



# **PICEANCE VLY NAD 83**

**RU 08-07S-093W**

**RU 21-8 Pad**

**RU 21-8 - Slot B11**

**Wellbore #1**

**Plan: Design #1 09Sep14 mab**

## **Standard Planning Report - Geographic**

**28 November, 2014**

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 21-8 - Slot B11
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Project:</b>	RU 08-07S-093W	<b>MD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Site:</b>	RU 21-8 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 09Sep14 mab		

<b>Project</b>	RU 08-07S-093W		
<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>	RU 21-8 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,602,707.70 usft	<b>Latitude:</b> 39.46563
<b>From:</b> Map		<b>Easting:</b>	2,350,555.60 usft	<b>Longitude:</b> -107.80061
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.45 °

<b>Well</b>	RU 21-8 - Slot B11			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,602,681.94 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,350,508.78 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	7,736.00 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	9/9/2014	9.84	65.66	51,918

<b>Design</b>	Design #1 09Sep14 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	350.74

<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	
268.89	2.98	350.74	268.82	3.82	-0.62	2.00	2.00	0.00	350.74	
6,922.62	2.98	350.74	6,913.57	344.97	-56.25	0.00	0.00	0.00	0.00	
7,121.14	0.00	0.00	7,112.00	350.06	-57.08	1.50	-1.50	0.00	180.00	
7,221.14	0.00	0.00	7,212.00	350.06	-57.08	0.00	0.00	0.00	0.00	Top Gas (50' Radius)
9,971.14	0.00	0.00	9,962.00	350.06	-57.08	0.00	0.00	0.00	0.00	

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 21-8 - Slot B11
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Project:</b>	RU 08-07S-093W	<b>MD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Site:</b>	RU 21-8 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 09Sep14 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	1,602,681.94	2,350,508.78	39.46555	-107.80078
120.00	0.00	0.00	120.00	0.00	0.00	1,602,681.94	2,350,508.78	39.46555	-107.80078
<b>Start Build 2.00</b>									
200.00	1.60	350.74	199.99	1.10	-0.18	1,602,683.04	2,350,508.62	39.46556	-107.80078
268.89	2.98	350.74	268.82	3.82	-0.62	1,602,685.77	2,350,508.25	39.46556	-107.80078
<b>Hold 2.98° Inc, 350.74° Az</b>									
400.00	2.98	350.74	399.76	10.54	-1.72	1,602,692.52	2,350,507.33	39.46558	-107.80078
600.00	2.98	350.74	599.49	20.79	-3.39	1,602,702.81	2,350,505.91	39.46561	-107.80079
800.00	2.98	350.74	799.22	31.05	-5.06	1,602,713.10	2,350,504.50	39.46564	-107.80080
1,000.00	2.98	350.74	998.95	41.30	-6.74	1,602,723.40	2,350,503.09	39.46567	-107.80080
1,200.00	2.98	350.74	1,198.68	51.56	-8.41	1,602,733.69	2,350,501.68	39.46570	-107.80081
<b>9 5/8"</b>									
1,400.00	2.98	350.74	1,398.41	61.81	-10.08	1,602,743.98	2,350,500.27	39.46572	-107.80081
1,600.00	2.98	350.74	1,598.14	72.07	-11.75	1,602,754.28	2,350,498.85	39.46575	-107.80082
1,800.00	2.98	350.74	1,797.87	82.32	-13.42	1,602,764.57	2,350,497.44	39.46578	-107.80083
2,000.00	2.98	350.74	1,997.60	92.58	-15.10	1,602,774.86	2,350,496.03	39.46581	-107.80083
2,200.00	2.98	350.74	2,197.33	102.83	-16.77	1,602,785.16	2,350,494.62	39.46584	-107.80084
2,400.00	2.98	350.74	2,397.06	113.08	-18.44	1,602,795.45	2,350,493.21	39.46586	-107.80084
2,600.00	2.98	350.74	2,596.79	123.34	-20.11	1,602,805.74	2,350,491.79	39.46589	-107.80085
2,800.00	2.98	350.74	2,796.52	133.59	-21.78	1,602,816.04	2,350,490.38	39.46592	-107.80085
3,000.00	2.98	350.74	2,996.25	143.85	-23.46	1,602,826.33	2,350,488.97	39.46595	-107.80086
3,200.00	2.98	350.74	3,195.98	154.10	-25.13	1,602,836.63	2,350,487.56	39.46598	-107.80087
3,400.00	2.98	350.74	3,395.71	164.36	-26.80	1,602,846.92	2,350,486.15	39.46601	-107.80087
3,600.00	2.98	350.74	3,595.44	174.61	-28.47	1,602,857.21	2,350,484.73	39.46603	-107.80088
3,655.64	2.98	350.74	3,651.00	177.46	-28.94	1,602,860.08	2,350,484.34	39.46604	-107.80088
<b>Top of "G" Sand</b>									
3,755.78	2.98	350.74	3,751.00	182.60	-29.78	1,602,865.23	2,350,483.63	39.46606	-107.80088
<b>Base of "G" Sand</b>									
3,800.00	2.98	350.74	3,795.17	184.87	-30.15	1,602,867.51	2,350,483.32	39.46606	-107.80088
4,000.00	2.98	350.74	3,994.90	195.12	-31.82	1,602,877.80	2,350,481.91	39.46609	-107.80089
4,200.00	2.98	350.74	4,194.62	205.37	-33.49	1,602,888.09	2,350,480.50	39.46612	-107.80090
4,400.00	2.98	350.74	4,394.35	215.63	-35.16	1,602,898.39	2,350,479.09	39.46615	-107.80090
4,600.00	2.98	350.74	4,594.08	225.88	-36.83	1,602,908.68	2,350,477.67	39.46617	-107.80091
4,800.00	2.98	350.74	4,793.81	236.14	-38.51	1,602,918.97	2,350,476.26	39.46620	-107.80091
5,000.00	2.98	350.74	4,993.54	246.39	-40.18	1,602,929.27	2,350,474.85	39.46623	-107.80092
5,200.00	2.98	350.74	5,193.27	256.65	-41.85	1,602,939.56	2,350,473.44	39.46626	-107.80093
5,400.00	2.98	350.74	5,393.00	266.90	-43.52	1,602,949.85	2,350,472.03	39.46629	-107.80093
5,600.00	2.98	350.74	5,592.73	277.16	-45.19	1,602,960.15	2,350,470.61	39.46632	-107.80094
5,800.00	2.98	350.74	5,792.46	287.41	-46.87	1,602,970.44	2,350,469.20	39.46634	-107.80094
6,000.00	2.98	350.74	5,992.19	297.66	-48.54	1,602,980.73	2,350,467.79	39.46637	-107.80095
6,169.03	2.98	350.74	6,161.00	306.33	-49.95	1,602,989.43	2,350,466.60	39.46640	-107.80095
<b>Mesaverde</b>									
6,200.00	2.98	350.74	6,191.92	307.92	-50.21	1,602,991.03	2,350,466.38	39.46640	-107.80096
6,400.00	2.98	350.74	6,391.65	318.17	-51.88	1,603,001.32	2,350,464.97	39.46643	-107.80096
6,600.00	2.98	350.74	6,591.38	328.43	-53.56	1,603,011.61	2,350,463.56	39.46646	-107.80097
6,800.00	2.98	350.74	6,791.11	338.68	-55.23	1,603,021.91	2,350,462.14	39.46648	-107.80097
6,922.62	2.98	350.74	6,913.57	344.97	-56.25	1,603,028.22	2,350,461.28	39.46650	-107.80098
<b>Start Drop -1.50°/100</b>									
7,000.00	1.82	350.74	6,990.88	348.16	-56.77	1,603,031.43	2,350,460.84	39.46651	-107.80098
7,121.14	0.00	0.00	7,112.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>Vertical</b>									
7,200.00	0.00	0.00	7,190.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 21-8 - Slot B11
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Project:</b>	RU 08-07S-093W	<b>MD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Site:</b>	RU 21-8 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 09Sep14 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
7,221.14	0.00	0.00	7,212.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>Top Gas - Approx. Top Gas</b>									
7,400.00	0.00	0.00	7,390.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
7,600.00	0.00	0.00	7,590.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
7,800.00	0.00	0.00	7,790.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
8,000.00	0.00	0.00	7,990.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
8,200.00	0.00	0.00	8,190.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
8,400.00	0.00	0.00	8,390.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
8,600.00	0.00	0.00	8,590.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
8,800.00	0.00	0.00	8,790.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,000.00	0.00	0.00	8,990.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,020.14	0.00	0.00	9,011.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>Cameo Coals</b>									
9,200.00	0.00	0.00	9,190.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,400.00	0.00	0.00	9,390.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,600.00	0.00	0.00	9,590.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,684.14	0.00	0.00	9,675.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>Coal D</b>									
9,800.00	0.00	0.00	9,790.86	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
9,821.14	0.00	0.00	9,812.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>Rollins SS</b>									
9,971.14	0.00	0.00	9,962.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098
<b>TD at 9971.14 - TD</b>									

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
Top Gas (50' Radius) RL - plan hits target center - Circle (radius 50.00)	0.00	358.55	7,212.00	350.06	-57.08	1,603,033.33	2,350,460.58	39.46652	-107.80098

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,200.00	1,198.68	9 5/8"	9.625	13.500	

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 21-8 - Slot B11
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Project:</b>	RU 08-07S-093W	<b>MD Reference:</b>	KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)
<b>Site:</b>	RU 21-8 Pad	<b>North Reference:</b>	True
<b>Well:</b>	RU 21-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 09Sep14 mab		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
3,655.64	3,651.00	Top of "G" Sand				
3,755.78	3,751.00	Base of "G" Sand				
6,169.03	6,161.00	Mesaverde				
7,221.14	7,212.00	Approx. Top Gas				
9,020.14	9,011.00	Cameo Coals				
9,684.14	9,675.00	Coal D				
9,821.14	9,812.00	Rollins SS				
9,971.14	9,962.00	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.00	120.00	0.00	0.00	Start Build 2.00	
268.89	268.82	3.82	-0.62	Hold 2.98° Inc, 350.74° Az	
6,922.62	6,913.57	344.97	-56.25	Start Drop -1.50°/100	
7,121.14	7,112.00	350.06	-57.08	Vertical	
7,221.14	7,212.00	350.06	-57.08	Top Gas	
9,971.14	9,962.00	350.06	-57.08	TD at 9971.14	