

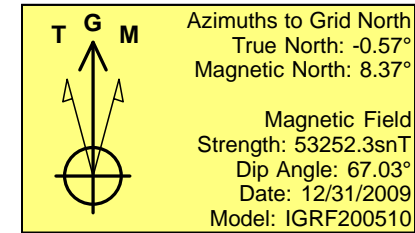
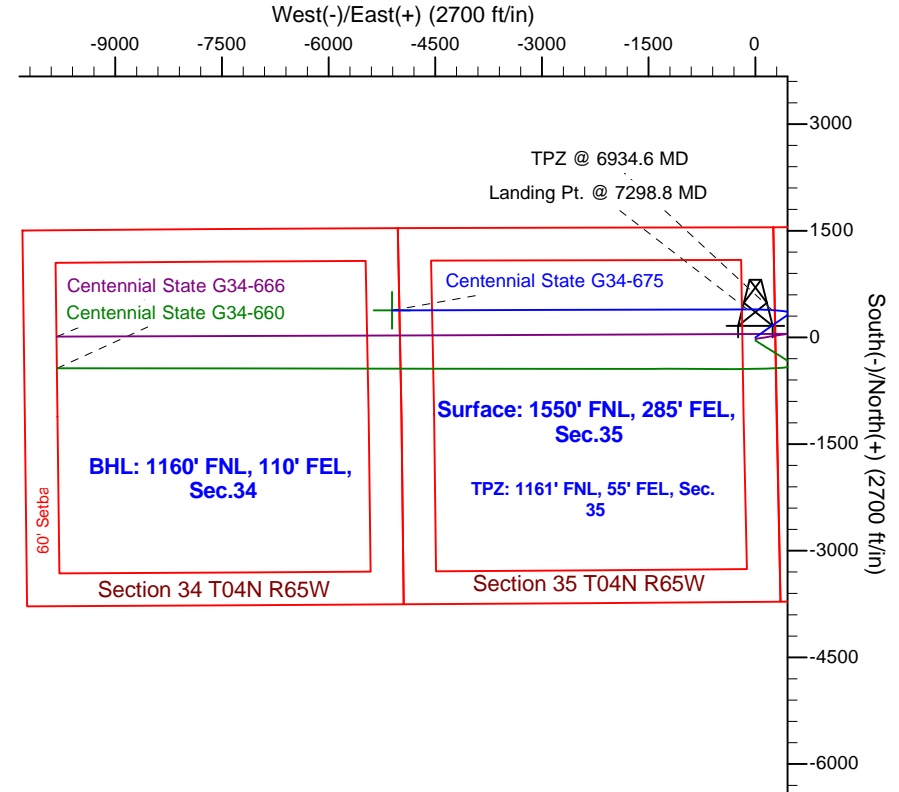
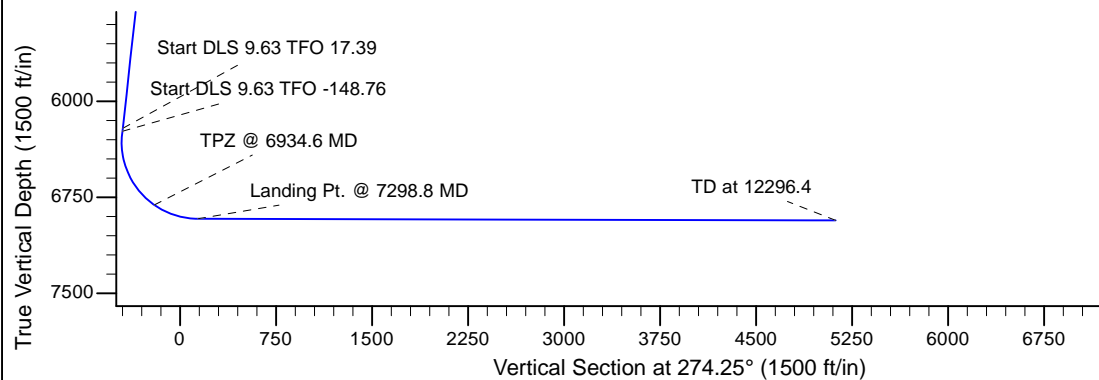
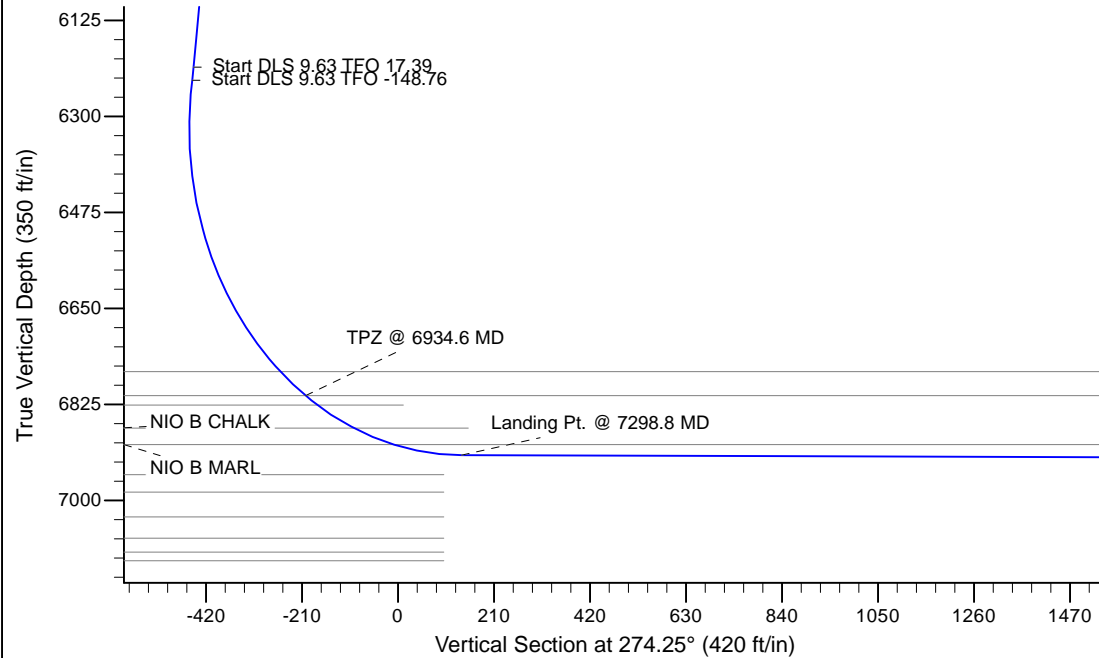
Project: Bronco
 Site: G Section 35
 Well: Centennial State G34-675
 Wellbore: Original Drilling
 Design: APD - Rev 2

Northern Region - DJ Basin

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1900.0	0.00	0.00	1900.0	0.0	0.0	0.00	0.00	0.0	
3	2300.0	8.00	55.00	2298.7	16.0	22.8	2.00	55.00	-21.6	
4	6249.7	8.00	55.00	6210.0	331.3	473.1	0.00	0.00	-447.3	
5	6274.4	10.29	58.98	6234.4	333.4	476.4	9.63	17.39	-450.4	
6	7298.8	89.85	269.82	6917.5	395.0	-110.0	9.63	-148.76	139.0	
7	12296.4	89.85	269.83	6930.4	379.8	-5107.5	0.00	71.34	5121.6	Centennial State G34-675 BHL 1160'FNL, 110'FEL



WELL DETAILS: Centennial State G34-675					
Ground Level 4784.0					
	Northing	Easting	Latitude	Longitude	
0.0	0.0	1343041.66	3244968.47	40.2717200	-104.6220800
Plan: APD - Rev 2 (Centennial State G34-675/Original Drilling)					
Created By: Shailey Jewell			Date: 15:55, February 27 2017		
OK to submit with 2A as per Noble Drilling 2/27/2017 4:17					

Northern Region - DJ Basin

Bronco

G Section 35

Centennial State G34-675

Original Drilling

APD - Rev 2

Anticollision Summary Report

27 February, 2017

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-675
Project:	Bronco	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Reference Site:	G Section 35	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-675	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Produccction
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,880.8 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.79 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2/27/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,296.4	APD - Rev 2 (Original Drilling)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction

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						
G Section 34						
Aristocrat Angus Ranches #1 - Wellbore #1 - Wellbore #						Out of range
Beaman G34-17 - Wellbore #1 - Wellbore #1 - As Drilled	12,296.4	6,840.3	1,357.7	1,306.2	26.397	CC, ES, SF
Beaman G34-18 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Beaman G34-99HZ - Original Drilling - Original Driling - A	12,296.4	6,697.0	340.0	279.4	5.611	CC, ES, SF
Beaman G35-31 - Wellbore #1 - Wellbore #1 - As Drilled	12,296.4	6,851.5	108.3	16.9	1.185	Level 2, CC, ES, SF
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Bochius Pooling Unit 1 - Wellbore #1 - Wellbore #1 - As	12,296.4	6,839.5	757.5	673.7	9.038	CC, ES, SF
Bockius 34-1G - Wellbore #1 - Wellbore #1 - As Drilled	12,296.4	6,850.8	800.7	702.9	8.189	CC, ES, SF
Bockius 34-2G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Bockius 34-8G - Wellbore #1 - Wellbore #1 - As Drilled	12,296.4	6,848.4	826.7	724.6	8.103	CC, ES, SF
Bockius 37-07G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Champ G34-06X - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Cornelius 23-34 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As						Out of range
HSR - Carney 15-34 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D						Out of range
HSR - Gun Club 16-34 - Wellbore #1 - Wellbore #1 - As D						Out of range
HSR - Houston 13-34A - Wellbore #1 - Wellbore #1 - As						Out of range
HSR - Kemper 10-34 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr						Out of range
HSR - Owens 14-34 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
Moser 34-3G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser 34-4G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser 34-5G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser 34-6G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser G34-30 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser PC G34-65HN - Original Drilling - As Drilled	11,348.9	12,479.2	1,269.7	1,183.2	14.679	CC
Moser PC G34-65HN - Original Drilling - As Drilled	11,500.0	12,356.3	1,271.4	1,182.2	14.258	ES
Moser PC G34-65HN - Original Drilling - As Drilled	12,296.4	11,466.1	1,312.6	1,208.7	12.625	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-675
Project:	Bronco	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Reference Site:	G Section 35	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-675	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

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						
G Section 35						
Centennial State G34-612 - Original Drilling - APD - Rev						Out of range
Centennial State G34-618 - Original Drilling - APD - Rev						Out of range
Centennial State G34-626 - Original Drilling - APD - Rev						Out of range
Centennial State G34-635 - Original Drilling - APD - Rev	1,811.7	1,824.7	1,399.0	1,388.0	127.246	CC
Centennial State G34-635 - Original Drilling - APD - Rev	1,900.0	1,909.4	1,399.0	1,387.5	121.299	ES
Centennial State G34-635 - Original Drilling - APD - Rev	4,400.0	4,174.1	1,865.8	1,839.2	70.211	SF
Centennial State G34-645 - Original Drilling - APD - Rev	1,900.0	1,912.0	1,377.1	1,365.6	119.284	CC, ES
Centennial State G34-645 - Original Drilling - APD - Rev	12,296.4	12,337.0	1,839.9	1,631.9	8.844	SF
Centennial State G34-660 - Original Drilling - APD - Rev	1,900.0	1,899.0	43.7	32.2	3.800	CC, ES
Centennial State G34-660 - Original Drilling - APD - Rev	2,000.0	1,998.2	45.6	33.5	3.772	SF
Centennial State G34-666 - Original Drilling - APD - Rev	1,900.0	1,900.0	21.9	10.4	1.900	CC, ES
Centennial State G34-666 - Original Drilling - APD - Rev	12,296.4	12,300.3	363.2	159.5	1.783	SF
Centennial State G34-679 - Original Drilling - APD - Rev	7,097.8	7,057.1	416.3	373.1	9.646	CC
Centennial State G34-679 - Original Drilling - APD - Rev	12,296.4	12,300.8	422.6	221.7	2.103	ES, SF
Centennial State G34-684 - Original Drilling - APD - Rev	12,296.4	12,135.0	798.4	592.4	3.876	CC, ES, SF
Centennial State G34-689 - Original Drilling - APD - Rev	2,337.7	2,241.2	1,043.3	1,029.4	75.127	CC
Centennial State G34-689 - Original Drilling - APD - Rev	12,296.4	12,051.8	1,105.3	902.9	5.462	ES, SF
CPC Mark 35-01 - Wellbore #1 - Wellbore #1 - As Drilled	8,763.6	6,866.5	343.6	285.8	5.948	CC, ES
CPC Mark 35-01 - Wellbore #1 - Wellbore #1 - As Drilled	8,800.0	6,866.3	345.5	287.1	5.911	SF
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled	100.0	74.0	571.8	571.6	2,717.841	CC
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled	1,900.0	1,875.7	578.1	567.8	56.386	ES
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled	7,700.0	6,912.2	864.9	821.9	20.138	SF
Mark 11-35 - Wellbore #1 - 150' Drift						Out of range
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark 14-35 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark 35-11 - Original Drilling - Original Drilling - As Drilled	7,478.0	6,875.8	615.3	574.2	14.983	CC, ES
Mark 35-11 - Original Drilling - Original Drilling - As Drilled	7,600.0	6,874.8	627.2	585.0	14.849	SF
Mark 35-13 - Wellbore #1 - Wellbore #1 - As Drilled	8,821.7	6,873.7	703.5	644.4	11.898	CC, ES
Mark 35-13 - Wellbore #1 - Wellbore #1 - As Drilled	8,900.0	6,872.4	707.9	648.0	11.829	SF
Mark 35-15 - Wellbore #1 - Wellbore #1 - As Drilled	8,243.8	6,868.8	109.8	59.9	2.200	CC, ES, SF
Mark E Unit 1 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-03 - Wellbore #1 - Wellbore #1 - As Drilled	10,346.2	6,849.2	602.4	517.5	7.096	CC, ES
Ocoma G35-03 - Wellbore #1 - Wellbore #1 - As Drilled	10,400.0	6,850.4	604.8	518.9	7.042	SF
Ocoma G35-04 - Wellbore #1 - Wellbore #1 - As Drilled	11,579.9	6,843.1	267.5	160.2	2.494	CC, ES
Ocoma G35-04 - Wellbore #1 - Wellbore #1 - As Drilled	11,600.0	6,842.9	268.3	160.6	2.492	SF
Ocoma G35-05 - Wellbore #1 - Wellbore #1 - As Drilled	11,597.3	6,867.7	746.0	638.3	6.926	CC
Ocoma G35-05 - Wellbore #1 - Wellbore #1 - As Drilled	11,600.0	6,867.7	746.0	638.3	6.924	ES, SF
Ocoma G35-06 - Wellbore #1 - Wellbore #1 - As Drilled	10,316.0	6,847.6	814.6	730.3	9.661	CC, ES
Ocoma G35-06 - Wellbore #1 - Wellbore #1 - As Drilled	10,400.0	6,847.8	818.9	733.7	9.610	SF
Ocoma G35-09 - Wellbore #1 - 150' Drift	1,951.5	1,966.3	1,770.4	1,758.5	148.515	CC
Ocoma G35-09 - Wellbore #1 - 150' Drift	2,000.0	2,015.4	1,770.6	1,758.4	144.863	ES
Ocoma G35-09 - Wellbore #1 - 150' Drift	3,500.0	3,520.4	1,878.3	1,856.6	86.226	SF
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	1,781.5			
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	200.0	182.3	1,782.1	1,781.3	2,336.245	ES
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	2,400.0	2,312.1	1,873.5	1,860.4	142.347	SF
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled	8,619.2	6,924.8	1,472.1	1,415.5	26.018	CC, ES
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled	9,000.0	6,921.6	1,520.5	1,459.8	25.040	SF
Ocoma G35-15 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-16 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-23 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Staind G35-19 - Wellbore #1 - Wellbore #1 - As Drilled	10,878.3	6,955.5	176.9	80.9	1.842	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-675
Project:	Bronco	TVD Reference:	WELL @ 4814.0ft (Original Well Elev)
Reference Site:	G Section 35	MD Reference:	WELL @ 4814.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-675	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Produccion
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

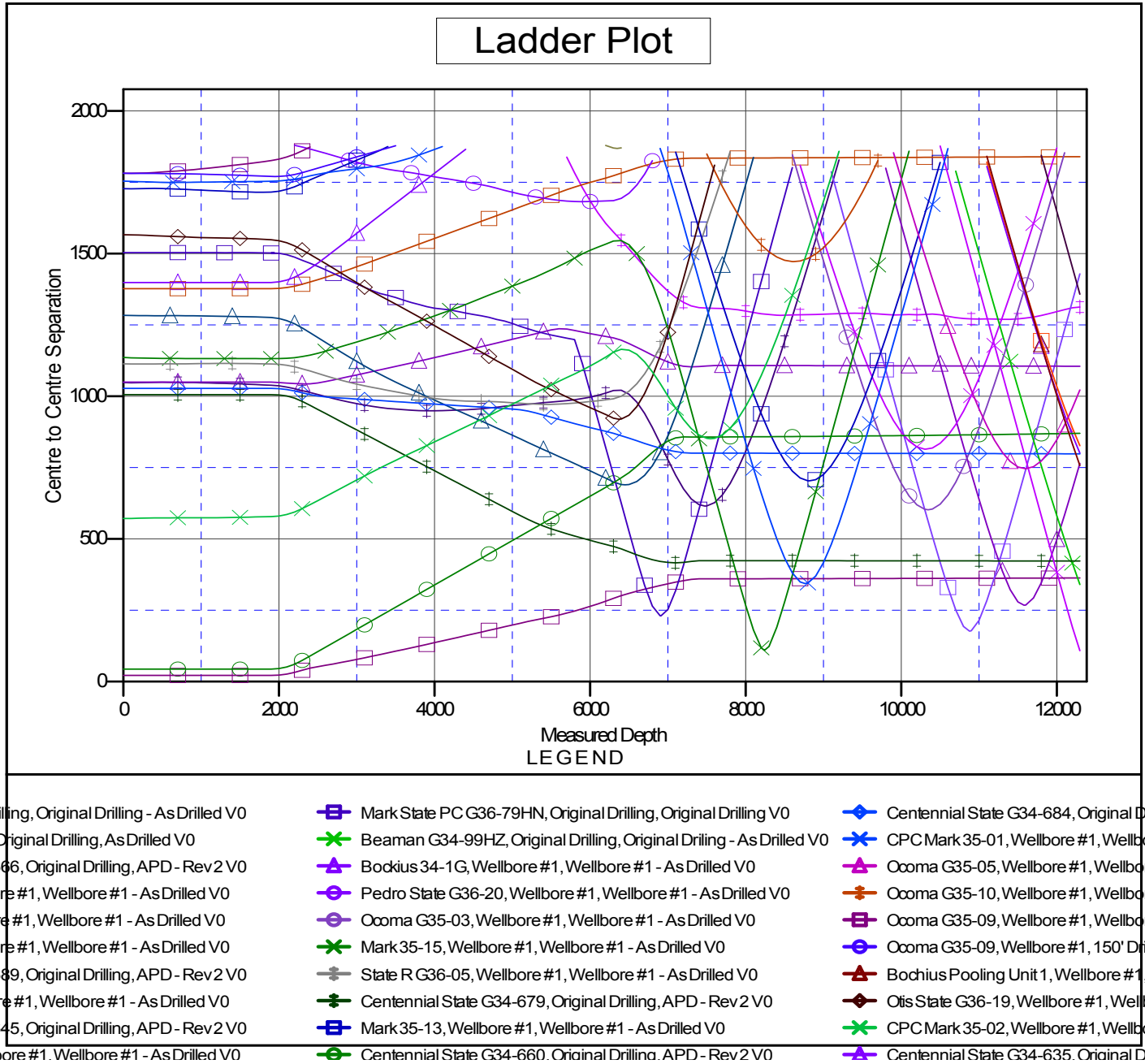
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
G Section 36						
Gerrity State G36-01 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-02 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-07 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-08 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-09 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-10 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-15 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-16 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-17 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Gerrity State G36-23 - Wellbore #1 - Wellbore #1 - As Dr						Out of range
Mark State PC G36-79HN - Original Drilling - Original Dri	6,911.3	7,740.5	230.2	213.5	13.784	CC, ES
Mark State PC G36-79HN - Original Drilling - Original Dri	7,000.0	7,734.8	252.6	233.6	13.285	SF
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille	6,368.3	6,296.0	919.5	883.7	25.689	CC, ES
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille	6,400.0	6,327.5	920.4	884.4	25.602	SF
Pedro State C31-79HN - Wellbore #1 - Original Drilling						Out of range
Pedro State G36-18 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
Pedro State G36-20 - Wellbore #1 - Wellbore #1 - As Dri	5,875.5	5,807.8	1,682.4	1,648.9	50.254	CC
Pedro State G36-20 - Wellbore #1 - Wellbore #1 - As Dri	6,000.0	5,922.9	1,682.8	1,648.6	49.269	ES
Pedro State G36-20 - Wellbore #1 - Wellbore #1 - As Dri	6,500.0	6,402.1	1,711.9	1,675.2	46.589	SF
Pedro State G36-21 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
Pedro State G36-22 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
Pedro State G36-24 - Wellbore #1 - Wellbore #1 - As Dri						Out of range
Pedro State H01-30D - Wellbore #1 - Wellbore #1 - As D						Out of range
Shelton G36-27 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State 04 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-03 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-04 - Wellbore #1 - Wellbore #1 - As Drilled	6,451.4	6,380.8	689.7	653.6	19.104	CC, ES
State R G36-04 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.0	6,427.9	690.9	654.5	19.019	SF
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled	5,462.6	5,405.7	971.4	940.8	31.669	CC
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled	5,500.0	5,438.5	971.5	940.6	31.456	ES
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,310.9	1,000.2	964.1	27.707	SF
State R G36-06 - Wellbore #1 - Wellbore #1 - As Drilled	6,348.1	6,326.8	1,868.6	1,832.3	51.566	CC, ES
State R G36-06 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,372.8	1,870.8	1,834.3	51.257	SF
State R G36-11 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-12 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-14 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Anticollision Summary Report

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Reference Well:	Centennial State G34-675	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.79 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4814.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-675
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



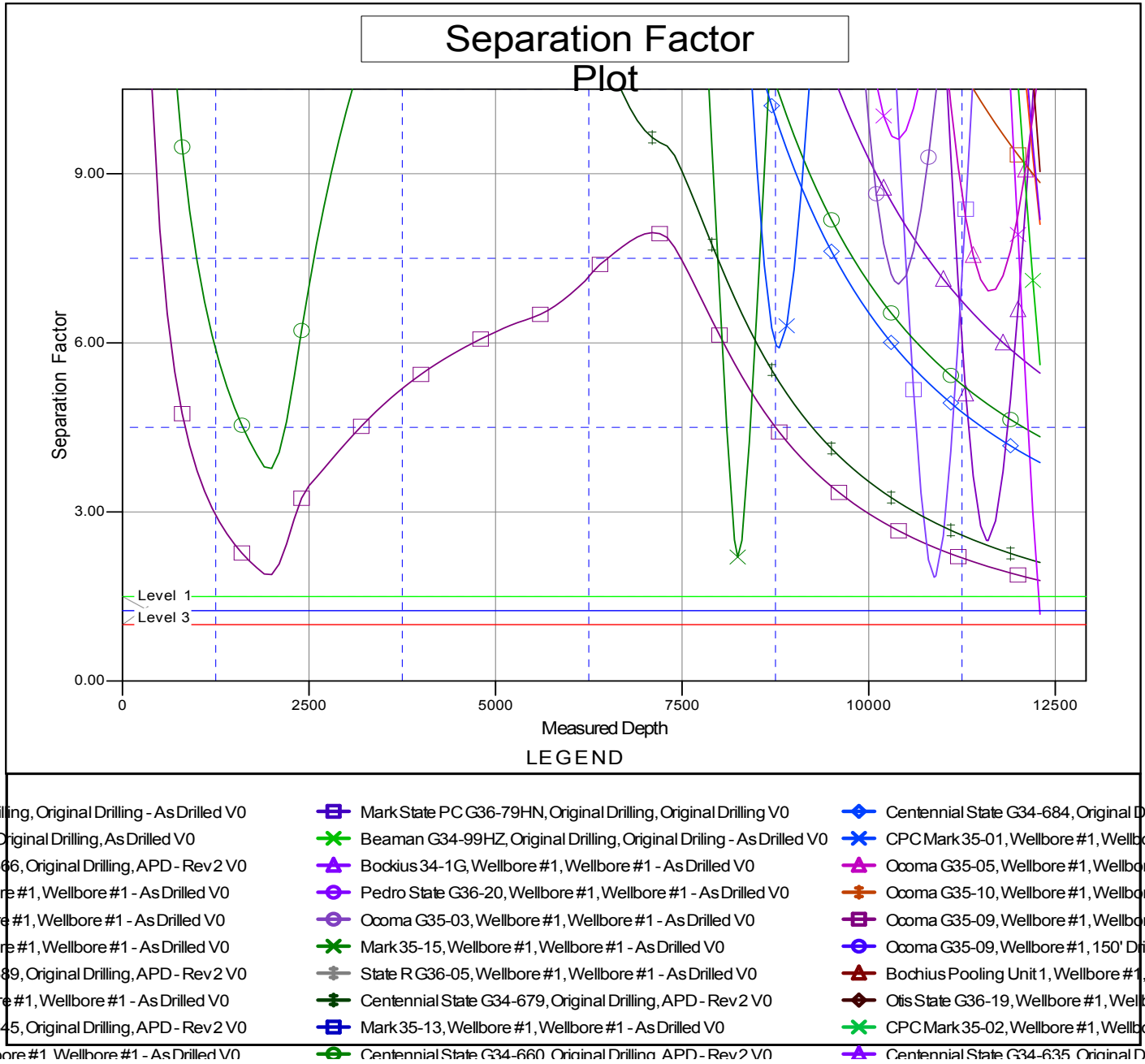
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Anticollision Summary Report

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 Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-675
 Coordinate System is US State Plane 1983, Colorado Northern Zone
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CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation