

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

CAMENISCH 29N-35HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

10 March, 2016

Project: WELD-NAD83-UTMFT13N
Site: 1N-67W-02 Camenisch 13-2HZ Pad
Well: CAMENISCH 29N-35HZ
Wellbore: Plan A
Design: Permit Rev-1

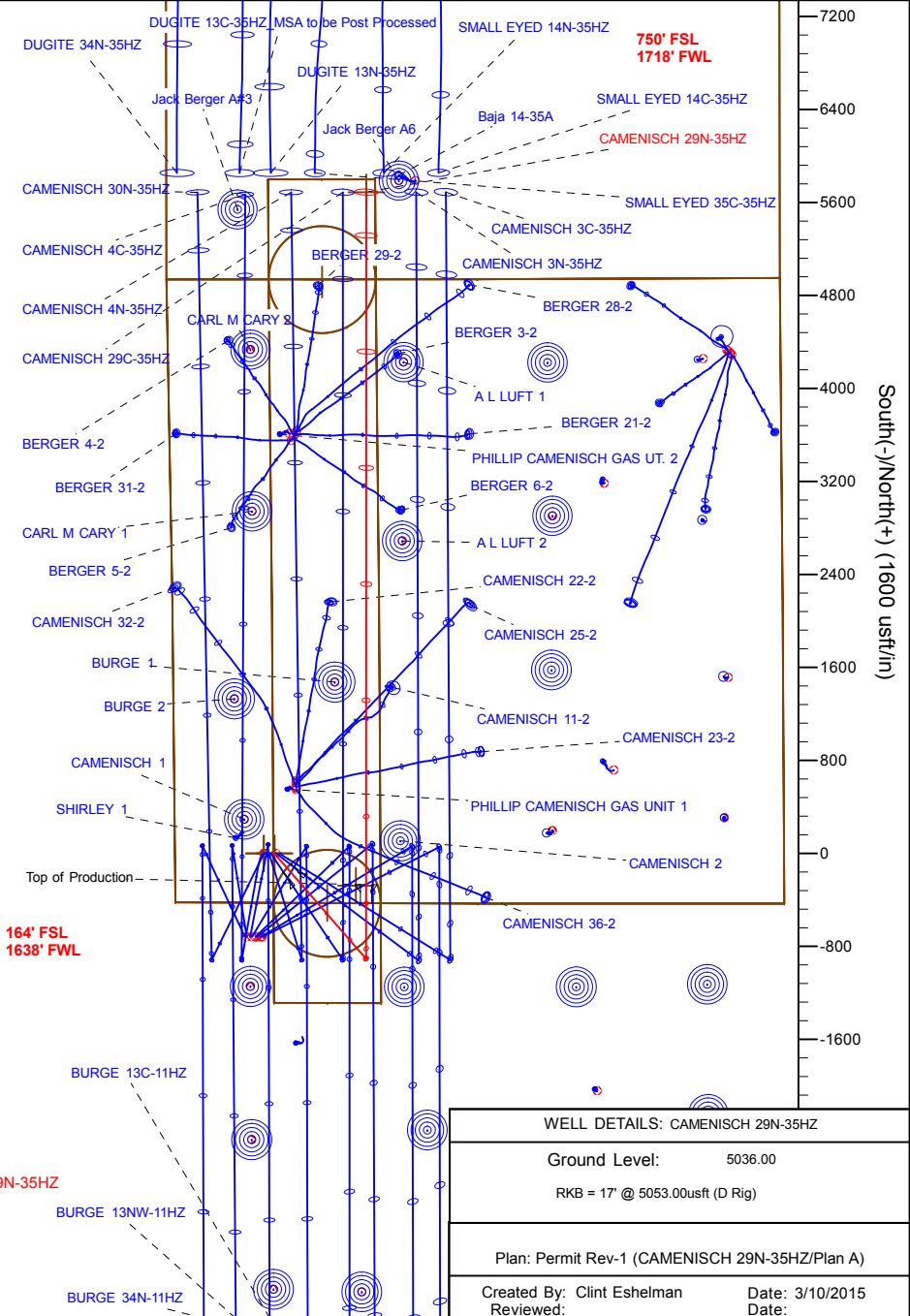
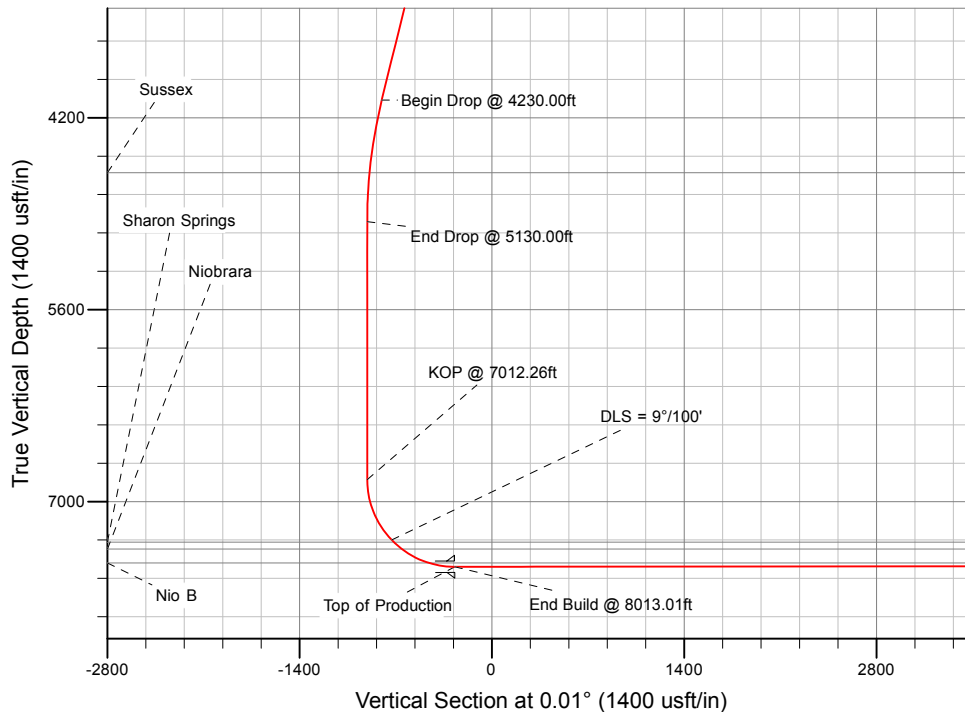
US ROCKIES WATTENBERG PLANNING

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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1400.00	18.00	139.00	1380.36	-141.09	122.65	1.50	139.00	-141.07	
4	4230.00	18.00	139.00	4071.85	-801.10	696.39	0.00	0.00	-800.98	
5	5130.00	0.00	0.00	4957.12	-906.92	788.37	2.00	180.00	-906.78	
6	7012.26	0.00	0.00	6839.38	-906.92	788.37	0.00	0.00	-906.78	
7	8013.01	90.07	0.01	7476.00	-269.55	788.46	9.00	0.01	-269.42	
8	13971.62	90.07	0.01	7469.00	5689.06	789.29	0.00	0.00	5689.20	CAMENISCH 29N-35HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
CAMENISCH 29N-35HZ_SHL	0.00	0.00	0.00	40.073945	-104.864356	Point
CAMENISCH 29N-35HZ_TOE	7469.00	5689.06	789.29	40.089568	-104.861534	Point



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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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-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 29N-35HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,553,688.92 usft	Latitude:	40.073945
	+E/-W	0.00 usft	Easting:	1,678,362.89 usft	Longitude:	-104.864356
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,036.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/7/2016	8.25	66.61	52,450

Design	Permit Rev-1				
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		0.01

Survey Tool Program	Date	3/9/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,800.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,800.00	13,971.63	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

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	
Begin Nudge @ 200.00ft										
300.00	1.50	139.00	299.99	-0.99	0.86	-0.99	1.50	1.50	0.00	
400.00	3.00	139.00	399.91	-3.95	3.43	-3.95	1.50	1.50	0.00	
500.00	4.50	139.00	499.69	-8.89	7.73	-8.89	1.50	1.50	0.00	
600.00	6.00	139.00	599.27	-15.79	13.73	-15.79	1.50	1.50	0.00	
700.00	7.50	139.00	698.57	-24.66	21.44	-24.66	1.50	1.50	0.00	
800.00	9.00	139.00	797.54	-35.49	30.85	-35.49	1.50	1.50	0.00	

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	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)
900.00	10.50	139.00	896.09	-48.27	41.96	-48.27	1.50	1.50	0.00
1,000.00	12.00	139.00	994.16	-63.00	54.76	-62.99	1.50	1.50	0.00
1,100.00	13.50	139.00	1,091.70	-79.65	69.24	-79.64	1.50	1.50	0.00
1,200.00	15.00	139.00	1,188.62	-98.23	85.39	-98.21	1.50	1.50	0.00
1,300.00	16.50	139.00	1,284.86	-118.71	103.20	-118.70	1.50	1.50	0.00
1,393.32	17.90	139.00	1,374.00	-139.54	121.30	-139.52	1.50	1.50	0.00
Fox Hills									
1,400.00	18.00	139.00	1,380.36	-141.09	122.65	-141.07	1.50	1.50	0.00
End Nudge @ 1400.00ft									
1,500.00	18.00	139.00	1,475.46	-164.42	142.92	-164.39	0.00	0.00	0.00
1,600.00	18.00	139.00	1,570.57	-187.74	163.20	-187.71	0.00	0.00	0.00
1,700.00	18.00	139.00	1,665.67	-211.06	183.47	-211.03	0.00	0.00	0.00
1,800.00	18.00	139.00	1,760.78	-234.38	203.74	-234.34	0.00	0.00	0.00
1,841.24	18.00	139.00	1,800.00	-244.00	212.10	-243.96	0.00	0.00	0.00
9 5/8"									
1,900.00	18.00	139.00	1,855.89	-257.70	224.02	-257.66	0.00	0.00	0.00
2,000.00	18.00	139.00	1,950.99	-281.02	244.29	-280.98	0.00	0.00	0.00
2,100.00	18.00	139.00	2,046.10	-304.35	264.56	-304.30	0.00	0.00	0.00
2,200.00	18.00	139.00	2,141.20	-327.67	284.84	-327.62	0.00	0.00	0.00
2,300.00	18.00	139.00	2,236.31	-350.99	305.11	-350.94	0.00	0.00	0.00
2,400.00	18.00	139.00	2,331.41	-374.31	325.38	-374.25	0.00	0.00	0.00
2,500.00	18.00	139.00	2,426.52	-397.63	345.66	-397.57	0.00	0.00	0.00
2,600.00	18.00	139.00	2,521.63	-420.95	365.93	-420.89	0.00	0.00	0.00
2,700.00	18.00	139.00	2,616.73	-444.28	386.20	-444.21	0.00	0.00	0.00
2,800.00	18.00	139.00	2,711.84	-467.60	406.48	-467.53	0.00	0.00	0.00
2,900.00	18.00	139.00	2,806.94	-490.92	426.75	-490.85	0.00	0.00	0.00
3,000.00	18.00	139.00	2,902.05	-514.24	447.02	-514.16	0.00	0.00	0.00
3,100.00	18.00	139.00	2,997.15	-537.56	467.30	-537.48	0.00	0.00	0.00
3,200.00	18.00	139.00	3,092.26	-560.89	487.57	-560.80	0.00	0.00	0.00
3,300.00	18.00	139.00	3,187.37	-584.21	507.84	-584.12	0.00	0.00	0.00
3,400.00	18.00	139.00	3,282.47	-607.53	528.12	-607.44	0.00	0.00	0.00
3,500.00	18.00	139.00	3,377.58	-630.85	548.39	-630.76	0.00	0.00	0.00
3,600.00	18.00	139.00	3,472.68	-654.17	568.66	-654.07	0.00	0.00	0.00
3,700.00	18.00	139.00	3,567.79	-677.49	588.94	-677.39	0.00	0.00	0.00
3,800.00	18.00	139.00	3,662.89	-700.82	609.21	-700.71	0.00	0.00	0.00
3,900.00	18.00	139.00	3,758.00	-724.14	629.48	-724.03	0.00	0.00	0.00
4,000.00	18.00	139.00	3,853.11	-747.46	649.76	-747.35	0.00	0.00	0.00
4,100.00	18.00	139.00	3,948.21	-770.78	670.03	-770.67	0.00	0.00	0.00
4,200.00	18.00	139.00	4,043.32	-794.10	690.30	-793.98	0.00	0.00	0.00
4,230.00	18.00	139.00	4,071.85	-801.10	696.39	-800.98	0.00	0.00	0.00
Begin Drop @ 4230.00ft									
4,300.00	16.60	139.00	4,138.68	-816.81	710.04	-816.69	2.00	-2.00	0.00
4,400.00	14.60	139.00	4,234.99	-837.10	727.68	-836.98	2.00	-2.00	0.00
4,500.00	12.60	139.00	4,332.18	-854.85	743.11	-854.72	2.00	-2.00	0.00

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Survey Report

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Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	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)
4,600.00	10.60	139.00	4,430.13	-870.03	756.30	-869.89	2.00	-2.00	0.00
4,700.00	8.60	139.00	4,528.73	-882.61	767.24	-882.48	2.00	-2.00	0.00
4,772.96	7.14	139.00	4,601.00	-890.15	773.80	-890.02	2.00	-2.00	0.00
Sussex									
4,800.00	6.60	139.00	4,627.85	-892.59	775.92	-892.46	2.00	-2.00	0.00
4,900.00	4.60	139.00	4,727.36	-899.96	782.32	-899.82	2.00	-2.00	0.00
5,000.00	2.60	139.00	4,827.16	-904.69	786.44	-904.56	2.00	-2.00	0.00
5,100.00	0.60	139.00	4,927.12	-906.80	788.27	-906.66	2.00	-2.00	0.00
5,130.00	0.00	0.00	4,957.12	-906.92	788.37	-906.78	2.00	-2.00	0.00
End Drop @ 5130.00ft									
5,200.00	0.00	0.00	5,027.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,300.00	0.00	0.00	5,127.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,400.00	0.00	0.00	5,227.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,500.00	0.00	0.00	5,327.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,600.00	0.00	0.00	5,427.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,700.00	0.00	0.00	5,527.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,800.00	0.00	0.00	5,627.12	-906.92	788.37	-906.78	0.00	0.00	0.00
5,900.00	0.00	0.00	5,727.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,000.00	0.00	0.00	5,827.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,100.00	0.00	0.00	5,927.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,200.00	0.00	0.00	6,027.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,300.00	0.00	0.00	6,127.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,400.00	0.00	0.00	6,227.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,500.00	0.00	0.00	6,327.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,600.00	0.00	0.00	6,427.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,700.00	0.00	0.00	6,527.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,800.00	0.00	0.00	6,627.12	-906.92	788.37	-906.78	0.00	0.00	0.00
6,900.00	0.00	0.00	6,727.12	-906.92	788.37	-906.78	0.00	0.00	0.00
7,000.00	0.00	0.00	6,827.12	-906.92	788.37	-906.78	0.00	0.00	0.00
7,012.26	0.00	0.00	6,839.38	-906.92	788.37	-906.78	0.00	0.00	0.00
KOP @ 7012.26ft									
7,100.00	7.90	0.01	6,926.84	-900.88	788.37	-900.75	9.00	9.00	0.00
7,200.00	16.90	0.01	7,024.41	-879.44	788.38	-879.30	9.00	9.00	0.00
7,300.00	25.90	0.01	7,117.42	-842.99	788.38	-842.86	9.00	9.00	0.00
7,400.00	34.90	0.01	7,203.58	-792.45	788.39	-792.31	9.00	9.00	0.00
7,500.00	43.90	0.01	7,280.78	-729.04	788.40	-728.91	9.00	9.00	0.00
DLS = 9°/100'									
7,521.47	45.83	0.01	7,296.00	-713.90	788.40	-713.76	9.00	9.00	0.00
Sharon Springs									
7,598.16	52.73	0.01	7,346.00	-655.81	788.41	-655.67	9.00	9.00	0.00
Niobrara									
7,600.00	52.90	0.01	7,347.11	-654.34	788.41	-654.21	9.00	9.00	0.00
7,700.00	61.90	0.01	7,400.94	-570.19	788.42	-570.05	9.00	9.00	0.00
7,800.00	70.90	0.01	7,440.94	-478.65	788.43	-478.51	9.00	9.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	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)
7,822.76	72.95	0.01	7,448.00	-457.01	788.44	-456.88	9.00	9.00	0.00
Nio B									
7,900.00	79.90	0.01	7,466.12	-381.98	788.45	-381.84	9.00	9.00	0.00
8,000.00	88.90	0.01	7,475.88	-282.56	788.46	-282.42	9.00	9.00	0.00
8,013.01	90.07	0.01	7,476.00	-269.55	788.46	-269.41	9.00	9.00	0.00
End Build @ 8013.01ft - Top of Production									
8,100.00	90.07	0.01	7,475.89	-182.56	788.47	-182.42	0.00	0.00	0.00
8,200.00	90.07	0.01	7,475.78	-82.56	788.49	-82.42	0.00	0.00	0.00
8,300.00	90.07	0.01	7,475.66	17.44	788.50	17.58	0.00	0.00	0.00
8,400.00	90.07	0.01	7,475.54	117.44	788.52	117.58	0.00	0.00	0.00
8,500.00	90.07	0.01	7,475.42	217.44	788.53	217.58	0.00	0.00	0.00
8,600.00	90.07	0.01	7,475.31	317.44	788.54	317.58	0.00	0.00	0.00
8,700.00	90.07	0.01	7,475.19	417.44	788.56	417.58	0.00	0.00	0.00
8,800.00	90.07	0.01	7,475.07	517.44	788.57	517.58	0.00	0.00	0.00
8,900.00	90.07	0.01	7,474.95	617.44	788.59	617.58	0.00	0.00	0.00
9,000.00	90.07	0.01	7,474.84	717.44	788.60	717.58	0.00	0.00	0.00
9,100.00	90.07	0.01	7,474.72	817.44	788.61	817.58	0.00	0.00	0.00
9,200.00	90.07	0.01	7,474.60	917.44	788.63	917.58	0.00	0.00	0.00
9,300.00	90.07	0.01	7,474.48	1,017.44	788.64	1,017.58	0.00	0.00	0.00
9,400.00	90.07	0.01	7,474.37	1,117.44	788.65	1,117.58	0.00	0.00	0.00
9,500.00	90.07	0.01	7,474.25	1,217.44	788.67	1,217.58	0.00	0.00	0.00
9,600.00	90.07	0.01	7,474.13	1,317.44	788.68	1,317.58	0.00	0.00	0.00
9,700.00	90.07	0.01	7,474.02	1,417.44	788.70	1,417.58	0.00	0.00	0.00
9,800.00	90.07	0.01	7,473.90	1,517.44	788.71	1,517.58	0.00	0.00	0.00
9,900.00	90.07	0.01	7,473.78	1,617.44	788.72	1,617.58	0.00	0.00	0.00
10,000.00	90.07	0.01	7,473.66	1,717.44	788.74	1,717.58	0.00	0.00	0.00
10,100.00	90.07	0.01	7,473.55	1,817.44	788.75	1,817.58	0.00	0.00	0.00
10,200.00	90.07	0.01	7,473.43	1,917.44	788.77	1,917.58	0.00	0.00	0.00
10,300.00	90.07	0.01	7,473.31	2,017.44	788.78	2,017.58	0.00	0.00	0.00
10,400.00	90.07	0.01	7,473.19	2,117.44	788.79	2,117.58	0.00	0.00	0.00
10,500.00	90.07	0.01	7,473.08	2,217.44	788.81	2,217.58	0.00	0.00	0.00
10,600.00	90.07	0.01	7,472.96	2,317.44	788.82	2,317.58	0.00	0.00	0.00
10,700.00	90.07	0.01	7,472.84	2,417.44	788.84	2,417.58	0.00	0.00	0.00
10,800.00	90.07	0.01	7,472.72	2,517.44	788.85	2,517.58	0.00	0.00	0.00
10,900.00	90.07	0.01	7,472.61	2,617.44	788.86	2,617.58	0.00	0.00	0.00
11,000.00	90.07	0.01	7,472.49	2,717.44	788.88	2,717.58	0.00	0.00	0.00
11,100.00	90.07	0.01	7,472.37	2,817.44	788.89	2,817.58	0.00	0.00	0.00
11,200.00	90.07	0.01	7,472.25	2,917.44	788.91	2,917.57	0.00	0.00	0.00
11,300.00	90.07	0.01	7,472.14	3,017.44	788.92	3,017.57	0.00	0.00	0.00
11,400.00	90.07	0.01	7,472.02	3,117.44	788.93	3,117.57	0.00	0.00	0.00
11,500.00	90.07	0.01	7,471.90	3,217.44	788.95	3,217.57	0.00	0.00	0.00
11,600.00	90.07	0.01	7,471.78	3,317.44	788.96	3,317.57	0.00	0.00	0.00
11,700.00	90.07	0.01	7,471.67	3,417.44	788.97	3,417.57	0.00	0.00	0.00
11,800.00	90.07	0.01	7,471.55	3,517.44	788.99	3,517.57	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	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)
11,900.00	90.07	0.01	7,471.43	3,617.44	789.00	3,617.57	0.00	0.00	0.00
12,000.00	90.07	0.01	7,471.31	3,717.44	789.02	3,717.57	0.00	0.00	0.00
12,100.00	90.07	0.01	7,471.20	3,817.44	789.03	3,817.57	0.00	0.00	0.00
12,200.00	90.07	0.01	7,471.08	3,917.44	789.04	3,917.57	0.00	0.00	0.00
12,300.00	90.07	0.01	7,470.96	4,017.44	789.06	4,017.57	0.00	0.00	0.00
12,400.00	90.07	0.01	7,470.85	4,117.44	789.07	4,117.57	0.00	0.00	0.00
12,500.00	90.07	0.01	7,470.73	4,217.44	789.09	4,217.57	0.00	0.00	0.00
12,600.00	90.07	0.01	7,470.61	4,317.44	789.10	4,317.57	0.00	0.00	0.00
12,700.00	90.07	0.01	7,470.49	4,417.44	789.11	4,417.57	0.00	0.00	0.00
12,800.00	90.07	0.01	7,470.38	4,517.44	789.13	4,517.57	0.00	0.00	0.00
12,900.00	90.07	0.01	7,470.26	4,617.44	789.14	4,617.57	0.00	0.00	0.00
13,000.00	90.07	0.01	7,470.14	4,717.44	789.16	4,717.57	0.00	0.00	0.00
13,100.00	90.07	0.01	7,470.02	4,817.44	789.17	4,817.57	0.00	0.00	0.00
13,200.00	90.07	0.01	7,469.91	4,917.44	789.18	4,917.57	0.00	0.00	0.00
13,300.00	90.07	0.01	7,469.79	5,017.44	789.20	5,017.57	0.00	0.00	0.00
13,400.00	90.07	0.01	7,469.67	5,117.44	789.21	5,117.57	0.00	0.00	0.00
13,500.00	90.07	0.01	7,469.55	5,217.44	789.22	5,217.57	0.00	0.00	0.00
13,600.00	90.07	0.01	7,469.44	5,317.44	789.24	5,317.57	0.00	0.00	0.00
13,700.00	90.07	0.01	7,469.32	5,417.44	789.25	5,417.57	0.00	0.00	0.00
13,800.00	90.07	0.01	7,469.20	5,517.44	789.27	5,517.57	0.00	0.00	0.00
13,900.00	90.07	0.01	7,469.08	5,617.44	789.28	5,617.57	0.00	0.00	0.00
13,971.63	90.07	0.01	7,469.00	5,689.06	789.29	5,689.20	0.00	0.00	0.00
TD Well @ 13971.63ft									

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	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 misses target center by 89.80usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	0.73	-89.80	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	1,677,414.06		
Point 2		0.00	10,218.65	1,790.52		14,563,910.89	1,680,048.04		
Point 3		0.00	10,206.53	4,424.50		14,563,902.78	1,682,682.03		
Point 4		0.00	7,578.31	4,426.97		14,561,274.57	1,682,688.51		
Point 5		0.00	4,950.33	4,430.33		14,558,646.60	1,682,695.88		
Point 6		0.00	4,939.63	1,832.58		14,558,631.94	1,680,098.14		
Point 7		0.00	4,937.01	-837.44		14,558,625.25	1,677,428.13		
Point 8		0.00	7,583.97	-840.57		14,561,272.20	1,677,420.97		
CAMENISCH 29N-35HZ - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,553,688.92	1,678,362.89	40.073945	-104.864356
1N-R67W-Sec. 2_Sectio - plan misses target center by 89.80usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	0.73	-89.80	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	1,677,428.13		
Point 2		0.00	4,939.63	1,832.58		14,558,631.94	1,680,098.14		
Point 3		0.00	4,950.33	4,430.33		14,558,646.60	1,682,695.88		
Point 4		0.00	2,206.22	4,453.01		14,555,902.52	1,682,722.74		
Point 5		0.00	-432.33	4,467.41		14,553,264.00	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	1,677,484.17		
CAMENISCH 29N-35HZ - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	14,553,688.92	1,678,362.89	40.073945	-104.864356
Point 1		0.00	5,799.36	-54.66		14,559,488.20	1,678,299.40		
Point 2		0.00	5,799.26	405.34		14,559,488.80	1,678,759.40		
Point 3		0.00	5,799.06	865.34		14,559,489.30	1,679,219.40		
Point 4		0.00	4,937.15	870.63		14,558,627.40	1,679,226.00		
Point 5		0.00	3,574.53	884.65		14,557,264.80	1,679,242.10		
Point 6		0.00	2,211.81	898.58		14,555,902.10	1,679,258.10		
Point 7		0.00	890.59	905.96		14,554,580.90	1,679,267.50		
Point 8		0.00	-426.42	913.25		14,553,263.90	1,679,276.80		
Point 9		0.00	-1,288.53	917.54		14,552,401.80	1,679,282.40		
Point 10		0.00	-1,287.33	457.54		14,552,402.30	1,678,822.40		
Point 11		0.00	-1,286.12	-2.46		14,552,402.80	1,678,362.40		
Point 12		0.00	-426.72	-6.75		14,553,262.20	1,678,356.80		
Point 13		0.00	893.50	-14.03		14,554,582.40	1,678,347.50		
Point 14		0.00	2,213.71	-21.42		14,555,902.60	1,678,338.10		
Point 15		0.00	3,575.03	-35.45		14,557,263.90	1,678,322.00		
Point 16		0.00	4,936.25	-49.37		14,558,625.10	1,678,306.00		
Point 17		0.00	5,799.36	-54.66		14,559,488.20	1,678,299.40		
CAMENISCH 29N-35HZ - plan misses target center by 4953.80usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	4,936.75	410.63	14,558,626.30	1,678,766.00	40.087502	-104.862888
CAMENISCH 29N-35HZ - plan misses target center by 623.89usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 460.00)	0.00	0.00	0.00	-428.72	453.25	14,553,260.90	1,678,816.80	40.072768	-104.862736
CAMENISCH 29N-35HZ - plan misses target center by 753.45usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-277.47	700.50	14,553,412.52	1,679,063.82	40.073183	-104.861852
CAMENISCH 29N-35HZ	0.00	0.00	7,469.00	5,689.06	789.29	14,559,379.18	1,679,143.51	40.089568	-104.861534

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 29N-35HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Site:	1N-67W-02 Camenisch 13-2HZ Pad	MD Reference:	RKB = 17' @ 5053.00usft (D Rig)
Well:	CAMENISCH 29N-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

- plan hits target center
- Point

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,841.24	1,800.00	9 5/8"	9-5/8	13-1/2	
8,013.01	7,476.00	Top of Production	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,393.32	1,374.00	Fox Hills			
4,772.96	4,601.00	Sussex			
7,521.47	7,296.00	Sharon Springs			
7,598.16	7,346.00	Niobrara			
7,822.76	7,448.00	Nio B			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200	200	0	0	Begin Nudge @ 200.00ft	
1400	1380	-141	123	End Nudge @ 1400.00ft	
4230	4072	-801	696	Begin Drop @ 4230.00ft	
5130	4957	-907	788	End Drop @ 5130.00ft	
7012	6839	-907	788	KOP @ 7012.26ft	
7500	7281	-729	788	DLS = 9°/100'	
8013	7476	-270	788	End Build @ 8013.01ft	
13,972	7469	5689	789	TD Well @ 13971.63ft	

Checked By: _____ Approved By: _____ Date: _____