

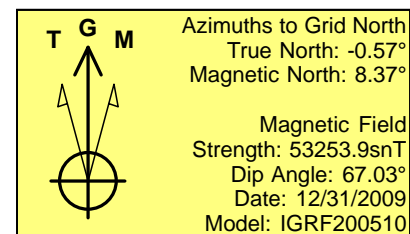
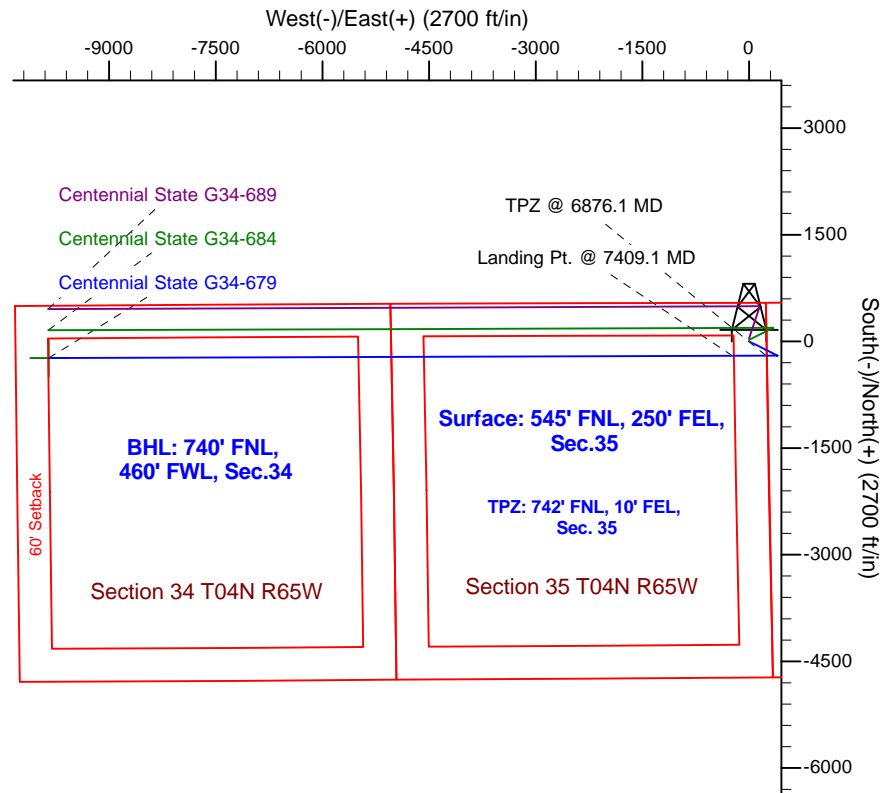
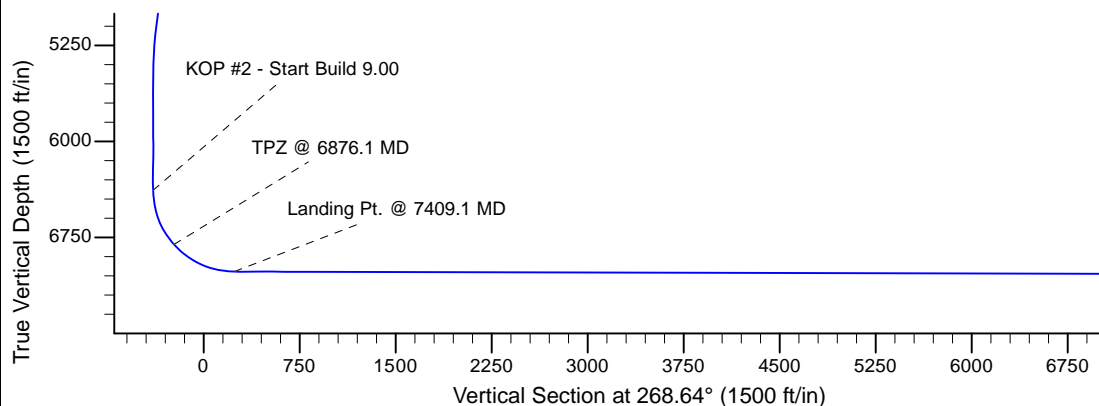
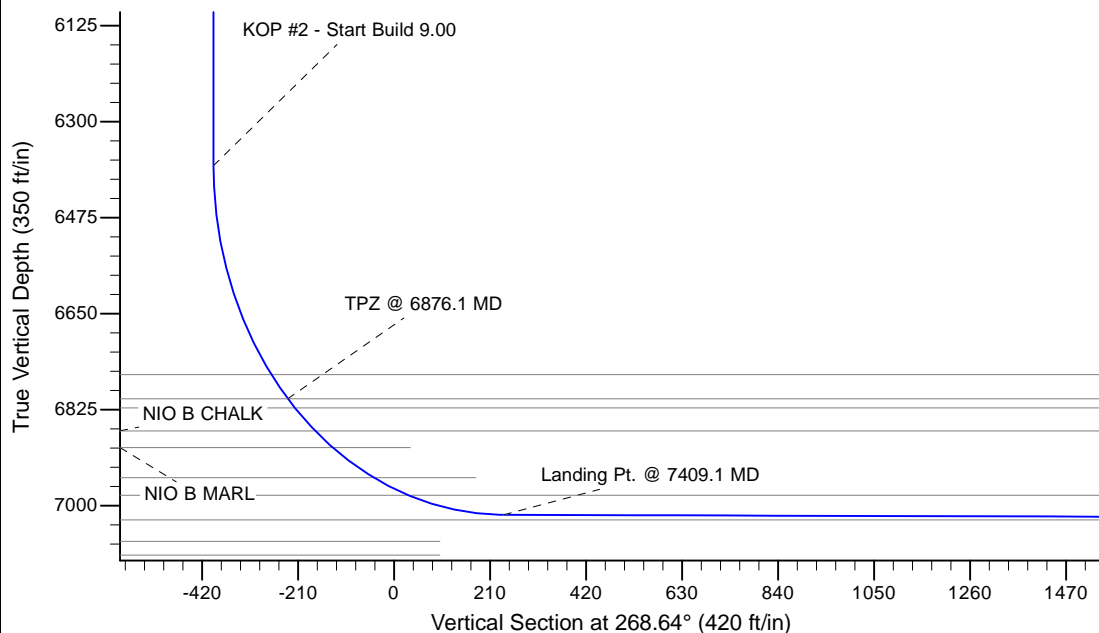
Project: Bronco
 Site: G Section 35-T4N-R65W Weld County, CO
 Well: Centennial State G34-679
 Wellbore: Original Drilling
 Design: APD - Rev 2

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	2412.1	8.24	116.57	2410.7	-13.2	26.5	2.00	116.57	-26.1	
4	5118.7	8.24	116.57	5089.3	-186.8	373.5	0.00	0.00	-369.0	
5	5530.8	0.00	0.00	5500.0	-200.0	400.0	2.00	180.00	-395.1	
6	6410.8	0.00	0.00	6380.0	-200.0	400.0	0.00	0.00	-395.1	
7	7409.1	89.85	269.81	7016.6	-202.1	-234.9	9.00	269.81	239.7	
8	17022.1	89.85	269.81	7041.8	-234.0	-9847.9	0.00	0.00	9850.6	Centennial State G34-679 BHL 740'FNL, 460'FWL



WELL DETAILS: Centennial State G34-679					
Ground Level: 4771.0					
0.0	0.0	Northing	Easting	Latitude	Longitude
		1344047.29	3244986.42	40.2744799	-104.6219800
Plan: APD - Rev 2 (Centennial State G34-679/Original Drilling)					
Created By: Shailey Jewell			Date: 15:35, February 27 2017		
OK to submit with 2A as per Noble Drilling 2/27/2017 3:35					

Northern Region - DJ Basin

Bronco

G Section 35

Centennial State G34-679

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 G34-679
Project:	Bronco	TVD Reference:	WELL @ 4801.0ft
Reference Site:	G Section 35	MD Reference:	WELL @ 4801.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-679	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	17,022.1	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	13,625.7	6,973.6	712.7	568.3	4.938	CC, ES
Beaman G34-17 - Wellbore #1 - Wellbore #1 - As Drilled	13,700.0	6,976.3	716.5	571.4	4.935	SF
Beaman G34-18 - Wellbore #1 - Wellbore #1 - As Drilled	14,698.7	6,979.2	126.7	-38.1	0.769	Level 1, CC
Beaman G34-18 - Wellbore #1 - Wellbore #1 - As Drilled	14,700.0	6,979.2	126.7	-38.1	0.769	Level 1, ES, SF
Beaman G34-99HZ - Original Drilling - Original Driling - A	13,221.5	7,440.0	371.2	208.3	2.278	CC
Beaman G34-99HZ - Original Drilling - Original Driling - A	16,969.2	11,193.3	421.8	20.5	1.051	Level 2, ES, SF
Beaman G35-31 - Wellbore #1 - Wellbore #1 - As Drilled	12,379.5	6,962.7	481.2	360.0	3.971	CC, ES
Beaman G35-31 - Wellbore #1 - Wellbore #1 - As Drilled	12,400.0	6,962.4	481.6	360.1	3.964	SF
Beebe 10-34 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Bochius Pooling Unit 1 - Wellbore #1 - Wellbore #1 - As	12,881.5	6,963.3	81.3	-49.5	0.622	Level 1, CC, ES, SF
Bockius 34-1G - Wellbore #1 - Wellbore #1 - As Drilled	12,798.7	6,966.3	220.1	91.2	1.707	CC
Bockius 34-1G - Wellbore #1 - Wellbore #1 - As Drilled	12,800.0	6,966.4	220.1	91.2	1.707	ES, SF
Bockius 34-2G - Wellbore #1 - Wellbore #1 - As Drilled	14,101.8	7,020.2	244.8	91.5	1.596	CC, ES, SF
Bockius 34-8G - Wellbore #1 - Wellbore #1 - As Drilled	12,806.2	6,971.9	1,063.3	934.3	8.241	CC, ES
Bockius 34-8G - Wellbore #1 - Wellbore #1 - As Drilled	12,900.0	6,973.3	1,067.4	937.0	8.183	SF
Bockius 37-07G - Wellbore #1 - Wellbore #1 - As Drilled	14,463.5	6,967.1	1,051.3	891.4	6.575	CC
Bockius 37-07G - Wellbore #1 - Wellbore #1 - As Drilled	14,500.0	6,966.9	1,052.0	891.4	6.552	ES, SF
Champ G34-06X - Wellbore #1 - Wellbore #1 - As Drilled	15,465.5	6,986.2	1,358.0	1,179.0	7.586	CC
Champ G34-06X - Wellbore #1 - Wellbore #1 - As Drilled	15,500.0	6,986.3	1,358.5	1,178.8	7.563	ES
Champ G34-06X - Wellbore #1 - Wellbore #1 - As Drilled	15,600.0	6,986.7	1,364.7	1,183.8	7.546	SF
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	15,534.4	6,985.5	86.5	-93.6	0.480	Level 1, CC, ES, SF
Moser 34-4G - Wellbore #1 - Wellbore #1 - As Drilled	16,641.4	7,007.4	280.3	79.3	1.394	Level 3, CC, ES, SF
Moser 34-5G - Wellbore #1 - Wellbore #1 - As Drilled	16,777.0	6,932.1	1,472.9	1,269.7	7.248	CC
Moser 34-5G - Wellbore #1 - Wellbore #1 - As Drilled	16,800.0	6,931.7	1,473.1	1,269.4	7.234	ES
Moser 34-5G - Wellbore #1 - Wellbore #1 - As Drilled	16,900.0	6,929.8	1,478.0	1,273.1	7.211	SF
Moser 34-6G - Wellbore #1 - Wellbore #1 - As Drilled	15,974.2	6,958.3	798.1	609.9	4.241	CC
Moser 34-6G - Wellbore #1 - Wellbore #1 - As Drilled	16,000.0	6,957.8	798.5	609.9	4.233	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 G34-679
Project:	Bronco	TVD Reference:	WELL @ 4801.0ft
Reference Site:	G Section 35	MD Reference:	WELL @ 4801.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-679	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 34						
Moser G34-30 - Wellbore #1 - Wellbore #1 - As Drilled	17,022.1	7,012.3	647.2	458.5	3.430	CC, ES, SF
Moser PC G34-65HN - Original Drilling - As Drilled	14,763.9	9,065.2	1,661.0	1,512.5	11.186	CC
Moser PC G34-65HN - Original Drilling - As Drilled	16,800.0	7,037.5	1,666.9	1,480.6	8.949	ES
Moser PC G34-65HN - Original Drilling - As Drilled	17,022.1	6,915.0	1,677.8	1,488.5	8.862	SF
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						Out of range
Centennial State G34-645 - Original Drilling - APD - Rev						Out of range
Centennial State G34-660 - Original Drilling - APD - Rev	1,812.1	1,824.1	1,049.5	1,038.5	95.462	CC
Centennial State G34-660 - Original Drilling - APD - Rev	17,022.1	17,252.8	1,241.0	864.7	3.298	ES, SF
Centennial State G34-666 - Original Drilling - APD - Rev	5,597.3	5,609.6	757.4	722.3	21.564	CC
Centennial State G34-666 - Original Drilling - APD - Rev	17,022.1	17,016.5	761.7	379.6	1.994	ES, SF
Centennial State G34-675 - Original Drilling - APD - Rev	7,057.1	7,097.8	416.3	373.1	9.643	CC
Centennial State G34-675 - Original Drilling - APD - Rev	12,310.3	12,306.0	422.6	221.3	2.100	ES, SF
Centennial State G34-684 - Original Drilling - APD - Rev	2,000.0	2,000.0	21.9	9.7	1.802	CC, ES
Centennial State G34-684 - Original Drilling - APD - Rev	17,022.1	16,856.3	402.9	29.5	1.079	Level 2, SF
Centennial State G34-689 - Original Drilling - APD - Rev	2,000.0	2,001.0	43.7	31.6	3.603	CC, ES
Centennial State G34-689 - Original Drilling - APD - Rev	17,022.1	16,773.2	688.8	309.7	1.817	SF
CPC Mark 35-01 - Wellbore #1 - Wellbore #1 - As Drilled	8,767.1	6,975.7	65.9	9.1	1.161	Level 2, CC, ES, SF
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled	7,553.6	7,029.1	1,258.4	1,217.5	30.729	CC, ES
CPC Mark 35-02 - Wellbore #1 - Wellbore #1 - As Drilled	7,900.0	7,041.4	1,305.2	1,261.0	29.541	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	7,481.4	6,983.0	205.0	164.8	5.099	CC, ES, SF
Mark 35-13 - Wellbore #1 - Wellbore #1 - As Drilled	8,824.4	6,985.9	1,112.0	1,053.9	19.144	CC, ES
Mark 35-13 - Wellbore #1 - Wellbore #1 - As Drilled	9,000.0	6,983.0	1,125.8	1,065.2	18.590	SF
Mark 35-15 - Wellbore #1 - Wellbore #1 - As Drilled	8,248.7	6,981.4	298.7	249.8	6.111	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	10,352.9	6,959.7	194.0	110.0	2.309	CC, ES, SF
Ocoma G35-04 - Wellbore #1 - Wellbore #1 - As Drilled	11,583.4	6,955.8	140.3	34.0	1.319	Level 3, CC, ES, SF
Ocoma G35-05 - Wellbore #1 - Wellbore #1 - As Drilled	11,600.4	7,022.5	1,153.4	1,046.5	10.791	CC, ES
Ocoma G35-05 - Wellbore #1 - Wellbore #1 - As Drilled	11,700.0	7,024.0	1,157.6	1,049.2	10.671	SF
Ocoma G35-06 - Wellbore #1 - Wellbore #1 - As Drilled	10,320.8	6,961.4	1,222.8	1,139.4	14.663	CC, ES
Ocoma G35-06 - Wellbore #1 - Wellbore #1 - As Drilled	10,500.0	6,961.0	1,235.9	1,149.8	14.351	SF
Ocoma G35-09 - Wellbore #1 - 150' Drift						Out of range
Ocoma G35-09 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Ocoma G35-10 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
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	10,882.8	7,069.6	584.4	489.3	6.144	CC
Staind G35-19 - Wellbore #1 - Wellbore #1 - As Drilled	10,900.0	7,069.6	584.6	489.2	6.128	ES, SF

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-679
Project:	Bronco	TVD Reference:	WELL @ 4801.0ft
Reference Site:	G Section 35	MD Reference:	WELL @ 4801.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-679	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 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	6,882.8	7,296.9	202.0	184.4	11.482	CC, ES
Mark State PC G36-79HN - Original Drilling - Original Dri	6,900.0	7,300.9	202.9	184.9	11.254	SF
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille	5,498.0	5,450.4	997.8	967.7	33.158	CC
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille	5,500.0	5,452.5	997.8	967.7	33.147	ES
Otis State G36-19 - Wellbore #1 - Wellbore #1 - As Drille	6,500.0	6,439.1	1,018.1	982.9	28.952	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						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						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	5,480.8	5,438.3	1,870.9	1,840.9	62.380	CC
State R G36-03 - Wellbore #1 - Wellbore #1 - As Drilled	5,500.0	5,454.7	1,871.0	1,840.9	62.195	ES
State R G36-03 - Wellbore #1 - Wellbore #1 - As Drilled	5,800.0	5,731.6	1,878.3	1,846.7	59.485	SF
State R G36-04 - Wellbore #1 - Wellbore #1 - As Drilled	6,407.6	6,364.7	450.1	414.9	12.773	CC, ES
State R G36-04 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.0	6,456.3	455.2	419.5	12.749	SF
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled	5,505.0	5,454.7	1,425.4	1,395.4	47.404	CC, ES
State R G36-05 - Wellbore #1 - Wellbore #1 - As Drilled	6,600.0	6,515.0	1,459.0	1,423.4	40.915	SF
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						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

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-679
Project:	Bronco	TVD Reference:	WELL @ 4801.0ft
Reference Site:	G Section 35	MD Reference:	WELL @ 4801.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-679	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 @ 4801.0ft

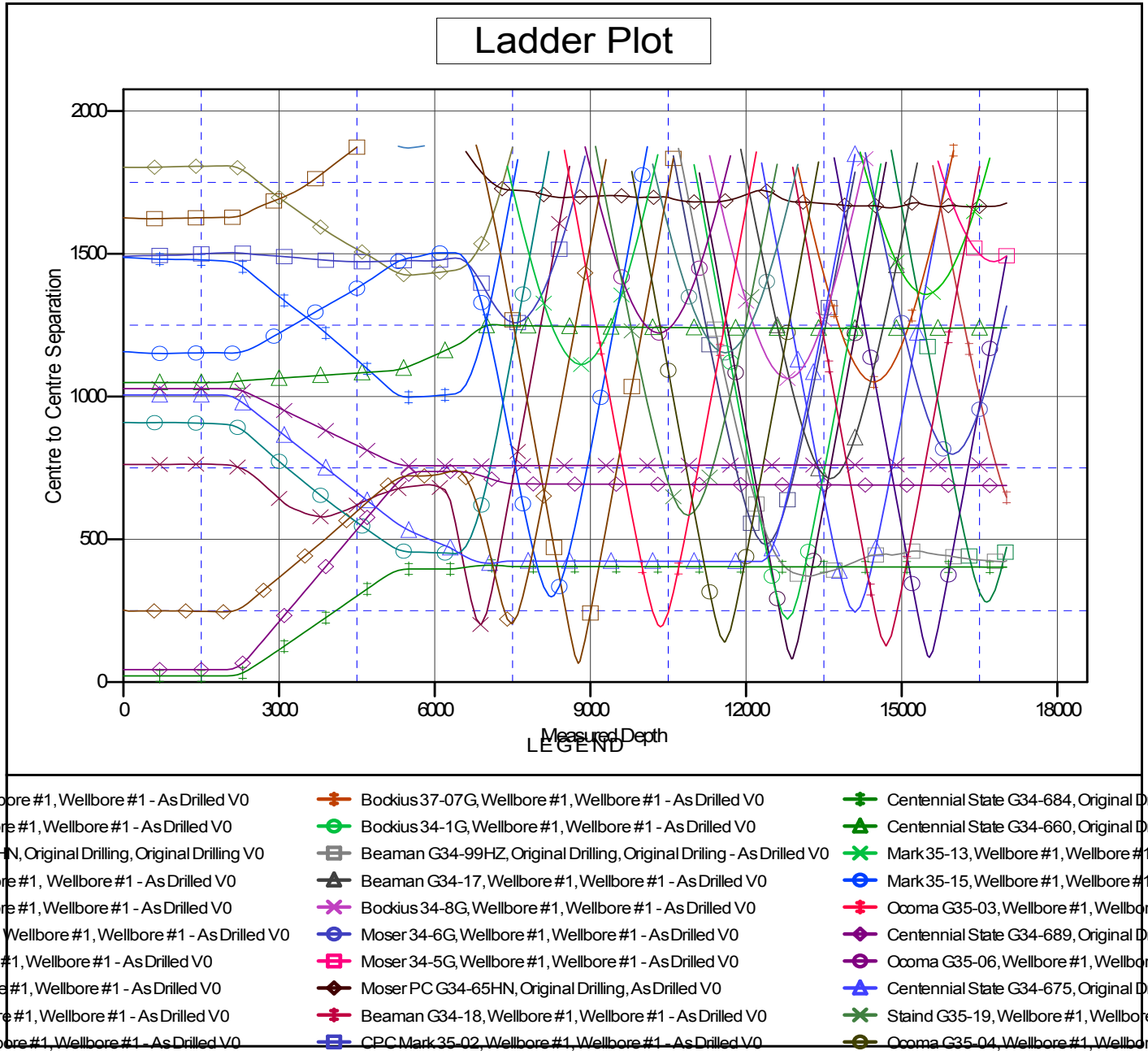
Offset Depths are relative to Offset Datum

Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-679

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.57°



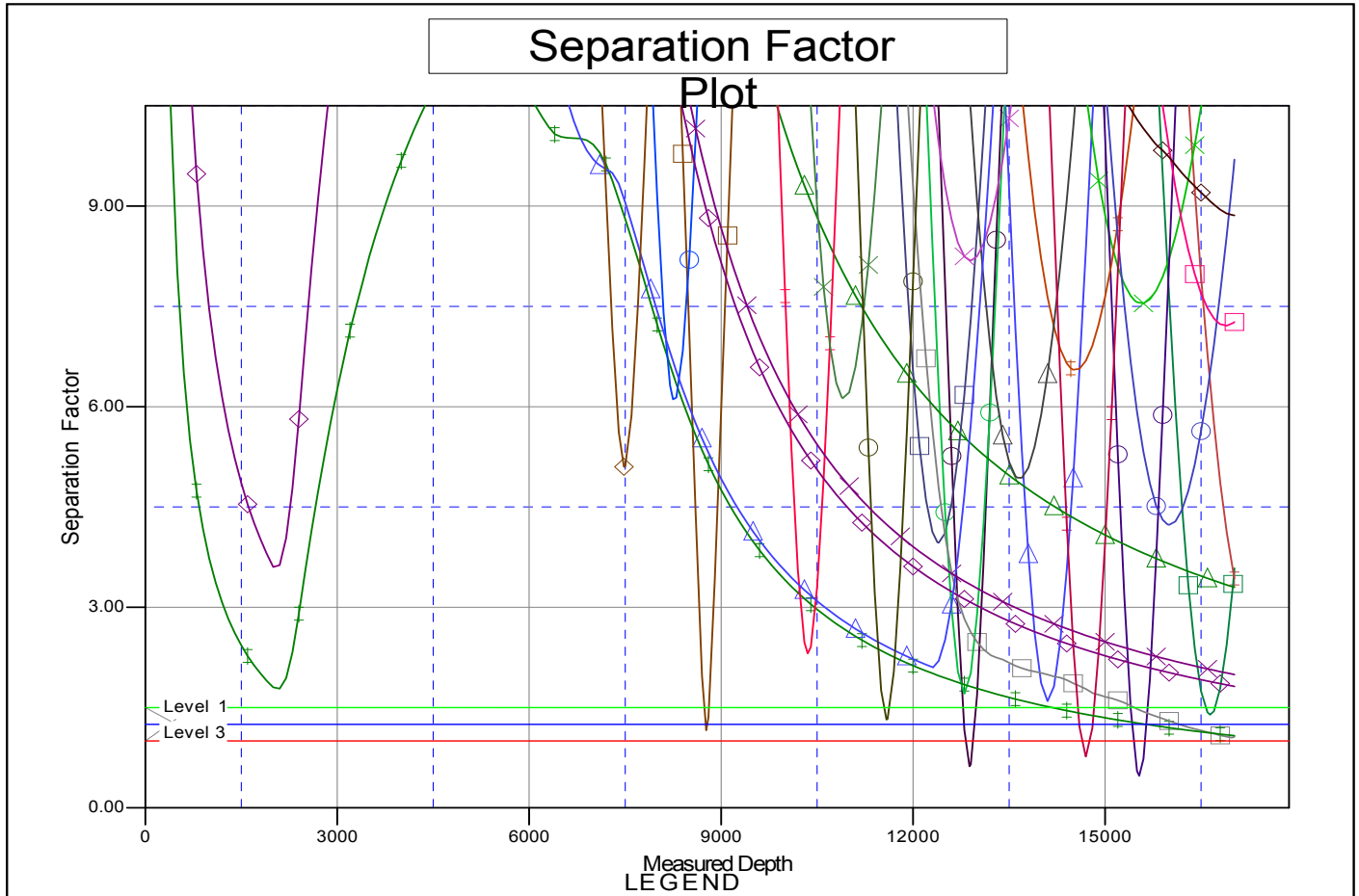
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Centennial State G34-679
Project:	Bronco	TVD Reference:	WELL @ 4801.0ft
Reference Site:	G Section 35	MD Reference:	WELL @ 4801.0ft
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Centennial State G34-679	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 @ 4801.0ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Centennial State G34-679
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.57°



Wellbore #1, Wellbore #1 - As Drilled V0	Bockius 37-07G, Wellbore #1, Wellbore #1 - As Drilled V0	Centennial State G34-684, Original Drill
Wellbore #1, Wellbore #1 - As Drilled V0	Bockius 34-1G, Wellbore #1, Wellbore #1 - As Drilled V0	Centennial State G34-660, Original Drill
Wellbore #1, Wellbore #1 - As Drilled V0	Beaman G34-99HZ, Original Drilling, Original Drilling - As Drilled V0	Mark 35-13, Wellbore #1, Wellbore #1 -
Wellbore #1, Wellbore #1 - As Drilled V0	Beaman G34-17, Wellbore #1, Wellbore #1 - As Drilled V0	Mark 35-15, Wellbore #1, Wellbore #1 -
Wellbore #1, Wellbore #1 - As Drilled V0	Bockius 34-8G, Wellbore #1, Wellbore #1 - As Drilled V0	Ocoma G35-03, Wellbore #1, Wellbore
Wellbore #1, Wellbore #1 - As Drilled V0	Moser 34-6G, Wellbore #1, Wellbore #1 - As Drilled V0	Centennial State G34-689, Original Drill
Wellbore #1, Wellbore #1 - As Drilled V0	Moser 34-5G, Wellbore #1, Wellbore #1 - As Drilled V0	Ocoma G35-06, Wellbore #1, Wellbore
Wellbore #1, Wellbore #1 - As Drilled V0	Moser PC G34-65HN, Original Drilling, As Drilled V0	Centennial State G34-675, Original Drill
Wellbore #1, Wellbore #1 - As Drilled V0	Beaman G34-18, Wellbore #1, Wellbore #1 - As Drilled V0	Staind G35-19, Wellbore #1, Wellbore
Wellbore #1, Wellbore #1 - As Drilled V0	CPC Mark 35-02, Wellbore #1, Wellbore #1 - As Drilled V0	Ocoma G35-04, Wellbore #1, Wellbore