

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 VERDE 4-13HZ PAD
VERDE 13-3HZ**

Plan A

Plan: Permit Rev-1

Standard Planning Report

05 June, 2017



Azimuths to True North
Magnetic North: 8.02°

Magnetic Field
Strength: 52324.0snT
Dip Angle: 66.57°
Date: 6/3/2017
Model: IGRF2010

SITE: 1N-66W-13 VERDE 4-13HZ PAD

Well: VERDE 13-3HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1615.00	1618.02	Fox Hills
4319.00	4325.10	Parkman
4672.00	4678.10	Sussex
7206.00	7246.35	Sharon Springs
7227.00	7274.13	Niobrara
7351.00	7472.07	Nio B
7411.00	7624.78	Nio C

WELL DETAILS: VERDE 13-3HZ

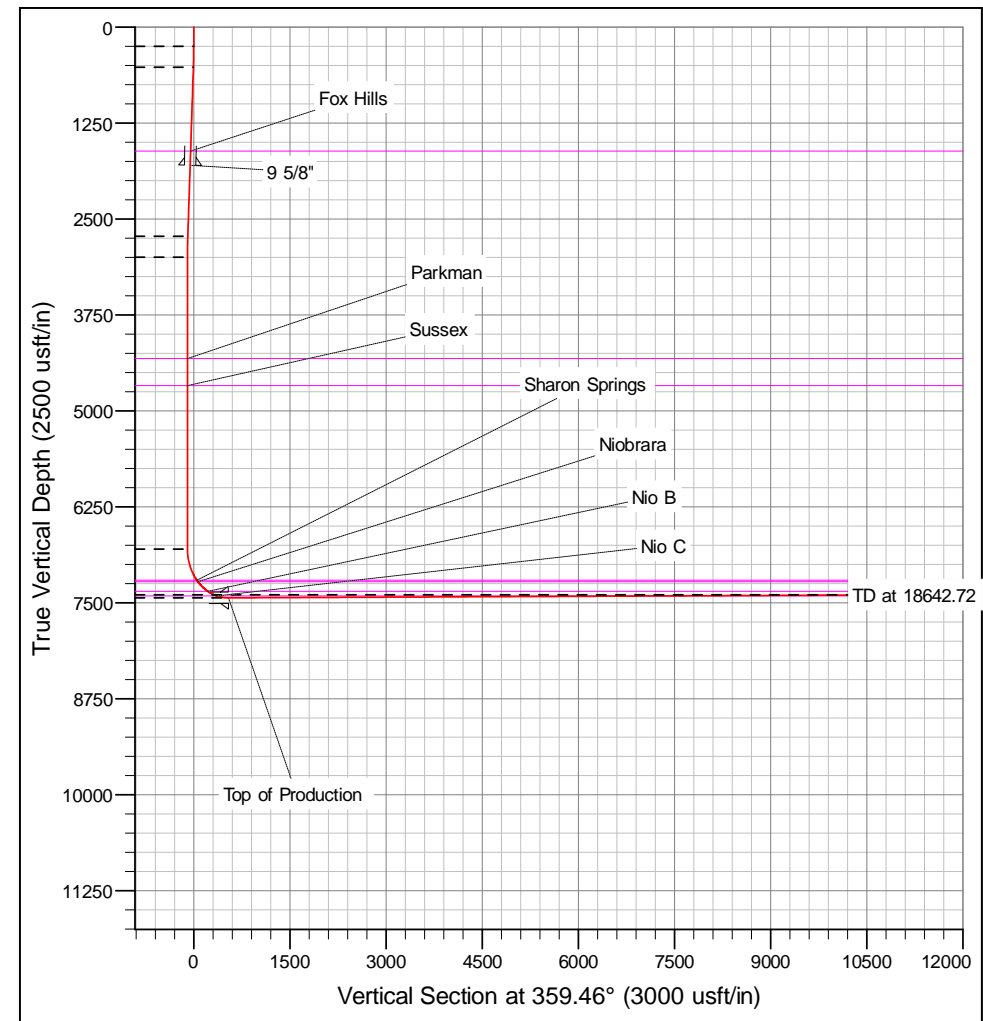
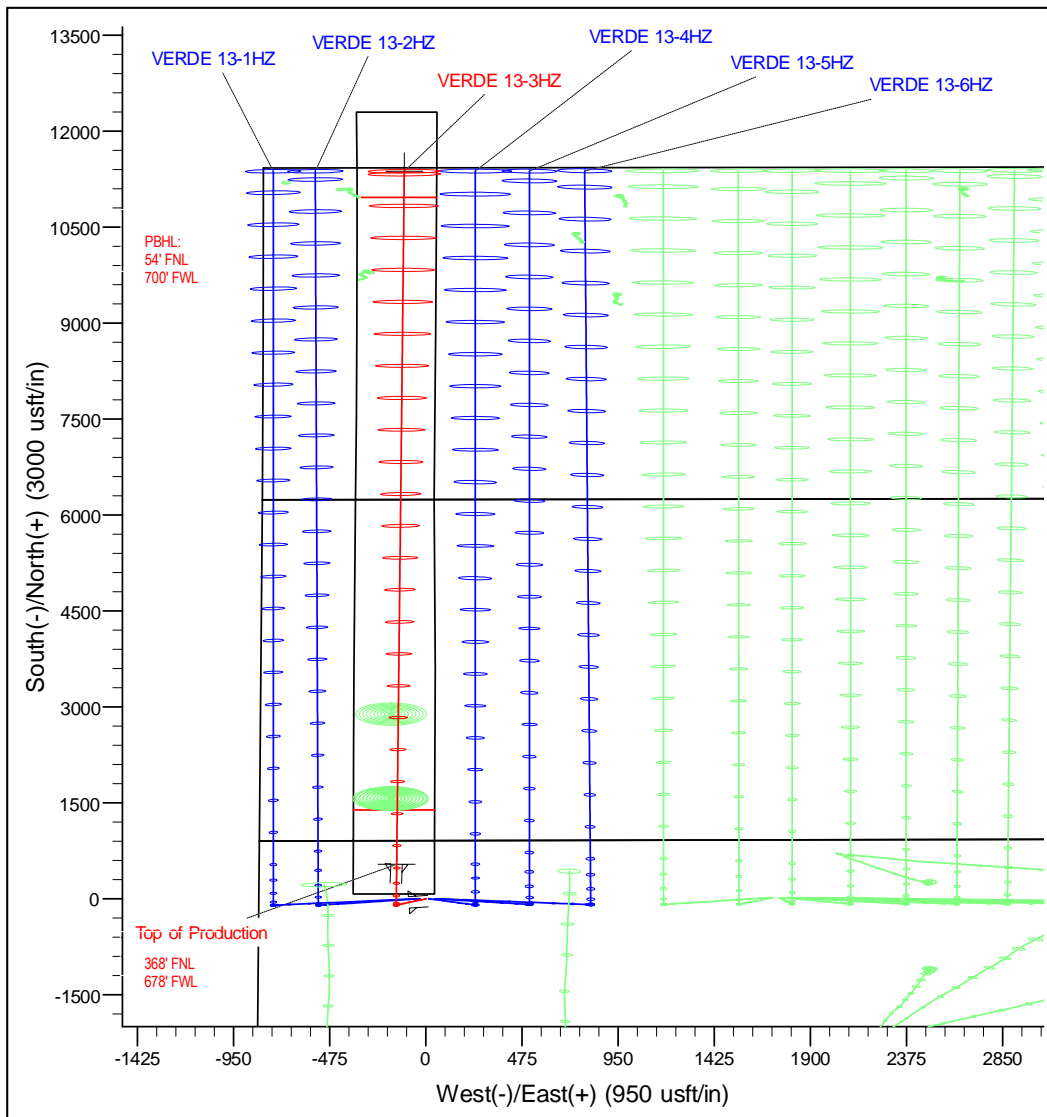
		GL: 5095.00	RKB @ 5112.00usft (D Rig)		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14547246.71	1715419.07	40.056023	-104.731964

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
VERDE 13-3HZ_PBHL	7396.00	11373.78	-106.83	14558620.12	1715278.00	40.087257	-104.732346

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
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
522.85	4.09	235.94	522.61	-5.46	-8.07	1.50	-5.38
2733.25	4.09	235.94	2727.39	-93.81	-138.76	0.00	-92.51
3006.10	0.00	0.00	3000.00	-99.27	-146.83	1.50	-97.89
6806.14	0.00	0.00	6800.04	-99.27	-146.83	0.00	-97.89
7808.53	90.22	0.20	7436.65	539.73	-144.60	9.00	541.07
18642.72	90.22	0.20	7396.00	11373.78	-106.83	0.091374	2.8



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site						1N-66W-13 VERDE 4-13HZ PAD											
Site Position:			Northing:			14,547,246.93 usft			Latitude:			40.056024					
From:		Lat/Long		Easting:		1,715,374.02 usft			Longitude:		-104.732125						
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.17		

Well	VERDE 13-3HZ					
Well Position	+N-S	-0.36 usft	Northing:	14,547,246.71 usft	Latitude:	40.056023
	+E-W	45.05 usft	Easting:	1,715,419.07 usft	Longitude:	-104.731964
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	5,095.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/3/2017	8.01	66.57	52,324.01912600

Design	Permit Rev-1				
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	359.46	

Plan Survey Tool Program	Date	6/5/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,803.50	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:standard declination	
2	1,803.50	18,642.72	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI	
				Fixed:v2:crustal field declinat	

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	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	
522.85	4.09	235.94	522.61	-5.46	-8.07	1.50	1.50	0.00	235.94	
2,733.25	4.09	235.94	2,727.39	-93.81	-138.76	0.00	0.00	0.00	0.00	
3,006.10	0.00	0.00	3,000.00	-99.27	-146.83	1.50	-1.50	0.00	180.00	
6,806.14	0.00	0.00	6,800.04	-99.27	-146.83	0.00	0.00	0.00	0.00	
7,808.53	90.22	0.20	7,436.65	539.73	-144.60	9.00	9.00	0.00	0.20	
18,642.72	90.22	0.20	7,396.00	11,373.78	-106.83	0.00	0.00	0.00	0.00	VERDE 13-3HZ_PE

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.75	235.94	300.00	-0.18	-0.27	-0.18	1.50	1.50	0.00
400.00	2.25	235.94	399.96	-1.65	-2.44	-1.63	1.50	1.50	0.00
500.00	3.75	235.94	499.82	-4.58	-6.78	-4.52	1.50	1.50	0.00
522.85	4.09	235.94	522.61	-5.46	-8.07	-5.38	1.50	1.50	0.00
600.00	4.09	235.94	599.57	-8.54	-12.63	-8.42	0.00	0.00	0.00
700.00	4.09	235.94	699.32	-12.54	-18.54	-12.36	0.00	0.00	0.00
800.00	4.09	235.94	799.06	-16.53	-24.46	-16.30	0.00	0.00	0.00
900.00	4.09	235.94	898.81	-20.53	-30.37	-20.25	0.00	0.00	0.00
1,000.00	4.09	235.94	998.55	-24.53	-36.28	-24.19	0.00	0.00	0.00
1,100.00	4.09	235.94	1,098.30	-28.53	-42.19	-28.13	0.00	0.00	0.00
1,200.00	4.09	235.94	1,198.04	-32.52	-48.11	-32.07	0.00	0.00	0.00
1,300.00	4.09	235.94	1,297.79	-36.52	-54.02	-36.01	0.00	0.00	0.00
1,400.00	4.09	235.94	1,397.53	-40.52	-59.93	-39.95	0.00	0.00	0.00
1,500.00	4.09	235.94	1,497.28	-44.52	-65.84	-43.90	0.00	0.00	0.00
1,600.00	4.09	235.94	1,597.02	-48.51	-71.76	-47.84	0.00	0.00	0.00
1,618.02	4.09	235.94	1,615.00	-49.23	-72.82	-48.55	0.00	0.00	0.00
Fox Hills									
1,700.00	4.09	235.94	1,696.77	-52.51	-77.67	-51.78	0.00	0.00	0.00
1,800.00	4.09	235.94	1,796.51	-56.51	-83.58	-55.72	0.00	0.00	0.00
1,803.50	4.09	235.94	1,800.00	-56.65	-83.79	-55.86	0.00	0.00	0.00
9 5/8"									
1,900.00	4.09	235.94	1,896.26	-60.51	-89.49	-59.66	0.00	0.00	0.00
2,000.00	4.09	235.94	1,996.00	-64.50	-95.41	-63.60	0.00	0.00	0.00
2,100.00	4.09	235.94	2,095.75	-68.50	-101.32	-67.55	0.00	0.00	0.00
2,200.00	4.09	235.94	2,195.49	-72.50	-107.23	-71.49	0.00	0.00	0.00
2,300.00	4.09	235.94	2,295.24	-76.50	-113.14	-75.43	0.00	0.00	0.00
2,400.00	4.09	235.94	2,394.98	-80.49	-119.06	-79.37	0.00	0.00	0.00
2,500.00	4.09	235.94	2,494.73	-84.49	-124.97	-83.31	0.00	0.00	0.00
2,600.00	4.09	235.94	2,594.47	-88.49	-130.88	-87.25	0.00	0.00	0.00
2,700.00	4.09	235.94	2,694.22	-92.49	-136.79	-91.20	0.00	0.00	0.00
2,733.25	4.09	235.94	2,727.39	-93.81	-138.76	-92.51	0.00	0.00	0.00
2,800.00	3.09	235.94	2,794.00	-96.16	-142.22	-94.82	1.50	-1.50	0.00
2,900.00	1.59	235.94	2,893.91	-98.44	-145.61	-97.07	1.50	-1.50	0.00
3,000.00	0.09	235.94	2,993.90	-99.27	-146.83	-97.88	1.50	-1.50	0.00
3,006.10	0.00	0.00	3,000.00	-99.27	-146.83	-97.89	1.50	-1.50	0.00
3,100.00	0.00	0.00	3,093.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,200.00	0.00	0.00	3,193.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,300.00	0.00	0.00	3,293.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,400.00	0.00	0.00	3,393.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,500.00	0.00	0.00	3,493.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,600.00	0.00	0.00	3,593.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,700.00	0.00	0.00	3,693.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,800.00	0.00	0.00	3,793.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
3,900.00	0.00	0.00	3,893.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,000.00	0.00	0.00	3,993.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,100.00	0.00	0.00	4,093.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,200.00	0.00	0.00	4,193.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,300.00	0.00	0.00	4,293.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,325.10	0.00	0.00	4,319.00	-99.27	-146.83	-97.89	0.00	0.00	0.00

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Parkman									
4,400.00	0.00	0.00	4,393.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,500.00	0.00	0.00	4,493.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,600.00	0.00	0.00	4,593.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,678.10	0.00	0.00	4,672.00	-99.27	-146.83	-97.89	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,693.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,800.00	0.00	0.00	4,793.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
4,900.00	0.00	0.00	4,893.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,000.00	0.00	0.00	4,993.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,100.00	0.00	0.00	5,093.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,200.00	0.00	0.00	5,193.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,300.00	0.00	0.00	5,293.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,400.00	0.00	0.00	5,393.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,500.00	0.00	0.00	5,493.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,600.00	0.00	0.00	5,593.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,700.00	0.00	0.00	5,693.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,800.00	0.00	0.00	5,793.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
5,900.00	0.00	0.00	5,893.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,000.00	0.00	0.00	5,993.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,100.00	0.00	0.00	6,093.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,200.00	0.00	0.00	6,193.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,300.00	0.00	0.00	6,293.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,400.00	0.00	0.00	6,393.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,500.00	0.00	0.00	6,493.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,600.00	0.00	0.00	6,593.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,700.00	0.00	0.00	6,693.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,800.00	0.00	0.00	6,793.90	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,806.14	0.00	0.00	6,800.04	-99.27	-146.83	-97.89	0.00	0.00	0.00
6,900.00	8.45	0.20	6,893.56	-92.36	-146.81	-90.98	9.00	9.00	0.00
7,000.00	17.45	0.20	6,990.92	-69.98	-146.73	-68.60	9.00	9.00	0.00
7,100.00	26.45	0.20	7,083.57	-32.64	-146.60	-31.27	9.00	9.00	0.00
7,200.00	35.45	0.20	7,169.25	18.73	-146.42	20.10	9.00	9.00	0.00
7,246.35	39.62	0.20	7,206.00	46.96	-146.32	48.33	9.00	9.00	0.00
Sharon Springs									
7,274.13	42.12	0.20	7,227.00	65.13	-146.26	66.50	9.00	9.00	0.00
Niobrara									
7,300.00	44.45	0.20	7,245.84	82.87	-146.19	84.24	9.00	9.00	0.00
7,400.00	53.45	0.20	7,311.44	158.20	-145.93	159.57	9.00	9.00	0.00
7,472.07	59.93	0.20	7,351.00	218.40	-145.72	219.76	9.00	9.00	0.00
Nio B									
7,500.00	62.45	0.20	7,364.46	242.87	-145.64	244.23	9.00	9.00	0.00
7,600.00	71.45	0.20	7,403.58	334.79	-145.32	336.14	9.00	9.00	0.00
7,624.78	73.68	0.20	7,411.00	358.43	-145.23	359.78	9.00	9.00	0.00
Nio C									
7,700.00	80.45	0.20	7,427.83	431.70	-144.98	433.04	9.00	9.00	0.00
7,800.00	89.45	0.20	7,436.63	531.21	-144.63	532.54	9.00	9.00	0.00
7,808.53	90.22	0.20	7,436.65	539.74	-144.60	541.07	9.00	9.00	0.00
Top of Production - VERDE 13-3HZ_PHL									
7,900.00	90.22	0.20	7,436.31	631.20	-144.28	632.53	0.00	0.00	0.00
8,000.00	90.22	0.20	7,435.94	731.20	-143.93	732.52	0.00	0.00	0.00
8,100.00	90.22	0.20	7,435.56	831.20	-143.59	832.51	0.00	0.00	0.00
8,200.00	90.22	0.20	7,435.19	931.20	-143.24	932.50	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,300.00	90.22	0.20	7,434.81	1,031.20	-142.89	1,032.50	0.00	0.00	0.00	
8,400.00	90.22	0.20	7,434.44	1,131.20	-142.54	1,132.49	0.00	0.00	0.00	
8,500.00	90.22	0.20	7,434.06	1,231.20	-142.19	1,232.48	0.00	0.00	0.00	
8,600.00	90.22	0.20	7,433.68	1,331.20	-141.84	1,332.47	0.00	0.00	0.00	
8,700.00	90.22	0.20	7,433.31	1,431.19	-141.49	1,432.46	0.00	0.00	0.00	
8,800.00	90.22	0.20	7,432.93	1,531.19	-141.15	1,532.45	0.00	0.00	0.00	
8,900.00	90.22	0.20	7,432.56	1,631.19	-140.80	1,632.44	0.00	0.00	0.00	
9,000.00	90.22	0.20	7,432.18	1,731.19	-140.45	1,732.43	0.00	0.00	0.00	
9,100.00	90.22	0.20	7,431.81	1,831.19	-140.10	1,832.42	0.00	0.00	0.00	
9,200.00	90.22	0.20	7,431.43	1,931.19	-139.75	1,932.41	0.00	0.00	0.00	
9,300.00	90.22	0.20	7,431.06	2,031.19	-139.40	2,032.41	0.00	0.00	0.00	
9,400.00	90.22	0.20	7,430.68	2,131.18	-139.05	2,132.40	0.00	0.00	0.00	
9,500.00	90.22	0.20	7,430.31	2,231.18	-138.71	2,232.39	0.00	0.00	0.00	
9,600.00	90.22	0.20	7,429.93	2,331.18	-138.36	2,332.38	0.00	0.00	0.00	
9,700.00	90.22	0.20	7,429.56	2,431.18	-138.01	2,432.37	0.00	0.00	0.00	
9,800.00	90.22	0.20	7,429.18	2,531.18	-137.66	2,532.36	0.00	0.00	0.00	
9,900.00	90.22	0.20	7,428.81	2,631.18	-137.31	2,632.35	0.00	0.00	0.00	
10,000.00	90.22	0.20	7,428.43	2,731.18	-136.96	2,732.34	0.00	0.00	0.00	
10,100.00	90.22	0.20	7,428.06	2,831.18	-136.61	2,832.33	0.00	0.00	0.00	
10,200.00	90.22	0.20	7,427.68	2,931.17	-136.26	2,932.32	0.00	0.00	0.00	
10,300.00	90.22	0.20	7,427.31	3,031.17	-135.92	3,032.32	0.00	0.00	0.00	
10,400.00	90.22	0.20	7,426.93	3,131.17	-135.57	3,132.31	0.00	0.00	0.00	
10,500.00	90.22	0.20	7,426.56	3,231.17	-135.22	3,232.30	0.00	0.00	0.00	
10,600.00	90.22	0.20	7,426.18	3,331.17	-134.87	3,332.29	0.00	0.00	0.00	
10,700.00	90.22	0.20	7,425.80	3,431.17	-134.52	3,432.28	0.00	0.00	0.00	
10,800.00	90.22	0.20	7,425.43	3,531.17	-134.17	3,532.27	0.00	0.00	0.00	
10,900.00	90.22	0.20	7,425.05	3,631.17	-133.82	3,632.26	0.00	0.00	0.00	
11,000.00	90.22	0.20	7,424.68	3,731.16	-133.48	3,732.25	0.00	0.00	0.00	
11,100.00	90.22	0.20	7,424.30	3,831.16	-133.13	3,832.24	0.00	0.00	0.00	
11,200.00	90.22	0.20	7,423.93	3,931.16	-132.78	3,932.23	0.00	0.00	0.00	
11,300.00	90.22	0.20	7,423.55	4,031.16	-132.43	4,032.23	0.00	0.00	0.00	
11,400.00	90.22	0.20	7,423.18	4,131.16	-132.08	4,132.22	0.00	0.00	0.00	
11,500.00	90.22	0.20	7,422.80	4,231.16	-131.73	4,232.21	0.00	0.00	0.00	
11,600.00	90.22	0.20	7,422.43	4,331.16	-131.38	4,332.20	0.00	0.00	0.00	
11,700.00	90.22	0.20	7,422.05	4,431.15	-131.03	4,432.19	0.00	0.00	0.00	
11,800.00	90.22	0.20	7,421.68	4,531.15	-130.69	4,532.18	0.00	0.00	0.00	
11,900.00	90.22	0.20	7,421.30	4,631.15	-130.34	4,632.17	0.00	0.00	0.00	
12,000.00	90.22	0.20	7,420.93	4,731.15	-129.99	4,732.16	0.00	0.00	0.00	
12,100.00	90.22	0.20	7,420.55	4,831.15	-129.64	4,832.15	0.00	0.00	0.00	
12,200.00	90.22	0.20	7,420.18	4,931.15	-129.29	4,932.15	0.00	0.00	0.00	
12,300.00	90.22	0.20	7,419.80	5,031.15	-128.94	5,032.14	0.00	0.00	0.00	
12,400.00	90.22	0.20	7,419.43	5,131.15	-128.59	5,132.13	0.00	0.00	0.00	
12,500.00	90.22	0.20	7,419.05	5,231.14	-128.25	5,232.12	0.00	0.00	0.00	
12,600.00	90.22	0.20	7,418.68	5,331.14	-127.90	5,332.11	0.00	0.00	0.00	
12,700.00	90.22	0.20	7,418.30	5,431.14	-127.55	5,432.10	0.00	0.00	0.00	
12,800.00	90.22	0.20	7,417.92	5,531.14	-127.20	5,532.09	0.00	0.00	0.00	
12,900.00	90.22	0.20	7,417.55	5,631.14	-126.85	5,632.08	0.00	0.00	0.00	
13,000.00	90.22	0.20	7,417.17	5,731.14	-126.50	5,732.07	0.00	0.00	0.00	
13,100.00	90.22	0.20	7,416.80	5,831.14	-126.15	5,832.06	0.00	0.00	0.00	
13,200.00	90.22	0.20	7,416.42	5,931.14	-125.81	5,932.06	0.00	0.00	0.00	
13,300.00	90.22	0.20	7,416.05	6,031.13	-125.46	6,032.05	0.00	0.00	0.00	
13,400.00	90.22	0.20	7,415.67	6,131.13	-125.11	6,132.04	0.00	0.00	0.00	
13,500.00	90.22	0.20	7,415.30	6,231.13	-124.76	6,232.03	0.00	0.00	0.00	
13,600.00	90.22	0.20	7,414.92	6,331.13	-124.41	6,332.02	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,700.00	90.22	0.20	7,414.55	6,431.13	-124.06	6,432.01	0.00	0.00	0.00
13,800.00	90.22	0.20	7,414.17	6,531.13	-123.71	6,532.00	0.00	0.00	0.00
13,900.00	90.22	0.20	7,413.80	6,631.13	-123.36	6,631.99	0.00	0.00	0.00
14,000.00	90.22	0.20	7,413.42	6,731.12	-123.02	6,731.98	0.00	0.00	0.00
14,100.00	90.22	0.20	7,413.05	6,831.12	-122.67	6,831.97	0.00	0.00	0.00
14,200.00	90.22	0.20	7,412.67	6,931.12	-122.32	6,931.97	0.00	0.00	0.00
14,300.00	90.22	0.20	7,412.30	7,031.12	-121.97	7,031.96	0.00	0.00	0.00
14,400.00	90.22	0.20	7,411.92	7,131.12	-121.62	7,131.95	0.00	0.00	0.00
14,500.00	90.22	0.20	7,411.55	7,231.12	-121.27	7,231.94	0.00	0.00	0.00
14,600.00	90.22	0.20	7,411.17	7,331.12	-120.92	7,331.93	0.00	0.00	0.00
14,700.00	90.22	0.20	7,410.80	7,431.12	-120.58	7,431.92	0.00	0.00	0.00
14,800.00	90.22	0.20	7,410.42	7,531.11	-120.23	7,531.91	0.00	0.00	0.00
14,900.00	90.22	0.20	7,410.04	7,631.11	-119.88	7,631.90	0.00	0.00	0.00
15,000.00	90.22	0.20	7,409.67	7,731.11	-119.53	7,731.89	0.00	0.00	0.00
15,100.00	90.22	0.20	7,409.29	7,831.11	-119.18	7,831.88	0.00	0.00	0.00
15,200.00	90.22	0.20	7,408.92	7,931.11	-118.83	7,931.88	0.00	0.00	0.00
15,300.00	90.22	0.20	7,408.54	8,031.11	-118.48	8,031.87	0.00	0.00	0.00
15,400.00	90.22	0.20	7,408.17	8,131.11	-118.14	8,131.86	0.00	0.00	0.00
15,500.00	90.22	0.20	7,407.79	8,231.10	-117.79	8,231.85	0.00	0.00	0.00
15,600.00	90.22	0.20	7,407.42	8,331.10	-117.44	8,331.84	0.00	0.00	0.00
15,700.00	90.22	0.20	7,407.04	8,431.10	-117.09	8,431.83	0.00	0.00	0.00
15,800.00	90.22	0.20	7,406.67	8,531.10	-116.74	8,531.82	0.00	0.00	0.00
15,900.00	90.22	0.20	7,406.29	8,631.10	-116.39	8,631.81	0.00	0.00	0.00
16,000.00	90.22	0.20	7,405.92	8,731.10	-116.04	8,731.80	0.00	0.00	0.00
16,100.00	90.22	0.20	7,405.54	8,831.10	-115.69	8,831.79	0.00	0.00	0.00
16,200.00	90.22	0.20	7,405.17	8,931.10	-115.35	8,931.79	0.00	0.00	0.00
16,300.00	90.22	0.20	7,404.79	9,031.09	-115.00	9,031.78	0.00	0.00	0.00
16,400.00	90.22	0.20	7,404.42	9,131.09	-114.65	9,131.77	0.00	0.00	0.00
16,500.00	90.22	0.20	7,404.04	9,231.09	-114.30	9,231.76	0.00	0.00	0.00
16,600.00	90.22	0.20	7,403.67	9,331.09	-113.95	9,331.75	0.00	0.00	0.00
16,700.00	90.22	0.20	7,403.29	9,431.09	-113.60	9,431.74	0.00	0.00	0.00
16,800.00	90.22	0.20	7,402.91	9,531.09	-113.25	9,531.73	0.00	0.00	0.00
16,900.00	90.22	0.20	7,402.54	9,631.09	-112.91	9,631.72	0.00	0.00	0.00
17,000.00	90.22	0.20	7,402.16	9,731.09	-112.56	9,731.71	0.00	0.00	0.00
17,100.00	90.22	0.20	7,401.79	9,831.08	-112.21	9,831.70	0.00	0.00	0.00
17,200.00	90.22	0.20	7,401.41	9,931.08	-111.86	9,931.70	0.00	0.00	0.00
17,300.00	90.22	0.20	7,401.04	10,031.08	-111.51	10,031.69	0.00	0.00	0.00
17,400.00	90.22	0.20	7,400.66	10,131.08	-111.16	10,131.68	0.00	0.00	0.00
17,500.00	90.22	0.20	7,400.29	10,231.08	-110.81	10,231.67	0.00	0.00	0.00
17,600.00	90.22	0.20	7,399.91	10,331.08	-110.47	10,331.66	0.00	0.00	0.00
17,700.00	90.22	0.20	7,399.54	10,431.08	-110.12	10,431.65	0.00	0.00	0.00
17,800.00	90.22	0.20	7,399.16	10,531.07	-109.77	10,531.64	0.00	0.00	0.00
17,900.00	90.22	0.20	7,398.79	10,631.07	-109.42	10,631.63	0.00	0.00	0.00
18,000.00	90.22	0.20	7,398.41	10,731.07	-109.07	10,731.62	0.00	0.00	0.00
18,100.00	90.22	0.20	7,398.04	10,831.07	-108.72	10,831.61	0.00	0.00	0.00
18,200.00	90.22	0.20	7,397.66	10,931.07	-108.37	10,931.61	0.00	0.00	0.00
18,300.00	90.22	0.20	7,397.29	11,031.07	-108.02	11,031.60	0.00	0.00	0.00
18,400.00	90.22	0.20	7,396.91	11,131.07	-107.68	11,131.59	0.00	0.00	0.00
18,500.00	90.22	0.20	7,396.54	11,231.07	-107.33	11,231.58	0.00	0.00	0.00
18,600.00	90.22	0.20	7,396.16	11,331.06	-106.98	11,331.57	0.00	0.00	0.00
18,642.72	90.22	0.20	7,396.00	11,373.78	-106.83	11,374.28	0.00	0.00	0.00
VERDE 13-3HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-3HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 5112.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 5112.00usft (D Rig)
Site:	1N-66W-13 VERDE 4-13HZ PAD	North Reference:	True
Well:	VERDE 13-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
VERDE 13-3HZ_PBHI	0.00	0.00	7,396.00	11,373.78	-106.83	14,558,620.12	1,715,278.00	40.087257	-104.732346
- plan hits target center									
- Point									
VERDE 13-3HZ_PHL	0.00	0.00	7,436.65	539.74	-144.60	14,547,786.00	1,715,272.84	40.057505	-104.732481
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,803.50	1,800.00	9 5/8"	9-5/8	13-1/2	
7,808.53	7,436.65	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,618.02	1,615.00	Fox Hills				
4,325.10	4,319.00	Parkman				
4,678.10	4,672.00	Sussex				
7,246.35	7,206.00	Sharon Springs				
7,274.13	7,227.00	Niobrara				
7,472.07	7,351.00	Nio B				
7,624.78	7,411.00	Nio C				