

# **US ROCKIES WATTENBERG PLANNING**

**WELD-NAD83-UTMFT13N**

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

**CASTLE PINES 19-3HZ**

**Plan A**

**Plan: Permit Rev-1**

SHL Lat/Long: 40.117681/-104.814559

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 19-3HZ  
Wellbore: Plan A  
Design: Permit Rev-1

## US ROCKIES WATTENBERG PLANNING

### CASING DETAILS

TVD	MD	Size
1500.00	1523.23	9-5/8
7421.00	8003.51	5-1/2

WELL DETAILS: CASTLE PINES 19-3HZ

GL = 4876'

RKB = 17" @ 4893.00usft (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	1450.00	18.00	249.00	1430.36	-67.00	-174.53	1.50	249.00	-66.81	
4	4274.00	18.00	249.00	4116.14	-379.73	-989.24	0.00	0.00	-378.70	
5	5174.00	0.00	0.00	5001.41	-429.98	-1120.14	2.00	180.00	-428.81	
6	6877.39	0.00	0.00	6704.80	-429.98	-1120.14	0.00	0.00	-428.81	
7	8003.51	90.09	0.20	7421.00	287.34	-1117.64	8.00	0.20	288.51	
8	12889.75	90.09	0.20	7413.34	5173.54	-1100.66	0.00	0.00	5174.69	CASTLE PINES 19-3HZ_tgt
9	12917.81	90.09	359.64	7413.30	5201.59	-1100.70	2.00	-90.15	5202.74	
10	17654.42	90.09	359.64	7406.00	9938.10	-1130.62	0.00	0.00	9939.28	CASTLE PINES 19-3HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
CASTLE PINES 19-3HZ_SHL	0.00	0.00	0.00	40.117681	-104.814559
CASTLE PINES 19-3HZ_BHL	7406.00	9938.10	-1130.62	40.144972	-104.818605

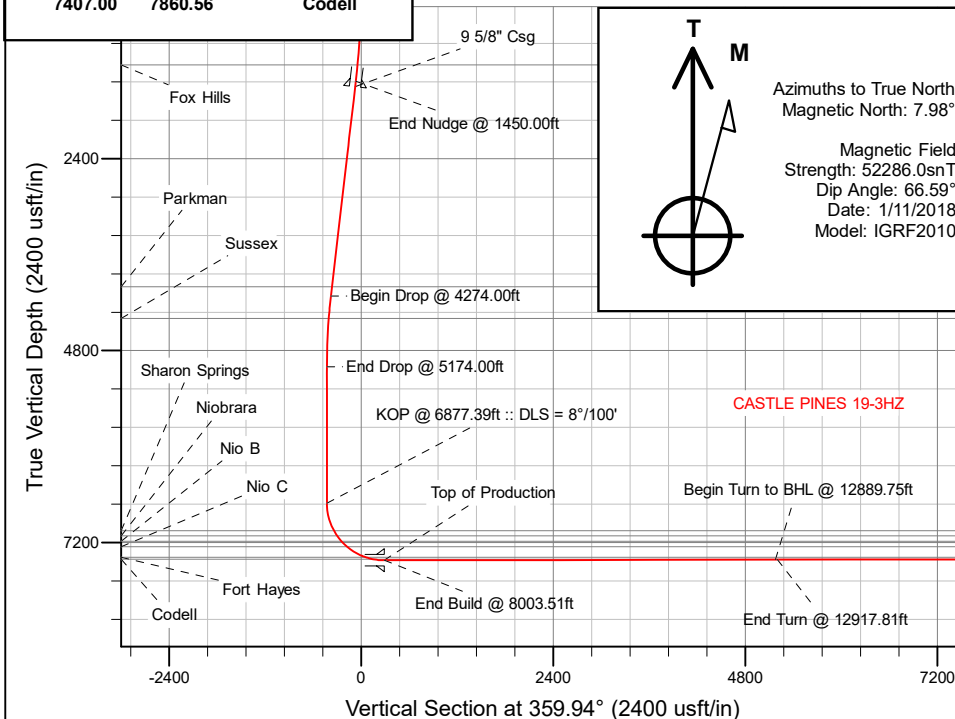
### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1226.00	1236.94	Fox Hills
4002.00	4153.98	Parkman
4398.00	4566.04	Sussex
7050.00	7237.58	Sharon Springs
7115.00	7314.17	Niobrara
7182.00	7399.66	Nio B
7249.00	7495.52	Nio C
7385.00	7774.36	Fort Hayes
7407.00	7860.56	Codell

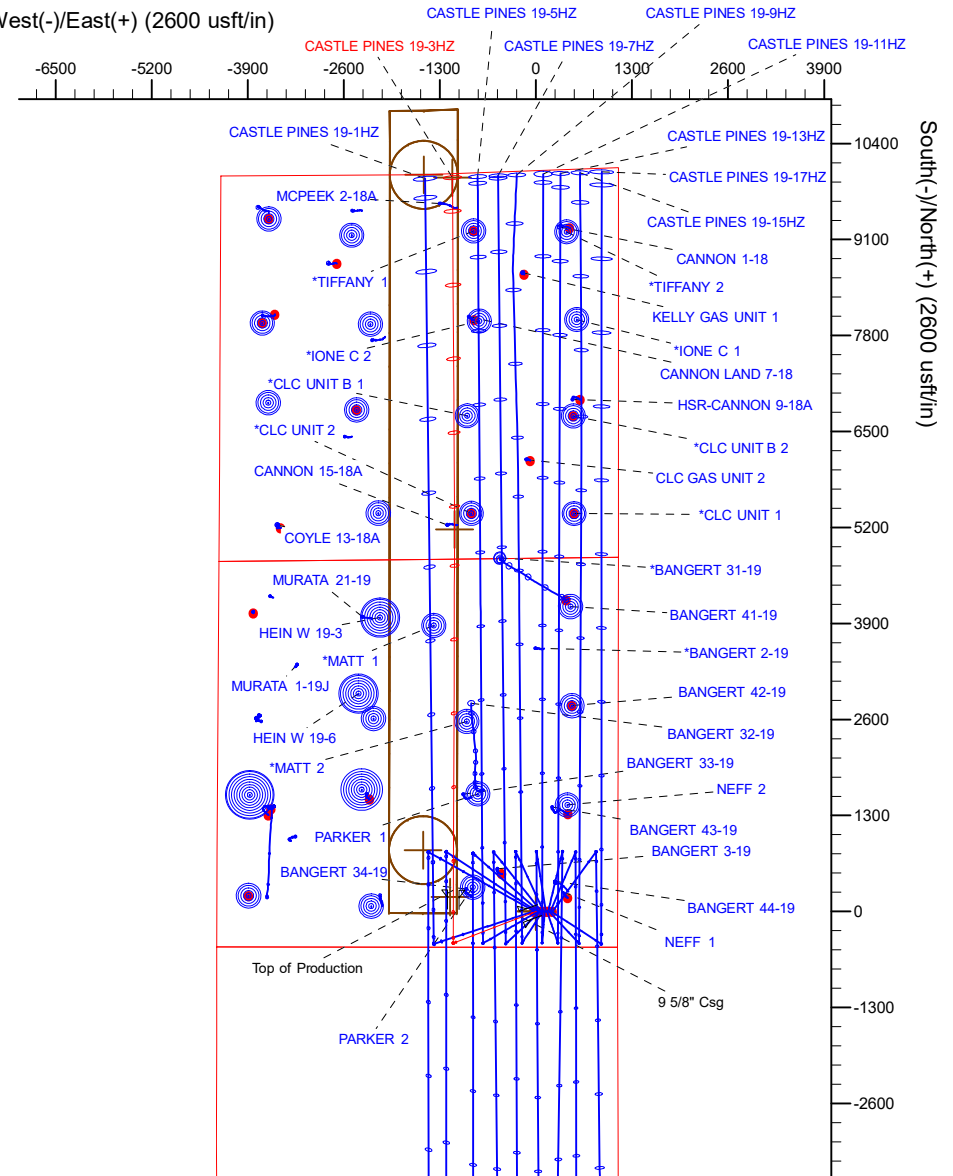
**SHL**  
**484' FSL**  
**1108' FEL**

**HEEL**  
**767' FSL**  
**2228' FEL**

**TOE**  
**52' FNL**  
**2249' FEL**



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



Plan: Permit Rev-1 (CASTLE PINES 19-3HZ/Plan A)

Created By: \_\_\_\_\_ Date: 2/21/2018  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	Permit Rev-1		

<b>Project</b>	WELD-NAD83-UTMFT13N		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 19-3HZ				
Well Position	+N/-S	-0.36 usft	Northing:	14,569,640.37 usft	Latitude:	40.117681
	+E/-W	29.91 usft	Easting:	1,692,260.35 usft	Longitude:	-104.814559
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,876.00 usft

<b>Wellbore</b>	Plan A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/11/2018	7.98	66.59	52,285.96793925

<b>Design</b>	Permit Rev-1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	359.94

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/19/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
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	17,654.42	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 19-3HZ
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 19-3HZ	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	
1,450.00	18.00	249.00	1,430.36	-67.00	-174.53	1.50	1.50	0.00	249.00	
4,274.00	18.00	249.00	4,116.14	-379.73	-989.24	0.00	0.00	0.00	0.00	
5,174.00	0.00	0.00	5,001.41	-429.98	-1,120.14	2.00	-2.00	12.33	180.00	
6,877.39	0.00	0.00	6,704.80	-429.98	-1,120.14	0.00	0.00	0.00	0.00	
8,003.51	90.09	0.20	7,421.00	287.34	-1,117.64	8.00	8.00	0.02	0.20	
12,889.75	90.09	0.20	7,413.34	5,173.54	-1,100.66	0.00	0.00	0.00	0.00	CASTLE PINES 19-3I
12,917.81	90.09	359.64	7,413.30	5,201.59	-1,100.70	2.00	-0.01	-2.00	-90.15	
17,654.42	90.09	359.64	7,406.00	9,938.11	-1,130.62	0.00	0.00	0.00	0.00	CASTLE PINES 19-3I

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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	249.00	300.00	-0.12	-0.31	-0.12	1.50	1.50	0.00
400.00	2.25	249.00	399.96	-1.06	-2.75	-1.05	1.50	1.50	0.00
500.00	3.75	249.00	499.82	-2.93	-7.64	-2.92	1.50	1.50	0.00
600.00	5.25	249.00	599.51	-5.74	-14.96	-5.73	1.50	1.50	0.00
700.00	6.75	249.00	698.96	-9.49	-24.72	-9.46	1.50	1.50	0.00
800.00	8.25	249.00	798.10	-14.17	-36.90	-14.13	1.50	1.50	0.00
900.00	9.75	249.00	896.87	-19.77	-51.51	-19.72	1.50	1.50	0.00
1,000.00	11.25	249.00	995.19	-26.30	-68.52	-26.23	1.50	1.50	0.00
1,100.00	12.75	249.00	1,093.00	-33.75	-87.93	-33.66	1.50	1.50	0.00
1,200.00	14.25	249.00	1,190.24	-42.12	-109.72	-42.00	1.50	1.50	0.00
1,236.95	14.80	249.00	1,226.00	-45.44	-118.37	-45.32	1.50	1.50	0.00
Fox Hills									
1,300.00	15.75	249.00	1,286.83	-51.39	-133.89	-51.25	1.50	1.50	0.00
1,400.00	17.25	249.00	1,382.71	-61.57	-160.40	-61.40	1.50	1.50	0.00
1,450.00	18.00	249.00	1,430.36	-67.00	-174.53	-66.81	1.50	1.50	0.00
End Nudge @ 1450.00ft									
1,500.00	18.00	249.00	1,477.91	-72.53	-188.96	-72.34	0.00	0.00	0.00
1,523.23	18.00	249.00	1,500.00	-75.11	-195.66	-74.90	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	18.00	249.00	1,573.02	-83.61	-217.81	-83.38	0.00	0.00	0.00
1,700.00	18.00	249.00	1,668.12	-94.68	-246.66	-94.42	0.00	0.00	0.00
1,800.00	18.00	249.00	1,763.23	-105.76	-275.51	-105.47	0.00	0.00	0.00
1,900.00	18.00	249.00	1,858.33	-116.83	-304.35	-116.51	0.00	0.00	0.00
2,000.00	18.00	249.00	1,953.44	-127.90	-333.20	-127.56	0.00	0.00	0.00
2,100.00	18.00	249.00	2,048.54	-138.98	-362.05	-138.60	0.00	0.00	0.00
2,200.00	18.00	249.00	2,143.65	-150.05	-390.90	-149.64	0.00	0.00	0.00
2,300.00	18.00	249.00	2,238.76	-161.13	-419.75	-160.69	0.00	0.00	0.00
2,400.00	18.00	249.00	2,333.86	-172.20	-448.60	-171.73	0.00	0.00	0.00
2,500.00	18.00	249.00	2,428.97	-183.28	-477.45	-182.78	0.00	0.00	0.00
2,600.00	18.00	249.00	2,524.07	-194.35	-506.30	-193.82	0.00	0.00	0.00
2,700.00	18.00	249.00	2,619.18	-205.42	-535.15	-204.86	0.00	0.00	0.00
2,800.00	18.00	249.00	2,714.28	-216.50	-564.00	-215.91	0.00	0.00	0.00
2,900.00	18.00	249.00	2,809.39	-227.57	-592.85	-226.95	0.00	0.00	0.00
3,000.00	18.00	249.00	2,904.50	-238.65	-621.70	-238.00	0.00	0.00	0.00
3,100.00	18.00	249.00	2,999.60	-249.72	-650.55	-249.04	0.00	0.00	0.00
3,200.00	18.00	249.00	3,094.71	-260.80	-679.39	-260.08	0.00	0.00	0.00
3,300.00	18.00	249.00	3,189.81	-271.87	-708.24	-271.13	0.00	0.00	0.00
3,400.00	18.00	249.00	3,284.92	-282.94	-737.09	-282.17	0.00	0.00	0.00
3,500.00	18.00	249.00	3,380.02	-294.02	-765.94	-293.22	0.00	0.00	0.00
3,600.00	18.00	249.00	3,475.13	-305.09	-794.79	-304.26	0.00	0.00	0.00
3,700.00	18.00	249.00	3,570.24	-316.17	-823.64	-315.30	0.00	0.00	0.00
3,800.00	18.00	249.00	3,665.34	-327.24	-852.49	-326.35	0.00	0.00	0.00
3,900.00	18.00	249.00	3,760.45	-338.31	-881.34	-337.39	0.00	0.00	0.00
4,000.00	18.00	249.00	3,855.55	-349.39	-910.19	-348.44	0.00	0.00	0.00
4,100.00	18.00	249.00	3,950.66	-360.46	-939.04	-359.48	0.00	0.00	0.00
4,153.98	18.00	249.00	4,002.00	-366.44	-954.61	-365.44	0.00	0.00	0.00
Parkman									
4,200.00	18.00	249.00	4,045.76	-371.54	-967.89	-370.52	0.00	0.00	0.00
4,274.00	18.00	249.00	4,116.14	-379.73	-989.24	-378.70	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
<b>Begin Drop @ 4274.00ft</b>									
4,300.00	17.48	249.00	4,140.91	-382.57	-996.63	-381.53	2.00	-2.00	0.00
4,400.00	15.48	249.00	4,236.79	-392.74	-1,023.11	-391.66	2.00	-2.00	0.00
4,500.00	13.48	249.00	4,333.61	-401.70	-1,046.46	-400.60	2.00	-2.00	0.00
4,566.04	12.16	249.00	4,398.00	-406.95	-1,060.14	-405.84	2.00	-2.00	0.00
<b>Sussex</b>									
4,600.00	11.48	249.00	4,431.24	-409.44	-1,066.63	-408.32	2.00	-2.00	0.00
4,700.00	9.48	249.00	4,529.57	-415.96	-1,083.61	-414.82	2.00	-2.00	0.00
4,800.00	7.48	249.00	4,628.47	-421.24	-1,097.38	-420.09	2.00	-2.00	0.00
4,900.00	5.48	249.00	4,727.83	-425.29	-1,107.91	-424.13	2.00	-2.00	0.00
5,000.00	3.48	249.00	4,827.52	-428.09	-1,115.20	-426.92	2.00	-2.00	0.00
5,100.00	1.48	249.00	4,927.42	-429.64	-1,119.24	-428.47	2.00	-2.00	0.00
5,174.00	0.00	0.00	5,001.41	-429.98	-1,120.14	-428.81	2.00	-2.00	149.99
<b>End Drop @ 5174.00ft</b>									
5,200.00	0.00	0.00	5,027.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,300.00	0.00	0.00	5,127.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,400.00	0.00	0.00	5,227.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,500.00	0.00	0.00	5,327.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,600.00	0.00	0.00	5,427.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,700.00	0.00	0.00	5,527.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,800.00	0.00	0.00	5,627.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
5,900.00	0.00	0.00	5,727.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,000.00	0.00	0.00	5,827.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,100.00	0.00	0.00	5,927.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,200.00	0.00	0.00	6,027.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,300.00	0.00	0.00	6,127.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,400.00	0.00	0.00	6,227.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,500.00	0.00	0.00	6,327.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,600.00	0.00	0.00	6,427.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,700.00	0.00	0.00	6,527.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,800.00	0.00	0.00	6,627.41	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
6,877.39	0.00	0.00	6,704.80	-429.98	-1,120.14	-428.81	0.00	0.00	0.00
<b>KOP @ 6877.39ft :: DLS = 8°/100'</b>									
6,900.00	1.81	0.20	6,727.41	-429.62	-1,120.13	-428.45	8.00	8.00	0.88
7,000.00	9.81	0.20	6,826.81	-419.51	-1,120.10	-418.34	8.00	8.00	0.00
7,100.00	17.81	0.20	6,923.84	-395.66	-1,120.02	-394.49	8.00	8.00	0.00
7,200.00	25.81	0.20	7,016.61	-358.54	-1,119.89	-357.37	8.00	8.00	0.00
7,237.58	28.82	0.20	7,050.00	-341.30	-1,119.83	-340.13	8.00	8.00	0.00
<b>Sharon Springs</b>									
7,300.00	33.81	0.20	7,103.31	-308.87	-1,119.72	-307.70	8.00	8.00	0.00
7,314.17	34.94	0.20	7,115.00	-300.87	-1,119.69	-299.70	8.00	8.00	0.00
<b>Niobrara</b>									
7,399.66	41.78	0.20	7,182.00	-247.84	-1,119.50	-246.67	8.00	8.00	0.00
<b>Nio B</b>									
7,400.00	41.81	0.20	7,182.25	-247.62	-1,119.50	-246.45	8.00	8.00	0.00
7,495.52	49.45	0.20	7,249.00	-179.39	-1,119.27	-178.21	8.00	8.00	0.00
<b>Nio C</b>									
7,500.00	49.81	0.20	7,251.90	-175.98	-1,119.25	-174.80	8.00	8.00	0.00
7,600.00	57.81	0.20	7,310.90	-95.34	-1,118.97	-94.16	8.00	8.00	0.00
7,700.00	65.81	0.20	7,358.10	-7.27	-1,118.67	-6.10	8.00	8.00	0.00
7,774.36	71.76	0.20	7,385.00	62.01	-1,118.43	63.18	8.00	8.00	0.00
<b>Fort Hayes</b>									
7,800.00	73.81	0.20	7,392.59	86.51	-1,118.34	87.68	8.00	8.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
7,860.56	78.65	0.20	7,407.00	145.31	-1,118.14	146.48	8.00	8.00	0.00
<b>Codell</b>									
7,900.00	81.81	0.20	7,413.69	184.17	-1,118.00	185.34	8.00	8.00	0.00
8,000.00	89.81	0.20	7,420.99	283.82	-1,117.66	284.99	8.00	8.00	0.00
8,003.51	90.09	0.20	7,421.00	287.33	-1,117.64	288.50	8.00	8.00	0.00
<b>End Build @ 8003.51ft - Top of Production</b>									
8,100.00	90.09	0.20	7,420.85	383.82	-1,117.31	384.99	0.00	0.00	0.00
8,200.00	90.09	0.20	7,420.69	483.82	-1,116.96	484.99	0.00	0.00	0.00
8,300.00	90.09	0.20	7,420.53	583.82	-1,116.61	584.99	0.00	0.00	0.00
8,400.00	90.09	0.20	7,420.38	683.82	-1,116.26	684.99	0.00	0.00	0.00
8,500.00	90.09	0.20	7,420.22	783.82	-1,115.92	784.99	0.00	0.00	0.00
8,600.00	90.09	0.20	7,420.06	883.82	-1,115.57	884.99	0.00	0.00	0.00
8,700.00	90.09	0.20	7,419.91	983.82	-1,115.22	984.99	0.00	0.00	0.00
8,800.00	90.09	0.20	7,419.75	1,083.82	-1,114.87	1,084.98	0.00	0.00	0.00
8,900.00	90.09	0.20	7,419.59	1,183.82	-1,114.53	1,184.98	0.00	0.00	0.00
9,000.00	90.09	0.20	7,419.44	1,283.82	-1,114.18	1,284.98	0.00	0.00	0.00
9,100.00	90.09	0.20	7,419.28	1,383.82	-1,113.83	1,384.98	0.00	0.00	0.00
9,200.00	90.09	0.20	7,419.12	1,483.81	-1,113.48	1,484.98	0.00	0.00	0.00
9,300.00	90.09	0.20	7,418.96	1,583.81	-1,113.14	1,584.98	0.00	0.00	0.00
9,400.00	90.09	0.20	7,418.81	1,683.81	-1,112.79	1,684.98	0.00	0.00	0.00
9,500.00	90.09	0.20	7,418.65	1,783.81	-1,112.44	1,784.98	0.00	0.00	0.00
9,600.00	90.09	0.20	7,418.49	1,883.81	-1,112.09	1,884.98	0.00	0.00	0.00
9,700.00	90.09	0.20	7,418.34	1,983.81	-1,111.75	1,984.97	0.00	0.00	0.00
9,800.00	90.09	0.20	7,418.18	2,083.81	-1,111.40	2,084.97	0.00	0.00	0.00
9,900.00	90.09	0.20	7,418.02	2,183.81	-1,111.05	2,184.97	0.00	0.00	0.00
10,000.00	90.09	0.20	7,417.87	2,283.81	-1,110.70	2,284.97	0.00	0.00	0.00
10,100.00	90.09	0.20	7,417.71	2,383.81	-1,110.36	2,384.97	0.00	0.00	0.00
10,200.00	90.09	0.20	7,417.55	2,483.81	-1,110.01	2,484.97	0.00	0.00	0.00
10,300.00	90.09	0.20	7,417.40	2,583.81	-1,109.66	2,584.97	0.00	0.00	0.00
10,400.00	90.09	0.20	7,417.24	2,683.81	-1,109.31	2,684.97	0.00	0.00	0.00
10,500.00	90.09	0.20	7,417.08	2,783.80	-1,108.97	2,784.96	0.00	0.00	0.00
10,600.00	90.09	0.20	7,416.93	2,883.80	-1,108.62	2,884.96	0.00	0.00	0.00
10,700.00	90.09	0.20	7,416.77	2,983.80	-1,108.27	2,984.96	0.00	0.00	0.00
10,800.00	90.09	0.20	7,416.61	3,083.80	-1,107.92	3,084.96	0.00	0.00	0.00
10,900.00	90.09	0.20	7,416.46	3,183.80	-1,107.58	3,184.96	0.00	0.00	0.00
11,000.00	90.09	0.20	7,416.30	3,283.80	-1,107.23	3,284.96	0.00	0.00	0.00
11,100.00	90.09	0.20	7,416.14	3,383.80	-1,106.88	3,384.96	0.00	0.00	0.00
11,200.00	90.09	0.20	7,415.99	3,483.80	-1,106.53	3,484.96	0.00	0.00	0.00
11,300.00	90.09	0.20	7,415.83	3,583.80	-1,106.19	3,584.96	0.00	0.00	0.00
11,400.00	90.09	0.20	7,415.67	3,683.80	-1,105.84	3,684.95	0.00	0.00	0.00
11,500.00	90.09	0.20	7,415.52	3,783.80	-1,105.49	3,784.95	0.00	0.00	0.00
11,600.00	90.09	0.20	7,415.36	3,883.80	-1,105.14	3,884.95	0.00	0.00	0.00
11,700.00	90.09	0.20	7,415.20	3,983.80	-1,104.80	3,984.95	0.00	0.00	0.00
11,800.00	90.09	0.20	7,415.05	4,083.80	-1,104.45	4,084.95	0.00	0.00	0.00
11,900.00	90.09	0.20	7,414.89	4,183.79	-1,104.10	4,184.95	0.00	0.00	0.00
12,000.00	90.09	0.20	7,414.73	4,283.79	-1,103.75	4,284.95	0.00	0.00	0.00
12,100.00	90.09	0.20	7,414.58	4,383.79	-1,103.40	4,384.95	0.00	0.00	0.00
12,200.00	90.09	0.20	7,414.42	4,483.79	-1,103.06	4,484.95	0.00	0.00	0.00
12,300.00	90.09	0.20	7,414.26	4,583.79	-1,102.71	4,584.94	0.00	0.00	0.00
12,400.00	90.09	0.20	7,414.11	4,683.79	-1,102.36	4,684.94	0.00	0.00	0.00
12,500.00	90.09	0.20	7,413.95	4,783.79	-1,102.01	4,784.94	0.00	0.00	0.00
12,600.00	90.09	0.20	7,413.79	4,883.79	-1,101.67	4,884.94	0.00	0.00	0.00
12,700.00	90.09	0.20	7,413.64	4,983.79	-1,101.32	4,984.94	0.00	0.00	0.00
12,800.00	90.09	0.20	7,413.48	5,083.79	-1,100.97	5,084.94	0.00	0.00	0.00

# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
12,889.75	90.09	0.20	7,413.34	5,173.54	-1,100.66	5,174.69	0.00	0.00	0.00
<b>Begin Turn to BHL @ 12889.75ft</b>									
12,900.00	90.09	359.99	7,413.32	5,183.79	-1,100.64	5,184.94	2.00	-0.01	-2.00
12,917.81	90.09	359.64	7,413.30	5,201.59	-1,100.70	5,202.74	2.00	-0.01	-2.00
<b>End Turn @ 12917.81ft</b>									
13,000.00	90.09	359.64	7,413.17	5,283.79	-1,101.22	5,284.94	0.00	0.00	0.00
13,100.00	90.09	359.64	7,413.02	5,383.78	-1,101.85	5,384.93	0.00	0.00	0.00
13,200.00	90.09	359.64	7,412.86	5,483.78	-1,102.48	5,484.93	0.00	0.00	0.00
13,300.00	90.09	359.64	7,412.71	5,583.78	-1,103.11	5,584.93	0.00	0.00	0.00
13,400.00	90.09	359.64	7,412.55	5,683.78	-1,103.75	5,684.93	0.00	0.00	0.00
13,500.00	90.09	359.64	7,412.40	5,783.78	-1,104.38	5,784.93	0.00	0.00	0.00
13,600.00	90.09	359.64	7,412.25	5,883.77	-1,105.01	5,884.93	0.00	0.00	0.00
13,700.00	90.09	359.64	7,412.09	5,983.77	-1,105.64	5,984.93	0.00	0.00	0.00
13,800.00	90.09	359.64	7,411.94	6,083.77	-1,106.27	6,084.92	0.00	0.00	0.00
13,900.00	90.09	359.64	7,411.78	6,183.77	-1,106.90	6,184.92	0.00	0.00	0.00
14,000.00	90.09	359.64	7,411.63	6,283.76	-1,107.54	6,284.92	0.00	0.00	0.00
14,100.00	90.09	359.64	7,411.48	6,383.76	-1,108.17	6,384.92	0.00	0.00	0.00
14,200.00	90.09	359.64	7,411.32	6,483.76	-1,108.80	6,484.92	0.00	0.00	0.00
14,300.00	90.09	359.64	7,411.17	6,583.76	-1,109.43	6,584.92	0.00	0.00	0.00
14,400.00	90.09	359.64	7,411.01	6,683.76	-1,110.06	6,684.91	0.00	0.00	0.00
14,500.00	90.09	359.64	7,410.86	6,783.75	-1,110.69	6,784.91	0.00	0.00	0.00
14,600.00	90.09	359.64	7,410.71	6,883.75	-1,111.33	6,884.91	0.00	0.00	0.00
14,700.00	90.09	359.64	7,410.55	6,983.75	-1,111.96	6,984.91	0.00	0.00	0.00
14,800.00	90.09	359.64	7,410.40	7,083.75	-1,112.59	7,084.91	0.00	0.00	0.00
14,900.00	90.09	359.64	7,410.24	7,183.75	-1,113.22	7,184.91	0.00	0.00	0.00
15,000.00	90.09	359.64	7,410.09	7,283.74	-1,113.85	7,284.91	0.00	0.00	0.00
15,100.00	90.09	359.64	7,409.94	7,383.74	-1,114.48	7,384.90	0.00	0.00	0.00
15,200.00	90.09	359.64	7,409.78	7,483.74	-1,115.12	7,484.90	0.00	0.00	0.00
15,300.00	90.09	359.64	7,409.63	7,583.74	-1,115.75	7,584.90	0.00	0.00	0.00
15,400.00	90.09	359.64	7,409.47	7,683.74	-1,116.38	7,684.90	0.00	0.00	0.00
15,500.00	90.09	359.64	7,409.32	7,783.73	-1,117.01	7,784.90	0.00	0.00	0.00
15,600.00	90.09	359.64	7,409.16	7,883.73	-1,117.64	7,884.90	0.00	0.00	0.00
15,700.00	90.09	359.64	7,409.01	7,983.73	-1,118.27	7,984.90	0.00	0.00	0.00
15,800.00	90.09	359.64	7,408.86	8,083.73	-1,118.91	8,084.89	0.00	0.00	0.00
15,900.00	90.09	359.64	7,408.70	8,183.72	-1,119.54	8,184.89	0.00	0.00	0.00
16,000.00	90.09	359.64	7,408.55	8,283.72	-1,120.17	8,284.89	0.00	0.00	0.00
16,100.00	90.09	359.64	7,408.39	8,383.72	-1,120.80	8,384.89	0.00	0.00	0.00
16,200.00	90.09	359.64	7,408.24	8,483.72	-1,121.43	8,484.89	0.00	0.00	0.00
16,300.00	90.09	359.64	7,408.09	8,583.72	-1,122.06	8,584.89	0.00	0.00	0.00
16,400.00	90.09	359.64	7,407.93	8,683.71	-1,122.70	8,684.88	0.00	0.00	0.00
16,500.00	90.09	359.64	7,407.78	8,783.71	-1,123.33	8,784.88	0.00	0.00	0.00
16,600.00	90.09	359.64	7,407.62	8,883.71	-1,123.96	8,884.88	0.00	0.00	0.00
16,700.00	90.09	359.64	7,407.47	8,983.71	-1,124.59	8,984.88	0.00	0.00	0.00
16,800.00	90.09	359.64	7,407.32	9,083.71	-1,125.22	9,084.88	0.00	0.00	0.00
16,900.00	90.09	359.64	7,407.16	9,183.70	-1,125.85	9,184.88	0.00	0.00	0.00
17,000.00	90.09	359.64	7,407.01	9,283.70	-1,126.49	9,284.88	0.00	0.00	0.00
17,100.00	90.09	359.64	7,406.85	9,383.70	-1,127.12	9,384.87	0.00	0.00	0.00
17,200.00	90.09	359.64	7,406.70	9,483.70	-1,127.75	9,484.87	0.00	0.00	0.00
17,300.00	90.09	359.64	7,406.55	9,583.69	-1,128.38	9,584.87	0.00	0.00	0.00
17,400.00	90.09	359.64	7,406.39	9,683.69	-1,129.01	9,684.87	0.00	0.00	0.00
17,500.00	90.09	359.64	7,406.24	9,783.69	-1,129.64	9,784.87	0.00	0.00	0.00
17,600.00	90.09	359.64	7,406.08	9,883.69	-1,130.28	9,884.87	0.00	0.00	0.00
17,654.42	90.09	359.64	7,406.00	9,938.11	-1,130.62	9,939.28	0.00	0.00	0.00



# Corporate Planning Report

<b>Database:</b>	PLANNING	<b>Local Co-ordinate Reference:</b>	Well CASTLE PINES 19-3HZ
<b>Company:</b>	US ROCKIES WATTENBERG PLANNING	<b>TVD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Project:</b>	WELD-NAD83-UTMFT13N	<b>MD Reference:</b>	RKB = 17' @ 4893.00usft (Drilling Rig)
<b>Site:</b>	2N-66W-19 CASTLE PINES 16-19HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	CASTLE PINES 19-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Plan A		
<b>Design:</b>	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)
TD Well @ 17654.42ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.23	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
8,003.51	7,421.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,236.95	1,226.00	Fox Hills				
4,153.98	4,002.00	Parkman				
4,566.04	4,398.00	Sussex				
7,237.58	7,050.00	Sharon Springs				
7,314.17	7,115.00	Niobrara				
7,399.66	7,182.00	Nio B				
7,495.52	7,249.00	Nio C				
7,774.36	7,385.00	Fort Hayes				
7,860.56	7,407.00	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	
1,450.00	1,430.36	-67.00	-174.53	End Nudge @ 1450.00ft	
4,274.00	4,116.14	-379.73	-989.24	Begin Drop @ 4274.00ft	
5,174.00	5,001.41	-429.98	-1,120.14	End Drop @ 5174.00ft	
6,877.39	6,704.80	-429.98	-1,120.14	KOP @ 6877.39ft :: DLS = 8°/100'	
8,003.51	7,421.00	287.34	-1,117.64	End Build @ 8003.51ft	
12,889.75	7,413.34	5,173.54	-1,100.66	Begin Turn to BHL @ 12889.75ft	
12,917.81	7,413.30	5,201.59	-1,100.70	End Turn @ 12917.81ft	
17,654.42	7,406.00	9,938.11	-1,130.62	TD Well @ 17654.42ft	