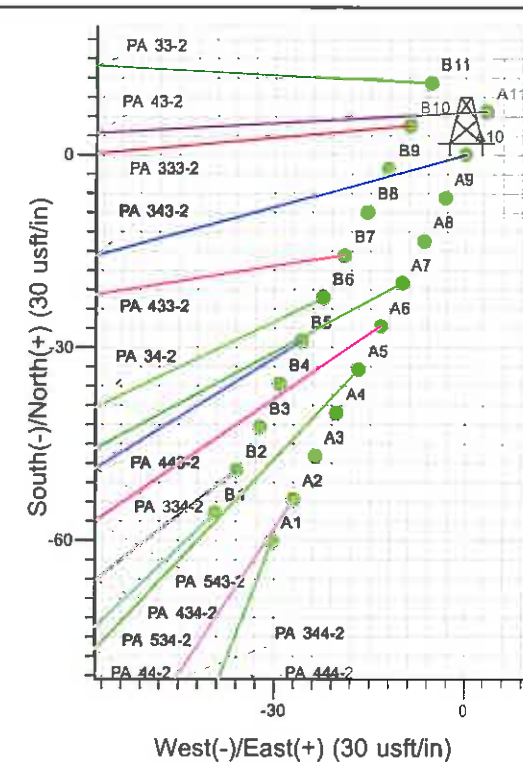
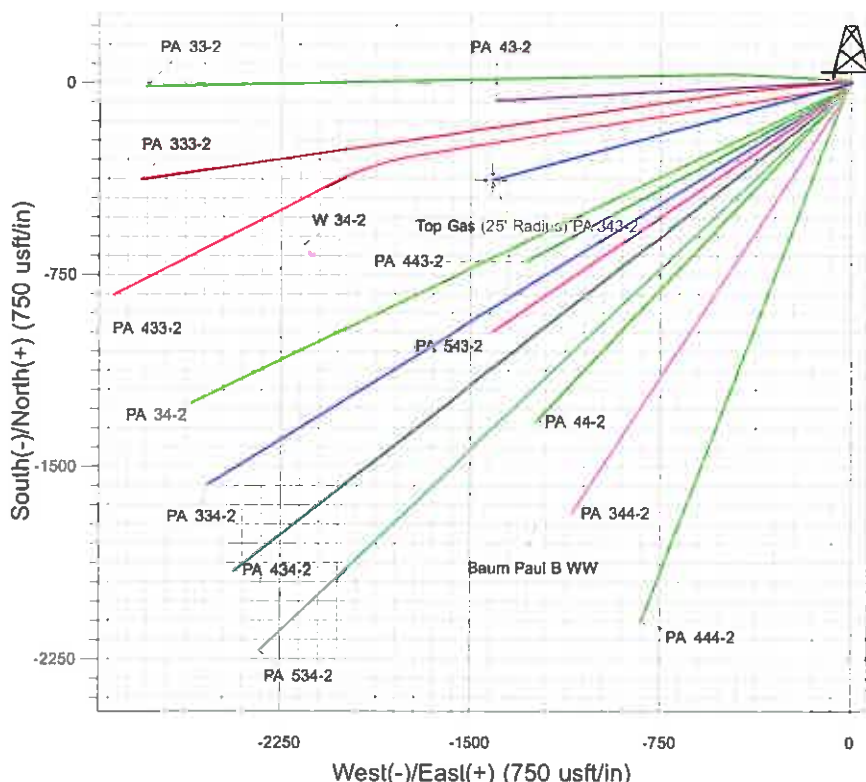
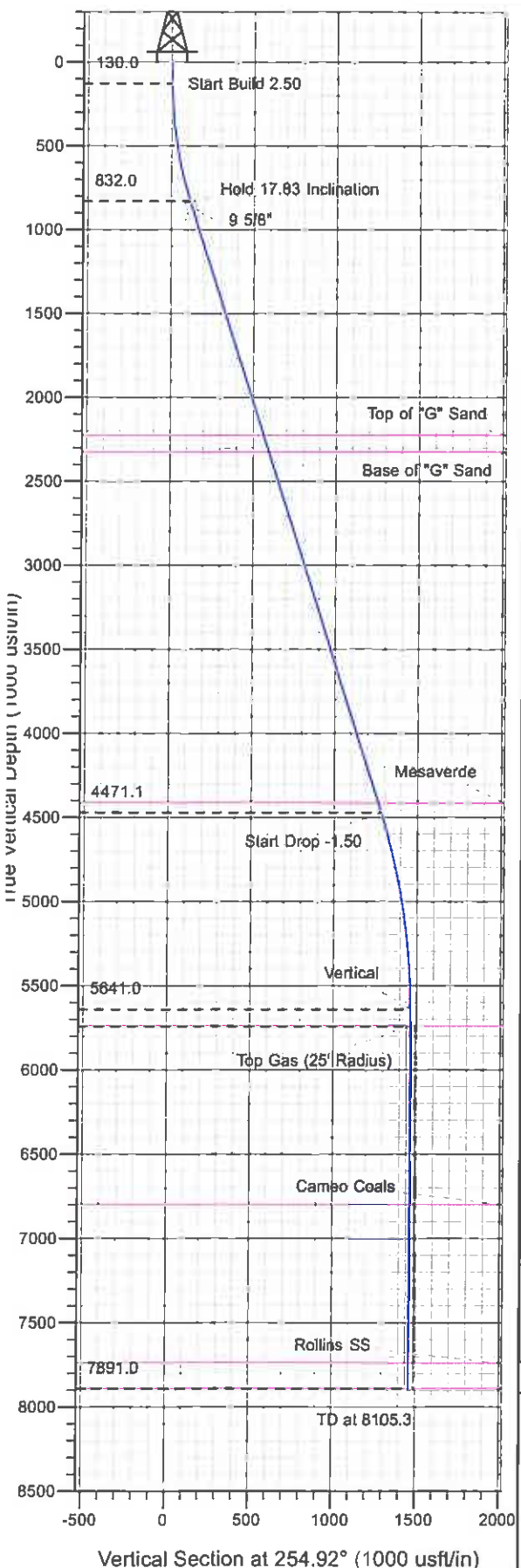




Surface Location: GV 84-1 Pad - West Cellar  
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
 Ground Elevation: 6027.0  
 WELL @ 6051.0usft (Original Well Elev)

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1604000.40 2307277.30 39° 27' 57.838 N 107° 57' 14.304 W A10



Project: PA 01-07S-095W  
 Site: GV 84-1 Pad - West Cellar  
 Well: PA 343-2  
 Design #1 22Mar11 kjs

Azimuths to True North  
 Magnetic North: 10.36°  
 Magnetic Field  
 Strength: 52262.4snT  
 Dip Angle: 65.73°  
 Date: 3/22/2011  
 Model: IGRF2010

# ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.50
832.0	843.4	17.84	254.92	-28.7	-106.4	110.1	110.1	Hold 17.83 Inclination
4471.1	4666.3	17.84	254.92	-333.3	-1236.9	1281.0	1281.0	Start Drop -1.50
5641.0	5855.3	0.00	0.00	-381.0	-1414.2	1464.6	1464.6	Vertical
5741.0	5955.3	0.00	0.00	-381.0	-1414.2	1464.6	1464.6	Top Gas
7891.0	8105.3	0.00	0.00	-381.0	-1414.2	1464.6	1464.6	TD at 8105.3

# **PICEANCE VLY NAD 83**

**PA 01-07S-095W**

**GV 84-1 Pad - West Cellar**

**PA 343-2 - Slot A10**

**Wellbore #1**

**Plan: Design #1 22Mar11 kjs**

## **Standard Planning Report - Geographic**

**16 May, 2011**

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well PA 343-2 - Slot A10
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6051.0usft (Original Well Elev)
Project:	PA 01-07S-095W	MD Reference:	WELL @ 6051.0usft (Original Well Elev)
Site:	GV 84-1 Pad - West Cellar	North Reference:	True
Well:	PA 343-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 22Mar11 kjs		

Project	PA 01-07S-095W, D1-07S-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	GV 84-1 Pad - West Cellar		
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Site Position:		Northing:	1,603,932.89 usft	Latitude:	39° 27' 57.156 N
From:	Map	Easting:	2,307,221.63 usft	Longitude:	107° 57' 14.990 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.548 °

Well	PA 343-2 - Slot A10				
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Well Position	+N/-S	0.0 usft	Northing:	1,604,000.40 usft	Latitude:	39° 27' 57.838 N
	+E/-W	0.0 usft	Easting:	2,307,277.30 usft	Longitude:	107° 57' 14.304 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,027.0 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/22/2011	10.360	65.729	52,262

Design	Design #1 22Mar11 kjs				
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Audit Notes:

Version:	Phase:	PLAN	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	254.92

Plan Sections										
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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	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.000	
843.4	17.84	254.92	832.0	-28.7	-106.4	2.50	2.50	0.00	254.920	
4,666.3	17.84	254.92	4,471.1	-333.3	-1,236.9	0.00	0.00	0.00	0.000	
5,855.3	0.00	0.00	5,641.0	-381.0	-1,414.2	1.50	-1.50	0.00	180.000	
5,955.3	0.00	0.00	5,741.0	-381.0	-1,414.2	0.00	0.00	0.00	0.000	Top Gas (25' Radius)
8,105.3	0.00	0.00	7,891.0	-381.0	-1,414.2	0.00	0.00	0.00	0.000	

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well PA 343-2 - Slot A10
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6051.0usft (Original Well Elev)
Project:	PA 01-07S-095W	MD Reference:	WELL @ 6051.0usft (Original Well Elev)
Site:	GV 84-1 Pad - West Cellar	North Reference:	True
Well:	PA 343-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 22Mar11 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	1,604,000.40	2,307,277.30	39° 27' 57.838 N	107° 57' 14.304 W
130.0	0.00	0.00	130.0	0.0	0.0	1,604,000.40	2,307,277.30	39° 27' 57.838 N	107° 57' 14.304 W
<b>Start Build 2.50</b>									
843.4	17.84	254.92	832.0	-28.7	-106.4	1,603,974.62	2,307,170.22	39° 27' 57.555 N	107° 57' 15.660 W
<b>Hold 17.83 Inclination</b>									
943.0	17.84	254.92	926.7	-36.6	-135.8	1,603,967.49	2,307,140.57	39° 27' 57.476 N	107° 57' 16.036 W
<b>9 5/8"</b>									
2,307.8	17.84	254.92	2,226.0	-145.4	-539.4	1,603,869.67	2,306,734.15	39° 27' 56.401 N	107° 57' 21.182 W
<b>Top of "G" Sand</b>									
2,412.9	17.84	254.92	2,326.0	-153.7	-570.5	1,603,862.14	2,306,702.87	39° 27' 56.319 N	107° 57' 21.579 W
<b>Base of "G" Sand</b>									
4,608.4	17.84	254.92	4,416.0	-328.7	-1,219.8	1,603,704.80	2,306,049.10	39° 27' 54.589 N	107° 57' 29.858 W
<b>Mesaverde</b>									
4,666.3	17.84	254.92	4,471.1	-333.3	-1,236.9	1,603,700.65	2,306,031.88	39° 27' 54.544 N	107° 57' 30.076 W
<b>Start Drop -1.50</b>									
5,855.3	0.00	0.00	5,641.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
<b>Vertical</b>									
5,955.3	0.00	0.00	5,741.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
<b>Top Gas - Approx. Top Gas</b>									
7,015.3	0.00	0.00	6,801.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
<b>Cameo Coals</b>									
7,955.3	0.00	0.00	7,741.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
<b>Rollins SS</b>									
8,105.3	0.00	0.00	7,891.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
<b>TD at 8105.3 - TD</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Top Gas (25' Radius) P/	0.00	0.00	5,741.0	-381.0	-1,414.2	1,603,657.70	2,305,853.40	39° 27' 54.072 N	107° 57' 32.336 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name					
943.0	926.7	9 5/8"				9.625	12.250

**Williams**  
Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well PA 343-2 - Slot A10
<b>Company:</b>	PICEANCE VLY NAD 83	<b>TVD Reference:</b>	WELL @ 6051.0usft (Original Well Elev)
<b>Project:</b>	PA 01-07S-095W	<b>MD Reference:</b>	WELL @ 6051.0usft (Original Well Elev)
<b>Site:</b>	GV 84-1 Pad - West Cellar	<b>North Reference:</b>	True
<b>Well:</b>	PA 343-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 22Mar11 kjs		

**Formations:**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,307.8	2,226.0	Top of "G" Sand			
2,412.9	2,326.0	Base of "G" Sand			
4,608.4	4,416.0	Mesaverde			
5,955.3	5,741.0	Approx. Top Gas			
7,015.3	6,801.0	Cameo Coals			
7,955.3	7,741.0	Rollins SS			
8,105.3	7,891.0	TD			

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
130.0	130.0	0.0	0.0	Start Build 2.50
843.4	832.0	-28.7	-106.4	Hold 17.83 Inclination
4,666.3	4,471.1	-333.3	-1,236.9	Start Drop -1.50
5,855.3	5,641.0	-381.0	-1,414.2	Vertical
5,955.3	5,741.0	-381.0	-1,414.2	Top Gas
8,105.3	7,891.0	-381.0	-1,414.2	TD at 8105.3

## Exhibit "A"


Township 7 South, Range 94 West, 6th P.M.

Section 6: All that part of Lot 6 lying West of a certain fence as the same now stands on Lot 6, said tract of land being in the shape of a triangle, or nearly so, being 470 feet wide on the South end and about 16 feet on the North end and being 80 rods long North and South along the Township line.

Township 7 South, Range 95 West, 6th P.M.

Section 18: S/2, SE/4NW/4, S/2NE/4, a portion of the NE/4NE/4 (Lot 1) described as beginning at a point on the South line of said NE/4NE/4 317 feet West of the Southeast corner of said NE/4NE/4, or corner No. 1, thence West 919 feet to the Southwest corner of said NE/4NE/4 to Corner No. 2; thence North following along the West line of said NE/4NE/4 153.5 feet to Corner No. 3; thence East 919 feet to Corner No. 3; thence South 153.5 feet to Corner No. 1, the place of beginning.  
EXCEPT 2 1/2 acres lying in the S/2NE/4 as described in Document No. 53850 in the office of the Garfield County Clerk and Recorder.

Section 2: E/2SE/4

  
Grand Valley Ranch Company,  
a Colorado Partnership

By: Ronald W. Johnson, Managing Partner