

PICEANCE HL NAD 83

RG 23-01S-098W

RGU 43-23-198 Pad

RGU 43-23-198 - Slot A2

Wellbore #1

Plan: Design #4 18Nov14 mab

Standard Planning Report - Geographic

19 November, 2014

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 43-23-198 - Slot A2
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 43-23-198	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 43-23-198 - Slot A2				
Well Position	+N/-S	0.00 usft	Northing:	1,781,591.30000 usft	Latitude:	39.94479
	+E/-W	0.00 usft	Easting:	2,199,985.40000 usft	Longitude:	-108.35358
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	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	359.37

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	
464.35	12.91	359.37	461.45	38.64	-0.43	3.75	3.75	0.00	359.37	
6,715.39	12.91	359.37	6,554.39	1,435.51	-15.80	0.00	0.00	0.00	0.00	
7,576.27	0.00	0.00	7,408.00	1,532.10	-16.86	1.50	-1.50	0.00	180.00	
7,976.27	0.00	0.00	7,808.00	1,532.10	-16.86	0.00	0.00	0.00	0.00	Mesaverde (50' Radiu
12,836.27	0.00	0.00	12,668.00	1,532.10	-16.86	0.00	0.00	0.00	0.00	

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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 43-23-198	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	1,781,591.30000	2,199,985.40000	39.94479	-108.35358	
120.00	0.00	0.00	120.00	0.00	0.00	1,781,591.30000	2,199,985.40000	39.94479	-108.35358	
Start Build 3.75°/100										
200.00	3.00	359.37	199.96	2.09	-0.02	1,781,593.39348	2,199,985.44272	39.94479	-108.35358	
400.00	10.50	359.37	398.44	25.58	-0.28	1,781,616.87929	2,199,985.92207	39.94486	-108.35358	
464.35	12.91	359.37	461.45	38.64	-0.43	1,781,629.93286	2,199,986.18850	39.94489	-108.35358	
Hold 12.91° Inc, 359.37° Az										
600.00	12.91	359.37	593.66	68.95	-0.76	1,781,660.24030	2,199,986.80708	39.94498	-108.35358	
800.00	12.91	359.37	788.60	113.64	-1.25	1,781,704.92607	2,199,987.71912	39.94510	-108.35359	
1,000.00	12.91	359.37	983.55	158.34	-1.74	1,781,749.61183	2,199,988.63116	39.94522	-108.35359	
1,200.00	12.91	359.37	1,178.49	203.03	-2.23	1,781,794.29759	2,199,989.54320	39.94535	-108.35359	
1,230.28	12.91	359.37	1,208.00	209.79	-2.31	1,781,801.06267	2,199,989.68127	39.94536	-108.35359	
Green River Fm										
1,400.00	12.91	359.37	1,373.43	247.72	-2.73	1,781,838.98336	2,199,990.45524	39.94547	-108.35359	
1,430.34	12.91	359.37	1,403.00	254.50	-2.80	1,781,845.76175	2,199,990.59359	39.94549	-108.35359	
A Groove										
1,600.00	12.91	359.37	1,568.37	292.41	-3.22	1,781,883.66912	2,199,991.36728	39.94559	-108.35359	
1,625.27	12.91	359.37	1,593.00	298.06	-3.28	1,781,889.31470	2,199,991.48251	39.94561	-108.35359	
B Groove										
1,800.00	12.91	359.37	1,763.31	337.10	-3.71	1,781,928.35488	2,199,992.27932	39.94571	-108.35359	
1,938.18	12.91	359.37	1,898.00	367.98	-4.05	1,781,959.22863	2,199,992.90946	39.94580	-108.35360	
Dissolution Surface										
2,000.00	12.91	359.37	1,958.26	381.80	-4.20	1,781,973.04064	2,199,993.19136	39.94584	-108.35360	
2,200.00	12.91	359.37	2,153.20	426.49	-4.69	1,782,017.72640	2,199,994.10340	39.94596	-108.35360	
2,400.00	12.91	359.37	2,348.14	471.18	-5.19	1,782,062.41217	2,199,995.01545	39.94608	-108.35360	
2,600.00	12.91	359.37	2,543.08	515.87	-5.68	1,782,107.09793	2,199,995.92749	39.94620	-108.35360	
2,800.00	12.91	359.37	2,738.02	560.57	-6.17	1,782,151.78369	2,199,996.83953	39.94633	-108.35360	
3,000.00	12.91	359.37	2,932.96	605.26	-6.66	1,782,196.46946	2,199,997.75157	39.94645	-108.35361	
3,071.85	12.91	359.37	3,003.00	621.32	-6.84	1,782,212.52340	2,199,998.07923	39.94649	-108.35361	
Garden Gulch										
3,200.00	12.91	359.37	3,127.91	649.95	-7.15	1,782,241.15522	2,199,998.66361	39.94657	-108.35361	
3,251.39	12.91	359.37	3,178.00	661.44	-7.28	1,782,252.63796	2,199,998.89797	39.94660	-108.35361	
Orange Marker										
3,400.00	12.91	359.37	3,322.85	694.64	-7.64	1,782,285.84098	2,199,999.57565	39.94670	-108.35361	
3,471.97	12.91	359.37	3,393.00	710.73	-7.82	1,782,301.92156	2,199,999.90386	39.94674	-108.35361	
Wasatch										
3,600.00	12.91	359.37	3,517.79	739.34	-8.14	1,782,330.52674	2,200,000.48769	39.94682	-108.35361	
3,800.00	12.91	359.37	3,712.73	784.03	-8.63	1,782,375.21250	2,200,001.39973	39.94694	-108.35361	
3,984.95	12.91	359.37	3,893.00	825.36	-9.08	1,782,416.53457	2,200,002.24312	39.94705	-108.35361	
9 5/8"										
4,000.00	12.91	359.37	3,907.67	828.72	-9.12	1,782,419.89827	2,200,002.31178	39.94706	-108.35361	
4,200.00	12.91	359.37	4,102.62	873.41	-9.61	1,782,464.58403	2,200,003.22382	39.94719	-108.35362	
4,400.00	12.91	359.37	4,297.56	918.11	-10.10	1,782,509.26979	2,200,004.13586	39.94731	-108.35362	
4,600.00	12.91	359.37	4,492.50	962.80	-10.59	1,782,553.95556	2,200,005.04790	39.94743	-108.35362	
4,800.00	12.91	359.37	4,687.44	1,007.49	-11.09	1,782,598.64132	2,200,005.95994	39.94755	-108.35362	
5,000.00	12.91	359.37	4,882.38	1,052.18	-11.58	1,782,643.32708	2,200,006.87198	39.94768	-108.35362	
5,200.00	12.91	359.37	5,077.33	1,096.87	-12.07	1,782,688.01285	2,200,007.78402	39.94780	-108.35362	
5,400.00	12.91	359.37	5,272.27	1,141.57	-12.56	1,782,732.69860	2,200,008.69606	39.94792	-108.35363	
5,600.00	12.91	359.37	5,467.21	1,186.26	-13.05	1,782,777.38436	2,200,009.60810	39.94805	-108.35363	
5,800.00	12.91	359.37	5,662.15	1,230.95	-13.55	1,782,822.07013	2,200,010.52015	39.94817	-108.35363	
5,872.69	12.91	359.37	5,733.00	1,247.19	-13.72	1,782,838.31047	2,200,010.85161	39.94821	-108.35363	
Top of "G" Sand										
6,000.00	12.91	359.37	5,857.09	1,275.64	-14.04	1,782,866.75589	2,200,011.43219	39.94829	-108.35363	

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Well:	RGU 43-23-198	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
6,200.00	12.91	359.37	6,052.04	1,320.34	-14.53	1,782,911.44166	2,200,012.34423	39.94841	-108.35363
6,252.29	12.91	359.37	6,103.00	1,332.02	-14.66	1,782,923.12411	2,200,012.58267	39.94845	-108.35363
Fort Union									
6,400.00	12.91	359.37	6,246.98	1,365.03	-15.02	1,782,956.12742	2,200,013.25627	39.94854	-108.35363
6,600.00	12.91	359.37	6,441.92	1,409.72	-15.51	1,783,000.81318	2,200,014.16831	39.94866	-108.35364
6,715.39	12.91	359.37	6,554.39	1,435.51	-15.80	1,783,026.59378	2,200,014.69449	39.94873	-108.35364
Start Drop -1.50°/100									
6,800.00	11.64	359.37	6,637.06	1,453.50	-15.99	1,783,044.58415	2,200,015.06168	39.94878	-108.35364
7,000.00	8.64	359.37	6,833.91	1,488.72	-16.38	1,783,079.79745	2,200,015.78039	39.94888	-108.35364
7,200.00	5.64	359.37	7,032.34	1,513.59	-16.66	1,783,104.66223	2,200,016.28788	39.94894	-108.35364
7,400.00	2.64	359.37	7,231.79	1,528.04	-16.81	1,783,119.11036	2,200,016.58277	39.94898	-108.35364
7,576.27	0.00	0.00	7,408.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Vertical									
7,600.00	0.00	0.00	7,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
7,696.27	0.00	0.00	7,528.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Ohio Creek									
7,800.00	0.00	0.00	7,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
7,976.27	0.00	0.00	7,808.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Mesaverde - Mesaverde									
8,000.00	0.00	0.00	7,831.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
8,200.00	0.00	0.00	8,031.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
8,400.00	0.00	0.00	8,231.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
8,600.00	0.00	0.00	8,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
8,800.00	0.00	0.00	8,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
8,956.27	0.00	0.00	8,788.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Approx. Top Gas									
9,000.00	0.00	0.00	8,831.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
9,200.00	0.00	0.00	9,031.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
9,400.00	0.00	0.00	9,231.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
9,600.00	0.00	0.00	9,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
9,800.00	0.00	0.00	9,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
10,000.00	0.00	0.00	9,831.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
10,200.00	0.00	0.00	10,031.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
10,400.00	0.00	0.00	10,231.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
10,600.00	0.00	0.00	10,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
10,800.00	0.00	0.00	10,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,000.00	0.00	0.00	10,831.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,036.27	0.00	0.00	10,868.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Cameo Coals									
11,200.00	0.00	0.00	11,031.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,400.00	0.00	0.00	11,231.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,600.00	0.00	0.00	11,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,611.27	0.00	0.00	11,443.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Rollins SS									
11,741.27	0.00	0.00	11,573.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Cozzette									
11,800.00	0.00	0.00	11,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
11,961.27	0.00	0.00	11,793.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Corcoran									
12,000.00	0.00	0.00	11,831.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
12,200.00	0.00	0.00	12,031.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
12,356.27	0.00	0.00	12,188.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Upper Segro									

WPX
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Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 43-23-198 - Slot A2
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 43-23-198	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	12,231.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
12,586.27	0.00	0.00	12,418.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
Lower Sego									
12,600.00	0.00	0.00	12,431.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
12,800.00	0.00	0.00	12,631.73	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
12,836.27	0.00	0.00	12,668.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364
TD at 12836.27 - 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	7,808.00	1,532.10	-16.86	1,783,123.17594	2,200,016.66575	39.94899	-108.35364

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,984.95	3,893.00	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
1,230.28	1,208.00	Green River Fm				
1,430.34	1,403.00	A Groove				
1,625.27	1,593.00	B Groove				
1,938.18	1,898.00	Dissolution Surface				
3,071.85	3,003.00	Garden Gulch				
3,251.39	3,178.00	Orange Marker				
3,471.97	3,393.00	Wasatch				
5,872.69	5,733.00	Top of "G" Sand				
6,252.29	6,103.00	Fort Union				
7,696.27	7,528.00	Ohio Creek				
7,976.27	7,808.00	Mesaverde				
8,956.27	8,788.00	Approx. Top Gas				
11,036.27	10,868.00	Cameo Coals				
11,611.27	11,443.00	Rollins SS				
11,741.27	11,573.00	Cozzette				
11,961.27	11,793.00	Corcoran				
12,356.27	12,188.00	Upper Sego				
12,586.27	12,418.00	Lower Sego				
12,836.27	12,668.00	TD		0.00		

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 43-23-198 - Slot A2
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 43-23-198	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 3.75°/100
464.35	461.45	38.64	-0.43	Hold 12.91° Inc, 359.37° Az
6,715.39	6,554.39	1,435.51	-15.80	Start Drop -1.50°/100
7,576.27	7,408.00	1,532.10	-16.86	Vertical
7,976.27	7,808.00	1,532.10	-16.86	Mesaverde
12,836.27	12,668.00	1,532.10	-16.86	TD at 12836.27