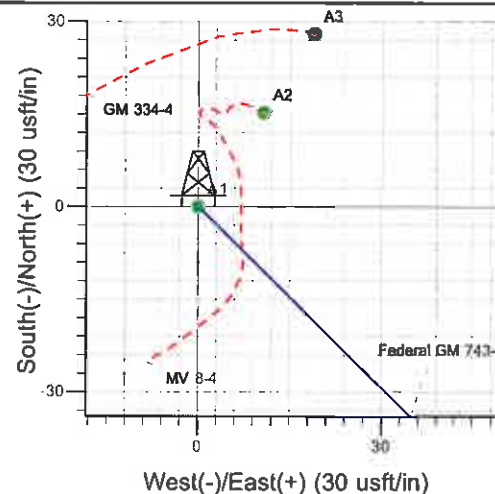
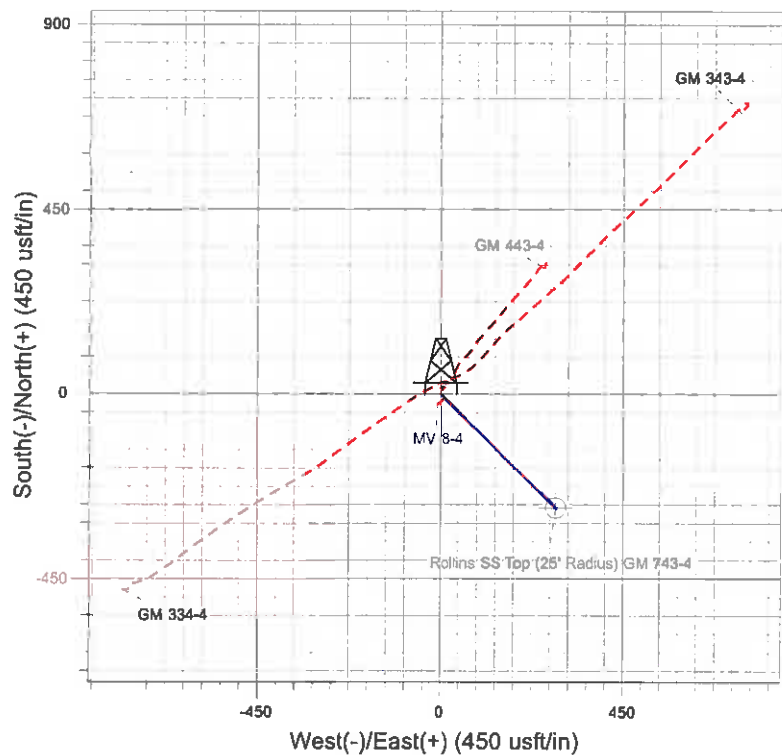
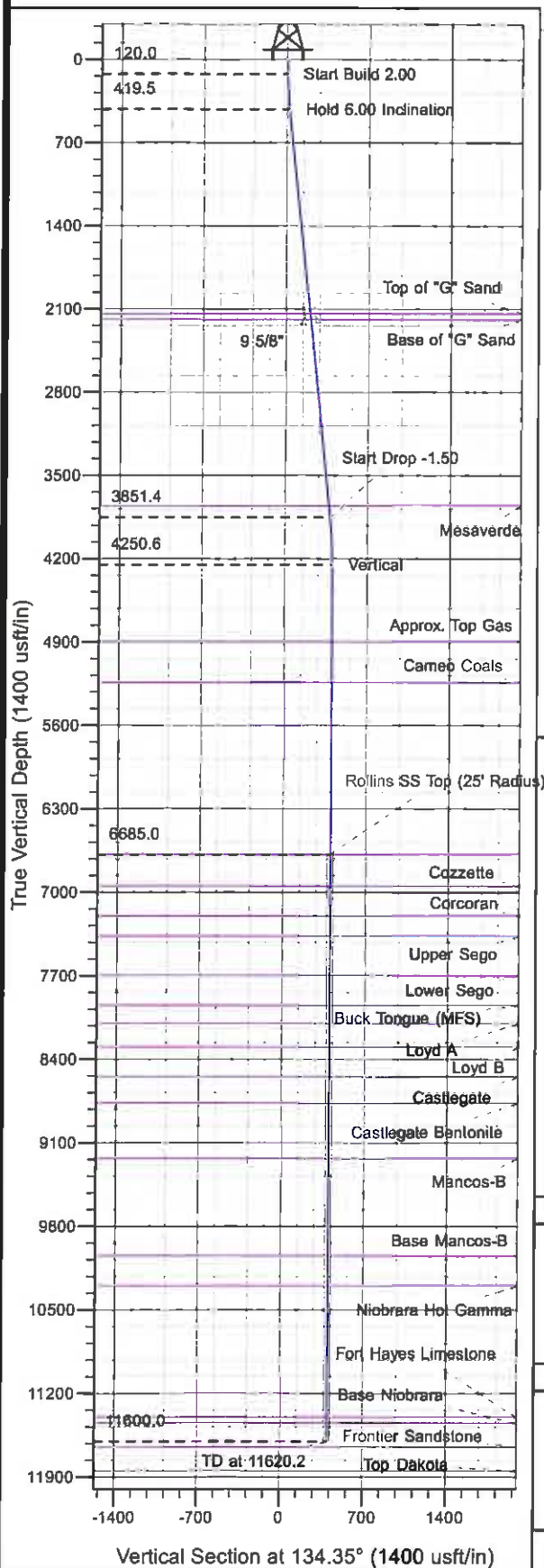




Well Name: Federal GM 743-4
 Surface Location: MV 8-4 Pad
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
 Ground Elevation: 6065.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1604240.89 2263805.59 39° 27' 48.245 N 108° 6' 28.492 W A1
 WELL @ 6090.0usft (SSD (25' RKB) kjs)



Project: GV 04-07S-096W
 Site: MV 8-4 Pad
 Well: Federal GM 743-4
 Plan #5 12May11 kjs

Azimuths to True North
 Magnetic North: 10.43°
 Magnetic Field
 Strength: 52239.4snT
 Dip Angle: 65.70°
 Date: 3/25/2011
 Model: IGRF2010

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.000	0.0	
2	120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.000	0.0	
3	420.0	6.00	134.35	419.5	-11.0	11.2	2.00	134.352	15.7	
4	3870.8	6.00	134.35	3851.4	-263.1	269.1	0.00	0.000	376.4	
5	4270.8	0.00	0.00	4250.8	-277.8	284.1	1.50	180.000	397.3	
6	6705.2	0.00	0.00	6685.0	-277.8	284.1	0.00	0.000	397.3	Rollins SS Top (25' Radius) GM 743-4
7	11620.2	0.00	0.00	11600.0	-277.8	284.1	0.00	0.000	397.3	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
419.5	420.0	6.00	134.35	-11.0	11.2	15.7	15.7	Hold 6.00 Inclination
3851.4	3870.8	6.00	134.35	-263.1	269.1	376.4	376.4	Start Drop -1.50
4250.8	4270.8	0.00	0.00	-277.8	284.1	397.3	397.3	Vertical
6685.0	6705.2	0.00	0.00	-277.8	284.1	397.3	397.3	Rollins Target
11600.0	11620.2	0.00	0.00	-277.8	284.1	397.3	397.3	TD at 11620.2

PICEANCE VLY NAD 83

GV 04-07S-096W

MV 8-4 Pad

Federal GM 743-4 - Slot A1

Wellbore #1

Plan: Plan #5 12May11 kjs

Standard Planning Report - Geographic

12 May, 2011

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal GM 743-4 - Slot A1
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Project:	GV 04-07S-096W	MD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Site:	MV 8-4 Pad	North Reference:	True
Well:	Federal GM 743-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 12May11 kjs		

Project	GV 04-07S-096W, Garfield County, CO. 04-07S-096W		
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	MV 8-4 Pad				
Site Position:		Northing:	1,604,255.80 usft	Latitude:	39° 27' 48.396 N
From:	Map	Easting:	2,263,816.70 usft	Longitude:	108° 6' 28.356 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence:	-1.645 °

Well	Federal GM 743-4 - Slot A1					
Well Position	+N/-S	0.0 usft	Northing:	1,604,240.88 usft	Latitude:	39° 27' 48.245 N
	+E/-W	0.0 usft	Easting:	2,263,805.59 usft	Longitude:	108° 6' 28.492 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,065.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/25/2011	10.427	65.697	52,239

Design	Plan #5 12May11 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	134.35

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	
420.0	6.00	134.35	419.5	-11.0	11.2	2.00	2.00	0.00	134.352	
3,870.8	6.00	134.35	3,851.4	-263.1	269.1	0.00	0.00	0.00	0.000	
4,270.8	0.00	0.00	4,250.6	-277.8	284.1	1.50	-1.50	0.00	180.000	
6,705.2	0.00	0.00	6,685.0	-277.8	284.1	0.00	0.00	0.00	0.000	Rollins SS Top (25' R
11,620.2	0.00	0.00	11,600.0	-277.8	284.1	0.00	0.00	0.00	0.000	

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal GM 743-4 - Slot A1
Company:	PIGEANCE VLY NAD 83	TVD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Project:	GV 04-07S-096W	MD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Site:	MV 8-4 Pad	North Reference:	True
Well:	Federal GM 743-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 12May11 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	1,604,240.88	2,263,805.59	39° 27' 48.245 N	108° 6' 28.492 W	
120.0	0.00	0.00	120.0	0.0	0.0	1,604,240.88	2,263,805.59	39° 27' 48.245 N	108° 6' 28.492 W	
Start Build 2.00										
420.0	6.00	134.35	418.5	-11.0	11.2	1,604,229.59	2,263,816.49	39° 27' 48.137 N	108° 6' 28.349 W	
Hold 6.00 Inclination										
2,150.0	6.00	134.35	2,140.0	-137.4	140.5	1,604,099.52	2,263,942.12	39° 27' 46.888 N	108° 6' 26.700 W	
Top of "G" Sand										
2,200.3	6.00	134.35	2,190.0	-141.1	144.3	1,604,095.74	2,263,945.77	39° 27' 46.851 N	108° 6' 26.652 W	
Base of "G" Sand										
2,230.5	6.00	134.35	2,220.0	-143.3	146.5	1,604,093.47	2,263,947.96	39° 27' 46.829 N	108° 6' 26.623 W	
8 5/8"										
3,773.9	6.00	134.35	3,755.0	-256.1	261.9	1,603,977.43	2,264,060.03	39° 27' 45.715 N	108° 6' 25.153 W	
Mesaverde										
3,870.8	6.00	134.35	3,851.4	-263.1	269.1	1,603,970.15	2,264,067.06	39° 27' 45.645 N	108° 6' 25.060 W	
Start Drop -1.50										
4,270.8	0.00	0.00	4,250.6	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Vertical										
4,915.2	0.00	0.00	4,895.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Approx. Top Gas										
5,260.2	0.00	0.00	5,240.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Cameo Coals										
6,705.2	0.00	0.00	6,685.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Rollins Target - Rollins SS										
6,970.2	0.00	0.00	6,950.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Cozzette										
7,220.2	0.00	0.00	7,200.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Corcoran										
7,390.2	0.00	0.00	7,370.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Upper Sego										
7,720.2	0.00	0.00	7,700.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Lower Sego										
7,970.2	0.00	0.00	7,950.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Buck Tongue (MFS)										
8,120.2	0.00	0.00	8,100.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Loyd A										
8,320.2	0.00	0.00	8,300.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Loyd B										
8,570.2	0.00	0.00	8,550.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Castlegate										
8,790.2	0.00	0.00	8,770.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Castlegate Bentonite										
9,250.2	0.00	0.00	9,230.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Mancos-B										
10,070.2	0.00	0.00	10,050.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Base Mancos-B										
10,320.2	0.00	0.00	10,300.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Niobrara Hot Gamma										
11,420.2	0.00	0.00	11,400.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Fort Hayes Limestone										
11,470.2	0.00	0.00	11,450.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W	
Base Niobrara										

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal GM 743-4 - Slot A1
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Project:	GV 04-07S-096W	MD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Site:	MV 8-4 Pad	North Reference:	True
Well:	Federal GM 743-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 12May11 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
11,620.2	0.00	0.00	11,600.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W
TD at 11620.2									

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									
Rollins SS Top (25' Radi	0.00	0.00	6,685.0	-277.8	284.1	1,603,955.10	2,264,081.60	39° 27' 45.500 N	108° 6' 24.869 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,230.5	2,220.0	9 5/8"	9.625	12.250	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
2,150.0	2,140.0	Top of "G" Sand				
2,200.3	2,190.0	Base of "G" Sand				
3,773.9	3,755.0	Mesaverde				
4,915.2	4,895.0	Approx. Top Gas				
5,260.2	5,240.0	Cameo Coals				
6,705.2	6,685.0	Rollins SS				
6,970.2	6,950.0	Cozzette				
7,220.2	7,200.0	Corcoran				
7,390.2	7,370.0	Upper Sego				
7,720.2	7,700.0	Lower Sego				
7,970.2	7,950.0	Buck Tongue (MFS)				
8,120.2	8,100.0	Loyd A				
8,320.2	8,300.0	Loyd B				
8,570.2	8,550.0	Castlegate				
8,790.2	8,770.0	Castlegate Bentonite				
9,250.2	9,230.0	Mancos-B				
10,070.2	10,050.0	Base Mancos-B				
10,320.2	10,300.0	Niobrara Hol Gamma				
11,420.2	11,400.0	Fort Hayes Limestone				
11,470.2	11,450.0	Base Niobrara				

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal GM 743-4 - Slot A1
Company:	PICEANCE VLY NAD 83	TVD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Project:	GV 04-07S-096W	MD Reference:	WELL @ 6090.0usft (SSD (25' RKB) kjs)
Site:	MV 8-4 Pad	North Reference:	True
Well:	Federal GM 743-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #5 12May11 kjs		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.0	120.0	0.0	0.0	Start Build 2.00
420.0	419.5	-11.0	11.2	Hold 6.00 Inclination
3,870.8	3,851.4	-263.1	269.1	Start Drop -1.50
4,270.8	4,250.6	-277.8	284.1	Vertical
6,705.2	6,685.0	-277.8	284.1	Rollins Target
11,620.2	11,600.0	-277.8	284.1	TD at 11620.2