

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-33 BABCOCK 6-4HZ Pad
BABCOCK 19N-33HZ**

Plan A

Plan: Permit Rev-3

Standard Planning Report

10 May, 2016



Azimuths to True North
Magnetic North: 8.27°

Magnetic Field
Strength: 52490.2snT
Dip Angle: 66.68°
Date: 4/4/2016
Model: IGRF2010

SITE: 3N-67W-33 BABCOCK 6-4HZ Pad

Well: BABCOCK 19N-33HZ
Wellbore: Plan A
Design: Permit Rev-3

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
975.00	976.23	Fox Hills
4576.00	4687.26	Sussex
7052.00	7246.42	Sharon Springs
7138.00	7392.70	Niobrara
7185.00	7506.65	Nio B

WELL DETAILS: BABCOCK 19N-33HZ

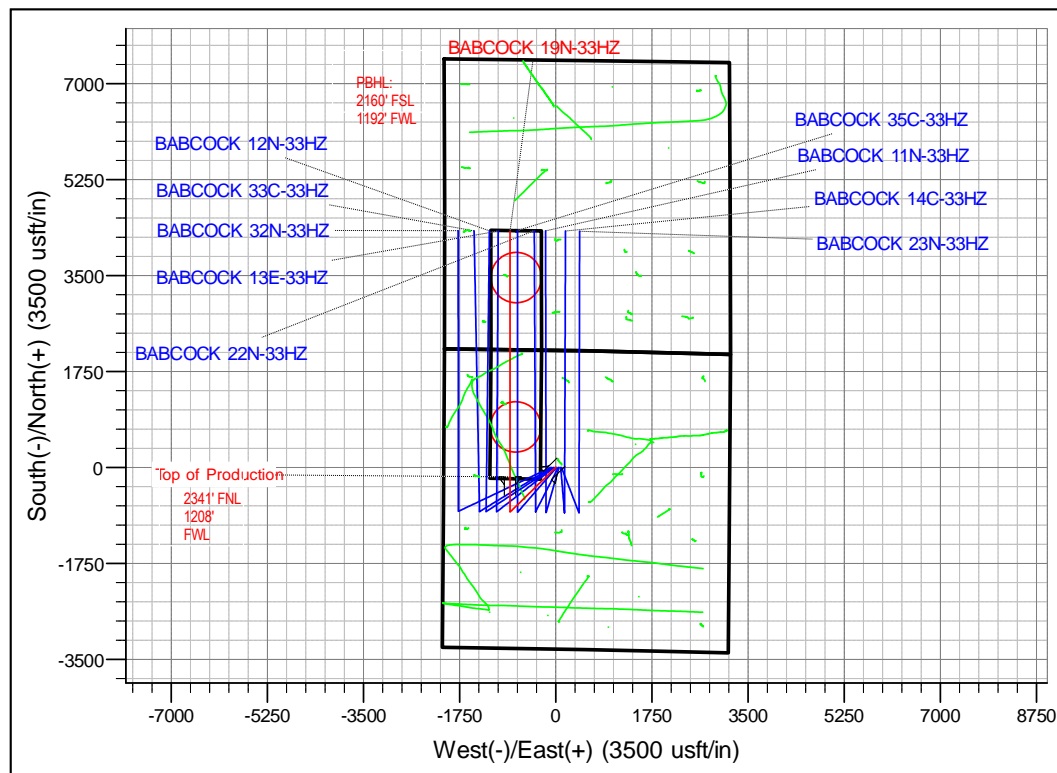
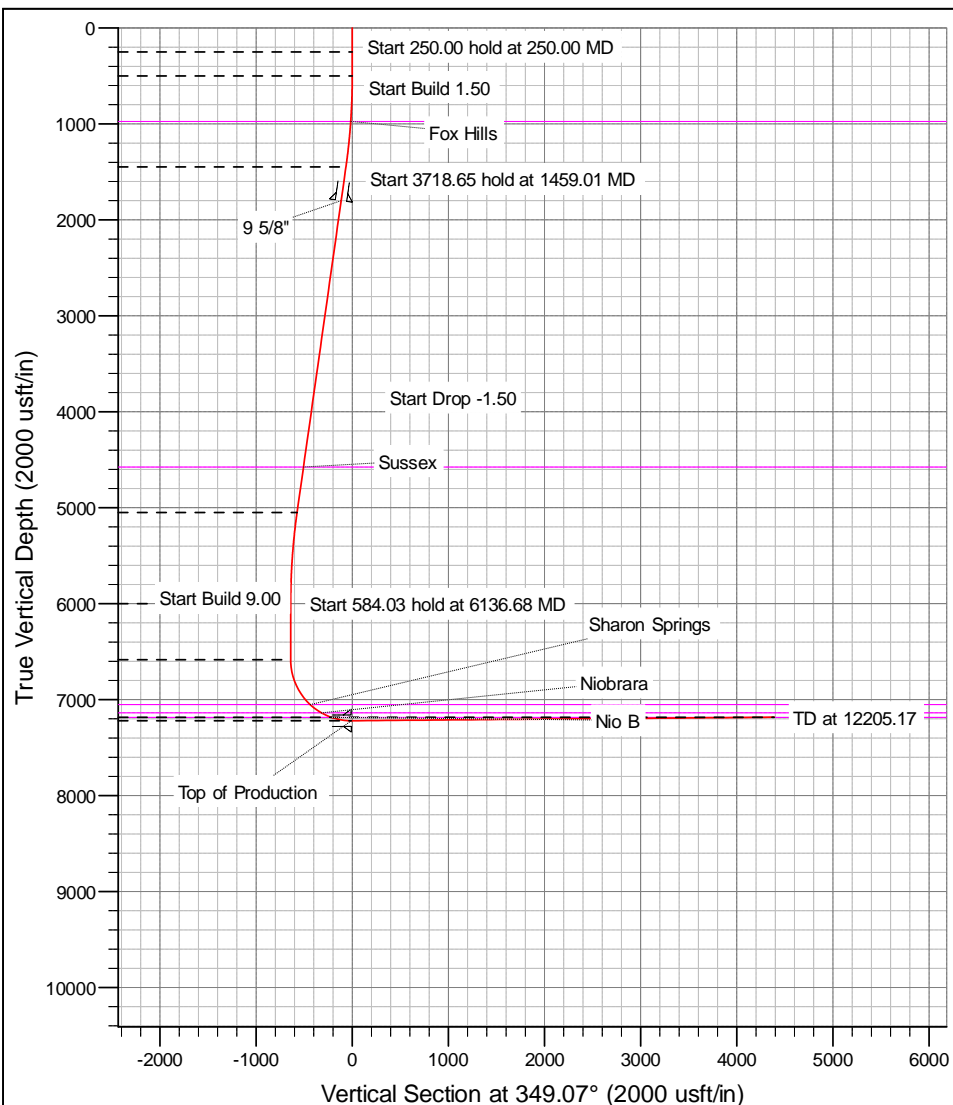
+N/-S	+E/-W	GL: 4887.00	RKB @ 4904.00usft (D Rig)	Longitude	Slot
0.00	0.00	Northing 14588357.39	Easting 1669161.27	Latitude 40.169183	-104.897105

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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
1459.01	14.39	225.67	1448.97	-83.69	-85.66	1.50	-65.92
5177.66	14.39	225.67	5051.03	-729.31	-746.49	0.00	-574.49
6136.68	0.00	0.00	6000.00	-813.00	-832.15	1.50	-640.42
6720.70	0.00	0.00	6584.03	-813.00	-832.15	0.00	-640.42
7725.91	90.47	360.00	7220.63	-171.17	-832.15	9.00	-10.24
12205.17	90.47	360.00	7184.00	4307.94	-832.15	0.00	4387.58

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BABCOCK 19N-33HZ PBHL	7184.00	4307.94	-832.15	14592664.37	1668324.13	40.181013	-104.900084



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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BABCOCK 19N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4904.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4904.00usft (D Rig)
Site:	3N-67W-33 BABCOCK 6-4HZ Pad	North Reference:	True
Well:	BABCOCK 19N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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						3N-67W-33 BABCOCK 6-4HZ Pad											
Site Position:						Northing:			14,588,357.65 usft			Latitude:			40.169184		
From:			Lat/Long			Easting:			1,669,071.31 usft			Longitude:			-104.897427		
Position Uncertainty:			0.00 usft			Slot Radius:			13-3/16 "			Grid Convergence:			0.07		

Well	BABCOCK 19N-33HZ					
Well Position	+N/-S	-0.36 usft	Northing:	14,588,357.39 usft	Latitude:	40.169183
	+E/-W	89.95 usft	Easting:	1,669,161.27 usft	Longitude:	-104.897105
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,887.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/4/2016	8.27	66.68	52,490

Design	Permit Rev-3				
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	349.07	

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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,459.01	14.39	225.67	1,448.97	-83.69	-85.66	1.50	1.50	0.00	225.67	
5,177.66	14.39	225.67	5,051.03	-729.31	-746.49	0.00	0.00	0.00	0.00	
6,136.68	0.00	0.00	6,000.00	-813.00	-832.15	1.50	-1.50	0.00	180.00	
6,720.70	0.00	0.00	6,584.03	-813.00	-832.15	0.00	0.00	0.00	0.00	
7,725.91	90.47	360.00	7,220.63	-171.17	-832.15	9.00	9.00	0.00	360.00	
12,205.17	90.47	360.00	7,184.00	4,307.94	-832.15	0.00	0.00	0.00	0.00	BABCOCK 19N-33H

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BABCOCK 19N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4904.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4904.00usft (D Rig)
Site:	3N-67W-33 BABCOCK 6-4HZ Pad	North Reference:	True
Well:	BABCOCK 19N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	1.50	225.67	599.99	-0.91	-0.94	-0.72	1.50	1.50	0.00
700.00	3.00	225.67	699.91	-3.66	-3.74	-2.88	1.50	1.50	0.00
800.00	4.50	225.67	799.69	-8.23	-8.42	-6.48	1.50	1.50	0.00
900.00	6.00	225.67	899.27	-14.62	-14.97	-11.52	1.50	1.50	0.00
976.23	7.14	225.67	975.00	-20.72	-21.21	-16.32	1.50	1.50	0.00
Fox Hills									
1,000.00	7.50	225.67	998.57	-22.84	-23.37	-17.99	1.50	1.50	0.00
1,100.00	9.00	225.67	1,097.54	-32.86	-33.64	-25.89	1.50	1.50	0.00
1,200.00	10.50	225.67	1,196.09	-44.70	-45.75	-35.21	1.50	1.50	0.00
1,300.00	12.00	225.67	1,294.16	-58.33	-59.71	-45.95	1.50	1.50	0.00
1,400.00	13.50	225.67	1,391.70	-73.75	-75.49	-58.10	1.50	1.50	0.00
1,459.01	14.39	225.67	1,448.97	-83.69	-85.66	-65.92	1.50	1.50	0.00
1,500.00	14.39	225.67	1,488.67	-90.81	-92.95	-71.53	0.00	0.00	0.00
1,600.00	14.39	225.67	1,585.54	-108.17	-110.72	-85.21	0.00	0.00	0.00
1,700.00	14.39	225.67	1,682.40	-125.53	-128.49	-98.88	0.00	0.00	0.00
1,800.00	14.39	225.67	1,779.27	-142.89	-146.26	-112.56	0.00	0.00	0.00
1,821.41	14.39	225.67	1,800.00	-146.61	-150.06	-115.49	0.00	0.00	0.00
9 5/8"									
1,900.00	14.39	225.67	1,876.13	-160.25	-164.03	-126.23	0.00	0.00	0.00
2,000.00	14.39	225.67	1,973.00	-177.61	-181.80	-139.91	0.00	0.00	0.00
2,100.00	14.39	225.67	2,069.86	-194.98	-199.57	-153.59	0.00	0.00	0.00
2,200.00	14.39	225.67	2,166.72	-212.34	-217.34	-167.26	0.00	0.00	0.00
2,300.00	14.39	225.67	2,263.59	-229.70	-235.11	-180.94	0.00	0.00	0.00
2,400.00	14.39	225.67	2,360.45	-247.06	-252.88	-194.62	0.00	0.00	0.00
2,500.00	14.39	225.67	2,457.32	-264.42	-270.65	-208.29	0.00	0.00	0.00
2,600.00	14.39	225.67	2,554.18	-281.78	-288.42	-221.97	0.00	0.00	0.00
2,700.00	14.39	225.67	2,651.05	-299.15	-306.19	-235.64	0.00	0.00	0.00
2,800.00	14.39	225.67	2,747.91	-316.51	-323.96	-249.32	0.00	0.00	0.00
2,900.00	14.39	225.67	2,844.78	-333.87	-341.73	-263.00	0.00	0.00	0.00
3,000.00	14.39	225.67	2,941.64	-351.23	-359.50	-276.67	0.00	0.00	0.00
3,100.00	14.39	225.67	3,038.51	-368.59	-377.27	-290.35	0.00	0.00	0.00
3,200.00	14.39	225.67	3,135.37	-385.95	-395.05	-304.02	0.00	0.00	0.00
3,300.00	14.39	225.67	3,232.24	-403.32	-412.82	-317.70	0.00	0.00	0.00
3,400.00	14.39	225.67	3,329.10	-420.68	-430.59	-331.38	0.00	0.00	0.00
3,500.00	14.39	225.67	3,425.97	-438.04	-448.36	-345.05	0.00	0.00	0.00
3,600.00	14.39	225.67	3,522.83	-455.40	-466.13	-358.73	0.00	0.00	0.00
3,700.00	14.39	225.67	3,619.70	-472.76	-483.90	-372.41	0.00	0.00	0.00
3,800.00	14.39	225.67	3,716.56	-490.12	-501.67	-386.08	0.00	0.00	0.00
3,900.00	14.39	225.67	3,813.43	-507.49	-519.44	-399.76	0.00	0.00	0.00
4,000.00	14.39	225.67	3,910.29	-524.85	-537.21	-413.43	0.00	0.00	0.00
4,100.00	14.39	225.67	4,007.15	-542.21	-554.98	-427.11	0.00	0.00	0.00
4,200.00	14.39	225.67	4,104.02	-559.57	-572.75	-440.79	0.00	0.00	0.00
4,300.00	14.39	225.67	4,200.88	-576.93	-590.52	-454.46	0.00	0.00	0.00
4,400.00	14.39	225.67	4,297.75	-594.29	-608.29	-468.14	0.00	0.00	0.00
4,500.00	14.39	225.67	4,394.61	-611.66	-626.06	-481.81	0.00	0.00	0.00
4,600.00	14.39	225.67	4,491.48	-629.02	-643.83	-495.49	0.00	0.00	0.00
4,687.26	14.39	225.67	4,576.00	-644.17	-659.34	-507.42	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BABCOCK 19N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4904.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4904.00usft (D Rig)
Site:	3N-67W-33 BABCOCK 6-4HZ Pad	North Reference:	True
Well:	BABCOCK 19N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
Sussex									
4,700.00	14.39	225.67	4,588.34	-646.38	-661.60	-509.17	0.00	0.00	0.00
4,800.00	14.39	225.67	4,685.21	-663.74	-679.38	-522.84	0.00	0.00	0.00
4,900.00	14.39	225.67	4,782.07	-681.10	-697.15	-536.52	0.00	0.00	0.00
5,000.00	14.39	225.67	4,878.94	-698.46	-714.92	-550.20	0.00	0.00	0.00
5,100.00	14.39	225.67	4,975.80	-715.83	-732.69	-563.87	0.00	0.00	0.00
5,177.66	14.39	225.67	5,051.03	-729.31	-746.49	-574.49	0.00	0.00	0.00
5,200.00	14.05	225.67	5,072.68	-733.14	-750.41	-577.51	1.50	-1.50	0.00
5,300.00	12.55	225.67	5,170.00	-749.22	-766.87	-590.18	1.50	-1.50	0.00
5,400.00	11.05	225.67	5,267.88	-763.51	-781.49	-601.43	1.50	-1.50	0.00
5,500.00	9.55	225.67	5,366.27	-776.01	-794.28	-611.28	1.50	-1.50	0.00
5,600.00	8.05	225.67	5,465.09	-786.70	-805.23	-619.70	1.50	-1.50	0.00
5,700.00	6.55	225.67	5,564.27	-795.58	-814.32	-626.69	1.50	-1.50	0.00
5,800.00	5.05	225.67	5,663.76	-802.64	-821.54	-632.26	1.50	-1.50	0.00
5,900.00	3.55	225.67	5,763.48	-807.88	-826.91	-636.38	1.50	-1.50	0.00
6,000.00	2.05	225.67	5,863.35	-811.29	-830.40	-639.07	1.50	-1.50	0.00
6,100.00	0.55	225.67	5,963.32	-812.88	-832.02	-640.32	1.50	-1.50	0.00
6,136.68	0.00	0.00	6,000.00	-813.00	-832.15	-640.42	1.50	-1.50	0.00
6,200.00	0.00	0.00	6,063.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,163.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,263.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,363.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,463.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,563.32	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,720.70	0.00	0.00	6,584.03	-813.00	-832.15	-640.42	0.00	0.00	0.00
6,800.00	7.14	360.00	6,663.12	-808.07	-832.15	-635.57	9.00	9.00	0.00
6,900.00	16.14	360.00	6,760.96	-787.92	-832.15	-615.79	9.00	9.00	0.00
7,000.00	25.14	360.00	6,854.45	-752.71	-832.15	-581.22	9.00	9.00	0.00
7,100.00	34.14	360.00	6,941.28	-703.31	-832.15	-532.72	9.00	9.00	0.00
7,200.00	43.14	360.00	7,019.31	-640.94	-832.15	-471.48	9.00	9.00	0.00
7,246.42	47.31	360.00	7,052.00	-607.99	-832.15	-439.13	9.00	9.00	0.00
Sharon Springs									
7,300.00	52.14	360.00	7,086.62	-567.12	-832.15	-399.01	9.00	9.00	0.00
7,392.70	60.48	360.00	7,138.00	-490.07	-832.15	-323.35	9.00	9.00	0.00
Niobrara									
7,400.00	61.14	360.00	7,141.56	-483.69	-832.15	-317.09	9.00	9.00	0.00
7,500.00	70.14	360.00	7,182.77	-392.69	-832.15	-227.74	9.00	9.00	0.00
7,506.65	70.74	360.00	7,185.00	-386.42	-832.15	-221.58	9.00	9.00	0.00
Nio B									
7,600.00	79.14	360.00	7,209.24	-296.36	-832.15	-133.16	9.00	9.00	0.00
7,700.00	88.14	360.00	7,220.31	-197.08	-832.15	-35.68	9.00	9.00	0.00
7,725.91	90.47	360.00	7,220.63	-171.17	-832.15	-10.24	9.00	9.00	0.00
Top of Production - Babcock 19N-33HZ_PHL									
7,800.00	90.47	360.00	7,220.02	-97.09	-832.15	62.50	0.00	0.00	0.00
7,900.00	90.47	360.00	7,219.20	2.91	-832.15	160.68	0.00	0.00	0.00
8,000.00	90.47	360.00	7,218.38	102.91	-832.15	258.87	0.00	0.00	0.00
8,100.00	90.47	360.00	7,217.57	202.90	-832.15	357.05	0.00	0.00	0.00
8,200.00	90.47	360.00	7,216.75	302.90	-832.15	455.23	0.00	0.00	0.00
8,300.00	90.47	360.00	7,215.93	402.90	-832.15	553.41	0.00	0.00	0.00
8,400.00	90.47	360.00	7,215.11	502.89	-832.15	651.59	0.00	0.00	0.00
8,500.00	90.47	360.00	7,214.30	602.89	-832.15	749.77	0.00	0.00	0.00
8,600.00	90.47	360.00	7,213.48	702.89	-832.15	847.96	0.00	0.00	0.00
8,700.00	90.47	360.00	7,212.66	802.88	-832.15	946.14	0.00	0.00	0.00

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Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BABCOCK 19N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4904.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4904.00usft (D Rig)
Site:	3N-67W-33 BABCOCK 6-4HZ Pad	North Reference:	True
Well:	BABCOCK 19N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

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)
8,800.00	90.47	360.00	7,211.84	902.88	-832.15	1,044.32	0.00	0.00	0.00
8,900.00	90.47	360.00	7,211.03	1,002.88	-832.15	1,142.50	0.00	0.00	0.00
9,000.00	90.47	360.00	7,210.21	1,102.87	-832.15	1,240.68	0.00	0.00	0.00
9,100.00	90.47	360.00	7,209.39	1,202.87	-832.15	1,338.86	0.00	0.00	0.00
9,200.00	90.47	360.00	7,208.57	1,302.87	-832.15	1,437.05	0.00	0.00	0.00
9,300.00	90.47	360.00	7,207.76	1,402.86	-832.15	1,535.23	0.00	0.00	0.00
9,400.00	90.47	360.00	7,206.94	1,502.86	-832.15	1,633.41	0.00	0.00	0.00
9,500.00	90.47	360.00	7,206.12	1,602.86	-832.15	1,731.59	0.00	0.00	0.00
9,600.00	90.47	360.00	7,205.30	1,702.85	-832.15	1,829.77	0.00	0.00	0.00
9,700.00	90.47	360.00	7,204.48	1,802.85	-832.15	1,927.95	0.00	0.00	0.00
9,800.00	90.47	360.00	7,203.67	1,902.85	-832.15	2,026.14	0.00	0.00	0.00
9,900.00	90.47	360.00	7,202.85	2,002.84	-832.15	2,124.32	0.00	0.00	0.00
10,000.00	90.47	360.00	7,202.03	2,102.84	-832.15	2,222.50	0.00	0.00	0.00
10,100.00	90.47	360.00	7,201.21	2,202.84	-832.15	2,320.68	0.00	0.00	0.00
10,200.00	90.47	360.00	7,200.40	2,302.83	-832.15	2,418.86	0.00	0.00	0.00
10,300.00	90.47	360.00	7,199.58	2,402.83	-832.15	2,517.04	0.00	0.00	0.00
10,400.00	90.47	360.00	7,198.76	2,502.83	-832.15	2,615.23	0.00	0.00	0.00
10,500.00	90.47	360.00	7,197.94	2,602.82	-832.15	2,713.41	0.00	0.00	0.00
10,600.00	90.47	360.00	7,197.13	2,702.82	-832.15	2,811.59	0.00	0.00	0.00
10,700.00	90.47	360.00	7,196.31	2,802.82	-832.15	2,909.77	0.00	0.00	0.00
10,800.00	90.47	360.00	7,195.49	2,902.81	-832.15	3,007.95	0.00	0.00	0.00
10,900.00	90.47	360.00	7,194.67	3,002.81	-832.15	3,106.13	0.00	0.00	0.00
11,000.00	90.47	360.00	7,193.85	3,102.81	-832.15	3,204.32	0.00	0.00	0.00
11,100.00	90.47	360.00	7,193.04	3,202.80	-832.15	3,302.50	0.00	0.00	0.00
11,200.00	90.47	360.00	7,192.22	3,302.80	-832.15	3,400.68	0.00	0.00	0.00
11,300.00	90.47	360.00	7,191.40	3,402.80	-832.15	3,498.86	0.00	0.00	0.00
11,400.00	90.47	360.00	7,190.58	3,502.79	-832.15	3,597.04	0.00	0.00	0.00
11,500.00	90.47	360.00	7,189.77	3,602.79	-832.15	3,695.22	0.00	0.00	0.00
11,600.00	90.47	360.00	7,188.95	3,702.79	-832.15	3,793.41	0.00	0.00	0.00
11,700.00	90.47	360.00	7,188.13	3,802.78	-832.15	3,891.59	0.00	0.00	0.00
11,800.00	90.47	360.00	7,187.31	3,902.78	-832.15	3,989.77	0.00	0.00	0.00
11,900.00	90.47	360.00	7,186.50	4,002.78	-832.15	4,087.95	0.00	0.00	0.00
12,000.00	90.47	360.00	7,185.68	4,102.77	-832.15	4,186.13	0.00	0.00	0.00
12,100.00	90.47	360.00	7,184.86	4,202.77	-832.15	4,284.31	0.00	0.00	0.00
12,200.00	90.47	360.00	7,184.04	4,302.77	-832.15	4,382.50	0.00	0.00	0.00
12,205.17	90.47	360.00	7,184.00	4,307.94	-832.15	4,387.58	0.00	0.00	0.00
BABCOCK 19N-33HZ PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BABCOCK 19N-33HZ	0.00	0.00	7,184.00	4,307.94	-832.15	14,592,664.36	1,668,324.13	40.181013	-104.900085
- plan hits target center									
- Point									
Babcock 19N-33HZ_P	0.00	0.00	7,220.63	-171.17	-832.15	14,588,185.25	1,668,329.32	40.168713	-104.900084
- plan hits target center									
- Point									

Anadarko

Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well BABCOCK 19N-33HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB @ 4904.00usft (D Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB @ 4904.00usft (D Rig)
Site:	3N-67W-33 BABCOCK 6-4HZ Pad	North Reference:	True
Well:	BABCOCK 19N-33HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-3		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,821.41	1,800.00	9 5/8"	9-5/8	13-1/2	
7,725.91	7,220.63	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
976.23	975.00	Fox Hills				
4,687.26	4,576.00	Sussex				
7,246.42	7,052.00	Sharon Springs				
7,392.70	7,138.00	Niobrara				
7,506.65	7,185.00	Nio B				