

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
2N-65W-33 ROCKY 1-33HZ Pad
ROCKY 20N-33HZ**

Plan A

Plan: Permit Rev-2

Standard Planning Report

02 November, 2016

Project: WELD-NAD83-UTMFT13N
Site: 2N-65W-33 ROCKY 1-33HZ Pad
Well: ROCKY 20N-33HZ
Wellbore: Plan A
Design: Permit Rev-2

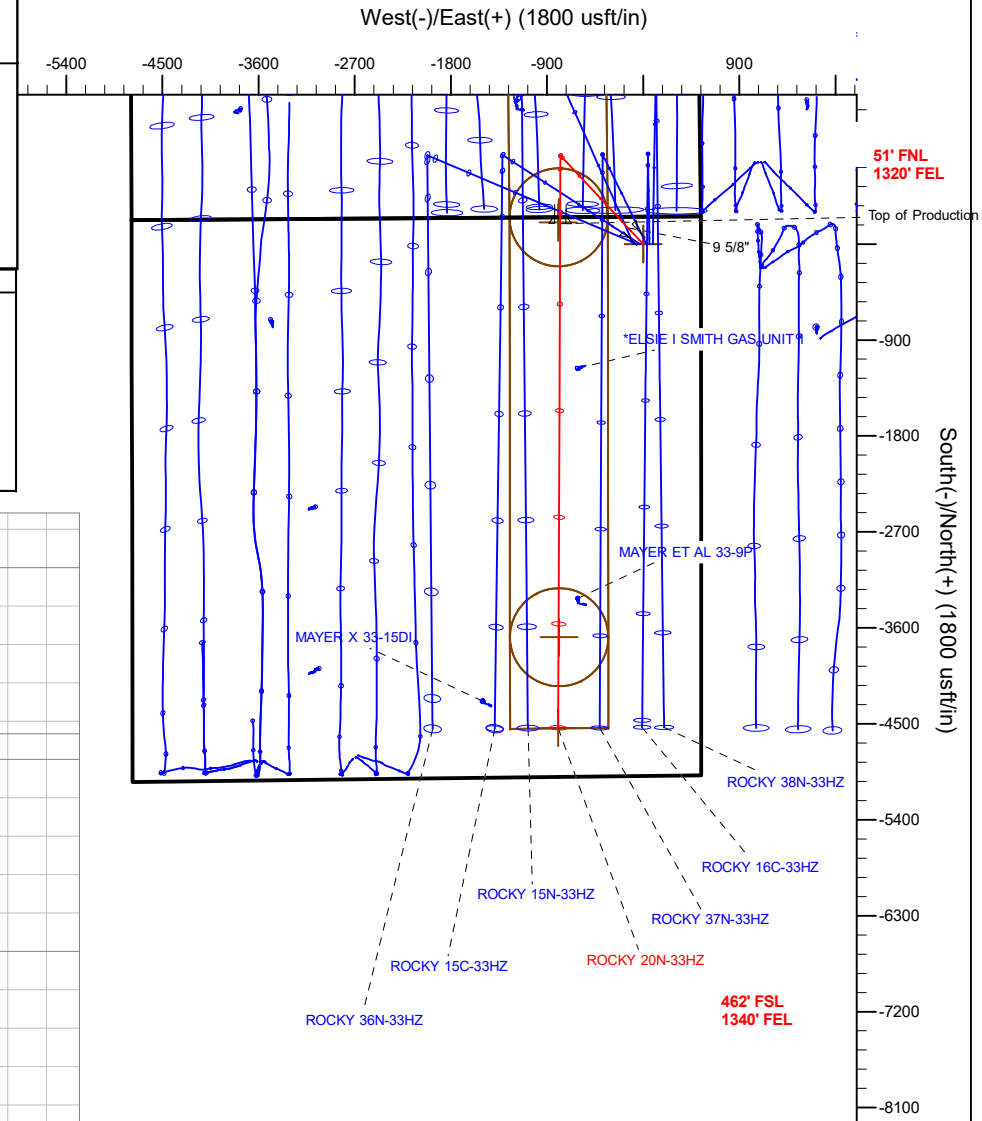
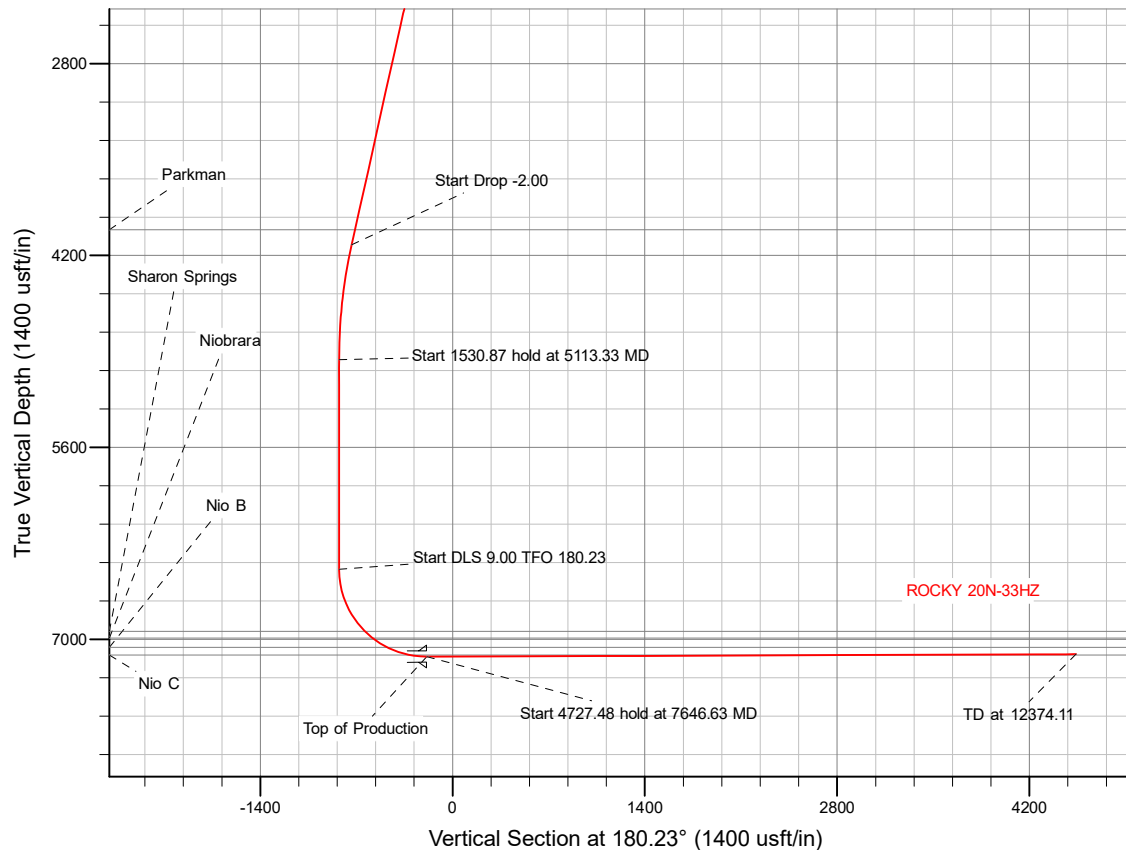
US ROCKIES WATTENBERG PLANNING

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	1383.33	17.00	317.00	1366.78	122.07	-113.83	1.50	317.00	-121.61	
4	4263.33	17.00	317.00	4120.94	737.89	-688.09	0.00	0.00	-735.12	
5	5113.33	0.00	0.00	4958.52	829.44	-773.46	2.00	180.00	-826.33	
6	6644.20	0.00	0.00	6489.39	829.44	-773.46	0.00	0.00	-826.33	
7	7646.63	90.22	180.23	7126.00	190.40	-776.01	9.00	180.23	-187.28	
8	12374.11	90.22	180.23	7108.00	-4537.01	-794.88	0.00	0.00	4540.17	ROCKY 20N-33HZ_PBHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
ROCKY 20N-33HZ_SHL	0.00	0.00	0.00	40.101614	-104.661188	Point
ROCKY 20N-33HZ_PBHL	7108.00	-4537.01	-794.88	40.089155	-104.664030	Point



WELL DETAILS: ROCKY 20N-33HZ

Ground Level: 4930.00

RKB @ 4947.00usft (D Rig)

Plan: Permit Rev-2 (ROCKY 20N-33HZ/Plan A)

Created By: _____ Date: 11/02/2016
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ROCKY 20N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	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-65W-33 ROCKY 1-33HZ Pad			
Site Position:		Northing:	14,563,706.36 usft	Latitude:	40.101040
From:	Lat/Long	Easting:	1,734,998.07 usft	Longitude:	-104.661772
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	ROCKY 20N-33HZ					
Well Position	+N/-S	209.02 usft	Northing:	14,563,916.00 usft	Latitude:	40.101614
	+E/-W	163.31 usft	Easting:	1,735,160.59 usft	Longitude:	-104.661188
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,930.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/2/2016	8.09	66.65	52,444.21131105

Design	Permit Rev-2			
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	180.23

Plan Survey Tool Program	Date	11/2/2016		
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 declination
2	1,500.00	12,374.11	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declination

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	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	
1,383.33	17.00	317.00	1,366.78	122.07	-113.83	1.50	1.50	0.00	317.00	
4,263.33	17.00	317.00	4,120.94	737.89	-688.09	0.00	0.00	0.00	0.00	
5,113.33	0.00	0.00	4,958.52	829.44	-773.46	2.00	-2.00	0.00	180.00	
6,644.20	0.00	0.00	6,489.39	829.44	-773.46	0.00	0.00	0.00	0.00	
7,646.63	90.22	180.23	7,126.00	190.40	-776.01	9.00	9.00	-17.93	180.23	
12,374.11	90.22	180.23	7,108.00	-4,537.01	-794.88	0.00	0.00	0.00	0.00	ROCKY 20N-33HZ_P

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ROCKY 20N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	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
ROCKY 20N-33HZ_460' Circle2 - ROCKY 20N-33HZ_460' Circle1 - ROCKY 20N-33HZ_Hardline Box									
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
300.00	0.75	317.00	300.00	0.24	-0.22	-0.24	1.50	1.50	0.00
400.00	2.25	317.00	399.96	2.15	-2.01	-2.15	1.50	1.50	0.00
500.00	3.75	317.00	499.82	5.98	-5.58	-5.96	1.50	1.50	0.00
600.00	5.25	317.00	599.51	11.72	-10.93	-11.68	1.50	1.50	0.00
700.00	6.75	317.00	698.96	19.36	-18.06	-19.29	1.50	1.50	0.00
800.00	8.25	317.00	798.10	28.91	-26.96	-28.80	1.50	1.50	0.00
900.00	9.75	317.00	896.87	40.35	-37.63	-40.20	1.50	1.50	0.00
1,000.00	11.25	317.00	995.19	53.68	-50.06	-53.48	1.50	1.50	0.00
1,100.00	12.75	317.00	1,093.00	68.88	-64.23	-68.62	1.50	1.50	0.00
1,200.00	14.25	317.00	1,190.24	85.96	-80.15	-85.63	1.50	1.50	0.00
1,300.00	15.75	317.00	1,286.83	104.88	-97.81	-104.49	1.50	1.50	0.00
1,383.33	17.00	317.00	1,366.78	122.07	-113.83	-121.61	1.50	1.50	0.00
1,391.93	17.00	317.00	1,375.00	123.90	-115.54	-123.44	0.00	0.00	0.00
Fox Hills									
1,400.00	17.00	317.00	1,382.72	125.63	-117.15	-125.16	0.00	0.00	0.00
1,500.00	17.00	317.00	1,478.35	147.01	-137.09	-146.46	0.00	0.00	0.00
1,522.64	17.00	317.00	1,500.00	151.85	-141.61	-151.28	0.00	0.00	0.00
9 5/8"									
1,600.00	17.00	317.00	1,573.98	168.39	-157.03	-167.76	0.00	0.00	0.00
1,700.00	17.00	317.00	1,669.61	189.78	-176.97	-189.07	0.00	0.00	0.00
1,800.00	17.00	317.00	1,765.24	211.16	-196.91	-210.37	0.00	0.00	0.00
1,900.00	17.00	317.00	1,860.87	232.54	-216.85	-231.67	0.00	0.00	0.00
2,000.00	17.00	317.00	1,956.50	253.93	-236.79	-252.97	0.00	0.00	0.00
2,100.00	17.00	317.00	2,052.13	275.31	-256.73	-274.28	0.00	0.00	0.00
2,200.00	17.00	317.00	2,147.76	296.69	-276.67	-295.58	0.00	0.00	0.00
2,300.00	17.00	317.00	2,243.39	318.07	-296.61	-316.88	0.00	0.00	0.00
2,400.00	17.00	317.00	2,339.02	339.46	-316.55	-338.18	0.00	0.00	0.00
2,500.00	17.00	317.00	2,434.65	360.84	-336.49	-359.49	0.00	0.00	0.00
2,600.00	17.00	317.00	2,530.28	382.22	-356.43	-380.79	0.00	0.00	0.00
2,700.00	17.00	317.00	2,625.91	403.60	-376.37	-402.09	0.00	0.00	0.00
2,800.00	17.00	317.00	2,721.54	424.99	-396.31	-423.39	0.00	0.00	0.00
2,900.00	17.00	317.00	2,817.17	446.37	-416.25	-444.70	0.00	0.00	0.00
3,000.00	17.00	317.00	2,912.80	467.75	-436.19	-466.00	0.00	0.00	0.00
3,100.00	17.00	317.00	3,008.43	489.14	-456.13	-487.30	0.00	0.00	0.00
3,200.00	17.00	317.00	3,104.06	510.52	-476.07	-508.60	0.00	0.00	0.00
3,300.00	17.00	317.00	3,199.70	531.90	-496.01	-529.91	0.00	0.00	0.00
3,400.00	17.00	317.00	3,295.33	553.28	-515.95	-551.21	0.00	0.00	0.00
3,500.00	17.00	317.00	3,390.96	574.67	-535.88	-572.51	0.00	0.00	0.00
3,600.00	17.00	317.00	3,486.59	596.05	-555.82	-593.81	0.00	0.00	0.00
3,700.00	17.00	317.00	3,582.22	617.43	-575.76	-615.12	0.00	0.00	0.00
3,800.00	17.00	317.00	3,677.85	638.81	-595.70	-636.42	0.00	0.00	0.00
3,900.00	17.00	317.00	3,773.48	660.20	-615.64	-657.72	0.00	0.00	0.00
4,000.00	17.00	317.00	3,869.11	681.58	-635.58	-679.02	0.00	0.00	0.00
4,100.00	17.00	317.00	3,964.74	702.96	-655.52	-700.33	0.00	0.00	0.00
4,149.42	17.00	317.00	4,012.00	713.53	-665.38	-710.85	0.00	0.00	0.00
Parkman									
4,200.00	17.00	317.00	4,060.37	724.35	-675.46	-721.63	0.00	0.00	0.00
4,263.33	17.00	317.00	4,120.94	737.89	-688.09	-735.12	0.00	0.00	0.00
4,300.00	16.27	317.00	4,156.07	745.56	-695.25	-742.77	2.00	-2.00	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	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)
4,400.00	14.27	317.00	4,252.53	764.82	-713.21	-761.95	2.00	-2.00	0.00
4,500.00	12.27	317.00	4,349.86	781.60	-728.86	-778.67	2.00	-2.00	0.00
4,600.00	10.27	317.00	4,447.93	795.89	-742.18	-792.91	2.00	-2.00	0.00
4,700.00	8.27	317.00	4,546.62	807.67	-753.16	-804.64	2.00	-2.00	0.00
4,800.00	6.27	317.00	4,645.81	816.92	-761.79	-813.85	2.00	-2.00	0.00
4,900.00	4.27	317.00	4,745.38	823.63	-768.05	-820.54	2.00	-2.00	0.00
5,000.00	2.27	317.00	4,845.21	827.80	-771.93	-824.69	2.00	-2.00	0.00
5,100.00	0.27	317.00	4,945.19	829.41	-773.44	-826.30	2.00	-2.00	0.00
5,113.33	0.00	0.00	4,958.52	829.44	-773.46	-826.33	2.00	-2.00	0.00
5,200.00	0.00	0.00	5,045.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,300.00	0.00	0.00	5,145.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,400.00	0.00	0.00	5,245.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,500.00	0.00	0.00	5,345.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,600.00	0.00	0.00	5,445.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,700.00	0.00	0.00	5,545.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,800.00	0.00	0.00	5,645.19	829.44	-773.46	-826.33	0.00	0.00	0.00
5,900.00	0.00	0.00	5,745.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,000.00	0.00	0.00	5,845.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,100.00	0.00	0.00	5,945.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,200.00	0.00	0.00	6,045.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,300.00	0.00	0.00	6,145.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,400.00	0.00	0.00	6,245.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,500.00	0.00	0.00	6,345.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,600.00	0.00	0.00	6,445.19	829.44	-773.46	-826.33	0.00	0.00	0.00
6,644.20	0.00	0.00	6,489.39	829.44	-773.46	-826.33	0.00	0.00	0.00
6,700.00	5.02	180.23	6,545.11	826.99	-773.47	-823.88	9.00	9.00	0.00
6,800.00	14.02	180.23	6,643.63	810.47	-773.54	-807.36	9.00	9.00	0.00
6,900.00	23.02	180.23	6,738.36	778.73	-773.66	-775.62	9.00	9.00	0.00
7,000.00	32.02	180.23	6,826.95	732.57	-773.85	-729.46	9.00	9.00	0.00
7,100.00	41.02	180.23	6,907.23	673.12	-774.09	-670.01	9.00	9.00	0.00
7,146.26	45.19	180.23	6,941.00	641.52	-774.21	-638.41	9.00	9.00	0.00
Sharon Springs									
7,200.00	50.02	180.23	6,977.22	601.85	-774.37	-598.73	9.00	9.00	0.00
7,220.28	51.85	180.23	6,990.00	586.10	-774.43	-582.99	9.00	9.00	0.00
Niobrara									
7,300.00	59.02	180.23	7,035.20	520.50	-774.70	-517.38	9.00	9.00	0.00
7,349.49	63.48	180.23	7,059.00	477.12	-774.87	-474.01	9.00	9.00	0.00
Nio B									
7,400.00	68.02	180.23	7,079.74	431.08	-775.05	-427.96	9.00	9.00	0.00
7,500.00	77.02	180.23	7,109.75	335.79	-775.43	-332.68	9.00	9.00	0.00
7,525.64	79.33	180.23	7,115.00	310.70	-775.53	-307.58	9.00	9.00	0.00
Nio C									
7,600.00	86.02	180.23	7,124.47	236.99	-775.83	-233.87	9.00	9.00	0.00
7,635.51	89.22	180.23	7,125.95	201.51	-775.97	-198.40	9.00	9.00	0.00
ROCKY 20N-33HZ_PHL									
7,646.63	90.22	180.23	7,126.00	190.40	-776.01	-187.28	9.00	9.00	0.00
Top of Production									
7,700.00	90.22	180.23	7,125.80	137.03	-776.23	-133.91	0.00	0.00	0.00
7,800.00	90.22	180.23	7,125.42	37.03	-776.62	-33.91	0.00	0.00	0.00
7,900.00	90.22	180.23	7,125.04	-62.97	-777.02	66.09	0.00	0.00	0.00
8,000.00	90.22	180.23	7,124.66	-162.97	-777.42	166.09	0.00	0.00	0.00
8,100.00	90.22	180.23	7,124.28	-262.97	-777.82	266.09	0.00	0.00	0.00
8,200.00	90.22	180.23	7,123.90	-362.97	-778.22	366.09	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ROCKY 20N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	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)	
8,300.00	90.22	180.23	7,123.52	-462.96	-778.62	466.09	0.00	0.00	0.00	
8,400.00	90.22	180.23	7,123.13	-562.96	-779.02	566.09	0.00	0.00	0.00	
8,500.00	90.22	180.23	7,122.75	-662.96	-779.42	666.09	0.00	0.00	0.00	
8,600.00	90.22	180.23	7,122.37	-762.96	-779.82	766.08	0.00	0.00	0.00	
8,700.00	90.22	180.23	7,121.99	-862.96	-780.22	866.08	0.00	0.00	0.00	
8,800.00	90.22	180.23	7,121.61	-962.96	-780.61	966.08	0.00	0.00	0.00	
8,900.00	90.22	180.23	7,121.23	-1,062.96	-781.01	1,066.08	0.00	0.00	0.00	
9,000.00	90.22	180.23	7,120.85	-1,162.95	-781.41	1,166.08	0.00	0.00	0.00	
9,100.00	90.22	180.23	7,120.47	-1,262.95	-781.81	1,266.08	0.00	0.00	0.00	
9,200.00	90.22	180.23	7,120.09	-1,362.95	-782.21	1,366.08	0.00	0.00	0.00	
9,300.00	90.22	180.23	7,119.71	-1,462.95	-782.61	1,466.08	0.00	0.00	0.00	
9,400.00	90.22	180.23	7,119.33	-1,562.95	-783.01	1,566.08	0.00	0.00	0.00	
9,500.00	90.22	180.23	7,118.95	-1,662.95	-783.41	1,666.08	0.00	0.00	0.00	
9,600.00	90.22	180.23	7,118.56	-1,762.94	-783.81	1,766.08	0.00	0.00	0.00	
9,700.00	90.22	180.23	7,118.18	-1,862.94	-784.21	1,866.08	0.00	0.00	0.00	
9,800.00	90.22	180.23	7,117.80	-1,962.94	-784.61	1,966.08	0.00	0.00	0.00	
9,900.00	90.22	180.23	7,117.42	-2,062.94	-785.00	2,066.07	0.00	0.00	0.00	
10,000.00	90.22	180.23	7,117.04	-2,162.94	-785.40	2,166.07	0.00	0.00	0.00	
10,100.00	90.22	180.23	7,116.66	-2,262.94	-785.80	2,266.07	0.00	0.00	0.00	
10,200.00	90.22	180.23	7,116.28	-2,362.94	-786.20	2,366.07	0.00	0.00	0.00	
10,300.00	90.22	180.23	7,115.90	-2,462.93	-786.60	2,466.07	0.00	0.00	0.00	
10,400.00	90.22	180.23	7,115.52	-2,562.93	-787.00	2,566.07	0.00	0.00	0.00	
10,500.00	90.22	180.23	7,115.14	-2,662.93	-787.40	2,666.07	0.00	0.00	0.00	
10,600.00	90.22	180.23	7,114.76	-2,762.93	-787.80	2,766.07	0.00	0.00	0.00	
10,700.00	90.22	180.23	7,114.38	-2,862.93	-788.20	2,866.07	0.00	0.00	0.00	
10,800.00	90.22	180.23	7,113.99	-2,962.93	-788.60	2,966.07	0.00	0.00	0.00	
10,900.00	90.22	180.23	7,113.61	-3,062.93	-788.99	3,066.07	0.00	0.00	0.00	
11,000.00	90.22	180.23	7,113.23	-3,162.92	-789.39	3,166.07	0.00	0.00	0.00	
11,100.00	90.22	180.23	7,112.85	-3,262.92	-789.79	3,266.07	0.00	0.00	0.00	
11,200.00	90.22	180.23	7,112.47	-3,362.92	-790.19	3,366.07	0.00	0.00	0.00	
11,300.00	90.22	180.23	7,112.09	-3,462.92	-790.59	3,466.06	0.00	0.00	0.00	
11,400.00	90.22	180.23	7,111.71	-3,562.92	-790.99	3,566.06	0.00	0.00	0.00	
11,500.00	90.22	180.23	7,111.33	-3,662.92	-791.39	3,666.06	0.00	0.00	0.00	
11,600.00	90.22	180.23	7,110.95	-3,762.91	-791.79	3,766.06	0.00	0.00	0.00	
11,700.00	90.22	180.23	7,110.57	-3,862.91	-792.19	3,866.06	0.00	0.00	0.00	
11,800.00	90.22	180.23	7,110.19	-3,962.91	-792.59	3,966.06	0.00	0.00	0.00	
11,900.00	90.22	180.23	7,109.81	-4,062.91	-792.98	4,066.06	0.00	0.00	0.00	
12,000.00	90.22	180.23	7,109.42	-4,162.91	-793.38	4,166.06	0.00	0.00	0.00	
12,100.00	90.22	180.23	7,109.04	-4,262.91	-793.78	4,266.06	0.00	0.00	0.00	
12,200.00	90.22	180.23	7,108.66	-4,362.91	-794.18	4,366.06	0.00	0.00	0.00	
12,300.00	90.22	180.23	7,108.28	-4,462.90	-794.58	4,466.06	0.00	0.00	0.00	
12,374.11	90.22	180.23	7,108.00	-4,537.01	-794.88	4,540.17	0.00	0.00	0.00	
ROCKY 20N-33HZ_PBHL										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,522.64	1,500.00	9 5/8"	9-5/8	13-1/2	
7,646.63	7,126.00	Top of Production	5-1/2	7-7/8	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ROCKY 20N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4947.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4947.00usft (D Rig)
Site:	2N-65W-33 ROCKY 1-33HZ Pad	North Reference:	True
Well:	ROCKY 20N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,391.93	1,375.00	Fox Hills			
	4,149.42	4,012.00	Parkman			
	7,146.26	6,941.00	Sharon Springs			
	7,220.28	6,990.00	Niobrara			
	7,349.49	7,059.00	Nio B			
	7,525.64	7,115.00	Nio C			