

PICEANCE VLY NAD 83

RU 07-07S-093W

RU 22-7 Pad

RU 321-7 - Slot B8

Wellbore #1

Plan: Design #2 28Mar16 sam

Standard Survey Report

13 April, 2016

WPX
Survey Report

Company:	PICEANCE VLY NAD 83	Local Co-ordinate Reference:	Well RU 321-7 (B8) - Slot B8
Project:	RU 07-07S-093W	TVD Reference:	KB @ 7363.00usft (HP 318)
Site:	RU 22-7 Pad	MD Reference:	KB @ 7363.00usft (HP 318)
Well:	RU 321-7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #2 28Mar16 sam	Database:	COMPASS

Project	RU 07-07S-093W, Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	RU 22-7 Pad				
Site Position:		Northing:	1,599,673.60 usft	Latitude:	39.456918
From:	Map	Easting:	2,345,086.00 usft	Longitude:	-107.819705
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.46 °

Well	RU 321-7 - Slot B8					
Well Position	+N-S	0.00 usft	Northing:	1,599,719.42 usft	Latitude:	39.457044
	+E-W	0.00 usft	Easting:	2,345,091.22 usft	Longitude:	-107.819690
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,339.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/9/2016	9.75	65.61	51,661

Design	Design #2 28Mar16 sam				
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	8.62	

Survey Tool Program	Date	4/13/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	9,772.67	Design #2 28Mar16 sam (Wellbore #1)	MWD	MWD - Standard	

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 3.00										
500.00	10.65	8.62	497.96	32.53	4.93	32.90	3.00	3.00	0.00	
896.50	22.55	8.62	877.26	144.31	21.87	145.95	3.00	3.00	0.00	
Hold 22.55 Inclination										
1,000.00	22.55	8.62	972.85	183.54	27.81	185.64	0.00	0.00	0.00	
1,124.00	22.55	8.62	1,087.37	230.55	34.94	233.18	0.00	0.00	0.00	
9 5/8"										
1,500.00	22.55	8.62	1,434.64	373.08	56.54	377.34	0.00	0.00	0.00	

WPX
Survey Report

Company:	PICEANCE VLY NAD 83	Local Co-ordinate Reference:	Well RU 321-7 (B8) - Slot B8
Project:	RU 07-07S-093W	TVD Reference:	KB @ 7363.00usft (HP 318)
Site:	RU 22-7 Pad	MD Reference:	KB @ 7363.00usft (HP 318)
Well:	RU 321-7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #2 28Mar16 sam	Database:	COMPASS

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,000.00	22.55	8.62	1,896.43	562.62	85.26	569.05	0.00	0.00	0.00
2,500.00	22.55	8.62	2,358.22	752.16	113.98	760.75	0.00	0.00	0.00
3,000.00	22.55	8.62	2,820.00	941.70	142.71	952.46	0.00	0.00	0.00
3,442.84	22.55	8.62	3,229.00	1,109.58	168.15	1,122.24	0.00	0.00	0.00
Top of "G" Sand									
3,496.98	22.55	8.62	3,279.00	1,130.10	171.26	1,143.00	0.00	0.00	0.00
Base of "G" Sand									
3,500.00	22.55	8.62	3,281.79	1,131.25	171.43	1,144.16	0.00	0.00	0.00
4,000.00	22.55	8.62	3,743.58	1,320.79	200.15	1,335.87	0.00	0.00	0.00
4,415.67	22.55	8.62	4,127.48	1,478.36	224.03	1,495.24	0.00	0.00	0.00
Start Drop -1.50									
4,500.00	21.28	8.62	4,205.72	1,509.47	228.75	1,526.71	1.50	-1.50	0.00
5,000.00	13.78	8.62	4,682.16	1,658.27	251.30	1,677.20	1.50	-1.50	0.00
5,500.00	6.28	8.62	5,174.17	1,744.31	264.33	1,764.22	1.50	-1.50	0.00
5,918.67	0.00	0.00	5,592.00	1,766.97	267.77	1,787.15	1.50	-1.50	0.00
Vertical									
6,000.00	0.00	0.00	5,673.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
6,018.67	0.00	0.00	5,692.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
MVRD Target - Mesaverde									
6,500.00	0.00	0.00	6,173.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
7,000.00	0.00	0.00	6,673.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
7,500.00	0.00	0.00	7,173.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
7,559.67	0.00	0.00	7,233.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
Approx. Top Gas									
8,000.00	0.00	0.00	7,673.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
8,500.00	0.00	0.00	8,173.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
8,774.67	0.00	0.00	8,448.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
Cameo Coals									
9,000.00	0.00	0.00	8,673.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
9,500.00	0.00	0.00	9,173.33	1,766.97	267.77	1,787.15	0.00	0.00	0.00
9,501.67	0.00	0.00	9,175.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
Coal D									
9,622.67	0.00	0.00	9,296.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
Rollins									
9,772.67	0.00	0.00	9,446.00	1,766.97	267.77	1,787.15	0.00	0.00	0.00
9772.67 Measured depth - TD									

WPX
Survey Report

Company:	PICEANCE VLY NAD 83	Local Co-ordinate Reference:	Well RU 321-7 (B8) - Slot B8
Project:	RU 07-07S-093W	TVD Reference:	KB @ 7363.00usft (HP 318)
Site:	RU 22-7 Pad	MD Reference:	KB @ 7363.00usft (HP 318)
Well:	RU 321-7	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #2 28Mar16 sam	Database:	COMPASS

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
10 acre RU 321-7 MVRD - plan hits target center - Circle (radius 50.00)	0.00	0.00	5,692.00	1,766.97	267.77	1,601,478.90	2,345,404.00	39.461895	-107.818742

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,124.00	1,087.37	9 5/8"	9.625	13.500

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
3,442.84	3,229.00	Top of "G" Sand		0.00	
3,496.98	3,279.00	Base of "G" Sand		0.00	
6,018.67	5,692.00	Mesaverde		0.00	
7,559.67	7,233.00	Approx. Top Gas		0.00	
8,774.67	8,448.00	Cameo Coals		0.00	
9,501.67	9,175.00	Coal D		0.00	
9,622.67	9,296.00	Rollins		0.00	
9,772.67	9,446.00	TD		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
145	145	0	0	Start Build 3.00
897	877	144	22	Hold 22.55 Inclination
4416	4127	1478	224	Start Drop -1.50
5919	5592	1767	268	Vertical
6019	5692	1767	268	MVRD Target
9773	9446	1767	268	9772.67 Measured depth

Checked By: _____ Approved By: _____ Date: _____