

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

**1N-67W-02 Camenisch 13-2HZ Pad**

**CAMENISCH 30N-35HZ**

**Plan A**

**Plan: Permit Rev-1**

## **Standard Survey Report**

**10 March, 2016**

# US ROCKIES WATTENBERG PLANNING

**WELL DETAILS: CAMENISCH 30N-35HZ**

Ground Level:	5036.00
RKB = 17' @ 5053.00usft (D Rig)	
Plan: Permit Rev-1 (CAMENISCH 30N-35HZ/Plan A)	
Created By: Clint Eshelman	Date: 3/10/2015
Reviewed: _____	Date: _____

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 30N-35HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Site:</b>	1N-67W-02 Camenisch 13-2HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

<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-67W-02 Camenisch 13-2HZ Pad				
Site Position:		Northing:	14,553,689.51 usft	Latitude:	40.073947
From:	Lat/Long	Easting:	1,678,273.09 usft	Longitude:	-104.864677
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.09 °

Well		CAMENISCH 30N-35HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,553,689.51 usft	Latitude:	40.073947
	+E/-W	0.00 usft	Easting:	1,678,273.09 usft	Longitude:	-104.864677
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,036.00 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>
	IGRF2010	3/7/2016	8.25	66.61	52,450

<b>Design</b>	Permit Rev-1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	358.94	

<b>Survey Tool Program</b>	<b>Date</b>	3/9/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	1,800.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,800.00	13,999.24	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<b>Planned Survey</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>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
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	
240.00	0.00	0.00	240.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Begin Nudge @ 240.00ft</b>										
300.00	0.90	206.00	300.00	-0.42	-0.21	-0.42	1.50	1.50	0.00	
400.00	2.40	206.00	399.95	-3.01	-1.47	-2.98	1.50	1.50	0.00	
500.00	3.90	206.00	499.80	-7.95	-3.88	-7.88	1.50	1.50	0.00	
600.00	5.40	206.00	599.47	-15.24	-7.43	-15.10	1.50	1.50	0.00	
700.00	6.90	206.00	698.89	-24.87	-12.13	-24.64	1.50	1.50	0.00	

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 30N-35HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Site:</b>	1N-67W-02 Camenisch 13-2HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
800.00	8.40	206.00	798.00	-36.83	-17.96	-36.49	1.50	1.50	0.00
900.00	9.90	206.00	896.72	-51.12	-24.93	-50.65	1.50	1.50	0.00
1,000.00	11.40	206.00	995.00	-67.73	-33.04	-67.11	1.50	1.50	0.00
1,100.00	12.90	206.00	1,092.75	-86.65	-42.26	-85.85	1.50	1.50	0.00
1,200.00	14.40	206.00	1,189.93	-107.86	-52.61	-106.87	1.50	1.50	0.00
1,300.00	15.90	206.00	1,286.45	-131.35	-64.06	-130.14	1.50	1.50	0.00
1,306.67	16.00	206.00	1,292.86	-132.99	-64.87	-131.77	1.50	1.50	0.00
<b>End Nudge @ 1306.67ft</b>									
1,391.08	16.00	206.00	1,374.00	-153.91	-75.07	-152.49	0.00	0.00	0.00
<b>Fox Hills</b>									
1,400.00	16.00	206.00	1,382.57	-156.12	-76.14	-154.68	0.00	0.00	0.00
1,500.00	16.00	206.00	1,478.70	-180.89	-88.23	-179.23	0.00	0.00	0.00
1,600.00	16.00	206.00	1,574.83	-205.66	-100.31	-203.77	0.00	0.00	0.00
1,700.00	16.00	206.00	1,670.95	-230.44	-112.39	-228.32	0.00	0.00	0.00
1,800.00	16.00	206.00	1,767.08	-255.21	-124.48	-252.87	0.00	0.00	0.00
1,834.25	16.00	206.00	1,800.00	-263.70	-128.61	-261.27	0.00	0.00	0.00
<b>9 5/8"</b>									
1,900.00	16.00	206.00	1,863.21	-279.99	-136.56	-277.41	0.00	0.00	0.00
2,000.00	16.00	206.00	1,959.33	-304.76	-148.64	-301.96	0.00	0.00	0.00
2,100.00	16.00	206.00	2,055.46	-329.54	-160.73	-326.51	0.00	0.00	0.00
2,200.00	16.00	206.00	2,151.58	-354.31	-172.81	-351.05	0.00	0.00	0.00
2,300.00	16.00	206.00	2,247.71	-379.08	-184.89	-375.60	0.00	0.00	0.00
2,400.00	16.00	206.00	2,343.84	-403.86	-196.97	-400.14	0.00	0.00	0.00
2,500.00	16.00	206.00	2,439.96	-428.63	-209.06	-424.69	0.00	0.00	0.00
2,600.00	16.00	206.00	2,536.09	-453.41	-221.14	-449.24	0.00	0.00	0.00
2,700.00	16.00	206.00	2,632.22	-478.18	-233.22	-473.78	0.00	0.00	0.00
2,800.00	16.00	206.00	2,728.34	-502.95	-245.31	-498.33	0.00	0.00	0.00
2,900.00	16.00	206.00	2,824.47	-527.73	-257.39	-522.88	0.00	0.00	0.00
3,000.00	16.00	206.00	2,920.59	-552.50	-269.47	-547.42	0.00	0.00	0.00
3,100.00	16.00	206.00	3,016.72	-577.28	-281.56	-571.97	0.00	0.00	0.00
3,200.00	16.00	206.00	3,112.85	-602.05	-293.64	-596.52	0.00	0.00	0.00
3,300.00	16.00	206.00	3,208.97	-626.82	-305.72	-621.06	0.00	0.00	0.00
3,400.00	16.00	206.00	3,305.10	-651.60	-317.81	-645.61	0.00	0.00	0.00
3,500.00	16.00	206.00	3,401.22	-676.37	-329.89	-670.15	0.00	0.00	0.00
3,600.00	16.00	206.00	3,497.35	-701.15	-341.97	-694.70	0.00	0.00	0.00
3,700.00	16.00	206.00	3,593.48	-725.92	-354.06	-719.25	0.00	0.00	0.00
3,800.00	16.00	206.00	3,689.60	-750.70	-366.14	-743.79	0.00	0.00	0.00
3,900.00	16.00	206.00	3,785.73	-775.47	-378.22	-768.34	0.00	0.00	0.00
4,000.00	16.00	206.00	3,881.86	-800.24	-390.30	-792.89	0.00	0.00	0.00
4,076.67	16.00	206.00	3,955.56	-819.24	-399.57	-811.71	0.00	0.00	0.00
<b>Begin Drop @ 4076.67ft</b>									
4,100.00	15.53	206.00	3,978.01	-824.94	-402.35	-817.35	2.00	-2.00	0.00
4,200.00	13.53	206.00	4,074.80	-847.49	-413.35	-839.70	2.00	-2.00	0.00
4,300.00	11.53	206.00	4,172.41	-866.99	-422.86	-859.02	2.00	-2.00	0.00

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<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
4,400.00	9.53	206.00	4,270.72	-883.42	-430.87	-875.30	2.00	-2.00	0.00
4,500.00	7.53	206.00	4,369.61	-896.76	-437.38	-888.51	2.00	-2.00	0.00
4,600.00	5.53	206.00	4,468.96	-906.98	-442.37	-898.65	2.00	-2.00	0.00
4,700.00	3.53	206.00	4,568.64	-914.09	-445.83	-905.68	2.00	-2.00	0.00
4,732.41	2.89	206.00	4,601.00	-915.72	-446.63	-907.30	2.00	-2.00	0.00
<b>Sussex</b>									
4,800.00	1.53	206.00	4,668.54	-918.06	-447.77	-909.62	2.00	-2.00	0.00
4,876.67	0.00	0.00	4,745.20	-918.98	-448.22	-910.53	2.00	-2.00	0.00
<b>End Drop @ 4876.67ft</b>									
4,900.00	0.00	0.00	4,768.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,000.00	0.00	0.00	4,868.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,100.00	0.00	0.00	4,968.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,200.00	0.00	0.00	5,068.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,300.00	0.00	0.00	5,168.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,400.00	0.00	0.00	5,268.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,500.00	0.00	0.00	5,368.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,600.00	0.00	0.00	5,468.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,700.00	0.00	0.00	5,568.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,800.00	0.00	0.00	5,668.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
5,900.00	0.00	0.00	5,768.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,000.00	0.00	0.00	5,868.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,100.00	0.00	0.00	5,968.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,200.00	0.00	0.00	6,068.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,300.00	0.00	0.00	6,168.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,400.00	0.00	0.00	6,268.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,500.00	0.00	0.00	6,368.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,600.00	0.00	0.00	6,468.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,700.00	0.00	0.00	6,568.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,800.00	0.00	0.00	6,668.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
6,900.00	0.00	0.00	6,768.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
7,000.00	0.00	0.00	6,868.53	-918.98	-448.22	-910.53	0.00	0.00	0.00
7,028.85	0.00	0.00	6,897.38	-918.98	-448.22	-910.53	0.00	0.00	0.00
<b>KOP @ 7028.85ft</b>									
7,100.00	6.40	358.94	6,968.38	-915.01	-448.29	-906.56	9.00	9.00	0.00
7,200.00	15.40	358.94	7,066.47	-896.12	-448.64	-887.67	9.00	9.00	0.00
7,300.00	24.40	358.94	7,160.40	-862.12	-449.27	-853.66	9.00	9.00	0.00
7,400.00	33.40	358.94	7,247.86	-813.84	-450.17	-805.37	9.00	9.00	0.00
7,466.03	39.35	358.94	7,301.00	-774.70	-450.89	-766.23	9.00	9.00	0.00
<b>Sharon Springs</b>									
7,500.00	42.40	358.94	7,326.68	-752.48	-451.30	-744.00	9.00	9.00	0.00
<b>DLS = 9°/100'</b>									
7,533.77	45.44	358.94	7,351.00	-729.06	-451.74	-720.58	9.00	9.00	0.00
<b>Niobrara</b>									
7,600.00	51.40	358.94	7,394.93	-679.55	-452.65	-671.06	9.00	9.00	0.00

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## Survey Report

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<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
7,696.10	60.05	358.94	7,449.00	-600.22	-454.12	-591.72	9.00	9.00	0.00
<b>Nio B</b>									
7,700.00	60.40	358.94	7,450.94	-596.84	-454.18	-588.33	9.00	9.00	0.00
7,800.00	69.40	358.94	7,493.31	-506.39	-455.86	-497.87	9.00	9.00	0.00
7,853.50	74.22	358.94	7,510.00	-455.59	-456.80	-447.06	9.00	9.00	0.00
<b>Nio C</b>									
7,900.00	78.40	358.94	7,521.00	-410.42	-457.64	-401.89	9.00	9.00	0.00
8,000.00	87.40	358.94	7,533.34	-311.31	-459.47	-302.75	9.00	9.00	0.00
8,027.14	89.85	358.94	7,534.00	-284.18	-459.97	-275.62	9.00	9.00	0.00
<b>End Build @ 8027.14ft - Top of Production</b>									
8,100.00	89.85	358.94	7,534.19	-211.33	-461.32	-202.76	0.00	0.00	0.00
8,200.00	89.85	358.94	7,534.46	-111.35	-463.18	-102.76	0.00	0.00	0.00
8,300.00	89.85	358.94	7,534.73	-11.37	-465.03	-2.76	0.00	0.00	0.00
8,400.00	89.85	358.94	7,535.00	88.61	-466.88	97.23	0.00	0.00	0.00
8,500.00	89.85	358.94	7,535.26	188.60	-468.73	197.23	0.00	0.00	0.00
8,600.00	89.85	358.94	7,535.53	288.58	-470.58	297.23	0.00	0.00	0.00
8,700.00	89.85	358.94	7,535.80	388.56	-472.43	397.23	0.00	0.00	0.00
8,800.00	89.85	358.94	7,536.07	488.54	-474.29	497.23	0.00	0.00	0.00
8,900.00	89.85	358.94	7,536.34	588.53	-476.14	597.23	0.00	0.00	0.00
9,000.00	89.85	358.94	7,536.60	688.51	-477.99	697.23	0.00	0.00	0.00
9,100.00	89.85	358.94	7,536.87	788.49	-479.84	797.23	0.00	0.00	0.00
9,200.00	89.85	358.94	7,537.14	888.47	-481.69	897.23	0.00	0.00	0.00
9,300.00	89.85	358.94	7,537.41	988.46	-483.54	997.23	0.00	0.00	0.00
9,400.00	89.85	358.94	7,537.67	1,088.44	-485.40	1,097.23	0.00	0.00	0.00
9,500.00	89.85	358.94	7,537.94	1,188.42	-487.25	1,197.23	0.00	0.00	0.00
9,600.00	89.85	358.94	7,538.21	1,288.40	-489.10	1,297.23	0.00	0.00	0.00
9,700.00	89.85	358.94	7,538.48	1,388.39	-490.95	1,397.23	0.00	0.00	0.00
9,800.00	89.85	358.94	7,538.75	1,488.37	-492.80	1,497.23	0.00	0.00	0.00
9,900.00	89.85	358.94	7,539.01	1,588.35	-494.65	1,597.23	0.00	0.00	0.00
10,000.00	89.85	358.94	7,539.28	1,688.33	-496.51	1,697.23	0.00	0.00	0.00
10,100.00	89.85	358.94	7,539.55	1,788.32	-498.36	1,797.23	0.00	0.00	0.00
10,200.00	89.85	358.94	7,539.82	1,888.30	-500.21	1,897.23	0.00	0.00	0.00
10,300.00	89.85	358.94	7,540.09	1,988.28	-502.06	1,997.23	0.00	0.00	0.00
10,400.00	89.85	358.94	7,540.35	2,088.26	-503.91	2,097.23	0.00	0.00	0.00
10,500.00	89.85	358.94	7,540.62	2,188.25	-505.76	2,197.23	0.00	0.00	0.00
10,600.00	89.85	358.94	7,540.89	2,288.23	-507.62	2,297.23	0.00	0.00	0.00
10,700.00	89.85	358.94	7,541.16	2,388.21	-509.47	2,397.23	0.00	0.00	0.00
10,800.00	89.85	358.94	7,541.43	2,488.19	-511.32	2,497.23	0.00	0.00	0.00
10,900.00	89.85	358.94	7,541.69	2,588.18	-513.17	2,597.23	0.00	0.00	0.00
11,000.00	89.85	358.94	7,541.96	2,688.16	-515.02	2,697.23	0.00	0.00	0.00
11,100.00	89.85	358.94	7,542.23	2,788.14	-516.87	2,797.23	0.00	0.00	0.00
11,200.00	89.85	358.94	7,542.50	2,888.12	-518.73	2,897.22	0.00	0.00	0.00
11,300.00	89.85	358.94	7,542.77	2,988.11	-520.58	2,997.22	0.00	0.00	0.00
11,400.00	89.85	358.94	7,543.03	3,088.09	-522.43	3,097.22	0.00	0.00	0.00

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 30N-35HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Site:</b>	1N-67W-02 Camenisch 13-2HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### 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)
11,500.00	89.85	358.94	7,543.30	3,188.07	-524.28	3,197.22	0.00	0.00	0.00
11,600.00	89.85	358.94	7,543.57	3,288.05	-526.13	3,297.22	0.00	0.00	0.00
11,700.00	89.85	358.94	7,543.84	3,388.04	-527.98	3,397.22	0.00	0.00	0.00
11,800.00	89.85	358.94	7,544.11	3,488.02	-529.84	3,497.22	0.00	0.00	0.00
11,900.00	89.85	358.94	7,544.37	3,588.00	-531.69	3,597.22	0.00	0.00	0.00
12,000.00	89.85	358.94	7,544.64	3,687.98	-533.54	3,697.22	0.00	0.00	0.00
12,100.00	89.85	358.94	7,544.91	3,787.97	-535.39	3,797.22	0.00	0.00	0.00
12,200.00	89.85	358.94	7,545.18	3,887.95	-537.24	3,897.22	0.00	0.00	0.00
12,300.00	89.85	358.94	7,545.45	3,987.93	-539.09	3,997.22	0.00	0.00	0.00
12,400.00	89.85	358.94	7,545.71	4,087.91	-540.95	4,097.22	0.00	0.00	0.00
12,500.00	89.85	358.94	7,545.98	4,187.90	-542.80	4,197.22	0.00	0.00	0.00
12,600.00	89.85	358.94	7,546.25	4,287.88	-544.65	4,297.22	0.00	0.00	0.00
12,700.00	89.85	358.94	7,546.52	4,387.86	-546.50	4,397.22	0.00	0.00	0.00
12,800.00	89.85	358.94	7,546.79	4,487.84	-548.35	4,497.22	0.00	0.00	0.00
12,900.00	89.85	358.94	7,547.05	4,587.83	-550.20	4,597.22	0.00	0.00	0.00
13,000.00	89.85	358.94	7,547.32	4,687.81	-552.06	4,697.22	0.00	0.00	0.00
13,100.00	89.85	358.94	7,547.59	4,787.79	-553.91	4,797.22	0.00	0.00	0.00
13,200.00	89.85	358.94	7,547.86	4,887.77	-555.76	4,897.22	0.00	0.00	0.00
13,300.00	89.85	358.94	7,548.13	4,987.76	-557.61	4,997.22	0.00	0.00	0.00
13,400.00	89.85	358.94	7,548.39	5,087.74	-559.46	5,097.22	0.00	0.00	0.00
13,500.00	89.85	358.94	7,548.66	5,187.72	-561.31	5,197.22	0.00	0.00	0.00
13,600.00	89.85	358.94	7,548.93	5,287.70	-563.17	5,297.22	0.00	0.00	0.00
13,700.00	89.85	358.94	7,549.20	5,387.69	-565.02	5,397.22	0.00	0.00	0.00
13,800.00	89.85	358.94	7,549.47	5,487.67	-566.87	5,497.22	0.00	0.00	0.00
13,900.00	89.85	358.94	7,549.73	5,587.65	-568.72	5,597.22	0.00	0.00	0.00
13,999.24	89.85	358.94	7,550.00	5,686.87	-570.56	5,696.45	0.00	0.00	0.00

TD Well @ 13999.24ft

# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 30N-35HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Site:</b>	1N-67W-02 Camenisch 13-2HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

### Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
2N-R67W-Sec. 35_Secti - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,553,689.51	1,678,273.09	40.073947	-104.864677
Point 1		0.00	10,230.77	-843.44		14,563,918.99	1,677,414.10		
Point 2		0.00	10,218.65	1,790.52		14,563,910.88	1,680,048.08		
Point 3		0.00	10,206.53	4,424.50		14,563,902.76	1,682,682.07		
Point 4		0.00	7,578.31	4,426.97		14,561,274.55	1,682,688.54		
Point 5		0.00	4,950.33	4,430.33		14,558,646.58	1,682,695.89		
Point 6		0.00	4,939.63	1,832.58		14,558,631.93	1,680,098.16		
Point 7		0.00	4,937.01	-837.44		14,558,625.25	1,677,428.15		
Point 8		0.00	7,583.97	-840.57		14,561,272.20	1,677,420.99		
CAMENISCH 30N-35HZ - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,553,689.51	1,678,273.09	40.073947	-104.864677
CAMENISCH 30N-35HZ - plan misses target center by 568.99usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-272.74	-499.36	14,553,416.01	1,677,774.15	40.073198	-104.866462
1N-R67W-Sec. 2_Sectio - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,553,689.51	1,678,273.09	40.073947	-104.864677
Point 1		0.00	4,937.01	-837.44		14,558,625.25	1,677,428.15		
Point 2		0.00	4,939.63	1,832.58		14,558,631.93	1,680,098.16		
Point 3		0.00	4,950.33	4,430.33		14,558,646.58	1,682,695.89		
Point 4		0.00	2,206.22	4,453.01		14,555,902.51	1,682,722.75		
Point 5		0.00	-432.33	4,467.41		14,553,263.98	1,682,741.16		
Point 6		0.00	-432.55	1,840.25		14,553,259.77	1,680,114.00		
Point 7		0.00	-421.59	-759.75		14,553,266.77	1,677,513.99		
Point 8		0.00	2,217.11	-785.55		14,555,905.43	1,677,484.18		
CAMENISCH 30N-35HZ - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,553,689.51	1,678,273.09	40.073947	-104.864677
Point 1		0.00	5,799.15	-1,292.58		14,559,486.70	1,676,971.70		
Point 2		0.00	5,798.85	-832.58		14,559,487.10	1,677,431.70		
Point 3		0.00	5,798.76	-372.58		14,559,487.70	1,677,891.70		
Point 4		0.00	4,935.16	-374.49		14,558,624.10	1,677,891.10		
Point 5		0.00	3,574.52	-348.56		14,557,263.50	1,677,919.10		
Point 6		0.00	2,213.77	-322.63		14,555,902.80	1,677,947.10		
Point 7		0.00	893.95	-309.74		14,554,583.00	1,677,962.00		
Point 8		0.00	-422.67	-296.94		14,553,266.40	1,677,976.80		
Point 9		0.00	-1,285.87	-294.75		14,552,403.20	1,677,980.30		
Point 10		0.00	-1,284.77	-754.75		14,552,403.60	1,677,520.30		
Point 11		0.00	-1,284.97	-1,214.75		14,552,402.70	1,677,060.30		
Point 12		0.00	-426.67	-1,216.95		14,553,261.00	1,677,056.80		
Point 13		0.00	890.95	-1,229.74		14,554,578.60	1,677,042.00		
Point 14		0.00	2,221.97	-1,242.92		14,555,909.60	1,677,026.80		
Point 15		0.00	3,578.72	-1,268.76		14,557,266.30	1,676,998.90		
Point 16		0.00	4,935.36	-1,294.59		14,558,622.90	1,676,971.00		
Point 17		0.00	5,799.15	-1,292.58		14,559,486.70	1,676,971.70		
CAMENISCH 30N-35HZ - plan misses target center by 5004.74usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	4,934.66	-834.59	14,558,622.90	1,677,431.00	40.087498	-104.867661
CAMENISCH 30N-35HZ - plan misses target center by 867.54usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	-423.87	-756.94	14,553,264.50	1,677,516.80	40.072783	-104.867383
CAMENISCH 30N-35HZ	0.00	0.00	7,550.00	5,686.88	-570.56	14,559,375.52	1,677,693.89	40.089564	-104.866717



# Anadarko

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 30N-35HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Site:</b>	1N-67W-02 Camenisch 13-2HZ Pad	<b>MD Reference:</b>	RKB = 17' @ 5053.00usft (D Rig)
<b>Well:</b>	CAMENISCH 30N-35HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Permit Rev-1	<b>Database:</b>	PLANNING

- plan hits target center
- Point

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,834.25	1,800.00	9 5/8"	9-5/8	13-1/2	
8,027.14	7,534.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,391.08	1,374.00	Fox Hills			
4,732.41	4,601.00	Sussex			
7,466.03	7,301.00	Sharon Springs			
7,533.77	7,351.00	Niobrara			
7,696.10	7,449.00	Nio B			
7,853.50	7,510.00	Nio C			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
240	240	0	0	Begin Nudge @ 240.00ft	
1307	1293	-133	-65	End Nudge @ 1306.67ft	
4077	3956	-819	-400	Begin Drop @ 4076.67ft	
4877	4745	-919	-448	End Drop @ 4876.67ft	
7029	6897	-919	-448	KOP @ 7028.85ft	
7500	7327	-752	-451	DLS = 9°/100'	
8027	7534	-284	-460	End Build @ 8027.14ft	
13,999	7550	5687	-571	TD Wel @ 13999.24ft	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_