



Elm Ridge Exploration Company

La Plata County, Colorado

Sec 18-T33N-R7W

IGE 118

Wellbore #1

Plan: Design #1

Standard Planning Report

26 February, 2013

Elm Ridge Exploration Company

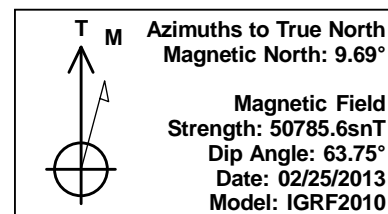
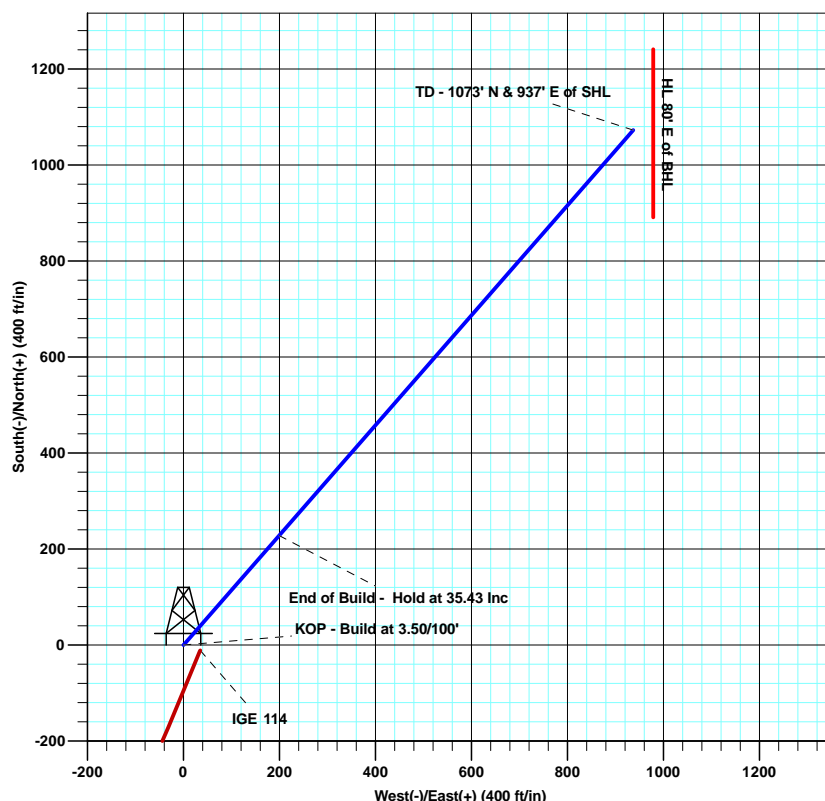
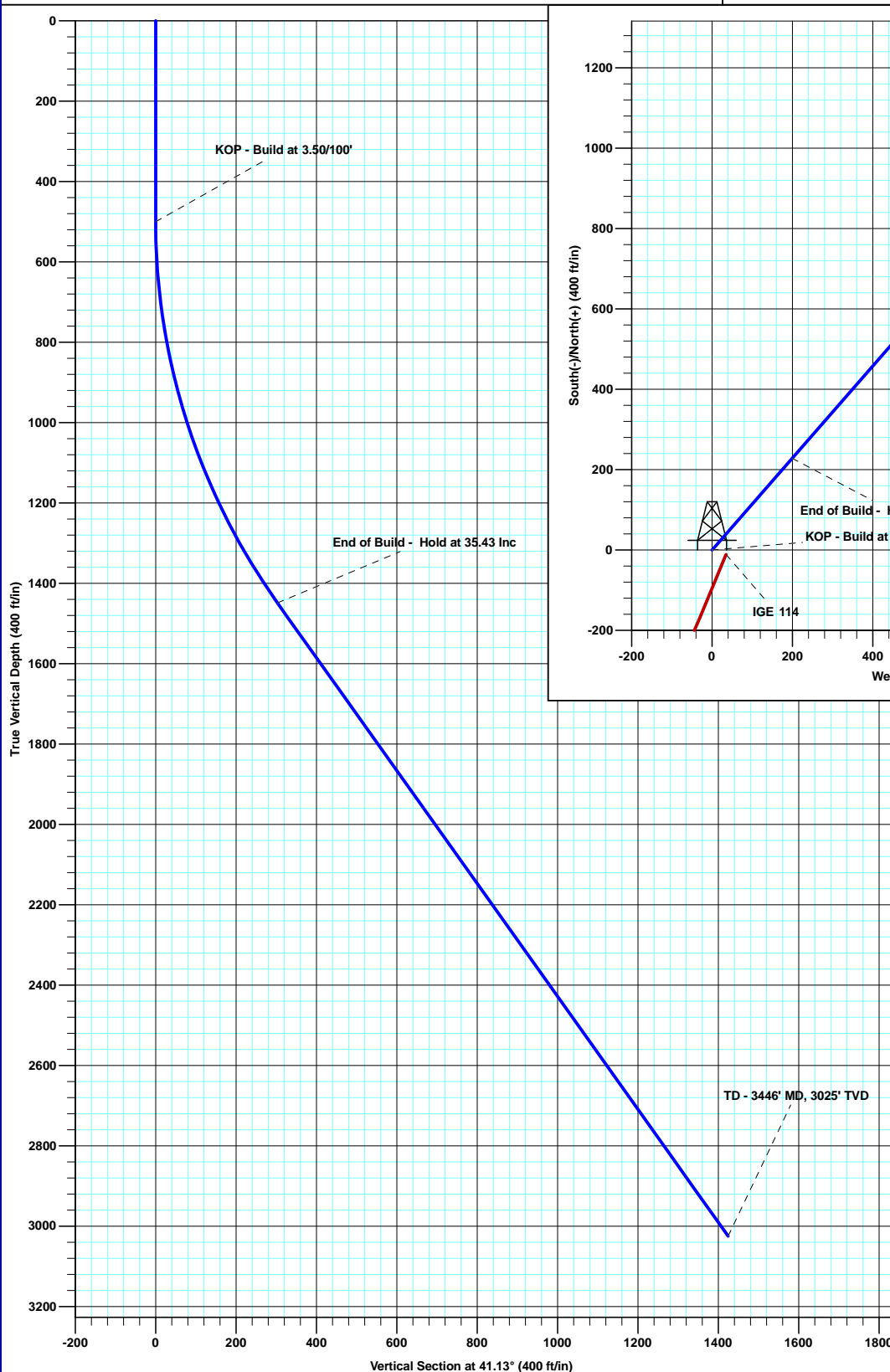
Site: Sec 18-T33N-R7W
Well: IGE 118
Wellbore: Wellbore #1
Design: Design #1

Reference Details - WELL CENTRE
Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Southern Zone
Northing: 1165334.96
Easting: 2371255.02
Latitude: 37° 6' 2.8438 N
Longitude: 107° 39' 21.6360 W
Grid Convergence: 1.32° East
Ground Elevation: 6537.00
KB Elevation: WELL @ 6537.00ft (Original Well Elev)



ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP - Build at 3.50/100'
1449.08	1512.39	35.43	41.13	228.38	199.43	303.20	303.20	End of Build - Hold at 35.43 Inc
3025.00	3446.54	35.43	41.13	1073.00	937.00	1424.53	1424.53	TD - 3446' MD, 3025' TVD, 1073' N & 937' E of SHL



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well IGE 118
Company:	Elm Ridge Exploration Company	TVD Reference:	WELL @ 6537.00ft (Original Well Elev)
Project:	La Plata County, Colorado	MD Reference:	WELL @ 6537.00ft (Original Well Elev)
Site:	Sec 18-T33N-R7W	North Reference:	True
Well:	IGE 118	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site		Sec 18-T33N-R7W			
Site Position:		Northing:	1,165,323.24 ft	Latitude:	37° 6' 2.7360 N
From:	Lat/Long	Easting:	2,371,289.76 ft	Longitude:	107° 39' 21.2040 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.32

Well	IGE 118					
Well Position	+N/-S	10.91 ft	Northing:	1,165,334.96 ft	Latitude:	37° 6' 2.8438 N
	+E/-W	-35.00 ft	Easting:	2,371,255.02 ft	Longitude:	107° 39' 21.6360 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	6,537.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/25/13	9.69	63.75	50,786

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	41.13

Plan Sections										
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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,512.39	35.43	41.13	1,449.08	228.38	199.43	3.50	3.50	0.00	41.13	
3,446.54	35.43	41.13	3,025.00	1,073.00	937.00	0.00	0.00	0.00	0.00	IGE 118 TD

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Site:	Sec 18-T33N-R7W	North Reference:	True
Well:	IGE 118	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build at 3.50/100'										
600.00	3.50	41.13	599.94	2.30	2.01	3.05	3.50	3.50	0.00	
700.00	7.00	41.13	699.51	9.19	8.03	12.20	3.50	3.50	0.00	
800.00	10.50	41.13	798.33	20.65	18.03	27.41	3.50	3.50	0.00	
900.00	14.00	41.13	896.03	36.63	31.99	48.63	3.50	3.50	0.00	
1,000.00	17.50	41.13	992.27	57.07	49.84	75.77	3.50	3.50	0.00	
1,100.00	21.00	41.13	1,086.66	81.90	71.52	108.73	3.50	3.50	0.00	
1,200.00	24.50	41.13	1,178.87	111.02	96.95	147.40	3.50	3.50	0.00	
1,300.00	28.00	41.13	1,268.54	144.33	126.04	191.62	3.50	3.50	0.00	
1,400.01	31.50	41.13	1,355.35	181.70	158.67	241.23	3.50	3.50	0.00	
1,500.01	35.00	41.13	1,438.96	223.00	194.73	296.06	3.50	3.50	0.00	
1,512.39	35.43	41.13	1,449.08	228.38	199.43	303.20	3.50	3.50	0.00	
End of Build - Hold at 35.43 Inc										
1,600.01	35.43	41.13	1,520.47	266.64	232.84	353.99	0.00	0.00	0.00	
1,700.01	35.43	41.13	1,601.95	310.31	270.98	411.97	0.00	0.00	0.00	
1,800.01	35.43	41.13	1,683.43	353.98	309.11	469.95	0.00	0.00	0.00	
1,900.01	35.43	41.13	1,764.91	397.65	347.24	527.92	0.00	0.00	0.00	
2,000.01	35.43	41.13	1,846.38	441.31	385.38	585.90	0.00	0.00	0.00	
2,100.01	35.43	41.13	1,927.86	484.98	423.51	643.87	0.00	0.00	0.00	
2,200.01	35.43	41.13	2,009.34	528.65	461.65	701.85	0.00	0.00	0.00	
2,300.01	35.43	41.13	2,090.82	572.32	499.78	759.83	0.00	0.00	0.00	
2,400.01	35.43	41.13	2,172.30	615.99	537.92	817.80	0.00	0.00	0.00	
2,500.01	35.43	41.13	2,253.78	659.66	576.05	875.78	0.00	0.00	0.00	
2,600.01	35.43	41.13	2,335.26	703.33	614.18	933.75	0.00	0.00	0.00	
2,700.01	35.43	41.13	2,416.74	747.00	652.32	991.73	0.00	0.00	0.00	
2,800.01	35.43	41.13	2,498.22	790.67	690.45	1,049.71	0.00	0.00	0.00	
2,900.01	35.43	41.13	2,579.70	834.34	728.59	1,107.68	0.00	0.00	0.00	
3,000.01	35.43	41.13	2,661.18	878.01	766.72	1,165.66	0.00	0.00	0.00	
3,100.01	35.43	41.13	2,742.66	921.68	804.86	1,223.63	0.00	0.00	0.00	
3,200.01	35.43	41.13	2,824.13	965.35	842.99	1,281.61	0.00	0.00	0.00	
3,300.01	35.43	41.13	2,905.61	1,009.01	881.12	1,339.59	0.00	0.00	0.00	
3,400.01	35.43	41.13	2,987.09	1,052.68	919.26	1,397.56	0.00	0.00	0.00	
3,446.54	35.43	41.13	3,025.00	1,073.00	937.00	1,424.53	0.00	0.00	0.00	
TD - 3446' MD, 3025' TVD, 1073' N & 937' E of SHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
IGE 118 TD	0.00	0.00	3,025.00	1,073.00	937.00	1,166,386.05	2,372,216.54	37° 6' 13.4523 N	107° 39' 10.0698 W	
- hit/miss target										
- Shape										
- Point										

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well IGE 118
Company:	Elm Ridge Exploration Company	TVD Reference:	WELL @ 6537.00ft (Original Well Elev)
Project:	La Plata County, Colorado	MD Reference:	WELL @ 6537.00ft (Original Well Elev)
Site:	Sec 18-T33N-R7W	North Reference:	True
Well:	IGE 118	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.00	500.00	0.00	0.00	KOP - Build at 3.50/100'
1,512.39	1,449.08	228.38	199.43	End of Build - Hold at 35.43 Inc
3,446.54	3,025.00	1,073.00	937.00	TD - 3446' MD, 3025' TVD, 1073' N & 937' E of SHL



Elm Ridge Exploration Company

La Plata County, Colorado

Sec 18-T33N-R7W

IGE 118

Wellbore #1

Design #1

Anticollision Report

26 February, 2013

Company:	Elm Ridge Exploration Company	Local Co-ordinate Reference:	Well IGE 118
Project:	La Plata County, Colorado	TVD Reference:	WELL @ 6537.00ft (Original Well Elev)
Reference Site:	Sec 18-T33N-R7W	MD Reference:	WELL @ 6537.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	IGE 118	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #1		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.00ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 544.65 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	02/25/13		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,446.54	Design #1 (Wellbore #1)			

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 18-T33N-R7W						
IGE 114 - Wellbore #1 - Design #1	691.03	690.34	34.07	31.21	11.914	CC
IGE 114 - Wellbore #1 - Design #1	700.00	699.18	34.10	31.20	11.766	ES, SF

Offset Design Sec 18-T33N-R7W - IGE 114 - Wellbore #1 - Design #1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	0.00	0.00	0.00	0.00	107.31	-10.91	35.00	36.66					
100.00	100.00	100.00	100.00	0.11	0.11	107.31	-10.91	35.00	36.66	36.43	0.22	163.099		
200.00	200.00	200.00	200.00	0.34	0.34	107.31	-10.91	35.00	36.66	35.98	0.67	54.366		
300.00	300.00	300.00	300.00	0.56	0.56	107.31	-10.91	35.00	36.66	35.54	1.12	32.620		
400.00	400.00	400.00	400.00	0.79	0.79	107.31	-10.91	35.00	36.66	35.09	1.57	23.300		
500.00	500.00	500.00	500.00	1.01	1.01	107.31	-10.91	35.00	36.66	34.64	2.02	18.122		
600.00	599.94	599.94	599.94	1.24	1.24	70.72	-10.91	35.00	35.54	33.07	2.47	14.389		
691.03	690.60	690.34	690.33	1.46	1.42	86.07	-12.22	34.45	34.07	31.21	2.86	11.914	CC	
700.00	699.50	699.18	699.16	1.48	1.43	88.30	-12.49	34.34	34.10	31.20	2.90	11.766	ES, SF	
800.00	798.32	796.46	796.31	1.74	1.62	117.16	-17.13	32.42	40.47	37.11	3.36	12.041		
900.00	896.03	890.68	890.18	2.08	1.81	139.62	-24.51	29.35	61.48	57.63	3.85	15.964		
1,000.00	992.26	980.85	979.73	2.51	2.02	151.70	-34.25	25.30	95.39	91.06	4.32	22.065		
1,100.00	1,086.66	1,066.13	1,064.08	3.05	2.25	158.04	-45.85	20.48	139.41	134.62	4.78	29.140		
1,200.00	1,178.86	1,145.86	1,142.56	3.71	2.49	161.58	-58.79	15.11	191.97	186.73	5.24	36.629		
1,300.00	1,268.54	1,219.53	1,214.71	4.48	2.75	163.64	-72.53	9.40	252.05	246.36	5.70	44.247		
1,400.00	1,355.34	1,286.80	1,280.24	5.37	3.00	164.84	-86.57	3.57	318.86	312.70	6.15	51.809		
1,500.00	1,438.96	1,347.48	1,339.03	6.38	3.26	165.46	-100.45	-2.20	391.65	385.03	6.62	59.175		
1,600.00	1,520.46	1,400.00	1,389.64	7.46	3.50	166.47	-113.39	-7.57	468.33	461.20	7.13	65.672		

Company:	Elm Ridge Exploration Company	Local Co-ordinate Reference:	Well IGE 118
Project:	La Plata County, Colorado	TVD Reference:	WELL @ 6537.00ft (Original Well Elev)
Reference Site:	Sec 18-T33N-R7W	MD Reference:	WELL @ 6537.00ft (Original Well Elev)
Site Error:	0.00 ft	North Reference:	True
Reference Well:	IGE 118	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 6537.00ft (Original Well Ele

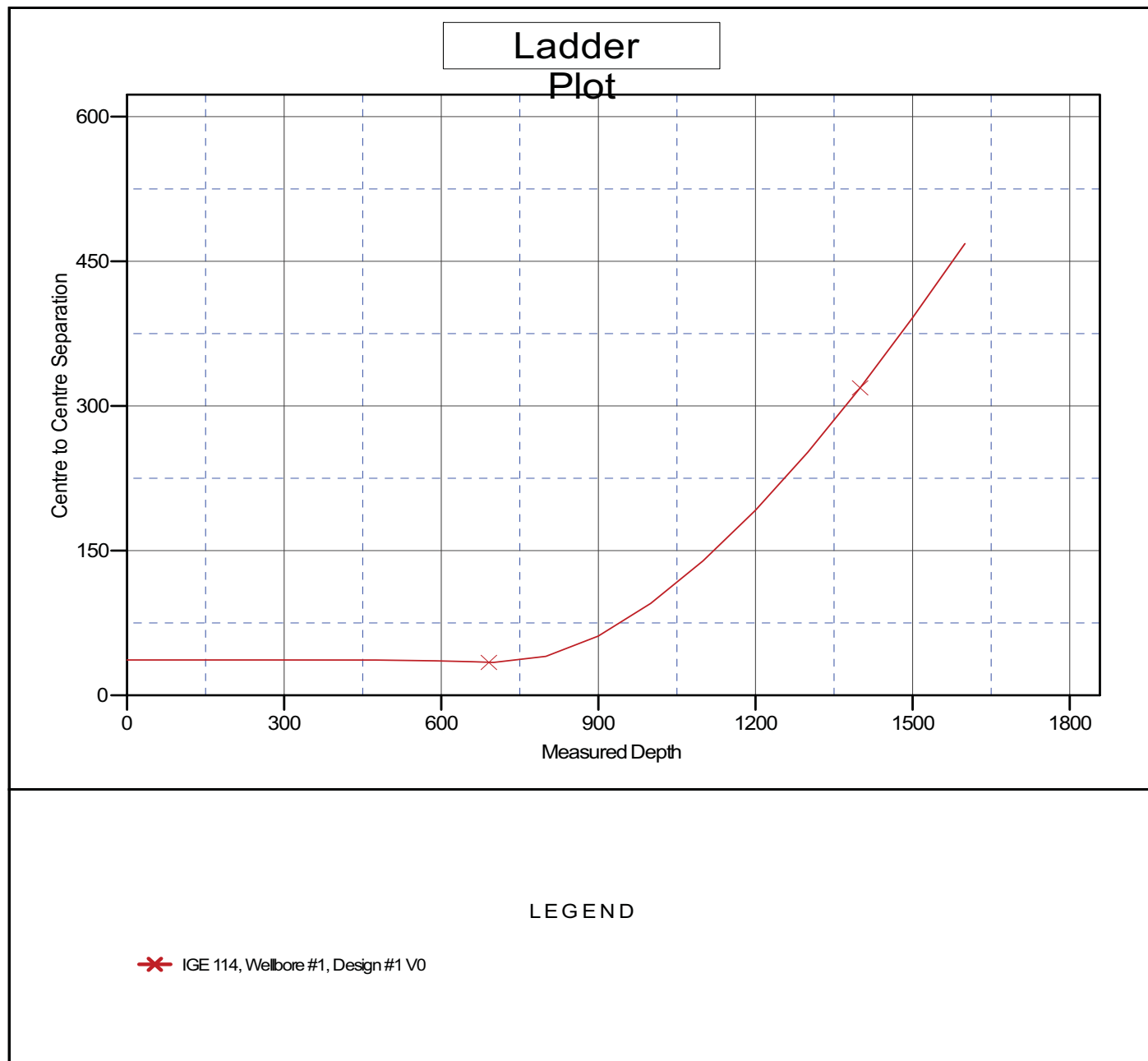
Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.0000 W

Coordinates are relative to: IGE 118

Coordinate System is US State Plane 1983, Colorado Southern Zone

Grid Convergence at Surface is: -1.32°



Company:	Elm Ridge Exploration Company	Local Co-ordinate Reference:	Well IGE 118
Project:	La Plata County, Colorado	TVD Reference:	WELL @ 6537.00ft (Original Well Elev)
Reference Site:	Sec 18-T33N-R7W	MD Reference:	WELL @ 6537.00ft (Original Well Elev)
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Reference Depths are relative to WELL @ 6537.00ft (Original Well Ele

Offset Depths are relative to Offset Datum

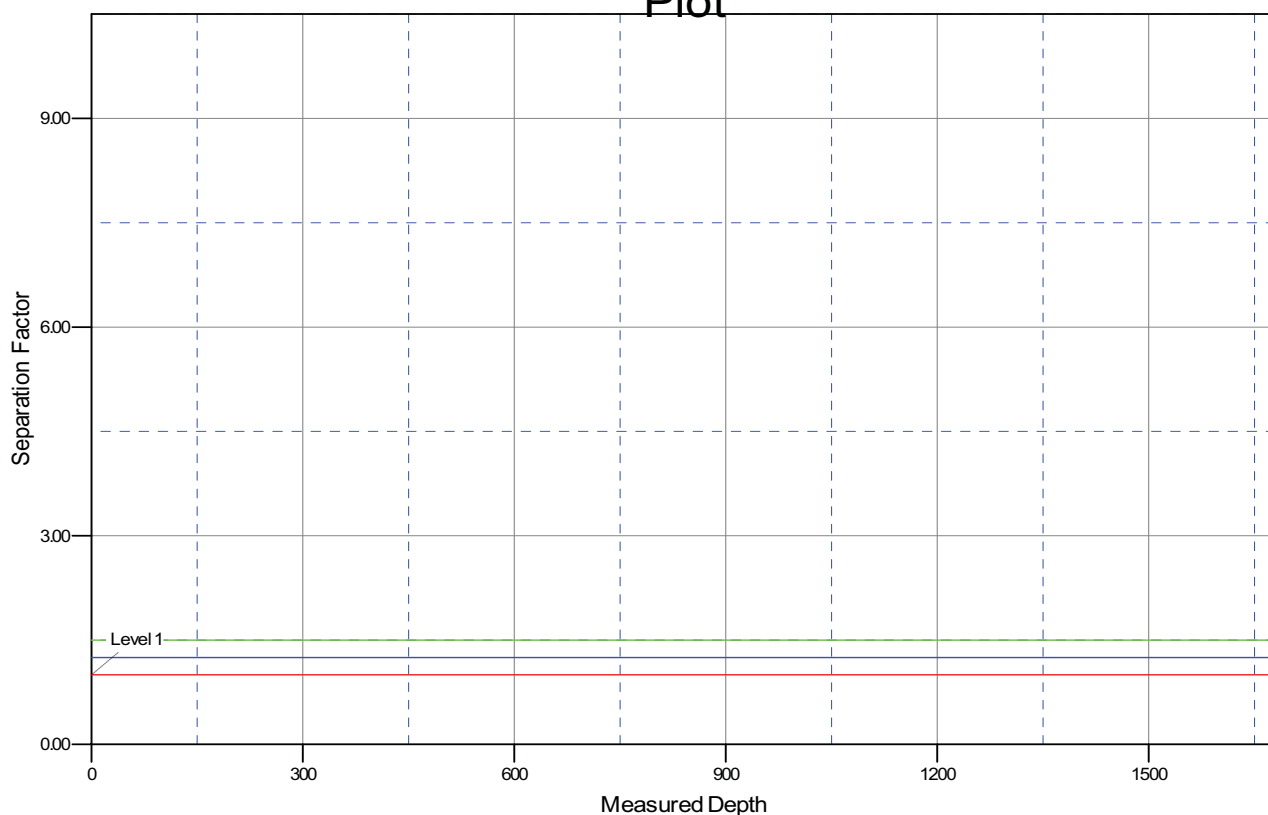
Central Meridian is 105° 30' 0.0000 W

Coordinates are relative to: IGE 118

Coordinate System is US State Plane 1983, Colorado Southern Zone

Grid Convergence at Surface is: -1.32°

Separation Factor Plot



LEGEND

✗ IGE 114, Wellbore #1, Design #1 V0