

PICEANCE VLY NAD 83

PA 13-07S-095W

SP 13-13 Pad East

SP 514-13 - Slot A10

Wellbore #1

Plan: Design #1 08Nov10 kjs

Standard Planning Report - Geographic

10 January, 2011

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well SP 514-13 - Slot A10
Company:	PICEANCE VLY NAD 83	TVD Reference:	KELLY BUSHING @ 8010.0usft (H&P 278 (24' RKB) kjs)
Project:	PA 13-07S-095W	MD Reference:	KELLY BUSHING @ 8010.0usft (H&P 278 (24' RKB) kjs)
Site:	SP 13-13 Pad East	North Reference:	True
Well:	SP 514-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 08Nov10 kjs		

Project	PA 13-07S-095W, 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	SP 13-13 Pad East		
Site Position:		Northing:	1,592,728.84 usft
From:	Map	Easting:	2,306,685.15 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in
		Latitude:	39° 26' 6.316 N
		Longitude:	107° 57' 17.968 W
		Grid Convergence:	-1.548 °

Well	SP 514-13 - Slot A10		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/8/2010	10.402	65.713	52,267

Design	Design #1 08Nov10 kjs				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	161.62	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.000	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.000	
499.7	13.29	161.62	496.3	-41.6	13.8	3.50	3.50	0.00	161.622	
6,460.0	13.29	161.62	6,297.0	-1,341.7	445.7	0.00	0.00	0.00	0.000	
7,345.9	0.00	0.00	7,175.0	-1,438.8	478.0	1.50	-1.50	0.00	180.000	
7,445.9	0.00	0.00	7,275.0	-1,438.8	478.0	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
9,595.9	0.00	0.00	9,425.0	-1,438.8	478.0	0.00	0.00	0.00	0.000	

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Wellbore:	Wellbore #1		
Design:	Design #1 08Nov10 kjs		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	0.0	0.0	1,592,677.78	2,306,752.48	39° 26' 5.829 N	107° 57' 17.093 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,592,677.78	2,306,752.48	39° 26' 5.829 N	107° 57' 17.093 W	
Start Build 3.50										
499.7	13.29	161.62	496.3	-41.6	13.8	1,592,635.83	2,306,765.17	39° 26' 5.418 N	107° 57' 16.917 W	
Hold 13.29 Inclination										
1,120.0	13.29	161.62	1,100.0	-176.9	58.8	1,592,499.36	2,306,806.45	39° 26' 4.081 N	107° 57' 16.344 W	
9 5/8"										
3,986.8	13.29	161.62	3,890.0	-802.2	266.5	1,591,868.69	2,306,997.21	39° 25' 57.900 N	107° 57' 13.696 W	
Top of "G" Sand										
4,089.5	13.29	161.62	3,990.0	-824.6	274.0	1,591,846.08	2,307,004.05	39° 25' 57.679 N	107° 57' 13.601 W	
Base of "G" Sand										
6,185.6	13.29	161.62	6,030.0	-1,281.9	425.9	1,591,384.94	2,307,143.54	39° 25' 53.160 N	107° 57' 11.666 W	
Mesaverde										
6,460.0	13.29	161.62	6,297.0	-1,341.7	445.7	1,591,324.58	2,307,161.79	39° 25' 52.569 N	107° 57' 11.412 W	
Start Drop -1.50										
7,345.9	0.00	0.00	7,175.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	
Vertical										
7,445.9	0.00	0.00	7,275.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	
Top Gas - Approx. Top Gas										
8,440.9	0.00	0.00	8,270.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	
Cameo Coals										
9,445.9	0.00	0.00	9,275.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	
Rollins SS										
9,595.9	0.00	0.00	9,425.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	
TD at 9595.9 - TD										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Top Gas (25' Radius) SF - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,275.0	-1,438.8	478.0	1,591,226.70	2,307,191.40	39° 25' 51.609 N	107° 57' 11.001 W	

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name			Casing Diameter (in)	Hole Diameter (in)
1,120.0	1,100.0	9 5/8"			9.625	12.250

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Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,986.8	3,890.0	Top of "G" Sand				
4,089.5	3,990.0	Base of "G" Sand				
6,185.6	6,030.0	Mesaverde				
7,445.9	7,275.0	Approx. Top Gas				
8,440.9	8,270.0	Cameo Coals				
9,445.9	9,275.0	Rollins SS				
9,595.9	9,425.0	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.0	120.0	0.0	0.0	Start Build 3.50	
499.7	496.3	-41.6	13.8	Hold 13.29 Inclination	
6,460.0	6,297.0	-1,341.7	445.7	Start Drop -1.50	
7,345.9	7,175.0	-1,438.8	478.0	Vertical	
7,445.9	7,275.0	-1,438.8	478.0	Top Gas	
9,595.9	9,425.0	-1,438.8	478.0	TD at 9595.9	