

# **PICEANCE HL NAD 83**

**RG 23-01S-098W**

**RGU 43-23-198 Pad**

**RGU 333-23-198 - Slot A6**

**Wellbore #1**

**Plan: Design #4 18Nov14 mab**

## **Standard Planning Report - Geographic**

**18 November, 2014**

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 333-23-198 - Slot A6
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Project:</b>	RG 23-01S-098W	<b>MD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Site:</b>	RGU 43-23-198 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RGU 333-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 18Nov14 mab		

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

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

Well	RGU 333-23-198 - Slot A6					
Well Position	+N/-S	0.00 usft	Northing:	1,781,572.20000 usft	Latitude:	39.94473
	+E/-W	0.00 usft	Easting:	2,199,962.30000 usft	Longitude:	-108.35366
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,567.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/27/2012	10.44	66.01	52,337

<b>Design</b>	Design #4 18Nov14 mab			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (bearing)</b>
	0.00	0.00	0.00	309.62

<b>Plan Sections</b>										
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	
666.29	13.66	309.62	661.13	41.32	-49.91	2.50	2.50	0.00	309.62	
6,928.33	13.66	309.62	6,746.12	984.22	-1,188.80	0.00	0.00	0.00	0.00	
7,838.81	0.00	0.00	7,648.00	1,053.09	-1,271.98	1.50	-1.50	0.00	180.00	
7,938.81	0.00	0.00	7,748.00	1,053.09	-1,271.98	0.00	0.00	0.00	0.00	Mesaverde (50' Radiu
12,783.81	0.00	0.00	12,593.00	1,053.09	-1,271.98	0.00	0.00	0.00	0.00	

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 333-23-198 - Slot A6
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Project:</b>	RG 23-01S-098W	<b>MD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Site:</b>	RGU 43-23-198 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RGU 333-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	1,781,572.20000	2,199,962.30000	39.94473	-108.35366	
120.00	0.00	0.00	120.00	0.00	0.00	1,781,572.20000	2,199,962.30000	39.94473	-108.35366	
Start Build 2.50°/100										
200.00	2.00	309.62	199.98	0.89	-1.08	1,781,573.12366	2,199,961.25310	39.94474	-108.35367	
400.00	7.00	309.62	399.30	10.89	-13.16	1,781,583.50199	2,199,949.49013	39.94476	-108.35371	
600.00	12.00	309.62	596.50	31.94	-38.58	1,781,605.33397	2,199,924.74541	39.94482	-108.35380	
666.29	13.66	309.62	661.13	41.32	-49.91	1,781,615.07134	2,199,913.70892	39.94485	-108.35384	
Hold 13.66° Inc, 309.62° Az										
800.00	13.66	309.62	791.06	61.46	-74.23	1,781,635.95844	2,199,890.03515	39.94490	-108.35393	
1,000.00	13.66	309.62	985.41	91.57	-110.61	1,781,667.20062	2,199,854.62475	39.94499	-108.35406	
1,200.00	13.66	309.62	1,179.75	121.69	-146.98	1,781,698.44281	2,199,819.21434	39.94507	-108.35419	
1,234.22	13.66	309.62	1,213.00	126.84	-153.20	1,781,703.78775	2,199,813.15629	39.94508	-108.35421	
Green River Fm										
1,400.00	13.66	309.62	1,374.10	151.80	-183.35	1,781,729.68499	2,199,783.80394	39.94515	-108.35432	
1,429.74	13.66	309.62	1,403.00	156.28	-188.76	1,781,734.33143	2,199,778.53759	39.94516	-108.35433	
A Groove										
1,600.00	13.66	309.62	1,568.44	181.92	-219.73	1,781,760.92718	2,199,748.39353	39.94523	-108.35445	
1,625.27	13.66	309.62	1,593.00	185.72	-224.32	1,781,764.87511	2,199,743.91889	39.94524	-108.35446	
B Groove										
1,800.00	13.66	309.62	1,762.79	212.03	-256.10	1,781,792.16937	2,199,712.98313	39.94532	-108.35457	
1,939.15	13.66	309.62	1,898.00	232.98	-281.41	1,781,813.90576	2,199,688.34675	39.94537	-108.35467	
Dissolution Surface										
2,000.00	13.66	309.62	1,957.13	242.15	-292.48	1,781,823.41155	2,199,677.57273	39.94540	-108.35470	
2,200.00	13.66	309.62	2,151.48	272.26	-328.85	1,781,854.65374	2,199,642.16232	39.94548	-108.35483	
2,400.00	13.66	309.62	2,345.82	302.37	-365.22	1,781,885.89592	2,199,606.75192	39.94556	-108.35496	
2,600.00	13.66	309.62	2,540.17	332.49	-401.60	1,781,917.13810	2,199,571.34152	39.94565	-108.35509	
2,800.00	13.66	309.62	2,734.51	362.60	-437.97	1,781,948.38029	2,199,535.93112	39.94573	-108.35522	
3,000.00	13.66	309.62	2,928.86	392.72	-474.35	1,781,979.62247	2,199,500.52072	39.94581	-108.35535	
3,076.30	13.66	309.62	3,003.00	404.21	-488.22	1,781,991.54135	2,199,487.01166	39.94584	-108.35540	
Garden Gulch										
3,200.00	13.66	309.62	3,123.20	422.83	-510.72	1,782,010.86466	2,199,465.11032	39.94590	-108.35548	
3,251.25	13.66	309.62	3,173.00	430.55	-520.04	1,782,018.86991	2,199,456.03703	39.94592	-108.35552	
Orange Marker										
3,400.00	13.66	309.62	3,317.55	452.95	-547.10	1,782,042.10684	2,199,429.69991	39.94598	-108.35561	
3,477.65	13.66	309.62	3,393.00	464.64	-561.22	1,782,054.23628	2,199,415.95222	39.94601	-108.35566	
Wasatch										
3,600.00	13.66	309.62	3,511.89	483.06	-583.47	1,782,073.34903	2,199,394.28951	39.94606	-108.35574	
3,800.00	13.66	309.62	3,706.24	513.18	-619.84	1,782,104.59122	2,199,358.87911	39.94614	-108.35587	
3,992.20	13.66	309.62	3,893.00	542.12	-654.80	1,782,134.61438	2,199,324.85036	39.94622	-108.35600	
9 5/8"										
4,000.00	13.66	309.62	3,900.58	543.29	-656.22	1,782,135.83340	2,199,323.46870	39.94623	-108.35600	
4,200.00	13.66	309.62	4,094.93	573.41	-692.59	1,782,167.07559	2,199,288.05830	39.94631	-108.35613	
4,400.00	13.66	309.62	4,289.27	603.52	-728.97	1,782,198.31777	2,199,252.64790	39.94639	-108.35626	
4,600.00	13.66	309.62	4,483.62	633.64	-765.34	1,782,229.55996	2,199,217.23749	39.94647	-108.35639	
4,800.00	13.66	309.62	4,677.96	663.75	-801.71	1,782,260.80215	2,199,181.82709	39.94656	-108.35652	
5,000.00	13.66	309.62	4,872.31	693.86	-838.09	1,782,292.04433	2,199,146.41669	39.94664	-108.35665	
5,200.00	13.66	309.62	5,066.65	723.98	-874.46	1,782,323.28651	2,199,111.00629	39.94672	-108.35678	
5,400.00	13.66	309.62	5,261.00	754.09	-910.84	1,782,354.52869	2,199,075.59589	39.94680	-108.35691	
5,600.00	13.66	309.62	5,455.34	784.21	-947.21	1,782,385.77088	2,199,040.18548	39.94689	-108.35704	
5,800.00	13.66	309.62	5,649.69	814.32	-983.59	1,782,417.01307	2,199,004.77508	39.94697	-108.35717	
5,844.57	13.66	309.62	5,693.00	821.03	-991.69	1,782,423.97554	2,198,996.88370	39.94699	-108.35720	
Top of "G" Sand										
6,000.00	13.66	309.62	5,844.03	844.44	-1,019.96	1,782,448.25525	2,198,969.36468	39.94705	-108.35730	

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Planning Report - Geographic

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<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Project:</b>	RG 23-01S-098W	<b>MD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Site:</b>	RGU 43-23-198 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RGU 333-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	
6,200.00	13.66	309.62	6,038.38	874.55	-1,056.33	1,782,479.49744	2,198,933.95427	39.94714	-108.35743	
6,215.05	13.66	309.62	6,053.00	876.82	-1,059.07	1,782,481.84778	2,198,931.29036	39.94714	-108.35744	
Fort Union										
6,400.00	13.66	309.62	6,232.72	904.67	-1,092.71	1,782,510.73962	2,198,898.54387	39.94722	-108.35756	
6,600.00	13.66	309.62	6,427.07	934.78	-1,129.08	1,782,541.98181	2,198,863.13347	39.94730	-108.35769	
6,800.00	13.66	309.62	6,621.42	964.90	-1,165.46	1,782,573.22400	2,198,827.72306	39.94738	-108.35782	
6,928.33	13.66	309.62	6,746.12	984.22	-1,188.80	1,782,593.27039	2,198,805.00216	39.94744	-108.35790	
Start Drop -1.50°/100										
7,000.00	12.58	309.62	6,815.91	994.59	-1,201.33	1,782,604.03326	2,198,792.80334	39.94746	-108.35795	
7,200.00	9.58	309.62	7,012.16	1,019.11	-1,230.93	1,782,629.46423	2,198,763.97947	39.94753	-108.35805	
7,400.00	6.58	309.62	7,210.15	1,037.04	-1,252.59	1,782,648.06522	2,198,742.89681	39.94758	-108.35813	
7,600.00	3.58	309.62	7,409.34	1,048.33	-1,266.24	1,782,659.78524	2,198,729.61314	39.94761	-108.35818	
7,663.75	2.63	309.62	7,473.00	1,050.54	-1,268.90	1,782,662.06904	2,198,727.02465	39.94762	-108.35819	
Ohio Creek										
7,800.00	0.58	309.62	7,609.19	1,052.97	-1,271.83	1,782,664.59219	2,198,724.16488	39.94762	-108.35820	
7,838.81	0.00	0.00	7,648.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Vertical										
7,938.81	0.00	0.00	7,748.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Mesaverde - Mesaverde										
8,000.00	0.00	0.00	7,809.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
8,200.00	0.00	0.00	8,009.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
8,400.00	0.00	0.00	8,209.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
8,600.00	0.00	0.00	8,409.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
8,800.00	0.00	0.00	8,609.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
9,000.00	0.00	0.00	8,809.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
9,200.00	0.00	0.00	9,009.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
9,328.81	0.00	0.00	9,138.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Approx. Top Gas										
9,400.00	0.00	0.00	9,209.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
9,600.00	0.00	0.00	9,409.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
9,800.00	0.00	0.00	9,609.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,000.00	0.00	0.00	9,809.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,200.00	0.00	0.00	10,009.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,400.00	0.00	0.00	10,209.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,600.00	0.00	0.00	10,409.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,800.00	0.00	0.00	10,609.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
10,978.81	0.00	0.00	10,788.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Cameo Coals										
11,000.00	0.00	0.00	10,809.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
11,200.00	0.00	0.00	11,009.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
11,400.00	0.00	0.00	11,209.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
11,558.81	0.00	0.00	11,368.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Rollins SS										
11,600.00	0.00	0.00	11,409.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
11,688.81	0.00	0.00	11,498.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Cozzette										
11,800.00	0.00	0.00	11,609.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
11,908.81	0.00	0.00	11,718.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Corcoran										
12,000.00	0.00	0.00	11,809.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
12,200.00	0.00	0.00	12,009.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
12,298.81	0.00	0.00	12,108.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820	
Upper Segro										

**WPX**  
Planning Report - Geographic

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<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Project:</b>	RG 23-01S-098W	<b>MD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Site:</b>	RGU 43-23-198 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RGU 333-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	12,209.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820
12,533.81	0.00	0.00	12,343.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820
Lower Sego									
12,600.00	0.00	0.00	12,409.19	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820
12,783.81	0.00	0.00	12,593.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820
TD at 12783.81									

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	7,748.00	1,053.09	-1,271.98	1,782,664.72263	2,198,724.01702	39.94763	-108.35820

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,992.20	3,893.00	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
1,234.22	1,213.00	Green River Fm				
1,429.74	1,403.00	A Groove				
1,625.27	1,593.00	B Groove				
1,939.15	1,898.00	Dissolution Surface				
3,076.30	3,003.00	Garden Gulch				
3,251.25	3,173.00	Orange Marker				
3,477.65	3,393.00	Wasatch				
5,844.57	5,693.00	Top of "G" Sand				
6,215.05	6,053.00	Fort Union				
7,663.75	7,473.00	Ohio Creek				
7,938.81	7,748.00	Mesaverde				
9,328.81	9,138.00	Approx. Top Gas				
10,978.81	10,788.00	Cameo Coals				
11,558.81	11,368.00	Rollins SS				
11,688.81	11,498.00	Cozzette				
11,908.81	11,718.00	Corcoran				
12,298.81	12,108.00	Upper Sego				
12,533.81	12,343.00	Lower Sego				

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 333-23-198 - Slot A6
<b>Company:</b>	PICEANCE HL NAD 83	<b>TVD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Project:</b>	RG 23-01S-098W	<b>MD Reference:</b>	KB @ 6592.00usft (Aztec 1000)
<b>Site:</b>	RGU 43-23-198 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RGU 333-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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 2.50°/100
666.29	661.13	41.32	-49.91	Hold 13.66° Inc, 309.62° Az
6,928.33	6,746.12	984.22	-1,188.80	Start Drop -1.50°/100
7,838.81	7,648.00	1,053.09	-1,271.98	Vertical
7,938.81	7,748.00	1,053.09	-1,271.98	Mesaverde
12,783.81	12,593.00	1,053.09	-1,271.98	TD at 12783.81