

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

CAMENISCH 4C-35HZ

Plan A

Plan: Permit Rev-1

Standard Survey Report

09 March, 2016

Project: WELD-NAD83-UTMFT13N
Site: 1N-67W-02 Camenisch 13-2HZ Pad
Well: CAMENISCH 4C-35HZ
Wellbore: Plan A
Design: Permit Rev-1

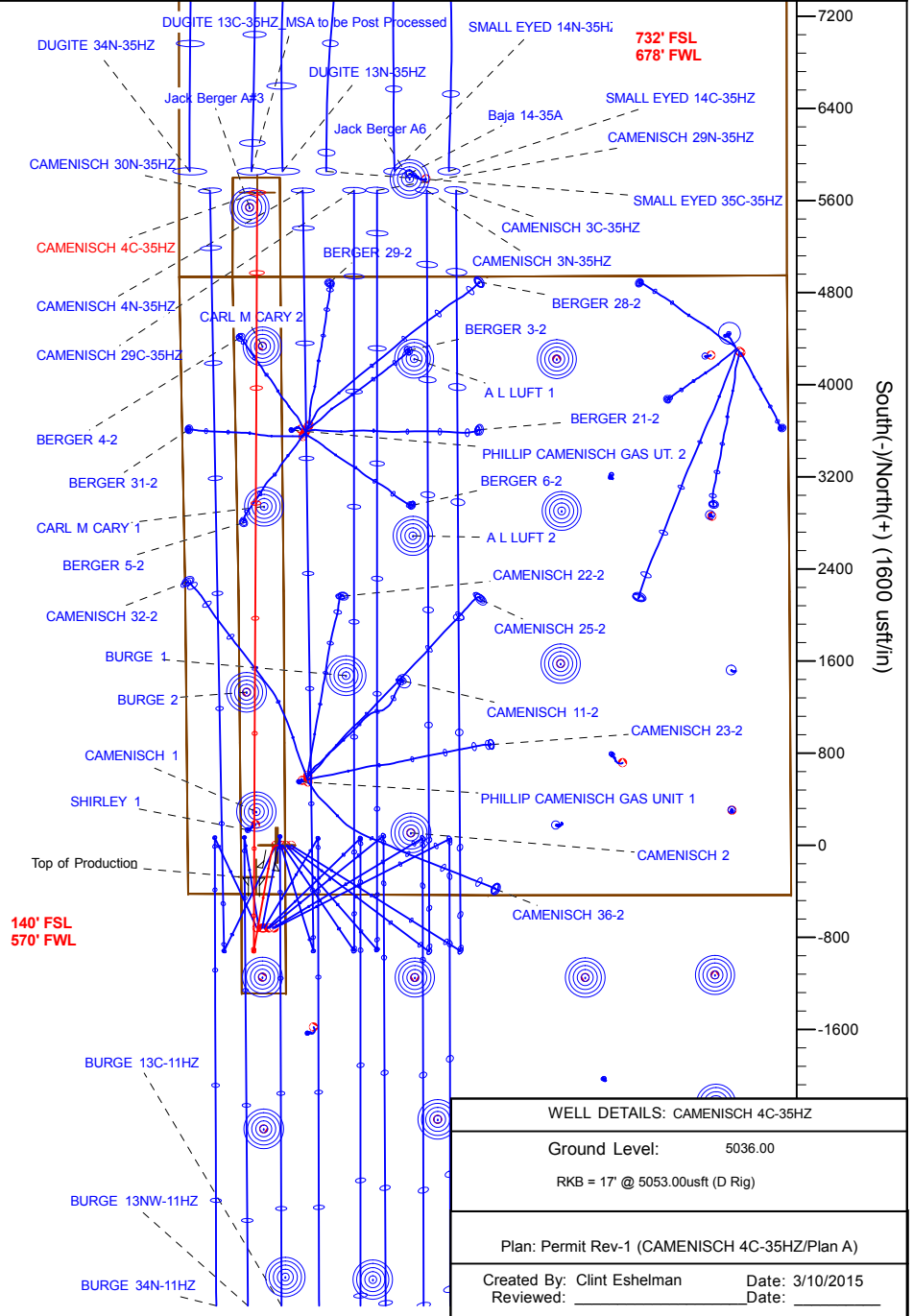
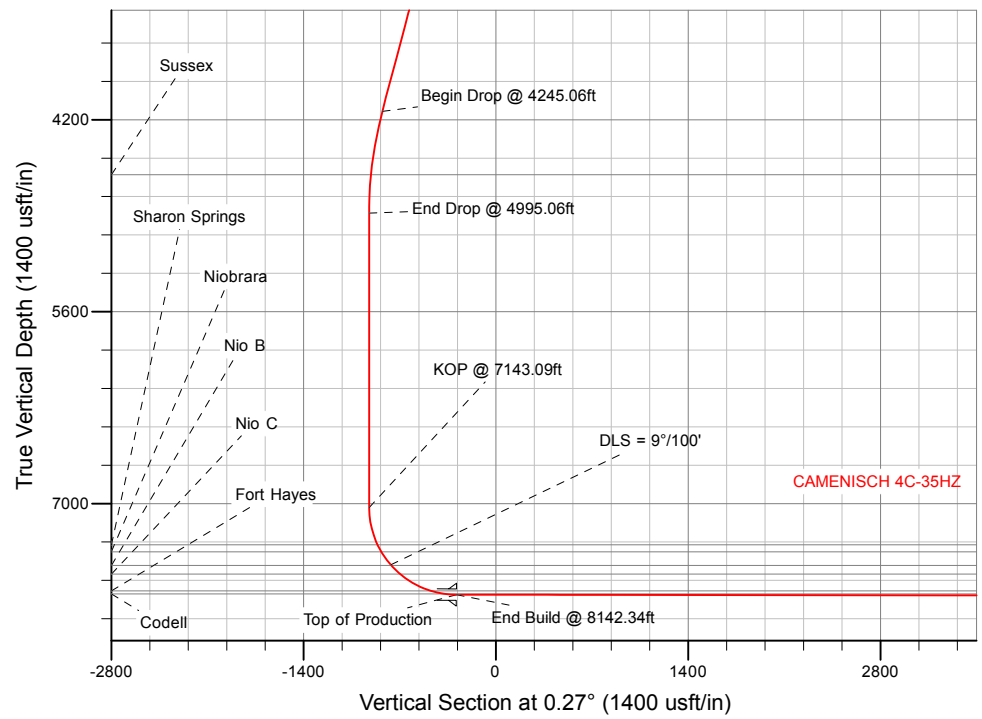
US ROCKIES WATTENBERG PLANNING

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	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	516.67	4.00	270.00	516.45	0.00	-9.30	1.50	270.00	-0.04	
4	1505.06	15.00	190.00	1492.25	-126.67	-66.31	1.50	-95.05	-126.98	
5	4245.06	15.00	190.00	4138.89	-825.06	-189.45	0.00	0.00	-825.95	
6	4995.06	0.00	0.00	4880.35	-921.19	-206.40	2.00	180.00	-922.16	
7	7143.09	0.00	0.00	7028.38	-921.19	-206.40	0.00	0.00	-922.16	
8	8142.34	89.93	0.27	7665.00	-285.33	-203.43	9.00	0.27	-286.29	
9	14097.34	89.93	0.27	7672.00	5669.60	-175.63	0.00	0.00	5668.71	CAMENISCH 4C-35HZ_TOE

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
CAMENISCH 4C-35HZ_SHL	0.00	0.00	0.00	40.073946	-104.864623	Point
CAMENISCH 4C-35HZ_TOE	7672.00	5669.60	-175.63	40.089516	-104.865251	Point



WELL DETAILS: CAMENISCH 4C-35HZ	
Ground Level:	5036.00
RKB = 17' @ 5053.00usft (D Rig)	
Plan: Permit Rev-1 (CAMENISCH 4C-35HZ/Plan A)	
Created By: Clint Eshelman	Date: 3/10/2015
Reviewed:	Date:

Anadarko

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-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 4C-35HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,553,689.17 usft	Latitude:	40.073946
	+E/-W	0.00 usft	Easting:	1,678,288.20 usft	Longitude:	-104.864623
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	0.27	

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	14,097.34	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

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 4° INC, 270° AZI @ 250.00ft										
300.00	0.75	270.00	300.00	0.00	-0.33	0.00	1.50	1.50	0.00	
400.00	2.25	270.00	399.96	0.00	-2.94	-0.01	1.50	1.50	0.00	
500.00	3.75	270.00	499.82	0.00	-8.18	-0.04	1.50	1.50	0.00	
516.67	4.00	270.00	516.45	0.00	-9.30	-0.04	1.50	1.50	0.00	

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-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)
Begin Nudge 15° INC, 190° AZI @ 516.67ft									
600.00	4.08	252.23	599.58	-0.91	-15.04	-0.98	1.50	0.10	-21.32
700.00	4.65	233.87	699.29	-4.38	-21.70	-4.48	1.50	0.56	-18.37
800.00	5.57	220.50	798.90	-10.46	-28.13	-10.60	1.50	0.92	-13.37
900.00	6.70	211.27	898.33	-19.14	-34.31	-19.31	1.50	1.13	-9.23
1,000.00	7.96	204.81	997.51	-30.42	-40.25	-30.61	1.50	1.26	-6.46
1,100.00	9.29	200.14	1,096.38	-44.28	-45.93	-44.50	1.50	1.33	-4.67
1,200.00	10.66	196.65	1,194.86	-60.72	-51.36	-60.96	1.50	1.37	-3.49
1,300.00	12.06	193.95	1,292.90	-79.73	-56.53	-79.99	1.50	1.40	-2.70
1,383.12	13.25	192.14	1,374.00	-97.47	-60.63	-97.76	1.50	1.42	-2.18
Fox Hills									
1,400.00	13.49	191.81	1,390.42	-101.29	-61.44	-101.58	1.50	1.43	-1.95
1,500.00	14.93	190.08	1,487.36	-125.39	-66.08	-125.70	1.50	1.44	-1.73
1,505.06	15.00	190.00	1,492.25	-126.67	-66.31	-126.98	1.50	1.44	-1.56
End Nudge @ 1505.06ft									
1,600.00	15.00	190.00	1,583.96	-150.87	-70.57	-151.20	0.00	0.00	0.00
1,700.00	15.00	190.00	1,680.55	-176.36	-75.07	-176.71	0.00	0.00	0.00
1,800.00	15.00	190.00	1,777.14	-201.85	-79.56	-202.22	0.00	0.00	0.00
1,823.67	15.00	190.00	1,800.00	-207.88	-80.63	-208.26	0.00	0.00	0.00
9 5/8"									
1,900.00	15.00	190.00	1,873.73	-227.34	-84.06	-227.73	0.00	0.00	0.00
2,000.00	15.00	190.00	1,970.33	-252.83	-88.55	-253.24	0.00	0.00	0.00
2,100.00	15.00	190.00	2,066.92	-278.31	-93.05	-278.75	0.00	0.00	0.00
2,200.00	15.00	190.00	2,163.51	-303.80	-97.54	-304.26	0.00	0.00	0.00
2,300.00	15.00	190.00	2,260.10	-329.29	-102.03	-329.77	0.00	0.00	0.00
2,400.00	15.00	190.00	2,356.70	-354.78	-106.53	-355.28	0.00	0.00	0.00
2,500.00	15.00	190.00	2,453.29	-380.27	-111.02	-380.79	0.00	0.00	0.00
2,600.00	15.00	190.00	2,549.88	-405.76	-115.52	-406.30	0.00	0.00	0.00
2,700.00	15.00	190.00	2,646.47	-431.25	-120.01	-431.81	0.00	0.00	0.00
2,800.00	15.00	190.00	2,743.07	-456.74	-124.51	-457.32	0.00	0.00	0.00
2,900.00	15.00	190.00	2,839.66	-482.22	-129.00	-482.83	0.00	0.00	0.00
3,000.00	15.00	190.00	2,936.25	-507.71	-133.50	-508.34	0.00	0.00	0.00
3,100.00	15.00	190.00	3,032.84	-533.20	-137.99	-533.85	0.00	0.00	0.00
3,200.00	15.00	190.00	3,129.44	-558.69	-142.48	-559.36	0.00	0.00	0.00
3,300.00	15.00	190.00	3,226.03	-584.18	-146.98	-584.87	0.00	0.00	0.00
3,400.00	15.00	190.00	3,322.62	-609.67	-151.47	-610.37	0.00	0.00	0.00
3,500.00	15.00	190.00	3,419.22	-635.16	-155.97	-635.88	0.00	0.00	0.00
3,600.00	15.00	190.00	3,515.81	-660.65	-160.46	-661.39	0.00	0.00	0.00
3,700.00	15.00	190.00	3,612.40	-686.13	-164.96	-686.90	0.00	0.00	0.00
3,800.00	15.00	190.00	3,708.99	-711.62	-169.45	-712.41	0.00	0.00	0.00
3,900.00	15.00	190.00	3,805.59	-737.11	-173.94	-737.92	0.00	0.00	0.00
4,000.00	15.00	190.00	3,902.18	-762.60	-178.44	-763.43	0.00	0.00	0.00
4,100.00	15.00	190.00	3,998.77	-788.09	-182.93	-788.94	0.00	0.00	0.00
4,200.00	15.00	190.00	4,095.36	-813.58	-187.43	-814.45	0.00	0.00	0.00

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Survey Report

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Well:	CAMENISCH 4C-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)
4,245.06	15.00	190.00	4,138.89	-825.06	-189.45	-825.95	0.00	0.00	0.00
Begin Drop @ 4245.06ft									
4,300.00	13.90	190.00	4,192.09	-838.56	-191.83	-839.46	2.00	-2.00	0.00
4,400.00	11.90	190.00	4,289.56	-860.55	-195.71	-861.46	2.00	-2.00	0.00
4,500.00	9.90	190.00	4,387.75	-879.17	-198.99	-880.10	2.00	-2.00	0.00
4,600.00	7.90	190.00	4,486.54	-894.41	-201.68	-895.35	2.00	-2.00	0.00
4,700.00	5.90	190.00	4,585.81	-906.24	-203.77	-907.19	2.00	-2.00	0.00
4,715.27	5.60	190.00	4,601.00	-907.75	-204.03	-908.70	2.00	-2.00	0.00
Sussex									
4,800.00	3.90	190.00	4,685.44	-914.66	-205.25	-915.61	2.00	-2.00	0.00
4,900.00	1.90	190.00	4,785.31	-919.64	-206.13	-920.60	2.00	-2.00	0.00
4,995.06	0.00	0.00	4,880.35	-921.19	-206.40	-922.16	2.00	-2.00	0.00
End Drop @ 4995.06ft									
5,000.00	0.00	0.00	4,885.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,100.00	0.00	0.00	4,985.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,200.00	0.00	0.00	5,085.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,300.00	0.00	0.00	5,185.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,400.00	0.00	0.00	5,285.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,500.00	0.00	0.00	5,385.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,600.00	0.00	0.00	5,485.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,700.00	0.00	0.00	5,585.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,800.00	0.00	0.00	5,685.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
5,900.00	0.00	0.00	5,785.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,000.00	0.00	0.00	5,885.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,100.00	0.00	0.00	5,985.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,200.00	0.00	0.00	6,085.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,300.00	0.00	0.00	6,185.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,400.00	0.00	0.00	6,285.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,500.00	0.00	0.00	6,385.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,600.00	0.00	0.00	6,485.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,700.00	0.00	0.00	6,585.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,800.00	0.00	0.00	6,685.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
6,900.00	0.00	0.00	6,785.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
7,000.00	0.00	0.00	6,885.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
7,100.00	0.00	0.00	6,985.29	-921.19	-206.40	-922.16	0.00	0.00	0.00
7,143.09	0.00	0.00	7,028.38	-921.19	-206.40	-922.16	0.00	0.00	0.00
KOP @ 7143.09ft									
7,200.00	5.12	0.27	7,085.21	-918.65	-206.39	-919.61	9.00	9.00	0.00
7,300.00	14.12	0.27	7,183.71	-901.96	-206.31	-902.92	9.00	9.00	0.00
7,400.00	23.12	0.27	7,278.37	-870.06	-206.16	-871.02	9.00	9.00	0.00
7,424.82	25.36	0.27	7,301.00	-859.87	-206.12	-860.83	9.00	9.00	0.00
Sharon Springs									
7,481.41	30.45	0.27	7,351.00	-833.39	-205.99	-834.35	9.00	9.00	0.00
Niobrara									

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-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)
7,500.00	32.12	0.27	7,366.88	-823.74	-205.95	-824.70	9.00	9.00	0.00
7,600.00	41.12	0.27	7,447.06	-764.15	-205.67	-765.11	9.00	9.00	0.00
DLS = 9°/100'									
7,605.25	41.59	0.27	7,451.00	-760.68	-205.65	-761.64	9.00	9.00	0.00
Nio B									
7,695.45	49.71	0.27	7,514.00	-696.23	-205.35	-697.19	9.00	9.00	0.00
Nio C									
7,700.00	50.12	0.27	7,516.93	-692.75	-205.34	-693.71	9.00	9.00	0.00
7,800.00	59.12	0.27	7,574.77	-611.30	-204.96	-612.26	9.00	9.00	0.00
7,900.00	68.12	0.27	7,619.15	-521.80	-204.54	-522.76	9.00	9.00	0.00
7,953.58	72.94	0.27	7,637.00	-471.30	-204.30	-472.26	9.00	9.00	0.00
Fort Hayes									
8,000.00	77.12	0.27	7,648.99	-426.47	-204.09	-427.43	9.00	9.00	0.00
8,063.25	82.81	0.27	7,660.00	-364.21	-203.80	-365.17	9.00	9.00	0.00
Codell									
8,100.00	86.12	0.27	7,663.54	-327.64	-203.63	-328.59	9.00	9.00	0.00
8,142.34	89.93	0.27	7,665.00	-285.33	-203.43	-286.29	9.00	9.00	0.00
End Build @ 8142.34ft - Top of Production									
8,200.00	89.93	0.27	7,665.07	-227.67	-203.16	-228.63	0.00	0.00	0.00
8,300.00	89.93	0.27	7,665.18	-127.67	-202.70	-128.63	0.00	0.00	0.00
8,400.00	89.93	0.27	7,665.30	-27.67	-202.23	-28.63	0.00	0.00	0.00
8,500.00	89.93	0.27	7,665.42	72.32	-201.76	71.37	0.00	0.00	0.00
8,600.00	89.93	0.27	7,665.54	172.32	-201.30	171.37	0.00	0.00	0.00
8,700.00	89.93	0.27	7,665.65	272.32	-200.83	271.37	0.00	0.00	0.00
8,800.00	89.93	0.27	7,665.77	372.32	-200.36	371.37	0.00	0.00	0.00
8,900.00	89.93	0.27	7,665.89	472.32	-199.90	471.37	0.00	0.00	0.00
9,000.00	89.93	0.27	7,666.01	572.32	-199.43	571.37	0.00	0.00	0.00
9,100.00	89.93	0.27	7,666.13	672.32	-198.96	671.37	0.00	0.00	0.00
9,200.00	89.93	0.27	7,666.24	772.32	-198.50	771.37	0.00	0.00	0.00
9,300.00	89.93	0.27	7,666.36	872.32	-198.03	871.37	0.00	0.00	0.00
9,400.00	89.93	0.27	7,666.48	972.31	-197.56	971.37	0.00	0.00	0.00
9,500.00	89.93	0.27	7,666.60	1,072.31	-197.10	1,071.37	0.00	0.00	0.00
9,600.00	89.93	0.27	7,666.71	1,172.31	-196.63	1,171.37	0.00	0.00	0.00
9,700.00	89.93	0.27	7,666.83	1,272.31	-196.16	1,271.37	0.00	0.00	0.00
9,800.00	89.93	0.27	7,666.95	1,372.31	-195.69	1,371.37	0.00	0.00	0.00
9,900.00	89.93	0.27	7,667.07	1,472.31	-195.23	1,471.37	0.00	0.00	0.00
10,000.00	89.93	0.27	7,667.18	1,572.31	-194.76	1,571.37	0.00	0.00	0.00
10,100.00	89.93	0.27	7,667.30	1,672.31	-194.29	1,671.37	0.00	0.00	0.00
10,200.00	89.93	0.27	7,667.42	1,772.30	-193.83	1,771.37	0.00	0.00	0.00
10,300.00	89.93	0.27	7,667.54	1,872.30	-193.36	1,871.37	0.00	0.00	0.00
10,400.00	89.93	0.27	7,667.65	1,972.30	-192.89	1,971.37	0.00	0.00	0.00
10,500.00	89.93	0.27	7,667.77	2,072.30	-192.43	2,071.37	0.00	0.00	0.00
10,600.00	89.93	0.27	7,667.89	2,172.30	-191.96	2,171.37	0.00	0.00	0.00
10,700.00	89.93	0.27	7,668.01	2,272.30	-191.49	2,271.37	0.00	0.00	0.00
10,800.00	89.93	0.27	7,668.12	2,372.30	-191.03	2,371.37	0.00	0.00	0.00

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-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)
10,900.00	89.93	0.27	7,668.24	2,472.30	-190.56	2,471.37	0.00	0.00	0.00
11,000.00	89.93	0.27	7,668.36	2,572.30	-190.09	2,571.37	0.00	0.00	0.00
11,100.00	89.93	0.27	7,668.48	2,672.29	-189.62	2,671.37	0.00	0.00	0.00
11,200.00	89.93	0.27	7,668.59	2,772.29	-189.16	2,771.37	0.00	0.00	0.00
11,300.00	89.93	0.27	7,668.71	2,872.29	-188.69	2,871.37	0.00	0.00	0.00
11,400.00	89.93	0.27	7,668.83	2,972.29	-188.22	2,971.37	0.00	0.00	0.00
11,500.00	89.93	0.27	7,668.95	3,072.29	-187.76	3,071.37	0.00	0.00	0.00
11,600.00	89.93	0.27	7,669.06	3,172.29	-187.29	3,171.37	0.00	0.00	0.00
11,700.00	89.93	0.27	7,669.18	3,272.29	-186.82	3,271.37	0.00	0.00	0.00
11,800.00	89.93	0.27	7,669.30	3,372.29	-186.36	3,371.37	0.00	0.00	0.00
11,900.00	89.93	0.27	7,669.42	3,472.29	-185.89	3,471.37	0.00	0.00	0.00
12,000.00	89.93	0.27	7,669.53	3,572.28	-185.42	3,571.37	0.00	0.00	0.00
12,100.00	89.93	0.27	7,669.65	3,672.28	-184.96	3,671.37	0.00	0.00	0.00
12,200.00	89.93	0.27	7,669.77	3,772.28	-184.49	3,771.37	0.00	0.00	0.00
12,300.00	89.93	0.27	7,669.89	3,872.28	-184.02	3,871.37	0.00	0.00	0.00
12,400.00	89.93	0.27	7,670.00	3,972.28	-183.55	3,971.37	0.00	0.00	0.00
12,500.00	89.93	0.27	7,670.12	4,072.28	-183.09	4,071.37	0.00	0.00	0.00
12,600.00	89.93	0.27	7,670.24	4,172.28	-182.62	4,171.37	0.00	0.00	0.00
12,700.00	89.93	0.27	7,670.36	4,272.28	-182.15	4,271.37	0.00	0.00	0.00
12,800.00	89.93	0.27	7,670.47	4,372.27	-181.69	4,371.37	0.00	0.00	0.00
12,900.00	89.93	0.27	7,670.59	4,472.27	-181.22	4,471.37	0.00	0.00	0.00
13,000.00	89.93	0.27	7,670.71	4,572.27	-180.75	4,571.37	0.00	0.00	0.00
13,100.00	89.93	0.27	7,670.83	4,672.27	-180.29	4,671.37	0.00	0.00	0.00
13,200.00	89.93	0.27	7,670.95	4,772.27	-179.82	4,771.37	0.00	0.00	0.00
13,300.00	89.93	0.27	7,671.06	4,872.27	-179.35	4,871.37	0.00	0.00	0.00
13,400.00	89.93	0.27	7,671.18	4,972.27	-178.89	4,971.37	0.00	0.00	0.00
13,500.00	89.93	0.27	7,671.30	5,072.27	-178.42	5,071.37	0.00	0.00	0.00
13,600.00	89.93	0.27	7,671.42	5,172.27	-177.95	5,171.37	0.00	0.00	0.00
13,700.00	89.93	0.27	7,671.53	5,272.26	-177.49	5,271.37	0.00	0.00	0.00
13,800.00	89.93	0.27	7,671.65	5,372.26	-177.02	5,371.37	0.00	0.00	0.00
13,900.00	89.93	0.27	7,671.77	5,472.26	-176.55	5,471.37	0.00	0.00	0.00
14,000.00	89.93	0.27	7,671.89	5,572.26	-176.08	5,571.37	0.00	0.00	0.00
14,097.34	89.93	0.27	7,672.00	5,669.60	-175.63	5,668.71	0.00	0.00	0.00
TD Well @ 14097.34ft									

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

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									
2N-R67W-Sec. 35_Secti	0.00	0.00	0.00	0.36	-15.11	14,553,689.51	1,678,273.09	40.073947	-104.864677
- plan misses target center by 15.11usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1		0.00	10,230.77	-843.44		14,563,918.99	1,677,414.09		
Point 2		0.00	10,218.65	1,790.52		14,563,910.88	1,680,048.07		
Point 3		0.00	10,206.53	4,424.50		14,563,902.77	1,682,682.06		
Point 4		0.00	7,578.31	4,426.97		14,561,274.55	1,682,688.53		
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 4C-35HZ_	0.00	0.00	0.00	-273.84	-184.36	14,553,415.06	1,678,104.26	40.073194	-104.865282
- plan misses target center by 330.11usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
1N-R67W-Sec. 2_Sectio	0.00	0.00	0.00	0.36	-15.11	14,553,689.51	1,678,273.09	40.073947	-104.864677
- plan misses target center by 15.11usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
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	1,682,722.74		
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	1,677,484.17		
CAMENISCH 4C-35HZ_	0.00	0.00	0.00	0.00	0.00	14,553,689.17	1,678,288.20	40.073946	-104.864623
- plan hits target center									
- Point									
CAMENISCH 4C-35HZ_	0.00	0.00	0.00	0.00	0.00	14,553,689.17	1,678,288.20	40.073946	-104.864623
- plan hits target center									
- Polygon									
Point 1		0.00	5,799.12	-387.68		14,559,487.70	1,677,891.70		
Point 2		0.00	5,799.00	20.02		14,559,488.20	1,678,299.40		
Point 3		0.00	4,935.89	25.31		14,558,625.10	1,678,306.00		
Point 4		0.00	3,574.67	39.23		14,557,263.90	1,678,322.00		
Point 5		0.00	2,213.34	53.26		14,555,902.60	1,678,338.10		
Point 6		0.00	893.13	60.66		14,554,582.40	1,678,347.50		
Point 7		0.00	-427.08	67.95		14,553,262.20	1,678,356.80		
Point 8		0.00	-1,286.49	72.24		14,552,402.80	1,678,362.40		
Point 9		0.00	-1,285.51	-309.86		14,552,403.20	1,677,980.30		
Point 10		0.00	-425.50	-312.05		14,553,263.20	1,677,976.80		
Point 11		0.00	894.32	-324.84		14,554,583.00	1,677,962.00		
Point 12		0.00	2,214.14	-337.74		14,555,902.80	1,677,947.10		
Point 13		0.00	3,574.88	-363.67		14,557,263.50	1,677,919.10		
Point 14		0.00	4,935.52	-389.60		14,558,624.10	1,677,891.10		
Point 15		0.00	5,799.12	-387.68		14,559,487.70	1,677,891.70		
CAMENISCH 4C-35HZ_	0.00	0.00	7,672.00	5,669.60	-175.63	14,559,358.50	1,678,103.95	40.089516	-104.865251
- plan hits target center									
- Point									

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Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well CAMENISCH 4C-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 4C-35HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Permit Rev-1	Database:	PLANNING

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,823.67	1,800.00	9 5/8"	9-5/8	13-1/2	
8,142.34	7,665.00	Top of Production	5-1/2	7	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,383.12	1,374.00	Fox Hills			
4,715.27	4,601.00	Sussex			
7,424.82	7,301.00	Sharon Springs			
7,481.41	7,351.00	Niobrara			
7,605.25	7,451.00	Nio B			
7,695.45	7,514.00	Nio C			
7,953.58	7,637.00	Fort Hayes			
8,063.25	7,660.00	Codell			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250	250	0	0	Begin Nudge 4° INC, 270° AZI @ 250.00ft	
517	516	0	-9	Begin Nudge 15° INC, 190° AZI @ 516.67ft	
1505	1492	-127	-66	End Nudge @ 1505.06ft	
4245	4139	-825	-189	Begin Drop @ 4245.06ft	
4995	4880	-921	-206	End Drop @ 4995.06ft	
7143	7028	-921	-206	KOP @ 7143.09ft	
7600	7447	-764	-206	DLS = 9°/100'	
8142	7665	-285	-203	End Build @ 8142.34ft	
14,097	7672	5670	-176	TD Well @ 14097.34ft	

Checked By: _____ Approved By: _____ Date: _____