

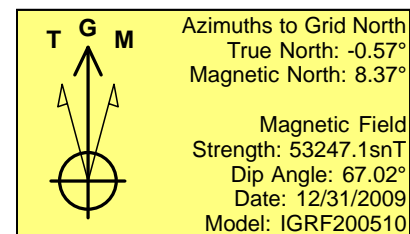
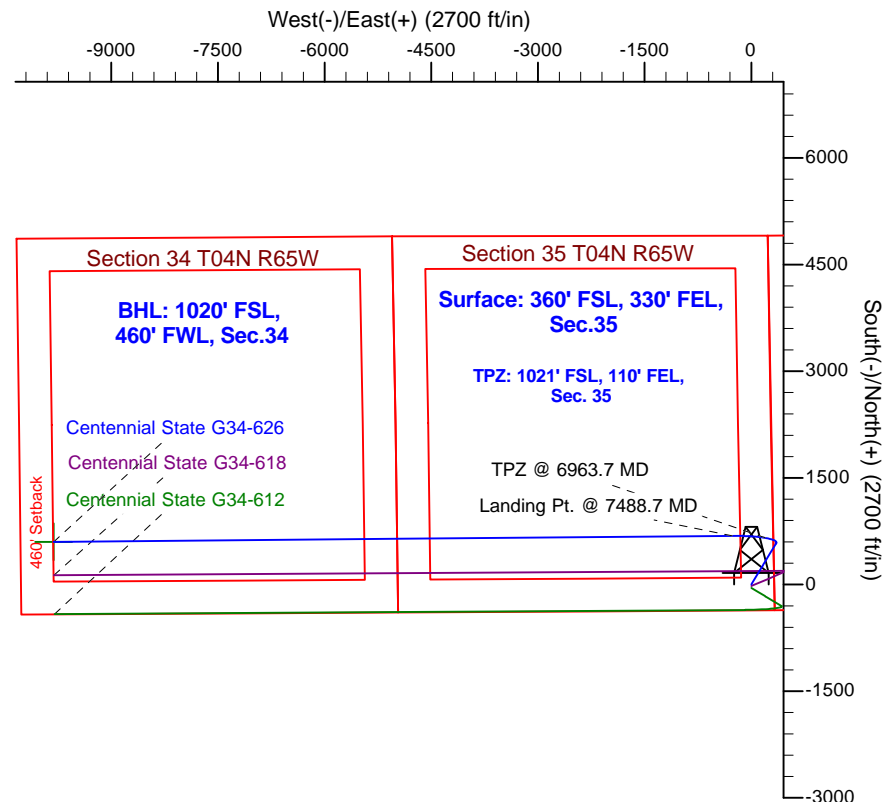
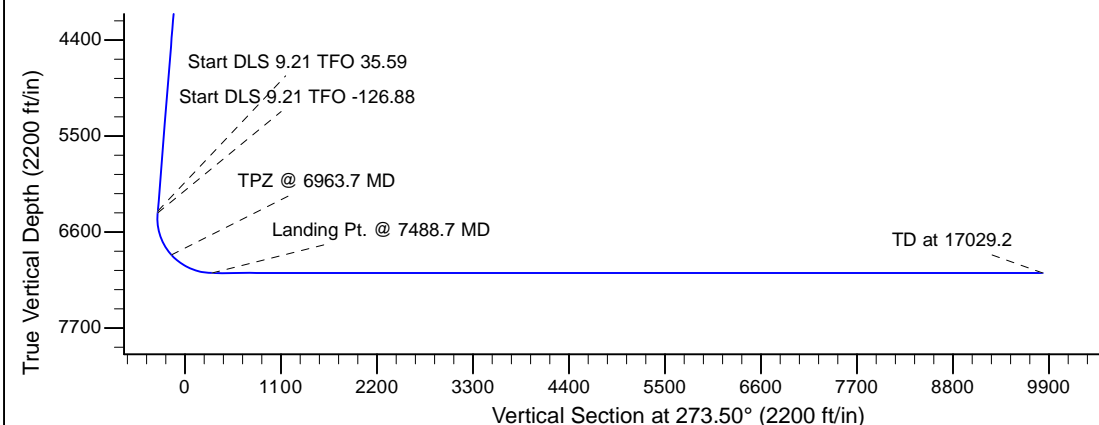
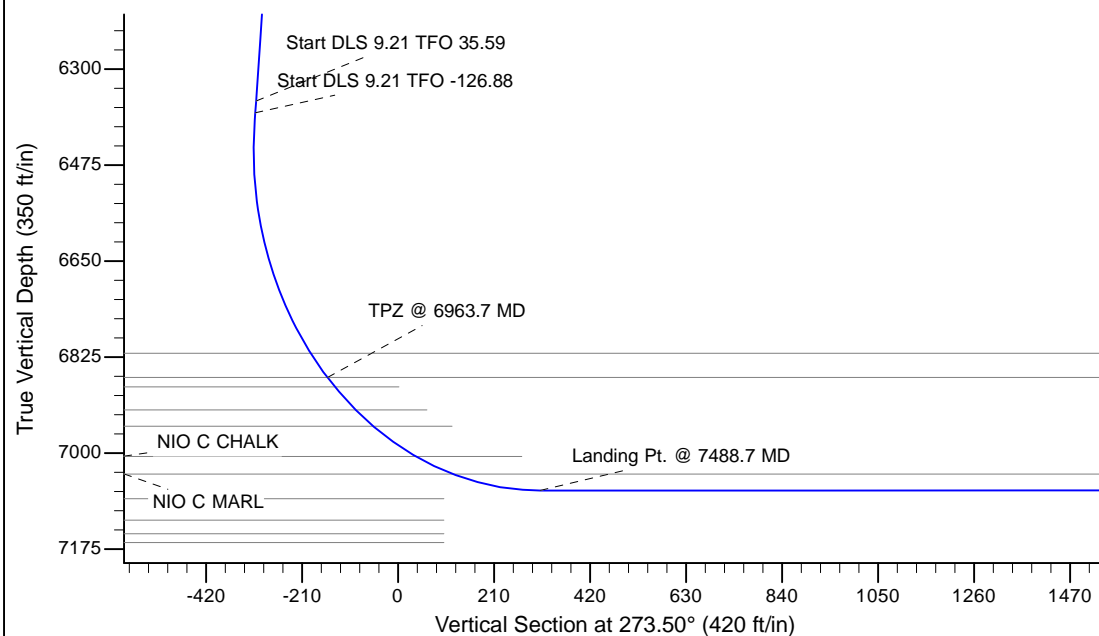
Project: Bronco  
 Site: G Section 35-T4N-R65W Weld County, CO  
 Well: Centennial State G34-626  
 Wellbore: Original Drilling  
 Design: APD - Rev 2

# 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	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2687.5	9.75	31.00	2685.2	35.5	21.3	2.00	31.00	-19.1	
4	6414.2	9.75	31.00	6358.0	576.4	346.4	0.00	0.00	-310.5	
5	6436.1	11.45	36.93	6379.5	579.8	348.6	9.21	35.59	-312.5	
6	7488.7	90.00	269.49	7068.0	685.0	-270.0	9.21	-126.88	311.4	
7	17029.2	90.00	269.50	7068.0	600.7	-9810.1	0.00	90.00	9828.5	Centennial State G34-626 BHL 1020'FSL, 460'FWL



## WELL DETAILS: Centennial State G34-626

	Ground Level: 4816.0		
Northing	Easting	Latitude	Longitude
0.0	0.0	1339683.00	3244993.35
		40.2625000	-104.6221100

Plan: APD - Rev 2 (Centennial State G34-626/Original Drilling)

Created By: Shailey Jewell Date: 8:04, February 28 2017

**OK to submit with 2A as per Noble Drilling**  
**2/28/2017 8:06**

# **Northern Region - DJ Basin**

**Bronco**

**G Section 35**

**Centennial State G34-626**

**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 G34-626
<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 G34-626	<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	17,029.2	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 #	15,839.6	6,984.0	74.4	-288.2	0.205	Level 1, 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 Driling - 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	14,064.6	7,005.3	1,097.5	944.9	7.189	CC
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,100.0	7,005.6	1,098.1	944.7	7.158	ES
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled	14,200.0	7,006.4	1,105.8	951.0	7.143	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	14,719.4	7,059.1	298.2	133.4	1.810	CC, ES, SF
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As	16,664.9	6,983.1	951.6	751.4	4.752	CC
HSR - Aristocrat 12-34A - Wellbore #1 - Wellbore #1 - As	16,700.0	6,983.5	952.3	751.3	4.738	ES, SF
HSR - Carney 15-34 - Wellbore #1 - Wellbore #1 - As Dri	14,003.4	6,983.6	269.2	118.6	1.787	CC, ES, SF
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D	13,058.6	7,243.7	1,065.1	921.0	7.391	CC, ES
HSR - Gun Club 09-34 - Wellbore #1 - Wellbore #1 - As D	13,100.0	7,242.9	1,065.9	921.3	7.371	SF
HSR - Gun Club 16-34 - Wellbore #1 - Wellbore #1 - As D	13,021.7	7,282.1	281.1	147.2	2.100	CC, ES, SF
HSR - Houston 13-34A - Wellbore #1 - Wellbore #1 - As	16,765.8	6,982.7	195.5	-6.6	0.967	Level 1, CC, ES, SF
HSR - Kemper 10-34 - Wellbore #1 - Wellbore #1 - As Dr	13,785.4	6,976.5	515.8	369.5	3.526	CC
HSR - Kemper 10-34 - Wellbore #1 - Wellbore #1 - As Dr	13,800.0	6,976.5	516.0	369.4	3.519	ES, SF
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr	15,592.9	6,978.8	1,134.4	954.1	6.294	CC
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr	15,600.0	6,978.8	1,134.4	954.0	6.288	ES
HSR - Merritt 11-34A - Wellbore #1 - Wellbore #1 - As Dr	15,700.0	6,979.0	1,139.4	957.4	6.259	SF
HSR - Owens 14-34 - Wellbore #1 - Wellbore #1 - As Dri	15,728.2	6,983.0	333.1	150.2	1.821	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	7,469.0	16,402.0	1,763.4	1,738.8	71.672	CC
Moser PC G34-65HN - Original Drilling - As Drilled	12,400.0	11,516.1	1,787.1	1,683.1	17.183	ES
Moser PC G34-65HN - Original Drilling - As Drilled	16,900.0	7,076.2	1,877.1	1,689.4	9.999	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 G34-626
<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 G34-626	<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	2,200.0	2,200.0	47.3	34.0	3.537	CC, ES
Centennial State G34-612 - Original Drilling - APD - Rev	17,029.2	17,074.3	1,142.3	788.3	3.226	SF
Centennial State G34-618 - Original Drilling - APD - Rev	2,211.2	2,211.5	20.2	6.8	1.504	CC, ES
Centennial State G34-618 - Original Drilling - APD - Rev	17,029.2	17,056.5	477.6	101.5	1.270	Level 3, SF
Centennial State G34-635 - Original Drilling - APD - Rev	7,373.4	7,367.7	607.5	560.9	13.020	CC
Centennial State G34-635 - Original Drilling - APD - Rev	17,029.2	17,021.2	649.0	270.4	1.714	ES, SF
Centennial State G34-645 - Original Drilling - APD - Rev	7,459.4	7,457.9	1,237.3	1,189.2	25.735	CC
Centennial State G34-645 - Original Drilling - APD - Rev	17,029.2	17,027.6	1,282.2	900.4	3.358	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	10,315.7	6,929.1	943.1	855.5	10.763	CC, ES
Mark 11-35 - Wellbore #1 - 150' Drift	10,500.0	6,929.0	961.0	870.2	10.590	SF
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,377.9	6,978.1	787.1	703.3	9.395	CC
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,400.0	6,977.9	787.4	703.1	9.341	ES
Mark 11-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,500.0	6,976.8	796.5	710.5	9.260	SF
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled	11,279.6	6,966.7	943.6	843.5	9.426	CC
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.0	6,966.5	943.8	843.2	9.385	ES
Mark 12-35 - Wellbore #1 - Wellbore #1 - As Drilled	11,400.0	6,965.6	951.2	848.9	9.296	SF
Mark 14-35 - Wellbore #1 - Wellbore #1 - As Drilled	10,263.5	6,969.7	295.4	213.6	3.610	CC, ES, 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	11,114.3	6,966.7	90.2	-6.9	0.929	Level 1, 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	7,426.3	6,985.1	1,048.6	1,002.5	22.757	CC, ES
Ocoma G35-09 - Wellbore #1 - 150' Drift	7,600.0	6,988.0	1,064.6	1,017.2	22.431	SF
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	7,737.2	7,050.1	922.3	878.7	21.172	CC, ES
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled	8,000.0	7,041.8	959.0	912.3	20.527	SF
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled	8,654.1	7,050.5	1,602.6	1,546.6	28.582	CC
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled	8,700.0	7,050.1	1,603.3	1,546.4	28.184	ES
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled	9,200.0	7,046.0	1,693.0	1,628.6	26.290	SF
Ocoma G35-15 - Wellbore #1 - Wellbore #1 - As Drilled	8,783.9	7,030.3	501.7	444.2	8.735	CC, ES
Ocoma G35-15 - Wellbore #1 - Wellbore #1 - As Drilled	8,800.0	7,029.7	501.9	444.4	8.729	SF
Ocoma G35-16 - Wellbore #1 - Wellbore #1 - As Drilled	3,600.4	3,559.6	179.0	158.7	8.836	CC, ES
Ocoma G35-16 - Wellbore #1 - Wellbore #1 - As Drilled	3,800.0	3,753.4	184.1	162.8	8.632	SF
Ocoma G35-23 - Wellbore #1 - Wellbore #1 - As Drilled	8,188.5	7,021.2	337.9	289.4	6.962	CC
Ocoma G35-23 - Wellbore #1 - Wellbore #1 - As Drilled	8,200.0	7,020.9	338.1	289.3	6.930	ES, SF
Staind G35-19 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

## Anticollision Summary Report

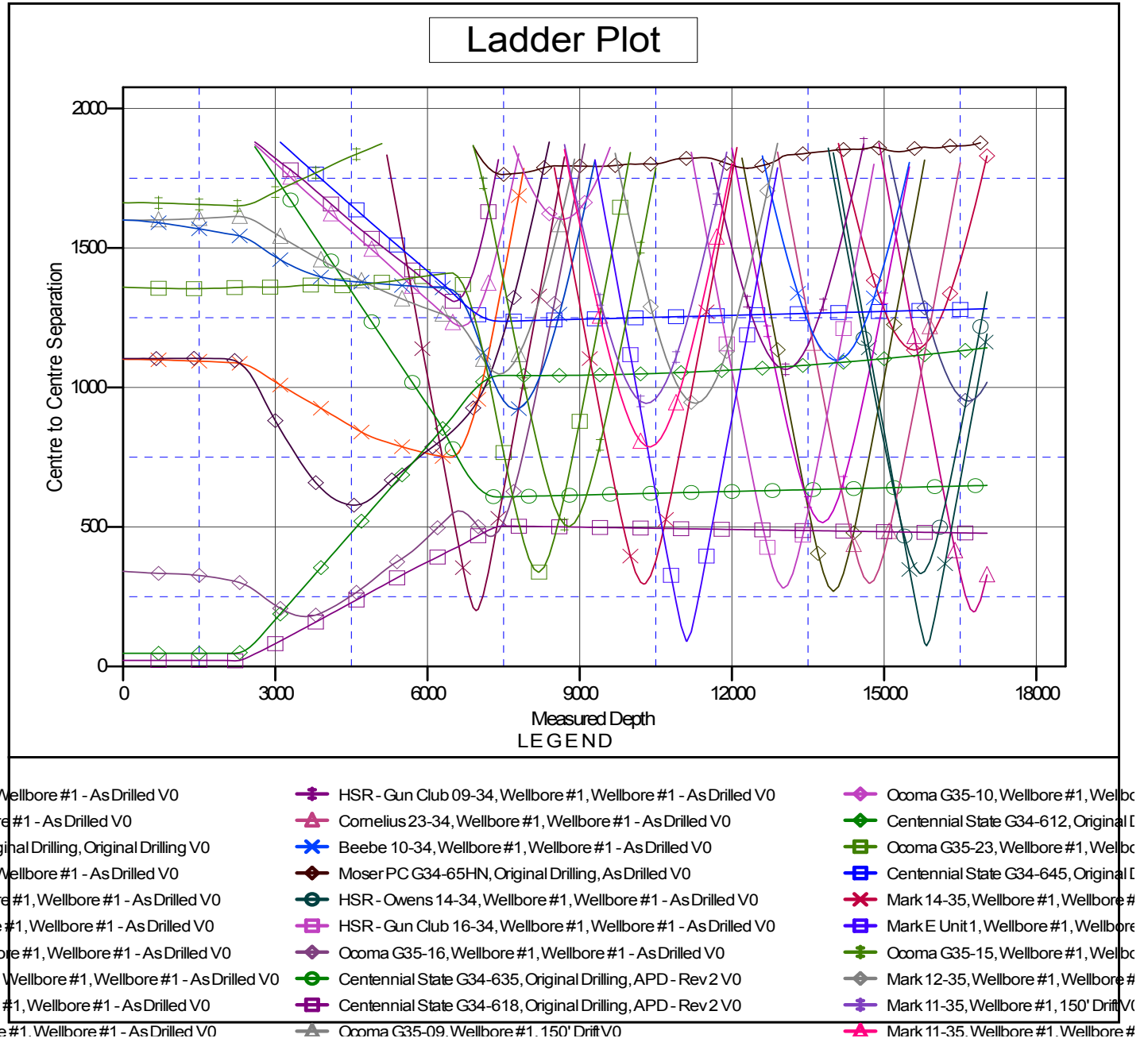
<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-626
<b>Project:</b>	Bronco	<b>TVD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Reference Site:</b>	G Section 35	<b>MD Reference:</b>	WELL @ 4846.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Centennial State G34-626	<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 Produccion
<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
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	6,960.0	10,828.2	200.3	181.2	10.534	CC, ES
Mark State PC G36-79HN - Original Drilling - Original Dri	7,000.0	10,821.2	205.3	185.0	10.073	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	4,553.8	4,612.8	578.4	551.3	21.371	CC, ES
Pedro State H01-30D - Wellbore #1 - Wellbore #1 - As D	4,900.0	4,912.5	602.8	573.5	20.560	SF
Shelton G36-27 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
State 04 - Wellbore #1 - Wellbore #1 - As Drilled	6,530.6	6,417.0	1,308.4	1,271.8	35.696	CC, ES
State 04 - Wellbore #1 - Wellbore #1 - As Drilled	6,700.0	6,583.8	1,330.9	1,293.3	35.431	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	6,666.6	6,570.1	1,219.8	1,182.4	32.668	CC, ES
State R G36-12 - Wellbore #1 - Wellbore #1 - As Drilled	6,800.0	6,701.2	1,228.4	1,190.4	32.333	SF
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,419.9	6,327.1	750.8	714.3	20.585	CC
State R G36-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.0	6,404.4	750.9	714.0	20.329	ES, SF
State R G36-14 - 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 G34-626
<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 G34-626	<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

Coordinates are relative to: Centennial State G34-626  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.57°



## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Centennial State G34-626
<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 G34-626	<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 G34-626  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.57°

