

PICEANCE HL NAD 83

RG 23-01S-098W

RGU 43-23-198 Pad

RGU 443-23-198 - Slot A3

Wellbore #1

Plan: Design #4 18Nov14 mab

Standard Planning Report - Geographic

18 November, 2014

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 443-23-198 - Slot A3
Company:	PICEANCE HL NAD 83	TVD Reference:	KB @ 6592.00usft (Aztec 1000)
Project:	RG 23-01S-098W	MD Reference:	KB @ 6592.00usft (Aztec 1000)
Site:	RGU 43-23-198 Pad	North Reference:	True
Well:	RGU 443-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4 18Nov14 mab		

Project	RG 23-01S-098W, Rio Blanco County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	RGU 43-23-198 Pad				
Site Position:		Northing:	1,781,556.00000 usft	Latitude:	39.94469
From:	Map	Easting:	2,199,927.00000 usft	Longitude:	-108.35379
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.80 °

Well	RGU 443-23-198 - Slot A3					
Well Position	+N/-S	0.00 usft	Northing:	1,781,586.50000 usft	Latitude:	39.94478
	+E/-W	0.00 usft	Easting:	2,199,979.60000 usft	Longitude:	-108.35360
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,567.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/27/2012	10.44	66.01	52,338

Design	Design #4 18Nov14 mab			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)
	0.00	0.00	0.00	359.17

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
319.17	6.47	359.17	318.75	11.24	-0.16	3.25	3.25	0.00	359.17	
7,206.72	6.47	359.17	7,162.38	787.62	-11.43	0.00	0.00	0.00	0.00	
7,638.25	0.00	0.00	7,593.00	811.97	-11.78	1.50	-1.50	0.00	180.00	
7,838.25	0.00	0.00	7,793.00	811.97	-11.78	0.00	0.00	0.00	0.00	Mesaverde (50' Radiu
12,703.25	0.00	0.00	12,658.00	811.97	-11.78	0.00	0.00	0.00	0.00	

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 443-23-198 - Slot A3
Company:	PICEANCE HL NAD 83	TVD Reference:	KB @ 6592.00usft (Aztec 1000)
Project:	RG 23-01S-098W	MD Reference:	KB @ 6592.00usft (Aztec 1000)
Site:	RGU 43-23-198 Pad	North Reference:	True
Well:	RGU 443-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4 18Nov14 mab		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	1,781,586.50000	2,199,979.60000	39.94478	-108.35360	
120.00	0.00	0.00	120.00	0.00	0.00	1,781,586.50000	2,199,979.60000	39.94478	-108.35360	
Start Build 3.25°/100										
200.00	2.60	359.17	199.97	1.81	-0.03	1,781,588.31457	2,199,979.63067	39.94478	-108.35360	
319.17	6.47	359.17	318.75	11.24	-0.16	1,781,597.73699	2,199,979.78992	39.94481	-108.35360	
Hold 6.47° Inc, 359.17° Az										
400.00	6.47	359.17	399.06	20.35	-0.30	1,781,606.84816	2,199,979.94392	39.94483	-108.35360	
600.00	6.47	359.17	597.79	42.89	-0.62	1,781,629.39191	2,199,980.32495	39.94489	-108.35360	
800.00	6.47	359.17	796.51	65.44	-0.95	1,781,651.93566	2,199,980.70599	39.94495	-108.35360	
1,000.00	6.47	359.17	995.24	87.98	-1.28	1,781,674.47940	2,199,981.08702	39.94502	-108.35361	
1,200.00	6.47	359.17	1,193.96	110.53	-1.60	1,781,697.02315	2,199,981.46806	39.94508	-108.35361	
1,214.13	6.47	359.17	1,208.00	112.12	-1.63	1,781,698.61572	2,199,981.49497	39.94508	-108.35361	
Green River Fm										
1,400.00	6.47	359.17	1,392.69	133.07	-1.93	1,781,719.56690	2,199,981.84909	39.94514	-108.35361	
1,410.38	6.47	359.17	1,403.00	134.24	-1.95	1,781,720.73689	2,199,981.86887	39.94514	-108.35361	
A Groove										
1,600.00	6.47	359.17	1,591.41	155.62	-2.26	1,781,742.11065	2,199,982.23012	39.94520	-108.35361	
1,601.60	6.47	359.17	1,593.00	155.80	-2.26	1,781,742.29086	2,199,982.23317	39.94520	-108.35361	
B Groove										
1,800.00	6.47	359.17	1,790.14	178.16	-2.59	1,781,764.65439	2,199,982.61116	39.94526	-108.35361	
1,908.56	6.47	359.17	1,898.00	190.40	-2.76	1,781,776.89064	2,199,982.81797	39.94530	-108.35361	
Dissolution Surface										
2,000.00	6.47	359.17	1,988.86	200.71	-2.91	1,781,787.19814	2,199,982.99219	39.94533	-108.35361	
2,200.00	6.47	359.17	2,187.59	223.25	-3.24	1,781,809.74189	2,199,983.37323	39.94539	-108.35361	
2,400.00	6.47	359.17	2,386.31	245.79	-3.57	1,781,832.28563	2,199,983.75426	39.94545	-108.35361	
2,600.00	6.47	359.17	2,585.04	268.34	-3.89	1,781,854.82938	2,199,984.13529	39.94551	-108.35362	
2,800.00	6.47	359.17	2,783.76	290.88	-4.22	1,781,877.37313	2,199,984.51633	39.94557	-108.35362	
3,000.00	6.47	359.17	2,982.49	313.43	-4.55	1,781,899.91688	2,199,984.89736	39.94564	-108.35362	
3,020.65	6.47	359.17	3,003.00	315.76	-4.58	1,781,902.24396	2,199,984.93669	39.94564	-108.35362	
Garden Gulch										
3,196.77	6.47	359.17	3,178.00	335.61	-4.87	1,781,922.09628	2,199,985.27224	39.94570	-108.35362	
Orange Marker										
3,200.00	6.47	359.17	3,181.21	335.97	-4.88	1,781,922.46061	2,199,985.27840	39.94570	-108.35362	
3,400.00	6.47	359.17	3,379.94	358.52	-5.20	1,781,945.00436	2,199,985.65943	39.94576	-108.35362	
3,413.15	6.47	359.17	3,393.00	360.00	-5.22	1,781,946.48629	2,199,985.68448	39.94576	-108.35362	
Wasatch										
3,600.00	6.47	359.17	3,578.66	381.06	-5.53	1,781,967.54811	2,199,986.04046	39.94582	-108.35362	
3,800.00	6.47	359.17	3,777.39	403.61	-5.86	1,781,990.09186	2,199,986.42150	39.94588	-108.35362	
3,916.36	6.47	359.17	3,893.00	416.72	-6.05	1,782,003.20725	2,199,986.64317	39.94592	-108.35362	
9 5/8"										
4,000.00	6.47	359.17	3,976.11	426.15	-6.18	1,782,012.63560	2,199,986.80253	39.94594	-108.35362	
4,200.00	6.47	359.17	4,174.84	448.70	-6.51	1,782,035.17935	2,199,987.18356	39.94601	-108.35362	
4,400.00	6.47	359.17	4,373.56	471.24	-6.84	1,782,057.72310	2,199,987.56460	39.94607	-108.35363	
4,600.00	6.47	359.17	4,572.29	493.79	-7.17	1,782,080.26685	2,199,987.94563	39.94613	-108.35363	
4,800.00	6.47	359.17	4,771.01	516.33	-7.49	1,782,102.81059	2,199,988.32667	39.94619	-108.35363	
5,000.00	6.47	359.17	4,969.74	538.87	-7.82	1,782,125.35434	2,199,988.70770	39.94625	-108.35363	
5,200.00	6.47	359.17	5,168.46	561.42	-8.15	1,782,147.89809	2,199,989.08873	39.94632	-108.35363	
5,400.00	6.47	359.17	5,367.19	583.96	-8.47	1,782,170.44183	2,199,989.46977	39.94638	-108.35363	
5,600.00	6.47	359.17	5,565.91	606.51	-8.80	1,782,192.98558	2,199,989.85080	39.94644	-108.35363	
5,763.13	6.47	359.17	5,728.00	624.90	-9.07	1,782,211.37317	2,199,990.16159	39.94649	-108.35363	
Top of "G" Sand										
5,800.00	6.47	359.17	5,764.64	629.05	-9.13	1,782,215.52933	2,199,990.23184	39.94650	-108.35363	
6,000.00	6.47	359.17	5,963.36	651.60	-9.46	1,782,238.07308	2,199,990.61287	39.94656	-108.35364	

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Well:	RGU 443-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4 18Nov14 mab		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
6,140.53	6.47	359.17	6,103.00	667.44	-9.69	1,782,253.91389	2,199,990.88061	39.94661	-108.35364	
Fort Union										
6,200.00	6.47	359.17	6,162.09	674.14	-9.78	1,782,260.61682	2,199,990.99390	39.94663	-108.35364	
6,400.00	6.47	359.17	6,360.81	696.69	-10.11	1,782,283.16057	2,199,991.37494	39.94669	-108.35364	
6,600.00	6.47	359.17	6,559.54	719.23	-10.44	1,782,305.70432	2,199,991.75597	39.94675	-108.35364	
6,800.00	6.47	359.17	6,758.26	741.78	-10.76	1,782,328.24806	2,199,992.13701	39.94681	-108.35364	
7,000.00	6.47	359.17	6,956.99	764.32	-11.09	1,782,350.79180	2,199,992.51804	39.94687	-108.35364	
7,200.00	6.47	359.17	7,155.71	786.87	-11.42	1,782,373.33555	2,199,992.89907	39.94694	-108.35364	
7,206.72	6.47	359.17	7,162.38	787.62	-11.43	1,782,374.09250	2,199,992.91187	39.94694	-108.35364	
Start Drop -1.50°/100										
7,400.00	3.57	359.17	7,354.91	804.54	-11.68	1,782,391.01263	2,199,993.19785	39.94698	-108.35364	
7,558.24	1.20	359.17	7,513.00	811.13	-11.77	1,782,397.60159	2,199,993.30922	39.94700	-108.35364	
Ohio Creek										
7,600.00	0.57	359.17	7,554.75	811.78	-11.78	1,782,398.24785	2,199,993.32014	39.94700	-108.35364	
7,638.25	0.00	0.00	7,593.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Vertical										
7,800.00	0.00	0.00	7,754.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
7,838.25	0.00	0.00	7,793.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Mesaverde - Mesaverde										
8,000.00	0.00	0.00	7,954.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
8,200.00	0.00	0.00	8,154.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
8,400.00	0.00	0.00	8,354.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
8,600.00	0.00	0.00	8,554.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
8,800.00	0.00	0.00	8,754.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
8,933.25	0.00	0.00	8,888.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Approx. Top Gas										
9,000.00	0.00	0.00	8,954.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
9,200.00	0.00	0.00	9,154.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
9,400.00	0.00	0.00	9,354.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
9,600.00	0.00	0.00	9,554.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
9,800.00	0.00	0.00	9,754.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,000.00	0.00	0.00	9,954.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,200.00	0.00	0.00	10,154.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,400.00	0.00	0.00	10,354.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,600.00	0.00	0.00	10,554.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,800.00	0.00	0.00	10,754.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
10,903.25	0.00	0.00	10,858.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Cameo Coals										
11,000.00	0.00	0.00	10,954.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
11,200.00	0.00	0.00	11,154.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
11,400.00	0.00	0.00	11,354.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
11,473.25	0.00	0.00	11,428.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Rollins SS										
11,600.00	0.00	0.00	11,554.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
11,603.25	0.00	0.00	11,558.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Cozzette										
11,800.00	0.00	0.00	11,754.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
11,828.25	0.00	0.00	11,783.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Corcoran										
12,000.00	0.00	0.00	11,954.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
12,200.00	0.00	0.00	12,154.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
12,218.25	0.00	0.00	12,173.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364	
Upper Sego										

WPX
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Project:	RG 23-01S-098W	MD Reference:	KB @ 6592.00usft (Aztec 1000)
Site:	RGU 43-23-198 Pad	North Reference:	True
Well:	RGU 443-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4 18Nov14 mab		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,400.00	0.00	0.00	12,354.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364
12,453.25	0.00	0.00	12,408.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364
Lower Sego									
12,600.00	0.00	0.00	12,554.75	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364
12,703.25	0.00	0.00	12,658.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364
TD at 12703.25 - TD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Mesaverde (50' Radius) - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,793.00	811.97	-11.78	1,782,398.43932	2,199,993.32338	39.94700	-108.35364

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,916.36	3,893.00	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
1,214.13	1,208.00	Green River Fm				
1,410.38	1,403.00	A Groove				
1,601.60	1,593.00	B Groove				
1,908.56	1,898.00	Dissolution Surface				
3,020.65	3,003.00	Garden Gulch				
3,196.77	3,178.00	Orange Marker				
3,413.15	3,393.00	Wasatch				
5,763.13	5,728.00	Top of "G" Sand				
6,140.53	6,103.00	Fort Union				
7,558.24	7,513.00	Ohio Creek				
7,838.25	7,793.00	Mesaverde				
8,933.25	8,888.00	Approx. Top Gas				
10,903.25	10,858.00	Cameo Coals				
11,473.25	11,428.00	Rollins SS				
11,603.25	11,558.00	Cozzette				
11,828.25	11,783.00	Corcoran				
12,218.25	12,173.00	Upper Sego				
12,453.25	12,408.00	Lower Sego				
12,703.25	12,658.00	TD		0.00		

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 443-23-198 - Slot A3
Company:	PICEANCE HL NAD 83	TVD Reference:	KB @ 6592.00usft (Aztec 1000)
Project:	RG 23-01S-098W	MD Reference:	KB @ 6592.00usft (Aztec 1000)
Site:	RGU 43-23-198 Pad	North Reference:	True
Well:	RGU 443-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4 18Nov14 mab		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Build 3.25°/100
319.17	318.75	11.24	-0.16	Hold 6.47° Inc, 359.17° Az
7,206.72	7,162.38	787.62	-11.43	Start Drop -1.50°/100
7,638.25	7,593.00	811.97	-11.78	Vertical
7,838.25	7,793.00	811.97	-11.78	Mesaverde
12,703.25	12,658.00	811.97	-11.78	TD at 12703.25