PICEANCE VLY NAD 83

PA 28-06S-095W
PA 11-28 Pad
PA 541-29 - Slot C1

Wellbore #1

Plan: Plan #4 19Nov10 kjs

Standard Planning Report - Geographic

15 December, 2010

Database:	Compass R5000 WIN AUTH	**Local Co-ordinate Reference:**	Well PA 541-29 - Slot C1
Company:	PICEANCE VLY NAD 83	**TVD Reference:**	KELLY BUSHING @ 5991.0usft (Nabors 574 (26' RKB) kjs)
Project:	PA 28-06S-095W	**MD Reference:**	KELLY BUSHING @ 5991.0usft (Nabors 574 (26' RKB) kjs)
Site:	PA 11-28 Pad	**North Reference:**	True
Well:	PA 541-29	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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Project PA 28-06S-095W, Garfield County, CO, 28-06S-095W

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 PA 11-28 Pad

Site Position:		**Northing:**	1,617,373.30 usft	**Latitude:**	39° 30' 5.665 N
From:	Map	**Easting:**	2,291,369.70 usft	**Longitude:**	108° 0' 41.786 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	0.000 in	**Grid Convergence:**	-1.584 °

Well PA 541-29 - Slot C1

Well Position	**+N/-S**	0.0 usft	**Northing:**	1,617,374.90 usft	**Latitude:**	39° 30' 5.679 N
	+E/-W	0.0 usft	**Easting:**	2,291,362.80 usft	**Longitude:**	108° 0' 41.874 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	5,965.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/3/2007	10.797	65.844	52,628

Design Plan #4 19Nov10 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	221.07

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	
220.0	3.00	45.00	220.0	1.9	1.9	3.00	3.00	0.00	45.000	
727.3	12.23	221.13	724.2	-29.4	-24.2	3.00	1.82	34.72	176.878	
5,188.5	12.23	221.13	5,084.1	-741.0	-645.6	0.00	0.00	0.00	0.000	
6,003.5	0.00	0.00	5,893.0	-806.3	-702.6	1.50	-1.50	0.00	180.000	
8,253.5	0.00	0.00	8,143.0	-806.3	-702.6	0.00	0.00	0.00	0.000	

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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	1,617,374.90	2,291,362.80	39° 30' 5.679 N	108° 0' 41.874 W
120.0	0.00	0.00	120.0	0.0	0.0	1,617,374.90	2,291,362.80	39° 30' 5.679 N	108° 0' 41.874 W
Start Build 3.00									
220.0	3.00	45.00	220.0	1.9	1.9	1,617,376.69	2,291,364.70	39° 30' 5.697 N	108° 0' 41.851 W
Begin 3°/100 Build & Turn									
727.3	12.23	221.13	724.2	-29.4	-24.2	1,617,346.17	2,291,337.75	39° 30' 5.389 N	108° 0' 42.183 W
Hold 12.22 Inclination									
2,521.9	12.23	221.13	2,478.0	-315.7	-274.2	1,617,066.95	2,291,079.99	39° 30' 2.559 N	108° 0' 45.372 W
Top of "G" Sand									
2,624.2	12.23	221.13	2,578.0	-332.0	-288.5	1,617,051.03	2,291,065.29	39° 30' 2.398 N	108° 0' 45.554 W
Base of "G" Sand									
2,726.5	12.23	221.13	2,678.0	-348.3	-302.7	1,617,035.11	2,291,050.59	39° 30' 2.237 N	108° 0' 45.736 W
9 5/8"									
4,716.7	12.23	221.13	4,623.0	-665.7	-579.9	1,616,725.46	2,290,764.73	39° 29' 59.099 N	108° 0' 49.272 W
Mesaverde									
5,188.5	12.23	221.13	5,084.1	-741.0	-645.6	1,616,652.05	2,290,696.96	39° 29' 58.356 N	108° 0' 50.110 W
Start Drop -1.50									
6,003.5	0.00	0.00	5,893.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W
Vertical									
6,103.5	0.00	0.00	5,993.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W
Top Gas - Approx. Top Gas									
7,398.5	0.00	0.00	7,288.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W
Cameo Coals									
8,103.5	0.00	0.00	7,993.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W
Rollins SS									
8,253.5	0.00	0.00	8,143.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W
TD at 8253.5 - 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) P/ - plan hits target center - Circle (radius 25.0)	0.00	0.00	5,993.0	-806.3	-702.6	1,616,588.40	2,290,638.20	39° 29' 57.711 N	108° 0' 50.837 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
2,726.5	2,678.0	9 5/8"	9.625	12.250

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Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,521.9	2,478.0	Top of "G" Sand			
2,624.2	2,578.0	Base of "G" Sand			
4,716.7	4,623.0	Mesaverde			
6,103.5	5,993.0	Approx. Top Gas			
7,398.5	7,288.0	Cameo Coals			
8,103.5	7,993.0	Rollins SS			
8,253.5	8,143.0	TD		0.000	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
120.0	120.0	0.0	0.0	Start Build 3.00
220.0	220.0	1.9	1.9	Begin 3°/100 Build & Turn
727.3	724.2	-29.4	-24.2	Hold 12.22 Inclination
5,188.5	5,084.1	-741.0	-645.6	Start Drop -1.50
6,003.5	5,893.0	-806.3	-702.6	Vertical
6,103.5	5,993.0	-806.3	-702.6	Top Gas
8,253.5	8,143.0	-806.3	-702.6	TD at 8253.5