

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-67W-21 REESE 5-21HZ PAD

REESE 21-7HZ

Plan A

Plan: Permit Rev-2

SHL Lat/Long: 40.125498/-104.903764

Survey Program: MWD+IFR+MSA

Standard Planning Report

15 February, 2018

Project: WELD-NAD83-UTMFT13N
Site: 2N-67W-21 REESE 5-21HZ PAD
Well: REESE 21-7HZ
Wellbore: Plan A
Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1523.46	9-5/8
7605.00	8425.15	5-1/2

WELL DETAILS: REESE 21-7HZ
GL = 4997'
RKB = 17' @ 5014.00usft (Drilling Rig)

SECTION DETAILS

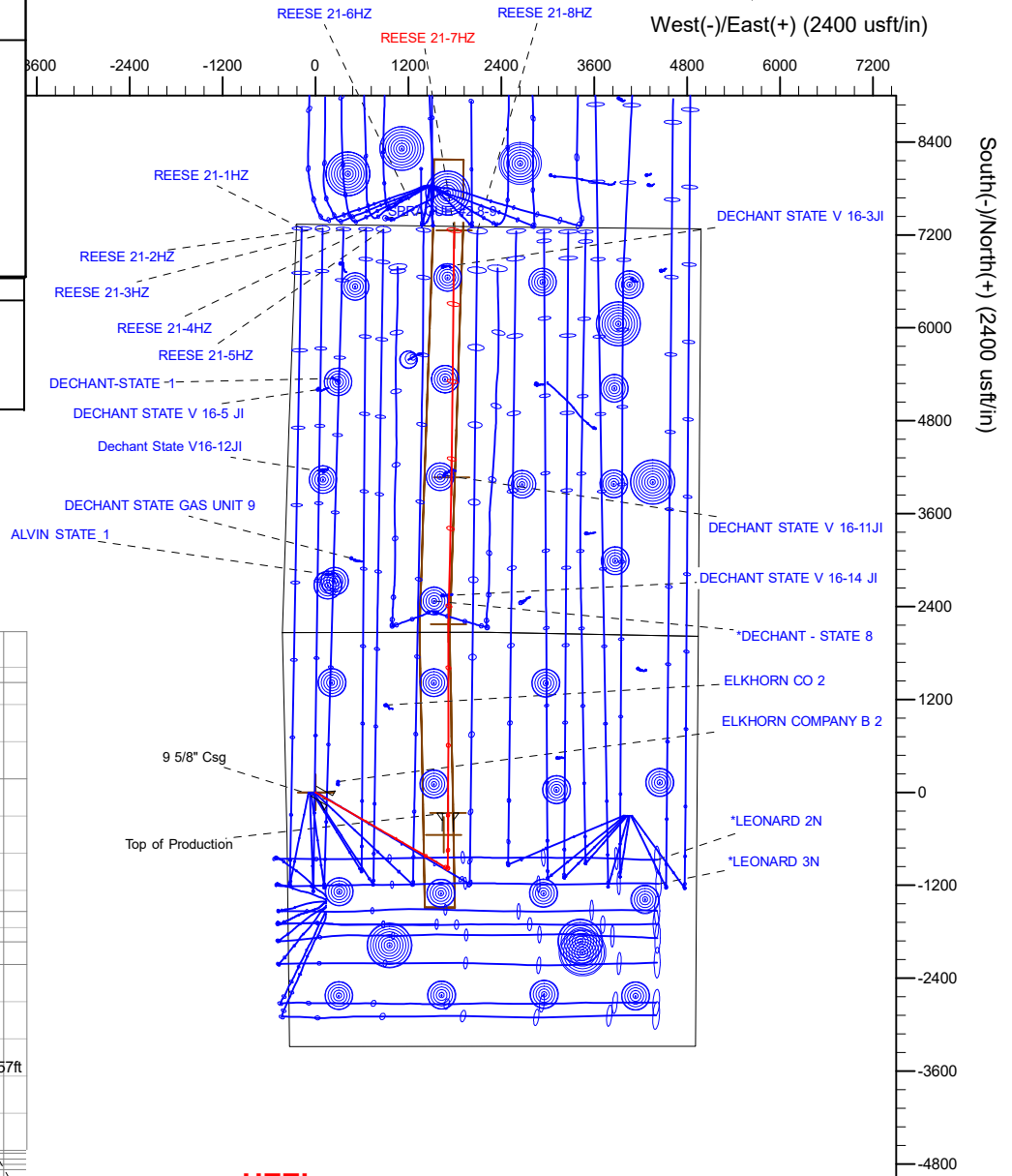
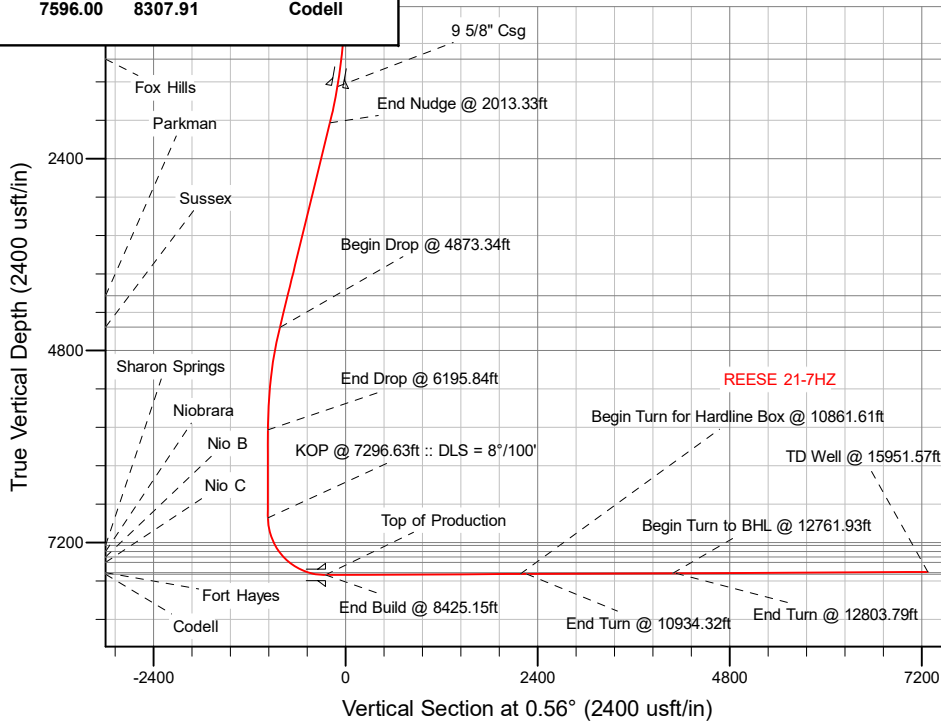
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	2013.33	26.45	120.00	1951.37	-199.92	346.27	1.50	120.00	-196.52	
4	4873.34	26.45	120.00	4512.00	-836.86	1449.49	0.00	0.00	-822.66	
5	6195.84	0.00	0.00	5788.02	-986.80	1709.19	2.00	-180.00	-970.05	
6	7296.63	0.00	0.00	6888.81	-986.80	1709.19	0.00	0.00	-970.05	
7	8425.15	90.28	0.13	7605.00	-267.09	1710.85	8.00	0.13	-250.35	
8	10861.61	90.28	0.13	7593.03	2169.34	1716.45	0.00	0.00	2186.01	REESE 21-7HZ_tgt
9	10934.32	90.28	1.22	7592.67	2242.04	1717.31	1.50	89.98	2258.72	
10	12761.93	90.28	1.22	7583.68	4069.21	1756.29	0.00	0.00	4086.18	REESE 21-7HZ_tgt2
11	12803.79	90.28	0.59	7583.47	4111.07	1756.96	1.50	-90.02	4128.04	
12	15951.57	90.28	0.59	7568.00	7258.64	1789.61	0.00	0.00	7275.79	REESE 21-7HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
REESE 21-7HZ_SHL	0.00	0.00	0.00	40.125498	-104.903764
REESE 21-7HZ_BHL	7568.00	7258.64	1789.61	40.145431	-104.897360

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1156.00	1164.72	Fox Hills
4114.00	4428.81	Parkman
4506.00	4866.64	Sussex
7235.00	7657.95	Sharon Springs
7313.00	7750.62	Niobrara
7380.00	7837.89	Nio B
7446.00	7935.08	Nio C
7576.00	8217.09	Fort Hayes
7596.00	8307.91	Codell



SHL
2065' FNL
382' FWL

HEEL
2334' FNL
2085' FWL

TOE
50' FNL
2039' FWL

Plan: Permit Rev-2 (REESE 21-7HZ/Plan A)

Created By: _____ Date: 2/15/2018
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well REESE 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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-67W-21 REESE 5-21HZ PAD			
Site Position:		Northing:	14,572,447.69 usft	Latitude:	40.125499
From:	Lat/Long	Easting:	1,667,228.23 usft	Longitude:	-104.904086
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.06 °

Well	REESE 21-7HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,572,447.42 usft	Latitude:	40.125498
	+E/-W	90.01 usft	Easting:	1,667,318.25 usft	Longitude:	-104.903764
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,997.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/30/2017	8.05	66.58	52,292.06780289

Design	Permit Rev-2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.56	

Plan Survey Tool Program		Date	2/15/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio	
2	1,500.00	15,951.58	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +	

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	
2,013.33	26.45	120.00	1,951.37	-199.92	346.27	1.50	1.50	0.00	120.00	
4,873.34	26.45	120.00	4,512.00	-836.86	1,449.49	0.00	0.00	0.00	0.00	
6,195.84	0.00	0.00	5,788.02	-986.80	1,709.19	2.00	-2.00	-9.07	-180.00	
7,296.63	0.00	0.00	6,888.81	-986.80	1,709.19	0.00	0.00	0.00	0.00	
8,425.15	90.28	0.13	7,605.00	-267.09	1,710.85	8.00	8.00	0.01	0.13	
10,861.61	90.28	0.13	7,593.03	2,169.34	1,716.45	0.00	0.00	0.00	0.00	REESE 21-7HZ_tgt
10,934.32	90.28	1.22	7,592.67	2,242.04	1,717.31	1.50	0.00	1.50	89.98	
12,761.93	90.28	1.22	7,583.68	4,069.21	1,756.29	0.00	0.00	0.00	0.00	REESE 21-7HZ_tgt2
12,803.79	90.28	0.59	7,583.47	4,111.07	1,756.96	1.50	0.00	-1.50	-90.02	
15,951.58	90.28	0.59	7,568.00	7,258.64	1,789.61	0.00	0.00	0.00	0.00	REESE 21-7HZ_BHL

Corporate Planning Report

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Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	120.00	300.00	-0.16	0.28	-0.16	1.50	1.50	0.00
400.00	2.25	120.00	399.96	-1.47	2.55	-1.45	1.50	1.50	0.00
500.00	3.75	120.00	499.82	-4.09	7.08	-4.02	1.50	1.50	0.00
600.00	5.25	120.00	599.51	-8.01	13.88	-7.88	1.50	1.50	0.00
700.00	6.75	120.00	698.96	-13.24	22.93	-13.01	1.50	1.50	0.00
800.00	8.25	120.00	798.10	-19.76	34.23	-19.43	1.50	1.50	0.00
900.00	9.75	120.00	896.87	-27.59	47.78	-27.12	1.50	1.50	0.00
1,000.00	11.25	120.00	995.19	-36.70	63.56	-36.07	1.50	1.50	0.00
1,100.00	12.75	120.00	1,093.00	-47.09	81.57	-46.29	1.50	1.50	0.00
1,164.72	13.72	120.00	1,156.00	-54.50	94.40	-53.58	1.50	1.50	0.00
Fox Hills									
1,200.00	14.25	120.00	1,190.24	-58.76	101.78	-57.77	1.50	1.50	0.00
1,300.00	15.75	120.00	1,286.83	-71.71	124.20	-70.49	1.50	1.50	0.00
1,400.00	17.25	120.00	1,382.71	-85.91	148.79	-84.45	1.50	1.50	0.00
1,500.00	18.75	120.00	1,477.81	-101.36	175.55	-99.64	1.50	1.50	0.00
1,523.46	19.10	120.00	1,500.00	-105.16	182.14	-103.38	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	120.00	1,572.07	-118.05	204.46	-116.04	1.50	1.50	0.00
1,700.00	21.75	120.00	1,665.43	-135.96	235.50	-133.66	1.50	1.50	0.00
1,800.00	23.25	120.00	1,757.81	-155.10	268.64	-152.46	1.50	1.50	0.00
1,900.00	24.75	120.00	1,849.16	-175.43	303.86	-172.46	1.50	1.50	0.00
2,000.00	26.25	120.00	1,939.42	-196.96	341.14	-193.61	1.50	1.50	0.00
2,013.33	26.45	120.00	1,951.37	-199.92	346.27	-196.52	1.50	1.50	0.00
End Nudge @ 2013.33ft									
2,100.00	26.45	120.00	2,028.96	-219.22	379.70	-215.50	0.00	0.00	0.00
2,200.00	26.45	120.00	2,118.49	-241.49	418.27	-237.39	0.00	0.00	0.00
2,300.00	26.45	120.00	2,208.03	-263.76	456.85	-259.28	0.00	0.00	0.00
2,400.00	26.45	120.00	2,297.56	-286.03	495.42	-281.18	0.00	0.00	0.00
2,500.00	26.45	120.00	2,387.09	-308.30	534.00	-303.07	0.00	0.00	0.00
2,600.00	26.45	120.00	2,476.62	-330.57	572.57	-324.96	0.00	0.00	0.00
2,700.00	26.45	120.00	2,566.16	-352.84	611.14	-346.85	0.00	0.00	0.00
2,800.00	26.45	120.00	2,655.69	-375.11	649.72	-368.75	0.00	0.00	0.00
2,900.00	26.45	120.00	2,745.22	-397.39	688.29	-390.64	0.00	0.00	0.00
3,000.00	26.45	120.00	2,834.75	-419.66	726.87	-412.53	0.00	0.00	0.00
3,100.00	26.45	120.00	2,924.28	-441.93	765.44	-434.43	0.00	0.00	0.00
3,200.00	26.45	120.00	3,013.82	-464.20	804.01	-456.32	0.00	0.00	0.00
3,300.00	26.45	120.00	3,103.35	-486.47	842.59	-478.21	0.00	0.00	0.00
3,400.00	26.45	120.00	3,192.88	-508.74	881.16	-500.10	0.00	0.00	0.00
3,500.00	26.45	120.00	3,282.41	-531.01	919.74	-522.00	0.00	0.00	0.00
3,600.00	26.45	120.00	3,371.95	-553.28	958.31	-543.89	0.00	0.00	0.00
3,700.00	26.45	120.00	3,461.48	-575.55	996.89	-565.78	0.00	0.00	0.00
3,800.00	26.45	120.00	3,551.01	-597.82	1,035.46	-587.67	0.00	0.00	0.00
3,900.00	26.45	120.00	3,640.54	-620.09	1,074.03	-609.57	0.00	0.00	0.00
4,000.00	26.45	120.00	3,730.08	-642.36	1,112.61	-631.46	0.00	0.00	0.00
4,100.00	26.45	120.00	3,819.61	-664.64	1,151.18	-653.35	0.00	0.00	0.00
4,200.00	26.45	120.00	3,909.14	-686.91	1,189.76	-675.25	0.00	0.00	0.00
4,300.00	26.45	120.00	3,998.67	-709.18	1,228.33	-697.14	0.00	0.00	0.00
4,400.00	26.45	120.00	4,088.20	-731.45	1,266.91	-719.03	0.00	0.00	0.00
4,428.81	26.45	120.00	4,114.00	-737.86	1,278.02	-725.34	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well REESE 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
Parkman									
4,500.00	26.45	120.00	4,177.74	-753.72	1,305.48	-740.92	0.00	0.00	0.00
4,600.00	26.45	120.00	4,267.27	-775.99	1,344.05	-762.82	0.00	0.00	0.00
4,700.00	26.45	120.00	4,356.80	-798.26	1,382.63	-784.71	0.00	0.00	0.00
4,800.00	26.45	120.00	4,446.33	-820.53	1,421.20	-806.60	0.00	0.00	0.00
4,866.64	26.45	120.00	4,506.00	-835.37	1,446.91	-821.19	0.00	0.00	0.00
Sussex									
4,873.34	26.45	120.00	4,512.00	-836.86	1,449.49	-822.66	0.00	0.00	0.00
Begin Drop @ 4873.34ft									
4,900.00	25.92	120.00	4,535.92	-842.75	1,459.68	-828.44	2.00	-2.00	0.00
5,000.00	23.92	120.00	4,626.61	-863.81	1,496.16	-849.15	2.00	-2.00	0.00
5,100.00	21.92	120.00	4,718.71	-883.28	1,529.88	-868.28	2.00	-2.00	0.00
5,200.00	19.92	120.00	4,812.12	-901.13	1,560.80	-885.83	2.00	-2.00	0.00
5,300.00	17.92	120.00	4,906.71	-917.34	1,588.88	-901.77	2.00	-2.00	0.00
5,400.00	15.92	120.00	5,002.38	-931.89	1,614.07	-916.07	2.00	-2.00	0.00
5,500.00	13.92	120.00	5,099.00	-944.76	1,636.37	-928.72	2.00	-2.00	0.00
5,600.00	11.92	120.00	5,196.47	-955.93	1,655.72	-939.70	2.00	-2.00	0.00
5,700.00	9.92	120.00	5,294.65	-965.40	1,672.12	-949.01	2.00	-2.00	0.00
5,800.00	7.92	120.00	5,393.44	-973.15	1,685.55	-956.63	2.00	-2.00	0.00
5,900.00	5.92	120.00	5,492.71	-979.17	1,695.98	-962.55	2.00	-2.00	0.00
6,000.00	3.92	120.00	5,592.33	-983.46	1,703.40	-966.76	2.00	-2.00	0.00
6,100.00	1.92	120.00	5,692.20	-986.00	1,707.80	-969.26	2.00	-2.00	0.00
6,195.84	0.00	0.00	5,788.02	-986.80	1,709.19	-970.05	2.00	-2.00	-125.21
End Drop @ 6195.84ft									
6,200.00	0.00	0.00	5,792.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,300.00	0.00	0.00	5,892.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,400.00	0.00	0.00	5,992.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,500.00	0.00	0.00	6,092.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,600.00	0.00	0.00	6,192.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,700.00	0.00	0.00	6,292.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,800.00	0.00	0.00	6,392.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
6,900.00	0.00	0.00	6,492.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
7,000.00	0.00	0.00	6,592.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
7,100.00	0.00	0.00	6,692.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
7,200.00	0.00	0.00	6,792.18	-986.80	1,709.19	-970.05	0.00	0.00	0.00
7,296.63	0.00	0.00	6,888.81	-986.80	1,709.19	-970.05	0.00	0.00	0.00
KOP @ 7296.63ft :: DLS = 8°/100'									
7,300.00	0.27	0.13	6,892.18	-986.80	1,709.19	-970.04	8.00	8.00	3.91
7,400.00	8.27	0.13	6,991.82	-979.36	1,709.21	-962.60	8.00	8.00	0.00
7,500.00	16.27	0.13	7,089.46	-958.12	1,709.26	-941.37	8.00	8.00	0.00
7,600.00	24.27	0.13	7,183.19	-923.51	1,709.34	-906.76	8.00	8.00	0.00
7,657.95	28.91	0.13	7,235.00	-897.58	1,709.40	-880.83	8.00	8.00	0.00
Sharon Springs									
7,700.00	32.27	0.13	7,271.19	-876.18	1,709.45	-859.43	8.00	8.00	0.00
7,750.62	36.32	0.13	7,313.00	-847.67	1,709.51	-830.92	8.00	8.00	0.00
Niobrara									
7,800.00	40.27	0.13	7,351.75	-817.07	1,709.58	-800.32	8.00	8.00	0.00
7,837.89	43.30	0.13	7,380.00	-791.83	1,709.64	-775.08	8.00	8.00	0.00
Nio B									
7,900.00	48.27	0.13	7,423.30	-747.33	1,709.74	-730.58	8.00	8.00	0.00
7,935.08	51.08	0.13	7,446.00	-720.58	1,709.80	-703.84	8.00	8.00	0.00
Nio C									
8,000.00	56.27	0.13	7,484.44	-668.30	1,709.93	-651.56	8.00	8.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well REESE 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
8,100.00	64.27	0.13	7,534.00	-581.53	1,710.12	-564.79	8.00	8.00	0.00
8,200.00	72.27	0.13	7,570.99	-488.72	1,710.34	-471.98	8.00	8.00	0.00
8,217.09	73.64	0.13	7,576.00	-472.38	1,710.38	-455.64	8.00	8.00	0.00
Fort Hayes									
8,300.00	80.27	0.13	7,594.71	-391.65	1,710.56	-374.92	8.00	8.00	0.00
8,307.91	80.90	0.13	7,596.00	-383.85	1,710.58	-367.11	8.00	8.00	0.00
Codell									
8,400.00	88.27	0.13	7,604.68	-292.23	1,710.79	-275.50	8.00	8.00	0.00
8,425.15	90.28	0.13	7,605.00	-267.09	1,710.85	-250.35	8.00	8.00	0.00
End Build @ 8425.15ft - Top of Production									
8,500.00	90.28	0.13	7,604.63	-192.24	1,711.02	-175.51	0.00	0.00	0.00
8,600.00	90.28	0.13	7,604.14	-92.24	1,711.25	-75.51	0.00	0.00	0.00
8,700.00	90.28	0.13	7,603.65	7.76	1,711.48	24.49	0.00	0.00	0.00
8,800.00	90.28	0.13	7,603.16	107.76	1,711.71	124.48	0.00	0.00	0.00
8,900.00	90.28	0.13	7,602.67	207.76	1,711.94	224.48	0.00	0.00	0.00
9,000.00	90.28	0.13	7,602.18	307.75	1,712.17	324.47	0.00	0.00	0.00
9,100.00	90.28	0.13	7,601.69	407.75	1,712.40	424.47	0.00	0.00	0.00
9,200.00	90.28	0.13	7,601.19	507.75	1,712.63	524.47	0.00	0.00	0.00
9,300.00	90.28	0.13	7,600.70	607.75	1,712.86	624.46	0.00	0.00	0.00
9,400.00	90.28	0.13	7,600.21	707.75	1,713.09	724.46	0.00	0.00	0.00
9,500.00	90.28	0.13	7,599.72	807.75	1,713.32	824.45	0.00	0.00	0.00
9,600.00	90.28	0.13	7,599.23	907.75	1,713.55	924.45	0.00	0.00	0.00
9,700.00	90.28	0.13	7,598.74	1,007.74	1,713.78	1,024.45	0.00	0.00	0.00
9,800.00	90.28	0.13	7,598.25	1,107.74	1,714.01	1,124.44	0.00	0.00	0.00
9,900.00	90.28	0.13	7,597.75	1,207.74	1,714.24	1,224.44	0.00	0.00	0.00
10,000.00	90.28	0.13	7,597.26	1,307.74	1,714.47	1,324.43	0.00	0.00	0.00
10,100.00	90.28	0.13	7,596.77	1,407.74	1,714.70	1,424.43	0.00	0.00	0.00
10,200.00	90.28	0.13	7,596.28	1,507.74	1,714.93	1,524.43	0.00	0.00	0.00
10,300.00	90.28	0.13	7,595.79	1,607.73	1,715.16	1,624.42	0.00	0.00	0.00
10,400.00	90.28	0.13	7,595.30	1,707.73	1,715.39	1,724.42	0.00	0.00	0.00
10,500.00	90.28	0.13	7,594.81	1,807.73	1,715.62	1,824.41	0.00	0.00	0.00
10,600.00	90.28	0.13	7,594.32	1,907.73	1,715.85	1,924.41	0.00	0.00	0.00
10,700.00	90.28	0.13	7,593.82	2,007.73	1,716.08	2,024.41	0.00	0.00	0.00
10,800.00	90.28	0.13	7,593.33	2,107.73	1,716.31	2,124.40	0.00	0.00	0.00
10,861.61	90.28	0.13	7,593.03	2,169.34	1,716.45	2,186.01	0.00	0.00	0.00
Begin Turn for Hardline Box @ 10861.61ft									
10,900.00	90.28	0.71	7,592.84	2,207.72	1,716.73	2,224.40	1.50	0.00	1.50
10,934.32	90.28	1.22	7,592.67	2,242.04	1,717.31	2,258.72	1.50	0.00	1.50
End Turn @ 10934.32ft									
11,000.00	90.28	1.22	7,592.35	2,307.70	1,718.71	2,324.39	0.00	0.00	0.00
11,100.00	90.28	1.22	7,591.86	2,407.68	1,720.84	2,424.38	0.00	0.00	0.00
11,200.00	90.28	1.22	7,591.37	2,507.66	1,722.97	2,524.38	0.00	0.00	0.00
11,300.00	90.28	1.22	7,590.87	2,607.63	1,725.11	2,624.37	0.00	0.00	0.00
11,400.00	90.28	1.22	7,590.38	2,707.61	1,727.24	2,724.36	0.00	0.00	0.00
11,500.00	90.28	1.22	7,589.89	2,807.58	1,729.37	2,824.35	0.00	0.00	0.00
11,600.00	90.28	1.22	7,589.40	2,907.56	1,731.51	2,924.34	0.00	0.00	0.00
11,700.00	90.28	1.22	7,588.91	3,007.54	1,733.64	3,024.34	0.00	0.00	0.00
11,800.00	90.28	1.22	7,588.41	3,107.51	1,735.77	3,124.33	0.00	0.00	0.00
11,900.00	90.28	1.22	7,587.92	3,207.49	1,737.91	3,224.32	0.00	0.00	0.00
12,000.00	90.28	1.22	7,587.43	3,307.46	1,740.04	3,324.31	0.00	0.00	0.00
12,100.00	90.28	1.22	7,586.94	3,407.44	1,742.17	3,424.30	0.00	0.00	0.00
12,200.00	90.28	1.22	7,586.45	3,507.42	1,744.31	3,524.30	0.00	0.00	0.00
12,300.00	90.28	1.22	7,585.95	3,607.39	1,746.44	3,624.29	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well REESE 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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)
12,400.00	90.28	1.22	7,585.46	3,707.37	1,748.57	3,724.28	0.00	0.00	0.00
12,500.00	90.28	1.22	7,584.97	3,807.34	1,750.71	3,824.27	0.00	0.00	0.00
12,600.00	90.28	1.22	7,584.48	3,907.32	1,752.84	3,924.27	0.00	0.00	0.00
12,700.00	90.28	1.22	7,583.98	4,007.30	1,754.97	4,024.26	0.00	0.00	0.00
12,761.93	90.28	1.22	7,583.68	4,069.21	1,756.29	4,086.18	0.00	0.00	0.00
Begin Turn to BHL @ 12761.93ft									
12,800.00	90.28	0.65	7,583.49	4,107.28	1,756.92	4,124.25	1.50	0.00	-1.50
12,803.79	90.28	0.59	7,583.47	4,111.07	1,756.96	4,128.04	1.50	0.00	-1.50
End Turn @ 12803.79ft									
12,900.00	90.28	0.59	7,583.00	4,207.27	1,757.96	4,224.25	0.00	0.00	0.00
13,000.00	90.28	0.59	7,582.51	4,307.26	1,758.99	4,324.25	0.00	0.00	0.00
13,100.00	90.28	0.59	7,582.02	4,407.26	1,760.03	4,424.25	0.00	0.00	0.00
13,200.00	90.28	0.59	7,581.53	4,507.25	1,761.07	4,524.25	0.00	0.00	0.00
13,300.00	90.28	0.59	7,581.03	4,607.24	1,762.10	4,624.25	0.00	0.00	0.00
13,400.00	90.28	0.59	7,580.54	4,707.24	1,763.14	4,724.24	0.00	0.00	0.00
13,500.00	90.28	0.59	7,580.05	4,807.23	1,764.18	4,824.24	0.00	0.00	0.00
13,600.00	90.28	0.59	7,579.56	4,907.22	1,765.22	4,924.24	0.00	0.00	0.00
13,700.00	90.28	0.59	7,579.07	5,007.22	1,766.25	5,024.24	0.00	0.00	0.00
13,800.00	90.28	0.59	7,578.58	5,107.21	1,767.29	5,124.24	0.00	0.00	0.00
13,900.00	90.28	0.59	7,578.09	5,207.20	1,768.33	5,224.24	0.00	0.00	0.00
14,000.00	90.28	0.59	7,577.59	5,307.20	1,769.37	5,324.24	0.00	0.00	0.00
14,100.00	90.28	0.59	7,577.10	5,407.19	1,770.40	5,424.24	0.00	0.00	0.00
14,200.00	90.28	0.59	7,576.61	5,507.18	1,771.44	5,524.23	0.00	0.00	0.00
14,300.00	90.28	0.59	7,576.12	5,607.18	1,772.48	5,624.23	0.00	0.00	0.00
14,400.00	90.28	0.59	7,575.63	5,707.17	1,773.52	5,724.23	0.00	0.00	0.00
14,500.00	90.28	0.59	7,575.14	5,807.16	1,774.55	5,824.23	0.00	0.00	0.00
14,600.00	90.28	0.59	7,574.64	5,907.16	1,775.59	5,924.23	0.00	0.00	0.00
14,700.00	90.28	0.59	7,574.15	6,007.15	1,776.63	6,024.23	0.00	0.00	0.00
14,800.00	90.28	0.59	7,573.66	6,107.14	1,777.66	6,124.23	0.00	0.00	0.00
14,900.00	90.28	0.59	7,573.17	6,207.14	1,778.70	6,224.23	0.00	0.00	0.00
15,000.00	90.28	0.59	7,572.68	6,307.13	1,779.74	6,324.22	0.00	0.00	0.00
15,100.00	90.28	0.59	7,572.19	6,407.12	1,780.78	6,424.22	0.00	0.00	0.00
15,200.00	90.28	0.59	7,571.69	6,507.12	1,781.81	6,524.22	0.00	0.00	0.00
15,300.00	90.28	0.59	7,571.20	6,607.11	1,782.85	6,624.22	0.00	0.00	0.00
15,400.00	90.28	0.59	7,570.71	6,707.10	1,783.89	6,724.22	0.00	0.00	0.00
15,500.00	90.28	0.59	7,570.22	6,807.10	1,784.93	6,824.22	0.00	0.00	0.00
15,600.00	90.28	0.59	7,569.73	6,907.09	1,785.96	6,924.22	0.00	0.00	0.00
15,700.00	90.28	0.59	7,569.24	7,007.08	1,787.00	7,024.22	0.00	0.00	0.00
15,800.00	90.28	0.59	7,568.75	7,107.08	1,788.04	7,124.21	0.00	0.00	0.00
15,900.00	90.28	0.59	7,568.25	7,207.07	1,789.08	7,224.21	0.00	0.00	0.00
15,951.58	90.28	0.59	7,568.00	7,258.64	1,789.61	7,275.79	0.00	0.00	0.00
TD Well @ 15951.57ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,425.15	7,605.00	Top of Production	5-1/2	7-7/8	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well REESE 21-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5014.00usft (Drilling Rig)
Site:	2N-67W-21 REESE 5-21HZ PAD	North Reference:	True
Well:	REESE 21-7HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,164.72	1,156.00	Fox Hills				
4,428.81	4,114.00	Parkman				
4,866.64	4,506.00	Sussex				
7,657.95	7,235.00	Sharon Springs				
7,750.62	7,313.00	Niobrara				
7,837.89	7,380.00	Nio B				
7,935.08	7,446.00	Nio C				
8,217.09	7,576.00	Fort Hayes				
8,307.91	7,596.00	Codell				

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	
2,013.33	1,951.37	-199.92	346.27	End Nudge @ 2013.33ft	
4,873.34	4,512.00	-836.86	1,449.49	Begin Drop @ 4873.34ft	
6,195.84	5,788.02	-986.80	1,709.19	End Drop @ 6195.84ft	
7,296.63	6,888.81	-986.80	1,709.19	KOP @ 7296.63ft :: DLS = 8°/100'	
8,425.15	7,605.00	-267.09	1,710.85	End Build @ 8425.15ft	
10,861.61	7,593.03	2,169.34	1,716.45	Begin Turn for Hardline Box @ 10861.61ft	
10,934.32	7,592.67	2,242.04	1,717.31	End Turn @ 10934.32ft	
12,761.93	7,583.68	4,069.21	1,756.29	Begin Turn to BHL @ 12761.93ft	
12,803.79	7,583.47	4,111.07	1,756.96	End Turn @ 12803.79ft	
15,951.58	7,568.00	7,258.64	1,789.61	TD Well @ 15951.57ft	