

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 VERDE 3-13HZ PAD
VERDE 13-7HZ**

Plan A

Plan: Permit Rev-2

SHL Latitude/Longitude: 40.056072/-104.725885
Survey Program: MWD+IFR

Standard Planning Report

08 August, 2017

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1508.79	9-5/8
7513.00	7904.95	5-1/2

WELL DETAILS: VERDE 13-7HZ

GL = 5071'

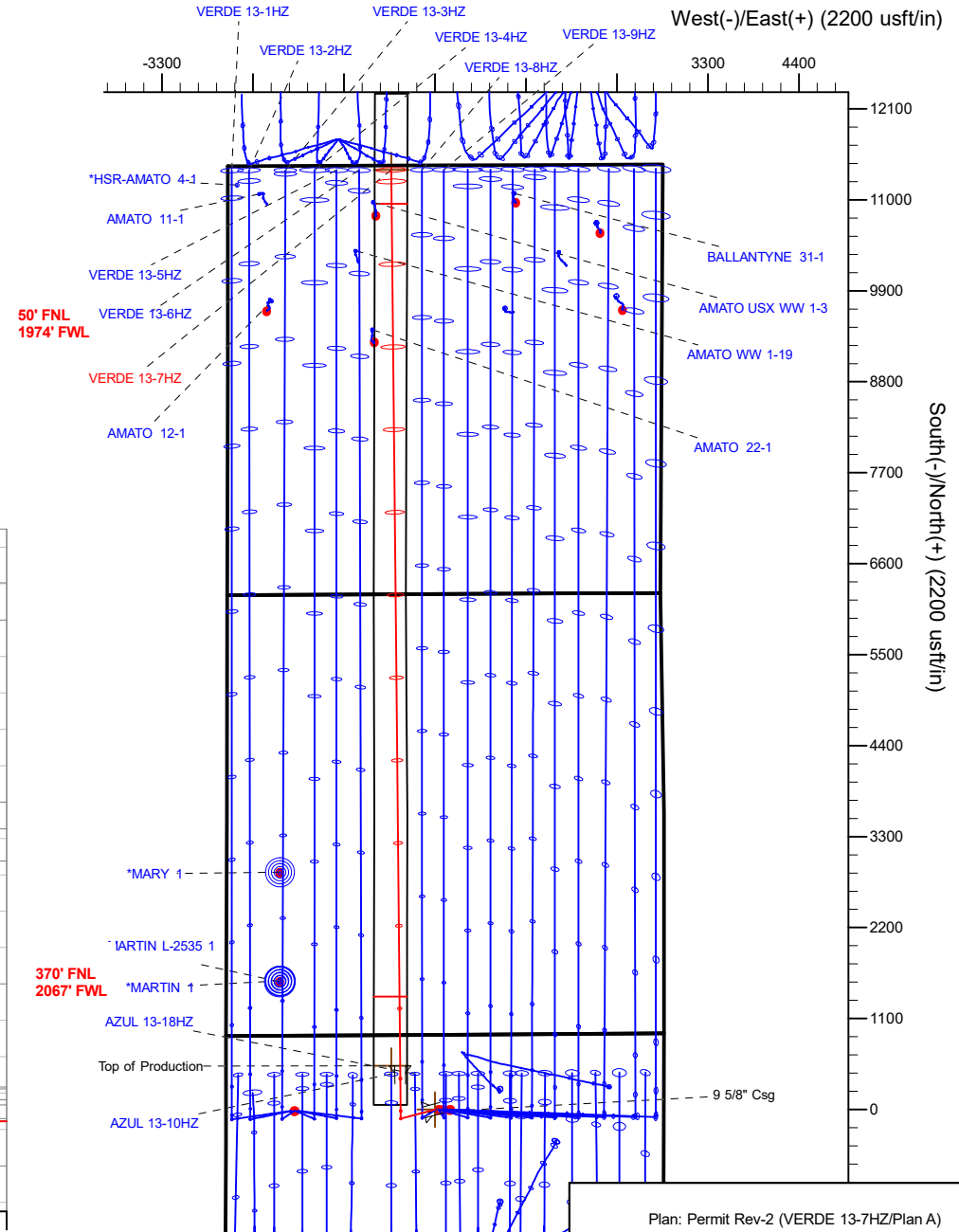
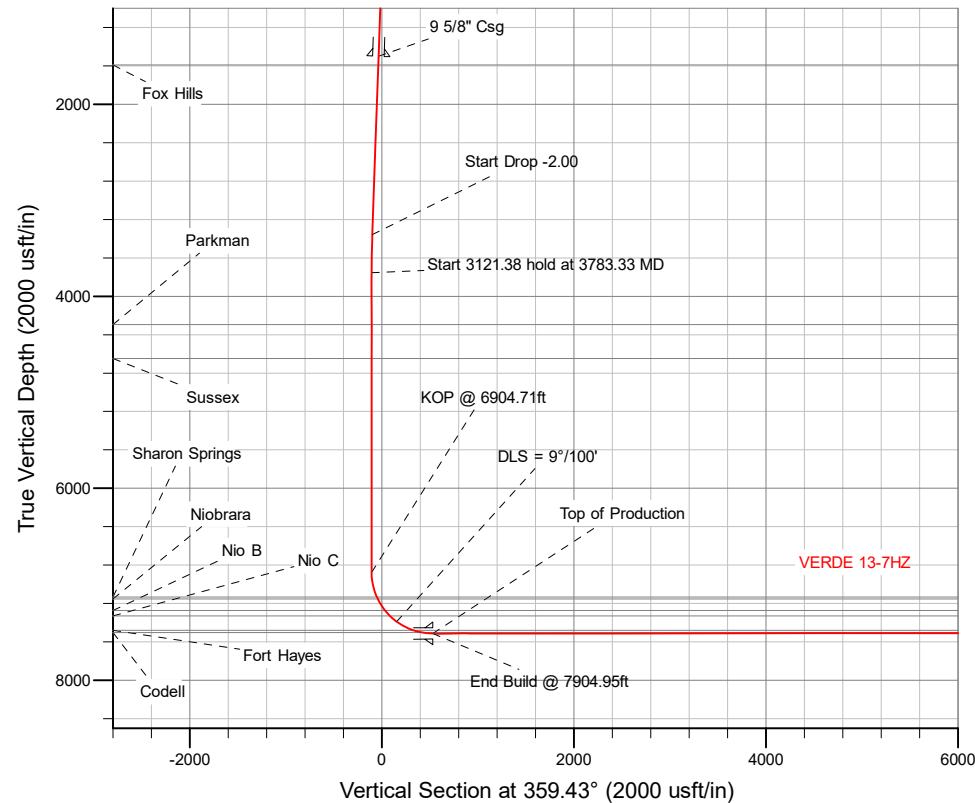
RKB = 17' @ 5088.00usft (D Rig)

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	255.00	781.60	-9.62	-35.91	1.50	255.00	-9.26	
4	3383.33	8.00	255.00	3356.30	-103.27	-385.43	0.00	0.00	-99.44	
5	3783.33	0.00	0.00	3755.00	-110.49	-412.36	2.00	180.00	-106.38	
6	6904.71	0.00	0.00	6876.38	-110.49	-412.36	0.00	0.00	-106.38	
7	7904.95	90.02	359.43	7513.00	526.33	-418.73	9.00	359.43	530.47	
8	18740.10	90.02	359.43	7509.00	11360.94	-527.08	0.00	0.00	11365.62	VERDE 13-7HZ_P8HL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
VERDE 13-7HZ_SHL	0.00	0.00	0.00	40.056072	-104.725885
VERDE 13-7HZ_PBHL	7509.00	11360.94	-527.08	40.087271	-104.727769



Plan: Permit Rev-2 (VERDE 13-7HZ/Plan A)

Created By: _____ Date: 8/8/2017
Reviewed: _____CWE_____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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-66W-13 VERDE 3-13HZ PAD			
Site Position:		Northing:	14,547,269.73 usft	Latitude:	40.056072
From:	Lat/Long	Easting:	1,717,120.05 usft	Longitude:	-104.725885
Position Uncertainty:	3.28 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	VERDE 13-7HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,547,269.73 usft	Latitude:	40.056072
	+E/-W	0.00 usft	Easting:	1,717,120.05 usft	Longitude:	-104.725885
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,071.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/1/2017	8.01	66.57	52,325.43267793

Design	Permit Rev-2				
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	359.43	

Plan Survey Tool Program		Date	8/8/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio	
2	1,500.00	18,740.10	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declinatio	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
783.33	8.00	255.00	781.60	-9.62	-35.91	1.50	1.50	0.00	255.00	
3,383.33	8.00	255.00	3,356.30	-103.27	-385.43	0.00	0.00	0.00	0.00	
3,783.33	0.00	0.00	3,755.00	-110.49	-412.36	2.00	-2.00	0.00	180.00	
6,904.71	0.00	0.00	6,876.38	-110.49	-412.36	0.00	0.00	0.00	0.00	
7,904.95	90.02	359.43	7,513.00	526.33	-418.73	9.00	9.00	-0.06	359.43	
18,740.10	90.02	359.43	7,509.00	11,360.94	-527.08	0.00	0.00	0.00	0.00	VERDE 13-7HZ_PBH

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
300.00	0.75	255.00	300.00	-0.08	-0.32	-0.08	1.50	1.50	0.00
400.00	2.25	255.00	399.96	-0.76	-2.84	-0.73	1.50	1.50	0.00
500.00	3.75	255.00	499.82	-2.12	-7.90	-2.04	1.50	1.50	0.00
600.00	5.25	255.00	599.51	-4.15	-15.48	-3.99	1.50	1.50	0.00
700.00	6.75	255.00	698.96	-6.85	-25.57	-6.60	1.50	1.50	0.00
783.33	8.00	255.00	781.60	-9.62	-35.91	-9.26	1.50	1.50	0.00
Start 2600.00 hold at 783.33 MD									
800.00	8.00	255.00	798.11	-10.22	-38.15	-9.84	0.00	0.00	0.00
900.00	8.00	255.00	897.13	-13.82	-51.59	-13.31	0.00	0.00	0.00
1,000.00	8.00	255.00	996.16	-17.43	-65.03	-16.78	0.00	0.00	0.00
1,100.00	8.00	255.00	1,095.19	-21.03	-78.48	-20.25	0.00	0.00	0.00
1,200.00	8.00	255.00	1,194.21	-24.63	-91.92	-23.71	0.00	0.00	0.00
1,300.00	8.00	255.00	1,293.24	-28.23	-105.36	-27.18	0.00	0.00	0.00
1,400.00	8.00	255.00	1,392.27	-31.83	-118.81	-30.65	0.00	0.00	0.00
1,500.00	8.00	255.00	1,491.29	-35.44	-132.25	-34.12	0.00	0.00	0.00
1,508.79	8.00	255.00	1,500.00	-35.75	-133.43	-34.42	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	8.00	255.00	1,590.32	-39.04	-145.69	-37.59	0.00	0.00	0.00
1,600.69	8.00	255.00	1,591.00	-39.06	-145.78	-37.61	0.00	0.00	0.00
Fox Hills									
1,700.00	8.00	255.00	1,689.35	-42.64	-159.13	-41.05	0.00	0.00	0.00
1,800.00	8.00	255.00	1,788.37	-46.24	-172.58	-44.52	0.00	0.00	0.00
1,900.00	8.00	255.00	1,887.40	-49.84	-186.02	-47.99	0.00	0.00	0.00
2,000.00	8.00	255.00	1,986.43	-53.45	-199.46	-51.46	0.00	0.00	0.00
2,100.00	8.00	255.00	2,085.46	-57.05	-212.91	-54.93	0.00	0.00	0.00
2,200.00	8.00	255.00	2,184.48	-60.65	-226.35	-58.40	0.00	0.00	0.00
2,300.00	8.00	255.00	2,283.51	-64.25	-239.79	-61.86	0.00	0.00	0.00
2,400.00	8.00	255.00	2,382.54	-67.85	-253.24	-65.33	0.00	0.00	0.00
2,500.00	8.00	255.00	2,481.56	-71.46	-266.68	-68.80	0.00	0.00	0.00
2,600.00	8.00	255.00	2,580.59	-75.06	-280.12	-72.27	0.00	0.00	0.00
2,700.00	8.00	255.00	2,679.62	-78.66	-293.57	-75.74	0.00	0.00	0.00
2,800.00	8.00	255.00	2,778.64	-82.26	-307.01	-79.20	0.00	0.00	0.00
2,900.00	8.00	255.00	2,877.67	-85.86	-320.45	-82.67	0.00	0.00	0.00
3,000.00	8.00	255.00	2,976.70	-89.47	-333.90	-86.14	0.00	0.00	0.00
3,100.00	8.00	255.00	3,075.72	-93.07	-347.34	-89.61	0.00	0.00	0.00
3,200.00	8.00	255.00	3,174.75	-96.67	-360.78	-93.08	0.00	0.00	0.00
3,300.00	8.00	255.00	3,273.78	-100.27	-374.22	-96.55	0.00	0.00	0.00
3,383.33	8.00	255.00	3,356.30	-103.27	-385.43	-99.44	0.00	0.00	0.00
Start Drop -2.00									
3,400.00	7.67	255.00	3,372.81	-103.86	-387.62	-100.00	2.00	-2.00	0.00
3,500.00	5.67	255.00	3,472.13	-106.87	-398.83	-102.89	2.00	-2.00	0.00
3,600.00	3.67	255.00	3,571.79	-108.97	-406.69	-104.92	2.00	-2.00	0.00
3,700.00	1.67	255.00	3,671.68	-110.18	-411.19	-106.08	2.00	-2.00	0.00
3,783.33	0.00	0.00	3,755.00	-110.49	-412.36	-106.38	2.00	-2.00	0.00
Start 3121.38 hold at 3783.33 MD									
3,800.00	0.00	0.00	3,771.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
3,900.00	0.00	0.00	3,871.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,000.00	0.00	0.00	3,971.67	-110.49	-412.36	-106.38	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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)
4,100.00	0.00	0.00	4,071.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,200.00	0.00	0.00	4,171.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,300.00	0.00	0.00	4,271.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,323.33	0.00	0.00	4,295.00	-110.49	-412.36	-106.38	0.00	0.00	0.00
Parkman									
4,400.00	0.00	0.00	4,371.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,500.00	0.00	0.00	4,471.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,600.00	0.00	0.00	4,571.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,676.33	0.00	0.00	4,648.00	-110.49	-412.36	-106.38	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,671.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,800.00	0.00	0.00	4,771.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
4,900.00	0.00	0.00	4,871.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,000.00	0.00	0.00	4,971.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,100.00	0.00	0.00	5,071.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,200.00	0.00	0.00	5,171.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,300.00	0.00	0.00	5,271.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,400.00	0.00	0.00	5,371.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,500.00	0.00	0.00	5,471.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,600.00	0.00	0.00	5,571.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,700.00	0.00	0.00	5,671.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,800.00	0.00	0.00	5,771.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
5,900.00	0.00	0.00	5,871.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,000.00	0.00	0.00	5,971.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,100.00	0.00	0.00	6,071.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,200.00	0.00	0.00	6,171.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,300.00	0.00	0.00	6,271.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,400.00	0.00	0.00	6,371.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,500.00	0.00	0.00	6,471.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,600.00	0.00	0.00	6,571.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,700.00	0.00	0.00	6,671.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,800.00	0.00	0.00	6,771.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,900.00	0.00	0.00	6,871.67	-110.49	-412.36	-106.38	0.00	0.00	0.00
6,904.71	0.00	0.00	6,876.38	-110.49	-412.36	-106.38	0.00	0.00	0.00
KOP @ 6904.71ft									
7,000.00	8.58	359.43	6,971.31	-103.37	-412.43	-99.27	9.00	9.00	0.00
7,100.00	17.58	359.43	7,068.62	-80.77	-412.65	-76.66	9.00	9.00	0.00
7,167.75	23.67	359.43	7,132.00	-56.92	-412.89	-52.81	9.00	9.00	0.00
Sharon Springs									
7,190.87	25.75	359.43	7,153.00	-47.26	-412.99	-43.14	9.00	9.00	0.00
Niobrara									
7,200.00	26.58	359.43	7,161.19	-43.23	-413.03	-39.12	9.00	9.00	0.00
7,300.00	35.58	359.43	7,246.75	8.33	-413.55	12.44	9.00	9.00	0.00
7,331.62	38.42	359.43	7,272.00	27.35	-413.74	31.47	9.00	9.00	0.00
Nio B									
7,400.00	44.58	359.43	7,323.19	72.64	-414.19	76.76	9.00	9.00	0.00
7,406.78	45.19	359.43	7,328.00	77.43	-414.24	81.54	9.00	9.00	0.00
Nio C									
7,500.00	53.58	359.43	7,388.63	148.12	-414.94	152.24	9.00	9.00	0.00
DLS = 9°/100'									
7,600.00	62.58	359.43	7,441.46	232.90	-415.79	237.03	9.00	9.00	0.00
7,700.00	71.58	359.43	7,480.37	324.90	-416.71	329.03	9.00	9.00	0.00
7,702.01	71.76	359.43	7,481.00	326.81	-416.73	330.94	9.00	9.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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)
Fort Hayes									
7,791.73	79.83	359.43	7,503.00	413.71	-417.60	417.84	9.00	9.00	0.00
Codell									
7,800.00	80.58	359.43	7,504.41	421.86	-417.68	425.99	9.00	9.00	0.00
7,900.00	89.58	359.43	7,512.98	521.38	-418.68	525.52	9.00	9.00	0.00
7,904.95	90.02	359.43	7,513.00	526.33	-418.73	530.47	9.00	9.00	0.00
End Build @ 7904.95ft - Top of Production									
8,000.00	90.02	359.43	7,512.97	621.38	-419.68	625.52	0.00	0.00	0.00
8,100.00	90.02	359.43	7,512.93	721.37	-420.68	725.52	0.00	0.00	0.00
8,200.00	90.02	359.43	7,512.89	821.37	-421.68	825.52	0.00	0.00	0.00
8,300.00	90.02	359.43	7,512.85	921.36	-422.68	925.52	0.00	0.00	0.00
8,400.00	90.02	359.43	7,512.82	1,021.36	-423.68	1,025.52	0.00	0.00	0.00
8,500.00	90.02	359.43	7,512.78	1,121.35	-424.68	1,125.52	0.00	0.00	0.00
8,600.00	90.02	359.43	7,512.74	1,221.35	-425.68	1,225.52	0.00	0.00	0.00
8,700.00	90.02	359.43	7,512.71	1,321.34	-426.68	1,325.52	0.00	0.00	0.00
8,800.00	90.02	359.43	7,512.67	1,421.34	-427.68	1,425.52	0.00	0.00	0.00
8,900.00	90.02	359.43	7,512.63	1,521.33	-428.68	1,525.52	0.00	0.00	0.00
9,000.00	90.02	359.43	7,512.60	1,621.33	-429.68	1,625.52	0.00	0.00	0.00
9,100.00	90.02	359.43	7,512.56	1,721.32	-430.68	1,725.52	0.00	0.00	0.00
9,200.00	90.02	359.43	7,512.52	1,821.32	-431.68	1,825.52	0.00	0.00	0.00
9,300.00	90.02	359.43	7,512.49	1,921.31	-432.68	1,925.52	0.00	0.00	0.00
9,400.00	90.02	359.43	7,512.45	2,021.31	-433.68	2,025.52	0.00	0.00	0.00
9,500.00	90.02	359.43	7,512.41	2,121.30	-434.68	2,125.52	0.00	0.00	0.00
9,600.00	90.02	359.43	7,512.37	2,221.30	-435.68	2,225.52	0.00	0.00	0.00
9,700.00	90.02	359.43	7,512.34	2,321.29	-436.68	2,325.52	0.00	0.00	0.00
9,800.00	90.02	359.43	7,512.30	2,421.29	-437.68	2,425.52	0.00	0.00	0.00
9,900.00	90.02	359.43	7,512.26	2,521.28	-438.68	2,525.52	0.00	0.00	0.00
10,000.00	90.02	359.43	7,512.23	2,621.28	-439.68	2,625.52	0.00	0.00	0.00
10,100.00	90.02	359.43	7,512.19	2,721.27	-440.68	2,725.52	0.00	0.00	0.00
10,200.00	90.02	359.43	7,512.15	2,821.27	-441.68	2,825.52	0.00	0.00	0.00
10,300.00	90.02	359.43	7,512.12	2,921.26	-442.68	2,925.52	0.00	0.00	0.00
10,400.00	90.02	359.43	7,512.08	3,021.26	-443.68	3,025.52	0.00	0.00	0.00
10,500.00	90.02	359.43	7,512.04	3,121.25	-444.68	3,125.52	0.00	0.00	0.00
10,600.00	90.02	359.43	7,512.01	3,221.25	-445.68	3,225.52	0.00	0.00	0.00
10,700.00	90.02	359.43	7,511.97	3,321.24	-446.68	3,325.52	0.00	0.00	0.00
10,800.00	90.02	359.43	7,511.93	3,421.24	-447.68	3,425.52	0.00	0.00	0.00
10,900.00	90.02	359.43	7,511.89	3,521.23	-448.68	3,525.52	0.00	0.00	0.00
11,000.00	90.02	359.43	7,511.86	3,621.23	-449.68	3,625.52	0.00	0.00	0.00
11,100.00	90.02	359.43	7,511.82	3,721.22	-450.68	3,725.52	0.00	0.00	0.00
11,200.00	90.02	359.43	7,511.78	3,821.22	-451.68	3,825.52	0.00	0.00	0.00
11,300.00	90.02	359.43	7,511.75	3,921.21	-452.68	3,925.52	0.00	0.00	0.00
11,400.00	90.02	359.43	7,511.71	4,021.21	-453.68	4,025.52	0.00	0.00	0.00
11,500.00	90.02	359.43	7,511.67	4,121.20	-454.68	4,125.52	0.00	0.00	0.00
11,600.00	90.02	359.43	7,511.64	4,221.20	-455.68	4,225.52	0.00	0.00	0.00
11,700.00	90.02	359.43	7,511.60	4,321.19	-456.68	4,325.52	0.00	0.00	0.00
11,800.00	90.02	359.43	7,511.56	4,421.19	-457.68	4,425.52	0.00	0.00	0.00
11,900.00	90.02	359.43	7,511.53	4,521.18	-458.68	4,525.52	0.00	0.00	0.00
12,000.00	90.02	359.43	7,511.49	4,621.18	-459.68	4,625.52	0.00	0.00	0.00
12,100.00	90.02	359.43	7,511.45	4,721.17	-460.68	4,725.52	0.00	0.00	0.00
12,200.00	90.02	359.43	7,511.41	4,821.17	-461.68	4,825.52	0.00	0.00	0.00
12,300.00	90.02	359.43	7,511.38	4,921.16	-462.68	4,925.52	0.00	0.00	0.00
12,400.00	90.02	359.43	7,511.34	5,021.16	-463.68	5,025.52	0.00	0.00	0.00
12,500.00	90.02	359.43	7,511.30	5,121.15	-464.68	5,125.52	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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)
12,600.00	90.02	359.43	7,511.27	5,221.15	-465.68	5,225.52	0.00	0.00	0.00
12,700.00	90.02	359.43	7,511.23	5,321.14	-466.68	5,325.52	0.00	0.00	0.00
12,800.00	90.02	359.43	7,511.19	5,421.14	-467.68	5,425.52	0.00	0.00	0.00
12,900.00	90.02	359.43	7,511.16	5,521.13	-468.68	5,525.52	0.00	0.00	0.00
13,000.00	90.02	359.43	7,511.12	5,621.13	-469.68	5,625.52	0.00	0.00	0.00
13,100.00	90.02	359.43	7,511.08	5,721.12	-470.68	5,725.52	0.00	0.00	0.00
13,200.00	90.02	359.43	7,511.05	5,821.12	-471.68	5,825.52	0.00	0.00	0.00
13,300.00	90.02	359.43	7,511.01	5,921.11	-472.68	5,925.52	0.00	0.00	0.00
13,400.00	90.02	359.43	7,510.97	6,021.11	-473.68	6,025.52	0.00	0.00	0.00
13,500.00	90.02	359.43	7,510.93	6,121.10	-474.68	6,125.52	0.00	0.00	0.00
13,600.00	90.02	359.43	7,510.90	6,221.10	-475.68	6,225.52	0.00	0.00	0.00
13,700.00	90.02	359.43	7,510.86	6,321.09	-476.68	6,325.52	0.00	0.00	0.00
13,800.00	90.02	359.43	7,510.82	6,421.09	-477.68	6,425.52	0.00	0.00	0.00
13,900.00	90.02	359.43	7,510.79	6,521.08	-478.68	6,525.52	0.00	0.00	0.00
14,000.00	90.02	359.43	7,510.75	6,621.08	-479.68	6,625.52	0.00	0.00	0.00
14,100.00	90.02	359.43	7,510.71	6,721.07	-480.68	6,725.52	0.00	0.00	0.00
14,200.00	90.02	359.43	7,510.68	6,821.07	-481.68	6,825.52	0.00	0.00	0.00
14,300.00	90.02	359.43	7,510.64	6,921.06	-482.68	6,925.52	0.00	0.00	0.00
14,400.00	90.02	359.43	7,510.60	7,021.06	-483.68	7,025.52	0.00	0.00	0.00
14,500.00	90.02	359.43	7,510.57	7,121.05	-484.68	7,125.52	0.00	0.00	0.00
14,600.00	90.02	359.43	7,510.53	7,221.05	-485.68	7,225.52	0.00	0.00	0.00
14,700.00	90.02	359.43	7,510.49	7,321.04	-486.68	7,325.52	0.00	0.00	0.00
14,800.00	90.02	359.43	7,510.45	7,421.04	-487.68	7,425.52	0.00	0.00	0.00
14,900.00	90.02	359.43	7,510.42	7,521.03	-488.68	7,525.52	0.00	0.00	0.00
15,000.00	90.02	359.43	7,510.38	7,621.03	-489.68	7,625.52	0.00	0.00	0.00
15,100.00	90.02	359.43	7,510.34	7,721.02	-490.68	7,725.52	0.00	0.00	0.00
15,200.00	90.02	359.43	7,510.31	7,821.02	-491.68	7,825.52	0.00	0.00	0.00
15,300.00	90.02	359.43	7,510.27	7,921.01	-492.68	7,925.52	0.00	0.00	0.00
15,400.00	90.02	359.43	7,510.23	8,021.01	-493.68	8,025.52	0.00	0.00	0.00
15,500.00	90.02	359.43	7,510.20	8,121.00	-494.68	8,125.52	0.00	0.00	0.00
15,600.00	90.02	359.43	7,510.16	8,221.00	-495.68	8,225.52	0.00	0.00	0.00
15,700.00	90.02	359.43	7,510.12	8,320.99	-496.68	8,325.52	0.00	0.00	0.00
15,800.00	90.02	359.43	7,510.09	8,420.99	-497.68	8,425.52	0.00	0.00	0.00
15,900.00	90.02	359.43	7,510.05	8,520.98	-498.68	8,525.52	0.00	0.00	0.00
16,000.00	90.02	359.43	7,510.01	8,620.98	-499.68	8,625.52	0.00	0.00	0.00
16,100.00	90.02	359.43	7,509.97	8,720.97	-500.68	8,725.52	0.00	0.00	0.00
16,200.00	90.02	359.43	7,509.94	8,820.97	-501.68	8,825.52	0.00	0.00	0.00
16,300.00	90.02	359.43	7,509.90	8,920.96	-502.68	8,925.52	0.00	0.00	0.00
16,400.00	90.02	359.43	7,509.86	9,020.96	-503.68	9,025.52	0.00	0.00	0.00
16,500.00	90.02	359.43	7,509.83	9,120.95	-504.68	9,125.52	0.00	0.00	0.00
16,600.00	90.02	359.43	7,509.79	9,220.95	-505.68	9,225.52	0.00	0.00	0.00
16,700.00	90.02	359.43	7,509.75	9,320.94	-506.68	9,325.52	0.00	0.00	0.00
16,800.00	90.02	359.43	7,509.72	9,420.94	-507.68	9,425.52	0.00	0.00	0.00
16,900.00	90.02	359.43	7,509.68	9,520.93	-508.68	9,525.52	0.00	0.00	0.00
17,000.00	90.02	359.43	7,509.64	9,620.93	-509.68	9,625.52	0.00	0.00	0.00
17,100.00	90.02	359.43	7,509.61	9,720.92	-510.68	9,725.52	0.00	0.00	0.00
17,200.00	90.02	359.43	7,509.57	9,820.92	-511.68	9,825.52	0.00	0.00	0.00
17,300.00	90.02	359.43	7,509.53	9,920.91	-512.68	9,925.52	0.00	0.00	0.00
17,400.00	90.02	359.43	7,509.49	10,020.91	-513.68	10,025.52	0.00	0.00	0.00
17,500.00	90.02	359.43	7,509.46	10,120.90	-514.68	10,125.52	0.00	0.00	0.00
17,600.00	90.02	359.43	7,509.42	10,220.90	-515.68	10,225.52	0.00	0.00	0.00
17,700.00	90.02	359.43	7,509.38	10,320.89	-516.68	10,325.52	0.00	0.00	0.00
17,800.00	90.02	359.43	7,509.35	10,420.89	-517.68	10,425.52	0.00	0.00	0.00
17,900.00	90.02	359.43	7,509.31	10,520.88	-518.68	10,525.52	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-7HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5088.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5088.00usft (D Rig)
Site:	1N-66W-13 VERDE 3-13HZ PAD	North Reference:	True
Well:	VERDE 13-7HZ	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)
18,000.00	90.02	359.43	7,509.27	10,620.88	-519.68	10,625.52	0.00	0.00	0.00
18,100.00	90.02	359.43	7,509.24	10,720.87	-520.68	10,725.52	0.00	0.00	0.00
18,200.00	90.02	359.43	7,509.20	10,820.87	-521.68	10,825.52	0.00	0.00	0.00
18,300.00	90.02	359.43	7,509.16	10,920.86	-522.68	10,925.52	0.00	0.00	0.00
18,400.00	90.02	359.43	7,509.13	11,020.86	-523.68	11,025.52	0.00	0.00	0.00
18,500.00	90.02	359.43	7,509.09	11,120.85	-524.68	11,125.52	0.00	0.00	0.00
18,600.00	90.02	359.43	7,509.05	11,220.85	-525.68	11,225.52	0.00	0.00	0.00
18,700.00	90.02	359.43	7,509.01	11,320.84	-526.68	11,325.52	0.00	0.00	0.00
18,740.10	90.02	359.43	7,509.00	11,360.94	-527.08	11,365.62	0.00	0.00	0.00
TD Well @ 18740.10ft									

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
7,904.95	7,513.00	Top of Production	5-1/2	7-7/8

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,600.69	1,591.00	Fox Hills			
4,323.33	4,295.00	Parkman			
4,676.33	4,648.00	Sussex			
7,167.75	7,132.00	Sharon Springs			
7,190.87	7,153.00	Niobrara			
7,331.62	7,272.00	Nio B			
7,406.78	7,328.00	Nio C			
7,702.01	7,481.00	Fort Hayes			
7,791.73	7,503.00	Codell			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Start Build 1.50
783.33	781.60	-9.62	-35.91	Start 2600.00 hold at 783.33 MD
3,383.33	3,356.30	-103.27	-385.43	Start Drop -2.00
3,783.33	3,755.00	-110.49	-412.36	Start 3121.38 hold at 3783.33 MD
6,904.71	6,876.38	-110.49	-412.36	KOP @ 6904.71ft
7,500.00	7,388.63	148.12	-414.94	DLS = 9°/100'
7,904.95	7,513.00	526.33	-418.73	End Build @ 7904.95ft
18,740.10	7,509.00	11,360.94	-527.08	TD Well @ 18740.10ft