



Project: Sec. 18-T6S-R91W  
Site: KP 34-18 Pad  
Well: KP 24-18  
Design #1 04Dec09 kjs



**Azimuths to True North**  
Magnetic North: 10.35°  
**Magnetic Field**  
Strength: 52499.2nT  
Dip Angle: 65.89°  
Date: 12/4/2009  
Model IGRF2005-10

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 2.50	
1191.8	1235.3	27.88	288.21	83.1	-252.8	266.1	266.1	Hold 27.88 Inclination	
2368.6	2566.7	27.88	288.21	277.7	-844.2	888.7	888.7	Start Drop -1.50	
4155.0	4425.6	0.00	0.00	416.3	-1265.5	1332.2	1332.2	Vertical	
4255.0	4525.6	0.00	0.00	416.3	-1265.5	1332.2	1332.2	UMV_PC	
7164.0	7434.6	0.00	0.00	416.3	-1265.5	1332.2	1332.2	TD at 7434.6	

# **KOKOPELLI FIELD**

**Sec. 18-T6S-R91W**

**KP 34-18 Pad**

**KP 24-18 - Slot A3**

**Wellbore #1**

**Plan: Design #1 04Dec09 kjs**

## **Standard Planning Report - Geographic**

**17 March, 2011**

**Williams**  
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well KP 24-18 - Slot A3
Company:	KOKOPELLI FIELD	TVD Reference:	KELLY BUSHING @ 5941.0usft (Cyclone 30 (23' RKB) kjs)
Project:	Sec. 18-T6S-R91W	MD Reference:	KELLY BUSHING @ 5941.0usft (Cyclone 30 (23' RKB) kjs)
Site:	KP 34-18 Pad	North Reference:	True
Well:	KP 24-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 04Dec09 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 34-18 Pad			
Site Position:		Northing:	1,621,893.85 usft	Latitude: 39° 31' 19.842 N
From:	Map	Easting:	2,409,163.01 usft	Longitude: 107° 35' 40.714 W
Position Uncertainty:	0.0 usft	Slot Radius:	0 "	Grid Convergence: -1.32 "

Well	KP 24-18 - Slot A3			
Well Position	+N/-S	0.0 usft	Northing:	1,621,937.90 usft
	+E/-W	0.0 usft	Easting:	2,409,132.90 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level: 5,918.0 usft

Wellbore	Wellbore #1			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/4/2009	10.35	65.89	52,499

Design	Design #1 04Dec09 kjs			
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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	288.21

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	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,235.3	27.88	288.21	1,191.8	83.1	-252.8	2.50	2.50	0.00	288.21	
2,566.7	27.88	288.21	2,368.6	277.7	-844.2	0.00	0.00	0.00	0.00	
4,425.6	0.00	0.00	4,155.0	416.3	-1,265.5	1.50	-1.50	0.00	180.00	
4,525.6	0.00	0.00	4,255.0	416.3	-1,265.5	0.00	0.00	0.00	0.00	UMV_PC (25' Radius)
7,434.6	0.00	0.00	7,164.0	416.3	-1,265.5	0.00	0.00	0.00	0.00	

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Project:	Sec. 18-T6S-R91W	MD Reference:	KELLY BUSHING @ 5941.0usft (Cyclone 30 (23' RKB) kjs)
Site:	KP 34-18 Pad	North Reference:	True
Well:	KP 24-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 04Dec09 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	1,621,937.90	2,409,132.90	39° 31' 20.271 N	107° 35' 41.111 W
120.0	0.00	0.00	120.0	0.0	0.0	1,621,937.90	2,409,132.90	39° 31' 20.271 N	107° 35' 41.111 W
<b>Start Build 2.50</b>									
397.7	6.94	288.21	397.0	5.2	-16.0	1,621,943.51	2,409,117.07	39° 31' 20.322 N	107° 35' 41.315 W
<b>Offset Water Well TD</b>									
1,235.3	27.88	288.21	1,191.8	83.1	-252.8	1,622,026.84	2,408,882.14	39° 31' 21.092 N	107° 35' 44.337 W
<b>Hold 27.88 Inclination</b>									
1,285.0	27.88	288.21	1,235.7	90.4	-274.8	1,622,034.60	2,408,860.25	39° 31' 21.164 N	107° 35' 44.618 W
<b>9 5/8"</b>									
2,566.7	27.88	288.21	2,368.6	277.7	-844.2	1,622,234.96	2,408,295.34	39° 31' 23.015 N	107° 35' 51.885 W
<b>Start Drop -1.50</b>									
3,660.5	11.48	288.21	3,395.0	392.4	-1,192.9	1,622,357.67	2,407,949.36	39° 31' 24.148 N	107° 35' 56.335 W
<b>Mesaverde</b>									
4,425.6	0.00	0.00	4,155.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>Vertical</b>									
4,525.6	0.00	0.00	4,255.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>UMV_PC - UMW_PC</b>									
5,284.6	0.00	0.00	5,014.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>Approx. Top Gas</b>									
6,421.6	0.00	0.00	6,151.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>Upper Sand</b>									
6,972.6	0.00	0.00	6,702.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>Cameo Coals</b>									
7,284.6	0.00	0.00	7,014.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>Rollins SS</b>									
7,434.6	0.00	0.00	7,164.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
<b>TD at 7434.6 - TD</b>									

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	4,255.0	416.3	-1,265.5	1,622,383.20	2,407,877.40	39° 31' 24.384 N	107° 35' 57.261 W
- hit/miss target									
- Shape									
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,285.0	1,235.7	9 5/8"	9-5/8	12-1/4	

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Wellbore: Wellbore #1  
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Local Co-ordinate Reference: Well KP 24-18 - Slot A3  
TVD Reference: KELLY BUSHING @ 5941.0usft (Cyclone 30 (23' RKB) kjs)  
MD Reference: KELLY BUSHING @ 5941.0usft (Cyclone 30 (23' RKB) kjs)  
North Reference: True  
Survey Calculation Method: Minimum Curvature

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
397.7	397.0	Offset Water Well TD			
3,660.5	3,395.0	Mesaverde			
4,525.6	4,255.0	UMV_PC			
5,284.6	5,014.0	Approx. Top Gas			
6,421.6	6,151.0	Upper Sand			
6,972.6	6,702.0	Cameo Coals			
7,284.6	7,014.0	Rollins SS			
7,434.6	7,164.0	TD			

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 2.50
1,235.3	1,191.8	83.1	-252.8	Hold 27.88 Inclination
2,566.7	2,368.6	277.7	-844.2	Start Drop -1.50
4,425.6	4,155.0	416.3	-1,265.5	Vertical
4,525.6	4,255.0	416.3	-1,265.5	UMV_PC
7,434.6	7,164.0	416.3	-1,265.5	TD at 7434.6