

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
1N-66W-13 VERDE 4-13HZ PAD
VERDE 13-2HZ**

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 13-2HZ
Wellbore: Plan A
Design: Permit Rev-1

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1615.00	1625.64	Fox Hills
4319.00	4354.39	Parkman
4672.00	4707.39	Sussex
7211.00	7298.61	Sharon Springs
7232.00	7329.46	Niobrara
7371.00	7627.24	Nio B

WELL DETAILS: VERDE 13-2HZ

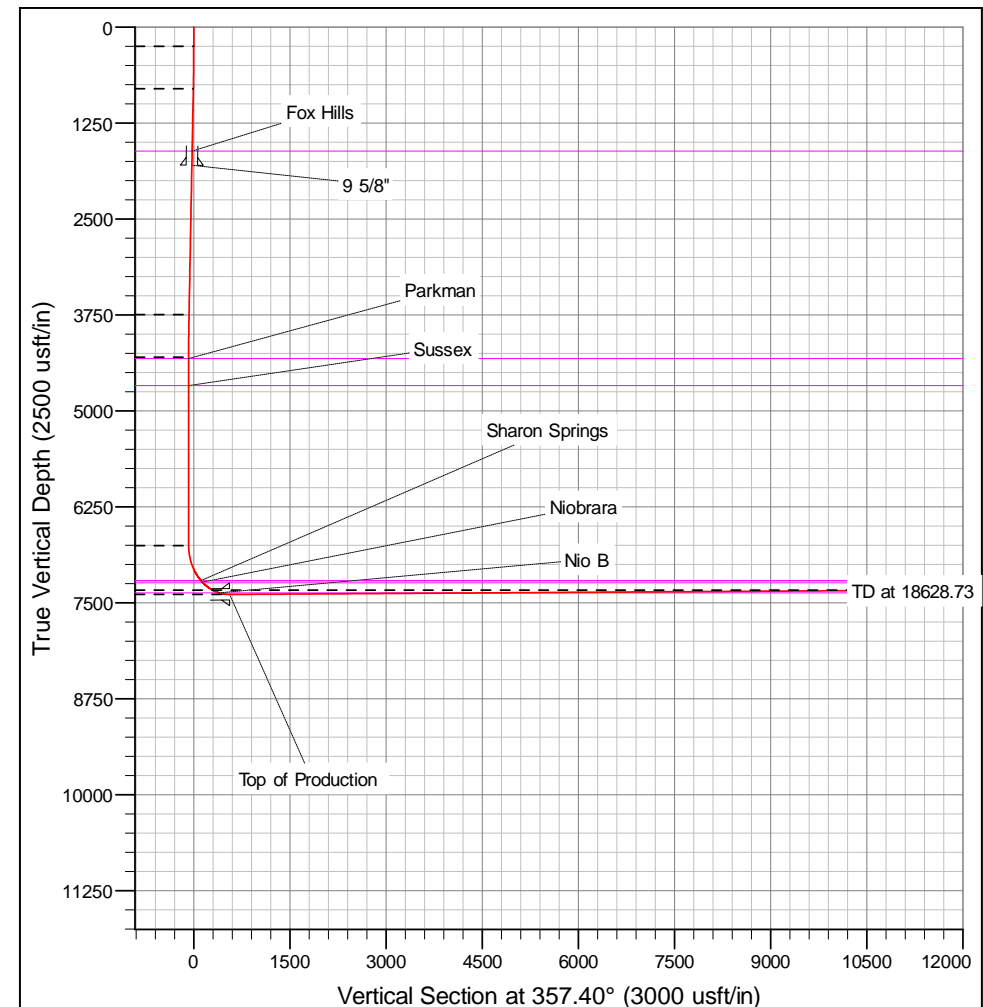
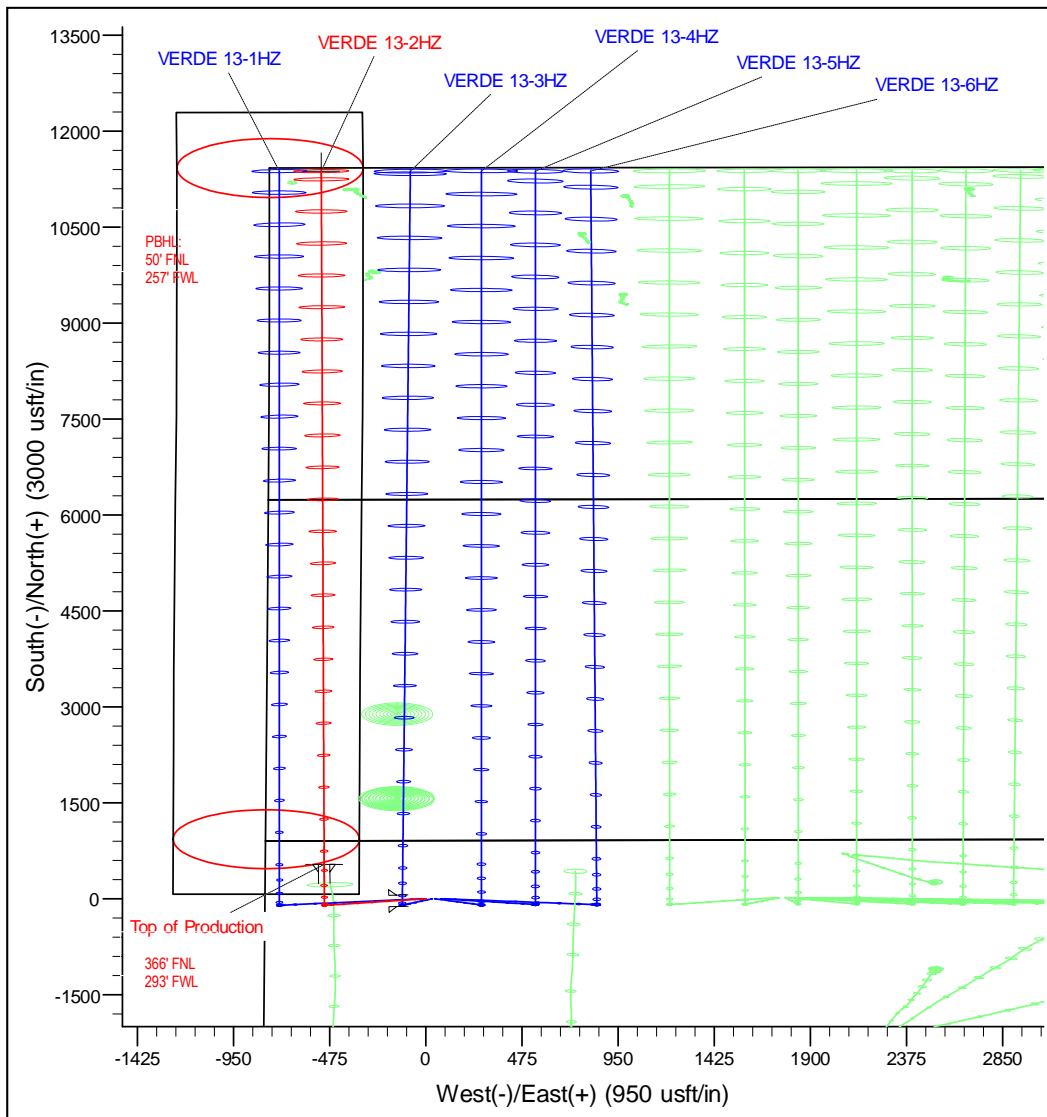
+N/-S	+E/-W	GL: 5095.00 Northing	RKB @ 5112.00usft (D Rig) Easting	Latitude	Longitude	Slot
0.00	0.00	14547246.98	1715389.13	40.056024	-104.732071	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
VERDE 13-2HZ_PBHL	7337.00	11372.28	-516.90	14558617.65	1714838.00	40.087254	-104.733919

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	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
806.20	8.34	258.48	804.23	-8.07	-39.61	1.50	-6.27
3779.19	8.34	258.48	3745.77	-94.24	-462.29	0.00	-73.15
4335.39	0.00	0.00	4300.00	-102.31	-501.90	1.50	-79.42
6790.62	0.00	0.00	6755.23	-102.31	-501.90	0.00	-79.42
7793.84	90.29	359.93	7391.84	537.53	-502.74	9.00	559.80
18628.73	90.29	359.93	7337.00	11372.28	-516.90	0.00	1384.02



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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 13-2HZ					
Well Position	+N-S	0.00 usft	Northing:	14,547,246.98 usft	Latitude:	40.056024
	+E-W	15.11 usft	Easting:	1,715,389.13 usft	Longitude:	-104.732071
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	52,324.00875587

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	357.40

Plan Survey Tool Program	Date	6/5/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,812.61	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:standard declination	
2	1,812.61	18,628.73	Permit Rev-1 (Plan A)	APC_ISCWSA REV 2 MWI Fixed:v2:Rockies, crustal dex	

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 13-2HZ	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	
806.20	8.34	258.48	804.23	-8.07	-39.61	1.50	1.50	0.00	258.48	
3,779.19	8.34	258.48	3,745.77	-94.24	-462.29	0.00	0.00	0.00	0.00	
4,335.39	0.00	0.00	4,300.00	-102.31	-501.90	1.50	-1.50	0.00	180.00	
6,790.62	0.00	0.00	6,755.23	-102.31	-501.90	0.00	0.00	0.00	0.00	
7,793.84	90.29	359.93	7,391.84	537.53	-502.74	9.00	9.00	0.00	359.93	
18,628.73	90.29	359.93	7,337.00	11,372.28	-516.90	0.00	0.00	0.00	0.00	VERDE 13-2HZ_PE

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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	258.48	300.00	-0.07	-0.32	-0.05	1.50	1.50	0.00
400.00	2.25	258.48	399.96	-0.59	-2.89	-0.46	1.50	1.50	0.00
500.00	3.75	258.48	499.82	-1.63	-8.01	-1.27	1.50	1.50	0.00
600.00	5.25	258.48	599.51	-3.20	-15.70	-2.48	1.50	1.50	0.00
700.00	6.75	258.48	698.96	-5.29	-25.94	-4.10	1.50	1.50	0.00
800.00	8.25	258.48	798.10	-7.90	-38.73	-6.13	1.50	1.50	0.00
806.20	8.34	258.48	804.23	-8.07	-39.61	-6.27	1.50	1.50	0.00
900.00	8.34	258.48	897.04	-10.79	-52.94	-8.38	0.00	0.00	0.00
1,000.00	8.34	258.48	995.99	-13.69	-67.16	-10.63	0.00	0.00	0.00
1,100.00	8.34	258.48	1,094.93	-16.59	-81.38	-12.88	0.00	0.00	0.00
1,200.00	8.34	258.48	1,193.87	-19.49	-95.60	-15.13	0.00	0.00	0.00
1,300.00	8.34	258.48	1,292.81	-22.39	-109.81	-17.38	0.00	0.00	0.00
1,400.00	8.34	258.48	1,391.75	-25.28	-124.03	-19.63	0.00	0.00	0.00
1,500.00	8.34	258.48	1,490.69	-28.18	-138.25	-21.88	0.00	0.00	0.00
1,600.00	8.34	258.48	1,589.64	-31.08	-152.47	-24.12	0.00	0.00	0.00
1,625.64	8.34	258.48	1,615.00	-31.82	-156.11	-24.70	0.00	0.00	0.00
Fox Hills									
1,700.00	8.34	258.48	1,688.58	-33.98	-166.68	-26.37	0.00	0.00	0.00
1,800.00	8.34	258.48	1,787.52	-36.88	-180.90	-28.62	0.00	0.00	0.00
1,812.61	8.34	258.48	1,800.00	-37.24	-182.69	-28.91	0.00	0.00	0.00
9 5/8"									
1,900.00	8.34	258.48	1,886.46	-39.77	-195.12	-30.87	0.00	0.00	0.00
2,000.00	8.34	258.48	1,985.40	-42.67	-209.34	-33.12	0.00	0.00	0.00
2,100.00	8.34	258.48	2,084.34	-45.57	-223.55	-35.37	0.00	0.00	0.00
2,200.00	8.34	258.48	2,183.29	-48.47	-237.77	-37.62	0.00	0.00	0.00
2,300.00	8.34	258.48	2,282.23	-51.37	-251.99	-39.87	0.00	0.00	0.00
2,400.00	8.34	258.48	2,381.17	-54.26	-266.21	-42.12	0.00	0.00	0.00
2,500.00	8.34	258.48	2,480.11	-57.16	-280.42	-44.37	0.00	0.00	0.00
2,600.00	8.34	258.48	2,579.05	-60.06	-294.64	-46.62	0.00	0.00	0.00
2,700.00	8.34	258.48	2,678.00	-62.96	-308.86	-48.87	0.00	0.00	0.00
2,800.00	8.34	258.48	2,776.94	-65.86	-323.08	-51.12	0.00	0.00	0.00
2,900.00	8.34	258.48	2,875.88	-68.76	-337.29	-53.37	0.00	0.00	0.00
3,000.00	8.34	258.48	2,974.82	-71.65	-351.51	-55.62	0.00	0.00	0.00
3,100.00	8.34	258.48	3,073.76	-74.55	-365.73	-57.87	0.00	0.00	0.00
3,200.00	8.34	258.48	3,172.70	-77.45	-379.95	-60.12	0.00	0.00	0.00
3,300.00	8.34	258.48	3,271.65	-80.35	-394.16	-62.37	0.00	0.00	0.00
3,400.00	8.34	258.48	3,370.59	-83.25	-408.38	-64.62	0.00	0.00	0.00
3,500.00	8.34	258.48	3,469.53	-86.14	-422.60	-66.87	0.00	0.00	0.00
3,600.00	8.34	258.48	3,568.47	-89.04	-436.82	-69.12	0.00	0.00	0.00
3,700.00	8.34	258.48	3,667.41	-91.94	-451.03	-71.37	0.00	0.00	0.00
3,779.19	8.34	258.48	3,745.77	-94.24	-462.29	-73.15	0.00	0.00	0.00
3,800.00	8.03	258.48	3,766.36	-94.83	-465.19	-73.61	1.50	-1.50	0.00
3,900.00	6.53	258.48	3,865.55	-97.36	-477.61	-75.57	1.50	-1.50	0.00
4,000.00	5.03	258.48	3,965.04	-99.37	-487.48	-77.13	1.50	-1.50	0.00
4,100.00	3.53	258.48	4,064.76	-100.86	-494.80	-78.29	1.50	-1.50	0.00
4,200.00	2.03	258.48	4,164.64	-101.83	-499.55	-79.04	1.50	-1.50	0.00
4,300.00	0.53	258.48	4,264.61	-102.28	-501.74	-79.39	1.50	-1.50	0.00
4,335.39	0.00	0.00	4,300.00	-102.31	-501.90	-79.42	1.50	-1.50	0.00
4,354.39	0.00	0.00	4,319.00	-102.31	-501.90	-79.42	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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	4,364.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
4,500.00	0.00	0.00	4,464.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
4,600.00	0.00	0.00	4,564.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
4,700.00	0.00	0.00	4,664.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
4,707.39	0.00	0.00	4,672.00	-102.31	-501.90	-79.42	0.00	0.00	0.00
Sussex									
4,800.00	0.00	0.00	4,764.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
4,900.00	0.00	0.00	4,864.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,000.00	0.00	0.00	4,964.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,100.00	0.00	0.00	5,064.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,200.00	0.00	0.00	5,164.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,300.00	0.00	0.00	5,264.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,400.00	0.00	0.00	5,364.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,500.00	0.00	0.00	5,464.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,600.00	0.00	0.00	5,564.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,700.00	0.00	0.00	5,664.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,800.00	0.00	0.00	5,764.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
5,900.00	0.00	0.00	5,864.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,000.00	0.00	0.00	5,964.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,100.00	0.00	0.00	6,064.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,200.00	0.00	0.00	6,164.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,264.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,364.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,464.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,564.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,664.61	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,790.62	0.00	0.00	6,755.23	-102.31	-501.90	-79.42	0.00	0.00	0.00
6,800.00	0.84	359.93	6,764.61	-102.24	-501.90	-79.35	9.00	9.00	0.00
6,900.00	9.84	359.93	6,864.07	-92.94	-501.91	-70.05	9.00	9.00	0.00
7,000.00	18.84	359.93	6,960.86	-68.19	-501.94	-45.33	9.00	9.00	0.00
7,100.00	27.84	359.93	7,052.58	-28.60	-502.00	-5.78	9.00	9.00	0.00
7,200.00	36.84	359.93	7,136.97	24.84	-502.07	47.62	9.00	9.00	0.00
7,298.61	45.72	359.93	7,211.00	89.84	-502.15	112.54	9.00	9.00	0.00
Sharon Springs									
7,300.00	45.84	359.93	7,211.97	90.83	-502.15	113.54	9.00	9.00	0.00
7,329.46	48.50	359.93	7,232.00	112.44	-502.18	135.13	9.00	9.00	0.00
Niobrara									
7,400.00	54.84	359.93	7,275.72	167.74	-502.25	190.38	9.00	9.00	0.00
7,500.00	63.84	359.93	7,326.66	253.68	-502.37	276.23	9.00	9.00	0.00
7,600.00	72.84	359.93	7,363.52	346.53	-502.49	368.99	9.00	9.00	0.00
7,627.24	75.30	359.93	7,371.00	372.72	-502.52	395.16	9.00	9.00	0.00
Nio B									
7,700.00	81.84	359.93	7,385.41	444.00	-502.61	466.36	9.00	9.00	0.00
7,793.84	90.29	359.93	7,391.84	537.53	-502.74	559.80	9.00	9.00	0.00
Top of Production - VERDE 13-2HZ_PHL									
7,800.00	90.29	359.93	7,391.81	543.69	-502.74	565.96	0.00	0.00	0.00
7,900.00	90.29	359.93	7,391.30	643.69	-502.88	665.86	0.00	0.00	0.00
8,000.00	90.29	359.93	7,390.80	743.69	-503.01	765.76	0.00	0.00	0.00
8,100.00	90.29	359.93	7,390.29	843.69	-503.14	865.66	0.00	0.00	0.00
8,200.00	90.29	359.93	7,389.78	943.69	-503.27	965.56	0.00	0.00	0.00
8,300.00	90.29	359.93	7,389.28	1,043.68	-503.40	1,065.47	0.00	0.00	0.00
8,400.00	90.29	359.93	7,388.77	1,143.68	-503.53	1,165.37	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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)
8,500.00	90.29	359.93	7,388.27	1,243.68	-503.66	1,265.27	0.00	0.00	0.00
8,600.00	90.29	359.93	7,387.76	1,343.68	-503.79	1,365.17	0.00	0.00	0.00
8,700.00	90.29	359.93	7,387.25	1,443.68	-503.92	1,465.07	0.00	0.00	0.00
8,800.00	90.29	359.93	7,386.75	1,543.68	-504.05	1,564.97	0.00	0.00	0.00
8,900.00	90.29	359.93	7,386.24	1,643.68	-504.18	1,664.87	0.00	0.00	0.00
9,000.00	90.29	359.93	7,385.74	1,743.68	-504.31	1,764.78	0.00	0.00	0.00
9,100.00	90.29	359.93	7,385.23	1,843.67	-504.44	1,864.68	0.00	0.00	0.00
9,200.00	90.29	359.93	7,384.72	1,943.67	-504.57	1,964.58	0.00	0.00	0.00
9,300.00	90.29	359.93	7,384.22	2,043.67	-504.71	2,064.48	0.00	0.00	0.00
9,400.00	90.29	359.93	7,383.71	2,143.67	-504.84	2,164.38	0.00	0.00	0.00
9,500.00	90.29	359.93	7,383.20	2,243.67	-504.97	2,264.28	0.00	0.00	0.00
9,600.00	90.29	359.93	7,382.70	2,343.67	-505.10	2,364.18	0.00	0.00	0.00
9,700.00	90.29	359.93	7,382.19	2,443.67	-505.23	2,464.09	0.00	0.00	0.00
9,800.00	90.29	359.93	7,381.69	2,543.66	-505.36	2,563.99	0.00	0.00	0.00
9,900.00	90.29	359.93	7,381.18	2,643.66	-505.49	2,663.89	0.00	0.00	0.00
10,000.00	90.29	359.93	7,380.67	2,743.66	-505.62	2,763.79	0.00	0.00	0.00
10,100.00	90.29	359.93	7,380.17	2,843.66	-505.75	2,863.69	0.00	0.00	0.00
10,200.00	90.29	359.93	7,379.66	2,943.66	-505.88	2,963.59	0.00	0.00	0.00
10,300.00	90.29	359.93	7,379.16	3,043.66	-506.01	3,063.49	0.00	0.00	0.00
10,400.00	90.29	359.93	7,378.65	3,143.66	-506.14	3,163.40	0.00	0.00	0.00
10,500.00	90.29	359.93	7,378.14	3,243.65	-506.27	3,263.30	0.00	0.00	0.00
10,600.00	90.29	359.93	7,377.64	3,343.65	-506.40	3,363.20	0.00	0.00	0.00
10,700.00	90.29	359.93	7,377.13	3,443.65	-506.54	3,463.10	0.00	0.00	0.00
10,800.00	90.29	359.93	7,376.62	3,543.65	-506.67	3,563.00	0.00	0.00	0.00
10,900.00	90.29	359.93	7,376.12	3,643.65	-506.80	3,662.90	0.00	0.00	0.00
11,000.00	90.29	359.93	7,375.61	3,743.65	-506.93	3,762.80	0.00	0.00	0.00
11,100.00	90.29	359.93	7,375.11	3,843.65	-507.06	3,862.71	0.00	0.00	0.00
11,200.00	90.29	359.93	7,374.60	3,943.65	-507.19	3,962.61	0.00	0.00	0.00
11,300.00	90.29	359.93	7,374.09	4,043.64	-507.32	4,062.51	0.00	0.00	0.00
11,400.00	90.29	359.93	7,373.59	4,143.64	-507.45	4,162.41	0.00	0.00	0.00
11,500.00	90.29	359.93	7,373.08	4,243.64	-507.58	4,262.31	0.00	0.00	0.00
11,600.00	90.29	359.93	7,372.58	4,343.64	-507.71	4,362.21	0.00	0.00	0.00
11,700.00	90.29	359.93	7,372.07	4,443.64	-507.84	4,462.11	0.00	0.00	0.00
11,800.00	90.29	359.93	7,371.56	4,543.64	-507.97	4,562.02	0.00	0.00	0.00
11,900.00	90.29	359.93	7,371.06	4,643.64	-508.10	4,661.92	0.00	0.00	0.00
12,000.00	90.29	359.93	7,370.55	4,743.63	-508.23	4,761.82	0.00	0.00	0.00
12,100.00	90.29	359.93	7,370.04	4,843.63	-508.37	4,861.72	0.00	0.00	0.00
12,200.00	90.29	359.93	7,369.54	4,943.63	-508.50	4,961.62	0.00	0.00	0.00
12,300.00	90.29	359.93	7,369.03	5,043.63	-508.63	5,061.52	0.00	0.00	0.00
12,400.00	90.29	359.93	7,368.53	5,143.63	-508.76	5,161.42	0.00	0.00	0.00
12,500.00	90.29	359.93	7,368.02	5,243.63	-508.89	5,261.33	0.00	0.00	0.00
12,600.00	90.29	359.93	7,367.51	5,343.63	-509.02	5,361.23	0.00	0.00	0.00
12,700.00	90.29	359.93	7,367.01	5,443.62	-509.15	5,461.13	0.00	0.00	0.00
12,800.00	90.29	359.93	7,366.50	5,543.62	-509.28	5,561.03	0.00	0.00	0.00
12,900.00	90.29	359.93	7,366.00	5,643.62	-509.41	5,660.93	0.00	0.00	0.00
13,000.00	90.29	359.93	7,365.49	5,743.62	-509.54	5,760.83	0.00	0.00	0.00
13,100.00	90.29	359.93	7,364.98	5,843.62	-509.67	5,860.73	0.00	0.00	0.00
13,200.00	90.29	359.93	7,364.48	5,943.62	-509.80	5,960.64	0.00	0.00	0.00
13,300.00	90.29	359.93	7,363.97	6,043.62	-509.93	6,060.54	0.00	0.00	0.00
13,400.00	90.29	359.93	7,363.47	6,143.62	-510.06	6,160.44	0.00	0.00	0.00
13,500.00	90.29	359.93	7,362.96	6,243.61	-510.20	6,260.34	0.00	0.00	0.00
13,600.00	90.29	359.93	7,362.45	6,343.61	-510.33	6,360.24	0.00	0.00	0.00
13,700.00	90.29	359.93	7,361.95	6,443.61	-510.46	6,460.14	0.00	0.00	0.00
13,800.00	90.29	359.93	7,361.44	6,543.61	-510.59	6,560.04	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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)
13,900.00	90.29	359.93	7,360.93	6,643.61	-510.72	6,659.95	0.00	0.00	0.00
14,000.00	90.29	359.93	7,360.43	6,743.61	-510.85	6,759.85	0.00	0.00	0.00
14,100.00	90.29	359.93	7,359.92	6,843.61	-510.98	6,859.75	0.00	0.00	0.00
14,200.00	90.29	359.93	7,359.42	6,943.60	-511.11	6,959.65	0.00	0.00	0.00
14,300.00	90.29	359.93	7,358.91	7,043.60	-511.24	7,059.55	0.00	0.00	0.00
14,400.00	90.29	359.93	7,358.40	7,143.60	-511.37	7,159.45	0.00	0.00	0.00
14,500.00	90.29	359.93	7,357.90	7,243.60	-511.50	7,259.35	0.00	0.00	0.00
14,600.00	90.29	359.93	7,357.39	7,343.60	-511.63	7,359.26	0.00	0.00	0.00
14,700.00	90.29	359.93	7,356.89	7,443.60	-511.76	7,459.16	0.00	0.00	0.00
14,800.00	90.29	359.93	7,356.38	7,543.60	-511.90	7,559.06	0.00	0.00	0.00
14,900.00	90.29	359.93	7,355.87	7,643.59	-512.03	7,658.96	0.00	0.00	0.00
15,000.00	90.29	359.93	7,355.37	7,743.59	-512.16	7,758.86	0.00	0.00	0.00
15,100.00	90.29	359.93	7,354.86	7,843.59	-512.29	7,858.76	0.00	0.00	0.00
15,200.00	90.29	359.93	7,354.35	7,943.59	-512.42	7,958.66	0.00	0.00	0.00
15,300.00	90.29	359.93	7,353.85	8,043.59	-512.55	8,058.57	0.00	0.00	0.00
15,400.00	90.29	359.93	7,353.34	8,143.59	-512.68	8,158.47	0.00	0.00	0.00
15,500.00	90.29	359.93	7,352.84	8,243.59	-512.81	8,258.37	0.00	0.00	0.00
15,600.00	90.29	359.93	7,352.33	8,343.59	-512.94	8,358.27	0.00	0.00	0.00
15,700.00	90.29	359.93	7,351.82	8,443.58	-513.07	8,458.17	0.00	0.00	0.00
15,800.00	90.29	359.93	7,351.32	8,543.58	-513.20	8,558.07	0.00	0.00	0.00
15,900.00	90.29	359.93	7,350.81	8,643.58	-513.33	8,657.97	0.00	0.00	0.00
16,000.00	90.29	359.93	7,350.31	8,743.58	-513.46	8,757.88	0.00	0.00	0.00
16,100.00	90.29	359.93	7,349.80	8,843.58	-513.59	8,857.78	0.00	0.00	0.00
16,200.00	90.29	359.93	7,349.29	8,943.58	-513.73	8,957.68	0.00	0.00	0.00
16,300.00	90.29	359.93	7,348.79	9,043.58	-513.86	9,057.58	0.00	0.00	0.00
16,400.00	90.29	359.93	7,348.28	9,143.57	-513.99	9,157.48	0.00	0.00	0.00
16,500.00	90.29	359.93	7,347.77	9,243.57	-514.12	9,257.38	0.00	0.00	0.00
16,600.00	90.29	359.93	7,347.27	9,343.57	-514.25	9,357.28	0.00	0.00	0.00
16,700.00	90.29	359.93	7,346.76	9,443.57	-514.38	9,457.19	0.00	0.00	0.00
16,800.00	90.29	359.93	7,346.26	9,543.57	-514.51	9,557.09	0.00	0.00	0.00
16,900.00	90.29	359.93	7,345.75	9,643.57	-514.64	9,656.99	0.00	0.00	0.00
17,000.00	90.29	359.93	7,345.24	9,743.57	-514.77	9,756.89	0.00	0.00	0.00
17,100.00	90.29	359.93	7,344.74	9,843.56	-514.90	9,856.79	0.00	0.00	0.00
17,200.00	90.29	359.93	7,344.23	9,943.56	-515.03	9,956.69	0.00	0.00	0.00
17,300.00	90.29	359.93	7,343.73	10,043.56	-515.16	10,056.59	0.00	0.00	0.00
17,400.00	90.29	359.93	7,343.22	10,143.56	-515.29	10,156.50	0.00	0.00	0.00
17,500.00	90.29	359.93	7,342.71	10,243.56	-515.42	10,256.40	0.00	0.00	0.00
17,600.00	90.29	359.93	7,342.21	10,343.56	-515.56	10,356.30	0.00	0.00	0.00
17,700.00	90.29	359.93	7,341.70	10,443.56	-515.69	10,456.20	0.00	0.00	0.00
17,800.00	90.29	359.93	7,341.19	10,543.56	-515.82	10,556.10	0.00	0.00	0.00
17,900.00	90.29	359.93	7,340.69	10,643.55	-515.95	10,656.00	0.00	0.00	0.00
18,000.00	90.29	359.93	7,340.18	10,743.55	-516.08	10,755.90	0.00	0.00	0.00
18,100.00	90.29	359.93	7,339.68	10,843.55	-516.21	10,855.81	0.00	0.00	0.00
18,200.00	90.29	359.93	7,339.17	10,943.55	-516.34	10,955.71	0.00	0.00	0.00
18,300.00	90.29	359.93	7,338.66	11,043.55	-516.47	11,055.61	0.00	0.00	0.00
18,400.00	90.29	359.93	7,338.16	11,143.55	-516.60	11,155.51	0.00	0.00	0.00
18,500.00	90.29	359.93	7,337.65	11,243.55	-516.73	11,255.41	0.00	0.00	0.00
18,600.00	90.29	359.93	7,337.15	11,343.54	-516.86	11,355.31	0.00	0.00	0.00
18,628.73	90.29	359.93	7,337.00	11,372.28	-516.90	11,384.02	0.00	0.00	0.00
VERDE 13-2HZ_PBHL									

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well VERDE 13-2HZ
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 13-2HZ	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 13-2HZ_PBHI	0.00	0.00	7,337.00	11,372.28	-516.90	14,558,617.65	1,714,838.00	40.087254	-104.733919
- plan hits target center									
- Point									
VERDE 13-2HZ_PHL	0.00	0.00	7,391.84	537.53	-502.74	14,547,783.00	1,714,884.77	40.057500	-104.733868
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,812.61	1,800.00	9 5/8"	9-5/8	13-1/2	
7,793.84	7,391.84	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,625.64	1,615.00	Fox Hills				
4,354.39	4,319.00	Parkman				
4,707.39	4,672.00	Sussex				
7,298.61	7,211.00	Sharon Springs				
7,329.46	7,232.00	Niobrara				
7,627.24	7,371.00	Nio B				