

Elm Ridge Exploration Company.

La Plata County, Co (Nad 83)

Sec 9-T33N-R8W

IGE 130

DD

UWI:

WL:

Plan: #3

Standard Planning Report

11 February, 2014



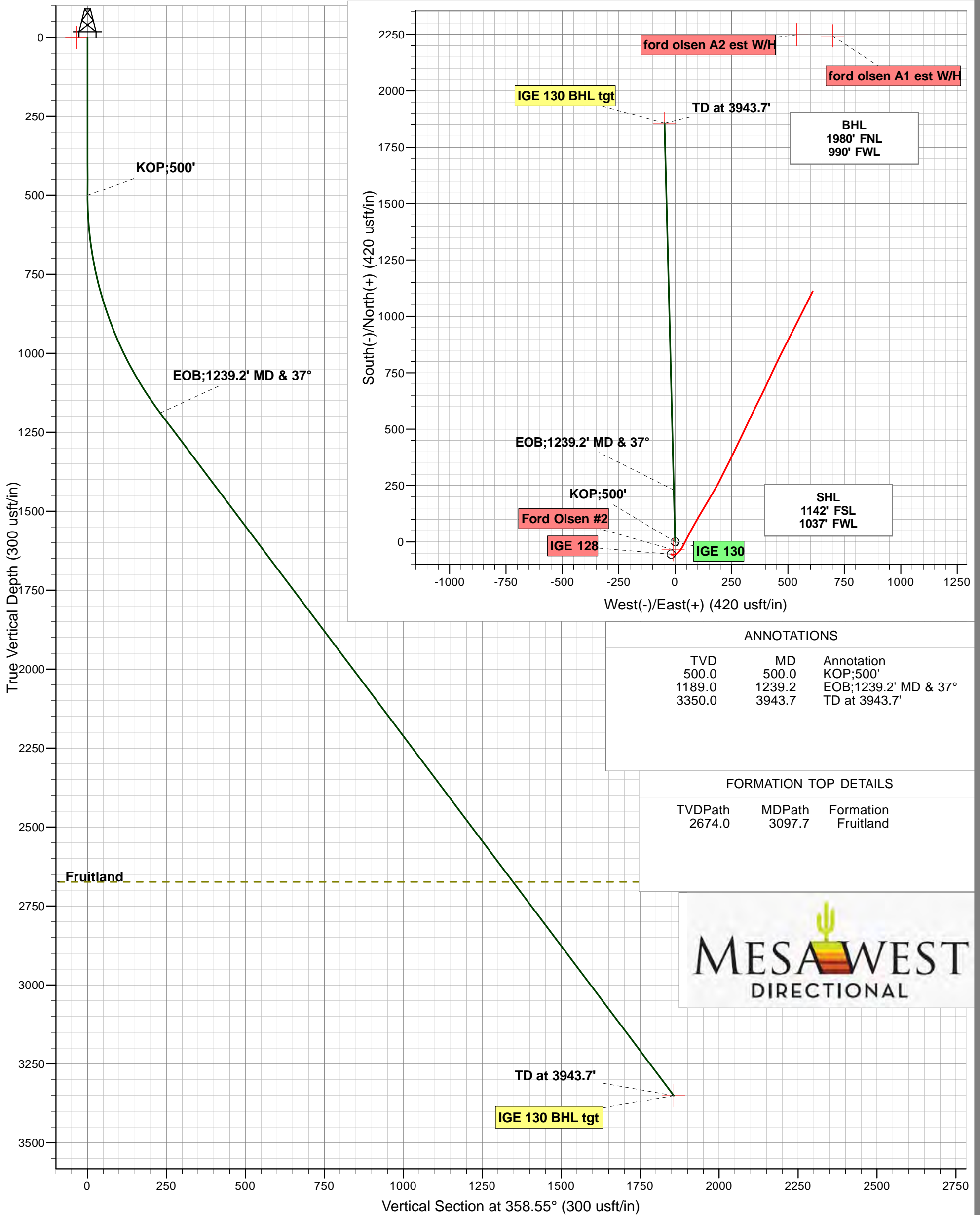
Project: La Plata County, Co (Nad 83)
Site: Sec 9-T33N-R8W
Well: IGE 130
Wellbore: DD
Plan: #3

Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Southern Zone
Northing: 1171100.59
Easting: 2350264.98
Latitude: 37° 6' 55.008 N
Longitude: 107° 43' 42.240 W
Grid Convergence: 1.37° East
Ground Elevation: 6711.0
KB Elevation: Est RKB 2 @ 6725.0usft (Plat)



Magnetic Field
Strength: 50688.4snT
Dip Angle: 63.73°
Date: 2/7/2014
Model: IGRF2010

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	1239.2	36.96	358.55	1189.0	230.2	-5.8	5.00	358.55	230.3	
4	3943.7	36.96	358.55	3350.0	1855.9	-47.0	0.00	0.00	1856.5	IGE 130 BHL tgt



Mesa West Directional

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well IGE 130
Company:	Elm Ridge Exploration Company.	TVD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Project:	La Plata County, Co (Nad 83)	MD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Site:	Sec 9-T33N-R8W	North Reference:	True
Well:	IGE 130	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	#3		

Project	La Plata County, Co (Nad 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site		Sec 9-T33N-R8W			
Site Position:		Northing:	1,171,100.59 usft	Latitude:	37° 6' 55.008 N
From:	Lat/Long	Easting:	2,350,264.98 usft	Longitude:	107° 43' 42.240 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.37 °

Well	IGE 130					
Well Position	+N/-S	0.0 usft	Northing:	1,171,100.59 usft	Latitude:	37° 6' 55.008 N
	+E/-W	0.0 usft	Easting:	2,350,264.98 usft	Longitude:	107° 43' 42.240 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,711.0 usft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/7/2014	9.60	63.73	50,688

Design	#3			
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	358.55

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,239.2	36.96	358.55	1,189.0	230.2	-5.8	5.00	5.00	-0.20	358.55	
3,943.7	36.96	358.55	3,350.0	1,855.9	-47.0	0.00	0.00	0.00	0.00	IGE 130 BHL tgt

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Project:	La Plata County, Co (Nad 83)	MD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Site:	Sec 9-T33N-R8W	North Reference:	True
Well:	IGE 130	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	#3		

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	-6,725.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP;500'										
500.0	0.00	0.00	500.0	-6,225.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	5.00	358.55	599.9	-6,125.1	4.4	-0.1	4.4	5.00	5.00	0.00
700.0	10.00	358.55	699.0	-6,026.0	17.4	-0.4	17.4	5.00	5.00	0.00
800.0	15.00	358.55	796.6	-5,928.4	39.0	-1.0	39.0	5.00	5.00	0.00
900.0	20.00	358.55	891.9	-5,833.1	69.1	-1.7	69.1	5.00	5.00	0.00
1,000.0	25.00	358.55	984.3	-5,740.7	107.3	-2.7	107.4	5.00	5.00	0.00
1,100.0	30.00	358.55	1,073.0	-5,652.0	153.5	-3.9	153.5	5.00	5.00	0.00
1,200.0	35.00	358.55	1,157.3	-5,567.7	207.2	-5.2	207.2	5.00	5.00	0.00
EOB;1239.2' MD & 37°										
1,239.2	36.96	358.55	1,189.0	-5,536.0	230.2	-5.8	230.3	5.00	5.00	0.00
1,300.0	36.96	358.55	1,237.6	-5,487.4	266.7	-6.8	266.8	0.00	0.00	0.00
1,400.0	36.96	358.55	1,317.5	-5,407.5	326.8	-8.3	327.0	0.00	0.00	0.00
1,500.0	36.96	358.55	1,397.4	-5,327.6	387.0	-9.8	387.1	0.00	0.00	0.00
1,600.0	36.96	358.55	1,477.3	-5,247.7	447.1	-11.3	447.2	0.00	0.00	0.00
1,700.0	36.96	358.55	1,557.2	-5,167.8	507.2	-12.8	507.3	0.00	0.00	0.00
1,800.0	36.96	358.55	1,637.1	-5,087.9	567.3	-14.4	567.5	0.00	0.00	0.00
1,900.0	36.96	358.55	1,717.0	-5,008.0	627.4	-15.9	627.6	0.00	0.00	0.00
2,000.0	36.96	358.55	1,796.9	-4,928.1	687.5	-17.4	687.7	0.00	0.00	0.00
2,100.0	36.96	358.55	1,876.8	-4,848.2	747.6	-18.9	747.9	0.00	0.00	0.00
2,200.0	36.96	358.55	1,956.7	-4,768.3	807.7	-20.5	808.0	0.00	0.00	0.00
2,300.0	36.96	358.55	2,036.6	-4,688.4	867.8	-22.0	868.1	0.00	0.00	0.00
2,400.0	36.96	358.55	2,116.5	-4,608.5	927.9	-23.5	928.2	0.00	0.00	0.00
2,500.0	36.96	358.55	2,196.4	-4,528.6	988.0	-25.0	988.4	0.00	0.00	0.00
2,600.0	36.96	358.55	2,276.3	-4,448.7	1,048.2	-26.5	1,048.5	0.00	0.00	0.00
2,700.0	36.96	358.55	2,356.2	-4,368.8	1,108.3	-28.1	1,108.6	0.00	0.00	0.00
2,800.0	36.96	358.55	2,436.1	-4,288.9	1,168.4	-29.6	1,168.8	0.00	0.00	0.00
2,900.0	36.96	358.55	2,516.0	-4,209.0	1,228.5	-31.1	1,228.9	0.00	0.00	0.00
3,000.0	36.96	358.55	2,595.9	-4,129.1	1,288.6	-32.6	1,289.0	0.00	0.00	0.00
Fruitland										
3,097.7	36.96	358.55	2,674.0	-4,051.0	1,347.3	-34.1	1,347.8	0.00	0.00	0.00
3,100.0	36.96	358.55	2,675.8	-4,049.2	1,348.7	-34.2	1,349.1	0.00	0.00	0.00
3,200.0	36.96	358.55	2,755.7	-3,969.3	1,408.8	-35.7	1,409.3	0.00	0.00	0.00
3,300.0	36.96	358.55	2,835.6	-3,889.4	1,468.9	-37.2	1,469.4	0.00	0.00	0.00
3,400.0	36.96	358.55	2,915.5	-3,809.5	1,529.0	-38.7	1,529.5	0.00	0.00	0.00
3,500.0	36.96	358.55	2,995.4	-3,729.6	1,589.1	-40.2	1,589.6	0.00	0.00	0.00
3,600.0	36.96	358.55	3,075.4	-3,649.6	1,649.2	-41.8	1,649.8	0.00	0.00	0.00
3,700.0	36.96	358.55	3,155.3	-3,569.7	1,709.4	-43.3	1,709.9	0.00	0.00	0.00
3,800.0	36.96	358.55	3,235.2	-3,489.8	1,769.5	-44.8	1,770.0	0.00	0.00	0.00
3,900.0	36.96	358.55	3,315.1	-3,409.9	1,829.6	-46.3	1,830.2	0.00	0.00	0.00
TD at 3943.7'										
3,943.7	36.96	358.55	3,350.0	-3,375.0	1,855.9	-47.0	1,856.5	0.00	0.00	0.00

Mesa West Directional

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well IGE 130
Company:	Elm Ridge Exploration Company.	TVD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Project:	La Plata County, Co (Nad 83)	MD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Site:	Sec 9-T33N-R8W	North Reference:	True
Well:	IGE 130	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	#3		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Ford Olsen #2	0.00	0.00	0.0	-34.2	-9.3	1,171,066.60	2,350,254.91	37° 6' 54.670 N	107° 43' 42.354 W
- plan misses target center by 35.4usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
ford olsen A1 est W/H	0.00	0.00	-13.0	2,243.5	697.9	1,173,326.81	2,351,016.21	37° 7' 17.189 N	107° 43' 33.623 W
- plan misses target center by 2349.6usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
ford olsen A2 est W/H	0.00	0.00	-13.0	2,248.4	538.3	1,173,335.53	2,350,856.71	37° 7' 17.238 N	107° 43' 35.594 W
- plan misses target center by 2312.0usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
IGE 130 BHL tgt	0.00	358.63	3,350.0	1,855.9	-47.0	1,172,957.04	2,350,262.26	37° 7' 13.357 N	107° 43' 42.820 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Subsea Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)	(usft)			(°)	(°)
3,097.7	2,674.0	4,051.0	Fruitland		0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment	
500.0	500.0	0.0	0.0	KOP;500'	
1,239.2	1,189.0	230.2	-5.8	EOB;1239.2' MD & 37°	
3,943.7	3,350.0	1,855.9	-47.0	TD at 3943.7'	

Mesa West Directional

Anticollision Report



Company:	Elm Ridge Exploration Company.	Local Co-ordinate Reference:	Well IGE 130
Project:	La Plata County, Co (Nad 83)	TVD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Reference Site:	Sec 9-T33N-R8W	MD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	IGE 130	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 Single User Db
Reference Design:	#3	Offset TVD Reference:	Offset Datum

Reference	#3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	0.0 to 3,280,830.0usft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 100.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	2/11/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	3,943.7	#3 (DD)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured	Offset Measured	Distance		Separation Factor	Warning
	Depth (usft)	Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
Offset Well - Wellbore - Design						
Sec 9-T33N-R8W						
IGE 128 - DD - Final	0.0	0.0	57.4			
IGE 128 - DD - Final	516.2	517.1	58.2	56.5	34.138	ES
IGE 128 - DD - Final	700.0	703.0	70.9	68.3	27.201	SF

Offset Design												Sec 9-T33N-R8W - IGE 128 - DD - Final		Offset Site Error:		0.0 usft	
Survey Program:												419-MWD		Offset Well Error:		0.0 usft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-162.23	-54.6	-17.5	57.4								
100.0	100.0	99.9	99.9	0.1	0.1	-162.37	-54.7	-17.4	57.4	57.2	0.21	279.046					
200.0	200.0	199.9	199.9	0.3	0.2	-162.76	-55.0	-17.1	57.6	57.1	0.54	106.749					
300.0	300.0	299.8	299.8	0.5	0.3	-163.41	-55.5	-16.5	57.9	57.0	0.87	66.315					
400.0	400.0	399.7	399.7	0.8	0.4	-164.30	-56.2	-15.8	58.4	57.2	1.21	48.360					
500.0	500.0	500.7	500.6	1.0	0.6	-166.26	-56.6	-13.8	58.3	56.7	1.63	35.755					
516.2	516.2	517.1	517.0	1.0	0.7	-165.57	-56.6	-13.1	58.2	56.5	1.71	34.138	ES				
600.0	599.9	601.4	601.2	1.2	0.9	-172.10	-55.9	-6.9	60.7	58.6	2.10	28.835					
700.0	699.0	703.0	702.1	1.5	1.1	177.76	-53.3	4.1	70.9	68.3	2.61	27.201	SF				
800.0	796.6	806.7	804.8	1.8	1.4	170.19	-44.5	15.5	85.5	82.4	3.10	27.598					

Mesa West Directional

Anticollision Report



Company:	Elm Ridge Exploration Company.	Local Co-ordinate Reference:	Well IGE 130
Project:	La Plata County, Co (Nad 83)	TVD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Reference Site:	Sec 9-T33N-R8W	MD Reference:	Est RKB 2 @ 6725.0usft (Plat)
Site Error:	0.0 usft	North Reference:	True
Reference Well:	IGE 130	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	DD	Database:	EDM 5000.1 Single User Db
Reference Design:	#3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Est RKB 2 @ 6725.0usft (Plat)

Offset Depths are relative to Offset Datum

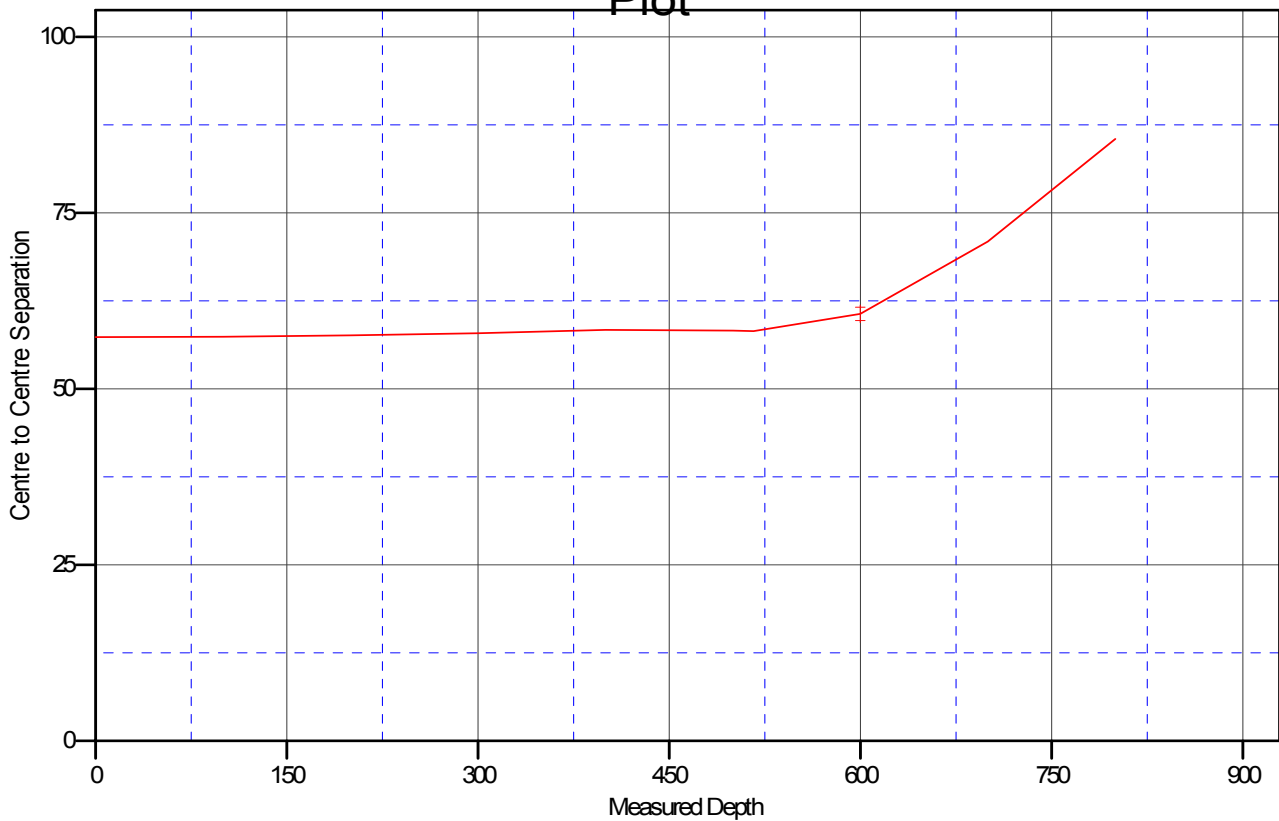
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: IGE 130

Coordinate System is US State Plane 1983, Colorado Southern Zone

Grid Convergence at Surface is: -1.37°

Ladder Plot



LEGEND

IGE 128, DD, Final V0