

# **Elm Ridge Exploration Company.**

**La Plata County, Co (Nad 83)**

**Sec 8, T33N, R8W**

**IGE 127**

**DD**

**UWI:**

**WL:**

**Plan: #2**

## **Standard Planning Report**

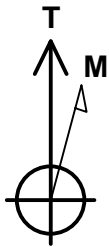
**17 September, 2013**



Elm Ridge Exploration Company.

Project: La Plata County, Co (Nad 83)  
Site: Sec 8, T33N, R8W  
Well: IGE 127  
Wellbore: DD  
Plan: #2

Reference Details - WELL CENTRE  
Geodetic System: US State Plane 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Southern Zone  
Northing: 1170937.82  
Easting: 2348236.81  
Latitude: 37° 6' 52.920 N  
Longitude: 107° 44' 7.224 W  
Grid Convergence: 1.37° East  
Ground Elevation: 6678.0  
KB Elevation: Est RKB @ 6692.0usft

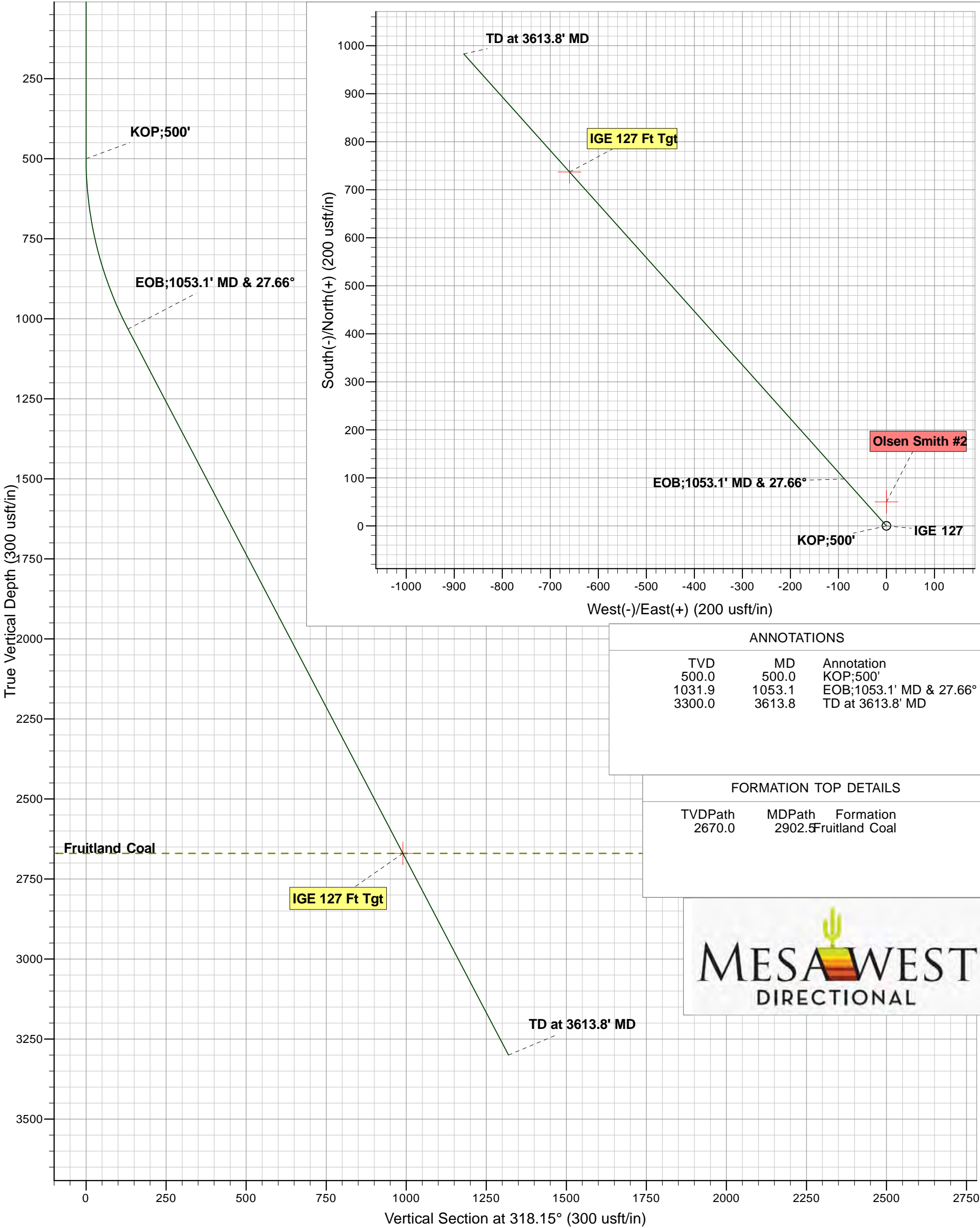


Azimuths to True North  
Magnetic North: 9.65°

Magnetic Field  
Strength: 50726.1snT  
Dip Angle: 63.73°  
Date: 9/18/2013  
Model: IGRF2010

PLAN DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	1053.1	27.66	318.15	1031.9	97.5	-87.3	5.00	318.15	130.9	
4	2902.5	27.66	318.15	2670.0	737.0	-660.0	0.00	0.00	989.3	IGE 127 Ft Tgt
5	3613.8	27.66	318.15	3300.0	982.9	-880.2	0.00	0.00	1319.5	



# Mesa West Directional

## Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well IGE 127
<b>Company:</b>	Elm Ridge Exploration Company.	<b>TVD Reference:</b>	Est RKB @ 6692.0usft
<b>Project:</b>	La Plata County, Co (Nad 83)	<b>MD Reference:</b>	Est RKB @ 6692.0usft
<b>Site:</b>	Sec 8, T33N, R8W	<b>North Reference:</b>	True
<b>Well:</b>	IGE 127	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	#2		

<b>Project</b>	La Plata County, Co (Nad 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 Southern Zone		

Site		Sec 8, T33N, R8W			
Site Position:		Northing:	1,170,937.81 usft	Latitude:	37° 6' 52.920 N
From:	Lat/Long	Easting:	2,348,236.82 usft	Longitude:	107° 44' 7.224 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.37 °

Well	IGE 127					
Well Position	+N/-S	0.0 usft	Northing:	1,170,937.81 usft	Latitude:	37° 6' 52.920 N
	+E/-W	0.0 usft	Easting:	2,348,236.82 usft	Longitude:	107° 44' 7.224 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,678.0 usft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/18/2013	9.65	63.73	50,726

<b>Design</b>	#2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	318.15

<b>Plan Sections</b>										
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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,053.1	27.66	318.15	1,031.9	97.5	-87.3	5.00	5.00	0.00	318.15	
2,902.5	27.66	318.15	2,670.0	737.0	-660.0	0.00	0.00	0.00	0.00	IGE 127 Ft Tgt
3,613.8	27.66	318.15	3,300.0	982.9	-880.2	0.00	0.00	0.00	0.00	

# Mesa West Directional

## Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well IGE 127
<b>Company:</b>	Elm Ridge Exploration Company.	<b>TVD Reference:</b>	Est RKB @ 6692.0usft
<b>Project:</b>	La Plata County, Co (Nad 83)	<b>MD Reference:</b>	Est RKB @ 6692.0usft
<b>Site:</b>	Sec 8, T33N, R8W	<b>North Reference:</b>	True
<b>Well:</b>	IGE 127	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	#2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-6,692.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP;500'</b>										
500.0	0.00	0.00	500.0	-6,192.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	5.00	318.15	599.9	-6,092.1	3.2	-2.9	4.4	5.00	5.00	0.00
700.0	10.00	318.15	699.0	-5,993.0	13.0	-11.6	17.4	5.00	5.00	0.00
800.0	15.00	318.15	796.6	-5,895.4	29.1	-26.0	39.0	5.00	5.00	0.00
900.0	20.00	318.15	891.9	-5,800.1	51.5	-46.1	69.1	5.00	5.00	0.00
1,000.0	25.00	318.15	984.3	-5,707.7	80.0	-71.6	107.4	5.00	5.00	0.00
<b>EOB;1053.1' MD &amp; 27.66°</b>										
1,053.1	27.66	318.15	1,031.9	-5,660.1	97.5	-87.3	130.9	5.00	5.00	0.00
1,100.0	27.66	318.15	1,073.4	-5,618.6	113.7	-101.9	152.7	0.00	0.00	0.00
1,200.0	27.66	318.15	1,162.0	-5,530.0	148.3	-132.8	199.1	0.00	0.00	0.00
1,300.0	27.66	318.15	1,250.6	-5,441.4	182.9	-163.8	245.5	0.00	0.00	0.00
1,400.0	27.66	318.15	1,339.1	-5,352.9	217.5	-194.8	291.9	0.00	0.00	0.00
1,500.0	27.66	318.15	1,427.7	-5,264.3	252.0	-225.7	338.3	0.00	0.00	0.00
1,600.0	27.66	318.15	1,516.3	-5,175.7	286.6	-256.7	384.8	0.00	0.00	0.00
1,700.0	27.66	318.15	1,604.9	-5,087.1	321.2	-287.6	431.2	0.00	0.00	0.00
1,800.0	27.66	318.15	1,693.4	-4,998.6	355.8	-318.6	477.6	0.00	0.00	0.00
1,900.0	27.66	318.15	1,782.0	-4,910.0	390.4	-349.6	524.0	0.00	0.00	0.00
2,000.0	27.66	318.15	1,870.6	-4,821.4	424.9	-380.5	570.4	0.00	0.00	0.00
2,100.0	27.66	318.15	1,959.2	-4,732.8	459.5	-411.5	616.8	0.00	0.00	0.00
2,200.0	27.66	318.15	2,047.7	-4,644.3	494.1	-442.5	663.3	0.00	0.00	0.00
2,300.0	27.66	318.15	2,136.3	-4,555.7	528.7	-473.4	709.7	0.00	0.00	0.00
2,400.0	27.66	318.15	2,224.9	-4,467.1	563.2	-504.4	756.1	0.00	0.00	0.00
2,500.0	27.66	318.15	2,313.5	-4,378.5	597.8	-535.4	802.5	0.00	0.00	0.00
2,600.0	27.66	318.15	2,402.0	-4,290.0	632.4	-566.3	848.9	0.00	0.00	0.00
2,700.0	27.66	318.15	2,490.6	-4,201.4	667.0	-597.3	895.3	0.00	0.00	0.00
2,800.0	27.66	318.15	2,579.2	-4,112.8	701.6	-628.3	941.7	0.00	0.00	0.00
2,900.0	27.66	318.15	2,667.8	-4,024.2	736.1	-659.2	988.2	0.00	0.00	0.00
<b>Fruitland Coal</b>										
2,902.5	27.66	318.15	2,670.0	-4,022.0	737.0	-660.0	989.3	0.00	0.00	0.00
3,000.0	27.66	318.15	2,756.3	-3,935.7	770.7	-690.2	1,034.6	0.00	0.00	0.00
3,100.0	27.66	318.15	2,844.9	-3,847.1	805.3	-721.2	1,081.0	0.00	0.00	0.00
3,200.0	27.66	318.15	2,933.5	-3,758.5	839.9	-752.1	1,127.4	0.00	0.00	0.00
3,300.0	27.66	318.15	3,022.1	-3,669.9	874.4	-783.1	1,173.8	0.00	0.00	0.00
3,400.0	27.66	318.15	3,110.6	-3,581.4	909.0	-814.0	1,220.2	0.00	0.00	0.00
<b>TD at 3613.8' MD</b>										
3,613.8	27.66	318.15	3,300.0	-3,392.0	982.9	-880.2	1,319.5	0.00	0.00	0.00

# Mesa West Directional

## Planning Report



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<b>Company:</b>	Elm Ridge Exploration Company.	<b>TVD Reference:</b>	Est RKB @ 6692.0usft
<b>Project:</b>	La Plata County, Co (Nad 83)	<b>MD Reference:</b>	Est RKB @ 6692.0usft
<b>Site:</b>	Sec 8, T33N, R8W	<b>North Reference:</b>	True
<b>Well:</b>	IGE 127	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	#2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Olsen Smith #2	0.00	0.00	0.0	50.0	0.0	1,170,987.80	2,348,238.01	37° 6' 53.414 N	107° 44' 7.224 W
- plan misses target center by 50.0usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
IGE 127 Ft Tgt	0.00	0.00	2,670.0	737.0	-660.0	1,171,690.39	2,347,594.64	37° 7' 0.207 N	107° 44' 15.372 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Subsea Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)	(usft)			(°)	(°)
2,902.5	2,670.0	4,022.0	Fruitland Coal		0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
500.0	500.0	0.0	0.0	KOP;500'	
1,053.1	1,031.9	97.5	-87.3	EOB;1053.1' MD & 27.66°	
3,613.8	3,300.0	737.0	-660.0	TD at 3613.8' MD	