

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**Markham 13-8 pad**

**Markham 35-8**

**Markham 35-8**

**Plan: Markham 35-8 (wp01)**

## **Standard Planning Report**

**29 December, 2010**



Project: COLORADO NORTHERN ZONE - 83

Site: Markham 13-8 pad

Well: Markham 35-8

Wellbore: Markham 35-8

Section:

SHL:

Design: Markham 35-8 (wp01)

Latitude: 40.148975

Longitude: -104.694828

GL: 4940.00

KB: WELL (copy) @ 4940.00ft (Original Well Elev)

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4140.00	4349.06	PK
4550.00	4767.10	SX
7010.00	7227.90	NIO
7290.00	7507.90	CD
7377.00	7594.90	GH
7740.00	7957.90	J



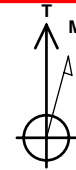
# Weatherford®

#### WELL DETAILS: Markham 35-8

+N/-S	+E/-W	Northing	Ground Level: Easting	4940.00 Latitude	Longitude	Slot
0.00	0.00	1298136.83	3225075.98	40.148975	-104.694828	

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Markham 35-8 BHL	7890.00	-1048.38	588.18	1297093.83	3225673.65	40.146097	-104.692724	Point

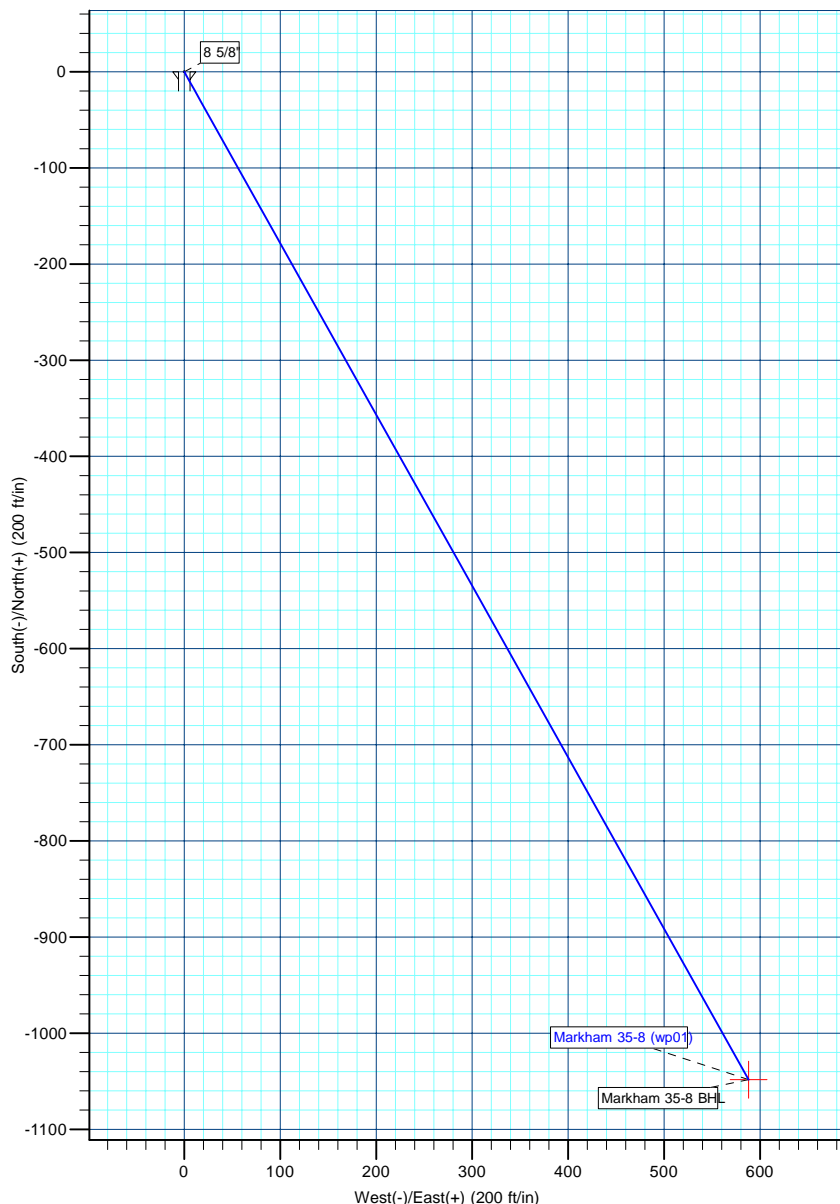
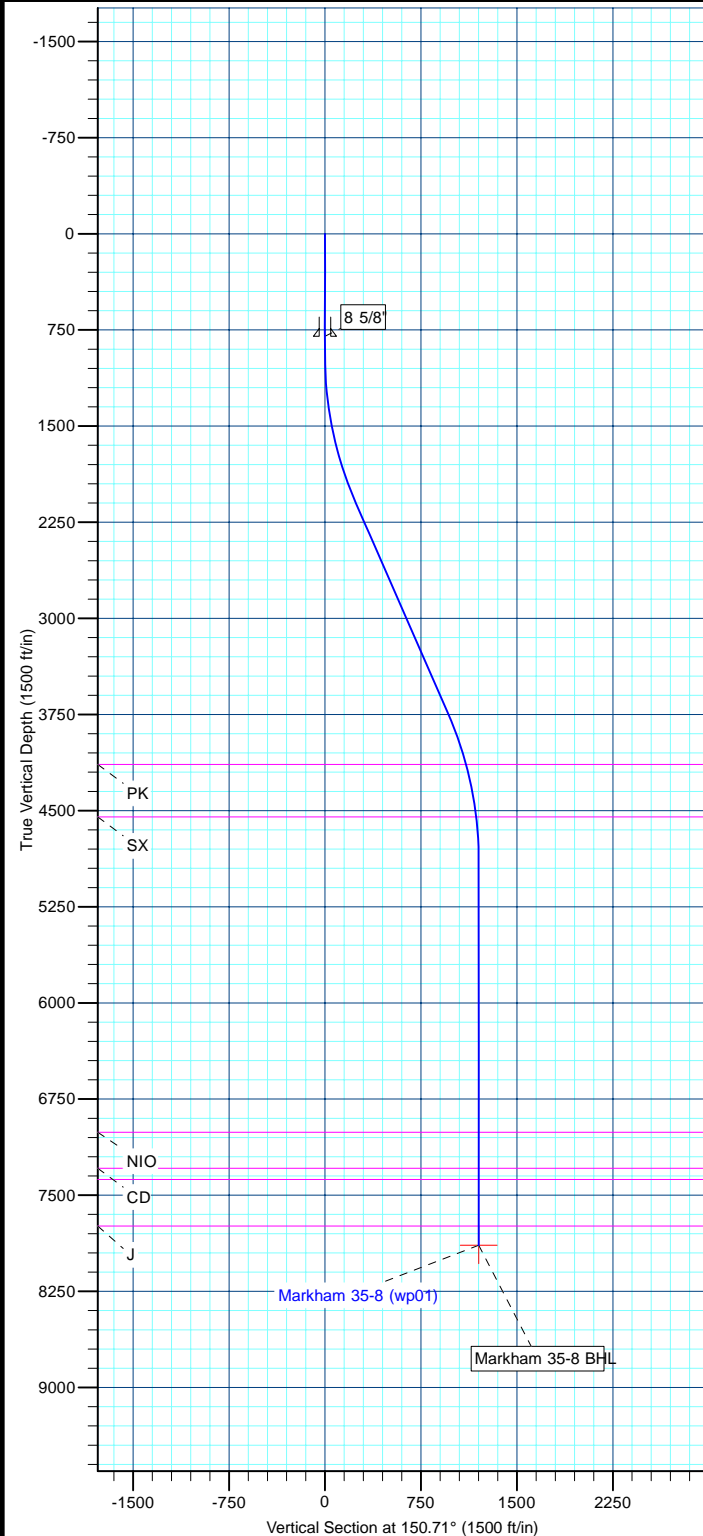


Azimuths to True North  
Magnetic North: 8.87°

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
2135.43	23.71	150.71	2101.89	-210.86	118.30	2.00	150.7	1241.78
3922.48	23.71	150.71	3738.11	-837.52	469.88	0.00	0.00	960.32
5107.90	0.00	0.00	4890.00	-1048.38	588.18	2.00	180.00	1202.10
8107.90	0.00	0.00	7890.00	-1048.38	588.18	0.00	0.00	1202.10



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Markham 35-8
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Site:</b>	Markham 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	Markham 35-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Markham 35-8		
<b>Design:</b>	Markham 35-8 (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: From:	Lat/Long	Northing:	1,298,137.43 ft	Latitude:	40.148977
		Easting:	3,225,060.04 ft	Longitude:	-104.694885
		Position Uncertainty:	0.00 ft	Slot Radius:	0 "

Well	Markham 35-8					
Well Position	+N-S	-0.74 ft	Northing:	1,298,136.83 ft	Latitude:	40.148975
	+E-W	15.93 ft	Easting:	3,225,075.98 ft	Longitude:	-104.694828
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,940.00 ft

<b>Wellbore</b>	Markham 35-8				
<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 35-8 (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	150.71

<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	
2,135.43	23.71	150.71	2,101.89	-210.86	118.30	2.00	2.00	0.00	150.71	
3,922.48	23.71	150.71	3,738.11	-837.52	469.88	0.00	0.00	0.00	0.00	
5,107.90	0.00	0.00	4,890.00	-1,048.38	588.18	2.00	-2.00	0.00	180.00	
8,107.90	0.00	0.00	7,890.00	-1,048.38	588.18	0.00	0.00	0.00	0.00	Markham 35-8 BHL

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Markham 35-8
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Site:</b>	Markham 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	Markham 35-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Markham 35-8		
<b>Design:</b>	Markham 35-8 (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
<b>8 5/8"</b>									
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
2,135.43	23.71	150.71	2,101.89	-210.86	118.30	241.78	2.00	2.00	0.00
3,922.48	23.71	150.71	3,738.11	-837.52	469.88	960.32	0.00	0.00	0.00
4,349.06	15.18	150.71	4,140.00	-961.24	539.29	1,102.19	2.00	-2.00	0.00
<b>PK</b>									
4,767.10	6.82	150.71	4,550.00	-1,030.72	578.27	1,181.86	2.00	-2.00	0.00
<b>SX</b>									
5,107.90	0.00	0.00	4,890.00	-1,048.38	588.18	1,202.10	2.00	-2.00	0.00
7,227.90	0.00	0.00	7,010.00	-1,048.38	588.18	1,202.10	0.00	0.00	0.00
<b>NIO</b>									
7,507.90	0.00	0.00	7,290.00	-1,048.38	588.18	1,202.10	0.00	0.00	0.00
<b>CD</b>									
7,594.90	0.00	0.00	7,377.00	-1,048.38	588.18	1,202.10	0.00	0.00	0.00
<b>GH</b>									
7,957.90	0.00	0.00	7,740.00	-1,048.38	588.18	1,202.10	0.00	0.00	0.00
<b>J</b>									
8,107.90	0.00	0.00	7,890.00	-1,048.38	588.18	1,202.10	0.00	0.00	0.00
<b>Markham 35-8 BHL</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Markham 35-8 BHL	0.00	0.00	7,890.00	-1,048.38	588.18	1,297,093.83	3,225,673.65	40.146097	-104.692724
- hit/miss target									
- Shape									
- 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	

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Markham 35-8
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL (copy) @ 4940.00ft (Original Well Elev)
<b>Site:</b>	Markham 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	Markham 35-8	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Markham 35-8		
<b>Design:</b>	Markham 35-8 (wp01)		

Formations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	4,349.06	4,140.00	PK			
	4,767.10	4,550.00	SX			
	7,227.90	7,010.00	NIO			
	7,507.90	7,290.00	CD			
	7,594.90	7,377.00	GH			
	7,957.90	7,740.00	J			