

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-66W-19 CASTLE PINES 16-19HZ PAD

CASTLE PINES 19-11HZ

Plan A

Plan: Permit Rev-1

SHL Lat/Long: 40.117678/-104.814130

Survey Program: MWD+IFR+MSA

Standard Planning Report

19 January, 2018

Project: WELD-NAD83-UTMFT13N
Site: 2N-66W-19 CASTLE PINES 16-19HZ PAD
Well: CASTLE PINES 19-11HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Size
1500.00	1508.79	9-5/8
7280.00	7724.12	5-1/2

WELL DETAILS: CASTLE PINES 19-11HZ
GL = 4876'
RKB = 17' @ 4893.00usft (Drilling Rig)

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	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	783.33	8.00	185.00	781.60	-37.03	-3.24	1.50	185.00	-37.04	
4	3383.33	8.00	185.00	3356.30	-397.50	-34.78	0.00	0.00	-397.58	
5	3783.33	0.00	0.00	3755.00	-425.28	-37.21	2.00	180.00	-425.36	
6	6592.17	0.00	0.00	6563.84	-425.28	-37.21	0.00	0.00	-425.36	
7	7724.12	90.56	0.08	7280.00	297.87	-36.25	8.00	0.08	297.78	
8	17414.22	90.56	0.08	7186.00	9987.50	-23.41	0.00	0.00	9987.42	CASTLE PINES 19-11HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
CASTLE PINES 19-11HZ_SHL	0.00	0.00	0.00	40.117678	-104.814130
CASTLE PINES 19-11HZ_BHL	7186.00	9987.50	-23.41	40.145105	-104.814214

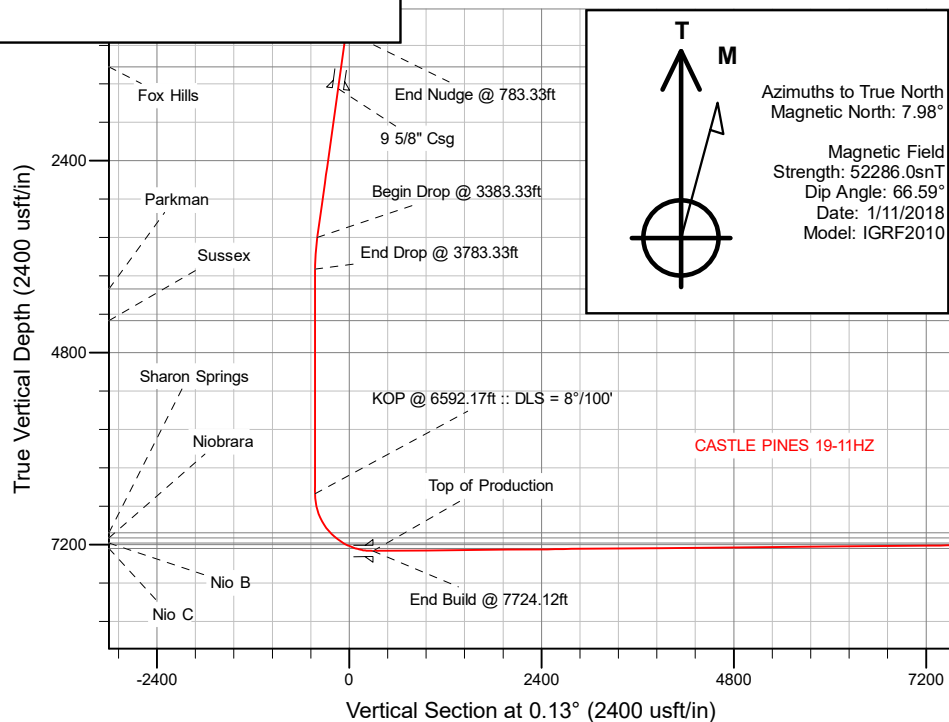
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1226.00	1232.10	Fox Hills
4002.00	4030.33	Parkman
4398.00	4426.33	Sussex
7050.00	7126.56	Sharon Springs
7115.00	7221.11	Niobrara
7182.00	7338.03	Nio B
7249.00	7505.56	Nio C

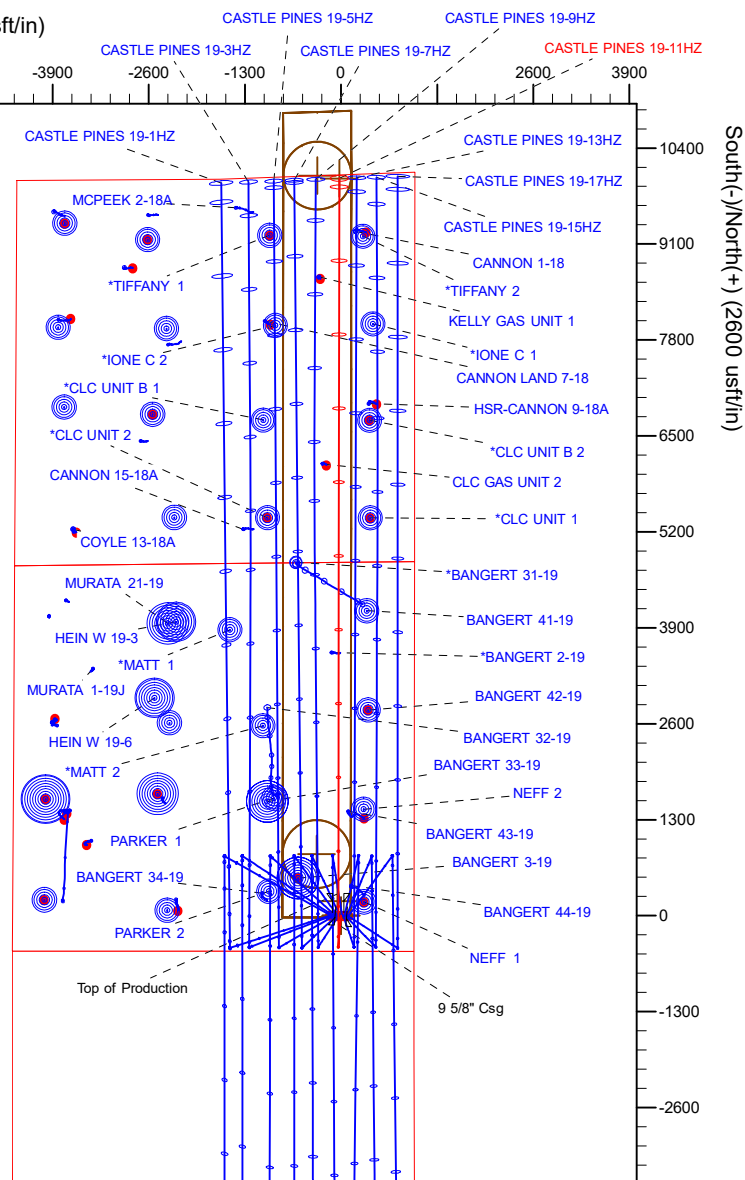
SHL
484' FSL
988' FEL

HEEL
782' FSL
1023' FEL

TOE
50' FNL
1022' FEL



West(-)/East(+) (2600 usft/in)



Plan: Permit Rev-1 (CASTLE PINES 19-11HZ/Plan A)

Created By: _____ Date: 1/17/2018
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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		2N-66W-19 CASTLE PINES 16-19HZ PAD			
Site Position:		Northing:	14,569,640.68 usft	Latitude:	40.117682
From:	Lat/Long	Easting:	1,692,230.43 usft	Longitude:	-104.814666
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	CASTLE PINES 19-11HZ					
Well Position	+N/-S	-1.46 usft	Northing:	14,569,639.53 usft	Latitude:	40.117678
	+E/-W	149.85 usft	Easting:	1,692,380.28 usft	Longitude:	-104.814130
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,876.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/11/2018	7.98	66.59	52,286.00991825

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 (°)
	0.00	0.00	0.00	0.13

Plan Survey Tool Program	Date	1/19/2018		
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	17,414.22	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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	
783.33	8.00	185.00	781.60	-37.03	-3.24	1.50	1.50	0.00	185.00	
3,383.33	8.00	185.00	3,356.30	-397.50	-34.78	0.00	0.00	0.00	0.00	
3,783.33	0.00	0.00	3,755.00	-425.28	-37.21	2.00	-2.00	0.00	180.00	
6,592.17	0.00	0.00	6,563.84	-425.28	-37.21	0.00	0.00	0.00	0.00	
7,724.12	90.56	0.08	7,280.00	297.87	-36.25	8.00	8.00	0.01	0.08	
17,414.22	90.56	0.08	7,186.00	9,987.50	-23.41	0.00	0.00	0.00	0.00	CASTLE PINES 19-1'

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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	185.00	300.00	-0.33	-0.03	-0.33	1.50	1.50	0.00
400.00	2.25	185.00	399.96	-2.93	-0.26	-2.93	1.50	1.50	0.00
500.00	3.75	185.00	499.82	-8.15	-0.71	-8.15	1.50	1.50	0.00
600.00	5.25	185.00	599.51	-15.96	-1.40	-15.97	1.50	1.50	0.00
700.00	6.75	185.00	698.96	-26.38	-2.31	-26.38	1.50	1.50	0.00
783.33	8.00	185.00	781.60	-37.03	-3.24	-37.04	1.50	1.50	0.00
End Nudge @ 783.33ft									
800.00	8.00	185.00	798.11	-39.34	-3.44	-39.35	0.00	0.00	0.00
900.00	8.00	185.00	897.13	-53.21	-4.65	-53.22	0.00	0.00	0.00
1,000.00	8.00	185.00	996.16	-67.07	-5.87	-67.08	0.00	0.00	0.00
1,100.00	8.00	185.00	1,095.19	-80.94	-7.08	-80.95	0.00	0.00	0.00
1,200.00	8.00	185.00	1,194.21	-94.80	-8.29	-94.82	0.00	0.00	0.00
1,232.10	8.00	185.00	1,226.00	-99.25	-8.68	-99.27	0.00	0.00	0.00
Fox Hills									
1,300.00	8.00	185.00	1,293.24	-108.66	-9.51	-108.69	0.00	0.00	0.00
1,400.00	8.00	185.00	1,392.27	-122.53	-10.72	-122.55	0.00	0.00	0.00
1,500.00	8.00	185.00	1,491.29	-136.39	-11.93	-136.42	0.00	0.00	0.00
1,508.79	8.00	185.00	1,500.00	-137.61	-12.04	-137.64	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	8.00	185.00	1,590.32	-150.26	-13.15	-150.29	0.00	0.00	0.00
1,700.00	8.00	185.00	1,689.35	-164.12	-14.36	-164.15	0.00	0.00	0.00
1,800.00	8.00	185.00	1,788.37	-177.99	-15.57	-178.02	0.00	0.00	0.00
1,900.00	8.00	185.00	1,887.40	-191.85	-16.78	-191.89	0.00	0.00	0.00
2,000.00	8.00	185.00	1,986.43	-205.71	-18.00	-205.76	0.00	0.00	0.00
2,100.00	8.00	185.00	2,085.46	-219.58	-19.21	-219.62	0.00	0.00	0.00
2,200.00	8.00	185.00	2,184.48	-233.44	-20.42	-233.49	0.00	0.00	0.00
2,300.00	8.00	185.00	2,283.51	-247.31	-21.64	-247.36	0.00	0.00	0.00
2,400.00	8.00	185.00	2,382.54	-261.17	-22.85	-261.22	0.00	0.00	0.00
2,500.00	8.00	185.00	2,481.56	-275.04	-24.06	-275.09	0.00	0.00	0.00
2,600.00	8.00	185.00	2,580.59	-288.90	-25.28	-288.96	0.00	0.00	0.00
2,700.00	8.00	185.00	2,679.62	-302.77	-26.49	-302.82	0.00	0.00	0.00
2,800.00	8.00	185.00	2,778.64	-316.63	-27.70	-316.69	0.00	0.00	0.00
2,900.00	8.00	185.00	2,877.67	-330.49	-28.91	-330.56	0.00	0.00	0.00
3,000.00	8.00	185.00	2,976.70	-344.36	-30.13	-344.43	0.00	0.00	0.00
3,100.00	8.00	185.00	3,075.72	-358.22	-31.34	-358.29	0.00	0.00	0.00
3,200.00	8.00	185.00	3,174.75	-372.09	-32.55	-372.16	0.00	0.00	0.00
3,300.00	8.00	185.00	3,273.78	-385.95	-33.77	-386.03	0.00	0.00	0.00
3,383.33	8.00	185.00	3,356.30	-397.50	-34.78	-397.58	0.00	0.00	0.00
Begin Drop @ 3383.33ft									
3,400.00	7.67	185.00	3,372.81	-399.77	-34.98	-399.85	2.00	-2.00	0.00
3,500.00	5.67	185.00	3,472.13	-411.33	-35.99	-411.41	2.00	-2.00	0.00
3,600.00	3.67	185.00	3,571.79	-419.44	-36.70	-419.52	2.00	-2.00	0.00
3,700.00	1.67	185.00	3,671.68	-424.07	-37.10	-424.15	2.00	-2.00	0.00
3,783.33	0.00	0.00	3,755.00	-425.28	-37.21	-425.36	2.00	-2.00	0.00
End Drop @ 3783.33ft									
3,800.00	0.00	0.00	3,771.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
3,900.00	0.00	0.00	3,871.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,000.00	0.00	0.00	3,971.67	-425.28	-37.21	-425.36	0.00	0.00	0.00

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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)
4,030.33	0.00	0.00	4,002.00	-425.28	-37.21	-425.36	0.00	0.00	0.00
Parkman									
4,100.00	0.00	0.00	4,071.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,200.00	0.00	0.00	4,171.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,300.00	0.00	0.00	4,271.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,400.00	0.00	0.00	4,371.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,426.33	0.00	0.00	4,398.00	-425.28	-37.21	-425.36	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,471.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,600.00	0.00	0.00	4,571.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,700.00	0.00	0.00	4,671.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,800.00	0.00	0.00	4,771.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
4,900.00	0.00	0.00	4,871.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,000.00	0.00	0.00	4,971.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,100.00	0.00	0.00	5,071.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,200.00	0.00	0.00	5,171.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,300.00	0.00	0.00	5,271.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,400.00	0.00	0.00	5,371.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,500.00	0.00	0.00	5,471.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,600.00	0.00	0.00	5,571.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,700.00	0.00	0.00	5,671.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,800.00	0.00	0.00	5,771.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
5,900.00	0.00	0.00	5,871.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,000.00	0.00	0.00	5,971.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,100.00	0.00	0.00	6,071.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,200.00	0.00	0.00	6,171.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,300.00	0.00	0.00	6,271.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,400.00	0.00	0.00	6,371.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,500.00	0.00	0.00	6,471.67	-425.28	-37.21	-425.36	0.00	0.00	0.00
6,592.17	0.00	0.00	6,563.84	-425.28	-37.21	-425.36	0.00	0.00	0.00
KOP @ 6592.17ft :: DLS = 8°/100'									
6,600.00	0.63	0.08	6,571.67	-425.24	-37.21	-425.32	8.00	8.00	0.00
6,700.00	8.63	0.08	6,671.26	-417.18	-37.20	-417.26	8.00	8.00	0.00
6,800.00	16.63	0.08	6,768.76	-395.33	-37.17	-395.42	8.00	8.00	0.00
6,900.00	24.63	0.08	6,862.28	-360.14	-37.12	-360.22	8.00	8.00	0.00
7,000.00	32.63	0.08	6,949.98	-312.27	-37.06	-312.35	8.00	8.00	0.00
7,100.00	40.63	0.08	7,030.17	-252.65	-36.98	-252.74	8.00	8.00	0.00
7,126.56	42.75	0.08	7,050.00	-234.99	-36.95	-235.08	8.00	8.00	0.00
Sharon Springs									
7,200.00	48.63	0.08	7,101.28	-182.46	-36.89	-182.55	8.00	8.00	0.00
7,221.11	50.32	0.08	7,115.00	-166.42	-36.86	-166.50	8.00	8.00	0.00
Niobrara									
7,300.00	56.63	0.08	7,161.93	-103.06	-36.78	-103.14	8.00	8.00	0.00
7,338.03	59.67	0.08	7,182.00	-70.76	-36.74	-70.85	8.00	8.00	0.00
Nio B									
7,400.00	64.63	0.08	7,210.95	-15.99	-36.66	-16.07	8.00	8.00	0.00
7,500.00	72.63	0.08	7,247.36	77.06	-36.54	76.98	8.00	8.00	0.00
7,505.56	73.07	0.08	7,249.00	82.37	-36.53	82.29	8.00	8.00	0.00
Nio C									
7,600.00	80.63	0.08	7,270.47	174.27	-36.41	174.19	8.00	8.00	0.00
7,700.00	88.63	0.08	7,279.83	273.75	-36.28	273.67	8.00	8.00	0.00
7,724.12	90.56	0.08	7,280.00	297.87	-36.25	297.79	8.00	8.00	0.00
End Build @ 7724.12ft - Top of Production									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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)	
7,800.00	90.56	0.08	7,279.26	373.74	-36.15	373.66	0.00	0.00	0.00	
7,900.00	90.56	0.08	7,278.29	473.74	-36.02	473.66	0.00	0.00	0.00	
8,000.00	90.56	0.08	7,277.32	573.74	-35.88	573.65	0.00	0.00	0.00	
8,100.00	90.56	0.08	7,276.35	673.73	-35.75	673.65	0.00	0.00	0.00	
8,200.00	90.56	0.08	7,275.38	773.73	-35.62	773.64	0.00	0.00	0.00	
8,300.00	90.56	0.08	7,274.41	873.72	-35.49	873.64	0.00	0.00	0.00	
8,400.00	90.56	0.08	7,273.44	973.72	-35.35	973.63	0.00	0.00	0.00	
8,500.00	90.56	0.08	7,272.47	1,073.71	-35.22	1,073.63	0.00	0.00	0.00	
8,600.00	90.56	0.08	7,271.50	1,173.71	-35.09	1,173.62	0.00	0.00	0.00	
8,700.00	90.56	0.08	7,270.53	1,273.70	-34.96	1,273.62	0.00	0.00	0.00	
8,800.00	90.56	0.08	7,269.56	1,373.70	-34.82	1,373.61	0.00	0.00	0.00	
8,900.00	90.56	0.08	7,268.59	1,473.69	-34.69	1,473.61	0.00	0.00	0.00	
9,000.00	90.56	0.08	7,267.62	1,573.69	-34.56	1,573.60	0.00	0.00	0.00	
9,100.00	90.56	0.08	7,266.65	1,673.68	-34.43	1,673.60	0.00	0.00	0.00	
9,200.00	90.56	0.08	7,265.68	1,773.68	-34.29	1,773.60	0.00	0.00	0.00	
9,300.00	90.56	0.08	7,264.71	1,873.67	-34.16	1,873.59	0.00	0.00	0.00	
9,400.00	90.56	0.08	7,263.74	1,973.67	-34.03	1,973.59	0.00	0.00	0.00	
9,500.00	90.56	0.08	7,262.77	2,073.66	-33.90	2,073.58	0.00	0.00	0.00	
9,600.00	90.56	0.08	7,261.80	2,173.66	-33.76	2,173.58	0.00	0.00	0.00	
9,700.00	90.56	0.08	7,260.83	2,273.65	-33.63	2,273.57	0.00	0.00	0.00	
9,800.00	90.56	0.08	7,259.86	2,373.65	-33.50	2,373.57	0.00	0.00	0.00	
9,900.00	90.56	0.08	7,258.89	2,473.64	-33.37	2,473.56	0.00	0.00	0.00	
10,000.00	90.56	0.08	7,257.92	2,573.64	-33.23	2,573.56	0.00	0.00	0.00	
10,100.00	90.56	0.08	7,256.95	2,673.63	-33.10	2,673.55	0.00	0.00	0.00	
10,200.00	90.56	0.08	7,255.98	2,773.63	-32.97	2,773.55	0.00	0.00	0.00	
10,300.00	90.56	0.08	7,255.01	2,873.62	-32.84	2,873.54	0.00	0.00	0.00	
10,400.00	90.56	0.08	7,254.04	2,973.62	-32.70	2,973.54	0.00	0.00	0.00	
10,500.00	90.56	0.08	7,253.07	3,073.62	-32.57	3,073.53	0.00	0.00	0.00	
10,600.00	90.56	0.08	7,252.10	3,173.61	-32.44	3,173.53	0.00	0.00	0.00	
10,700.00	90.56	0.08	7,251.13	3,273.61	-32.31	3,273.52	0.00	0.00	0.00	
10,800.00	90.56	0.08	7,250.16	3,373.60	-32.17	3,373.52	0.00	0.00	0.00	
10,900.00	90.56	0.08	7,249.19	3,473.60	-32.04	3,473.51	0.00	0.00	0.00	
11,000.00	90.56	0.08	7,248.22	3,573.59	-31.91	3,573.51	0.00	0.00	0.00	
11,100.00	90.56	0.08	7,247.25	3,673.59	-31.78	3,673.50	0.00	0.00	0.00	
11,200.00	90.56	0.08	7,246.28	3,773.58	-31.64	3,773.50	0.00	0.00	0.00	
11,300.00	90.56	0.08	7,245.31	3,873.58	-31.51	3,873.50	0.00	0.00	0.00	
11,400.00	90.56	0.08	7,244.34	3,973.57	-31.38	3,973.49	0.00	0.00	0.00	
11,500.00	90.56	0.08	7,243.37	4,073.57	-31.25	4,073.49	0.00	0.00	0.00	
11,600.00	90.56	0.08	7,242.40	4,173.56	-31.11	4,173.48	0.00	0.00	0.00	
11,700.00	90.56	0.08	7,241.43	4,273.56	-30.98	4,273.48	0.00	0.00	0.00	
11,800.00	90.56	0.08	7,240.46	4,373.55	-30.85	4,373.47	0.00	0.00	0.00	
11,900.00	90.56	0.08	7,239.49	4,473.55	-30.72	4,473.47	0.00	0.00	0.00	
12,000.00	90.56	0.08	7,238.52	4,573.54	-30.58	4,573.46	0.00	0.00	0.00	
12,100.00	90.56	0.08	7,237.55	4,673.54	-30.45	4,673.46	0.00	0.00	0.00	
12,200.00	90.56	0.08	7,236.58	4,773.53	-30.32	4,773.45	0.00	0.00	0.00	
12,300.00	90.56	0.08	7,235.61	4,873.53	-30.19	4,873.45	0.00	0.00	0.00	
12,400.00	90.56	0.08	7,234.64	4,973.52	-30.05	4,973.44	0.00	0.00	0.00	
12,500.00	90.56	0.08	7,233.67	5,073.52	-29.92	5,073.44	0.00	0.00	0.00	
12,600.00	90.56	0.08	7,232.70	5,173.51	-29.79	5,173.43	0.00	0.00	0.00	
12,700.00	90.56	0.08	7,231.73	5,273.51	-29.66	5,273.43	0.00	0.00	0.00	
12,800.00	90.56	0.08	7,230.76	5,373.51	-29.52	5,373.42	0.00	0.00	0.00	
12,900.00	90.56	0.08	7,229.79	5,473.50	-29.39	5,473.42	0.00	0.00	0.00	
13,000.00	90.56	0.08	7,228.82	5,573.50	-29.26	5,573.41	0.00	0.00	0.00	
13,100.00	90.56	0.08	7,227.85	5,673.49	-29.13	5,673.41	0.00	0.00	0.00	

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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)	
13,200.00	90.56	0.08	7,226.88	5,773.49	-28.99	5,773.41	0.00	0.00	0.00	
13,300.00	90.56	0.08	7,225.91	5,873.48	-28.86	5,873.40	0.00	0.00	0.00	
13,400.00	90.56	0.08	7,224.94	5,973.48	-28.73	5,973.40	0.00	0.00	0.00	
13,500.00	90.56	0.08	7,223.97	6,073.47	-28.60	6,073.39	0.00	0.00	0.00	
13,600.00	90.56	0.08	7,223.00	6,173.47	-28.46	6,173.39	0.00	0.00	0.00	
13,700.00	90.56	0.08	7,222.03	6,273.46	-28.33	6,273.38	0.00	0.00	0.00	
13,800.00	90.56	0.08	7,221.06	6,373.46	-28.20	6,373.38	0.00	0.00	0.00	
13,900.00	90.56	0.08	7,220.09	6,473.45	-28.07	6,473.37	0.00	0.00	0.00	
14,000.00	90.56	0.08	7,219.12	6,573.45	-27.93	6,573.37	0.00	0.00	0.00	
14,100.00	90.56	0.08	7,218.15	6,673.44	-27.80	6,673.36	0.00	0.00	0.00	
14,200.00	90.56	0.08	7,217.18	6,773.44	-27.67	6,773.36	0.00	0.00	0.00	
14,300.00	90.56	0.08	7,216.21	6,873.43	-27.54	6,873.35	0.00	0.00	0.00	
14,400.00	90.56	0.08	7,215.24	6,973.43	-27.40	6,973.35	0.00	0.00	0.00	
14,500.00	90.56	0.08	7,214.27	7,073.42	-27.27	7,073.34	0.00	0.00	0.00	
14,600.00	90.56	0.08	7,213.30	7,173.42	-27.14	7,173.34	0.00	0.00	0.00	
14,700.00	90.56	0.08	7,212.33	7,273.41	-27.01	7,273.33	0.00	0.00	0.00	
14,800.00	90.56	0.08	7,211.36	7,373.41	-26.87	7,373.33	0.00	0.00	0.00	
14,900.00	90.56	0.08	7,210.39	7,473.40	-26.74	7,473.32	0.00	0.00	0.00	
15,000.00	90.56	0.08	7,209.42	7,573.40	-26.61	7,573.32	0.00	0.00	0.00	
15,100.00	90.56	0.08	7,208.45	7,673.39	-26.48	7,673.32	0.00	0.00	0.00	
15,200.00	90.56	0.08	7,207.48	7,773.39	-26.34	7,773.31	0.00	0.00	0.00	
15,300.00	90.56	0.08	7,206.51	7,873.39	-26.21	7,873.31	0.00	0.00	0.00	
15,400.00	90.56	0.08	7,205.54	7,973.38	-26.08	7,973.30	0.00	0.00	0.00	
15,500.00	90.56	0.08	7,204.57	8,073.38	-25.95	8,073.30	0.00	0.00	0.00	
15,600.00	90.56	0.08	7,203.60	8,173.37	-25.81	8,173.29	0.00	0.00	0.00	
15,700.00	90.56	0.08	7,202.63	8,273.37	-25.68	8,273.29	0.00	0.00	0.00	
15,800.00	90.56	0.08	7,201.66	8,373.36	-25.55	8,373.28	0.00	0.00	0.00	
15,900.00	90.56	0.08	7,200.69	8,473.36	-25.42	8,473.28	0.00	0.00	0.00	
16,000.00	90.56	0.08	7,199.72	8,573.35	-25.28	8,573.27	0.00	0.00	0.00	
16,100.00	90.56	0.08	7,198.75	8,673.35	-25.15	8,673.27	0.00	0.00	0.00	
16,200.00	90.56	0.08	7,197.78	8,773.34	-25.02	8,773.26	0.00	0.00	0.00	
16,300.00	90.56	0.08	7,196.81	8,873.34	-24.89	8,873.26	0.00	0.00	0.00	
16,400.00	90.56	0.08	7,195.84	8,973.33	-24.75	8,973.25	0.00	0.00	0.00	
16,500.00	90.56	0.08	7,194.87	9,073.33	-24.62	9,073.25	0.00	0.00	0.00	
16,600.00	90.56	0.08	7,193.90	9,173.32	-24.49	9,173.24	0.00	0.00	0.00	
16,700.00	90.56	0.08	7,192.93	9,273.32	-24.36	9,273.24	0.00	0.00	0.00	
16,800.00	90.56	0.08	7,191.96	9,373.31	-24.22	9,373.23	0.00	0.00	0.00	
16,900.00	90.56	0.08	7,190.99	9,473.31	-24.09	9,473.23	0.00	0.00	0.00	
17,000.00	90.56	0.08	7,190.02	9,573.30	-23.96	9,573.22	0.00	0.00	0.00	
17,100.00	90.56	0.08	7,189.05	9,673.30	-23.83	9,673.22	0.00	0.00	0.00	
17,200.00	90.56	0.08	7,188.08	9,773.29	-23.69	9,773.22	0.00	0.00	0.00	
17,300.00	90.56	0.08	7,187.11	9,873.29	-23.56	9,873.21	0.00	0.00	0.00	
17,400.00	90.56	0.08	7,186.14	9,973.28	-23.43	9,973.21	0.00	0.00	0.00	
17,414.22	90.56	0.08	7,186.00	9,987.50	-23.41	9,987.42	0.00	0.00	0.00	
TD Well @ 17414.22ft										

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well CASTLE PINES 19-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4893.00usft (Drilling Rig)
Site:	2N-66W-19 CASTLE PINES 16-19HZ PAD	North Reference:	True
Well:	CASTLE PINES 19-11HZ	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 (")	
1,508.79	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,724.12	7,280.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,232.10	1,226.00	Fox Hills				
4,030.33	4,002.00	Parkman				
4,426.33	4,398.00	Sussex				
7,126.56	7,050.00	Sharon Springs				
7,221.11	7,115.00	Niobrara				
7,338.03	7,182.00	Nio B				
7,505.56	7,249.00	Nio C				

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	
783.33	781.60	-37.03	-3.24	End Nudge @ 783.33ft	
3,383.33	3,356.30	-397.50	-34.78	Begin Drop @ 3383.33ft	
3,783.33	3,755.00	-425.28	-37.21	End Drop @ 3783.33ft	
6,592.17	6,563.84	-425.28	-37.21	KOP @ 6592.17ft :: DLS = 8°/100'	
7,724.12	7,280.00	297.87	-36.25	End Build @ 7724.12ft	
17,414.22	7,186.00	9,987.50	-23.41	TD Well @ 17414.22ft	