

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
130.0	130.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 3.25
1019.0	1061.8	30.28	320.93	186.8	-151.6	240.6	240.6	Hold 30.28 Inclination
2957.0	3306.1	30.28	320.93	1065.5	-864.9	1372.3	1372.3	Start Drop -2.00
4003.0	4420.3	8.00	320.93	1347.4	-1093.7	1735.4	1735.4	UMV_PC
4401.7	4820.3	0.00	0.00	1369.1	-1111.2	1763.3	1763.3	Vertical
6923.0	7341.6	0.00	0.00	1369.1	-1111.2	1763.3	1763.3	TD at 7341.6

# **KOKOPELLI FIELD**

**Sec. 18-T6S-R91W**

**KP 33-18 Pad**

**KP 322-18 - Slot A2**

**Wellbore #1**

**Plan: Design #1 02Mar10 kjs**

## **Standard Planning Report - Geographic**

**26 March, 2010**

# Williams

## Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well KP 322-18 - Slot A2
Company:	KOKOPELLI FIELD	TVD Reference:	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
Project:	Sec. 18-T6S-R91W	MD Reference:	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
Site:	KP 33-18 Pad	North Reference:	True
Well:	KP 322-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 02Mar10 kjs		

Project	Sec. 18-T6S-R91W, 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	KP 33-18 Pad		
Site Position:		Northing:	1,623,258.60 usft
From:	Map	Easting:	2,408,960.80 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	39° 31' 33.281 N
		Longitude:	107° 35' 43.696 W
		Grid Convergence:	-1.32 °

Well	KP 322-18 - Slot A2		
Well Position	+N/-S	0.0 usft	Northing: 1,623,287.99 usft
	+E/-W	0.0 usft	Easting: 2,408,926.73 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level: 5,850.0 usft
		Latitude:	39° 31' 33.564 N
		Longitude:	107° 35' 44.139 W

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2005-10	3/2/2010	10.32
			Dip Angle (°)
			65.89
			Field Strength (nT)
			52,478

Design	Design #1 02Mar10 kjs		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			320.93

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	0.00	
130.0	0.00	0.00	130.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,061.8	30.28	320.93	1,019.0	186.8	-151.6	3.25	3.25	0.00	320.93	
3,306.1	30.28	320.93	2,957.0	1,065.5	-864.9	0.00	0.00	0.00	0.00	
4,420.3	8.00	320.93	4,003.0	1,347.4	-1,093.7	2.00	-2.00	0.00	180.00	UMV_PC (25' Radius)
4,820.3	0.00	0.00	4,401.7	1,369.1	-1,111.2	2.00	-2.00	0.00	180.00	
7,341.6	0.00	0.00	6,923.0	1,369.1	-1,111.2	0.00	0.00	0.00	0.00	

# Williams

## Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well KP 322-18 - Slot A2
Company:	KOKOPELLI FIELD	TVD Reference:	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
Project:	Sec. 18-T6S-R91W	MD Reference:	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
Site:	KP 33-18 Pad	North Reference:	True
Well:	KP 322-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 02Mar10 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	1,623,287.99	2,408,926.73	39° 31' 33.564 N	107° 35' 44.139 W
130.0	0.00	0.00	130.0	0.0	0.0	1,623,287.99	2,408,926.73	39° 31' 33.564 N	107° 35' 44.139 W
Start Build 3.25									
419.3	9.40	320.93	418.0	18.4	-14.9	1,623,306.72	2,408,912.23	39° 31' 33.745 N	107° 35' 44.330 W
Offset Water Well TD									
1,061.8	30.28	320.93	1,019.0	186.8	-151.6	1,623,478.23	2,408,779.47	39° 31' 35.410 N	107° 35' 46.074 W
Hold 30.28 Inclination									
1,111.0	30.28	320.93	1,061.5	206.0	-167.2	1,623,497.83	2,408,764.29	39° 31' 35.600 N	107° 35' 46.274 W
9 5/8"									
3,306.1	30.28	320.93	2,957.0	1,065.5	-864.9	1,624,373.14	2,408,086.71	39° 31' 44.094 N	107° 35' 55.177 W
Start Drop -2.00									
3,544.9	25.51	320.93	3,168.0	1,152.3	-935.3	1,624,461.47	2,408,018.34	39° 31' 44.951 N	107° 35' 56.075 W
Mesaverde									
4,420.3	8.00	320.93	4,003.0	1,347.4	-1,093.7	1,624,660.23	2,407,864.47	39° 31' 46.880 N	107° 35' 58.097 W
UMV_PC - UMV_PC									
4,820.3	0.00	0.00	4,401.7	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
Vertical									
5,191.6	0.00	0.00	4,773.0	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
Approx. Top Gas									
6,351.6	0.00	0.00	5,933.0	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
Upper Sand									
6,961.6	0.00	0.00	6,543.0	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
Cameo Coals									
7,191.6	0.00	0.00	6,773.0	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
Rollins SS									
7,341.6	0.00	0.00	6,923.0	1,369.1	-1,111.2	1,624,682.28	2,407,847.40	39° 31' 47.094 N	107° 35' 58.321 W
TD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
UMV_PC (25' Radius) K	0.00	0.00	4,003.0	1,361.7	-1,105.3	1,624,674.80	2,407,853.20	39° 31' 47.022 N	107° 35' 58.245 W
- hit/miss target									
- Shape									
- plan misses target center by 18.3usft at 4421.6usft MD (4004.3 TVD, 1347.6 N, -1093.8 E)									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,111.0	1,061.5	9 5/8"	9-5/8	12-1/4	

# Williams

## Planning Report - Geographic

<b>Database:</b>	Compass R5000 WIN AUTH	<b>Local Co-ordinate Reference:</b>	Well KP 322-18 - Slot A2
<b>Company:</b>	KOKOPELLI FIELD	<b>TVD Reference:</b>	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
<b>Project:</b>	Sec. 18-T6S-R91W	<b>MD Reference:</b>	KELLY BUSHING @ 5873.0usft (Cyclone 30 (23' KB) kjs)
<b>Site:</b>	KP 33-18 Pad	<b>North Reference:</b>	True
<b>Well:</b>	KP 322-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1 02Mar10 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
419.3	418.0	Offset Water Well TD				
3,544.9	3,168.0	Mesaverde				
4,420.3	4,003.0	UMV_PC				
5,191.6	4,773.0	Approx. Top Gas				
6,351.6	5,933.0	Upper Sand				
6,961.6	6,543.0	Cameo Coals				
7,191.6	6,773.0	Rollins SS				
7,341.6	6,923.0	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 3.25	
1,061.8	1,019.0	186.8	-151.6	Hold 30.28 Inclination	
3,306.1	2,957.0	1,065.5	-864.9	Start Drop -2.00	
4,420.3	4,003.0	1,347.4	-1,093.7	UMV_PC	
4,820.3	4,401.7	1,369.1	-1,111.2	Vertical	
7,341.6	6,923.0	1,369.1	-1,111.2	TD at 7341.6	