



# US ROCKIES WATTENBERG PLANNING

Project: WELD-NAD83-UTMFT13N  
 Site: 2N-68W-15 Camenisch 7-15 Pad  
 Well: CAMENISCH 15N-22HZ  
 Wellbore: Original Hole  
 Design: Original Hole



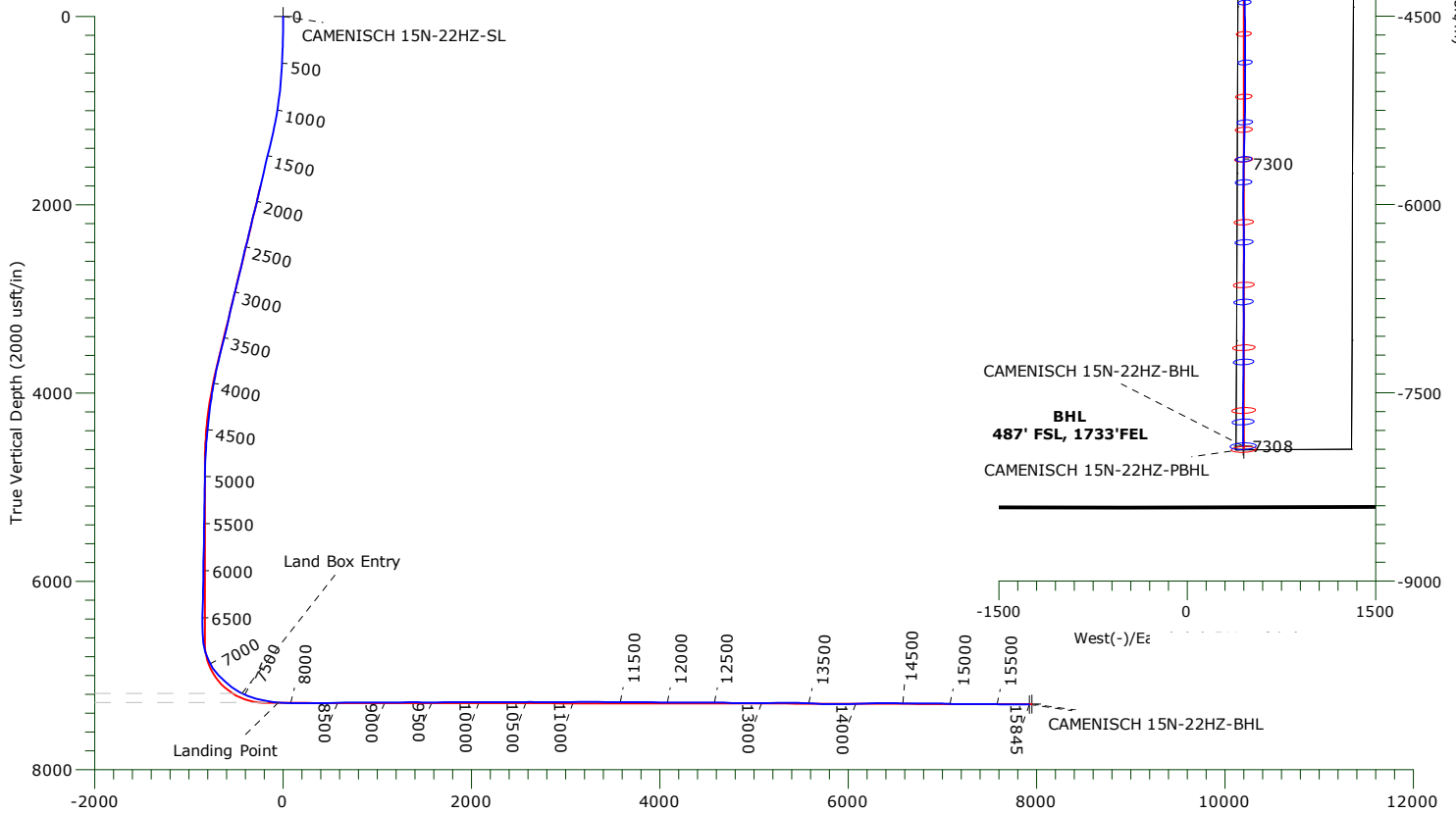
**Precision**  
 Directional Services

TVD	MD	+N/-S	+E/-W	Annotation
7191.43	7470.00	432.41	459.20	Land Box Entry
7287.96	7869.00	47.93	446.07	Landing Point

ANNOTATIONS

LEGEND

- CAMENISCH 15N-22HZ, Original Hole, Plan #2 V0
- △ Original Hole



Vertical Section at 180.01° (2000 usft/in)  
 WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
CAMENISCH 15N-22HZ-SL	0.00	0.00	0.00	14577706.34	1643880.52	40.139979°N	104.987606°W	Point
CAMENISCH 15N-22HZ-PBHL	7304.00	-7951.18	450.78	14569755.23	1644332.41	40.118144°N	104.985994°W	Point
CAMENISCH 15N-22HZ-BHL	7308.00	-7925.48	446.29	14569780.93	1644327.92	40.118215°N	104.986010°W	Point

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N  
2N-68W-15 Camenisch 7-15 Pad  
CAMENISCH 15N-22HZ**

**Original Hole**

**Design: Original Hole**

## **Standard Survey Report**

**10 April, 2017**

# Precision Drilling Corporation

## Survey Report

<b>Company:</b> US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b> Well CAMENISCH 15N-22HZ
<b>Project:</b> WELD-NAD83-UTMFT13N	<b>TVD Reference:</b> 4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b> 2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b> 4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b> CAMENISCH 15N-22HZ	<b>North Reference:</b> True
<b>Wellbore:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Original Hole	<b>Database:</b> COMPASS_ROCKIES

<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)	

<b>Site</b> 2N-68W-15 Camenisch 7-15 Pad		
<b>Site Position:</b>	<b>Northing:</b> 14,577,706.69 usft	<b>Latitude:</b> 40.139980°N
<b>From:</b> Lat/Long	<b>Easting:</b> 1,643,790.52 usft	<b>Longitude:</b> 104.987928°W
<b>Position Uncertainty:</b> 0.00 usft	<b>Slot Radius:</b> 13.20 in	<b>Grid Convergence:</b> 0.01 °

<b>Well</b> CAMENISCH 15N-22HZ		
<b>Well Position</b> +N/-S 0.00 usft	<b>Northing:</b> 14,577,706.34 usft	<b>Latitude:</b> 40.139979°N
+E/-W 0.00 usft	<b>Easting:</b> 1,643,880.52 usft	<b>Longitude:</b> 104.987606°W
<b>Position Uncertainty</b> 3.28 usft	<b>Wellhead Elevation:</b> 0.00 usft	<b>Ground Level:</b> 4,876.00 usft

<b>Wellbore</b> Original Hole					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/22/2015	8.39	66.66	52,521

<b>Design</b> Original Hole					
<b>Audit Notes:</b>					
<b>Version:</b> 1.0	<b>Phase:</b> ACTUAL	<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	180.01	

<b>Survey Program</b>		<b>Date</b> 4/10/2017		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
18.00	1,834.00	Survey #1 (Original Hole)	ISCWSA MWD	MWD - ISCWSA
1,965.00	15,796.00	Survey #2 (Original Hole)	APC_ISCWSA REV 2 MM	Fixed:v2:Rockies, crustal dec + 3-axis correction
15,845.00	15,845.00	Survey #3 (Original Hole)	APC_BLIND	OWSG BLIND

<b>Survey</b>										
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	0.00
18.00	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
157.00	0.34	157.81	157.00	-0.38	0.16	0.38	0.24	0.24	0.00	
275.00	1.71	62.63	274.98	0.10	1.85	-0.10	1.50	1.16	-80.66	
364.00	3.55	49.89	363.88	2.49	5.14	-2.49	2.16	2.07	-14.31	
453.00	4.24	50.01	452.68	6.38	9.77	-6.38	0.78	0.78	0.13	
537.00	5.13	46.43	536.40	10.96	14.87	-10.97	1.11	1.06	-4.26	
626.00	5.57	45.69	625.01	16.72	20.84	-16.73	0.50	0.49	-0.83	
713.00	6.54	40.81	711.52	23.42	27.10	-23.43	1.26	1.11	-5.61	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 15N-22HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b>	2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b>	CAMENISCH 15N-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	COMPASS_ROCKIES

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)	
801.00	7.38	34.71	798.88	31.86	33.59	-31.87	1.27	0.95	-6.93	
888.00	8.90	28.05	885.00	42.40	39.94	-42.40	2.05	1.75	-7.66	
973.00	9.87	27.84	968.86	54.64	46.43	-54.65	1.14	1.14	-0.25	
1,061.00	11.51	28.98	1,055.33	68.99	54.21	-69.00	1.88	1.86	1.30	
1,148.00	12.36	31.53	1,140.45	84.52	63.29	-84.53	1.15	0.98	2.93	
1,235.00	13.54	25.78	1,225.24	101.63	72.59	-101.64	2.01	1.36	-6.61	
1,323.00	14.97	26.67	1,310.53	121.06	82.17	-121.08	1.64	1.63	1.01	
1,412.00	14.64	25.32	1,396.57	141.50	92.14	-141.52	0.54	-0.37	-1.52	
1,501.00	15.00	25.83	1,482.61	162.04	101.97	-162.05	0.43	0.40	0.57	
1,588.00	15.49	29.97	1,566.55	182.23	112.68	-182.25	1.37	0.56	4.76	
1,672.00	14.94	30.37	1,647.61	201.29	123.75	-201.32	0.67	-0.65	0.48	
1,761.00	15.69	30.54	1,733.45	221.56	135.67	-221.58	0.84	0.84	0.19	
1,834.00	15.26	31.20	1,803.80	238.28	145.66	-238.30	0.64	-0.59	0.90	
1,965.00	14.56	30.56	1,930.39	267.20	162.96	-267.23	0.55	-0.53	-0.49	
2,060.00	16.31	28.41	2,021.96	289.22	175.38	-289.25	1.94	1.84	-2.26	
2,156.00	15.83	26.06	2,114.21	312.84	187.55	-312.87	0.84	-0.50	-2.45	
2,251.00	14.73	22.61	2,205.85	335.63	197.89	-335.66	1.50	-1.16	-3.63	
2,347.00	14.18	22.18	2,298.81	357.78	207.02	-357.82	0.58	-0.57	-0.45	
2,442.00	14.93	21.94	2,390.76	379.91	215.98	-379.95	0.79	0.79	-0.25	
2,538.00	15.38	27.68	2,483.43	402.66	226.52	-402.70	1.63	0.47	5.98	
2,633.00	14.43	29.77	2,575.23	424.09	238.25	-424.13	1.15	-1.00	2.20	
2,729.00	15.01	29.25	2,668.08	445.32	250.26	-445.36	0.62	0.60	-0.54	
2,825.00	15.40	27.78	2,760.72	467.44	262.28	-467.49	0.57	0.41	-1.53	
2,920.00	15.98	27.94	2,852.18	490.15	274.28	-490.20	0.61	0.61	0.17	
3,016.00	14.62	25.83	2,944.78	512.74	285.75	-512.78	1.53	-1.42	-2.20	
3,112.00	15.33	28.66	3,037.52	534.78	297.12	-534.83	1.06	0.74	2.95	
3,207.00	15.97	28.17	3,128.99	557.32	309.31	-557.37	0.69	0.67	-0.52	
3,303.00	14.19	28.19	3,221.68	579.33	321.11	-579.39	1.85	-1.85	0.02	
3,398.00	14.41	28.98	3,313.74	599.94	332.33	-599.99	0.31	0.23	0.83	
3,494.00	15.14	31.66	3,406.57	621.06	344.70	-621.12	1.04	0.76	2.79	
3,589.00	15.85	29.15	3,498.11	642.95	357.53	-643.01	1.03	0.75	-2.64	
3,685.00	16.44	26.91	3,590.33	666.51	370.07	-666.57	0.89	0.61	-2.33	
3,780.00	15.06	26.24	3,681.76	689.57	381.61	-689.64	1.47	-1.45	-0.71	
3,876.00	12.66	25.41	3,774.96	710.26	391.64	-710.33	2.51	-2.50	-0.86	
3,971.00	11.61	25.70	3,867.83	728.28	400.25	-728.35	1.11	-1.11	0.31	
4,067.00	10.48	25.69	3,962.05	744.85	408.22	-744.92	1.18	-1.18	-0.01	
4,163.00	9.08	25.51	4,056.66	759.56	415.27	-759.63	1.46	-1.46	-0.19	
4,258.00	7.79	26.39	4,150.63	772.09	421.36	-772.16	1.36	-1.36	0.93	
4,354.00	7.11	24.38	4,245.82	783.33	426.71	-783.40	0.76	-0.71	-2.09	
4,449.00	6.49	26.79	4,340.15	793.48	431.55	-793.55	0.72	-0.65	2.54	
4,545.00	6.47	23.23	4,435.53	803.29	436.13	-803.37	0.42	-0.02	-3.71	
4,640.00	5.00	21.60	4,530.06	812.06	439.77	-812.13	1.56	-1.55	-1.72	
4,736.00	3.31	17.59	4,625.80	818.59	442.15	-818.67	1.79	-1.76	-4.18	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 15N-22HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b>	2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b>	CAMENISCH 15N-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	COMPASS_ROCKIES

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)	
4,832.00	1.94	9.45	4,721.70	822.83	443.25	-822.91	1.48	-1.43	-8.48	
4,953.00	1.71	355.00	4,842.64	826.65	443.43	-826.73	0.42	-0.19	-11.94	
5,048.00	0.96	351.97	4,937.61	828.85	443.19	-828.93	0.79	-0.79	-3.19	
5,144.00	0.76	21.70	5,033.60	830.24	443.32	-830.32	0.50	-0.21	30.97	
5,240.00	0.96	11.14	5,129.59	831.62	443.71	-831.70	0.26	0.21	-11.00	
5,335.00	1.01	12.08	5,224.58	833.22	444.04	-833.30	0.06	0.05	0.99	
5,431.00	1.01	356.33	5,320.56	834.89	444.16	-834.97	0.29	0.00	-16.41	
5,526.00	0.95	357.60	5,415.55	836.52	444.07	-836.59	0.07	-0.06	1.34	
5,622.00	0.96	32.83	5,511.53	837.99	444.48	-838.06	0.60	0.01	36.70	
5,717.00	1.22	37.29	5,606.52	839.46	445.52	-839.54	0.29	0.27	4.69	
5,813.00	1.46	26.01	5,702.49	841.37	446.68	-841.45	0.37	0.25	-11.75	
5,908.00	1.18	59.39	5,797.47	842.96	448.05	-843.04	0.85	-0.29	35.14	
6,004.00	1.10	49.80	5,893.45	844.06	449.60	-844.13	0.22	-0.08	-9.99	
6,099.00	1.00	32.14	5,988.43	845.35	450.74	-845.43	0.35	-0.11	-18.59	
6,195.00	1.07	10.69	6,084.42	846.94	451.35	-847.02	0.41	0.07	-22.34	
6,291.00	1.03	0.60	6,180.40	848.68	451.53	-848.76	0.20	-0.04	-10.51	
6,386.00	1.01	6.08	6,275.39	850.37	451.62	-850.45	0.10	-0.02	5.77	
6,482.00	0.90	2.97	6,371.37	851.96	451.75	-852.04	0.13	-0.11	-3.24	
6,577.00	0.60	113.80	6,466.37	852.51	452.25	-852.58	1.31	-0.32	116.66	
6,673.00	1.33	140.35	6,562.35	851.44	453.42	-851.52	0.87	0.76	27.66	
6,769.00	8.82	171.84	6,657.92	843.29	455.18	-843.37	8.04	7.80	32.80	
6,864.00	16.22	170.45	6,750.60	822.97	458.42	-823.05	7.80	7.79	-1.46	
6,960.00	24.76	170.79	6,840.44	789.84	463.87	-789.92	8.90	8.90	0.35	
7,055.00	34.47	178.55	6,922.96	743.20	467.74	-743.28	10.97	10.22	8.17	
7,151.00	42.45	183.02	6,998.09	683.58	466.72	-683.66	8.80	8.31	4.66	
7,247.00	47.99	183.12	7,065.68	615.56	463.07	-615.64	5.77	5.77	0.10	
7,342.00	53.70	181.50	7,125.64	541.99	460.15	-542.07	6.15	6.01	-1.71	
7,437.00	61.66	179.84	7,176.40	461.78	459.26	-461.86	8.51	8.38	-1.75	
7,470.00	64.12	180.37	7,191.43	432.41	459.20	-432.49	7.60	7.46	1.60	
<b>Land Box Entry</b>										
7,533.00	68.83	181.32	7,216.57	374.67	458.34	-374.75	7.60	7.47	1.51	
7,628.00	73.92	182.91	7,246.90	284.74	455.00	-284.82	5.59	5.36	1.67	
7,724.00	78.83	182.62	7,269.51	191.58	450.51	-191.65	5.12	5.11	-0.30	
7,820.00	84.05	181.52	7,283.79	96.74	447.09	-96.82	5.55	5.44	-1.15	
7,869.00	86.19	180.86	7,287.96	47.93	446.07	-48.01	4.57	4.37	-1.35	
<b>Landing Point</b>										
7,915.00	88.20	180.24	7,290.21	1.99	445.63	-2.07	4.57	4.37	-1.34	
8,011.00	88.49	180.73	7,292.99	-93.96	444.82	93.89	0.59	0.30	0.51	
8,106.00	89.21	179.42	7,294.89	-188.94	444.70	188.86	1.57	0.76	-1.38	
8,202.00	90.11	179.65	7,295.46	-284.94	445.48	284.86	0.97	0.94	0.24	
8,298.00	91.51	180.60	7,294.11	-380.92	445.27	380.84	1.76	1.46	0.99	
8,393.00	90.95	180.25	7,292.07	-475.90	444.56	475.82	0.70	-0.59	-0.37	
8,489.00	90.90	177.85	7,290.52	-571.86	446.15	571.79	2.50	-0.05	-2.50	
8,584.00	90.11	177.60	7,289.68	-666.79	449.92	666.71	0.87	-0.83	-0.26	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 15N-22HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b>	2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b>	CAMENISCH 15N-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	COMPASS_ROCKIES

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)	
8,680.00	90.95	178.34	7,288.79	-762.72	453.32	762.64	1.17	0.88	0.77	
8,775.00	89.38	177.01	7,288.52	-857.64	457.18	857.56	2.17	-1.65	-1.40	
8,871.00	89.22	177.92	7,289.69	-953.53	461.42	953.45	0.96	-0.17	0.95	
8,966.00	90.45	179.17	7,289.96	-1,048.50	463.84	1,048.42	1.85	1.29	1.32	
9,062.00	91.51	179.33	7,288.32	-1,144.48	465.09	1,144.39	1.12	1.10	0.17	
9,158.00	90.84	180.53	7,286.35	-1,240.45	465.21	1,240.37	1.43	-0.70	1.25	
9,253.00	90.34	181.94	7,285.37	-1,335.42	463.16	1,335.34	1.57	-0.53	1.48	
9,349.00	88.99	182.38	7,285.94	-1,431.35	459.54	1,431.27	1.48	-1.41	0.46	
9,444.00	90.00	182.98	7,286.77	-1,526.24	455.10	1,526.16	1.24	1.06	0.63	
9,540.00	90.67	181.01	7,286.21	-1,622.18	451.76	1,622.10	2.17	0.70	-2.05	
9,635.00	91.51	180.77	7,284.40	-1,717.15	450.29	1,717.07	0.92	0.88	-0.25	
9,731.00	90.56	180.39	7,282.67	-1,813.12	449.31	1,813.05	1.07	-0.99	-0.40	
9,827.00	88.65	180.24	7,283.33	-1,909.12	448.79	1,909.04	2.00	-1.99	-0.16	
9,922.00	89.66	180.92	7,284.73	-2,004.10	447.82	2,004.02	1.28	1.06	0.72	
10,018.00	90.78	182.15	7,284.37	-2,100.06	445.25	2,099.98	1.73	1.17	1.28	
10,114.00	90.28	180.74	7,283.48	-2,196.02	442.83	2,195.95	1.56	-0.52	-1.47	
10,209.00	90.73	179.58	7,282.64	-2,291.02	442.57	2,290.94	1.31	0.47	-1.22	
10,305.00	89.33	178.97	7,282.59	-2,387.01	443.78	2,386.93	1.59	-1.46	-0.64	
10,400.00	90.34	178.97	7,282.86	-2,481.99	445.49	2,481.91	1.06	1.06	0.00	
10,495.00	90.56	179.12	7,282.12	-2,576.97	447.07	2,576.90	0.28	0.23	0.16	
10,591.00	89.10	178.97	7,282.40	-2,672.96	448.67	2,672.88	1.53	-1.52	-0.16	
10,686.00	89.21	179.43	7,283.80	-2,767.94	450.00	2,767.86	0.50	0.12	0.48	
10,782.00	89.50	180.03	7,284.88	-2,863.93	450.45	2,863.85	0.69	0.30	0.63	
10,877.00	90.22	180.08	7,285.12	-2,958.93	450.36	2,958.85	0.76	0.76	0.05	
10,973.00	91.40	180.68	7,283.76	-3,054.92	449.72	3,054.84	1.38	1.23	0.63	
11,068.00	90.95	180.23	7,281.81	-3,149.89	448.97	3,149.81	0.67	-0.47	-0.47	
11,163.00	90.22	179.44	7,280.84	-3,244.89	449.24	3,244.81	1.13	-0.77	-0.83	
11,259.00	89.50	179.77	7,281.07	-3,340.88	449.90	3,340.80	0.83	-0.75	0.34	
11,354.00	88.99	179.97	7,282.33	-3,435.87	450.12	3,435.79	0.58	-0.54	0.21	
11,450.00	88.26	179.90	7,284.63	-3,531.84	450.23	3,531.77	0.76	-0.76	-0.07	
11,545.00	90.34	181.17	7,285.79	-3,626.83	449.34	3,626.75	2.57	2.19	1.34	
11,641.00	90.50	180.10	7,285.09	-3,722.82	448.28	3,722.74	1.13	0.17	-1.11	
11,736.00	90.28	179.15	7,284.44	-3,817.81	448.90	3,817.73	1.03	-0.23	-1.00	
11,832.00	88.60	179.12	7,285.38	-3,913.79	450.35	3,913.71	1.75	-1.75	-0.03	
11,927.00	89.22	179.68	7,287.19	-4,008.77	451.34	4,008.69	0.88	0.65	0.59	
12,023.00	89.66	179.15	7,288.12	-4,104.76	452.32	4,104.68	0.72	0.46	-0.55	
12,118.00	89.33	178.92	7,288.96	-4,199.74	453.92	4,199.66	0.42	-0.35	-0.24	
12,214.00	89.83	178.68	7,289.67	-4,295.72	455.93	4,295.64	0.58	0.52	-0.25	
12,309.00	91.23	178.77	7,288.79	-4,390.69	458.05	4,390.61	1.48	1.47	0.09	
12,405.00	90.34	178.67	7,287.47	-4,486.65	460.19	4,486.57	0.93	-0.93	-0.10	
12,500.00	89.72	180.07	7,287.42	-4,581.64	461.24	4,581.56	1.61	-0.65	1.47	
12,596.00	87.81	180.11	7,289.49	-4,677.62	461.09	4,677.54	1.99	-1.99	0.04	
12,691.00	88.26	179.75	7,292.75	-4,772.56	461.20	4,772.48	0.61	0.47	-0.38	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 15N-22HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b>	2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b>	CAMENISCH 15N-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	COMPASS_ROCKIES

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)	
12,787.00	89.44	179.74	7,294.67	-4,868.54	461.63	4,868.46	1.23	1.23	-0.01	
12,882.00	90.67	180.10	7,294.58	-4,963.54	461.76	4,963.46	1.35	1.29	0.38	
12,978.00	90.50	179.86	7,293.60	-5,059.53	461.80	5,059.45	0.31	-0.18	-0.25	
13,073.00	91.18	180.25	7,292.21	-5,154.52	461.70	5,154.44	0.83	0.72	0.41	
13,169.00	90.17	180.48	7,291.08	-5,250.51	461.09	5,250.43	1.08	-1.05	0.24	
13,264.00	89.94	181.55	7,290.99	-5,345.50	459.41	5,345.41	1.15	-0.24	1.13	
13,360.00	89.50	182.05	7,291.46	-5,441.45	456.39	5,441.37	0.69	-0.46	0.52	
13,455.00	86.75	181.47	7,294.57	-5,536.34	453.48	5,536.26	2.96	-2.89	-0.61	
13,551.00	87.08	181.31	7,299.73	-5,632.17	451.15	5,632.09	0.38	0.34	-0.17	
13,646.00	88.37	180.25	7,303.50	-5,727.09	449.86	5,727.01	1.76	1.36	-1.12	
13,742.00	91.01	180.62	7,304.02	-5,823.07	449.13	5,823.00	2.78	2.75	0.39	
13,838.00	89.78	180.31	7,303.36	-5,919.07	448.35	5,918.99	1.32	-1.28	-0.32	
13,933.00	90.95	180.30	7,302.76	-6,014.06	447.85	6,013.98	1.23	1.23	-0.01	
14,029.00	90.39	178.73	7,301.63	-6,110.05	448.66	6,109.97	1.74	-0.58	-1.64	
14,124.00	91.74	178.27	7,299.87	-6,205.00	451.15	6,204.92	1.50	1.42	-0.48	
14,220.00	92.92	179.57	7,295.96	-6,300.90	452.95	6,300.82	1.83	1.23	1.35	
14,315.00	91.29	180.13	7,292.48	-6,395.83	453.20	6,395.75	1.81	-1.72	0.59	
14,411.00	87.93	181.08	7,293.13	-6,491.81	452.19	6,491.73	3.64	-3.50	0.99	
14,506.00	88.54	181.31	7,296.05	-6,586.74	450.21	6,586.66	0.69	0.64	0.24	
14,601.00	88.93	180.05	7,298.15	-6,681.71	449.08	6,681.63	1.39	0.41	-1.33	
14,696.00	90.62	179.56	7,298.52	-6,776.70	449.41	6,776.62	1.85	1.78	-0.52	
14,792.00	89.61	179.32	7,298.33	-6,872.70	450.34	6,872.62	1.08	-1.05	-0.25	
14,887.00	89.66	180.86	7,298.94	-6,967.69	450.19	6,967.61	1.62	0.05	1.62	
14,983.00	87.59	180.13	7,301.24	-7,063.65	449.37	7,063.58	2.29	-2.16	-0.76	
15,078.00	88.65	179.96	7,304.36	-7,158.60	449.29	7,158.52	1.13	1.12	-0.18	
15,174.00	90.84	179.98	7,304.78	-7,254.60	449.34	7,254.52	2.28	2.28	0.02	
15,270.00	90.28	180.45	7,303.85	-7,350.59	448.98	7,350.51	0.76	-0.58	0.49	
15,365.00	88.88	181.13	7,304.54	-7,445.57	447.67	7,445.50	1.64	-1.47	0.72	
15,461.00	89.78	181.06	7,305.67	-7,541.55	445.84	7,541.47	0.94	0.94	-0.07	
15,556.00	88.26	179.75	7,307.29	-7,636.53	445.17	7,636.45	2.11	-1.60	-1.38	
15,652.00	89.22	179.61	7,309.40	-7,732.50	445.70	7,732.42	1.01	1.00	-0.15	
15,748.00	90.39	179.80	7,309.73	-7,828.50	446.20	7,828.42	1.23	1.22	0.20	
15,796.00	91.23	179.99	7,309.05	-7,876.49	446.28	7,876.42	1.79	1.75	0.40	
15,845.00	91.23	179.99	7,308.00	-7,925.48	446.29	7,925.40	0.00	0.00	0.00	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>Local Co-ordinate Reference:</b>	Well CAMENISCH 15N-22HZ
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>TVD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Site:</b>	2N-68W-15 Camenisch 7-15 Pad	<b>MD Reference:</b>	4876'GL+30'KB @ 4906.00usft (SD 105)
<b>Well:</b>	CAMENISCH 15N-22HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	COMPASS_ROCKIES

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
CAMENISCH 15N-22  - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,577,706.34	1,643,880.52	40.139979°N	104.987606°W
CAMENISCH 15N-22  - actual wellpath misses target center by 26.39usft at 15845.00usft MD (7308.00 TVD, -7925.48 N, 446.29 E) - Point	0.00	0.00	7,304.00	-7,951.18	450.78	14,569,755.22	1,644,332.41	40.118144°N	104.985994°W
CAMENISCH 15N-22  - actual wellpath hits target center - Point	0.00	0.00	7,308.00	-7,925.48	446.29	14,569,780.92	1,644,327.91	40.118215°N	104.986010°W

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
		(usft)	(usft)		
7,470.00	7,191.43	432.41	459.20	Land Box Entry	
7,869.00	7,287.96	47.93	446.07	Landing Point	

Checked By: _____	Approved By: _____	Date: _____
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