



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-68W-01 Carson 13-1HZ WEST PAD

CARSON 1-6HZ

Plan A

Plan: Permit-Rev2

Standard Planning Report

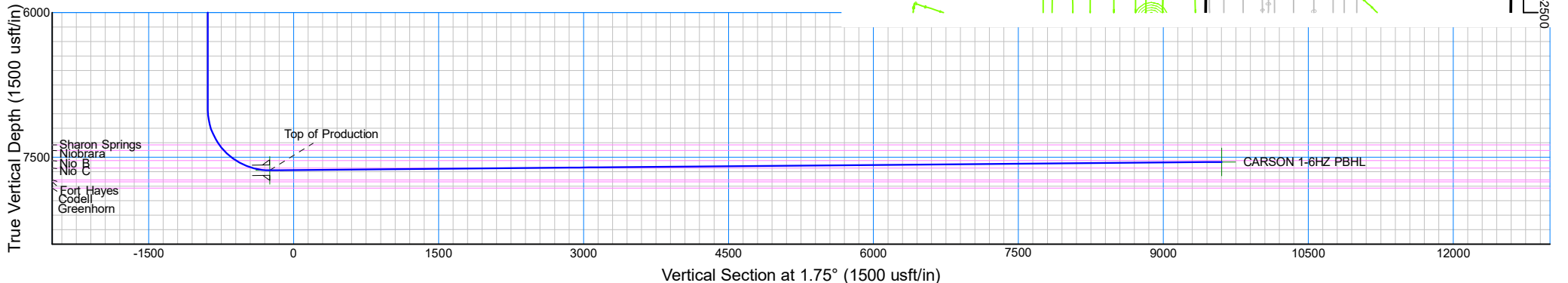
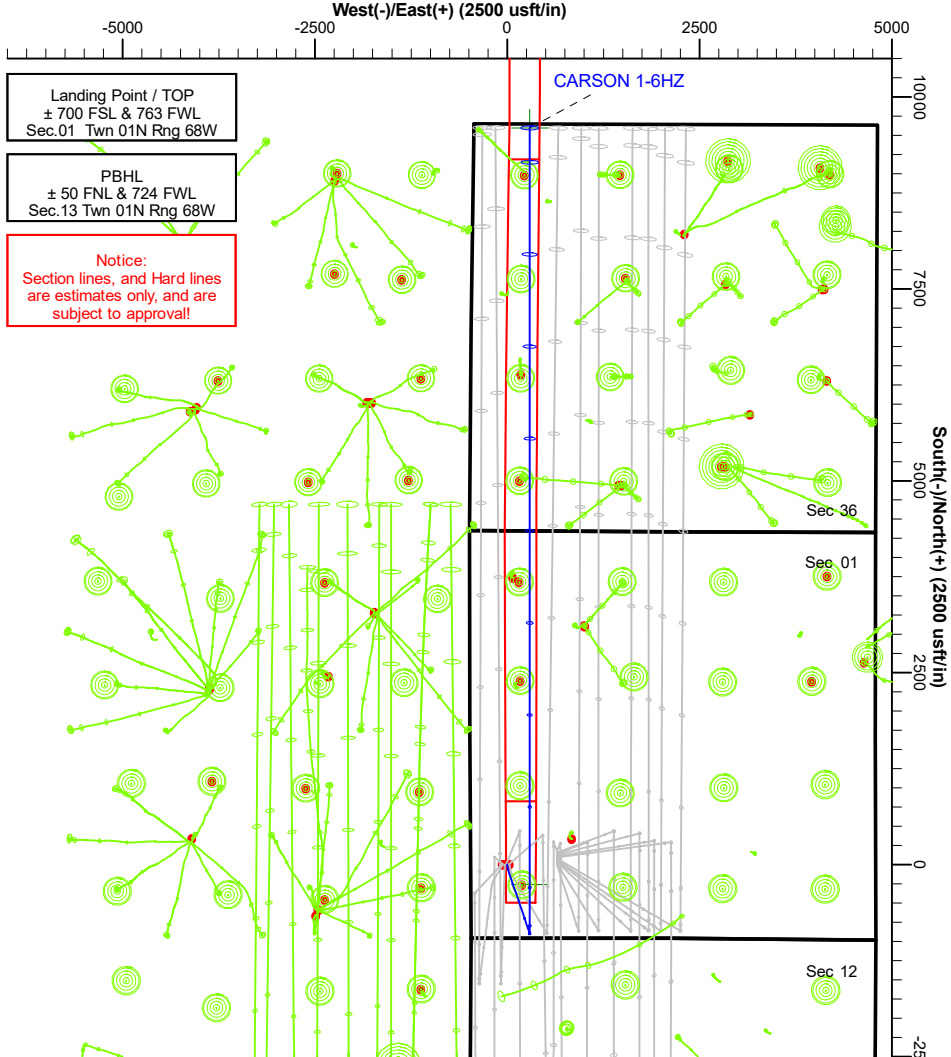
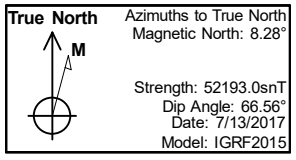
16 August, 2017

Well: CARSON 1-6HZ	Plan: Permit-Rev2	Field: WELD-NAD83-UTMFT13N	Site: 1N-68W-01 Carson 13-1HZ WEST PAD	Rig: Drilling Rig				
Borehole: Plan A Grid Conv: 0.03	Plan Date: 12:22, August 16 2017 VSec: 1.75deg	Datum: UTM (US Survey Ft) Zone: Zone 13N (108 W to 102 W)	RKB: 5030ft GL: 5013.00ft	Latitude: 40.075783 Northing / Y: 14554331.96	Longitude: -104.959446 Easting / X: 1651761.29	Model: IGRF2015 DIP: 66.56°	Date: 13-Jul-17 FS: 52192.97392863nT	DEC: 8.28° North Ref: True

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	Build 1.5°/100 DLS
3	750.00	6.00	175.00	749.27	-20.85	1.82	1.50	175.00	-20.78	Turn 1.5°/100 DLS
4	1126.29	11.30	161.38	1121.19	-75.41	15.32	1.50	-27.98	-74.91	Hold Inc
5	5185.43	11.30	161.38	5101.66	-829.01	269.28	0.00	0.00	-820.42	Drop 1.5°/100 DLS
6	5938.64	0.00	0.00	5850.00	-899.16	292.92	1.50	180.00	-889.81	Vertical Point
7	7087.04	0.00	0.00	6998.40	-899.16	292.92	0.00	0.00	-889.81	KOP, Build 9°/100 DLS
8	8092.60	90.50	360.00	7635.00	-256.99	292.91	9.00	360.00	-247.94	Landing Point / TOP
9	17947.67	90.50	360.00	7549.00	9597.71	292.73	0.00	0.00	9602.18	PBHL/TD

Target Details									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
CARSON 1-6HZ Heel	7635.00	-256.99	292.91	14554075.11	1652054.31	40.075081	-104.958414		
CARSON 1-6HZ PBHL	7549.00	9597.71	292.73	14563929.81	1652049.64	40.102140	-104.958399		

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1137.00	1142.42	Fox Hills
4187.00	4252.69	Parkman
4521.00	4593.29	Sussex
7371.00	7485.07	Sharon Springs
7428.00	7558.59	Niobrara
7533.00	7721.63	Nio B
7612.00	7915.32	Nio C



Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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-68W-01 Carson 13-1HZ WEST PAD				
Site Position:		Northing:	14,554,331.85 usft	Latitude:	40.075783
From:	Lat/Long	Easting:	1,651,686.31 usft	Longitude:	-104.959714
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.03 °

Well	CARSON 1-6HZ					
Well Position	+N/-S	0.07 usft	Northing:	14,554,331.96 usft	Latitude:	40.075783
	+E/-W	74.97 usft	Easting:	1,651,761.28 usft	Longitude:	-104.959446
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,013.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/13/2017	8.28	66.56	52,192.97392864

Design	Permit-Rev2			
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	1.75

Plan Survey Tool Program	Date	8/16/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,825.00	Permit-Rev2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio
2	1,825.00	17,947.46	Permit-Rev2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +

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Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
750.00	6.00	175.00	749.27	-20.85	1.82	1.50	1.50	0.00	175.00	
1,126.29	11.30	161.38	1,121.19	-75.41	15.32	1.50	1.41	-3.62	-27.98	
5,185.43	11.30	161.38	5,101.66	-829.01	269.28	0.00	0.00	0.00	0.00	
5,938.64	0.00	0.00	5,850.00	-899.16	292.92	1.50	-1.50	0.00	180.00	
7,087.04	0.00	0.00	6,998.40	-899.16	292.92	0.00	0.00	0.00	0.00	
8,092.60	90.50	360.00	7,635.00	-256.99	292.91	9.00	9.00	0.00	360.00	
17,947.67	90.50	360.00	7,549.00	9,597.71	292.73	0.00	0.00	0.00	0.00	CARSON 1-6HZ PBH

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.5°/100 DLS										
400.00	0.75	175.00	400.00	-0.33	0.03	-0.32	1.50	1.50	0.00	0.00
500.00	2.25	175.00	499.96	-2.93	0.26	-2.92	1.50	1.50	0.00	0.00
600.00	3.75	175.00	599.82	-8.15	0.71	-8.12	1.50	1.50	0.00	0.00
700.00	5.25	175.00	699.51	-15.96	1.40	-15.91	1.50	1.50	0.00	0.00
750.00	6.00	175.00	749.27	-20.85	1.82	-20.78	1.50	1.50	0.00	0.00
Turn 1.5°/100 DLS										
800.00	6.67	171.97	798.96	-26.32	2.46	-26.24	1.50	1.34	-6.06	
900.00	8.06	167.45	898.14	-38.92	4.79	-38.75	1.50	1.38	-4.52	
1,000.00	9.48	164.26	996.97	-53.68	8.55	-53.39	1.50	1.42	-3.19	
1,100.00	10.92	161.90	1,095.39	-70.60	13.72	-70.15	1.50	1.44	-2.36	
1,126.29	11.30	161.38	1,121.18	-75.41	15.32	-74.91	1.50	1.45	-1.98	
Hold Inc										
1,142.42	11.30	161.38	1,137.00	-78.41	16.33	-77.87	0.00	0.00	0.00	
Fox Hills										
1,200.00	11.30	161.38	1,193.47	-89.10	19.93	-88.45	0.00	0.00	0.00	
1,300.00	11.30	161.38	1,291.53	-107.66	26.19	-106.81	0.00	0.00	0.00	
1,400.00	11.30	161.38	1,389.59	-126.23	32.44	-125.18	0.00	0.00	0.00	
1,500.00	11.30	161.38	1,487.65	-144.79	38.70	-143.55	0.00	0.00	0.00	
1,600.00	11.30	161.38	1,585.71	-163.36	44.96	-161.91	0.00	0.00	0.00	
1,700.00	11.30	161.38	1,683.78	-181.92	51.21	-180.28	0.00	0.00	0.00	
1,800.00	11.30	161.38	1,781.84	-200.49	57.47	-198.64	0.00	0.00	0.00	
1,818.52	11.30	161.38	1,800.00	-203.93	58.63	-202.05	0.00	0.00	0.00	
Surface										
1,900.00	11.30	161.38	1,879.90	-219.05	63.73	-217.01	0.00	0.00	0.00	
2,000.00	11.30	161.38	1,977.96	-237.62	69.98	-235.38	0.00	0.00	0.00	
2,100.00	11.30	161.38	2,076.02	-256.19	76.24	-253.74	0.00	0.00	0.00	
2,200.00	11.30	161.38	2,174.09	-274.75	82.50	-272.11	0.00	0.00	0.00	
2,300.00	11.30	161.38	2,272.15	-293.32	88.75	-290.48	0.00	0.00	0.00	
2,400.00	11.30	161.38	2,370.21	-311.88	95.01	-308.84	0.00	0.00	0.00	
2,500.00	11.30	161.38	2,468.27	-330.45	101.27	-327.21	0.00	0.00	0.00	
2,600.00	11.30	161.38	2,566.33	-349.01	107.52	-345.57	0.00	0.00	0.00	
2,700.00	11.30	161.38	2,664.40	-367.58	113.78	-363.94	0.00	0.00	0.00	
2,800.00	11.30	161.38	2,762.46	-386.15	120.04	-382.31	0.00	0.00	0.00	
2,900.00	11.30	161.38	2,860.52	-404.71	126.29	-400.67	0.00	0.00	0.00	
3,000.00	11.30	161.38	2,958.58	-423.28	132.55	-419.04	0.00	0.00	0.00	
3,100.00	11.30	161.38	3,056.64	-441.84	138.81	-437.40	0.00	0.00	0.00	
3,200.00	11.30	161.38	3,154.71	-460.41	145.06	-455.77	0.00	0.00	0.00	
3,300.00	11.30	161.38	3,252.77	-478.97	151.32	-474.14	0.00	0.00	0.00	
3,400.00	11.30	161.38	3,350.83	-497.54	157.58	-492.50	0.00	0.00	0.00	
3,500.00	11.30	161.38	3,448.89	-516.10	163.83	-510.87	0.00	0.00	0.00	
3,600.00	11.30	161.38	3,546.96	-534.67	170.09	-529.24	0.00	0.00	0.00	
3,700.00	11.30	161.38	3,645.02	-553.24	176.34	-547.60	0.00	0.00	0.00	
3,800.00	11.30	161.38	3,743.08	-571.80	182.60	-565.97	0.00	0.00	0.00	
3,900.00	11.30	161.38	3,841.14	-590.37	188.86	-584.33	0.00	0.00	0.00	
4,000.00	11.30	161.38	3,939.20	-608.93	195.11	-602.70	0.00	0.00	0.00	
4,100.00	11.30	161.38	4,037.27	-627.50	201.37	-621.07	0.00	0.00	0.00	
4,200.00	11.30	161.38	4,135.33	-646.06	207.63	-639.43	0.00	0.00	0.00	
4,252.69	11.30	161.38	4,187.00	-655.85	210.92	-649.11	0.00	0.00	0.00	

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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									
4,300.00	11.30	161.38	4,233.39	-664.63	213.88	-657.80	0.00	0.00	0.00
4,400.00	11.30	161.38	4,331.45	-683.19	220.14	-676.17	0.00	0.00	0.00
4,500.00	11.30	161.38	4,429.51	-701.76	226.40	-694.53	0.00	0.00	0.00
4,593.29	11.30	161.38	4,521.00	-719.08	232.23	-711.67	0.00	0.00	0.00
Sussex									
4,600.00	11.30	161.38	4,527.58	-720.33	232.65	-712.90	0.00	0.00	0.00
4,700.00	11.30	161.38	4,625.64	-738.89	238.91	-731.26	0.00	0.00	0.00
4,800.00	11.30	161.38	4,723.70	-757.46	245.17	-749.63	0.00	0.00	0.00
4,900.00	11.30	161.38	4,821.76	-776.02	251.42	-768.00	0.00	0.00	0.00
5,000.00	11.30	161.38	4,919.82	-794.59	257.68	-786.36	0.00	0.00	0.00
5,100.00	11.30	161.38	5,017.89	-813.15	263.94	-804.73	0.00	0.00	0.00
5,185.43	11.30	161.38	5,101.66	-829.01	269.28	-820.42	0.00	0.00	0.00
Drop 1.5°/100 DLS									
5,200.00	11.08	161.38	5,115.95	-831.69	270.18	-823.07	1.50	-1.50	0.00
5,300.00	9.58	161.38	5,214.33	-848.68	275.91	-839.88	1.50	-1.50	0.00
5,400.00	8.08	161.38	5,313.14	-863.23	280.81	-854.27	1.50	-1.50	0.00
5,500.00	6.58	161.38	5,412.32	-875.32	284.89	-866.23	1.50	-1.50	0.00
5,600.00	5.08	161.38	5,511.80	-884.94	288.13	-875.75	1.50	-1.50	0.00
5,700.00	3.58	161.38	5,611.51	-892.10	290.54	-882.83	1.50	-1.50	0.00
5,800.00	2.08	161.38	5,711.39	-896.78	292.12	-887.45	1.50	-1.50	0.00
5,900.00	0.58	161.38	5,811.36	-898.98	292.86	-889.63	1.50	-1.50	0.00
5,938.64	0.00	0.00	5,850.00	-899.16	292.92	-889.81	1.50	-1.50	-417.64
Vertical Point									
6,000.00	0.00	0.00	5,911.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,100.00	0.00	0.00	6,011.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,200.00	0.00	0.00	6,111.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,300.00	0.00	0.00	6,211.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,400.00	0.00	0.00	6,311.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,500.00	0.00	0.00	6,411.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,600.00	0.00	0.00	6,511.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,700.00	0.00	0.00	6,611.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,800.00	0.00	0.00	6,711.36	-899.16	292.92	-889.81	0.00	0.00	0.00
6,900.00	0.00	0.00	6,811.36	-899.16	292.92	-889.81	0.00	0.00	0.00
7,000.00	0.00	0.00	6,911.36	-899.16	292.92	-889.81	0.00	0.00	0.00
7,087.04	0.00	0.00	6,998.40	-899.16	292.92	-889.81	0.00	0.00	0.00
KOP, Build 9°/100 DLS									
7,100.00	1.17	360.00	7,011.36	-899.03	292.92	-889.68	9.00	9.00	0.00
7,200.00	10.17	360.00	7,110.77	-889.17	292.92	-879.82	9.00	9.00	0.00
7,300.00	19.17	360.00	7,207.41	-863.87	292.92	-854.54	9.00	9.00	0.00
7,400.00	28.17	360.00	7,298.91	-823.77	292.92	-814.46	9.00	9.00	0.00
7,485.07	35.82	360.00	7,371.00	-778.73	292.92	-769.44	9.00	9.00	0.00
Sharon Springs									
7,500.00	37.17	360.00	7,383.00	-769.85	292.92	-760.57	9.00	9.00	0.00
7,558.59	42.44	360.00	7,428.00	-732.36	292.92	-723.09	9.00	9.00	0.00
Niobrara									
7,600.00	46.17	360.00	7,457.63	-703.44	292.92	-694.19	9.00	9.00	0.00
7,700.00	55.17	360.00	7,520.95	-626.18	292.92	-616.95	9.00	9.00	0.00
7,721.64	57.11	360.00	7,533.00	-608.21	292.91	-599.00	9.00	9.00	0.00
Nio B									
7,800.00	64.17	360.00	7,571.40	-539.95	292.91	-530.77	9.00	9.00	0.00
7,900.00	73.17	360.00	7,607.74	-446.90	292.91	-437.76	9.00	9.00	0.00
7,915.32	74.55	360.00	7,612.00	-432.19	292.91	-423.06	9.00	9.00	0.00

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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)
Nio C									
8,000.00	82.17	360.00	7,629.08	-349.31	292.91	-340.22	9.00	9.00	0.00
8,092.60	90.50	360.00	7,635.00	-256.98	292.91	-247.93	9.00	9.00	0.00
Landing Point / TOP - Top of Production									
8,100.00	90.50	360.00	7,634.93	-249.58	292.91	-240.54	0.00	0.00	0.00
8,200.00	90.50	360.00	7,634.06	-149.59	292.91	-140.59	0.00	0.00	0.00
8,300.00	90.50	360.00	7,633.19	-49.59	292.90	-40.64	0.00	0.00	0.00
8,400.00	90.50	360.00	7,632.31	50.41	292.90	59.31	0.00	0.00	0.00
8,500.00	90.50	360.00	7,631.44	150.40	292.90	159.26	0.00	0.00	0.00
8,600.00	90.50	360.00	7,630.57	250.40	292.90	259.21	0.00	0.00	0.00
8,700.00	90.50	360.00	7,629.70	350.40	292.90	359.16	0.00	0.00	0.00
8,800.00	90.50	360.00	7,628.82	450.39	292.90	459.11	0.00	0.00	0.00
8,900.00	90.50	360.00	7,627.95	550.39	292.89	559.06	0.00	0.00	0.00
9,000.00	90.50	360.00	7,627.08	650.38	292.89	659.01	0.00	0.00	0.00
9,100.00	90.50	360.00	7,626.21	750.38	292.89	758.96	0.00	0.00	0.00
9,200.00	90.50	360.00	7,625.33	850.38	292.89	858.91	0.00	0.00	0.00
9,300.00	90.50	360.00	7,624.46	950.37	292.89	958.86	0.00	0.00	0.00
9,400.00	90.50	360.00	7,623.59	1,050.37	292.88	1,058.81	0.00	0.00	0.00
9,500.00	90.50	360.00	7,622.71	1,150.36	292.88	1,158.76	0.00	0.00	0.00
9,600.00	90.50	360.00	7,621.84	1,250.36	292.88	1,258.71	0.00	0.00	0.00
9,700.00	90.50	360.00	7,620.97	1,350.36	292.88	1,358.66	0.00	0.00	0.00
9,800.00	90.50	360.00	7,620.10	1,450.35	292.88	1,458.61	0.00	0.00	0.00
9,900.00	90.50	360.00	7,619.22	1,550.35	292.88	1,558.56	0.00	0.00	0.00
10,000.00	90.50	360.00	7,618.35	1,650.35	292.87	1,658.51	0.00	0.00	0.00
10,100.00	90.50	360.00	7,617.48	1,750.34	292.87	1,758.46	0.00	0.00	0.00
10,200.00	90.50	360.00	7,616.61	1,850.34	292.87	1,858.41	0.00	0.00	0.00
10,300.00	90.50	360.00	7,615.73	1,950.33	292.87	1,958.36	0.00	0.00	0.00
10,400.00	90.50	360.00	7,614.86	2,050.33	292.87	2,058.31	0.00	0.00	0.00
10,500.00	90.50	360.00	7,613.99	2,150.33	292.86	2,158.26	0.00	0.00	0.00
10,600.00	90.50	360.00	7,613.12	2,250.32	292.86	2,258.21	0.00	0.00	0.00
10,700.00	90.50	360.00	7,612.24	2,350.32	292.86	2,358.15	0.00	0.00	0.00
10,800.00	90.50	360.00	7,611.37	2,450.32	292.86	2,458.10	0.00	0.00	0.00
10,900.00	90.50	360.00	7,610.50	2,550.31	292.86	2,558.05	0.00	0.00	0.00
11,000.00	90.50	360.00	7,609.63	2,650.31	292.86	2,658.00	0.00	0.00	0.00
11,100.00	90.50	360.00	7,608.75	2,750.30	292.85	2,757.95	0.00	0.00	0.00
11,200.00	90.50	360.00	7,607.88	2,850.30	292.85	2,857.90	0.00	0.00	0.00
11,300.00	90.50	360.00	7,607.01	2,950.30	292.85	2,957.85	0.00	0.00	0.00
11,400.00	90.50	360.00	7,606.14	3,050.29	292.85	3,057.80	0.00	0.00	0.00
11,500.00	90.50	360.00	7,605.26	3,150.29	292.85	3,157.75	0.00	0.00	0.00
11,600.00	90.50	360.00	7,604.39	3,250.29	292.84	3,257.70	0.00	0.00	0.00
11,700.00	90.50	360.00	7,603.52	3,350.28	292.84	3,357.65	0.00	0.00	0.00
11,800.00	90.50	360.00	7,602.64	3,450.28	292.84	3,457.60	0.00	0.00	0.00
11,900.00	90.50	360.00	7,601.77	3,550.27	292.84	3,557.55	0.00	0.00	0.00
12,000.00	90.50	360.00	7,600.90	3,650.27	292.84	3,657.50	0.00	0.00	0.00
12,100.00	90.50	360.00	7,600.03	3,750.27	292.84	3,757.45	0.00	0.00	0.00
12,200.00	90.50	360.00	7,599.15	3,850.26	292.83	3,857.40	0.00	0.00	0.00
12,300.00	90.50	360.00	7,598.28	3,950.26	292.83	3,957.35	0.00	0.00	0.00
12,400.00	90.50	360.00	7,597.41	4,050.25	292.83	4,057.30	0.00	0.00	0.00
12,500.00	90.50	360.00	7,596.54	4,150.25	292.83	4,157.25	0.00	0.00	0.00
12,600.00	90.50	360.00	7,595.66	4,250.25	292.83	4,257.20	0.00	0.00	0.00
12,700.00	90.50	360.00	7,594.79	4,350.24	292.82	4,357.15	0.00	0.00	0.00
12,800.00	90.50	360.00	7,593.92	4,450.24	292.82	4,457.10	0.00	0.00	0.00
12,900.00	90.50	360.00	7,593.05	4,550.24	292.82	4,557.05	0.00	0.00	0.00

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

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)	
13,000.00	90.50	360.00	7,592.17	4,650.23	292.82	4,657.00	0.00	0.00	0.00	
13,100.00	90.50	360.00	7,591.30	4,750.23	292.82	4,756.95	0.00	0.00	0.00	
13,200.00	90.50	360.00	7,590.43	4,850.22	292.82	4,856.90	0.00	0.00	0.00	
13,300.00	90.50	360.00	7,589.56	4,950.22	292.81	4,956.85	0.00	0.00	0.00	
13,400.00	90.50	360.00	7,588.68	5,050.22	292.81	5,056.80	0.00	0.00	0.00	
13,500.00	90.50	360.00	7,587.81	5,150.21	292.81	5,156.75	0.00	0.00	0.00	
13,600.00	90.50	360.00	7,586.94	5,250.21	292.81	5,256.70	0.00	0.00	0.00	
13,700.00	90.50	360.00	7,586.07	5,350.21	292.81	5,356.64	0.00	0.00	0.00	
13,800.00	90.50	360.00	7,585.19	5,450.20	292.81	5,456.59	0.00	0.00	0.00	
13,900.00	90.50	360.00	7,584.32	5,550.20	292.80	5,556.54	0.00	0.00	0.00	
14,000.00	90.50	360.00	7,583.45	5,650.19	292.80	5,656.49	0.00	0.00	0.00	
14,100.00	90.50	360.00	7,582.57	5,750.19	292.80	5,756.44	0.00	0.00	0.00	
14,200.00	90.50	360.00	7,581.70	5,850.19	292.80	5,856.39	0.00	0.00	0.00	
14,300.00	90.50	360.00	7,580.83	5,950.18	292.80	5,956.34	0.00	0.00	0.00	
14,400.00	90.50	360.00	7,579.96	6,050.18	292.79	6,056.29	0.00	0.00	0.00	
14,500.00	90.50	360.00	7,579.08	6,150.17	292.79	6,156.24	0.00	0.00	0.00	
14,600.00	90.50	360.00	7,578.21	6,250.17	292.79	6,256.19	0.00	0.00	0.00	
14,700.00	90.50	360.00	7,577.34	6,350.17	292.79	6,356.14	0.00	0.00	0.00	
14,800.00	90.50	360.00	7,576.47	6,450.16	292.79	6,456.09	0.00	0.00	0.00	
14,900.00	90.50	360.00	7,575.59	6,550.16	292.79	6,556.04	0.00	0.00	0.00	
15,000.00	90.50	360.00	7,574.72	6,650.16	292.78	6,655.99	0.00	0.00	0.00	
15,100.00	90.50	360.00	7,573.85	6,750.15	292.78	6,755.94	0.00	0.00	0.00	
15,200.00	90.50	360.00	7,572.98	6,850.15	292.78	6,855.89	0.00	0.00	0.00	
15,300.00	90.50	360.00	7,572.10	6,950.14	292.78	6,955.84	0.00	0.00	0.00	
15,400.00	90.50	360.00	7,571.23	7,050.14	292.78	7,055.79	0.00	0.00	0.00	
15,500.00	90.50	360.00	7,570.36	7,150.14	292.77	7,155.74	0.00	0.00	0.00	
15,600.00	90.50	360.00	7,569.49	7,250.13	292.77	7,255.69	0.00	0.00	0.00	
15,700.00	90.50	360.00	7,568.61	7,350.13	292.77	7,355.64	0.00	0.00	0.00	
15,800.00	90.50	360.00	7,567.74	7,450.13	292.77	7,455.59	0.00	0.00	0.00	
15,900.00	90.50	360.00	7,566.87	7,550.12	292.77	7,555.54	0.00	0.00	0.00	
16,000.00	90.50	360.00	7,566.00	7,650.12	292.77	7,655.49	0.00	0.00	0.00	
16,100.00	90.50	360.00	7,565.12	7,750.11	292.76	7,755.44	0.00	0.00	0.00	
16,200.00	90.50	360.00	7,564.25	7,850.11	292.76	7,855.39	0.00	0.00	0.00	
16,300.00	90.50	360.00	7,563.38	7,950.11	292.76	7,955.34	0.00	0.00	0.00	
16,400.00	90.50	360.00	7,562.51	8,050.10	292.76	8,055.29	0.00	0.00	0.00	
16,500.00	90.50	360.00	7,561.63	8,150.10	292.76	8,155.24	0.00	0.00	0.00	
16,600.00	90.50	360.00	7,560.76	8,250.09	292.75	8,255.19	0.00	0.00	0.00	
16,700.00	90.50	360.00	7,559.89	8,350.09	292.75	8,355.13	0.00	0.00	0.00	
16,800.00	90.50	360.00	7,559.01	8,450.09	292.75	8,455.08	0.00	0.00	0.00	
16,900.00	90.50	360.00	7,558.14	8,550.08	292.75	8,555.03	0.00	0.00	0.00	
17,000.00	90.50	360.00	7,557.27	8,650.08	292.75	8,654.98	0.00	0.00	0.00	
17,100.00	90.50	360.00	7,556.40	8,750.08	292.75	8,754.93	0.00	0.00	0.00	
17,200.00	90.50	360.00	7,555.52	8,850.07	292.74	8,854.88	0.00	0.00	0.00	
17,300.00	90.50	360.00	7,554.65	8,950.07	292.74	8,954.83	0.00	0.00	0.00	
17,400.00	90.50	360.00	7,553.78	9,050.06	292.74	9,054.78	0.00	0.00	0.00	
17,500.00	90.50	360.00	7,552.91	9,150.06	292.74	9,154.73	0.00	0.00	0.00	
17,600.00	90.50	360.00	7,552.03	9,250.06	292.74	9,254.68	0.00	0.00	0.00	
17,700.00	90.50	360.00	7,551.16	9,350.05	292.73	9,354.63	0.00	0.00	0.00	
17,800.00	90.50	360.00	7,550.29	9,450.05	292.73	9,454.58	0.00	0.00	0.00	
17,900.00	90.50	360.00	7,549.42	9,550.05	292.73	9,554.53	0.00	0.00	0.00	
17,947.66	90.50	360.00	7,549.00	9,597.70	292.73	9,602.17	0.00	0.00	0.00	
PBHL/TD										
17,947.67	90.50	360.00	7,549.00	9,597.71	292.73	9,602.18	0.00	0.00	0.00	

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-6HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5030.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5030.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ WEST PAD	North Reference:	True
Well:	CARSON 1-6HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit-Rev2		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
CARSON 1-6HZ PBHL - plan hits target center - Point	0.00	0.00	7,549.00	9,597.71	292.73	14,563,929.80	1,652,049.64	40.102140	-104.958399
CARSON 1-6HZ Heel - plan hits target center - Point	0.00	0.00	7,635.00	-256.99	292.91	14,554,075.10	1,652,054.31	40.075078	-104.958399

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,818.52	1,800.00	Surface	9-5/8	13-1/2	
8,092.60	7,635.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,142.42	1,137.00	Fox Hills				
4,252.69	4,187.00	Parkman				
4,593.29	4,521.00	Sussex				
7,485.07	7,371.00	Sharon Springs				
7,558.59	7,428.00	Niobrara				
7,721.64	7,533.00	Nio B				
7,915.32	7,612.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
350.00	350.00	0.00	0.00	Build 1.5°/100 DLS	
750.00	749.27	-20.85	1.82	Turn 1.5°/100 DLS	
1,126.29	1,121.18	-75.41	15.32	Hold Inc	
5,185.43	5,101.66	-829.01	269.28	Drop 1.5°/100 DLS	
5,938.64	5,850.00	-899.16	292.92	Vertical Point	
7,087.04	6,998.40	-899.16	292.92	KOP, Build 9°/100 DLS	
8,092.60	7,635.00	-256.98	292.91	Landing Point / TOP	
17,947.66	7,549.00	9,597.70	292.73	PBHL/TD	