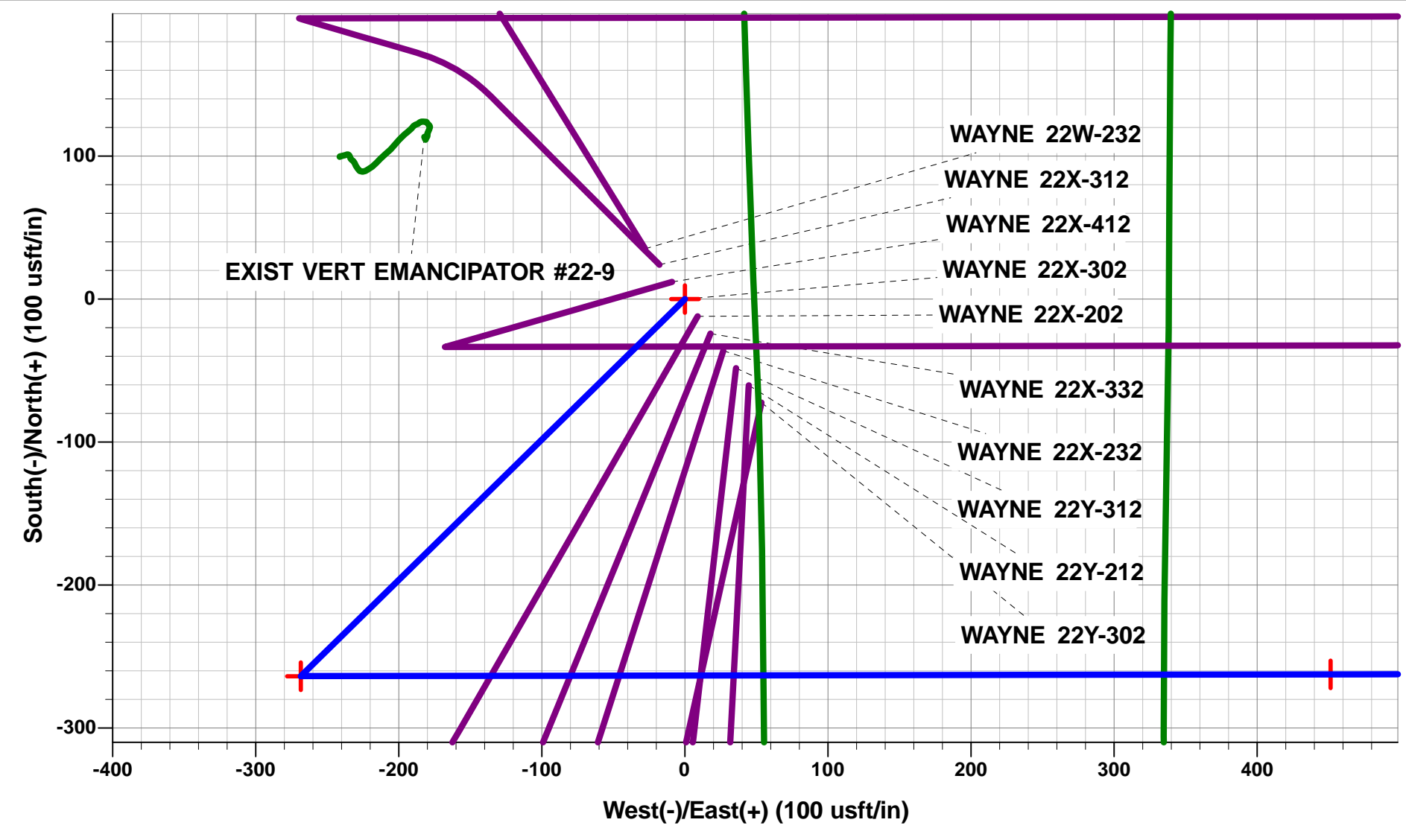




Project: WELD COUNTY, COLORADO (TRUE)  
Site: NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)  
Well: WAYNE 22X-302  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 1753ft FSL & 491ft FEL of Sec 22	
900.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)	
1495.62	1500.00	12.00	225.52	-43.87	-44.66	-44.02	62.60	EOB TO 12° INC	
2677.08	2707.85	12.00	225.52	-219.83	-223.83	-220.60	313.73	END OF TANGENT	
3272.70	3307.85	0.00	0.00	-263.70	-268.49	-264.62	376.33	EOD TO VERTICAL	
5916.81	5951.96	0.00	0.00	-263.70	-268.49	-264.62	376.33	KOP (8°/100ft BUR)	
6633.00	7080.58	90.29	89.90	-262.44	451.33	455.10	1096.15	EP: 1485ft FSL & 40ft FEL of Sec 22	
6553.00	22731.13	90.30	89.90	-234.61	16101.65	16103.36	16746.50	BHL: 1485ft FSL & 150ft FEL of Sec 19	

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - WAYNE 22X-302	5916.81	-263.70	-268.49	40.381715	-104.529110
EP - WAYNE 22X-302	6633.00	-262.44	451.33	40.381718	-104.526526
BHL - WAYNE 22X-302	6553.00	-234.61	16101.65	40.381780	-104.470351
SHL - WAYNE 22X-302	0.00	0.00	0.00	40.382438	-104.528146



PROPOSED LOCAL COORDINATES:

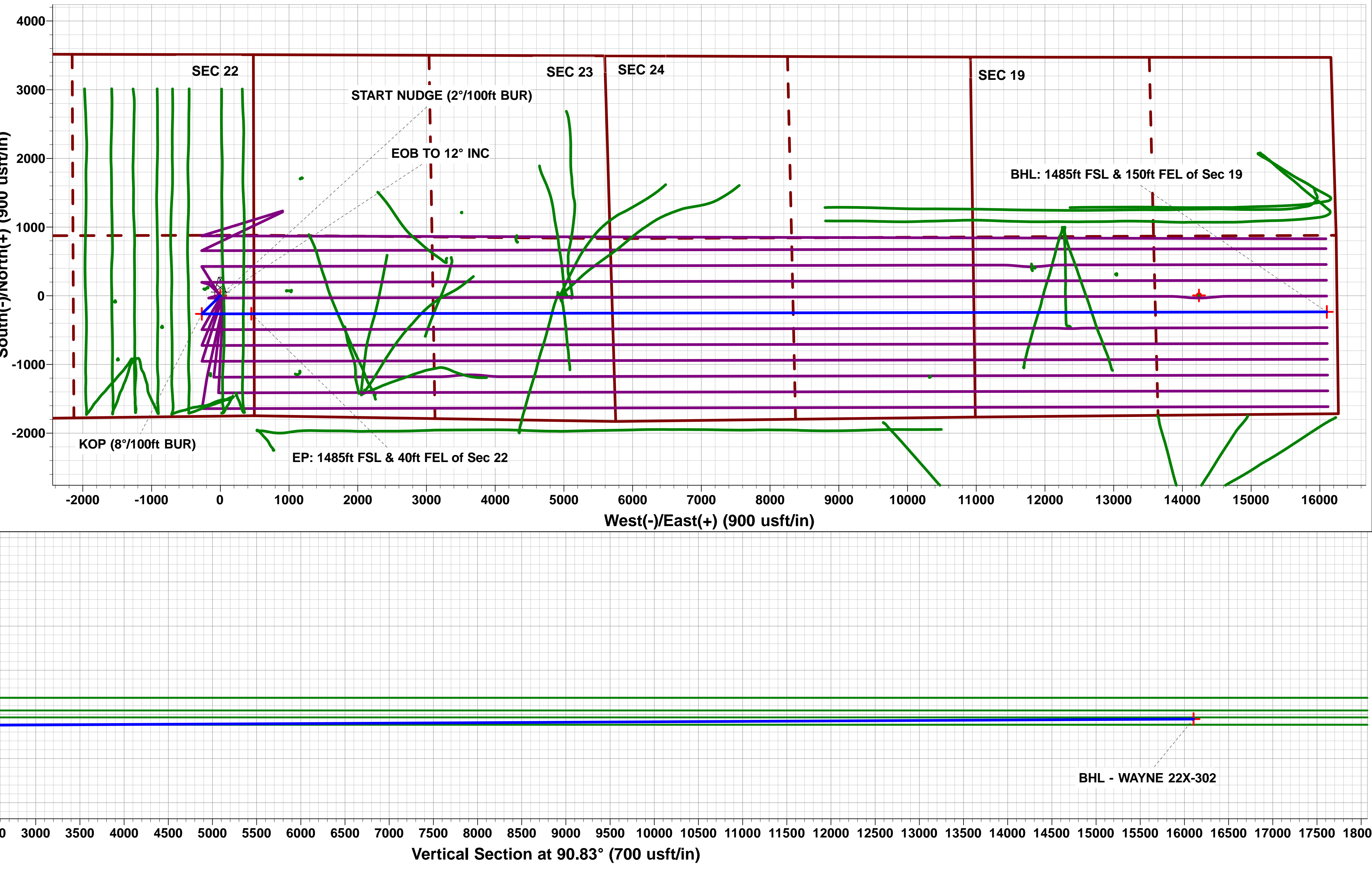
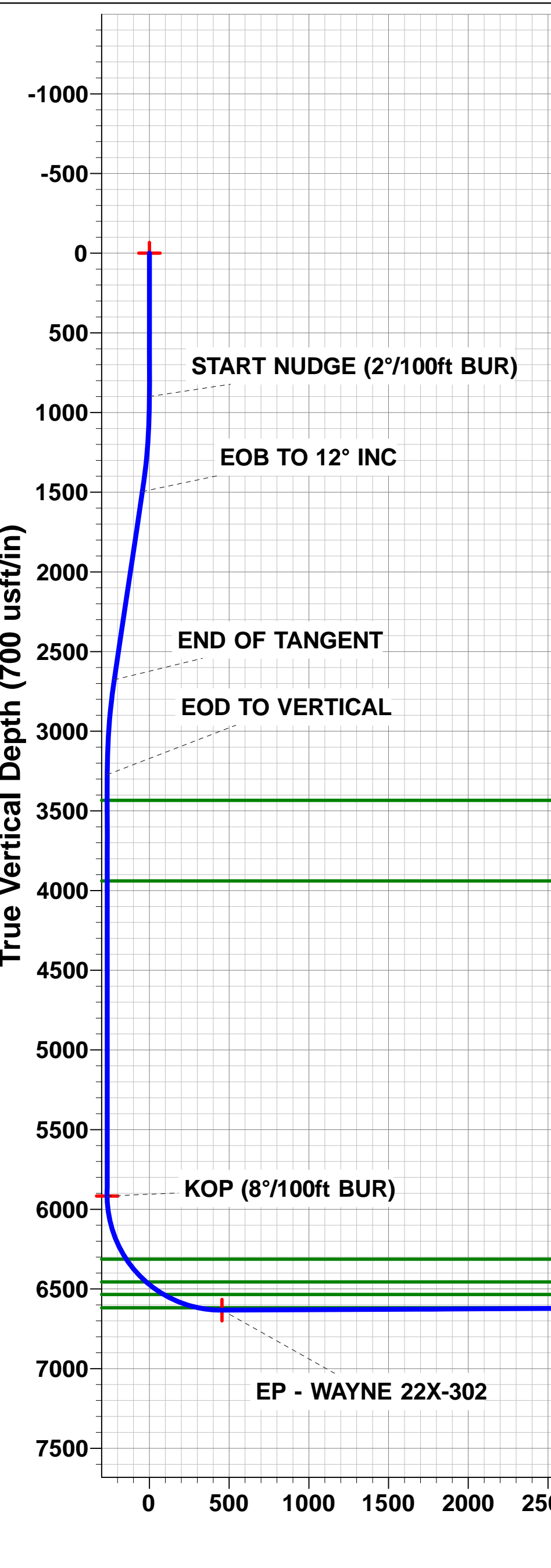
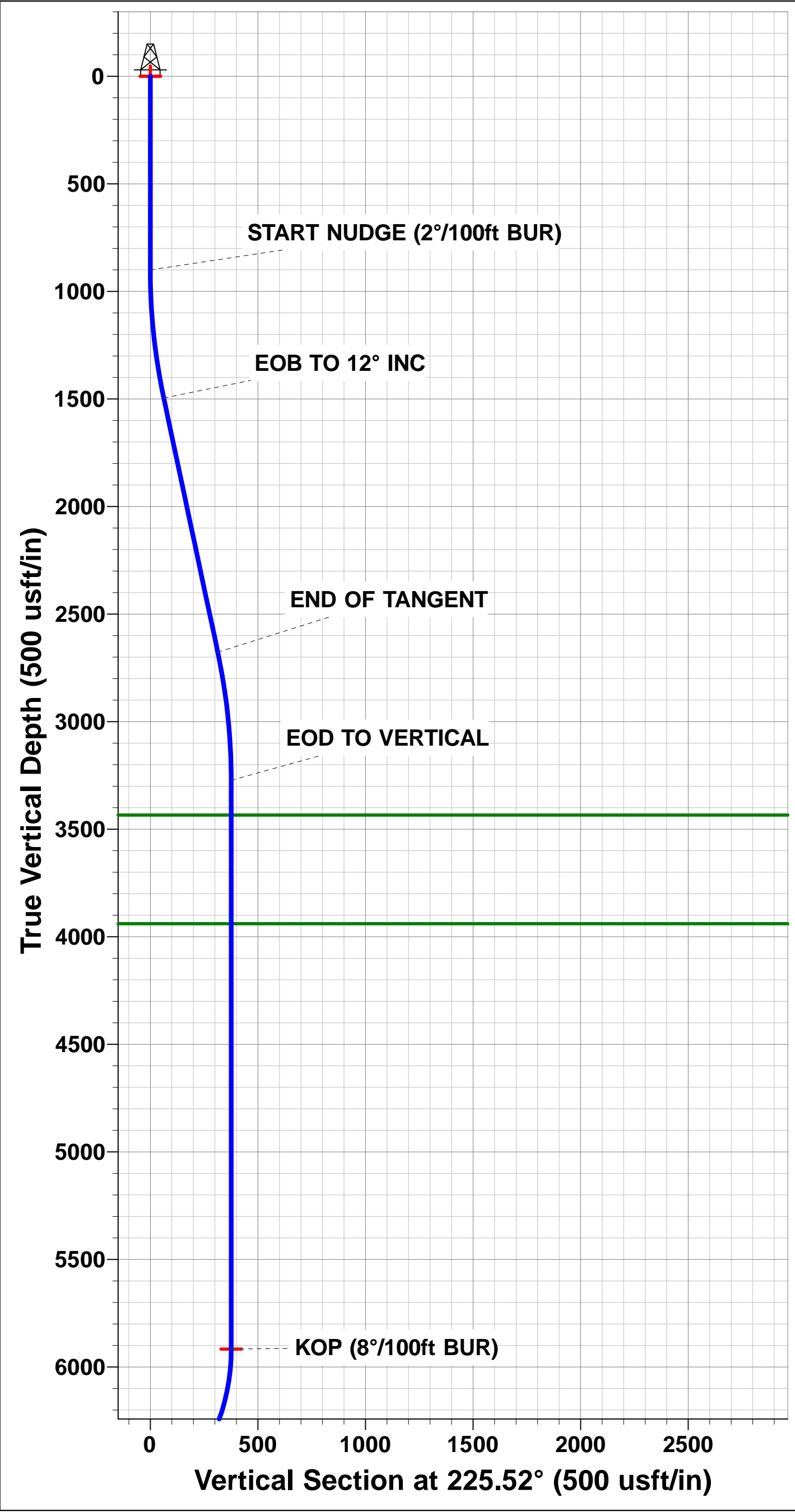
SHL: 1753ft FSL & 491ft FEL of Sec 22

EP: 1485ft FSL & 40ft FEL of Sec 22

BHL: 1485ft FSL & 150ft FEL of Sec 19

Azimuths to True North  
Magnetic North: 7.97°

Magnetic Field  
Strength: 52289.8snT  
Dip Angle: 66.85°  
Date: 05/07/2018  
Model: IGRF2015



# **PDC ENERGY**

**WELD COUNTY, COLORADO (TRUE)  
NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)  
WAYNE 22X-302**

**ORIGINAL WELLBORE  
PROPOSAL #1**

## **Anticollision Report**

**11 July, 2018**



## Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well WAYNE 22X-302
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Reference Site:</b>	NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)	<b>MD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAYNE 22X-302	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PROPOSAL #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00usft	<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 10,000.00 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	10/07/2018		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	22,731.13	PROPOSAL #1 (ORIGINAL WELLBORE)	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						
NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)						
ABDN DD MONFORT #24-6H4 - Wellbore #1 - Wellbore	14,044.56	7,099.28	1,796.04	1,537.09	6.936	CC
ABDN DD MONFORT #24-6H4 - Wellbore #1 - Wellbore	14,100.00	7,130.37	1,796.75	1,535.27	6.871	ES
ABDN DD MONFORT #24-6H4 - Wellbore #1 - Wellbore	14,500.00	7,291.59	1,845.40	1,568.57	6.666	SF
ABDN DD UPRC #23-10H4 - Wellbore #1 - Wellbore #1	10,315.59	7,000.00	630.03	529.87	6.290	CC, ES
ABDN DD UPRC #23-10H4 - Wellbore #1 - Wellbore #1	10,400.00	7,000.00	635.66	533.47	6.220	SF
ABDN DD UPRC #23-15H4 - Wellbore #1 - Wellbore #1	10,384.35	7,096.99	936.78	789.53	6.362	CC
ABDN DD UPRC #23-15H4 - Wellbore #1 - Wellbore #1	10,400.00	7,106.48	936.87	789.07	6.339	ES
ABDN DD UPRC #23-15H4 - Wellbore #1 - Wellbore #1	10,600.00	7,205.75	955.56	801.63	6.208	SF
ABDN DD UPRC #23-16H4 - Wellbore #1 - Wellbore #1	11,698.34	6,451.14	715.03	583.91	5.453	CC
ABDN DD UPRC #23-16H4 - Wellbore #1 - Wellbore #1	11,700.00	6,451.17	715.03	583.87	5.451	ES
ABDN DD UPRC #23-16H4 - Wellbore #1 - Wellbore #1	11,800.00	6,453.00	722.22	588.44	5.398	SF
ABDN DD UPRC #23-6H4 - Wellbore #1 - Wellbore #1	9,269.15	5,911.00	1,622.89	1,543.35	20.404	CC
ABDN DD UPRC #23-6H4 - Wellbore #1 - Wellbore #1	9,300.00	5,911.00	1,623.19	1,542.95	20.230	ES
ABDN DD UPRC #23-6H4 - Wellbore #1 - Wellbore #1	9,700.00	5,815.14	1,674.46	1,588.99	19.592	SF
ABDN VERT EMANCIPATOR #22-16 - Wellbore #1 - We	6,400.37	6,321.91	868.98	853.27	55.330	CC, ES
ABDN VERT EMANCIPATOR #22-16 - Wellbore #1 - We	16,400.00	6,650.00	9,951.33	9,672.07	35.635	SF
ABDN VERT FLACK #10-19 - Wellbore #1 - Design #1	20,870.58	6,502.61	242.60	-291.09	0.455	Level 1, CC, ES, SF
ABDN VERT UPRC #23-13A - Wellbore #1 - Wellbore #1	7,719.00	6,613.33	877.71	839.47	22.953	CC, ES
ABDN VERT UPRC #23-13A - Wellbore #1 - Wellbore #1	8,300.00	6,590.24	1,052.33	998.76	19.645	SF
ABDN VERT UPRC #23-14A - Wellbore #1 - Wellbore #1	8,886.13	6,575.48	1,248.25	1,178.62	17.926	CC
ABDN VERT UPRC #23-14A - Wellbore #1 - Wellbore #1	8,900.00	6,575.63	1,248.33	1,178.31	17.830	ES
ABDN VERT UPRC #23-14A - Wellbore #1 - Wellbore #1	9,500.00	6,581.95	1,391.02	1,304.46	16.071	SF
EXIST DD BIJOU #14-19DU - Wellbore #1 - Wellbore #1	18,315.92	6,982.35	798.65	445.98	2.265	CC, ES
EXIST DD BIJOU #14-19DU - Wellbore #1 - Wellbore #1	18,400.00	6,981.01	803.07	448.01	2.262	SF
EXIST DD BIJOU #19BDU - Wellbore #1 - Wellbore #1	18,993.00	6,763.21	206.45	-160.28	0.563	Level 1, CC, SF
EXIST DD BIJOU #19BDU - Wellbore #1 - Wellbore #1	19,000.00	6,763.42	206.57	-160.37	0.563	Level 1, ES
EXIST DD BIJOU #24-19DU - Wellbore #1 - Wellbore #1	19,607.73	6,966.65	843.05	452.46	2.158	CC, ES
EXIST DD BIJOU #24-19DU - Wellbore #1 - Wellbore #1	19,700.00	6,967.80	848.08	454.90	2.157	SF
EXIST DD CHEWY B #23-23 - Wellbore #1 - Wellbore #1	10,970.89	7,072.00	1,729.72	1,582.86	11.778	CC
EXIST DD CHEWY B #23-23 - Wellbore #1 - Wellbore #1	11,000.00	7,072.00	1,729.97	1,582.30	11.715	ES
EXIST DD CHEWY B #23-23 - Wellbore #1 - Wellbore #1	11,500.00	7,061.45	1,808.81	1,647.13	11.188	SF
EXIST DD CHEWY B #23-24 - Wellbore #1 - Wellbore #1	9,610.52	6,762.53	331.56	240.04	3.623	CC, ES, SF
EXIST DD CHEWY B #23-25 - Wellbore #1 - Wellbore #1	8,436.25	6,722.55	195.25	124.02	2.741	CC, ES, SF
EXIST DD FERGUSON #24-5H4 - Wellbore #1 - Wellbor	12,705.25	6,601.62	1,682.16	1,492.03	8.847	CC
EXIST DD FERGUSON #24-5H4 - Wellbore #1 - Wellbor	12,800.00	6,665.07	1,683.93	1,488.80	8.630	ES
EXIST DD FERGUSON #24-5H4 - Wellbore #1 - Wellbor	13,400.00	6,942.31	1,785.38	1,565.36	8.114	SF

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



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well WAYNE 22X-302
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Reference Site:</b>	NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)	<b>MD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAYNE 22X-302	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)						
EXIST DD KUNER 6-0-25 - Wellbore #1 - Wellbore #1	16,287.28	6,850.55	1,610.81	1,311.06	5.374	CC
EXIST DD KUNER 6-0-25 - Wellbore #1 - Wellbore #1	16,300.00	6,850.19	1,610.86	1,310.75	5.368	ES
EXIST DD KUNER 6-0-25 - Wellbore #1 - Wellbore #1	16,500.00	6,844.51	1,624.79	1,319.07	5.315	SF
EXIST DD PETERSON CX GH #30-26D - Wellbore #1 -	22,731.13	7,137.18	1,543.10	1,041.43	3.076	CC, ES, SF
EXIST DD PETERSON CX GH #30-27D - Wellbore #1 -	21,577.94	6,837.00	1,511.77	1,064.99	3.384	CC
EXIST DD PETERSON CX GH #30-27D - Wellbore #1 -	21,600.00	6,837.02	1,511.94	1,064.53	3.379	ES
EXIST DD PETERSON CX GH #30-27D - Wellbore #1 -	21,700.00	6,837.13	1,516.69	1,066.48	3.369	SF
EXIST DD PETERSON CX GH #30-28D - Wellbore #1 -	20,266.67	6,781.58	1,512.41	1,108.55	3.745	CC
EXIST DD PETERSON CX GH #30-28D - Wellbore #1 -	20,300.00	6,781.55	1,512.77	1,107.98	3.737	ES
EXIST DD PETERSON CX GH #30-28D - Wellbore #1 -	20,400.00	6,781.47	1,518.27	1,110.67	3.725	SF
EXIST DD UPRC #23-11H4 - Wellbore #1 - Wellbore #1	8,974.94	6,812.75	512.79	438.38	6.892	CC
EXIST DD UPRC #23-11H4 - Wellbore #1 - Wellbore #1	9,000.00	6,815.36	513.40	438.20	6.828	ES
EXIST DD UPRC #23-11H4 - Wellbore #1 - Wellbore #1	9,100.00	6,825.77	527.65	449.30	6.734	SF
EXIST DD UPRC #23-3H4 - Wellbore #1 - Wellbore #1	7,983.12	7,094.64	1,056.17	988.55	15.619	CC
EXIST DD UPRC #23-3H4 - Wellbore #1 - Wellbore #1	8,000.00	7,092.57	1,056.31	988.28	15.527	ES
EXIST DD UPRC #23-3H4 - Wellbore #1 - Wellbore #1	8,400.00	7,043.58	1,134.41	1,056.76	14.609	SF
EXIST DD UPV #23-1H4 - Wellbore #1 - Wellbore #1	11,738.85	5,948.40	2,795.17	2,643.30	18.404	CC
EXIST DD UPV #23-1H4 - Wellbore #1 - Wellbore #1	11,800.00	5,946.82	2,795.84	2,642.47	18.229	ES
EXIST DD UPV #23-1H4 - Wellbore #1 - Wellbore #1	13,000.00	5,924.39	3,066.42	2,883.50	16.764	SF
EXIST DD UPV #23-8H4 - Wellbore #1 - Wellbore #1	11,344.86	6,362.46	2,082.32	1,935.97	14.228	CC
EXIST DD UPV #23-8H4 - Wellbore #1 - Wellbore #1	11,400.00	6,342.97	2,083.01	1,935.69	14.139	ES
EXIST DD UPV #23-8H4 - Wellbore #1 - Wellbore #1	11,800.00	6,211.88	2,128.67	1,974.60	13.816	SF
EXIST HZ COCKROFT #19W-214 - Wellbore #1 - Wellb	21,350.32	7,746.01	1,308.71	855.46	2.887	CC
EXIST HZ COCKROFT #19W-214 - Wellbore #1 - Wellb	21,400.00	7,713.04	1,309.02	855.12	2.884	ES
EXIST HZ COCKROFT #19W-214 - Wellbore #1 - Wellb	21,500.00	7,643.88	1,311.53	856.34	2.881	SF
EXIST HZ COCKROFT #19W-314 - ORIGINAL WELLBO	20,769.29	8,363.09	1,520.92	1,068.85	3.364	CC
EXIST HZ COCKROFT #19W-314 - ORIGINAL WELLBO	21,300.00	7,837.06	1,521.45	1,067.28	3.350	ES
EXIST HZ COCKROFT #19W-314 - ORIGINAL WELLBO	22,400.00	6,827.43	1,559.82	1,091.42	3.330	SF
EXIST HZ COCKROFT #19W-314 - SIDETRACK - SIDE	19,005.22	10,001.68	1,484.23	1,041.63	3.353	CC
EXIST HZ COCKROFT #19W-314 - SIDETRACK - SIDE	22,100.00	6,958.00	1,494.54	1,039.70	3.286	ES
EXIST HZ COCKROFT #19W-314 - SIDETRACK - SIDE	22,400.00	6,767.00	1,513.16	1,050.18	3.268	SF
EXIST HZ CONNIE #26E-402 - Wellbore #1 - Wellbore #	12,898.13	12,161.18	1,696.71	1,360.91	5.053	CC
EXIST HZ CONNIE #26E-402 - Wellbore #1 - Wellbore #	17,200.00	16,383.00	1,704.40	1,129.66	2.966	ES
EXIST HZ CONNIE #26E-402 - Wellbore #1 - Wellbore #	17,300.00	16,383.00	1,712.09	1,134.54	2.964	SF
EXIST HZ LEDFORD #22T-221 - Wellbore #1 - Wellbore	6,350.00	7,746.14	427.20	392.65	12.364	SF
EXIST HZ LEDFORD #22T-221 - Wellbore #1 - Wellbore	6,416.02	7,744.17	419.05	386.18	12.750	CC, ES
EXIST HZ LEDFORD #22T-321 - Wellbore #1 - Wellbore	6,250.00	7,866.91	686.52	648.89	18.245	SF
EXIST HZ LEDFORD #22T-321 - Wellbore #1 - Wellbore	6,350.00	7,861.91	667.72	632.47	18.943	ES
EXIST HZ LEDFORD #22T-321 - Wellbore #1 - Wellbore	6,366.10	7,861.10	667.35	632.52	19.163	CC
EXIST HZ LEDFORD #22Y-341 - Wellbore #1 - Wellbore	6,700.00	7,798.91	143.92	118.46	5.651	SF
EXIST HZ LEDFORD #22Y-341 - Wellbore #1 - Wellbore	6,734.97	7,798.33	138.76	114.27	5.666	CC, ES
EXIST HZ LEDFORD #22Y-401 - Wellbore #1 - Wellbore	6,980.95	7,836.15	128.09	107.94	6.357	CC, ES, SF
EXIST HZ SAPPINGTON #22Q-221 - Wellbore #1 - Well	6,185.56	7,785.24	1,421.00	1,389.73	45.438	CC, ES
EXIST HZ SAPPINGTON #22Q-221 - Wellbore #1 - Well	15,000.00	7,631.49	9,945.37	9,696.35	39.939	SF
EXIST HZ SAPPINGTON #22Q-301 - Wellbore #1 - Well	0.00	0.00	1,581.54			
EXIST HZ SAPPINGTON #22Q-301 - Wellbore #1 - Well	100.00	87.24	1,581.64	1,581.46	9,080.840	ES
EXIST HZ SAPPINGTON #22Q-301 - Wellbore #1 - Well	14,600.00	7,791.00	9,919.05	9,685.43	42.457	SF
EXIST HZ SAPPINGTON #22T-341 - Wellbore #1 - Well	6,150.00	7,857.34	1,159.94	1,127.68	35.950	SF
EXIST HZ SAPPINGTON #22T-341 - Wellbore #1 - Well	6,250.00	7,855.10	1,147.01	1,115.75	36.683	ES
EXIST HZ SAPPINGTON #22T-341 - Wellbore #1 - Well	6,257.45	7,854.93	1,146.95	1,115.77	36.787	CC
EXIST HZ SAPPINGTON #22T-201 - Wellbore #1 - Wellb	6,200.00	7,796.91	808.47	775.81	24.753	SF
EXIST HZ SAPPINGTON #22T-201 - Wellbore #1 - Wellb	6,283.78	7,791.00	799.27	767.54	25.191	CC, ES

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

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well WAYNE 22X-302
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Reference Site:</b>	NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)	<b>MD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAYNE 22X-302	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)						
EXIST VERT CPC-FERGUSON #23-1 - Wellbore #1 - W	10,145.10	6,531.20	1,474.73	1,370.61	14.163	CC
EXIST VERT CPC-FERGUSON #23-1 - Wellbore #1 - W	10,200.00	6,530.79	1,475.75	1,370.10	13.968	ES
EXIST VERT CPC-FERGUSON #23-1 - Wellbore #1 - W	10,700.00	6,527.07	1,575.67	1,456.09	13.177	SF
EXIST VERT EMANCIPATOR #22-10 - Wellbore #1 - We	3,268.21	3,198.81	1,264.89	1,254.86	126.071	CC, ES
EXIST VERT EMANCIPATOR #22-10 - Wellbore #1 - We	15,000.00	6,650.00	9,903.03	9,665.85	41.753	SF
EXIST VERT EMANCIPATOR #22-15 - Wellbore #1 - We	3,276.06	3,202.35	1,385.99	1,377.45	162.386	CC
EXIST VERT EMANCIPATOR #22-15 - Wellbore #1 - We	3,307.85	3,233.24	1,386.17	1,375.32	127.790	ES
EXIST VERT EMANCIPATOR #22-15 - Wellbore #1 - We	15,100.00	6,650.00	9,985.27	9,742.56	41.141	SF
EXIST VERT EMANCIPATOR #22-9 - Wellbore #1 - Wel	1,365.88	1,302.93	210.42	206.84	58.885	CC
EXIST VERT EMANCIPATOR #22-9 - Wellbore #1 - Wel	1,400.00	1,336.62	210.49	206.81	57.237	ES
EXIST VERT EMANCIPATOR #22-9 - Wellbore #1 - Wel	6,300.00	6,192.97	367.61	351.87	23.362	SF
EXIST VERT EMANCIPATOR B #22-23 - Wellbore #1 - W	3,274.27	3,207.99	603.46	594.60	68.138	CC
EXIST VERT EMANCIPATOR B #22-23 - Wellbore #1 - W	3,307.85	3,241.13	603.65	593.06	57.005	ES
EXIST VERT EMANCIPATOR B #22-23 - Wellbore #1 - W	15,700.00	6,650.00	9,921.12	9,664.50	38.661	SF
EXIST VERT FERGUSON B #23-22 - Wellbore #1 - Wel	10,951.94	6,545.40	1,034.17	907.16	8.142	CC
EXIST VERT FERGUSON B #23-22 - Wellbore #1 - Wel	11,000.00	6,544.23	1,035.29	906.94	8.066	ES
EXIST VERT FERGUSON B #23-22 - Wellbore #1 - Wel	11,200.00	6,539.39	1,063.49	929.56	7.941	SF
EXIST VERT ODLE #BB19-11 - Wellbore #1 - Wellbore #	19,675.97	6,498.67	539.12	167.74	1.452	Level 3, CC
EXIST VERT ODLE #BB19-11 - Wellbore #1 - Wellbore #	19,700.00	6,498.86	539.66	167.60	1.450	Level 3, ES, SF
EXIST VERT ODLE #BB19-12 - Wellbore #1 - Wellbore #	18,434.64	6,458.34	703.67	367.80	2.095	CC, ES
EXIST VERT ODLE #BB19-12 - Wellbore #1 - Wellbore #	18,500.00	6,457.36	706.69	369.03	2.093	SF
EXIST VERT ROTHE #16-24 - Wellbore #1 - Wellbore #1	16,962.86	5,975.00	1,076.22	816.06	4.137	CC
EXIST VERT ROTHE #16-24 - Wellbore #1 - Wellbore #1	17,000.00	5,975.00	1,076.86	815.79	4.125	ES
EXIST VERT ROTHE #16-24 - Wellbore #1 - Wellbore #1	17,100.00	5,975.00	1,084.92	821.40	4.117	SF
EXIST VERT UPRC #23-12A - Wellbore #1 - Wellbore #1	7,596.96	6,606.30	339.72	304.58	9.667	CC
EXIST VERT UPRC #23-12A - Wellbore #1 - Wellbore #1	7,600.00	6,606.31	339.73	304.52	9.647	ES
EXIST VERT UPRC #23-12A - Wellbore #1 - Wellbore #1	7,700.00	6,606.88	355.00	317.25	9.404	SF
EXIST VERT UPRC #23-5A - Wellbore #1 - Wellbore #1	7,811.29	6,572.93	1,974.55	1,934.16	48.883	CC
EXIST VERT UPRC #23-5A - Wellbore #1 - Wellbore #1	7,900.00	6,574.78	1,976.54	1,933.84	46.285	ES
EXIST VERT UPRC #23-5A - Wellbore #1 - Wellbore #1	10,600.00	6,600.00	3,416.63	3,299.86	29.258	SF
EXIST VERT UPRC #23-9H4 - Wellbore #1 - Wellbore #	11,606.43	6,581.72	163.36	18.21	1.125	Level 2, CC, ES, SF
WAYNE 22W-232 - ORIGINAL WELLBORE - PROPOSA	300.00	300.00	44.95	43.88	41.924	CC
WAYNE 22W-232 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,663.87	691.83	-217.30	0.761	Level 1, ES, SF
WAYNE 22X-202 - ORIGINAL WELLBORE - PROPOSA	800.00	800.00	15.01	11.69	4.522	CC
WAYNE 22X-202 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,679.71	240.44	-633.70	0.275	Level 1, ES, SF
WAYNE 22X-232 - ORIGINAL WELLBORE - PROPOSA	600.00	600.00	45.02	42.60	18.599	CC
WAYNE 22X-232 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,726.24	693.55	-212.76	0.765	Level 1, ES, SF
WAYNE 22X-312 - ORIGINAL WELLBORE - PROPOSA	400.00	400.00	29.98	28.46	19.702	CC
WAYNE 22X-312 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,719.77	460.01	-451.41	0.505	Level 1, ES, SF
WAYNE 22X-332 - ORIGINAL WELLBORE - PROPOSA	700.00	700.00	30.01	27.14	10.455	CC
WAYNE 22X-332 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,781.72	460.13	-450.25	0.505	Level 1, ES, SF
WAYNE 22X-412 - ORIGINAL WELLBORE - PROPOSA	900.00	900.00	15.01	11.24	3.983	CC
WAYNE 22X-412 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,706.56	239.01	-638.08	0.273	Level 1, ES, SF
WAYNE 22Y-212 - ORIGINAL WELLBORE - PROPOSA	400.00	400.00	75.03	73.51	49.309	CC, ES
WAYNE 22Y-212 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,579.88	1,152.12	247.57	1.274	Level 3, SF
WAYNE 22Y-302 - ORIGINAL WELLBORE - PROPOSA	300.00	300.00	90.00	88.93	83.943	CC, ES
WAYNE 22Y-302 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,979.43	1,380.02	469.76	1.516	SF
WAYNE 22Y-312 - ORIGINAL WELLBORE - PROPOSA	500.00	500.00	60.02	58.05	30.448	CC
WAYNE 22Y-312 - ORIGINAL WELLBORE - PROPOSA	22,731.13	22,675.28	920.06	13.60	1.015	Level 2, ES, SF

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

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well WAYNE 22X-302
<b>Project:</b>	WELD COUNTY, COLORADO (TRUE)	<b>TVD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Reference Site:</b>	NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE)	<b>MD Reference:</b>	KB-EST @ 4623.00usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	WAYNE 22X-302	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	ORIGINAL WELLBORE	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	PROPOSAL #1	<b>Offset TVD Reference:</b>	Offset Datum

## Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SW NW SEC. 23 T5N R64W 6th P.M. (FERGUSON)						
FERGUSON 23G-202 - ORIGINAL WELLBORE - PROP	22,720.10	22,738.05	1,066.95	163.80	1.181	Level 2, CC
FERGUSON 23G-202 - ORIGINAL WELLBORE - PROP	22,731.13	22,738.05	1,067.01	163.55	1.181	Level 2, ES, SF
FERGUSON 23G-332 - ORIGINAL WELLBORE - PROP	22,721.27	22,838.16	920.02	14.92	1.016	Level 2, CC
FERGUSON 23G-332 - ORIGINAL WELLBORE - PROP	22,731.13	22,838.16	920.08	14.70	1.016	Level 2, ES, SF

## Offset Design

NE SE SEC. 22 T5N R64W 6th P.M. (WAYNE) - ABDN DD MONFORT #24-6H4 - Wellbore #1 - Wellbo												Offset Site Error:		0.00 usft				
Survey Program:		489-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	89.73	22.90	4,938.43	4,938.60									
100.00	100.00	67.00	67.00	0.09	0.07	89.73	22.90	4,938.43	4,938.49	4,938.33	0.16	N/A						
200.00	200.00	167.00	167.00	0.31	0.17	89.73	22.90	4,938.43	4,938.49	4,938.00	0.48	N/A						
300.00	300.00	267.00	267.00	0.54	0.28	89.73	22.90	4,938.43	4,938.49	4,937.67	0.81	6,084.806						
400.00	400.00	367.00	367.00	0.76	0.38	89.73	22.90	4,938.43	4,938.49	4,937.35	1.14	4,333.621						
500.00	500.00	467.00	467.00	0.99	0.48	89.73	22.90	4,938.43	4,938.49	4,937.02	1.47	3,365.145						
600.00	600.00	567.00	567.00	1.21	0.67	89.73	22.90	4,938.43	4,938.49	4,936.61	1.88	2,629.709						
661.69	661.69	628.69	628.69	1.35	0.80	89.73	22.90	4,938.43	4,938.49	4,936.34	2.15	2,301.373						
700.00	700.00	666.85	666.85	1.44	0.88	89.73	22.90	4,938.43	4,938.49	4,936.17	2.31	2,135.675						
800.00	800.00	765.69	765.69	1.66	1.09	89.73	22.96	4,938.45	4,938.50	4,935.75	2.75	1,797.596						
900.00	900.00	864.52	864.52	1.88	1.30	89.73	23.13	4,938.48	4,938.54	4,935.36	3.18	1,551.945						
1,000.00	999.98	963.34	963.34	2.09	1.51	-135.78	23.39	4,938.54	4,939.85	4,936.26	3.59	1,374.858						
1,100.00	1,099.84	1,062.01	1,062.01	2.27	1.72	-135.78	23.75	4,938.63	4,943.69	4,939.70	3.99	1,240.060						
1,200.00	1,199.45	1,160.42	1,160.42	2.48	1.93	-135.76	24.22	4,938.73	4,950.06	4,945.67	4.39	1,127.443						
1,300.00	1,298.70	1,258.44	1,258.43	2.71	2.14	-135.74	24.78	4,938.86	4,958.95	4,954.14	4.81	1,031.390						
1,400.00	1,397.47	1,355.93	1,355.92	2.98	2.34	-135.71	25.43	4,939.01	4,970.38	4,965.14	5.24	947.847						
1,500.00	1,495.62	1,452.77	1,452.76	3.29	2.55	-135.67	26.18	4,939.18	4,984.34	4,978.64	5.70	873.953						
1,600.00	1,593.44	1,569.48	1,569.46	3.64	2.79	-135.88	26.88	4,939.24	4,999.47	4,993.24	6.23	802.461						
1,700.00	1,691.25	1,695.45	1,695.44	4.02	3.05	-136.08	26.56	4,938.66	5,014.12	5,007.33	6.79	738.504						
1,800.00	1,789.07	1,740.00	1,739.98	4.41	3.15	-136.15	26.16	4,938.30	5,028.77	5,021.57	7.20	698.778						
1,900.00	1,886.88	1,782.53	1,782.51	4.81	3.23	-136.22	25.71	4,938.41	5,044.53	5,036.92	7.61	663.158						
2,000.00	1,984.70	1,842.00	1,841.94	5.23	3.35	-136.31	25.03	4,940.25	5,062.25	5,054.19	8.06	628.046						
2,100.00	2,082.51	1,842.00	1,841.94	5.65	3.35	-136.31	25.03	4,940.25	5,080.56	5,072.16	8.40	604.768						
2,200.00	2,180.33	1,842.00	1,841.94	6.08	3.35	-136.31	25.03	4,940.25	5,100.76	5,092.01	8.75	583.183						
2,300.00	2,278.14	1,842.00	1,841.94	6.52	3.35	-136.31	25.03	4,940.25	5,122.84	5,113.74	9.10	563.190						
2,400.00	2,375.96	1,842.00	1,841.94	6.96	3.35	-136.31	25.03	4,940.25	5,146.76	5,137.31	9.45	544.674						
2,500.00	2,473.77	1,936.00	1,935.45	7.40	3.55	-136.46	24.99	4,949.41	5,171.63	5,161.62	10.01	516.625						
2,600.00	2,571.59	1,936.00	1,935.45	7.84	3.55	-136.46	24.99	4,949.41	5,197.44	5,187.07	10.37	501.280						
2,700.00	2,669.40	1,936.00	1,935.45	8.29	3.55	-136.46	24.99	4,949.41	5,225.04	5,214.32	10.73	487.030						
2,707.85	2,677.08	1,936.00	1,935.45	8.32	3.55	-136.46	24.99	4,949.41	5,227.28	5,216.53	10.76	485.959						
2,800.00	2,767.51	1,936.00	1,935.45	8.67	3.55	-136.83	24.99	4,949.41	5,253.37	5,242.34	11.04	476.025						
2,900.00	2,866.23	1,936.00	1,935.45	8.96	3.55	-137.22	24.99	4,949.41	5,281.02	5,269.74	11.28	468.257						
3,000.00	2,965.44	1,980.96	1,979.80	9.22	3.66	-137.65	26.10	4,956.72	5,307.04	5,295.44	11.60	457.558						
3,100.00	3,065.03	2,028.00	2,025.88	9.45	3.77	-138.05	28.64	4,965.81	5,332.58	5,320.68	11.90	448.200						
3,200.00	3,164.88	2,028.00	2,025.88	9.64	3.77	-138.38	28.64	4,965.81	5,356.36	5,344.30	12.06	444.019						
3,300.00	3,264.85	2,028.00	2,025.88	9.80	3.77	-138.69	28.64	4,965.81	5,379.37	5,367.17	12.21	440.663						
3,307.85	3,272.70	2,028.00	2,025.88	9.81	3.77	86.80	28.64	4,965.81	5,381.15	5,368.60	12.55	428.775						
3,400.00	3,364.85	2,090.55	2,086.65	9.94	3.96	86.74	34.75	4,979.30	5,401.75	5,388.86	12.89	419.161						

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