

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-65W-18 PETTINGER 15-18HZ PAD

PETTINGER 18-4HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.046849/-104.703470

Survey Program: MWD+IFR+MSA

Standard Planning Report

16 February, 2018

Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-18 PETTINGER 15-18HZ PAD
Well: PETTINGER 18-4HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1522.32	9-5/8
7168.00	7706.72	5-1/2

WELL DETAILS: PETTINGER 18-4HZ

GL = 4996'

RKB = 17' @ 5013.00usft (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	1356.67	16.60	106.95	1341.25	-46.41	152.28	1.50	106.95	46.84	
4	4156.67	16.60	106.95	4024.55	-279.62	917.46	0.00	0.00	282.18	
5	4986.67	0.00	0.00	4842.99	-314.43	1031.67	2.00	180.00	317.31	
6	6595.62	0.00	0.00	6451.94	-314.43	1031.67	0.00	0.00	317.31	
7	7706.72	88.89	179.48	7168.00	-1016.70	1037.99	8.00	179.48	1019.59	
8	12909.76	88.89	179.48	7269.00	-6218.54	1084.84	0.00	0.00	6221.55	PETTINGER 18-4HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PETTINGER 18-4HZ_SHL	0.00	0.00	0.00	40.046849	-104.703470
PETTINGER 18-4HZ_BHL	7269.00	-6218.54	1084.84	40.029772	-104.699595

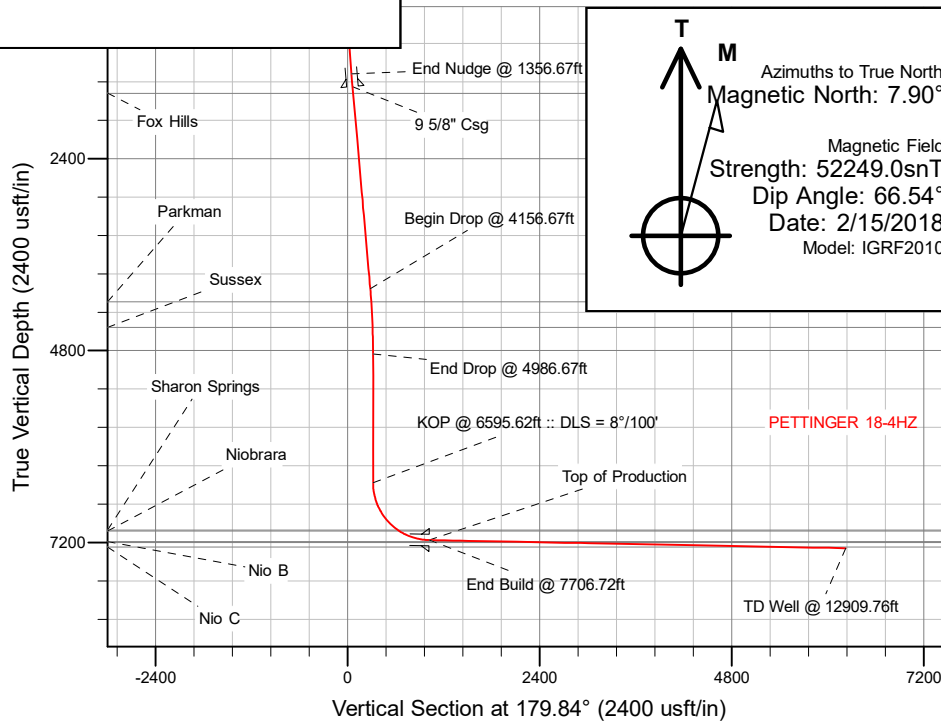
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1584.00	1609.97	Fox Hills
4187.00	4324.81	Parkman
4509.00	4651.92	Sussex
7041.00	7287.29	Sharon Springs
7055.00	7312.55	Niobrara
7186.00	8633.78	Nio B
7254.00	12136.99	Nio C

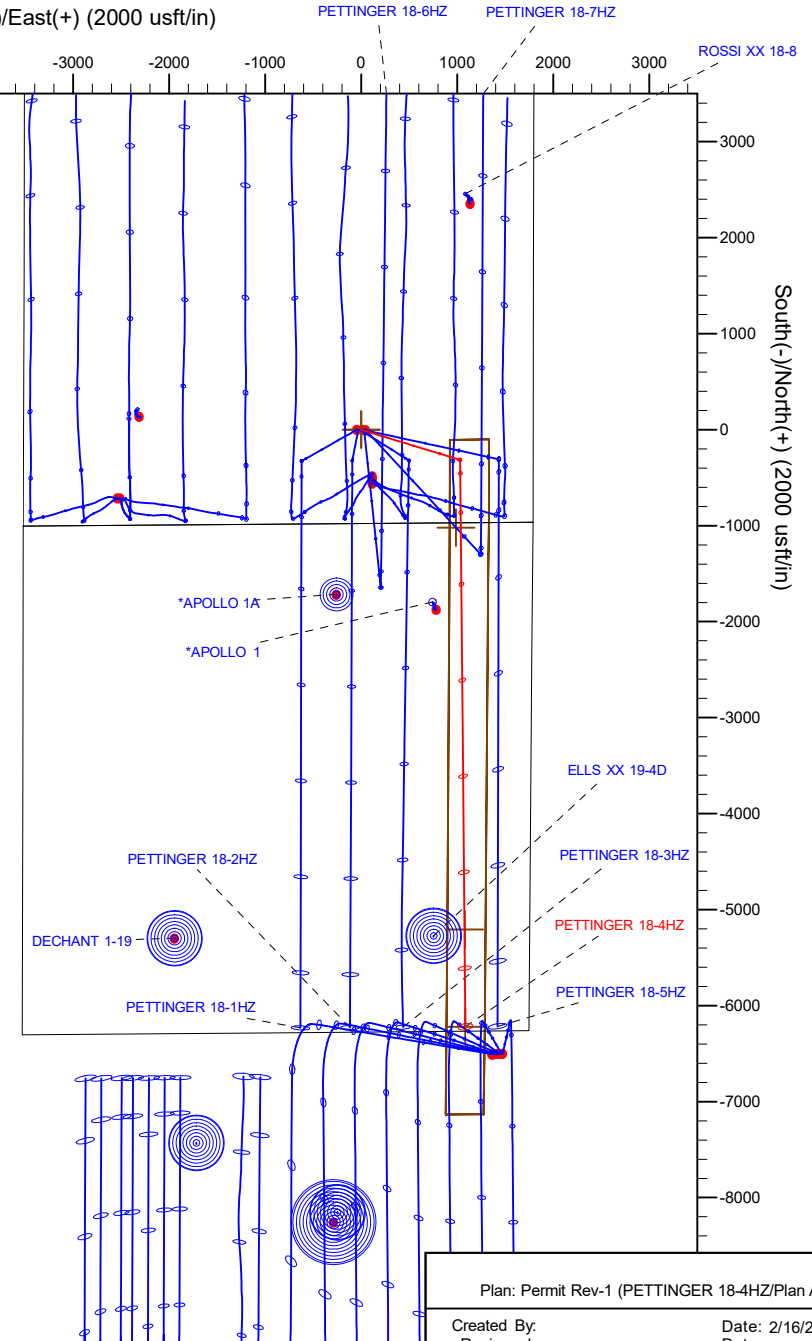
SHL
978' FSL
1791' FEL

HEEL
50' FNL
751' FEL

TOE
49' FSL
662' FEL



West(-)/East(+) (2000 usft/in)



Plan: Permit Rev-1 (PETTINGER 18-4HZ/Plan A)

Created By: _____ Date: 2/16/2018
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well PETTINGER 18-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:	True
Well:	PETTINGER 18-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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-65W-18 PETTINGER 15-18HZ PAD			
Site Position:		Northing:	14,543,931.54 usft	Latitude:	40.046850
From:	Lat/Long	Easting:	1,723,358.40 usft	Longitude:	-104.703631
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.19 °

Well	PETTINGER 18-4HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,543,931.32 usft	Latitude:	40.046849
	+E/-W	45.06 usft	Easting:	1,723,403.46 usft	Longitude:	-104.703470
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,996.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2018	7.90	66.54	52,248.97209941

Design	Permit Rev-1				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	7,269.00	0.00	0.00	179.84	

Plan Survey Tool Program		Date	2/16/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio	
2	1,500.00	12,909.76	Permit Rev-1 (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' @ 5013.00usft (Drilling Rig)
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:	True
Well:	PETTINGER 18-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	
1,356.67	16.60	106.95	1,341.25	-46.41	152.28	1.50	1.50	0.00	106.95	
4,156.67	16.60	106.95	4,024.55	-279.62	917.46	0.00	0.00	0.00	0.00	
4,986.67	0.00	0.00	4,842.99	-314.43	1,031.67	2.00	-2.00	0.00	180.00	
6,595.62	0.00	0.00	6,451.94	-314.43	1,031.67	0.00	0.00	0.00	0.00	
7,706.72	88.89	179.48	7,168.01	-1,016.70	1,037.99	8.00	8.00	16.15	179.48	
12,909.76	88.89	179.48	7,269.00	-6,218.54	1,084.84	0.00	0.00	0.00	0.00	PETTINGER 18-4HZ_

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well PETTINGER 18-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:	True
Well:	PETTINGER 18-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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	106.95	300.00	-0.10	0.31	0.10	1.50	1.50	0.00
400.00	2.25	106.95	399.96	-0.86	2.82	0.87	1.50	1.50	0.00
500.00	3.75	106.95	499.82	-2.38	7.82	2.41	1.50	1.50	0.00
600.00	5.25	106.95	599.51	-4.67	15.33	4.71	1.50	1.50	0.00
700.00	6.75	106.95	698.96	-7.72	25.33	7.79	1.50	1.50	0.00
800.00	8.25	106.95	798.10	-11.52	37.81	11.63	1.50	1.50	0.00
900.00	9.75	106.95	896.87	-16.08	52.78	16.23	1.50	1.50	0.00
1,000.00	11.25	106.95	995.19	-21.40	70.21	21.59	1.50	1.50	0.00
1,100.00	12.75	106.95	1,093.00	-27.46	90.09	27.71	1.50	1.50	0.00
1,200.00	14.25	106.95	1,190.24	-34.26	112.42	34.58	1.50	1.50	0.00
1,300.00	15.75	106.95	1,286.83	-41.81	137.18	42.19	1.50	1.50	0.00
1,356.67	16.60	106.95	1,341.25	-46.41	152.28	46.84	1.50	1.50	0.00
End Nudge @ 1356.67ft									
1,400.00	16.60	106.95	1,382.78	-50.02	164.12	50.48	0.00	0.00	0.00
1,500.00	16.60	106.95	1,478.61	-58.35	191.45	58.88	0.00	0.00	0.00
1,522.32	16.60	106.95	1,500.00	-60.21	197.55	60.76	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	16.60	106.95	1,574.44	-66.68	218.78	67.29	0.00	0.00	0.00
1,609.97	16.60	106.95	1,584.00	-67.51	221.50	68.13	0.00	0.00	0.00
Fox Hills									
1,700.00	16.60	106.95	1,670.27	-75.01	246.11	75.69	0.00	0.00	0.00
1,800.00	16.60	106.95	1,766.11	-83.34	273.43	84.10	0.00	0.00	0.00
1,900.00	16.60	106.95	1,861.94	-91.67	300.76	92.50	0.00	0.00	0.00
2,000.00	16.60	106.95	1,957.77	-99.99	328.09	100.91	0.00	0.00	0.00
2,100.00	16.60	106.95	2,053.60	-108.32	355.42	109.31	0.00	0.00	0.00
2,200.00	16.60	106.95	2,149.43	-116.65	382.74	117.72	0.00	0.00	0.00
2,300.00	16.60	106.95	2,245.27	-124.98	410.07	126.13	0.00	0.00	0.00
2,400.00	16.60	106.95	2,341.10	-133.31	437.40	134.53	0.00	0.00	0.00
2,500.00	16.60	106.95	2,436.93	-141.64	464.73	142.94	0.00	0.00	0.00
2,600.00	16.60	106.95	2,532.76	-149.97	492.06	151.34	0.00	0.00	0.00
2,700.00	16.60	106.95	2,628.60	-158.30	519.38	159.75	0.00	0.00	0.00
2,800.00	16.60	106.95	2,724.43	-166.62	546.71	168.15	0.00	0.00	0.00
2,900.00	16.60	106.95	2,820.26	-174.95	574.04	176.56	0.00	0.00	0.00
3,000.00	16.60	106.95	2,916.09	-183.28	601.37	184.96	0.00	0.00	0.00
3,100.00	16.60	106.95	3,011.92	-191.61	628.70	193.37	0.00	0.00	0.00
3,200.00	16.60	106.95	3,107.76	-199.94	656.02	201.77	0.00	0.00	0.00
3,300.00	16.60	106.95	3,203.59	-208.27	683.35	210.18	0.00	0.00	0.00
3,400.00	16.60	106.95	3,299.42	-216.60	710.68	218.58	0.00	0.00	0.00
3,500.00	16.60	106.95	3,395.25	-224.93	738.01	226.99	0.00	0.00	0.00
3,600.00	16.60	106.95	3,491.09	-233.26	765.33	235.39	0.00	0.00	0.00
3,700.00	16.60	106.95	3,586.92	-241.58	792.66	243.80	0.00	0.00	0.00
3,800.00	16.60	106.95	3,682.75	-249.91	819.99	252.20	0.00	0.00	0.00
3,900.00	16.60	106.95	3,778.58	-258.24	847.32	260.61	0.00	0.00	0.00
4,000.00	16.60	106.95	3,874.42	-266.57	874.65	269.01	0.00	0.00	0.00
4,100.00	16.60	106.95	3,970.25	-274.90	901.97	277.42	0.00	0.00	0.00
4,156.67	16.60	106.95	4,024.55	-279.62	917.46	282.18	0.00	0.00	0.00
Begin Drop @ 4156.67ft									
4,200.00	15.73	106.95	4,066.17	-283.14	929.00	285.73	2.00	-2.00	0.00
4,300.00	13.73	106.95	4,162.88	-290.55	953.33	293.21	2.00	-2.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well PETTINGER 18-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:	True
Well:	PETTINGER 18-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

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)
4,324.81	13.24	106.95	4,187.00	-292.24	958.86	294.91	2.00	-2.00	0.00
Parkman									
4,400.00	11.73	106.95	4,260.41	-296.98	974.41	299.70	2.00	-2.00	0.00
4,500.00	9.73	106.95	4,358.66	-302.41	992.22	305.18	2.00	-2.00	0.00
4,600.00	7.73	106.95	4,457.50	-306.83	1,006.75	309.64	2.00	-2.00	0.00
4,651.92	6.70	106.95	4,509.00	-308.73	1,012.98	311.56	2.00	-2.00	0.00
Sussex									
4,700.00	5.73	106.95	4,556.80	-310.25	1,017.96	313.09	2.00	-2.00	0.00
4,800.00	3.73	106.95	4,656.45	-312.66	1,025.85	315.52	2.00	-2.00	0.00
4,900.00	1.73	106.95	4,756.34	-314.05	1,030.42	316.92	2.00	-2.00	0.00
4,986.67	0.00	0.00	4,842.99	-314.43	1,031.67	317.31	2.00	-2.00	0.00
End Drop @ 4986.67ft									
5,000.00	0.00	0.00	4,856.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,100.00	0.00	0.00	4,956.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,200.00	0.00	0.00	5,056.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,300.00	0.00	0.00	5,156.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,400.00	0.00	0.00	5,256.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,500.00	0.00	0.00	5,356.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,600.00	0.00	0.00	5,456.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,700.00	0.00	0.00	5,556.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,800.00	0.00	0.00	5,656.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
5,900.00	0.00	0.00	5,756.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,000.00	0.00	0.00	5,856.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,100.00	0.00	0.00	5,956.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,200.00	0.00	0.00	6,056.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,300.00	0.00	0.00	6,156.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,400.00	0.00	0.00	6,256.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,500.00	0.00	0.00	6,356.32	-314.43	1,031.67	317.31	0.00	0.00	0.00
6,595.62	0.00	0.00	6,451.94	-314.43	1,031.67	317.31	0.00	0.00	0.00
KOP @ 6595.62ft :: DLS = 8°/100'									
6,600.00	0.35	179.48	6,456.32	-314.44	1,031.67	317.32	8.00	8.00	0.00
6,700.00	8.35	179.48	6,555.95	-322.02	1,031.74	324.90	8.00	8.00	0.00
6,800.00	16.35	179.48	6,653.56	-343.39	1,031.93	346.27	8.00	8.00	0.00
6,900.00	24.35	179.48	6,747.24	-378.14	1,032.24	381.02	8.00	8.00	0.00
7,000.00	32.35	179.48	6,835.18	-425.58	1,032.67	428.47	8.00	8.00	0.00
7,100.00	40.35	179.48	6,915.65	-484.81	1,033.20	487.69	8.00	8.00	0.00
7,200.00	48.35	179.48	6,987.10	-554.65	1,033.83	557.54	8.00	8.00	0.00
7,287.29	55.33	179.48	7,041.00	-623.24	1,034.45	626.13	8.00	8.00	0.00
Sharon Springs									
7,300.00	56.35	179.48	7,048.14	-633.76	1,034.54	636.65	8.00	8.00	0.00
7,312.55	57.35	179.48	7,055.00	-644.27	1,034.64	647.16	8.00	8.00	0.00
Niobrara									
7,400.00	64.35	179.48	7,097.56	-720.59	1,035.33	723.48	8.00	8.00	0.00
7,500.00	72.35	179.48	7,134.43	-813.46	1,036.16	816.35	8.00	8.00	0.00
7,600.00	80.35	179.48	7,158.01	-910.55	1,037.04	913.44	8.00	8.00	0.00
7,700.00	88.35	179.48	7,167.84	-1,009.98	1,037.93	1,012.88	8.00	8.00	0.00
7,706.72	88.89	179.48	7,168.01	-1,016.70	1,037.99	1,019.59	8.00	8.00	0.00
End Build @ 7706.72ft - Top of Production									
7,800.00	88.89	179.48	7,169.82	-1,109.96	1,038.83	1,112.85	0.00	0.00	0.00
7,900.00	88.89	179.48	7,171.76	-1,209.93	1,039.73	1,212.83	0.00	0.00	0.00
8,000.00	88.89	179.48	7,173.70	-1,309.91	1,040.63	1,312.81	0.00	0.00	0.00
8,100.00	88.89	179.48	7,175.64	-1,409.89	1,041.53	1,412.79	0.00	0.00	0.00
8,200.00	88.89	179.48	7,177.58	-1,509.87	1,042.43	1,512.77	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:		Well PETTINGER 18-4HZ					
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:		RKB = 17' @ 5013.00usft (Drilling Rig)					
Project:	WELD-NAD83-UTMFT13N	MD Reference:		RKB = 17' @ 5013.00usft (Drilling Rig)					
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:		True					
Well:	PETTINGER 18-4HZ	Survey Calculation Method:		Minimum Curvature					
Wellbore:	Plan A								
Design:	Permit Rev-1								
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	88.89	179.48	7,179.52	-1,609.84	1,043.34	1,612.75	0.00	0.00	0.00
8,400.00	88.89	179.48	7,181.46	-1,709.82	1,044.24	1,712.73	0.00	0.00	0.00
8,500.00	88.89	179.48	7,183.40	-1,809.80	1,045.14	1,812.71	0.00	0.00	0.00
8,600.00	88.89	179.48	7,185.34	-1,909.77	1,046.04	1,912.69	0.00	0.00	0.00
8,633.78	88.89	179.48	7,186.00	-1,943.55	1,046.34	1,946.46	0.00	0.00	0.00
Nio B									
8,700.00	88.89	179.48	7,187.29	-2,009.75	1,046.94	2,012.67	0.00	0.00	0.00
8,800.00	88.89	179.48	7,189.23	-2,109.73	1,047.84	2,112.65	0.00	0.00	0.00
8,900.00	88.89	179.48	7,191.17	-2,209.71	1,048.74	2,212.63	0.00	0.00	0.00
9,000.00	88.89	179.48	7,193.11	-2,309.68	1,049.64	2,312.60	0.00	0.00	0.00
9,100.00	88.89	179.48	7,195.05	-2,409.66	1,050.54	2,412.58	0.00	0.00	0.00
9,200.00	88.89	179.48	7,196.99	-2,509.64	1,051.44	2,512.56	0.00	0.00	0.00
9,300.00	88.89	179.48	7,198.93	-2,609.61	1,052.34	2,612.54	0.00	0.00	0.00
9,400.00	88.89	179.48	7,200.87	-2,709.59	1,053.24	2,712.52	0.00	0.00	0.00
9,500.00	88.89	179.48	7,202.81	-2,809.57	1,054.14	2,812.50	0.00	0.00	0.00
9,600.00	88.89	179.48	7,204.76	-2,909.54	1,055.04	2,912.48	0.00	0.00	0.00
9,700.00	88.89	179.48	7,206.70	-3,009.52	1,055.94	3,012.46	0.00	0.00	0.00
9,800.00	88.89	179.48	7,208.64	-3,109.50	1,056.84	3,112.44	0.00	0.00	0.00
9,900.00	88.89	179.48	7,210.58	-3,209.48	1,057.74	3,212.42	0.00	0.00	0.00
10,000.00	88.89	179.48	7,212.52	-3,309.45	1,058.64	3,312.40	0.00	0.00	0.00
10,100.00	88.89	179.48	7,214.46	-3,409.43	1,059.54	3,412.38	0.00	0.00	0.00
10,200.00	88.89	179.48	7,216.40	-3,509.41	1,060.44	3,512.36	0.00	0.00	0.00
10,300.00	88.89	179.48	7,218.34	-3,609.38	1,061.34	3,612.33	0.00	0.00	0.00
10,400.00	88.89	179.48	7,220.28	-3,709.36	1,062.24	3,712.31	0.00	0.00	0.00
10,500.00	88.89	179.48	7,222.22	-3,809.34	1,063.14	3,812.29	0.00	0.00	0.00
10,600.00	88.89	179.48	7,224.17	-3,909.32	1,064.04	3,912.27	0.00	0.00	0.00
10,700.00	88.89	179.48	7,226.11	-4,009.29	1,064.94	4,012.25	0.00	0.00	0.00
10,800.00	88.89	179.48	7,228.05	-4,109.27	1,065.84	4,112.23	0.00	0.00	0.00
10,900.00	88.89	179.48	7,229.99	-4,209.25	1,066.74	4,212.21	0.00	0.00	0.00
11,000.00	88.89	179.48	7,231.93	-4,309.22	1,067.65	4,312.19	0.00	0.00	0.00
11,100.00	88.89	179.48	7,233.87	-4,409.20	1,068.55	4,412.17	0.00	0.00	0.00
11,200.00	88.89	179.48	7,235.81	-4,509.18	1,069.45	4,512.15	0.00	0.00	0.00
11,300.00	88.89	179.48	7,237.75	-4,609.16	1,070.35	4,612.13	0.00	0.00	0.00
11,400.00	88.89	179.48	7,239.69	-4,709.13	1,071.25	4,712.11	0.00	0.00	0.00
11,500.00	88.89	179.48	7,241.64	-4,809.11	1,072.15	4,812.09	0.00	0.00	0.00
11,600.00	88.89	179.48	7,243.58	-4,909.09	1,073.05	4,912.06	0.00	0.00	0.00
11,700.00	88.89	179.48	7,245.52	-5,009.06	1,073.95	5,012.04	0.00	0.00	0.00
11,800.00	88.89	179.48	7,247.46	-5,109.04	1,074.85	5,112.02	0.00	0.00	0.00
11,900.00	88.89	179.48	7,249.40	-5,209.02	1,075.75	5,212.00	0.00	0.00	0.00
12,000.00	88.89	179.48	7,251.34	-5,309.00	1,076.65	5,311.98	0.00	0.00	0.00
12,100.00	88.89	179.48	7,253.28	-5,408.97	1,077.55	5,411.96	0.00	0.00	0.00
12,136.99	88.89	179.48	7,254.00	-5,445.95	1,077.88	5,448.94	0.00	0.00	0.00
Nio C									
12,200.00	88.89	179.48	7,255.22	-5,508.95	1,078.45	5,511.94	0.00	0.00	0.00
12,300.00	88.89	179.48	7,257.16	-5,608.93	1,079.35	5,611.92	0.00	0.00	0.00
12,400.00	88.89	179.48	7,259.11	-5,708.90	1,080.25	5,711.90	0.00	0.00	0.00
12,500.00	88.89	179.48	7,261.05	-5,808.88	1,081.15	5,811.88	0.00	0.00	0.00
12,600.00	88.89	179.48	7,262.99	-5,908.86	1,082.05	5,911.86	0.00	0.00	0.00
12,700.00	88.89	179.48	7,264.93	-6,008.84	1,082.95	6,011.84	0.00	0.00	0.00
12,800.00	88.89	179.48	7,266.87	-6,108.81	1,083.85	6,111.82	0.00	0.00	0.00
12,900.00	88.89	179.48	7,268.81	-6,208.79	1,084.75	6,211.79	0.00	0.00	0.00
12,909.76	88.89	179.48	7,269.00	-6,218.54	1,084.84	6,221.55	0.00	0.00	0.00
TD Well @ 12909.76ft									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well PETTINGER 18-4HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 5013.00usft (Drilling Rig)
Site:	1N-65W-18 PETTINGER 15-18HZ PAD	North Reference:	True
Well:	PETTINGER 18-4HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Casing Points					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
	1,522.32	1,500.00	9 5/8" Csg	9-5/8	13-1/2
	7,706.72	7,168.01	Top of Production	5-1/2	7-7/8

Formations						
	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,609.97	1,584.00	Fox Hills			
	4,324.81	4,187.00	Parkman			
	4,651.92	4,509.00	Sussex			
	7,287.29	7,041.00	Sharon Springs			
	7,312.55	7,055.00	Niobrara			
	8,633.78	7,186.00	Nio B			
	12,136.99	7,254.00	Nio C			

Plan Annotations					
	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
			+N/-S (usft)	+E/-W (usft)	
	250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
	1,356.67	1,341.25	-46.41	152.28	End Nudge @ 1356.67ft
	4,156.67	4,024.55	-279.62	917.46	Begin Drop @ 4156.67ft
	4,986.67	4,842.99	-314.43	1,031.67	End Drop @ 4986.67ft
	6,595.62	6,451.94	-314.43	1,031.67	KOP @ 6595.62ft :: DLS = 8°/100'
	7,706.72	7,168.01	-1,016.70	1,037.99	End Build @ 7706.72ft
	12,909.76	7,269.00	-6,218.54	1,084.84	TD Well @ 12909.76ft