

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

CARSON 1-13HZ

Plan A

Plan: Permit Rev-2

Standard Planning Report

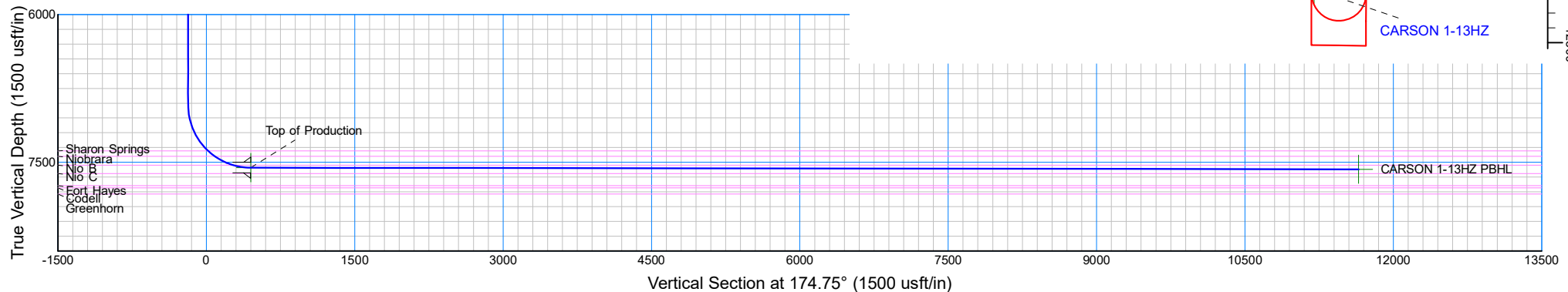
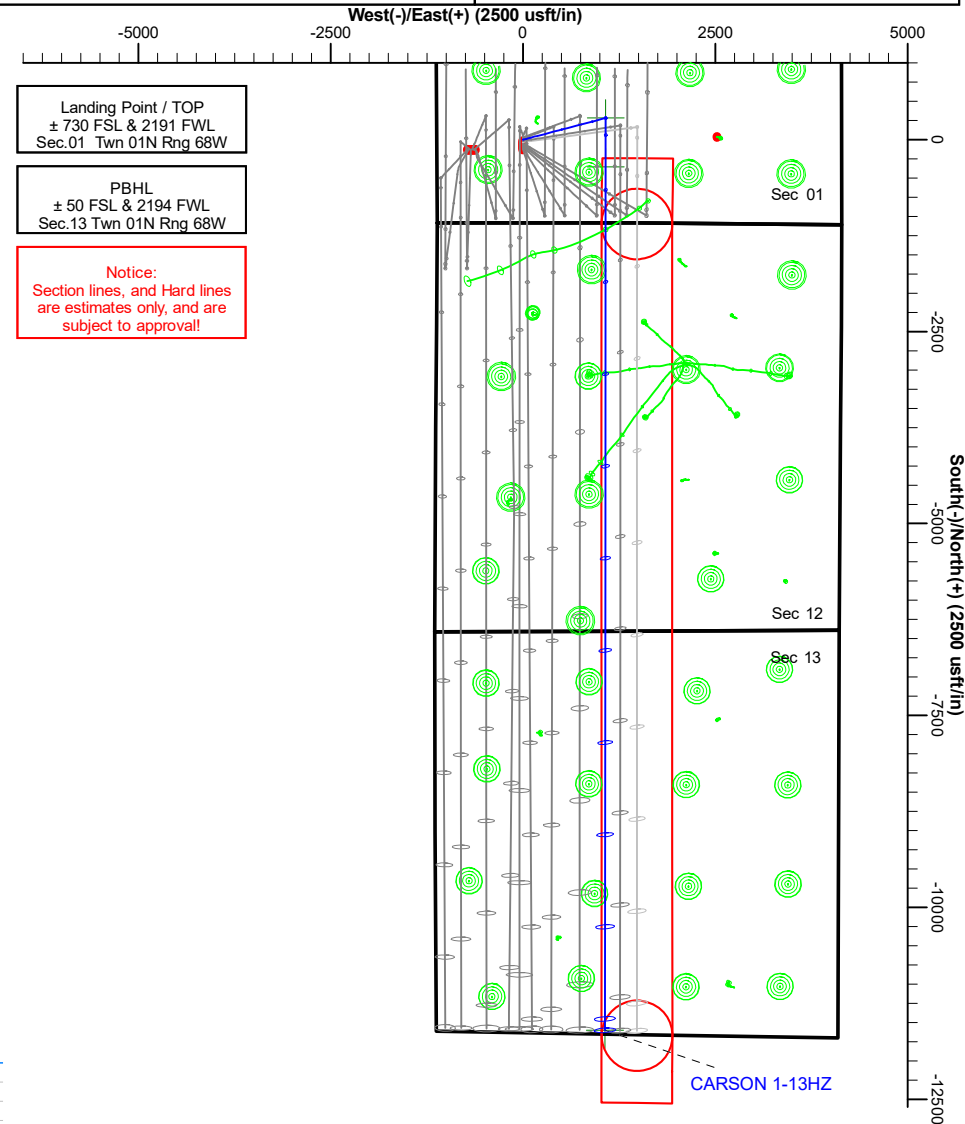
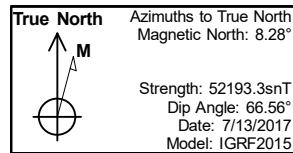
16 August, 2017

Well: CARSON 1-13HZ	Plan: Permit Rev-2	Field: WELD-NAD83-UTMFT13N	Site: 1N-68W-01 Carson 13-1HZ EAST PAD	Rig: Drilling Rig
Borehole: Plan A	Plan Date: 10:09, August 16 2017	Datum: UTM (US Survey Ft)	RKB: 5040ft	Latitude: 40.076130
Grid Conv: 0.03	VSec: 174.75deg	Zone: Zone 13N (108 W to 102 W)	GL: 5023.00ft	Longitude: -104.957139
				Northing / Y: 14554458.55
				Easting / X: 1652406.59
				Model: IGRF2015
				DIP: 66.56°
				Date: 13-Jul-17
				FS: 52193.32233706nT
				North Ref: True
				DEC: 8.28°

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	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	Build 1.5°/100 DLS
3	1807.96	22.62	75.27	1769.09	74.72	284.15	1.50	75.27	-48.41	Hold Inc
4	3174.92	22.62	75.27	3030.91	208.43	792.61	0.00	0.00	-135.04	Drop 1.5°/100 DLS
5	4682.88	0.00	0.00	4500.00	283.15	1076.76	1.50	180.00	-183.45	Vertical Point
6	7101.26	0.00	0.00	6918.38	283.15	1076.76	0.00	0.00	-183.45	KOP, Build 9°/100 DLS
7	8100.35	89.92	180.05	7555.00	-352.56	1076.17	9.00	180.05	449.55	Landing Point / TOP
8	19347.80	89.92	180.05	7571.00	-11599.99	1065.82	0.00	0.00	11648.85	PBHL/TD

Target Details									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
CARSON 1-13HZ Heel	7555.00	-352.14	1076.17	14554106.94	1653482.93	40.075162	-104.953311		
CARSON 1-13HZ PBHL	7571.00	-11599.99	1065.82	14542859.08	1653478.00	40.044274	-104.953331		

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
1147.00	1154.10	Fox Hills
4197.00	4379.56	Parkman
4531.00	4713.88	Sussex
7383.00	7622.05	Sharon Springs
7440.00	7712.60	Niobrara
7530.00	7922.26	Nio B



Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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	1N-68W-01 Carson 13-1HZ EAST PAD			
Site Position:		Northing:	14,554,518.63 usft	Latitude: 40.076295
From:	Lat/Long	Easting:	1,652,406.56 usft	Longitude: -104.957139
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.03 °

Well	CARSON 1-13HZ			
Well Position	+N/-S	-60.08 usft	Northing:	14,554,458.55 usft
	+E/-W	0.00 usft	Easting:	1,652,406.59 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Ground Level: 5,023.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/13/2017	8.28	66.56	52,193.32233707

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	174.75

Plan Survey Tool Program		Date	8/16/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,832.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declination	
2	1,832.00	19,347.80	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +	

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,807.96	22.62	75.27	1,769.09	74.72	284.15	1.50	1.50	0.00	75.27	
3,174.92	22.62	75.27	3,030.91	208.43	792.61	0.00	0.00	0.00	0.00	
4,682.88	0.00	0.00	4,500.00	283.15	1,076.76	1.50	-1.50	0.00	180.00	Carson 1-13HZ VP.
7,101.26	0.00	0.00	6,918.38	283.15	1,076.76	0.00	0.00	0.00	0.00	
8,100.35	89.92	180.05	7,555.00	-352.56	1,076.17	9.00	9.00	-18.01	180.05	
19,347.80	89.92	180.05	7,571.00	-11,599.99	1,065.82	0.00	0.00	0.00	0.00	CARSON 1-13HZ PB

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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
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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 1.5°/100 DLS									
400.00	1.50	75.27	399.99	0.33	1.27	-0.22	1.50	1.50	0.00
500.00	3.00	75.27	499.91	1.33	5.06	-0.86	1.50	1.50	0.00
600.00	4.50	75.27	599.69	2.99	11.39	-1.94	1.50	1.50	0.00
700.00	6.00	75.27	699.27	5.32	20.24	-3.45	1.50	1.50	0.00
800.00	7.50	75.27	798.57	8.31	31.60	-5.38	1.50	1.50	0.00
900.00	9.00	75.27	897.54	11.96	45.48	-7.75	1.50	1.50	0.00
1,000.00	10.50	75.27	996.09	16.27	61.86	-10.54	1.50	1.50	0.00
1,100.00	12.00	75.27	1,094.16	21.23	80.73	-13.75	1.50	1.50	0.00
1,154.10	12.81	75.27	1,147.00	24.18	91.97	-15.67	1.50	1.50	0.00
Fox Hills									
1,200.00	13.50	75.27	1,191.70	26.84	102.07	-17.39	1.50	1.50	0.00
1,300.00	15.00	75.27	1,288.62	33.10	125.87	-21.45	1.50	1.50	0.00
1,400.00	16.50	75.27	1,384.86	40.00	152.13	-25.92	1.50	1.50	0.00
1,500.00	18.00	75.27	1,480.36	47.55	180.80	-30.80	1.50	1.50	0.00
1,600.00	19.50	75.27	1,575.05	55.72	211.89	-36.10	1.50	1.50	0.00
1,700.00	21.00	75.27	1,668.86	64.52	245.36	-41.80	1.50	1.50	0.00
1,800.00	22.50	75.27	1,761.74	73.95	281.20	-47.91	1.50	1.50	0.00
1,807.96	22.62	75.27	1,769.09	74.72	284.15	-48.41	1.50	1.50	0.00
Hold Inc									
1,841.44	22.62	75.27	1,800.00	78.00	296.61	-50.53	0.00	0.00	0.00
Surface Csg									
1,900.00	22.62	75.27	1,854.05	83.73	318.39	-54.24	0.00	0.00	0.00
2,000.00	22.62	75.27	1,946.36	93.51	355.58	-60.58	0.00	0.00	0.00
2,100.00	22.62	75.27	2,038.67	103.29	392.78	-66.92	0.00	0.00	0.00
2,200.00	22.62	75.27	2,130.98	113.07	429.98	-73.25	0.00	0.00	0.00
2,300.00	22.62	75.27	2,223.29	122.85	467.17	-79.59	0.00	0.00	0.00
2,400.00	22.62	75.27	2,315.59	132.63	504.37	-85.93	0.00	0.00	0.00
2,500.00	22.62	75.27	2,407.90	142.41	541.56	-92.27	0.00	0.00	0.00
2,600.00	22.62	75.27	2,500.21	152.20	578.76	-98.60	0.00	0.00	0.00
2,700.00	22.62	75.27	2,592.52	161.98	615.96	-104.94	0.00	0.00	0.00
2,800.00	22.62	75.27	2,684.83	171.76	653.15	-111.28	0.00	0.00	0.00
2,900.00	22.62	75.27	2,777.13	181.54	690.35	-117.61	0.00	0.00	0.00
3,000.00	22.62	75.27	2,869.44	191.32	727.55	-123.95	0.00	0.00	0.00
3,100.00	22.62	75.27	2,961.75	201.10	764.74	-130.29	0.00	0.00	0.00
3,174.92	22.62	75.27	3,030.91	208.43	792.61	-135.04	0.00	0.00	0.00
Drop 1.5°/100 DLS									
3,200.00	22.24	75.27	3,054.09	210.86	801.86	-136.61	1.50	-1.50	0.00
3,300.00	20.74	75.27	3,147.13	220.18	837.30	-142.65	1.50	-1.50	0.00
3,400.00	19.24	75.27	3,241.10	228.88	870.36	-148.28	1.50	-1.50	0.00
3,500.00	17.74	75.27	3,335.94	236.94	901.04	-153.51	1.50	-1.50	0.00
3,600.00	16.24	75.27	3,431.57	244.38	929.30	-158.33	1.50	-1.50	0.00
3,700.00	14.74	75.27	3,527.93	251.17	955.14	-162.73	1.50	-1.50	0.00
3,800.00	13.24	75.27	3,624.96	257.32	978.52	-166.71	1.50	-1.50	0.00
3,900.00	11.74	75.27	3,722.59	262.82	999.44	-170.27	1.50	-1.50	0.00
4,000.00	10.24	75.27	3,820.75	267.67	1,017.88	-173.42	1.50	-1.50	0.00
4,100.00	8.74	75.27	3,919.38	271.87	1,033.83	-176.13	1.50	-1.50	0.00
4,200.00	7.24	75.27	4,018.41	275.40	1,047.28	-178.42	1.50	-1.50	0.00
4,300.00	5.74	75.27	4,117.76	278.28	1,058.22	-180.29	1.50	-1.50	0.00
4,379.56	4.55	75.27	4,197.00	280.09	1,065.12	-181.46	1.50	-1.50	0.00

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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)
Parkman									
4,400.00	4.24	75.27	4,217.38	280.49	1,066.63	-181.72	1.50	-1.50	0.00
4,500.00	2.74	75.27	4,317.19	282.04	1,072.53	-182.73	1.50	-1.50	0.00
4,600.00	1.24	75.27	4,417.13	282.93	1,075.89	-183.30	1.50	-1.50	0.00
4,682.88	0.00	0.00	4,500.00	283.15	1,076.76	-183.45	1.50	-1.50	0.00
Vertical Point									
4,700.00	0.00	0.00	4,517.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
4,713.88	0.00	0.00	4,531.00	283.15	1,076.76	-183.45	0.00	0.00	0.00
Sussex									
4,800.00	0.00	0.00	4,617.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
4,900.00	0.00	0.00	4,717.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,000.00	0.00	0.00	4,817.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,100.00	0.00	0.00	4,917.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,200.00	0.00	0.00	5,017.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,300.00	0.00	0.00	5,117.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,400.00	0.00	0.00	5,217.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,500.00	0.00	0.00	5,317.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,600.00	0.00	0.00	5,417.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,700.00	0.00	0.00	5,517.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,800.00	0.00	0.00	5,617.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
5,900.00	0.00	0.00	5,717.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,000.00	0.00	0.00	5,817.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,100.00	0.00	0.00	5,917.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,200.00	0.00	0.00	6,017.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,300.00	0.00	0.00	6,117.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,400.00	0.00	0.00	6,217.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,500.00	0.00	0.00	6,317.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,600.00	0.00	0.00	6,417.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,700.00	0.00	0.00	6,517.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,800.00	0.00	0.00	6,617.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
6,900.00	0.00	0.00	6,717.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
7,000.00	0.00	0.00	6,817.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
7,100.00	0.00	0.00	6,917.12	283.15	1,076.76	-183.45	0.00	0.00	0.00
7,101.26	0.00	0.00	6,918.38	283.15	1,076.76	-183.45	0.00	0.00	0.00
KOP, Build 9°/100 DLS									
7,200.00	8.89	180.05	7,016.73	275.51	1,076.75	-175.84	9.00	9.00	0.00
7,300.00	17.89	180.05	7,113.91	252.38	1,076.73	-152.81	9.00	9.00	0.00
7,400.00	26.89	180.05	7,206.28	214.34	1,076.70	-114.92	9.00	9.00	0.00
7,500.00	35.89	180.05	7,291.56	162.31	1,076.65	-63.12	9.00	9.00	0.00
7,600.00	44.89	180.05	7,367.65	97.58	1,076.59	1.33	9.00	9.00	0.00
7,622.05	46.87	180.05	7,383.00	81.75	1,076.57	17.09	9.00	9.00	0.00
Sharon Springs									
7,700.00	53.89	180.05	7,432.68	21.75	1,076.52	76.84	9.00	9.00	0.00
7,712.60	55.02	180.05	7,440.00	11.50	1,076.51	87.05	9.00	9.00	0.00
Niobrara									
7,800.00	62.89	180.05	7,485.04	-63.33	1,076.44	161.55	9.00	9.00	0.00
7,900.00	71.89	180.05	7,523.45	-155.54	1,076.36	253.37	9.00	9.00	0.00
7,922.26	73.89	180.05	7,530.00	-176.81	1,076.34	274.55	9.00	9.00	0.00
Nio B									
8,000.00	80.89	180.05	7,546.96	-252.63	1,076.27	350.05	9.00	9.00	0.00
8,100.00	89.89	180.05	7,555.00	-352.21	1,076.18	449.20	9.00	9.00	0.00
8,100.35	89.92	180.05	7,555.00	-352.56	1,076.17	449.54	9.00	9.00	0.00
Landing Point / TOP - Top of Production									

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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)
8,200.00	89.92	180.05	7,555.14	-452.21	1,076.08	548.77	0.00	0.00	0.00
8,300.00	89.92	180.05	7,555.28	-552.21	1,075.99	648.34	0.00	0.00	0.00
8,400.00	89.92	180.05	7,555.43	-652.21	1,075.90	747.91	0.00	0.00	0.00
8,500.00	89.92	180.05	7,555.57	-752.21	1,075.81	847.48	0.00	0.00	0.00
8,600.00	89.92	180.05	7,555.71	-852.21	1,075.71	947.06	0.00	0.00	0.00
8,700.00	89.92	180.05	7,555.85	-952.21	1,075.62	1,046.63	0.00	0.00	0.00
8,800.00	89.92	180.05	7,555.99	-1,052.21	1,075.53	1,146.20	0.00	0.00	0.00
8,900.00	89.92	180.05	7,556.14	-1,152.21	1,075.44	1,245.77	0.00	0.00	0.00
9,000.00	89.92	180.05	7,556.28	-1,252.21	1,075.35	1,345.34	0.00	0.00	0.00
9,100.00	89.92	180.05	7,556.42	-1,352.21	1,075.25	1,444.91	0.00	0.00	0.00
9,200.00	89.92	180.05	7,556.56	-1,452.21	1,075.16	1,544.49	0.00	0.00	0.00
9,300.00	89.92	180.05	7,556.71	-1,552.21	1,075.07	1,644.06	0.00	0.00	0.00
9,400.00	89.92	180.05	7,556.85	-1,652.21	1,074.98	1,743.63	0.00	0.00	0.00
9,500.00	89.92	180.05	7,556.99	-1,752.21	1,074.89	1,843.20	0.00	0.00	0.00
9,600.00	89.92	180.05	7,557.13	-1,852.20	1,074.79	1,942.77	0.00	0.00	0.00
9,700.00	89.92	180.05	7,557.27	-1,952.20	1,074.70	2,042.35	0.00	0.00	0.00
9,800.00	89.92	180.05	7,557.42	-2,052.20	1,074.61	2,141.92	0.00	0.00	0.00
9,900.00	89.92	180.05	7,557.56	-2,152.20	1,074.52	2,241.49	0.00	0.00	0.00
10,000.00	89.92	180.05	7,557.70	-2,252.20	1,074.43	2,341.06	0.00	0.00	0.00
10,100.00	89.92	180.05	7,557.84	-2,352.20	1,074.33	2,440.63	0.00	0.00	0.00
10,200.00	89.92	180.05	7,557.99	-2,452.20	1,074.24	2,540.21	0.00	0.00	0.00
10,300.00	89.92	180.05	7,558.13	-2,552.20	1,074.15	2,639.78	0.00	0.00	0.00
10,400.00	89.92	180.05	7,558.27	-2,652.20	1,074.06	2,739.35	0.00	0.00	0.00
10,500.00	89.92	180.05	7,558.41	-2,752.20	1,073.97	2,838.92	0.00	0.00	0.00
10,600.00	89.92	180.05	7,558.56	-2,852.20	1,073.87	2,938.49	0.00	0.00	0.00
10,700.00	89.92	180.05	7,558.70	-2,952.20	1,073.78	3,038.07	0.00	0.00	0.00
10,800.00	89.92	180.05	7,558.84	-3,052.20	1,073.69	3,137.64	0.00	0.00	0.00
10,900.00	89.92	180.05	7,558.98	-3,152.20	1,073.60	3,237.21	0.00	0.00	0.00
11,000.00	89.92	180.05	7,559.12	-3,252.20	1,073.51	3,336.78	0.00	0.00	0.00
11,100.00	89.92	180.05	7,559.27	-3,352.20	1,073.41	3,436.35	0.00	0.00	0.00
11,200.00	89.92	180.05	7,559.41	-3,452.20	1,073.32	3,535.93	0.00	0.00	0.00
11,300.00	89.92	180.05	7,559.55	-3,552.20	1,073.23	3,635.50	0.00	0.00	0.00
11,400.00	89.92	180.05	7,559.69	-3,652.20	1,073.14	3,735.07	0.00	0.00	0.00
11,500.00	89.92	180.05	7,559.84	-3,752.20	1,073.04	3,834.64	0.00	0.00	0.00
11,600.00	89.92	180.05	7,559.98	-3,852.20	1,072.95	3,934.21	0.00	0.00	0.00
11,700.00	89.92	180.05	7,560.12	-3,952.20	1,072.86	4,033.79	0.00	0.00	0.00
11,800.00	89.92	180.05	7,560.26	-4,052.20	1,072.77	4,133.36	0.00	0.00	0.00
11,900.00	89.92	180.05	7,560.40	-4,152.20	1,072.68	4,232.93	0.00	0.00	0.00
12,000.00	89.92	180.05	7,560.55	-4,252.20	1,072.58	4,332.50	0.00	0.00	0.00
12,100.00	89.92	180.05	7,560.69	-4,352.20	1,072.49	4,432.07	0.00	0.00	0.00
12,200.00	89.92	180.05	7,560.83	-4,452.20	1,072.40	4,531.65	0.00	0.00	0.00
12,300.00	89.92	180.05	7,560.97	-4,552.20	1,072.31	4,631.22	0.00	0.00	0.00
12,400.00	89.92	180.05	7,561.12	-4,652.20	1,072.22	4,730.79	0.00	0.00	0.00
12,500.00	89.92	180.05	7,561.26	-4,752.20	1,072.12	4,830.36	0.00	0.00	0.00
12,600.00	89.92	180.05	7,561.40	-4,852.20	1,072.03	4,929.93	0.00	0.00	0.00
12,700.00	89.92	180.05	7,561.54	-4,952.20	1,071.94	5,029.51	0.00	0.00	0.00
12,800.00	89.92	180.05	7,561.69	-5,052.20	1,071.85	5,129.08	0.00	0.00	0.00
12,900.00	89.92	180.05	7,561.83	-5,152.20	1,071.76	5,228.65	0.00	0.00	0.00
13,000.00	89.92	180.05	7,561.97	-5,252.20	1,071.66	5,328.22	0.00	0.00	0.00
13,100.00	89.92	180.05	7,562.11	-5,352.20	1,071.57	5,427.79	0.00	0.00	0.00
13,200.00	89.92	180.05	7,562.25	-5,452.20	1,071.48	5,527.37	0.00	0.00	0.00
13,300.00	89.92	180.05	7,562.40	-5,552.20	1,071.39	5,626.94	0.00	0.00	0.00
13,400.00	89.92	180.05	7,562.54	-5,652.20	1,071.30	5,726.51	0.00	0.00	0.00
13,500.00	89.92	180.05	7,562.68	-5,752.20	1,071.20	5,826.08	0.00	0.00	0.00

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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)
13,600.00	89.92	180.05	7,562.82	-5,852.20	1,071.11	5,925.65	0.00	0.00	0.00
13,700.00	89.92	180.05	7,562.97	-5,952.20	1,071.02	6,025.23	0.00	0.00	0.00
13,800.00	89.92	180.05	7,563.11	-6,052.20	1,070.93	6,124.80	0.00	0.00	0.00
13,900.00	89.92	180.05	7,563.25	-6,152.20	1,070.84	6,224.37	0.00	0.00	0.00
14,000.00	89.92	180.05	7,563.39	-6,252.20	1,070.74	6,323.94	0.00	0.00	0.00
14,100.00	89.92	180.05	7,563.53	-6,352.20	1,070.65	6,423.51	0.00	0.00	0.00
14,200.00	89.92	180.05	7,563.68	-6,452.20	1,070.56	6,523.09	0.00	0.00	0.00
14,300.00	89.92	180.05	7,563.82	-6,552.20	1,070.47	6,622.66	0.00	0.00	0.00
14,400.00	89.92	180.05	7,563.96	-6,652.20	1,070.38	6,722.23	0.00	0.00	0.00
14,500.00	89.92	180.05	7,564.10	-6,752.20	1,070.28	6,821.80	0.00	0.00	0.00
14,600.00	89.92	180.05	7,564.25	-6,852.20	1,070.19	6,921.37	0.00	0.00	0.00
14,700.00	89.92	180.05	7,564.39	-6,952.20	1,070.10	7,020.95	0.00	0.00	0.00
14,800.00	89.92	180.05	7,564.53	-7,052.20	1,070.01	7,120.52	0.00	0.00	0.00
14,900.00	89.92	180.05	7,564.67	-7,152.20	1,069.91	7,220.09	0.00	0.00	0.00
15,000.00	89.92	180.05	7,564.81	-7,252.20	1,069.82	7,319.66	0.00	0.00	0.00
15,100.00	89.92	180.05	7,564.96	-7,352.20	1,069.73	7,419.23	0.00	0.00	0.00
15,200.00	89.92	180.05	7,565.10	-7,452.20	1,069.64	7,518.81	0.00	0.00	0.00
15,300.00	89.92	180.05	7,565.24	-7,552.20	1,069.55	7,618.38	0.00	0.00	0.00
15,400.00	89.92	180.05	7,565.38	-7,652.20	1,069.45	7,717.95	0.00	0.00	0.00
15,500.00	89.92	180.05	7,565.53	-7,752.20	1,069.36	7,817.52	0.00	0.00	0.00
15,600.00	89.92	180.05	7,565.67	-7,852.20	1,069.27	7,917.09	0.00	0.00	0.00
15,700.00	89.92	180.05	7,565.81	-7,952.20	1,069.18	8,016.67	0.00	0.00	0.00
15,800.00	89.92	180.05	7,565.95	-8,052.20	1,069.09	8,116.24	0.00	0.00	0.00
15,900.00	89.92	180.05	7,566.10	-8,152.20	1,068.99	8,215.81	0.00	0.00	0.00
16,000.00	89.92	180.05	7,566.24	-8,252.20	1,068.90	8,315.38	0.00	0.00	0.00
16,100.00	89.92	180.05	7,566.38	-8,352.20	1,068.81	8,414.95	0.00	0.00	0.00
16,200.00	89.92	180.05	7,566.52	-8,452.20	1,068.72	8,514.53	0.00	0.00	0.00
16,300.00	89.92	180.05	7,566.66	-8,552.20	1,068.63	8,614.10	0.00	0.00	0.00
16,400.00	89.92	180.05	7,566.81	-8,652.20	1,068.53	8,713.67	0.00	0.00	0.00
16,500.00	89.92	180.05	7,566.95	-8,752.20	1,068.44	8,813.24	0.00	0.00	0.00
16,600.00	89.92	180.05	7,567.09	-8,852.20	1,068.35	8,912.81	0.00	0.00	0.00
16,700.00	89.92	180.05	7,567.23	-8,952.19	1,068.26	9,012.39	0.00	0.00	0.00
16,800.00	89.92	180.05	7,567.38	-9,052.19	1,068.17	9,111.96	0.00	0.00	0.00
16,900.00	89.92	180.05	7,567.52	-9,152.19	1,068.07	9,211.53	0.00	0.00	0.00
17,000.00	89.92	180.05	7,567.66	-9,252.19	1,067.98	9,311.10	0.00	0.00	0.00
17,100.00	89.92	180.05	7,567.80	-9,352.19	1,067.89	9,410.67	0.00	0.00	0.00
17,200.00	89.92	180.05	7,567.94	-9,452.19	1,067.80	9,510.25	0.00	0.00	0.00
17,300.00	89.92	180.05	7,568.09	-9,552.19	1,067.71	9,609.82	0.00	0.00	0.00
17,400.00	89.92	180.05	7,568.23	-9,652.19	1,067.61	9,709.39	0.00	0.00	0.00
17,500.00	89.92	180.05	7,568.37	-9,752.19	1,067.52	9,808.96	0.00	0.00	0.00
17,600.00	89.92	180.05	7,568.51	-9,852.19	1,067.43	9,908.53	0.00	0.00	0.00
17,700.00	89.92	180.05	7,568.66	-9,952.19	1,067.34	10,008.11	0.00	0.00	0.00
17,800.00	89.92	180.05	7,568.80	-10,052.19	1,067.24	10,107.68	0.00	0.00	0.00
17,900.00	89.92	180.05	7,568.94	-10,152.19	1,067.15	10,207.25	0.00	0.00	0.00
18,000.00	89.92	180.05	7,569.08	-10,252.19	1,067.06	10,306.82	0.00	0.00	0.00
18,100.00	89.92	180.05	7,569.23	-10,352.19	1,066.97	10,406.39	0.00	0.00	0.00
18,200.00	89.92	180.05	7,569.37	-10,452.19	1,066.88	10,505.97	0.00	0.00	0.00
18,300.00	89.92	180.05	7,569.51	-10,552.19	1,066.78	10,605.54	0.00	0.00	0.00
18,400.00	89.92	180.05	7,569.65	-10,652.19	1,066.69	10,705.11	0.00	0.00	0.00
18,500.00	89.92	180.05	7,569.79	-10,752.19	1,066.60	10,804.68	0.00	0.00	0.00
18,600.00	89.92	180.05	7,569.94	-10,852.19	1,066.51	10,904.25	0.00	0.00	0.00
18,700.00	89.92	180.05	7,570.08	-10,952.19	1,066.42	11,003.83	0.00	0.00	0.00
18,800.00	89.92	180.05	7,570.22	-11,052.19	1,066.32	11,103.40	0.00	0.00	0.00
18,900.00	89.92	180.05	7,570.36	-11,152.19	1,066.23	11,202.97	0.00	0.00	0.00

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	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)
19,000.00	89.92	180.05	7,570.51	-11,252.19	1,066.14	11,302.54	0.00	0.00	0.00
19,100.00	89.92	180.05	7,570.65	-11,352.19	1,066.05	11,402.11	0.00	0.00	0.00
19,200.00	89.92	180.05	7,570.79	-11,452.19	1,065.96	11,501.69	0.00	0.00	0.00
19,300.00	89.92	180.05	7,570.93	-11,552.19	1,065.86	11,601.26	0.00	0.00	0.00
19,347.79	89.92	180.05	7,571.00	-11,599.98	1,065.82	11,648.84	0.00	0.00	0.00
PBHL/TD									
19,347.80	89.92	180.05	7,571.00	-11,599.99	1,065.82	11,648.85	0.00	0.00	0.00

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Carson 1-13HZ VP. - plan hits target center - Point	0.00	0.00	4,500.00	283.15	1,076.76	14,554,742.22	1,653,483.21	40.076908	-104.953290
CARSON 1-13HZ Heel - plan misses target center by 0.01usft at 8099.93usft MD (7555.00 TVD, -352.14 N, 1076.18 E) - Point	0.00	0.00	7,555.00	-352.14	1,076.17	14,554,106.93	1,653,482.93	40.075163	-104.953292
CARSON 1-13HZ PBHL - plan hits target center - Point	0.00	0.00	7,571.00	-11,599.99	1,065.82	14,542,859.07	1,653,477.99	40.044275	-104.953331

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,841.44	1,800.00	Surface Csg	9-5/8	13-1/2	
8,100.35	7,555.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,154.10	1,147.00	Fox Hills				
4,379.56	4,197.00	Parkman				
4,713.88	4,531.00	Sussex				
7,622.05	7,383.00	Sharon Springs				
7,712.60	7,440.00	Niobrara				
7,922.26	7,530.00	Nio B				

Database:	PLANNING	Local Co-ordinate Reference:	Well CARSON 1-13HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 5040.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 5040.00usft (Drilling Rig)
Site:	1N-68W-01 Carson 13-1HZ EAST PAD	North Reference:	True
Well:	CARSON 1-13HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Build 1.5°/100 DLS
1,807.96	1,769.09	74.72	284.15	Hold Inc
3,174.92	3,030.91	208.43	792.61	Drop 1.5°/100 DLS
4,682.88	4,500.00	283.15	1,076.76	Vertical Point
7,101.26	6,918.38	283.15	1,076.76	KOP, Build 9°/100 DLS
8,100.35	7,555.00	-352.56	1,076.17	Landing Point / TOP
19,347.79	7,571.00	-11,599.98	1,065.82	PBHL/TD