 2			0.00	414.96	-258.73	14,574,748.49	1,727,647.34		
Point 3			0.00	423.27	2,395.73	14,574,766.14	1,730,301.75		
Point 4			0.00	-2,249.64	2,397.94	14,572,093.26	1,730,313.38		
Point 5			0.00	-4,924.40	2,401.88	14,569,418.53	1,730,326.73		
Point 6			0.00	-4,930.08	-239.50	14,569,403.55	1,727,685.39		
Point 7			0.00	-4,935.12	-2,880.40	14,569,389.21	1,725,044.52		
Point 8			0.00	-2,264.01	-2,897.31	14,572,060.24	1,725,018.21		
SARCHET 36G-20HZ_S	0.00	0.00	0.00	0.00	0.00	14,574,334.44	1,727,907.53	40.130297	-104.686994
- plan hits target center									
- Point									
SARCHET 36G-20HZ_T	0.00	0.00	7,076.00	-4,830.00	-179.77	14,569,503.84	1,727,744.77	40.117033	-104.687637
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,831.19	1,800.00	9 5/8"	9-5/8	13-1/2	
7,564.14	7,118.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,665.42	4,551.00	Sussex		0.00		
7,115.51	6,954.42	Sharon Springs		0.00		
7,206.08	7,012.42	Niobrara Top		0.00		
12,748.10	7,076.00	Target Toe Location		0.00		
7,355.31	7,082.01	Niobrara B Bench		0.00		
7,564.14	7,118.00	Target Heel Location		0.00		

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	
1,250.00	1,238.62	128.18	-22.60	End Nudge @ 1250.00ft	
4,024.00	3,918.09	835.23	-147.27	Begin Drop @ 4024.00ft	
4,774.00	4,659.56	931.37	-164.22	End Drop @ 4774.00ft	
6,659.50	6,545.06	931.37	-164.22	KOP @ 6659.50ft	
7,100.00	6,943.43	770.21	-164.66	DLS = 10°/100'	
7,564.14	7,118.00	353.77	-165.78	End Build @ 7564.14ft	
12,748.10	7,076.00	-4,830.00	-179.77	TD Well @ 12748.10ft	