

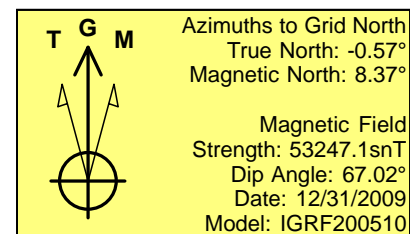
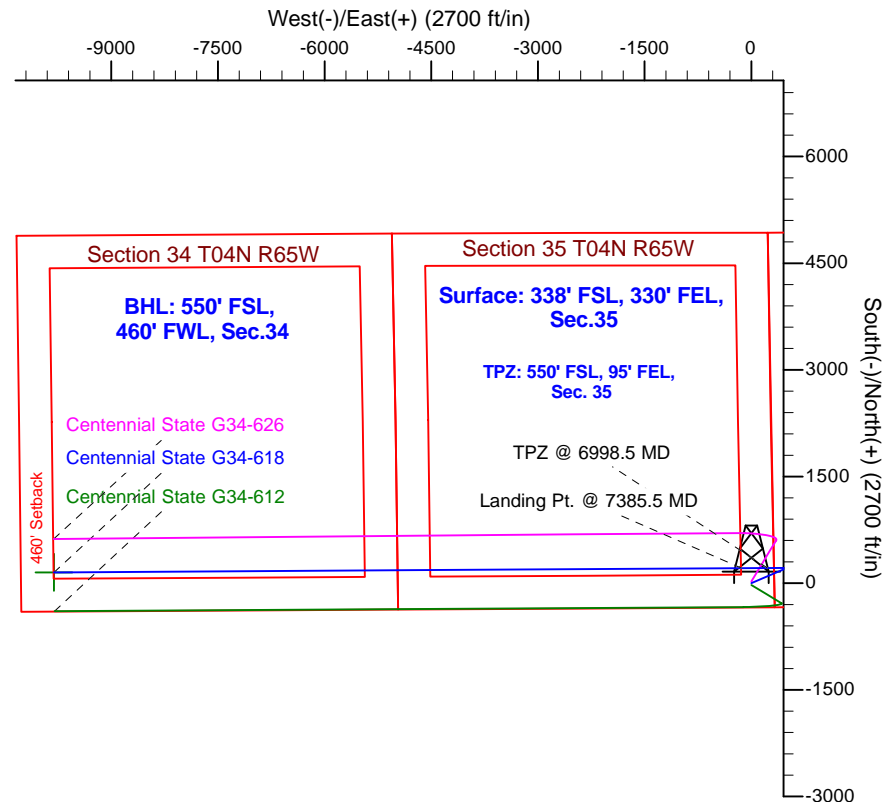
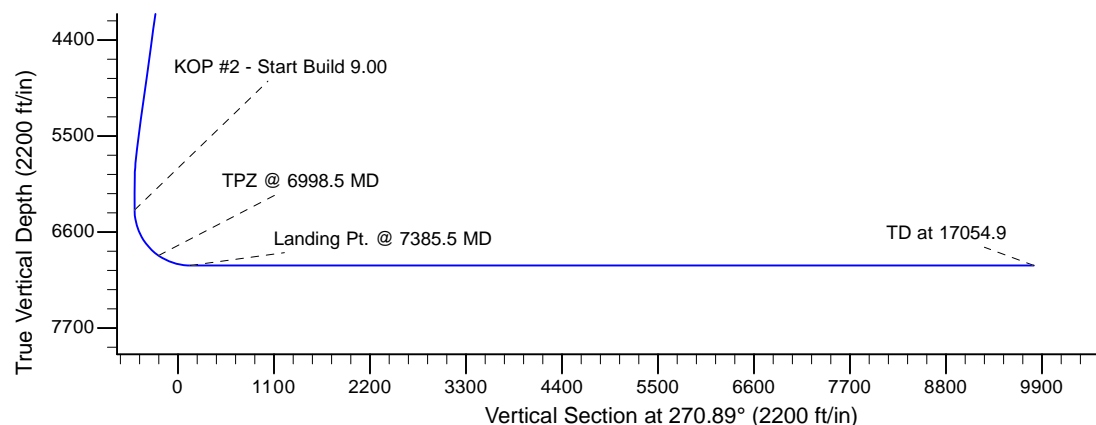
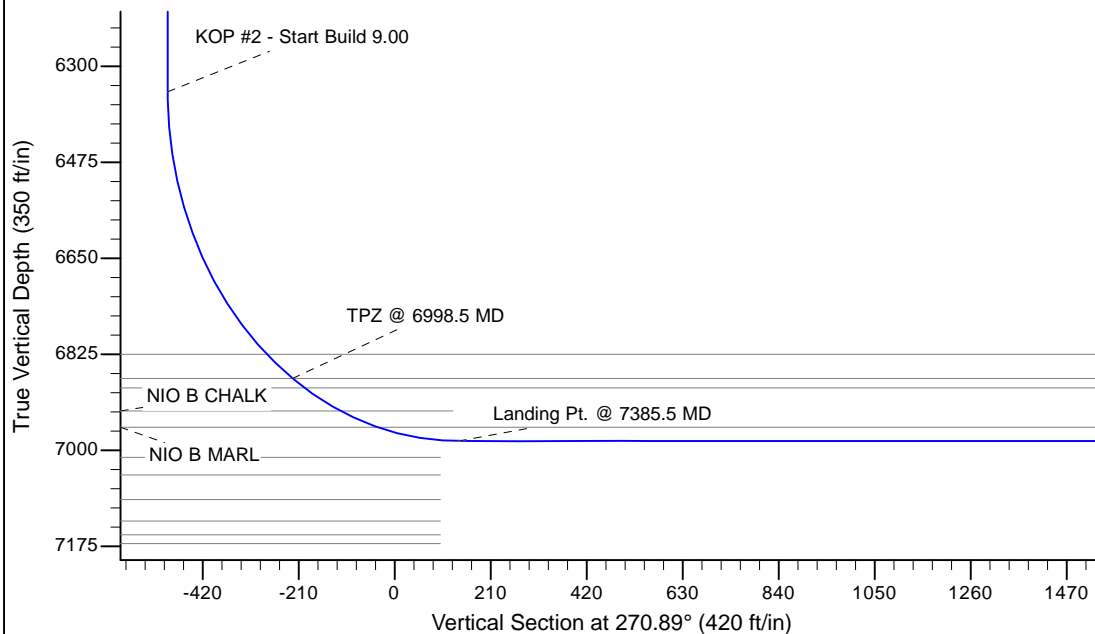
Project: Bronco  
 Site: G Section 35-T4N-R65W Weld County, CO  
 Well: Centennial State G34-618  
 Wellbore: Original Drilling  
 Design: APD - Rev 2

# 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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2427.3	8.55	66.73	2425.7	12.6	29.2	2.00	66.73	-29.0	
4	5661.8	8.55	66.73	5624.3	202.4	470.8	0.00	0.00	-467.6	
5	6089.1	0.00	0.00	6050.0	215.0	500.0	2.00	180.00	-496.6	
6	6385.5	0.00	0.00	6346.4	215.0	500.0	0.00	0.00	-496.6	
7	7385.5	90.00	269.65	6983.0	211.1	-136.6	9.00	269.65	139.9	
8	17054.9	90.00	269.65	6983.0	152.6	-9805.8	0.00	0.00	9807.0	Centennial State G34-618 BHL 550'FSL, 460'FWL



## WELL DETAILS: Centennial State G34-618

Ground Level: 4816.0			
Northing	Easting	Latitude	Longitude
0.0	0.0	1339661.15	3244993.57
		40.2624400	-104.6221100

Plan: APD - Rev 2 (Centennial State G34-618/Original Drilling)

Created By: Shailey Jewell

Date: 8:07, February 28 2017

**OK to submit with 2A as per Noble Drilling**  
**2/28/2017 8:11**

# **Northern Region - DJ Basin**

**Bronco**

**G Section 35**

**Centennial State G34-618**

**Original Drilling**

**APD - Rev 2**

## **Anticollision Summary Report**

**28 February, 2017**

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-618
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Produccction
<b>Reference Design:</b>	APD - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>	<b>Date</b>	2/27/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,054.9	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 #	15,867.1	6,899.0	547.6	185.9	1.514	CC, ES, SF
Beaman G34-17 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Beaman G34-18 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Beaman G34-99HZ - Original Drilling - Original Drilling - A						Out of range
Beaman G35-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,094.9	6,908.0	1,574.0	1,420.2	10.236	CC
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,100.0	6,908.1	1,574.0	1,420.1	10.229	ES
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,300.0	6,910.1	1,587.3	1,430.7	10.135	SF
Bochius Pooling Unit 1 - Wellbore #1 - Wellbore #1 - As						Out of range
Bockius 34-1G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Bockius 34-2G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Bockius 34-8G - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
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	14,747.5	6,980.6	775.2	609.1	4.668	CC, ES
Cornelius 23-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,800.0	6,980.4	777.0	610.2	4.659	SF
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As	16,694.4	6,911.2	1,423.0	1,221.4	7.059	CC
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As	16,700.0	6,911.2	1,423.0	1,221.3	7.055	ES
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As	16,800.0	6,911.3	1,426.9	1,223.7	7.022	SF
HSR - Carney 15-34 - Wellbore #1 - Wellbore #1 - As Dri	14,033.4	6,891.9	207.8	55.9	1.368	Level 3, CC, ES, SF
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D	13,090.3	7,158.6	1,545.8	1,400.4	10.633	CC
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D	13,100.0	7,158.4	1,545.8	1,400.3	10.624	ES
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D	13,200.0	7,156.9	1,549.7	1,403.2	10.580	SF
HSR - Gun Club 16-34 - Wellbore #1 - Wellbore #1 - As D	13,049.0	7,196.1	199.7	64.6	1.478	Level 3, CC, ES, SF
HSR - Houston 13-34A - Wellbore #1 - Wellbore #1 - As	16,793.0	6,901.6	275.8	72.3	1.355	Level 3, CC
HSR - Houston 13-34A - Wellbore #1 - Wellbore #1 - As	16,800.0	6,901.6	275.9	72.3	1.355	Level 3, ES, SF
HSR - Kemper 10-34 - Wellbore #1 - Wellbore #1 - As Dr	13,813.5	6,887.9	994.7	847.1	6.743	CC, ES
HSR - Kemper 10-34 - Wellbore #1 - Wellbore #1 - As Dr	13,900.0	6,888.7	998.4	849.6	6.711	SF
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr	15,623.2	6,898.2	1,608.7	1,427.1	8.859	CC, ES
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr	15,800.0	6,898.1	1,618.4	1,434.3	8.791	SF
HSR - Owens 14-34 - Wellbore #1 - Wellbore #1 - As Dri	15,753.7	6,887.0	138.5	-45.6	0.752	Level 1, CC, ES, SF
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						Out of range

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

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-618
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
G Section 35						
Centennial State G34-612 - Original Drilling - APD - Rev	2,000.0	2,000.0	25.5	13.4	2.101	CC, ES
Centennial State G34-612 - Original Drilling - APD - Rev	2,100.0	2,100.0	26.2	13.5	2.056	SF
Centennial State G34-626 - Original Drilling - APD - Rev	2,210.2	2,210.0	20.2	6.8	1.504	CC, ES
Centennial State G34-626 - Original Drilling - APD - Rev	17,054.9	17,028.9	477.6	101.5	1.270	Level 3, SF
Centennial State G34-635 - Original Drilling - APD - Rev	7,401.8	7,367.5	1,096.0	1,049.7	23.677	CC
Centennial State G34-635 - Original Drilling - APD - Rev	17,054.9	17,018.8	1,111.2	728.4	2.903	ES, SF
Centennial State G34-645 - Original Drilling - APD - Rev	6,400.0	6,378.9	1,728.7	1,688.2	42.650	CC
Centennial State G34-645 - Original Drilling - APD - Rev	17,054.9	17,025.0	1,748.6	1,365.1	4.560	ES, SF
Centennial State G34-660 - Original Drilling - APD - Rev						Out of range
Centennial State G34-666 - Original Drilling - APD - Rev						Out of range
Centennial State G34-675 - Original Drilling - APD - Rev						Out of range
Centennial State G34-679 - Original Drilling - APD - Rev						Out of range
Centennial State G34-684 - Original Drilling - APD - Rev						Out of range
Centennial State G34-689 - Original Drilling - APD - Rev						Out of range
CPC Mark 35-01 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark 11-35 - Wellbore #1 - 150' Drift	10,345.7	6,825.0	1,427.8	1,339.4	16.154	CC, ES
Mark 11-35 - Wellbore #1 - 150' Drift	10,600.0	6,824.8	1,450.2	1,358.0	15.728	SF
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,408.2	6,899.3	1,276.5	1,191.7	15.047	CC, ES
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,600.0	6,897.3	1,290.8	1,203.1	14.708	SF
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled	11,310.3	6,881.6	1,429.3	1,328.1	14.121	CC, ES
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled	11,500.0	6,879.8	1,441.9	1,337.7	13.842	SF
Mark 14-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,290.1	6,888.7	193.9	111.1	2.343	CC, ES
Mark 14-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,300.0	6,888.7	194.2	111.2	2.341	SF
Mark 35-11 - Original Drilling - Original Drilling - As Drilled						Out of range
Mark 35-13 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark 35-15 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Mark E Unit 1 - Wellbore #1 - Wellbore #1 - As Drilled	11,143.5	6,881.9	396.1	298.0	4.037	CC, ES, SF
Ocoma G35-03 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-04 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-05 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-09 - Wellbore #1 - 150' Drift	7,443.8	6,883.3	1,540.9	1,495.8	34.184	CC, ES
Ocoma G35-09 - Wellbore #1 - 150' Drift	7,900.0	6,883.0	1,607.0	1,557.9	32.725	SF
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	7,769.8	6,962.1	1,418.3	1,375.0	32.766	CC
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	7,800.0	6,961.3	1,418.6	1,375.0	32.529	ES
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	8,200.0	6,950.7	1,482.1	1,434.0	30.823	SF
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-15 - Wellbore #1 - Wellbore #1 - As Drilled	8,813.4	6,935.9	10.6	-47.3	0.183	Level 1, CC, ES, SF
Ocoma G35-16 - Wellbore #1 - Wellbore #1 - As Drilled	7,309.7	6,949.4	24.6	-15.1	0.620	Level 1, CC, ES, SF
Ocoma G35-23 - Wellbore #1 - Wellbore #1 - As Drilled	8,218.8	6,939.7	832.7	784.0	17.097	CC, ES
Ocoma G35-23 - Wellbore #1 - Wellbore #1 - As Drilled	8,400.0	6,934.7	852.2	801.2	16.715	SF
Stained G35-19 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-618
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Produccction
<b>Reference Design:</b>	APD - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
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	6,963.6	11,299.2	179.3	162.7	10.782	CC, ES
Mark State PC G36-79HN - Original Drilling - Original Dri	7,000.0	11,298.6	184.0	166.2	10.330	SF
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille						Out of range
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						Out of range
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	4,766.8	4,796.8	332.7	304.3	11.735	CC, ES
Pedro State H01-30D - Wellbore #1 - Wellbore #1 - As D	4,900.0	4,922.7	336.2	306.9	11.498	SF
Shelton G36-27 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State 04 - Wellbore #1 - Wellbore #1 - As Drilled	6,301.8	6,229.8	1,355.8	1,321.1	39.047	CC
State 04 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,319.1	1,356.2	1,321.0	38.498	ES
State 04 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.0	6,407.6	1,365.5	1,329.8	38.278	SF
State R G36-03 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-04 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-11 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State R G36-12 - Wellbore #1 - Wellbore #1 - As Drilled	6,053.3	5,961.1	1,535.0	1,501.2	45.413	CC
State R G36-12 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,326.2	1,536.2	1,500.6	43.076	ES
State R G36-12 - Wellbore #1 - Wellbore #1 - As Drilled	6,700.0	6,625.1	1,560.2	1,523.3	42.259	SF
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,096.7	6,034.4	565.5	531.9	16.864	CC
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,300.0	6,235.4	566.2	531.6	16.360	ES
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,335.0	566.9	531.8	16.134	SF
State R G36-14 - Wellbore #1 - Wellbore #1 - As Drilled	6,093.6	6,033.4	1,739.2	1,705.3	51.311	CC, ES
State R G36-14 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.0	6,419.8	1,754.3	1,718.4	48.902	SF

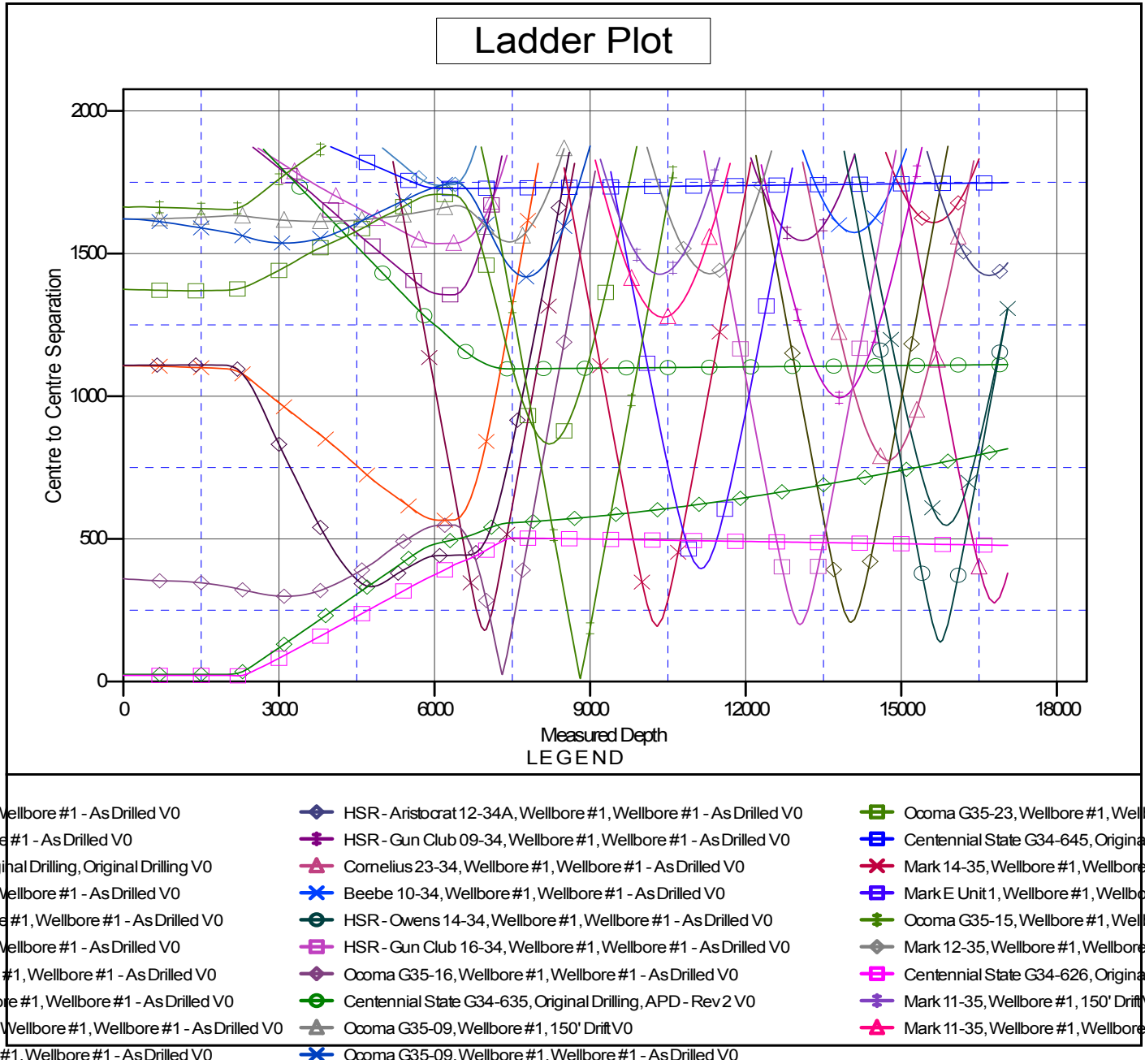
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-618
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-618  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.57°



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

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-618
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-618	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.79 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM Production
<b>Reference Design:</b>	APD - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft (Original Well Elev)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-618  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.57°

