



Well Name: RU 421-8

Surface Location: RU 21-8 Pad

North American Datum 1983 , US State Plane 1983 , Colorado Central Zone

Ground Elevation: 7736.00

+N/-S  
0.00

+E/-W  
0.00

Northing  
1602640.77

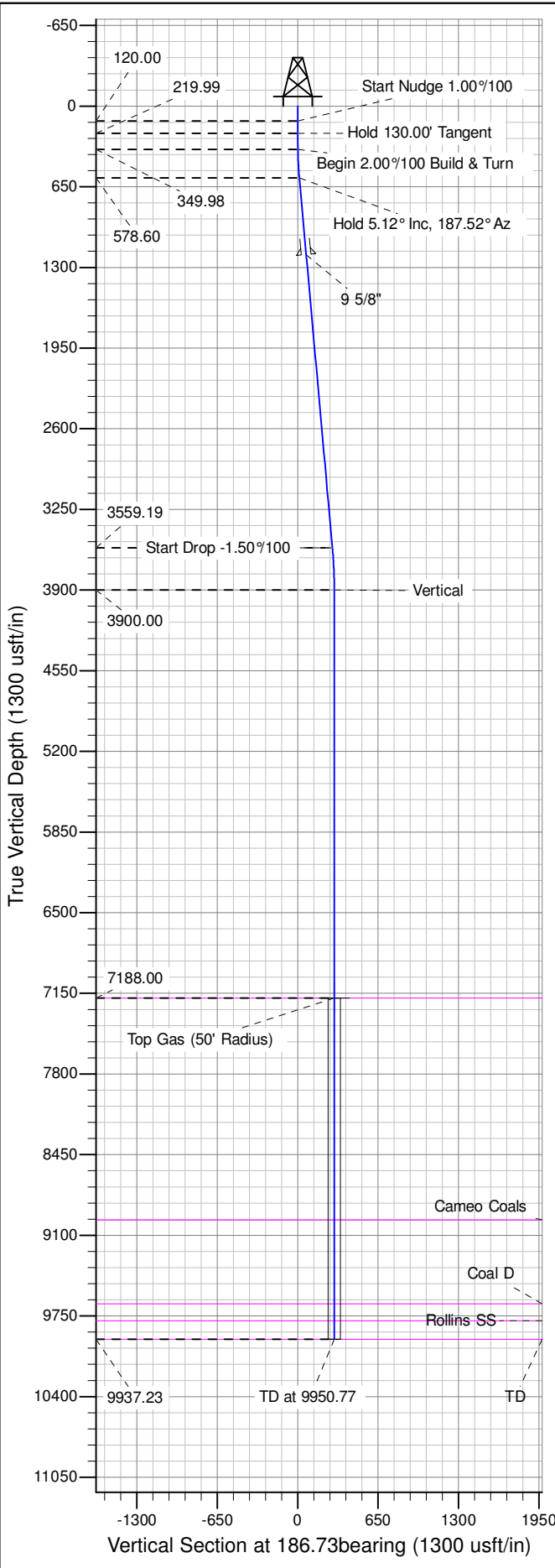
Easting  
2350474.70

Latitude  
39.46544

Longitude  
-107.80089

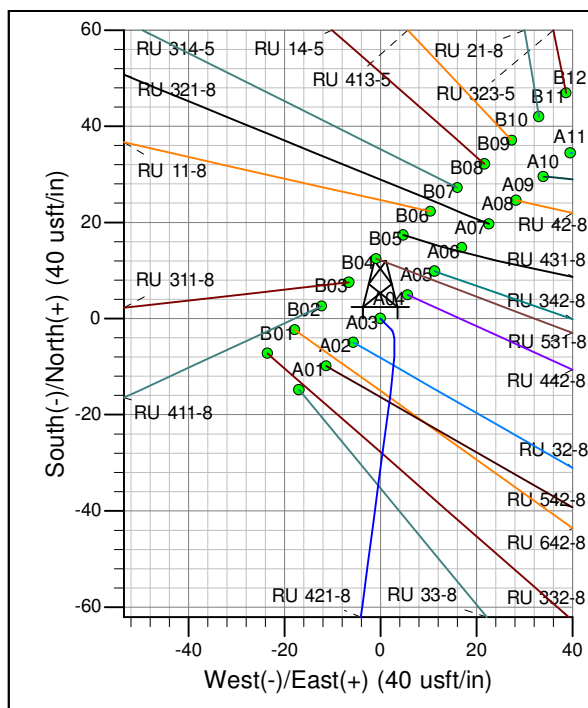
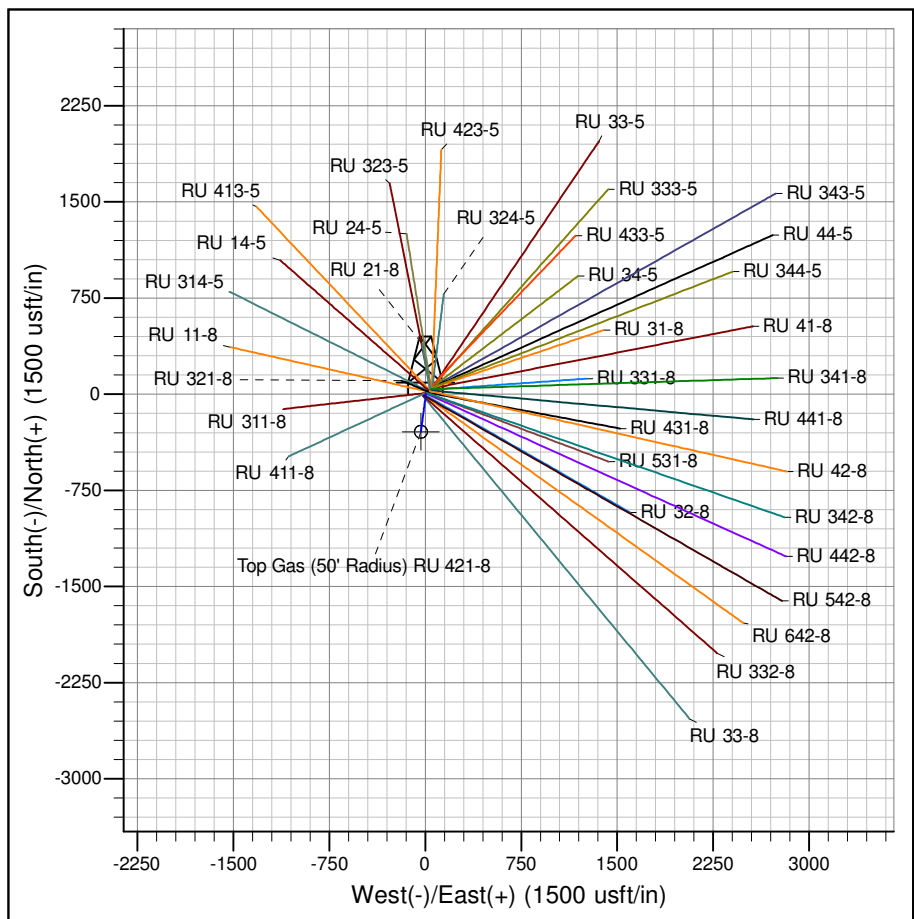
Slot  
A04

KELLY BUSHING @ 7762.00usft (Nabors 576 (26' RKB) mab)



ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V Sect	Departure	Annotation
120.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Nudge 1.00%/100
219.99	220.00	1.00	135.00	-0.62	0.62	0.54	0.87	Hold 130.00' Tangent
349.98	350.00	1.00	135.00	-2.22	2.22	1.95	3.14	Begin 2.00%/100 Build & Turn
578.60	578.97	5.12	187.52	-13.77	2.30	13.40	14.92	Hold 5.12° Inc, 187.52° Az
3559.19	3571.51	5.12	187.52	-278.48	-32.63	280.38	281.92	Start Drop -1.50%/100
3900.00	3912.77	0.00	0.00	-293.58	-34.62	295.61	297.15	Vertical
7188.00	7200.77	0.00	0.00	-293.58	-34.62	295.61	297.15	Top Gas
9937.23	9950.00	0.00	0.00	-293.58	-34.62	295.61	297.15	TD at 9950.77



Azimuths to True North  
 Magnetic North: 9.84°  
 Magnetic Field  
 Strength: 51918.1snT  
 Dip Angle: 65.66°  
 Date: 9/8/2014  
 Model: IGRF2010

Project: RU 08-07S-093W  
 Site: RU 21-8 Pad  
 Well: RU 421-8  
 Design #1 08Sep14 mab

# **PICEANCE VLY NAD 83**

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

**RU 21-8 Pad**

**RU 421-8 - Slot A04**

**Wellbore #1**

**Plan: Design #1 08Sep14 mab**

## **Standard Planning Report - Geographic**

**04 November, 2014**

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 421-8 - Slot A04
<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 421-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Sep14 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>	1,602,707.70000 usft	<b>Latitude:</b>	39.46563
<b>From:</b>	Map	<b>Easting:</b>	2,350,555.60000 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 421-8 - Slot A04					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,602,640.77073 usft	<b>Latitude:</b>	39.46544
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,350,474.69590 usft	<b>Longitude:</b>	-107.80089
<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	9/8/2014	9.84	65.66	51,918

<b>Design</b>	Design #1 08Sep14 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	186.73

<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	
220.00	1.00	135.00	219.99	-0.62	0.62	1.00	1.00	0.00	135.00	
350.00	1.00	135.00	349.98	-2.22	2.22	0.00	0.00	0.00	0.00	
578.97	5.12	187.52	578.60	-13.77	2.30	2.00	1.80	22.94	62.47	
3,571.51	5.12	187.52	3,559.19	-278.48	-32.63	0.00	0.00	0.00	0.00	
3,912.77	0.00	0.00	3,900.00	-293.58	-34.62	1.50	-1.50	0.00	180.00	
9,950.77	0.00	0.00	9,938.00	-293.58	-34.62	0.00	0.00	0.00	0.00	TD / PBHL RU 421-8

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 421-8 - Slot A04
<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 421-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Sep14 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	1,602,640.77073	2,350,474.69590	39.46544	-107.80089	
120.00	0.00	0.00	120.00	0.00	0.00	1,602,640.77073	2,350,474.69590	39.46544	-107.80089	
<b>Start Nudge 1.00°/100</b>										
200.00	0.80	135.00	200.00	-0.39	0.39	1,602,640.36594	2,350,475.08069	39.46544	-107.80089	
220.00	1.00	135.00	219.99	-0.62	0.62	1,602,640.13825	2,350,475.29713	39.46544	-107.80089	
<b>Hold 130.00' Tangent</b>										
350.00	1.00	135.00	349.98	-2.22	2.22	1,602,638.49384	2,350,476.86028	39.46543	-107.80089	
<b>Begin 2.00°/100 Build &amp; Turn</b>										
400.00	1.71	166.24	399.96	-3.25	2.71	1,602,637.44869	2,350,477.31995	39.46543	-107.80089	
578.97	5.12	187.52	578.60	-13.77	2.30	1,602,626.94956	2,350,476.64450	39.46540	-107.80089	
<b>Hold 5.12° Inc, 187.52° Az</b>										
600.00	5.12	187.52	599.54	-15.63	2.05	1,602,625.09642	2,350,476.35206	39.46540	-107.80089	
800.00	5.12	187.52	798.74	-33.32	-0.28	1,602,607.46997	2,350,473.57046	39.46535	-107.80090	
1,000.00	5.12	187.52	997.94	-51.01	-2.62	1,602,589.84353	2,350,470.78886	39.46530	-107.80090	
1,200.00	5.12	187.52	1,197.15	-68.70	-4.95	1,602,572.21708	2,350,468.00726	39.46525	-107.80091	
<b>9 5/8"</b>										
1,400.00	5.12	187.52	1,396.35	-86.39	-7.28	1,602,554.59064	2,350,465.22566	39.46520	-107.80092	
1,600.00	5.12	187.52	1,595.55	-104.08	-9.62	1,602,536.96419	2,350,462.44406	39.46515	-107.80093	
1,800.00	5.12	187.52	1,794.75	-121.77	-11.95	1,602,519.33774	2,350,459.66246	39.46510	-107.80094	
2,000.00	5.12	187.52	1,993.96	-139.47	-14.29	1,602,501.71129	2,350,456.88086	39.46506	-107.80095	
2,200.00	5.12	187.52	2,193.16	-157.16	-16.62	1,602,484.08484	2,350,454.09926	39.46501	-107.80095	
2,400.00	5.12	187.52	2,392.36	-174.85	-18.96	1,602,466.45839	2,350,451.31766	39.46496	-107.80096	
2,600.00	5.12	187.52	2,591.56	-192.54	-21.29	1,602,448.83195	2,350,448.53606	39.46491	-107.80097	
2,800.00	5.12	187.52	2,790.76	-210.23	-23.63	1,602,431.20550	2,350,445.75446	39.46486	-107.80098	
3,000.00	5.12	187.52	2,989.97	-227.92	-25.96	1,602,413.57905	2,350,442.97286	39.46481	-107.80099	
3,200.00	5.12	187.52	3,189.17	-245.61	-28.29	1,602,395.95260	2,350,440.19126	39.46476	-107.80099	
3,400.00	5.12	187.52	3,388.37	-263.30	-30.63	1,602,378.32615	2,350,437.40966	39.46472	-107.80100	
3,571.51	5.12	187.52	3,559.19	-278.48	-32.63	1,602,363.21093	2,350,435.02436	39.46467	-107.80101	
<b>Start Drop -1.50°/100</b>										
3,600.00	4.69	187.52	3,587.58	-280.89	-32.95	1,602,360.80429	2,350,434.64457	39.46467	-107.80101	
3,800.00	1.69	187.52	3,787.25	-291.93	-34.41	1,602,349.80700	2,350,432.90911	39.46464	-107.80102	
3,912.77	0.00	0.00	3,900.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>Vertical</b>										
4,000.00	0.00	0.00	3,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
4,200.00	0.00	0.00	4,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
4,400.00	0.00	0.00	4,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
4,600.00	0.00	0.00	4,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
4,800.00	0.00	0.00	4,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
5,000.00	0.00	0.00	4,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
5,200.00	0.00	0.00	5,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
5,400.00	0.00	0.00	5,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
5,600.00	0.00	0.00	5,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
5,800.00	0.00	0.00	5,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
6,000.00	0.00	0.00	5,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
6,200.00	0.00	0.00	6,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
6,400.00	0.00	0.00	6,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
6,600.00	0.00	0.00	6,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
6,800.00	0.00	0.00	6,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
7,000.00	0.00	0.00	6,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
7,200.00	0.00	0.00	7,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
7,200.77	0.00	0.00	7,188.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>Top Gas - Approx. Top Gas</b>										

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 421-8 - Slot A04
<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 421-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Sep14 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	
7,400.00	0.00	0.00	7,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
7,600.00	0.00	0.00	7,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
7,800.00	0.00	0.00	7,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,000.00	0.00	0.00	7,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,200.00	0.00	0.00	8,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,400.00	0.00	0.00	8,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,600.00	0.00	0.00	8,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,800.00	0.00	0.00	8,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
8,988.77	0.00	0.00	8,976.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>Cameo Coals</b>										
9,000.00	0.00	0.00	8,987.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
9,200.00	0.00	0.00	9,187.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
9,400.00	0.00	0.00	9,387.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
9,600.00	0.00	0.00	9,587.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
9,663.77	0.00	0.00	9,651.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>Coal D</b>										
9,800.00	0.00	0.00	9,787.23	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
9,800.77	0.00	0.00	9,788.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>Rollins SS</b>										
9,950.77	0.00	0.00	9,938.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
<b>TD at 9950.77 - TD</b>										

Design Targets										
Target Name	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	7,188.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	
TD / PBHL RU 421-8 - plan hits target center - Point	0.00	0.00	9,938.00	-293.58	-34.62	1,602,348.16292	2,350,432.64966	39.46463	-107.80102	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,200.00	1,197.15	9 5/8"	9.625	13.500		

**WPX**  
Planning Report - Geographic

<b>Database:</b>	COMPASS-PICEANCE	<b>Local Co-ordinate Reference:</b>	Well RU 421-8 - Slot A04
<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 421-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 08Sep14 mab		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)	
7,200.77	7,188.00	Approx. Top Gas				
8,988.77	8,976.00	Cameo Coals				
9,663.77	9,651.00	Coal D				
9,800.77	9,788.00	Rollins SS				
9,950.77	9,938.00	TD				

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 Nudge 1.00°/100	
220.00	219.99	-0.62	0.62	Hold 130.00' Tangent	
350.00	349.98	-2.22	2.22	Begin 2.00°/100 Build & Turn	
578.97	578.60	-13.77	2.30	Hold 5.12° Inc, 187.52° Az	
3,571.51	3,559.19	-278.48	-32.63	Start Drop -1.50°/100	
3,912.77	3,900.00	-293.58	-34.62	Vertical	
7,200.77	7,188.00	-293.58	-34.62	Top Gas	
9,950.77	9,938.00	-293.58	-34.62	TD at 9950.77	