

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**Markham 13-8 pad**

**Markham 13-8**

**Markham 13-8**

**Plan: Markham 13-8 (wp01)**

## **Standard Planning Report**

**29 December, 2010**



Project: COLORADO NORTHERN ZONE - 83  
Site: Markham 13-8 pad  
Well: Markham 13-8  
Wellbore: Markham 13-8  
Section:  
SHL:  
Design: Markham 13-8 (wp01)  
Latitude: 40.148977  
Longitude: -104.694885  
GL: 4940.00  
KB: WELL @ 4940.00ft (Original Well Elev)

## FORMATION TOP DETAILS

TVDPth	MDPth	Formation
4140.00	4215.61	PK
4550.00	4625.61	SX
7010.00	7085.61	NIO
7290.00	7365.61	CD
7377.00	7452.61	GH



# Weatherford®

## WELL DETAILS: Markham 13-8

+N/-S	+E/-W	Northing	Ground Level: Easting	4940.00 Latitude	Longitude	Slot
0.00	0.00	1298137.42	3225060.04	40.148977	-104.694885	

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Markham 13-8 BHL	7450.00	-599.24	-161.86	1297536.74	3224903.63	40.147332	-104.695464	Point

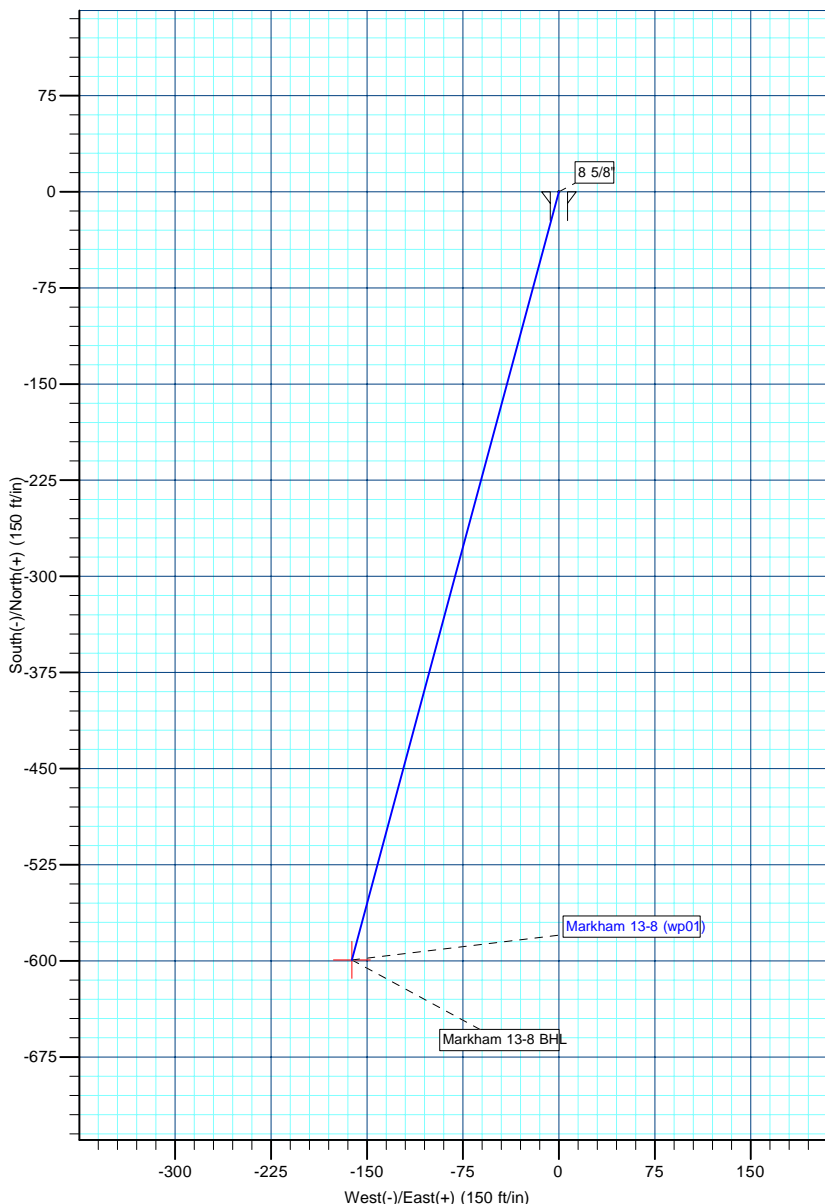
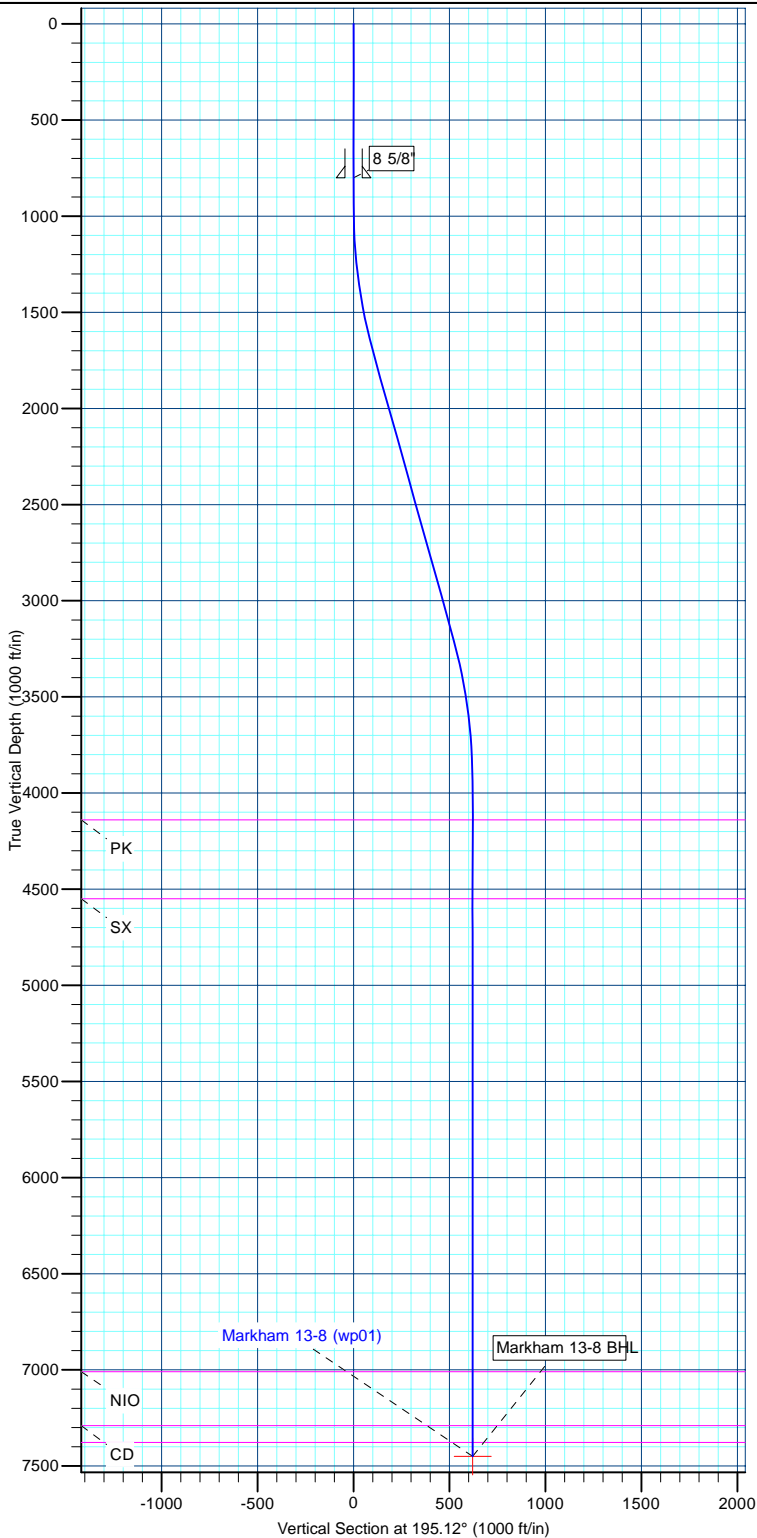


Azimuths to True North  
Magnetic North: 8.87°

Magnetic Field  
Strength: 53054.7snT  
Dip Angle: 66.87°  
Date: 12/29/2010  
Model: IGRF2010

## SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00
1734.07	15.68	195.12	1724.32	-102.94	-27.81	2.00	195.12	106.63
3241.54	15.68	195.12	3175.68	-496.30	-134.05	0.00	0.00	514.08
4025.61	0.00	0.00	3950.00	-599.24	-161.86	2.00	180.00	620.71
7525.61	0.00	0.00	7450.00	-599.24	-161.86	0.00	0.00	620.71



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Markham 13-8
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4940.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4940.00ft (Original Well Elev)
<b>Site:</b>	Markham 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	Markham 13-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Markham 13-8		
<b>Design:</b>	Markham 13-8 (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site						Markham 13-8 pad											
Site Position:						Northing:			1,298,137.43 ft			Latitude:			40.148977		
From:			Lat/Long			Easting:			3,225,060.04 ft			Longitude:			-104.694885		
Position Uncertainty:			0.00 ft			Slot Radius:			0 "			Grid Convergence:			0.52		

Well	Markham 13-8					
Well Position	+N-S	0.00 ft	Northing:	1,298,137.42 ft	Latitude:	40.148977
	+E-W	0.00 ft	Easting:	3,225,060.04 ft	Longitude:	-104.694885
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,940.00 ft

<b>Wellbore</b>	Markham 13-8				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/29/2010	8.87	66.87	53,055

<b>Design</b>	Markham 13-8 (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	195.12

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,734.07	15.68	195.12	1,724.32	-102.94	-27.81	2.00	2.00	0.00	195.12	
3,241.54	15.68	195.12	3,175.68	-496.30	-134.05	0.00	0.00	0.00	0.00	
4,025.61	0.00	0.00	3,950.00	-599.24	-161.86	2.00	-2.00	0.00	180.00	
7,525.61	0.00	0.00	7,450.00	-599.24	-161.86	0.00	0.00	0.00	0.00	Markham 13-8 BHL

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4940.00ft (Original Well Elev)
<b>Site:</b>	Markham 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	Markham 13-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Markham 13-8		
<b>Design:</b>	Markham 13-8 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
8 5/8"									
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
999.44	0.99	195.12	999.43	-0.41	-0.11	0.43	2.00	2.00	0.00
Fields #1 BHL rad @ 1000' TVD									
1,734.07	15.68	195.12	1,724.32	-102.94	-27.81	106.63	2.00	2.00	0.00
1,970.17	15.68	195.12	1,951.63	-164.55	-44.45	170.45	0.00	0.00	0.00
Fields #1 BHL rad @ 2000' TVD									
3,241.54	15.68	195.12	3,175.68	-496.30	-134.05	514.08	0.00	0.00	0.00
4,025.61	0.00	0.00	3,950.00	-599.24	-161.86	620.71	2.00	-2.00	0.00
4,215.61	0.00	0.00	4,140.00	-599.24	-161.86	620.71	0.00	0.00	0.00
PK									
4,625.61	0.00	0.00	4,550.00	-599.24	-161.86	620.71	0.00	0.00	0.00
SX									
7,085.61	0.00	0.00	7,010.00	-599.24	-161.86	620.71	0.00	0.00	0.00
NIO									
7,365.61	0.00	0.00	7,290.00	-599.24	-161.86	620.71	0.00	0.00	0.00
CD									
7,452.61	0.00	0.00	7,377.00	-599.24	-161.86	620.71	0.00	0.00	0.00
GH									
7,525.61	0.00	0.00	7,450.00	-599.24	-161.86	620.71	0.00	0.00	0.00
Fields #1 BHL rad @ 7874' TVD - Markham 13-8 BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Markham 13-8 BHL	0.00	0.00	7,450.00	-599.24	-161.86	1,297,536.74	3,224,903.63	40.147332	-104.695464
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
800.00	800.00	8 5/8"	8-5/8	11	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,215.61	4,140.00	PK				
4,625.61	4,550.00	SX				
7,085.61	7,010.00	NIO				
7,365.61	7,290.00	CD				
7,452.61	7,377.00	GH				

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