



Project: Niobrara CON'83
Site: Timbro Ranch 3&34 Pad
Well: 1-34-10-59
Wellbore: 1-34-10-59 OH
Design: Plan #1



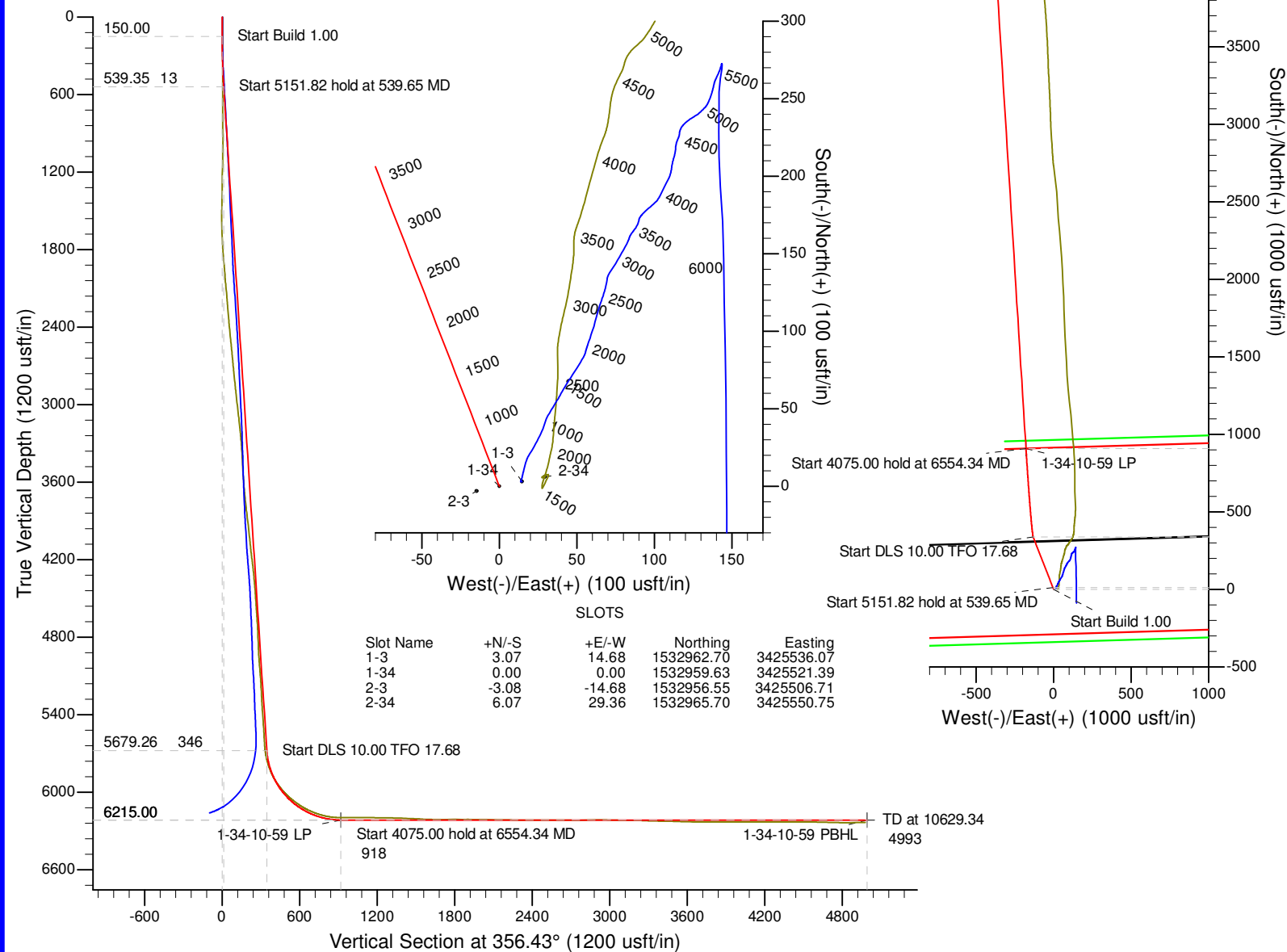
LEGEND

- 2-34-10-59, 2-34-10-59 OH, 2-34-10-59 OH V0
- 1-3-9-59, 1-3-9-59 OH, 1-3-9-59 OH V0
- Plan #1



Azimuths to Grid North
True North: -0.99°
Magnetic North: 6.99°

Magnetic Field
Strength: 53043.6snT
Dip Angle: 67.36°
Date: 12/08/2014
Model: IGRF2010



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
1-34-10-59 LP	6215.00	908.67	-178.12	1533868.30	3425343.27	40° 47' 19.463 N	103° 57' 50.065 W	Point
- plan hits target center								
1-34-10-59 PBHL	6215.00	4975.76	-431.90	1537935.39	3425089.49	40° 47' 59.687 N	103° 57' 52.448 W	Point
- plan hits target center								

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Start Build 1.00
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00		Start 5151.82 hold at 539.65 MD
3	539.65	3.90	338.79	539.35	12.35	-4.79	1.00	338.79	12.62		Start DLS 10.00 TFO 17.68
4	5691.47	3.90	338.79	5679.26	338.71	-131.47	0.00	0.00	346.24		Start 4075.00 hold at 6554.34 MD
5	6554.34	90.00	356.43	6215.00	908.67	-178.12	10.00	17.68	918.00	1-34-10-59 LP	TD at 10629.34
6	10629.34	90.00	356.43	6215.00	4975.76	-431.90	0.00	0.00	4993.00	1-34-10-59 PBHL	

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Company:	Carrizo Oil & Gas, Inc.	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Project:	Niobrara CON'83	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site:	Timbro Ranch 3&34 Pad	North Reference:	Grid
Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Wellbore:	1-34-10-59 OH		
Design:	Plan #1		

Project	Niobrara CON'83,		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Timbro Ranch 3&34 Pad, Centered on 2-34-10-59; Weld County			
Site Position:		Northing:	1,532,965.70 usft	Latitude:	40° 47' 10.510 N
From:	Map	Easting:	3,425,550.75 usft	Longitude:	103° 57' 47.571 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.99 °

Well	1-34-10-59 - Slot 1-34					
Well Position	+N/-S	-6.07 usft	Northing:	1,532,959.63 usft	Latitude:	40° 47' 10.455 N
	+E/-W	-29.36 usft	Easting:	3,425,521.39 usft	Longitude:	103° 57' 47.954 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	5,082.00 usft	Ground Level:	5,065.00 usft

Wellbore	1-34-10-59 OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/08/14	7.98	67.36	53,044

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	356.43

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
539.65	3.90	338.79	539.35	12.35	-4.79	1.00	1.00	0.00	338.79	
5,691.47	3.90	338.79	5,679.26	338.71	-131.47	0.00	0.00	0.00	0.00	
6,554.34	90.00	356.43	6,215.00	908.67	-178.12	10.00	9.98	2.04	17.68	1-34-10-59 LP
10,629.34	90.00	356.43	6,215.00	4,975.76	-431.90	0.00	0.00	0.00	0.00	1-34-10-59 PBHL

Planning Report

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Company:	Carrizo Oil & Gas, Inc.	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Project:	Niobrara CON'83	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site:	Timbro Ranch 3&34 Pad	North Reference:	Grid
Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Wellbore:	1-34-10-59 OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.50	338.79	200.00	0.20	-0.08	0.21	1.00	1.00	0.00
300.00	1.50	338.79	299.98	1.83	-0.71	1.87	1.00	1.00	0.00
400.00	2.50	338.79	399.92	5.08	-1.97	5.20	1.00	1.00	0.00
500.00	3.50	338.79	499.78	9.96	-3.87	10.18	1.00	1.00	0.00
539.65	3.90	338.79	539.35	12.35	-4.79	12.62	1.00	1.00	0.00
600.00	3.90	338.79	599.56	16.17	-6.28	16.53	0.00	0.00	0.00
700.00	3.90	338.79	699.33	22.50	-8.74	23.01	0.00	0.00	0.00
800.00	3.90	338.79	799.10	28.84	-11.19	29.48	0.00	0.00	0.00
900.00	3.90	338.79	898.87	35.17	-13.65	35.96	0.00	0.00	0.00
1,000.00	3.90	338.79	998.64	41.51	-16.11	42.43	0.00	0.00	0.00
1,100.00	3.90	338.79	1,098.40	47.84	-18.57	48.91	0.00	0.00	0.00
1,200.00	3.90	338.79	1,198.17	54.18	-21.03	55.38	0.00	0.00	0.00
1,300.00	3.90	338.79	1,297.94	60.51	-23.49	61.86	0.00	0.00	0.00
1,400.00	3.90	338.79	1,397.71	66.85	-25.95	68.34	0.00	0.00	0.00
1,500.00	3.90	338.79	1,497.48	73.18	-28.41	74.81	0.00	0.00	0.00
1,600.00	3.90	338.79	1,597.25	79.52	-30.87	81.29	0.00	0.00	0.00
1,700.00	3.90	338.79	1,697.02	85.85	-33.33	87.76	0.00	0.00	0.00
1,800.00	3.90	338.79	1,796.79	92.19	-35.78	94.24	0.00	0.00	0.00
1,900.00	3.90	338.79	1,896.56	98.52	-38.24	100.71	0.00	0.00	0.00
2,000.00	3.90	338.79	1,996.32	104.86	-40.70	107.19	0.00	0.00	0.00
2,100.00	3.90	338.79	2,096.09	111.19	-43.16	113.67	0.00	0.00	0.00
2,200.00	3.90	338.79	2,195.86	117.53	-45.62	120.14	0.00	0.00	0.00
2,300.00	3.90	338.79	2,295.63	123.86	-48.08	126.62	0.00	0.00	0.00
2,400.00	3.90	338.79	2,395.40	130.20	-50.54	133.09	0.00	0.00	0.00
2,500.00	3.90	338.79	2,495.17	136.53	-53.00	139.57	0.00	0.00	0.00
2,600.00	3.90	338.79	2,594.94	142.87	-55.46	146.05	0.00	0.00	0.00
2,700.00	3.90	338.79	2,694.71	149.20	-57.91	152.52	0.00	0.00	0.00
2,800.00	3.90	338.79	2,794.47	155.54	-60.37	159.00	0.00	0.00	0.00
2,900.00	3.90	338.79	2,894.24	161.87	-62.83	165.47	0.00	0.00	0.00
3,000.00	3.90	338.79	2,994.01	168.21	-65.29	171.95	0.00	0.00	0.00
3,100.00	3.90	338.79	3,093.78	174.54	-67.75	178.42	0.00	0.00	0.00
3,200.00	3.90	338.79	3,193.55	180.88	-70.21	184.90	0.00	0.00	0.00
3,300.00	3.90	338.79	3,293.32	187.21	-72.67	191.38	0.00	0.00	0.00
3,400.00	3.90	338.79	3,393.09	193.55	-75.13	197.85	0.00	0.00	0.00
3,500.00	3.90	338.79	3,492.86	199.88	-77.59	204.33	0.00	0.00	0.00
3,600.00	3.90	338.79	3,592.63	206.22	-80.05	210.80	0.00	0.00	0.00
3,700.00	3.90	338.79	3,692.39	212.55	-82.50	217.28	0.00	0.00	0.00
3,800.00	3.90	338.79	3,792.16	218.89	-84.96	223.76	0.00	0.00	0.00
3,900.00	3.90	338.79	3,891.93	225.22	-87.42	230.23	0.00	0.00	0.00
4,000.00	3.90	338.79	3,991.70	231.56	-89.88	236.71	0.00	0.00	0.00
4,100.00	3.90	338.79	4,091.47	237.89	-92.34	243.18	0.00	0.00	0.00
4,200.00	3.90	338.79	4,191.24	244.23	-94.80	249.66	0.00	0.00	0.00
4,300.00	3.90	338.79	4,291.01	250.56	-97.26	256.13	0.00	0.00	0.00
4,400.00	3.90	338.79	4,390.78	256.90	-99.72	262.61	0.00	0.00	0.00
4,500.00	3.90	338.79	4,490.55	263.23	-102.18	269.09	0.00	0.00	0.00
4,600.00	3.90	338.79	4,590.31	269.57	-104.64	275.56	0.00	0.00	0.00
4,700.00	3.90	338.79	4,690.08	275.90	-107.09	282.04	0.00	0.00	0.00
4,800.00	3.90	338.79	4,789.85	282.24	-109.55	288.51	0.00	0.00	0.00
4,900.00	3.90	338.79	4,889.62	288.57	-112.01	294.99	0.00	0.00	0.00
5,000.00	3.90	338.79	4,989.39	294.91	-114.47	301.46	0.00	0.00	0.00
5,100.00	3.90	338.79	5,089.16	301.24	-116.93	307.94	0.00	0.00	0.00
5,200.00	3.90	338.79	5,188.93	307.58	-119.39	314.42	0.00	0.00	0.00

Planning Report

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Project:	Niobrara CON'83	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site:	Timbro Ranch 3&34 Pad	North Reference:	Grid
Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Wellbore:	1-34-10-59 OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	3.90	338.79	5,288.70	313.91	-121.85	320.89	0.00	0.00	0.00
5,400.00	3.90	338.79	5,388.46	320.25	-124.31	327.37	0.00	0.00	0.00
5,500.00	3.90	338.79	5,488.23	326.58	-126.77	333.84	0.00	0.00	0.00
5,600.00	3.90	338.79	5,588.00	332.92	-129.22	340.32	0.00	0.00	0.00
5,691.47	3.90	338.79	5,679.26	338.71	-131.47	346.24	0.00	0.00	0.00
5,700.00	4.72	341.94	5,687.77	339.32	-131.69	346.86	10.00	9.61	36.96
5,800.00	14.61	351.89	5,786.23	355.76	-134.75	363.46	10.00	9.90	9.95
5,900.00	24.59	353.84	5,880.32	389.02	-138.77	396.90	10.00	9.98	1.96
6,000.00	34.58	354.71	5,967.17	438.09	-143.63	446.18	10.00	9.99	0.87
6,100.00	44.58	355.23	6,044.14	501.48	-149.18	509.80	10.00	9.99	0.52
6,200.00	54.57	355.59	6,108.90	577.27	-155.25	585.82	10.00	10.00	0.36
6,300.00	64.57	355.87	6,159.48	663.15	-161.65	671.93	10.00	10.00	0.28
6,400.00	74.57	356.10	6,194.34	756.51	-168.20	765.52	10.00	10.00	0.24
6,500.00	84.57	356.32	6,212.43	854.52	-174.69	863.74	10.00	10.00	0.21
6,554.34	90.00	356.43	6,215.00	908.67	-178.12	918.00	10.00	10.00	0.21
1-34-10-59 LP									
6,600.00	90.00	356.43	6,215.00	954.24	-180.96	963.66	0.00	0.00	0.00
6,700.00	90.00	356.43	6,215.00	1,054.05	-187.19	1,063.66	0.00	0.00	0.00
6,800.00	90.00	356.43	6,215.00	1,153.85	-193.42	1,163.66	0.00	0.00	0.00
6,900.00	90.00	356.43	6,215.00	1,253.66	-199.65	1,263.66	0.00	0.00	0.00
7,000.00	90.00	356.43	6,215.00	1,353.47	-205.87	1,363.66	0.00	0.00	0.00
7,100.00	90.00	356.43	6,215.00	1,453.27	-212.10	1,463.66	0.00	0.00	0.00
7,200.00	90.00	356.43	6,215.00	1,553.08	-218.33	1,563.66	0.00	0.00	0.00
7,300.00	90.00	356.43	6,215.00	1,652.88	-224.56	1,663.66	0.00	0.00	0.00
7,400.00	90.00	356.43	6,215.00	1,752.69	-230.79	1,763.66	0.00	0.00	0.00
7,500.00	90.00	356.43	6,215.00	1,852.49	-237.01	1,863.66	0.00	0.00	0.00
7,600.00	90.00	356.43	6,215.00	1,952.30	-243.24	1,963.66	0.00	0.00	0.00
7,700.00	90.00	356.43	6,215.00	2,052.11	-249.47	2,063.66	0.00	0.00	0.00
7,800.00	90.00	356.43	6,215.00	2,151.91	-255.70	2,163.66	0.00	0.00	0.00
7,900.00	90.00	356.43	6,215.00	2,251.72	-261.92	2,263.66	0.00	0.00	0.00
8,000.00	90.00	356.43	6,215.00	2,351.52	-268.15	2,363.66	0.00	0.00	0.00
8,100.00	90.00	356.43	6,215.00	2,451.33	-274.38	2,463.66	0.00	0.00	0.00
8,200.00	90.00	356.43	6,215.00	2,551.14	-280.61	2,563.66	0.00	0.00	0.00
8,300.00	90.00	356.43	6,215.00	2,650.94	-286.84	2,663.66	0.00	0.00	0.00
8,400.00	90.00	356.43	6,215.00	2,750.75	-293.06	2,763.66	0.00	0.00	0.00
8,500.00	90.00	356.43	6,215.00	2,850.55	-299.29	2,863.66	0.00	0.00	0.00
8,600.00	90.00	356.43	6,215.00	2,950.36	-305.52	2,963.66	0.00	0.00	0.00
8,700.00	90.00	356.43	6,215.00	3,050.17	-311.75	3,063.66	0.00	0.00	0.00
8,800.00	90.00	356.43	6,215.00	3,149.97	-317.97	3,163.66	0.00	0.00	0.00
8,900.00	90.00	356.43	6,215.00	3,249.78	-324.20	3,263.66	0.00	0.00	0.00
9,000.00	90.00	356.43	6,215.00	3,349.58	-330.43	3,363.66	0.00	0.00	0.00
9,100.00	90.00	356.43	6,215.00	3,449.39	-336.66	3,463.66	0.00	0.00	0.00
9,200.00	90.00	356.43	6,215.00	3,549.20	-342.88	3,563.66	0.00	0.00	0.00
9,300.00	90.00	356.43	6,215.00	3,649.00	-349.11	3,663.66	0.00	0.00	0.00
9,400.00	90.00	356.43	6,215.00	3,748.81	-355.34	3,763.66	0.00	0.00	0.00
9,500.00	90.00	356.43	6,215.00	3,848.61	-361.57	3,863.66	0.00	0.00	0.00
9,600.00	90.00	356.43	6,215.00	3,948.42	-367.80	3,963.66	0.00	0.00	0.00
9,700.00	90.00	356.43	6,215.00	4,048.22	-374.02	4,063.66	0.00	0.00	0.00
9,800.00	90.00	356.43	6,215.00	4,148.03	-380.25	4,163.66	0.00	0.00	0.00
9,900.00	90.00	356.43	6,215.00	4,247.84	-386.48	4,263.66	0.00	0.00	0.00
10,000.00	90.00	356.43	6,215.00	4,347.64	-392.71	4,363.66	0.00	0.00	0.00
10,100.00	90.00	356.43	6,215.00	4,447.45	-398.93	4,463.66	0.00	0.00	0.00
10,200.00	90.00	356.43	6,215.00	4,547.25	-405.16	4,563.66	0.00	0.00	0.00

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Site:	Timbro Ranch 3&34 Pad	North Reference:	Grid
Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Wellbore:	1-34-10-59 OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.00	90.00	356.43	6,215.00	4,647.06	-411.39	4,663.66	0.00	0.00	0.00
10,400.00	90.00	356.43	6,215.00	4,746.87	-417.62	4,763.66	0.00	0.00	0.00
10,500.00	90.00	356.43	6,215.00	4,846.67	-423.85	4,863.66	0.00	0.00	0.00
10,600.00	90.00	356.43	6,215.00	4,946.48	-430.07	4,963.66	0.00	0.00	0.00
10,629.34	90.00	356.43	6,215.00	4,975.76	-431.90	4,993.00	0.00	0.00	0.00
1-34-10-59 PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
1-34-10-59 PBHL	0.00	0.00	6,215.00	4,975.76	-431.90	1,537,935.39	3,425,089.49	40° 47' 59.687 N	103° 57' 52.448 W
- plan hits target center									
- Point									
1-34-10-59 LP	0.00	0.00	6,215.00	908.67	-178.12	1,533,868.30	3,425,343.27	40° 47' 19.463 N	103° 57' 50.065 W
- plan hits target center									
- Point									

Anticollision Report

Company:	Carrizo Oil & Gas, Inc.	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Project:	Niobrara CON'83	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Reference Site:	Timbro Ranch 3&34 Pad	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	1-34-10-59 OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 200.00 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	12/03/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	10,629.34	Plan #1 (1-34-10-59 OH)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Timbro Ranch 3&34 Pad						
1-3-9-59 - 1-3-9-59 OH - 1-3-9-59 OH	176.69	176.70	13.84	13.06	17.683	CC
1-3-9-59 - 1-3-9-59 OH - 1-3-9-59 OH	200.00	199.91	13.94	12.99	14.754	ES
1-3-9-59 - 1-3-9-59 OH - 1-3-9-59 OH	2,700.00	2,697.96	128.46	109.17	6.659	SF
2-34-10-59 - 2-34-10-59 OH - 2-34-10-59 OH	262.53	262.65	27.88	26.49	20.007	CC
2-34-10-59 - 2-34-10-59 OH - 2-34-10-59 OH	300.00	299.80	28.13	26.47	16.993	ES
2-34-10-59 - 2-34-10-59 OH - 2-34-10-59 OH	3,500.00	3,501.12	131.40	106.50	5.277	SF

Offset Design		Timbro Ranch 3&34 Pad - 1-3-9-59 - 1-3-9-59 OH - 1-3-9-59 OH										Offset Site Error:		0.00 usft
Survey Program:		139-MWD										Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	78.19	3.07	14.68	15.00					
100.00	100.00	100.14	100.14	0.15	0.16	78.01	3.02	14.21	14.53	14.21	0.32	46.040		
150.00	150.00	150.14	150.13	0.33	0.27	77.75	2.96	13.65	13.97	13.37	0.60	23.383		
176.69	176.69	176.70	176.70	0.42	0.36	98.67	3.07	13.49	13.84	13.06	0.78	17.683	CC	
200.00	200.00	199.91	199.90	0.51	0.44	98.47	3.28	13.52	13.94	12.99	0.94	14.754	ES	
300.00	299.98	299.78	299.75	0.87	0.79	97.93	5.43	14.55	15.68	14.03	1.65	9.511		
400.00	399.92	399.57	399.44	1.23	1.14	96.78	9.56	15.49	18.04	15.67	2.36	7.631		
500.00	499.78	499.47	499.17	1.59	1.50	97.00	15.20	16.98	21.50	18.41	3.09	6.962		
539.65	539.35	538.92	538.55	1.73	1.65	98.33	17.43	17.70	23.08	19.70	3.38	6.834		
600.00	599.56	598.87	598.38	1.96	1.86	100.72	20.85	19.47	26.20	22.38	3.82	6.863		
700.00	699.33	698.81	698.10	2.32	2.23	103.75	26.54	22.83	31.85	27.30	4.55	6.998		
800.00	799.10	798.82	797.91	2.70	2.60	106.02	32.10	25.80	37.16	31.87	5.29	7.030		
900.00	898.87	898.96	897.86	3.07	2.97	107.82	37.57	28.22	41.96	35.94	6.02	6.968		
1,000.00	998.64	998.71	997.44	3.44	3.34	109.08	43.13	30.12	46.28	39.52	6.76	6.849		
1,100.00	1,098.40	1,098.17	1,096.70	3.81	3.71	110.10	48.70	33.16	51.77	44.27	7.49	6.909		
1,200.00	1,198.17	1,198.09	1,196.44	4.18	4.07	111.41	53.83	36.26	57.32	49.09	8.23	6.965		
1,300.00	1,297.94	1,298.19	1,296.38	4.56	4.44	112.73	58.71	39.16	62.69	53.73	8.97	6.993		
1,400.00	1,397.71	1,397.94	1,395.99	4.93	4.81	113.99	63.40	41.76	67.82	58.12	9.70	6.992		
1,500.00	1,497.48	1,497.73	1,495.63	5.30	5.17	115.20	67.92	44.59	73.21	62.77	10.43	7.017		
1,600.00	1,597.25	1,597.46	1,595.21	5.68	5.54	116.23	72.45	47.51	78.72	67.55	11.17	7.049		
1,700.00	1,697.02	1,697.29	1,694.89	6.05	5.91	116.96	77.20	50.57	84.37	72.47	11.90	7.089		

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

Anticollision Report

Company:	Carrizo Oil & Gas, Inc.	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Project:	Niobrara CON'83	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Reference Site:	Timbro Ranch 3&34 Pad	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	1-34-10-59 OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Timbro Ranch 3&34 Pad - 1-3-9-59 - 1-3-9-59 OH - 1-3-9-59 OH		Offset Site Error:		0.00 usft	
Survey Program: 139-MWD														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning				
1,800.00	1,796.79	1,797.45	1,794.90	6.42	6.28	117.67	81.90	53.41	89.80	77.17	12.64	7.106					
1,900.00	1,896.56	1,898.66	1,895.99	6.80	6.65	118.58	86.28	55.47	94.52	81.14	13.37	7.067					
2,000.00	1,996.32	1,997.64	1,994.81	7.17	7.01	118.87	91.54	57.08	98.70	84.59	14.11	6.996					
2,100.00	2,096.09	2,097.78	2,094.67	7.54	7.38	118.10	98.61	59.47	103.41	88.56	14.85	6.963					
2,200.00	2,195.86	2,198.03	2,194.67	7.92	7.76	117.58	105.40	61.51	107.83	92.23	15.60	6.914					
2,300.00	2,295.63	2,297.83	2,294.23	8.29	8.13	117.14	112.12	63.33	112.03	95.70	16.34	6.857					
2,400.00	2,395.40	2,397.48	2,393.65	8.66	8.50	116.81	118.62	65.43	116.56	99.48	17.08	6.825					
2,500.00	2,495.17	2,497.77	2,493.74	9.04	8.87	116.81	124.55	67.42	121.02	103.20	17.82	6.791					
2,600.00	2,594.94	2,598.51	2,594.33	9.41	9.24	117.14	129.81	68.79	124.93	106.37	18.56	6.731					
2,700.00	2,694.71	2,697.96	2,693.66	9.78	9.61	117.64	134.65	69.72	128.46	109.17	19.29	6.659 SF					
2,800.00	2,794.47	2,795.71	2,791.26	10.16	9.97	118.01	139.42	72.14	133.53	113.51	20.02	6.669					
2,900.00	2,894.24	2,895.55	2,890.94	10.53	10.33	118.39	144.17	75.16	139.16	118.40	20.76	6.705					
3,000.00	2,994.01	2,995.63	2,990.85	10.91	10.70	118.67	149.10	78.11	144.71	123.21	21.49	6.733					
3,100.00	3,093.78	3,096.06	3,091.14	11.28	11.07	119.03	153.85	80.77	149.98	127.75	22.23	6.747					
3,200.00	3,193.55	3,196.75	3,191.71	11.65	11.44	119.60	158.04	82.92	154.83	131.87	22.96	6.743					
3,300.00	3,293.32	3,296.94	3,291.85	12.03	11.80	120.53	161.23	84.13	158.95	135.26	23.69	6.709					
3,400.00	3,393.09	3,395.13	3,389.95	12.40	12.15	121.15	164.88	86.53	164.21	139.79	24.41	6.726					
3,500.00	3,492.86	3,496.24	3,490.98	12.77	12.52	121.96	168.03	88.68	169.30	144.16	25.14	6.733					
3,600.00	3,592.63	3,598.10	3,592.77	13.15	12.89	122.72	171.44	89.93	173.50	147.62	25.88	6.704					
3,700.00	3,692.39	3,693.00	3,687.55	13.52	13.23	123.06	175.43	92.22	178.69	152.10	26.59	6.720					
3,800.00	3,792.16	3,790.74	3,785.08	13.89	13.59	123.13	179.90	96.90	186.13	158.81	27.32	6.813					
3,900.00	3,891.93	3,891.98	3,886.12	14.27	13.97	123.29	184.24	101.57	193.47	165.41	28.06	6.895					
4,000.00	3,991.70	3,994.26	3,988.15	14.64	14.35	122.99	190.47	105.11	199.31	170.50	28.81	6.919					

Anticollision Report

Company:	Carrizo Oil & Gas, Inc.	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Project:	Niobrara CON'83	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Reference Site:	Timbro Ranch 3&34 Pad	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	1-34-10-59 OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 137-MWD, 10611-ZERO-ERROR												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	78.32	6.07	29.36	29.98				
100.00	100.00	100.26	100.26	0.15	0.17	78.51	5.89	28.95	29.54	29.23	0.31	94.529	
150.00	150.00	150.36	150.35	0.33	0.27	78.74	5.66	28.45	29.01	28.41	0.60	48.415	
200.00	200.00	200.38	200.38	0.51	0.45	100.51	5.48	27.83	28.41	27.45	0.95	29.763	
262.53	262.52	262.65	262.63	0.73	0.66	102.12	5.44	27.13	27.88	26.49	1.39	20.007 CC	
300.00	299.98	299.80	299.79	0.87	0.79	103.45	5.62	27.16	28.13	26.47	1.66	16.993 ES	
400.00	399.92	399.45	399.43	1.23	1.13	108.29	6.61	28.43	30.45	28.09	2.36	12.916	
500.00	499.78	499.58	499.54	1.59	1.48	115.87	7.20	29.66	33.65	30.57	3.07	10.951	
539.65	539.35	539.19	539.15	1.73	1.62	119.54	7.22	29.92	35.09	31.73	3.36	10.444	
600.00	599.56	599.47	599.43	1.96	1.83	124.72	7.35	30.22	37.55	33.76	3.79	9.899	
700.00	699.33	699.21	699.17	2.32	2.18	132.25	7.33	30.56	42.12	37.61	4.51	9.340	
800.00	799.10	798.96	798.92	2.70	2.53	138.09	7.34	31.08	47.43	42.21	5.22	9.080	
900.00	898.87	898.87	898.83	3.07	2.88	142.78	7.51	31.25	52.74	46.81	5.94	8.886	
1,000.00	998.64	998.40	998.36	3.44	3.23	146.37	7.71	31.76	58.60	51.96	6.64	8.820	
1,100.00	1,098.40	1,098.04	1,097.98	3.81	3.57	150.71	6.46	31.52	64.98	57.63	7.35	8.843	
1,200.00	1,198.17	1,197.79	1,197.71	4.18	3.92	155.13	4.39	30.57	71.71	63.66	8.05	8.907	
1,300.00	1,297.94	1,297.43	1,297.33	4.56	4.27	158.64	2.56	29.64	78.63	69.88	8.75	8.981	
1,400.00	1,397.71	1,397.10	1,396.98	4.93	4.61	161.55	0.71	28.79	85.85	76.39	9.46	9.074	
1,500.00	1,497.48	1,497.03	1,496.89	5.30	4.96	164.11	-1.17	27.76	93.19	83.02	10.17	9.164	
1,600.00	1,597.25	1,598.69	1,598.54	5.68	5.32	165.25	-1.00	27.52	99.46	88.58	10.88	9.141	
1,700.00	1,697.02	1,700.18	1,699.98	6.05	5.67	165.08	2.07	27.83	103.77	92.18	11.59	8.952	
1,800.00	1,796.79	1,801.89	1,801.50	6.42	6.02	163.37	7.91	29.72	106.85	94.54	12.31	8.681	
1,900.00	1,896.56	1,902.99	1,902.24	6.80	6.38	160.81	16.13	31.94	108.38	95.36	13.03	8.320	
2,000.00	1,996.32	2,002.60	2,001.51	7.17	6.73	158.56	24.17	33.68	109.86	96.12	13.74	7.993	
2,100.00	2,096.09	2,104.09	2,102.61	7.54	7.09	156.38	32.90	34.81	110.69	96.22	14.47	7.649	
2,200.00	2,195.86	2,203.78	2,201.89	7.92	7.45	154.24	41.94	35.49	111.03	95.84	15.20	7.307	
2,300.00	2,295.63	2,303.16	2,300.93	8.29	7.81	152.41	50.13	36.25	112.14	96.22	15.92	7.044	
2,400.00	2,395.40	2,404.31	2,401.71	8.66	8.18	150.50	58.75	36.95	113.13	96.47	16.66	6.792	
2,500.00	2,495.17	2,504.48	2,501.38	9.04	8.55	148.12	68.65	37.59	113.37	95.98	17.39	6.518	
2,600.00	2,594.94	2,605.26	2,601.65	9.41	8.92	145.76	78.90	37.69	113.20	95.06	18.14	6.241	
2,630.48	2,625.35	2,635.41	2,631.66	9.52	9.03	145.15	81.82	37.59	113.15	94.79	18.36	6.162	
2,700.00	2,694.71	2,704.16	2,700.11	9.78	9.29	143.90	88.12	37.47	113.40	94.52	18.87	6.008	
2,800.00	2,794.47	2,803.25	2,798.70	10.16	9.66	141.36	98.05	38.73	114.65	95.03	19.62	5.844	
2,900.00	2,894.24	2,902.61	2,897.46	10.53	10.03	138.38	108.67	40.88	116.60	96.23	20.38	5.723	
3,000.00	2,994.01	3,002.80	2,996.99	10.91	10.42	135.15	119.93	43.46	119.03	97.88	21.14	5.630	
3,100.00	3,093.78	3,103.17	3,096.68	11.28	10.80	132.09	131.36	45.51	121.25	99.34	21.91	5.534	
3,200.00	3,193.55	3,202.96	3,195.86	11.65	11.18	129.45	142.20	47.16	123.60	100.92	22.68	5.451	
3,300.00	3,293.32	3,303.21	3,295.69	12.03	11.56	127.78	151.28	48.06	125.99	102.55	23.43	5.377	
3,400.00	3,393.09	3,402.83	3,395.09	12.40	11.92	127.34	157.90	48.07	128.27	104.10	24.17	5.307	
3,500.00	3,492.86	3,501.12	3,493.22	12.77	12.28	127.22	163.53	48.68	131.40	106.50	24.90	5.277 SF	
3,600.00	3,592.63	3,599.85	3,591.73	13.15	12.65	126.68	169.83	50.71	135.73	110.09	25.64	5.294	
3,700.00	3,692.39	3,700.40	3,691.84	13.52	13.03	125.09	178.73	53.60	140.24	113.84	26.40	5.313	
3,800.00	3,792.16	3,800.34	3,791.18	13.89	13.41	122.97	189.23	56.50	144.55	117.38	27.17	5.321	
3,900.00	3,891.93	3,899.91	3,890.06	14.27	13.80	120.66	200.49	59.63	149.12	121.19	27.94	5.338	
4,000.00	3,991.70	3,999.41	3,988.84	14.64	14.19	118.38	212.04	62.86	154.01	125.30	28.71	5.364	
4,100.00	4,091.47	4,097.58	4,086.34	15.02	14.57	116.45	222.87	66.45	159.59	130.11	29.47	5.415	
4,200.00	4,191.24	4,200.64	4,188.64	15.39	14.98	114.37	234.84	70.03	165.12	134.86	30.26	5.457	
4,300.00	4,291.01	4,301.92	4,289.19	15.76	15.37	112.43	246.73	71.60	168.91	137.88	31.03	5.443	
4,400.00	4,390.78	4,398.99	4,385.80	16.14	15.75	111.36	256.02	73.66	173.45	141.67	31.78	5.458	
4,500.00	4,490.55	4,497.68	4,484.11	16.51	16.12	110.80	263.97	77.08	179.37	146.85	32.53	5.515	
4,600.00	4,590.31	4,599.99	4,586.13	16.88	16.50	110.65	270.99	80.20	184.89	151.61	33.28	5.556	
4,700.00	4,690.08	4,696.95	4,682.82	17.26	16.87	110.47	277.76	82.69	189.93	155.92	34.01	5.584	

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

Anticollision Report

Company:	Carrizo Oil & Gas, Inc.	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Project:	Niobrara CON'83	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Reference Site:	Timbro Ranch 3&34 Pad	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	1-34-10-59 OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Timbro Ranch 3&34 Pad - 2-34-10-59 - 2-34-10-59 OH - 2-34-10-59 OH												Offset Site Error:	0.00 usft
Survey Program: 137-MWD, 10611-ZERO-ERROR												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,800.00	4,789.85	4,794.78	4,780.41	17.63	17.23	110.78	282.97	86.96	196.75	162.01	34.74	5.664	

Anticollision Report

Company:	Carrizo Oil & Gas, Inc.	Local Co-ordinate Reference:	Well 1-34-10-59 - Slot 1-34
Project:	Niobrara CON'83	TVD Reference:	WELL @ 5082.00usft (Original Well Elev)
Reference Site:	Timbro Ranch 3&34 Pad	MD Reference:	WELL @ 5082.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	1-34-10-59	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	1-34-10-59 OH	Database:	EDM 5000.1 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5082.00usft (Original Well E

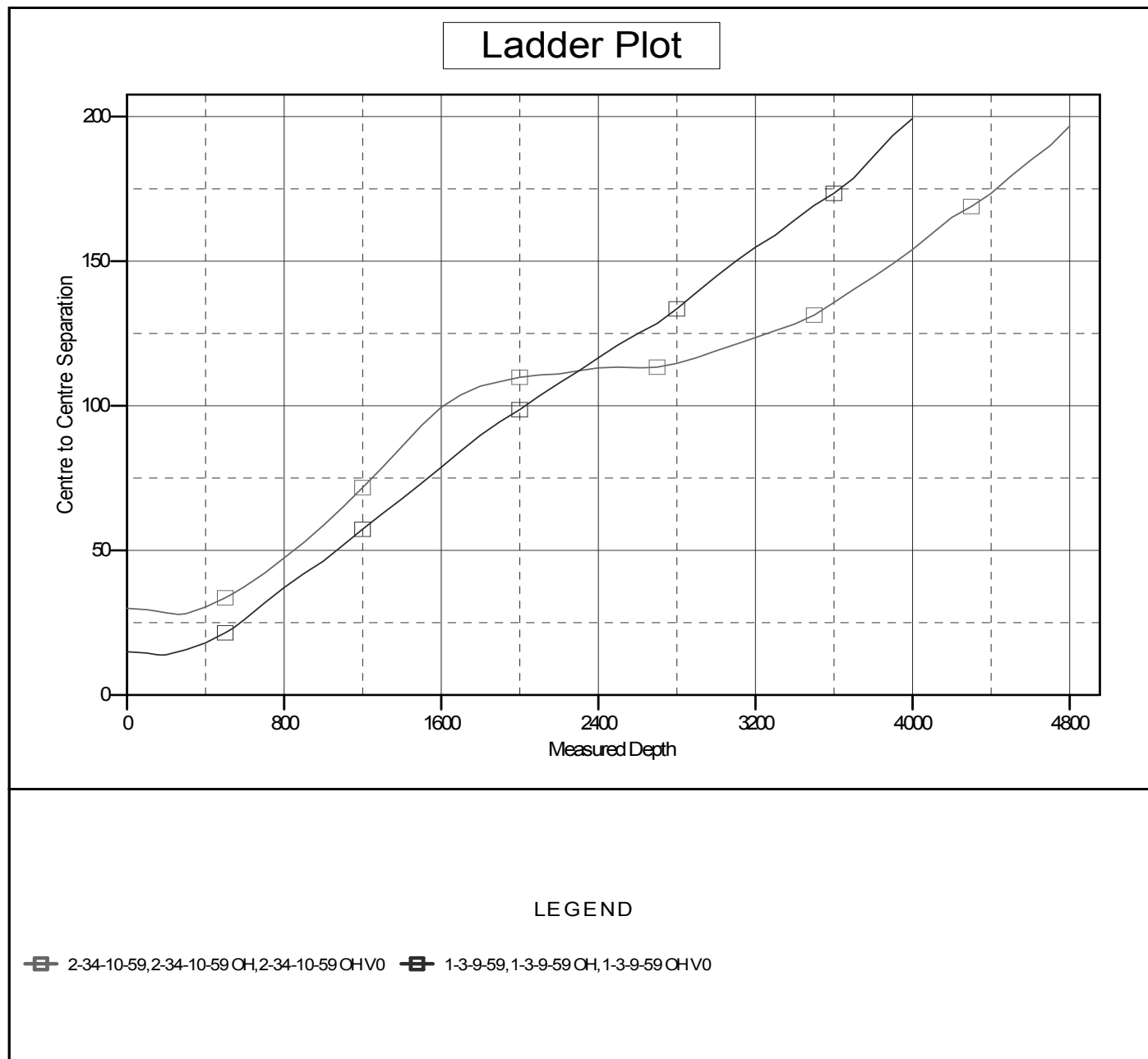
Offset Depths are relative to Offset Datum

Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 1-34-10-59 - Slot 1-34

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.99°



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