

PICEANCE HL NAD 83

RG 23-01S-098W

RGU 43-23-198 Pad

RGU 433-23-198 - Slot B6

Wellbore #1

Plan: Design #3 18Nov14 mab

Standard Planning Report - Geographic

18 November, 2014

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 433-23-198 - Slot B6
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 433-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 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 433-23-198 - Slot B6					
Well Position	+N/-S	0.00 usft	Northing:	1,781,564.50000 usft	Latitude:	39.94471
	+E/-W	0.00 usft	Easting:	2,199,968.70000 usft	Longitude:	-108.35364
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	52,337

Design	Design #3 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	299.41

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	
728.75	12.17	299.41	724.17	31.64	-56.13	2.00	2.00	0.00	299.41	
6,967.32	12.17	299.41	6,822.43	677.69	-1,202.29	0.00	0.00	0.00	0.00	
7,778.98	0.00	0.00	7,628.00	719.88	-1,277.13	1.50	-1.50	0.00	180.00	
7,878.98	0.00	0.00	7,728.00	719.88	-1,277.13	0.00	0.00	0.00	0.00	Mesaverde (50' Radiu
12,708.98	0.00	0.00	12,558.00	719.88	-1,277.13	0.00	0.00	0.00	0.00	

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Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 433-23-198 - Slot B6
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 433-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 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	1,781,564.50000	2,199,968.70000	39.94471	-108.35364	
120.00	0.00	0.00	120.00	0.00	0.00	1,781,564.50000	2,199,968.70000	39.94471	-108.35364	
Start Build 2.00°/100										
200.00	1.60	299.41	199.99	0.55	-0.97	1,781,565.07874	2,199,967.74469	39.94472	-108.35364	
400.00	5.60	299.41	399.55	6.71	-11.91	1,781,571.58442	2,199,957.00607	39.94473	-108.35368	
600.00	9.60	299.41	597.76	19.70	-34.95	1,781,585.28740	2,199,934.38718	39.94477	-108.35376	
728.75	12.17	299.41	724.17	31.64	-56.13	1,781,597.88647	2,199,913.59047	39.94480	-108.35384	
Hold 12.17° Inc, 299.41° Az										
800.00	12.17	299.41	793.83	39.02	-69.22	1,781,605.67293	2,199,900.73773	39.94482	-108.35388	
1,000.00	12.17	299.41	989.33	59.73	-105.97	1,781,627.52822	2,199,864.66220	39.94488	-108.35402	
1,200.00	12.17	299.41	1,184.83	80.44	-142.71	1,781,649.38350	2,199,828.58668	39.94493	-108.35415	
1,218.59	12.17	299.41	1,203.00	82.37	-146.13	1,781,651.41475	2,199,825.23380	39.94494	-108.35416	
Green River Fm										
1,400.00	12.17	299.41	1,380.33	101.15	-179.45	1,781,671.23879	2,199,792.51116	39.94499	-108.35428	
1,418.07	12.17	299.41	1,398.00	103.02	-182.77	1,781,673.21395	2,199,789.25085	39.94500	-108.35429	
A Groove										
1,600.00	12.17	299.41	1,575.83	121.86	-216.20	1,781,693.09408	2,199,756.43564	39.94505	-108.35441	
1,612.45	12.17	299.41	1,588.00	123.15	-218.49	1,781,694.45420	2,199,754.19054	39.94505	-108.35442	
B Groove										
1,800.00	12.17	299.41	1,771.33	142.58	-252.94	1,781,714.94936	2,199,720.36012	39.94511	-108.35454	
1,924.46	12.17	299.41	1,893.00	155.46	-275.81	1,781,728.55040	2,199,697.90951	39.94514	-108.35462	
Dissolution Surface										
2,000.00	12.17	299.41	1,966.84	163.29	-289.69	1,781,736.80465	2,199,684.28460	39.94516	-108.35467	
2,200.00	12.17	299.41	2,162.34	184.00	-326.43	1,781,758.65994	2,199,648.20907	39.94522	-108.35480	
2,400.00	12.17	299.41	2,357.84	204.71	-363.17	1,781,780.51522	2,199,612.13355	39.94528	-108.35493	
2,600.00	12.17	299.41	2,553.34	225.42	-399.92	1,781,802.37051	2,199,576.05803	39.94533	-108.35506	
2,800.00	12.17	299.41	2,748.84	246.13	-436.66	1,781,824.22580	2,199,539.98251	39.94539	-108.35520	
3,000.00	12.17	299.41	2,944.35	266.84	-473.41	1,781,846.08108	2,199,503.90700	39.94545	-108.35533	
3,049.77	12.17	299.41	2,993.00	272.00	-482.55	1,781,851.52027	2,199,494.92878	39.94546	-108.35536	
Garden Gulch										
3,200.00	12.17	299.41	3,139.85	287.56	-510.15	1,781,867.93637	2,199,467.83147	39.94550	-108.35546	
3,223.69	12.17	299.41	3,163.00	290.01	-514.50	1,781,870.52470	2,199,463.55903	39.94551	-108.35547	
Orange Marker										
3,400.00	12.17	299.41	3,335.35	308.27	-546.90	1,781,889.79166	2,199,431.75595	39.94556	-108.35559	
3,448.75	12.17	299.41	3,383.00	313.32	-555.85	1,781,895.11868	2,199,422.96288	39.94557	-108.35562	
Wasatch										
3,600.00	12.17	299.41	3,530.85	328.98	-583.64	1,781,911.64694	2,199,395.68043	39.94562	-108.35572	
3,800.00	12.17	299.41	3,726.35	349.69	-620.38	1,781,933.50222	2,199,359.60491	39.94567	-108.35585	
3,960.25	12.17	299.41	3,883.00	366.29	-649.83	1,781,951.01406	2,199,330.69891	39.94572	-108.35596	
9 5/8"										
4,000.00	12.17	299.41	3,921.85	370.40	-657.13	1,781,955.35751	2,199,323.52939	39.94573	-108.35598	
4,200.00	12.17	299.41	4,117.36	391.11	-693.87	1,781,977.21279	2,199,287.45386	39.94579	-108.35611	
4,400.00	12.17	299.41	4,312.86	411.83	-730.62	1,781,999.06808	2,199,251.37834	39.94584	-108.35624	
4,600.00	12.17	299.41	4,508.36	432.54	-767.36	1,782,020.92337	2,199,215.30282	39.94590	-108.35637	
4,800.00	12.17	299.41	4,703.86	453.25	-804.10	1,782,042.77865	2,199,179.22730	39.94596	-108.35651	
5,000.00	12.17	299.41	4,899.36	473.96	-840.85	1,782,064.63394	2,199,143.15178	39.94601	-108.35664	
5,200.00	12.17	299.41	5,094.86	494.67	-877.59	1,782,086.48923	2,199,107.07627	39.94607	-108.35677	
5,400.00	12.17	299.41	5,290.37	515.38	-914.34	1,782,108.34451	2,199,071.00074	39.94613	-108.35690	
5,600.00	12.17	299.41	5,485.87	536.09	-951.08	1,782,130.19980	2,199,034.92522	39.94619	-108.35703	
5,800.00	12.17	299.41	5,681.37	556.81	-987.82	1,782,152.05509	2,198,998.84970	39.94624	-108.35716	
5,811.90	12.17	299.41	5,693.00	558.04	-990.01	1,782,153.35540	2,198,996.70334	39.94625	-108.35717	
Top of "G" Sand										
6,000.00	12.17	299.41	5,876.87	577.52	-1,024.57	1,782,173.91037	2,198,962.77418	39.94630	-108.35729	

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Well:	RGU 433-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 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	
6,185.30	12.17	299.41	6,058.00	596.71	-1,058.61	1,782,194.15904	2,198,929.35064	39.94635	-108.35741	
Fort Union										
6,200.00	12.17	299.41	6,072.37	598.23	-1,061.31	1,782,195.76566	2,198,926.69866	39.94636	-108.35742	
6,400.00	12.17	299.41	6,267.87	618.94	-1,098.06	1,782,217.62095	2,198,890.62313	39.94641	-108.35755	
6,600.00	12.17	299.41	6,463.38	639.65	-1,134.80	1,782,239.47623	2,198,854.54761	39.94647	-108.35768	
6,800.00	12.17	299.41	6,658.88	660.36	-1,171.55	1,782,261.33152	2,198,818.47209	39.94653	-108.35782	
6,967.32	12.17	299.41	6,822.43	677.69	-1,202.29	1,782,279.61571	2,198,788.29121	39.94657	-108.35793	
Start Drop -1.50°/100										
7,000.00	11.68	299.41	6,854.41	681.01	-1,208.17	1,782,283.11596	2,198,782.51352	39.94658	-108.35795	
7,200.00	8.68	299.41	7,051.23	698.37	-1,238.97	1,782,301.43800	2,198,752.27016	39.94663	-108.35806	
7,400.00	5.68	299.41	7,249.64	710.65	-1,260.76	1,782,314.39740	2,198,730.87867	39.94666	-108.35813	
7,600.00	2.68	299.41	7,449.08	717.82	-1,273.47	1,782,321.95866	2,198,718.39764	39.94668	-108.35818	
7,608.92	2.55	299.41	7,458.00	718.02	-1,273.83	1,782,322.16987	2,198,718.04901	39.94668	-108.35818	
Ohio Creek										
7,778.98	0.00	0.00	7,628.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Vertical										
7,800.00	0.00	0.00	7,649.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
7,878.98	0.00	0.00	7,728.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Mesaverde - Mesaverde										
8,000.00	0.00	0.00	7,849.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
8,200.00	0.00	0.00	8,049.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
8,400.00	0.00	0.00	8,249.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
8,600.00	0.00	0.00	8,449.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
8,800.00	0.00	0.00	8,649.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
8,988.98	0.00	0.00	8,838.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Approx. Top Gas										
9,000.00	0.00	0.00	8,849.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
9,200.00	0.00	0.00	9,049.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
9,400.00	0.00	0.00	9,249.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
9,600.00	0.00	0.00	9,449.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
9,800.00	0.00	0.00	9,649.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,000.00	0.00	0.00	9,849.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,200.00	0.00	0.00	10,049.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,400.00	0.00	0.00	10,249.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,600.00	0.00	0.00	10,449.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,800.00	0.00	0.00	10,649.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
10,908.98	0.00	0.00	10,758.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Cameo Coals										
11,000.00	0.00	0.00	10,849.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
11,200.00	0.00	0.00	11,049.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
11,400.00	0.00	0.00	11,249.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
11,483.98	0.00	0.00	11,333.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Rollins SS										
11,600.00	0.00	0.00	11,449.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
11,608.98	0.00	0.00	11,458.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Cozzette										
11,800.00	0.00	0.00	11,649.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
11,838.98	0.00	0.00	11,688.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Corcoran										
12,000.00	0.00	0.00	11,849.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
12,200.00	0.00	0.00	12,049.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
12,228.98	0.00	0.00	12,078.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Upper Segeo										

WPX
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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 433-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 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	12,249.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
12,458.98	0.00	0.00	12,308.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
Lower Sego										
12,600.00	0.00	0.00	12,449.02	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
12,708.98	0.00	0.00	12,558.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819	
TD at 12708.98 - 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	7,728.00	719.88	-1,277.13	1,782,324.13101	2,198,714.81184	39.94669	-108.35819

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,960.25	3,883.00	9 5/8"	9.625	13.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
1,218.59	1,203.00	Green River Fm				
1,418.07	1,398.00	A Groove				
1,612.45	1,588.00	B Groove				
1,924.46	1,893.00	Dissolution Surface				
3,049.77	2,993.00	Garden Gulch				
3,223.69	3,163.00	Orange Marker				
3,448.75	3,383.00	Wasatch				
5,811.90	5,693.00	Top of "G" Sand				
6,185.30	6,058.00	Fort Union				
7,608.92	7,458.00	Ohio Creek				
7,878.98	7,728.00	Mesaverde				
8,988.98	8,838.00	Approx. Top Gas				
10,908.98	10,758.00	Cameo Coals				
11,483.98	11,333.00	Rollins SS				
11,608.98	11,458.00	Cozzette				
11,838.98	11,688.00	Corcoran				
12,228.98	12,078.00	Upper Sego				
12,458.98	12,308.00	Lower Sego				
12,708.98	12,558.00	TD				

WPX
Planning Report - Geographic

Database:	COMPASS-PICEANCE	Local Co-ordinate Reference:	Well RGU 433-23-198 - Slot B6
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 433-23-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 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 2.00°/100
728.75	724.17	31.64	-56.13	Hold 12.17° Inc, 299.41° Az
6,967.32	6,822.43	677.69	-1,202.29	Start Drop -1.50°/100
7,778.98	7,628.00	719.88	-1,277.13	Vertical
7,878.98	7,728.00	719.88	-1,277.13	Mesaverde
12,708.98	12,558.00	719.88	-1,277.13	TD at 12708.98