

# **PICEANCE HL NAD 83**

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

**RGU 43-23-198 Pad**

**RGU 44-23-198 - Slot B5**

**Wellbore #1**

**Plan: Design #4 7May14 sam**

## **Standard Planning Report - Geographic**

**19 November, 2014**

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 44-23-198 - Slot B5
<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 44-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 7May14 sam		

<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		

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 44-23-198 - Slot B5					
Well Position	+N/-S	0.00 usft	Northing:	1,781,569.30000 usft	Latitude:	39.94473
	+E/-W	0.00 usft	Easting:	2,199,974.50000 usft	Longitude:	-108.35362
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 7May14 sam				
<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	356.65	

<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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,577.19	1.54	356.65	1,577.19	1.04	-0.06	2.00	2.00	0.00	356.65	
7,477.24	1.54	356.65	7,475.09	159.73	-9.34	0.00	0.00	0.00	0.00	
7,580.16	0.00	0.00	7,578.00	161.12	-9.42	1.50	-1.50	0.00	180.00	
7,780.16	0.00	0.00	7,778.00	161.12	-9.42	0.00	0.00	0.00	0.00	Mesaverde (50' Radiu
12,645.16	0.00	0.00	12,643.00	161.12	-9.42	0.00	0.00	0.00	0.00	TD / PBHL RGU 44-2

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 44-23-198 - Slot B5
<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 44-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 7May14 sam		

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	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
200.00	0.00	0.00	200.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
400.00	0.00	0.00	400.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
600.00	0.00	0.00	600.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
800.00	0.00	0.00	800.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
1,213.00	0.00	0.00	1,213.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
Green River Fm										
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
1,403.00	0.00	0.00	1,403.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
A Groove										
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,781,569.30000	2,199,974.50000	39.94473	-108.35362	
Start Build 2.00										
1,577.19	1.54	356.65	1,577.19	1.04	-0.06	1,781,570.33960	2,199,974.47195	39.94473	-108.35362	
Hold 1.54 Inclination										
1,593.02	1.54	356.65	1,593.00	1.46	-0.09	1,781,570.76569	2,199,974.46045	39.94473	-108.35362	
B Groove										
1,600.00	1.54	356.65	1,599.98	1.65	-0.10	1,781,570.95382	2,199,974.45538	39.94473	-108.35362	
1,800.00	1.54	356.65	1,799.91	7.03	-0.41	1,781,576.34041	2,199,974.31006	39.94475	-108.35362	
1,898.13	1.54	356.65	1,898.00	9.67	-0.57	1,781,578.98324	2,199,974.23876	39.94475	-108.35362	
Dissolution Surface										
2,000.00	1.54	356.65	1,999.84	12.41	-0.73	1,781,581.72701	2,199,974.16473	39.94476	-108.35362	
2,200.00	1.54	356.65	2,199.76	17.79	-1.04	1,781,587.11361	2,199,974.01941	39.94478	-108.35362	
2,400.00	1.54	356.65	2,399.69	23.17	-1.35	1,781,592.50021	2,199,973.87409	39.94479	-108.35362	
2,600.00	1.54	356.65	2,599.62	28.55	-1.67	1,781,597.88680	2,199,973.72877	39.94481	-108.35362	
2,800.00	1.54	356.65	2,799.55	33.93	-1.98	1,781,603.27340	2,199,973.58345	39.94482	-108.35362	
3,000.00	1.54	356.65	2,999.47	39.31	-2.30	1,781,608.66000	2,199,973.43813	39.94484	-108.35363	
3,003.53	1.54	356.65	3,003.00	39.40	-2.30	1,781,608.75500	2,199,973.43556	39.94484	-108.35363	
Garden Gulch										
3,173.59	1.54	356.65	3,173.00	43.98	-2.57	1,781,613.33527	2,199,973.31199	39.94485	-108.35363	
Orange Marker										
3,200.00	1.54	356.65	3,199.40	44.69	-2.61	1,781,614.04660	2,199,973.29280	39.94485	-108.35363	
3,393.67	1.54	356.65	3,393.00	49.90	-2.92	1,781,619.26268	2,199,973.15208	39.94486	-108.35363	
Wasatch										
3,400.00	1.54	356.65	3,399.33	50.07	-2.93	1,781,619.43319	2,199,973.14748	39.94486	-108.35363	
3,600.00	1.54	356.65	3,599.26	55.45	-3.24	1,781,624.81979	2,199,973.00216	39.94488	-108.35363	
3,800.00	1.54	356.65	3,799.18	60.82	-3.56	1,781,630.20639	2,199,972.85684	39.94489	-108.35363	
3,893.85	1.54	356.65	3,893.00	63.35	-3.70	1,781,632.73406	2,199,972.78865	39.94490	-108.35363	
9 5/8"										
4,000.00	1.54	356.65	3,999.11	66.20	-3.87	1,781,635.59299	2,199,972.71152	39.94491	-108.35363	
4,200.00	1.54	356.65	4,199.04	71.58	-4.18	1,781,640.97959	2,199,972.56619	39.94492	-108.35363	
4,400.00	1.54	356.65	4,398.97	76.96	-4.50	1,781,646.36618	2,199,972.42087	39.94494	-108.35363	
4,600.00	1.54	356.65	4,598.89	82.34	-4.81	1,781,651.75278	2,199,972.27555	39.94495	-108.35363	
4,800.00	1.54	356.65	4,798.82	87.72	-5.13	1,781,657.13938	2,199,972.13023	39.94497	-108.35364	
5,000.00	1.54	356.65	4,998.75	93.10	-5.44	1,781,662.52598	2,199,971.98491	39.94498	-108.35364	
5,200.00	1.54	356.65	5,198.68	98.48	-5.76	1,781,667.91257	2,199,971.83958	39.94500	-108.35364	
5,400.00	1.54	356.65	5,398.60	103.86	-6.07	1,781,673.29917	2,199,971.69426	39.94501	-108.35364	
5,600.00	1.54	356.65	5,598.53	109.24	-6.39	1,781,678.68577	2,199,971.54894	39.94503	-108.35364	
5,724.52	1.54	356.65	5,723.00	112.59	-6.58	1,781,682.03933	2,199,971.45847	39.94504	-108.35364	
Top of "G" Sand										
5,800.00	1.54	356.65	5,798.46	114.62	-6.70	1,781,684.07237	2,199,971.40362	39.94504	-108.35364	
6,000.00	1.54	356.65	5,998.39	120.00	-7.01	1,781,689.45896	2,199,971.25830	39.94506	-108.35364	

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 44-23-198 - Slot B5
<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 44-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 7May14 sam		

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	
6,094.65	1.54	356.65	6,093.00	122.54	-7.16	1,781,692.00815	2,199,971.18952	39.94506	-108.35364	
Fort Union										
6,200.00	1.54	356.65	6,198.31	125.38	-7.33	1,781,694.84556	2,199,971.11297	39.94507	-108.35364	
6,400.00	1.54	356.65	6,398.24	130.76	-7.64	1,781,700.23216	2,199,970.96765	39.94509	-108.35364	
6,600.00	1.54	356.65	6,598.17	136.14	-7.96	1,781,705.61876	2,199,970.82233	39.94510	-108.35365	
6,800.00	1.54	356.65	6,798.09	141.52	-8.27	1,781,711.00535	2,199,970.67701	39.94512	-108.35365	
7,000.00	1.54	356.65	6,998.02	146.89	-8.59	1,781,716.39195	2,199,970.53169	39.94513	-108.35365	
7,200.00	1.54	356.65	7,197.95	152.27	-8.90	1,781,721.77855	2,199,970.38637	39.94515	-108.35365	
7,400.00	1.54	356.65	7,397.88	157.65	-9.21	1,781,727.16515	2,199,970.24104	39.94516	-108.35365	
7,477.24	1.54	356.65	7,475.09	159.73	-9.34	1,781,729.24538	2,199,970.18492	39.94517	-108.35365	
Start Drop -1.50										
7,500.16	1.20	356.65	7,498.00	160.28	-9.37	1,781,729.79397	2,199,970.17012	39.94517	-108.35365	
Ohio Creek										
7,580.16	0.00	0.00	7,578.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Vertical										
7,600.00	0.00	0.00	7,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
7,780.16	0.00	0.00	7,778.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Top Gas - Mesaverde										
7,800.00	0.00	0.00	7,797.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,000.00	0.00	0.00	7,997.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,200.00	0.00	0.00	8,197.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,400.00	0.00	0.00	8,397.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,600.00	0.00	0.00	8,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,800.00	0.00	0.00	8,797.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
8,990.16	0.00	0.00	8,988.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Approx. Top Gas										
9,000.00	0.00	0.00	8,997.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
9,200.00	0.00	0.00	9,197.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
9,400.00	0.00	0.00	9,397.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
9,600.00	0.00	0.00	9,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
9,800.00	0.00	0.00	9,797.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,000.00	0.00	0.00	9,997.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,200.00	0.00	0.00	10,197.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,400.00	0.00	0.00	10,397.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,600.00	0.00	0.00	10,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,800.00	0.00	0.00	10,797.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
10,845.16	0.00	0.00	10,843.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Cameo Coals										
11,000.00	0.00	0.00	10,997.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
11,200.00	0.00	0.00	11,197.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
11,400.00	0.00	0.00	11,397.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
11,415.16	0.00	0.00	11,413.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Rollins SS										
11,545.16	0.00	0.00	11,543.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Cozzette										
11,600.00	0.00	0.00	11,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
11,770.16	0.00	0.00	11,768.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Corcoran										
11,800.00	0.00	0.00	11,797.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
12,000.00	0.00	0.00	11,997.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
12,160.16	0.00	0.00	12,158.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Upper Sego										
12,200.00	0.00	0.00	12,197.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 44-23-198 - Slot B5
<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 44-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 7May14 sam		

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	
12,395.16	0.00	0.00	12,393.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
Lower Sego										
12,400.00	0.00	0.00	12,397.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
12,600.00	0.00	0.00	12,597.84	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
12,645.16	0.00	0.00	12,643.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
TD at 12645.16 - 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	7,778.00	161.12	-9.42	1,781,730.63152	2,199,970.14753	39.94517	-108.35365	
TD / PBHL RGU 44-23-1 - plan hits target center - Point	0.00	0.00	12,643.00	161.12	-9.42	1,781,730.63150	2,199,970.14750	39.94517	-108.35365	

Casing Points								
	Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)		
	3,893.85	3,893.00	9 5/8"		9.625	13.500		

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RGU 44-23-198 - Slot B5
<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 44-23-198	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #4 7May14 sam		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
1,213.00	1,213.00	Green River Fm				
1,403.00	1,403.00	A Groove				
1,593.02	1,593.00	B Groove				
1,898.13	1,898.00	Dissolution Surface				
3,003.53	3,003.00	Garden Gulch				
3,173.59	3,173.00	Orange Marker				
3,393.67	3,393.00	Wasatch				
5,724.52	5,723.00	Top of "G" Sand				
6,094.65	6,093.00	Fort Union				
7,500.16	7,498.00	Ohio Creek				
7,780.16	7,778.00	Mesaverde				
8,990.16	8,988.00	Approx. Top Gas				
10,845.16	10,843.00	Cameo Coals				
11,415.16	11,413.00	Rollins SS				
11,545.16	11,543.00	Cozzette				
11,770.16	11,768.00	Corcoran				
12,160.16	12,158.00	Upper Sego				
12,395.16	12,393.00	Lower Sego				
12,645.16	12,643.00	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,500.00	1,500.00	0.00	0.00	Start Build 2.00	
1,577.19	1,577.19	1.04	-0.06	Hold 1.54 Inclination	
7,477.24	7,475.09	159.73	-9.34	Start Drop -1.50	
7,580.16	7,578.00	161.12	-9.42	Vertical	
7,780.16	7,778.00	161.12	-9.42	Top Gas	
12,645.16	12,643.00	161.12	-9.42	TD at 12645.16	