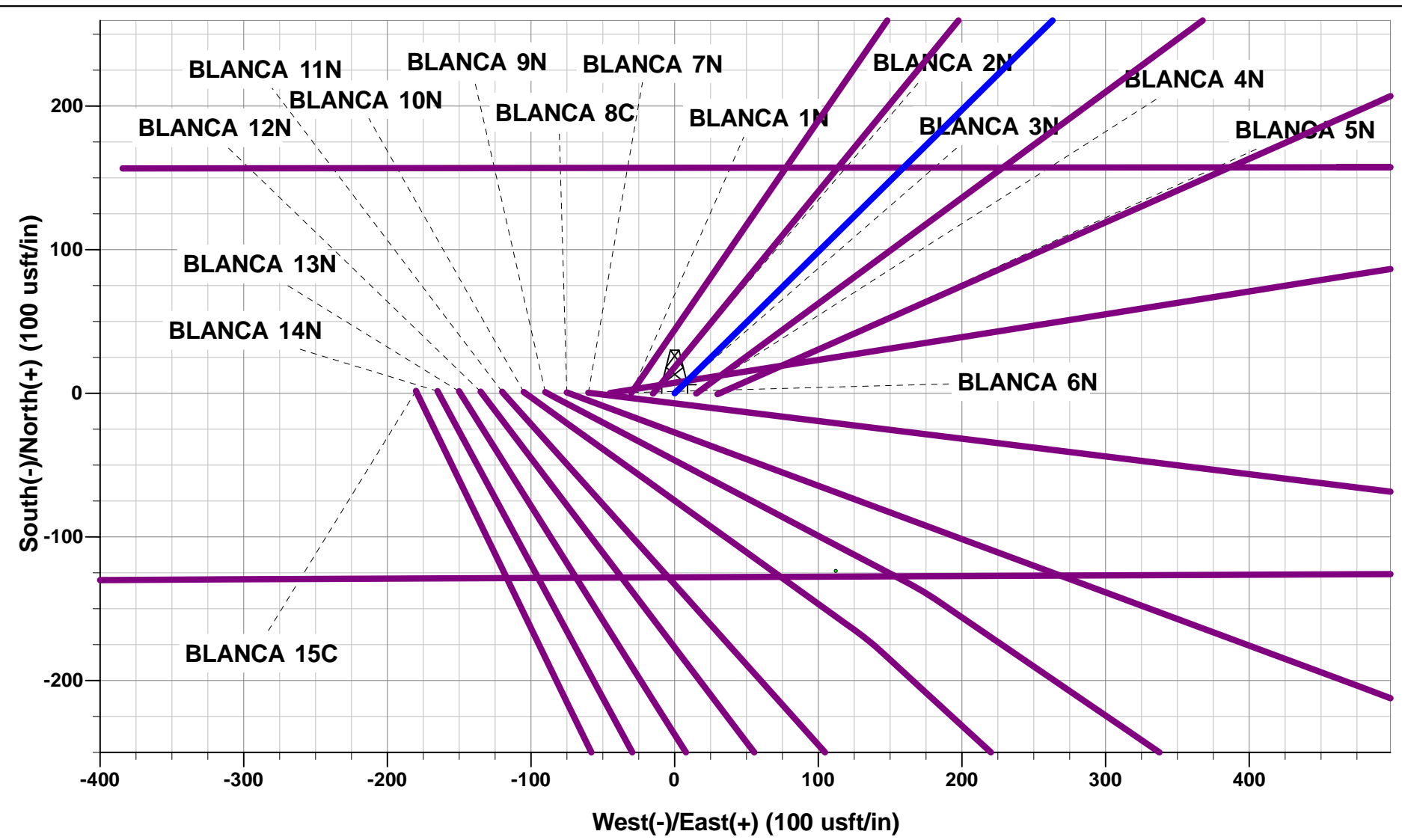




Project: WELD COUNTY, COLORADO  
Site: NE SW SEC. 29 T5N R64W 6th P.M.(BLANCA)  
Well: BLANCA 3N  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N-S	+E-W	VSect	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 2631ft FNL & 2354ft FWL of Sec 29	
500.0	500.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
1272.5	1282.2	15.64	45.38	74.5	75.5	-65.9	106.1	EOB TO 15.64° INC	
5253.3	5416.1	15.64	45.38	857.5	869.0	-758.1	1220.8	END OF TANGENT	
6025.8	6198.3	0.00	0.00	932.0	944.5	-824.0	1326.9	EOD TO VERTICAL	
6125.8	6298.3	0.00	0.00	932.0	944.5	-824.0	1326.9	KOP (8°/100ft BUR)	
6842.0	7423.8	90.04	269.95	931.4	227.8	-112.7	2043.6	HZ LP: 1704ft FNL & 2585ft FWL of Sec 29	
6842.0	7424.8	90.07	269.95	931.4	226.8	-111.7	2044.6	EOB TO 90.07° INC	
6832.0	15188.0	90.08	269.95	924.8	-7536.3	7592.9	9807.8	BHL: 1704ft FNL & 50ft FWL of Sec 30	

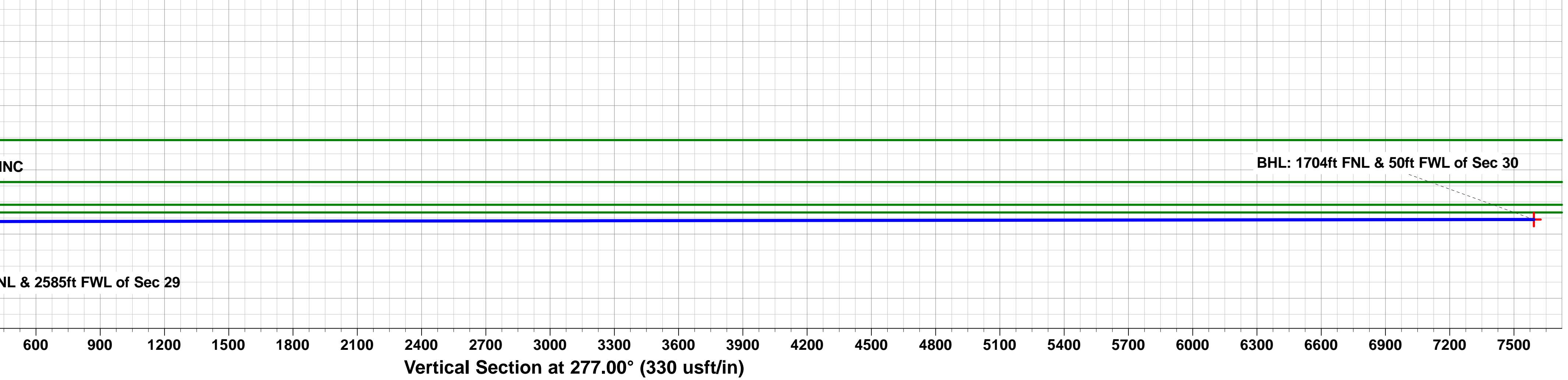
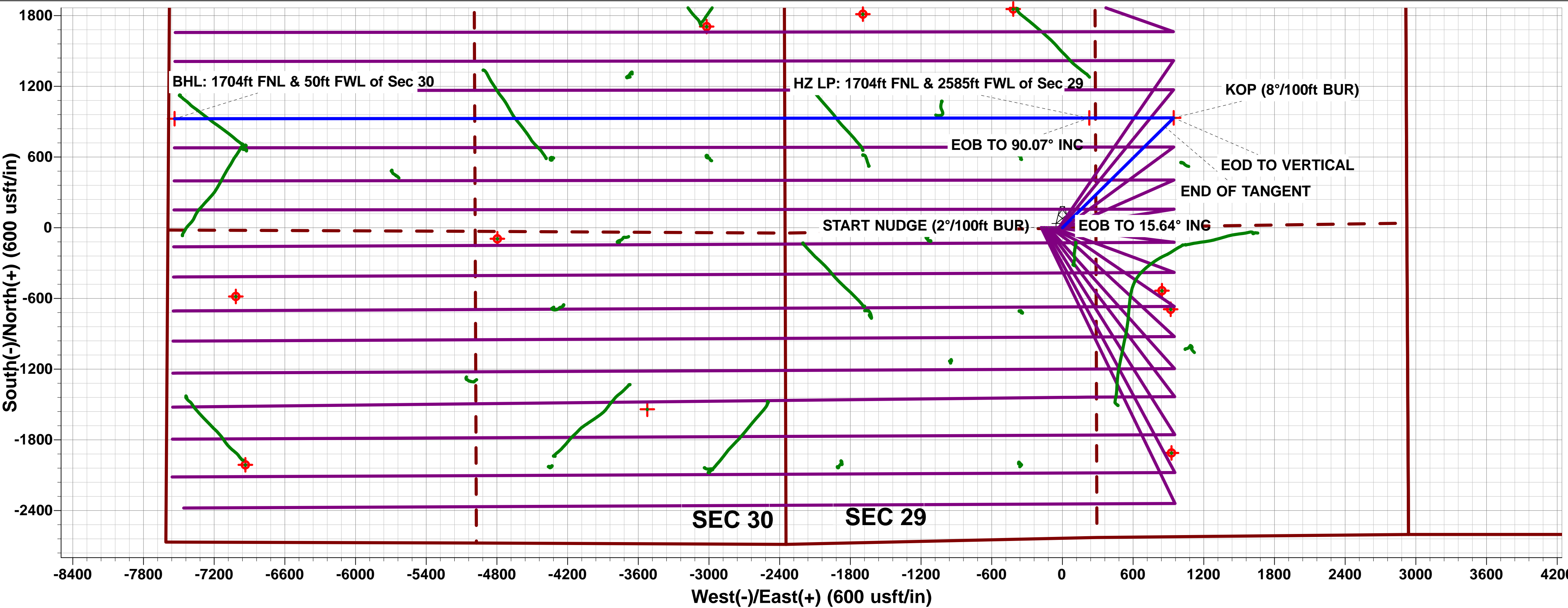
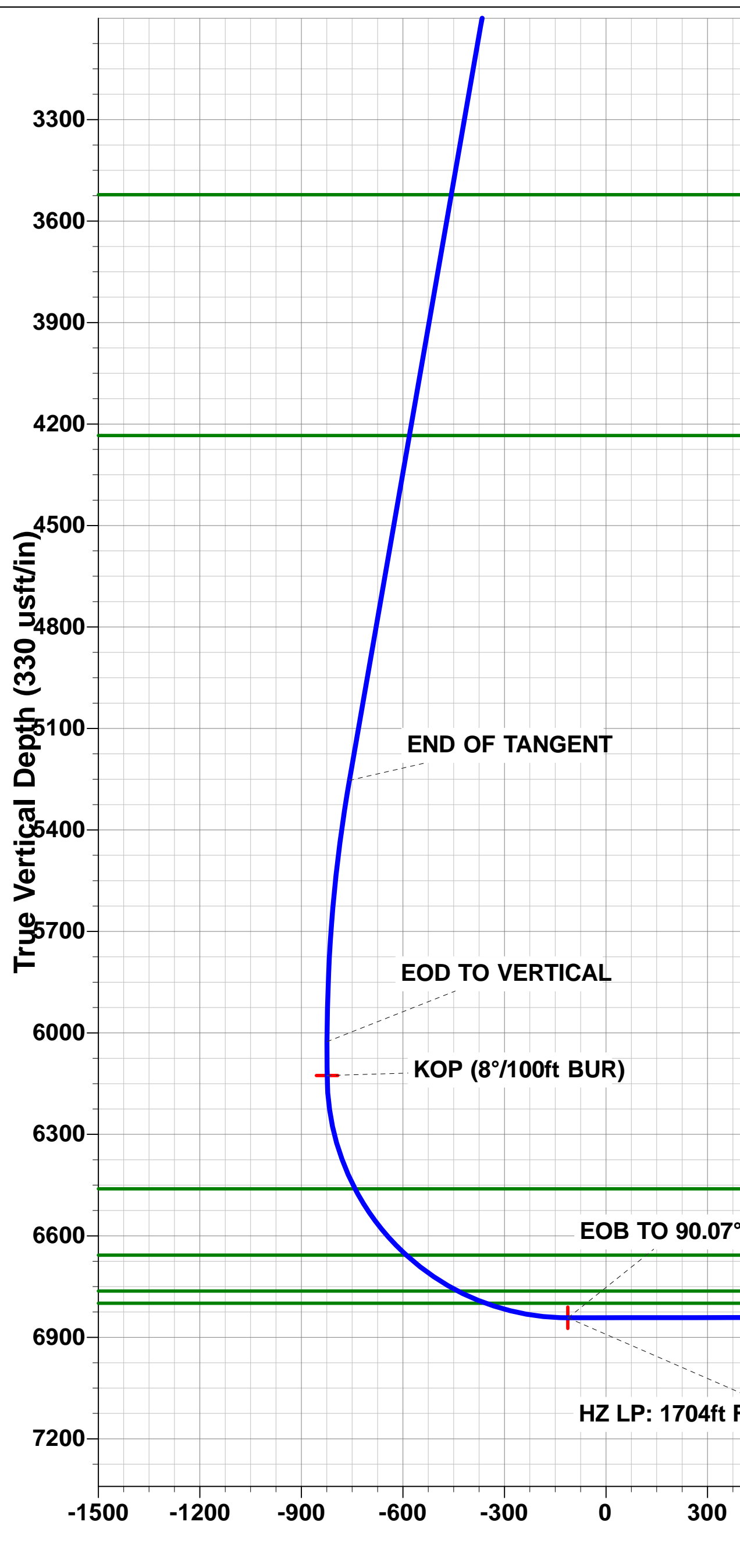
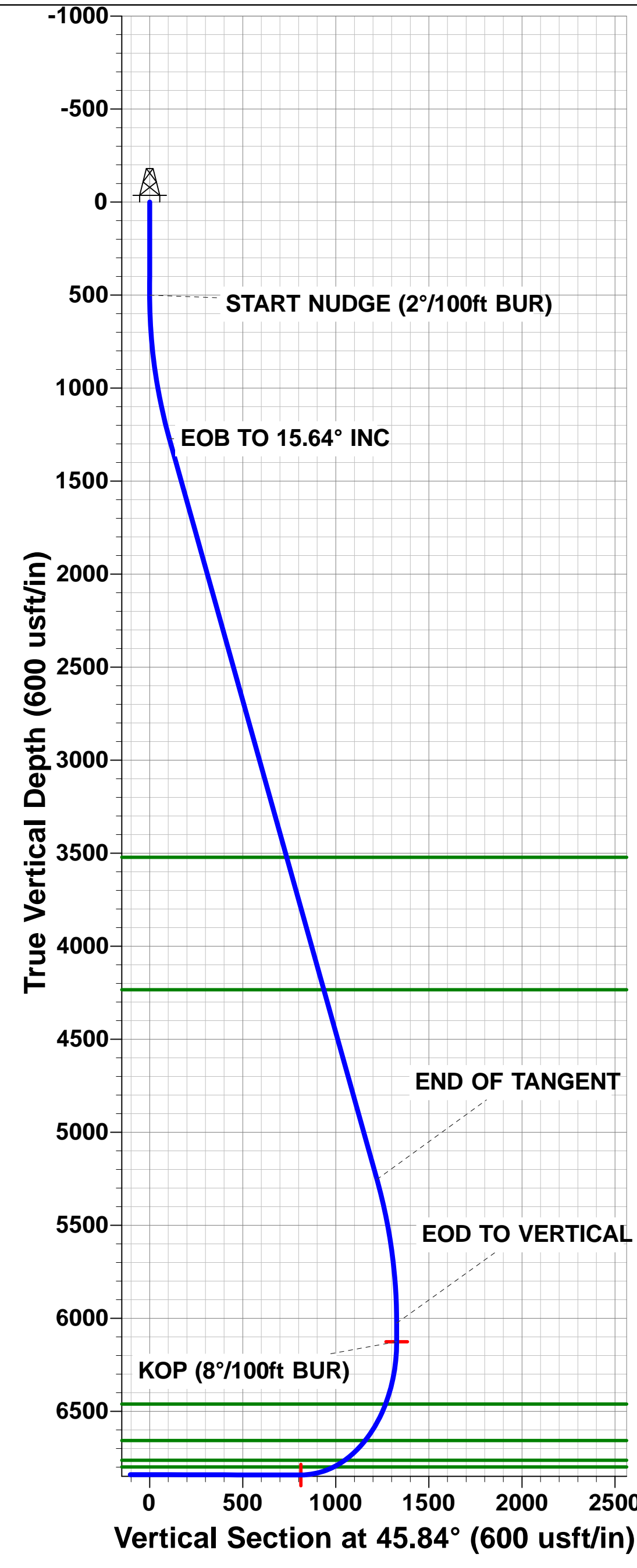
WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N-S	+E-W	Latitude	Longitude
KOP: BLANCA 3N	6125.8	932.0	944.5	40.372734	-104.571351
BHL: BLANCA 3N	6832.0	924.8	-7536.3	40.372711	-104.601789
HZ LP: BLANCA 3N	6842.0	931.4	227.9	40.372732	-104.573923



PROPOSED LOCAL COORDINATES:  
SHL: 2631ft FNL & 2354ft FWL of Sec 29  
HZ LP: 1704ft FNL & 2585ft FWL of Sec 29  
BHL: 1704ft FNL & 50ft FWL of Sec 30

Azimuths to True North  
Magnetic North: 8.09°

Magnetic Field  
Strength: 52373.6snT  
Dip Angle: 66.85°  
Date: 02/09/2017  
Model: IGRF2015



# **PDC ENERGY**

**WELD COUNTY, COLORADO**

**NE SW SEC. 29 T5N R64W 6th P.M.(BLANCA)**

**BLANCA 3N**

**ORIGINAL WELLBORE**

**PROPOSAL #1**

## **Anticollision Report**

**27 September, 2017**



## Anticollision Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well BLANCA 3N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB EST @ 4712.0usft
<b>Reference Site:</b>	NE SW SEC. 29 T5N R64W 6th P.M. (BLANCA)	<b>MD Reference:</b>	KB EST @ 4712.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BLANCA 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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 100.0usft	<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 10,000.0 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>	27/09/2017		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	15,188.0	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 NW SEC. 29 T5N R64W 6th P.M. (CASTLE - GRID)						
EXIST VERT BLAKE B 29-23 - Wellbore #1 - Wellbore #	318.7	302.7	1,464.8	1,463.9	1,691.474	CC
EXIST VERT BLAKE B 29-23 - Wellbore #1 - Wellbore #	900.0	881.5	1,465.9	1,463.5	600.647	ES
EXIST VERT BLAKE B 29-23 - Wellbore #1 - Wellbore #	15,188.0	6,425.5	8,877.5	8,651.1	39.210	SF
EXIST VERT CONAGRA B 30-22 - Wellbore #1 - Wellbo	11,411.9	6,600.0	1,076.4	953.4	8.748	CC, ES
EXIST VERT CONAGRA B 30-22 - Wellbore #1 - Wellbo	11,700.0	6,600.0	1,114.3	983.5	8.516	SF
EXIST VERT CONAGRA B 30-24 - Wellbore #1 - Wellbo	12,711.7	6,850.0	2,192.9	2,031.1	13.556	CC
EXIST VERT CONAGRA B 30-24 - Wellbore #1 - Wellbo	12,800.0	6,850.0	2,194.6	2,030.4	13.364	ES
EXIST VERT CONAGRA B 30-24 - Wellbore #1 - Wellbo	13,500.0	6,850.4	2,330.2	2,146.5	12.683	SF
EXIST VERT GEMINI B29-19 - Wellbore #1 - Wellbore #	8,727.2	6,800.0	31.7	-18.0	0.638	Level 1, CC, ES, SF
EXIST VERT GEMINI B29-5 - Wellbore #1 - Wellbore #1	9,293.2	6,800.0	405.5	337.8	5.997	CC
EXIST VERT GEMINI B29-5 - Wellbore #1 - Wellbore #1	9,300.0	6,800.0	405.5	337.7	5.982	ES
EXIST VERT GEMINI B29-5 - Wellbore #1 - Wellbore #1	9,400.0	6,800.0	419.3	348.8	5.953	SF
EXIST VERT GEMINI B29-6 - Wellbore #1 - Wellbore #1	7,998.6	6,800.0	353.1	317.2	9.834	CC
EXIST VERT GEMINI B29-6 - Wellbore #1 - Wellbore #1	8,000.0	6,800.0	353.1	317.2	9.826	ES
EXIST VERT GEMINI B29-6 - Wellbore #1 - Wellbore #1	8,100.0	6,800.0	367.4	329.3	9.639	SF
EXIST VERT HELDT B 29-20 - Wellbore #1 - Wellbore #	8,780.7	6,800.0	1,041.1	986.7	19.122	CC
EXIST VERT HELDT B 29-20 - Wellbore #1 - Wellbore #	8,800.0	6,800.0	1,041.3	986.4	18.955	ES
EXIST VERT HELDT B 29-20 - Wellbore #1 - Wellbore #	9,300.0	6,800.0	1,163.4	1,095.5	17.120	SF
EXIST VERT HELDT B 29-21 - Wellbore #1 - Wellbore #	0.0	0.0	167.1			
EXIST VERT HELDT B 29-21 - Wellbore #1 - Wellbore #	9,400.0	6,809.3	2,236.4	2,164.8	31.225	SF
EXIST VERT MENONI B 30-17 - Wellbore #1 - Wellbore	11,305.1	6,812.4	376.0	253.3	3.065	CC, ES, SF
EXIST VERT MENONI B 30-8 - Wellbore #1 - Wellbore #	10,629.2	6,800.0	361.1	257.5	3.483	CC, ES, SF
EXIST VERT MENONI B30-10 - Wellbore #1 - Wellbore	11,970.8	6,837.1	1,601.6	1,460.5	11.350	CC
EXIST VERT MENONI B30-10 - Wellbore #1 - Wellbore	12,000.0	6,836.8	1,601.9	1,459.9	11.287	ES
EXIST VERT MENONI B30-10 - Wellbore #1 - Wellbore	12,500.0	6,832.4	1,686.8	1,530.9	10.826	SF
EXIST VERT MENONI B30-15 - Wellbore #1 - Wellbore	12,008.8	6,850.0	2,953.6	2,811.4	20.770	CC
EXIST VERT MENONI B30-15 - Wellbore #1 - Wellbore	12,100.0	6,850.0	2,955.0	2,810.3	20.417	ES
EXIST VERT MENONI B30-15 - Wellbore #1 - Wellbore	13,700.0	6,811.8	3,403.4	3,214.1	17.981	SF
EXIST VERT MENONI B30-16 - Wellbore #1 - Wellbore	10,690.5	6,800.0	2,965.2	2,859.5	28.052	CC
EXIST VERT MENONI B30-16 - Wellbore #1 - Wellbore	10,800.0	6,800.0	2,967.2	2,858.5	27.295	ES
EXIST VERT MENONI B30-16 - Wellbore #1 - Wellbore	13,000.0	6,800.0	3,758.4	3,588.8	22.149	SF
EXIST VERT MENONI B30-7 - Wellbore #1 - Wellbore #	11,972.0	6,831.8	336.2	194.9	2.379	CC, ES
EXIST VERT MENONI B30-7 - Wellbore #1 - Wellbore #	12,000.0	6,831.7	337.3	195.3	2.375	SF
EXIST VERT OCOMA B 29-11 - Wellbore #1 - Wellbore #	100.0	73.2	795.3	795.2	4,837.067	CC, ES
EXIST VERT OCOMA B 29-11 - Wellbore #1 - Wellbore #	10,300.0	6,800.9	2,836.4	2,741.3	29.842	SF
EXIST VERT OCOMA B 29-25 - Wellbore #1 - Wellbore	0.0	5.4	1,488.5			

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 BLANCA 3N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB EST @ 4712.0usft
<b>Reference Site:</b>	NE SW SEC. 29 T5N R64W 6th P.M. (BLANCA)	<b>MD Reference:</b>	KB EST @ 4712.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BLANCA 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
NE NW SEC. 29 T5N R64W 6th P.M. (CASTLE - GRID)						
EXIST VERT OCOMA B 29-25 - Wellbore #1 - Wellbore	11,000.0	6,828.6	3,155.6	3,041.5	27.646	SF
EXIST VERT OCOMA UPPR LEASE B 29-12 - Wellbore	9,292.4	6,850.0	1,669.8	1,601.9	24.598	CC
EXIST VERT OCOMA UPPR LEASE B 29-12 - Wellbore	9,300.0	6,850.0	1,669.8	1,601.8	24.526	ES
EXIST VERT OCOMA UPPR LEASE B 29-12 - Wellbore	10,400.0	6,850.0	2,003.8	1,906.0	20.494	SF
EXIST VERT OCOMA UPPR LEASE B 29-14 - Wellbore	540.5	566.3	2,057.6	2,056.0	1,354.820	CC, ES
EXIST VERT OCOMA UPPR LEASE B 29-14 - Wellbore	15,188.0	6,100.0	7,775.2	7,550.9	34.663	SF
EXIST VERT P&A 12-30 - Wellbore #1 - Wellbore #1	14,611.8	6,805.5	233.1	18.0	1.084	Level 2, CC, ES, SF



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well BLANCA 3N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB EST @ 4712.0usft
<b>Reference Site:</b>	NE SW SEC. 29 T5N R64W 6th P.M. (BLANCA)	<b>MD Reference:</b>	KB EST @ 4712.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BLANCA 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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 NW SEC. 29 T5N R64W 6th P.M. (CASTLE 1N-4N)						
ABDN VERT BLAKE B 29-10 - Wellbore #1 - Design #1	1,510.6	1,476.5	1,137.6	1,130.0	148.073	CC
ABDN VERT BLAKE B 29-10 - Wellbore #1 - Design #1	1,600.0	1,562.5	1,137.9	1,129.6	136.393	ES
ABDN VERT BLAKE B 29-10 - Wellbore #1 - Design #1	15,188.0	6,816.0	8,608.0	8,363.7	35.236	SF
ABDN VERT BLAKE B 29-10X - Wellbore #1 - Design #1	1,727.5	1,685.3	973.2	963.9	104.728	CC
ABDN VERT BLAKE B 29-10X - Wellbore #1 - Design #1	1,800.0	1,755.1	973.4	963.6	98.943	ES
ABDN VERT BLAKE B 29-10X - Wellbore #1 - Design #1	12,100.0	6,820.1	5,491.0	5,332.8	34.719	SF
ABDN VERT BLAKE B 29-15 - Wellbore #1 - Design #1	500.0	484.0	2,123.3	2,121.3	1,091.450	CC, ES
ABDN VERT BLAKE B 29-15 - Wellbore #1 - Design #1	15,188.0	6,816.0	8,924.3	8,680.0	36.530	SF
ABDN VERT LION 21-30 - Wellbore #1 - Design #1	13,246.9	6,788.6	1,004.9	693.7	3.229	CC
ABDN VERT LION 21-30 - Wellbore #1 - Design #1	13,300.0	6,788.5	1,006.3	693.6	3.219	ES, SF
ABDN VERT LYLA CARPENTER 1 - Wellbore #1 - Desig	11,177.4	6,848.3	2,468.8	2,213.9	9.686	CC
ABDN VERT LYLA CARPENTER 1 - Wellbore #1 - Desig	11,200.0	6,848.3	2,468.9	2,213.4	9.663	ES
ABDN VERT LYLA CARPENTER 1 - Wellbore #1 - Desig	11,800.0	6,847.5	2,546.1	2,274.0	9.357	SF
ABDN VERT P&A 11-30 - Wellbore #1 - Wellbore #1	14,559.1	6,758.6	967.2	753.7	4.530	CC
ABDN VERT P&A 11-30 - Wellbore #1 - Wellbore #1	14,600.0	6,757.9	968.1	753.4	4.510	ES
ABDN VERT P&A 11-30 - Wellbore #1 - Wellbore #1	14,700.0	6,756.3	977.4	760.0	4.495	SF
ABDN VERT P&A 13-30 - Wellbore #1 - Design #1	14,669.6	6,838.7	1,508.4	1,156.7	4.289	CC
ABDN VERT P&A 13-30 - Wellbore #1 - Design #1	14,700.0	6,838.7	1,508.7	1,156.2	4.279	ES
ABDN VERT P&A 13-30 - Wellbore #1 - Design #1	14,900.0	6,838.4	1,525.9	1,167.8	4.261	SF
ABDN VERT P&A 14-30 - Wellbore #1 - Design #1	14,589.8	6,840.8	2,937.3	2,587.8	8.404	CC
ABDN VERT P&A 14-30 - Wellbore #1 - Design #1	14,700.0	6,840.7	2,939.4	2,586.8	8.337	ES
ABDN VERT P&A 14-30 - Wellbore #1 - Design #1	15,188.0	6,840.0	2,997.6	2,631.4	8.185	SF
CASTLE 1N - ORIGINAL WELLBORE - PROPOSAL #1	6,517.1	6,522.8	1,489.2	1,437.4	28.722	CC
CASTLE 1N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,184.3	1,489.7	1,032.5	3.258	ES, SF
CASTLE 2N - ORIGINAL WELLBORE - PROPOSAL #1	6,220.1	6,230.7	1,227.0	1,188.5	31.875	CC
CASTLE 2N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,115.1	1,228.9	771.6	2.687	ES, SF
CASTLE 3N - ORIGINAL WELLBORE - PROPOSAL #1	6,634.2	6,644.5	968.3	916.8	18.800	CC
CASTLE 3N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,194.5	968.8	511.0	2.116	ES, SF
CASTLE 4N - ORIGINAL WELLBORE - PROPOSAL #1	6,200.0	6,226.3	731.5	690.3	17.765	CC
CASTLE 4N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,136.6	734.4	277.8	1.608	ES, SF
EXIST DD BELL B29-22D - ORIGINAL WELLBORE - OR	2,446.2	2,312.9	884.9	871.4	65.355	CC
EXIST DD BELL B29-22D - ORIGINAL WELLBORE - OR	2,500.0	2,356.0	885.3	871.3	63.519	ES
EXIST DD BELL B29-22D - ORIGINAL WELLBORE - OR	6,350.0	6,210.0	1,194.4	1,150.7	27.317	SF
EXIST DD BELL B29-24D - Wellbore #1 - Wellbore #1	2,640.2	2,625.0	763.2	745.6	43.444	CC, ES
EXIST DD BELL B29-24D - Wellbore #1 - Wellbore #1	13,700.0	7,017.5	6,945.1	6,738.8	33.663	SF
EXIST DD CONAGRA B 29-30 - Wellbore #1 - Wellbore	10,144.3	6,988.2	1,532.1	1,425.1	14.317	CC
EXIST DD CONAGRA B 29-30 - Wellbore #1 - Wellbore	10,200.0	6,987.3	1,533.1	1,424.5	14.126	ES
EXIST DD CONAGRA B 29-30 - Wellbore #1 - Wellbore	10,700.0	6,979.7	1,629.7	1,507.5	13.333	SF
EXIST DD CONAGRA B 29-33 - Wellbore #1 - Wellbore	10,152.1	6,933.2	2,410.3	2,318.9	26.361	CC
EXIST DD CONAGRA B 29-33 - Wellbore #1 - Wellbore	10,200.0	6,932.8	2,410.8	2,318.1	25.996	ES
EXIST DD CONAGRA B 29-33 - Wellbore #1 - Wellbore	11,900.0	6,917.8	2,977.3	2,837.8	21.335	SF
EXIST DD CONAGRA B 30-18 - Wellbore #1 - Wellbore	12,568.5	6,937.4	411.3	252.7	2.593	CC, ES
EXIST DD CONAGRA B 30-18 - Wellbore #1 - Wellbore	12,600.0	6,937.4	412.5	253.0	2.586	SF
EXIST DD CONAGRA B 30-23XD - Wellbore #1 - Wellbo	11,326.2	6,984.8	2,261.1	2,137.2	18.243	CC
EXIST DD CONAGRA B 30-23XD - Wellbore #1 - Wellbo	11,400.0	6,984.1	2,262.3	2,136.4	17.957	ES
EXIST DD CONAGRA B 30-23XD - Wellbore #1 - Wellbo	12,500.0	6,973.9	2,547.7	2,391.2	16.279	SF
EXIST DD CONAGRA B 30-27 - Wellbore #1 - Wellbore	11,264.5	6,893.8	1,530.9	1,393.1	11.107	CC
EXIST DD CONAGRA B 30-27 - Wellbore #1 - Wellbore	11,300.0	6,893.7	1,531.3	1,392.5	11.032	ES
EXIST DD CONAGRA B 30-27 - Wellbore #1 - Wellbore	11,700.0	6,892.4	1,591.6	1,441.8	10.620	SF
EXIST DD CONAGRA B 30-31D - Wellbore #1 - Wellbore	15,144.1	6,895.4	202.0	-28.4	0.877	Level 1, CC, ES, SF
EXIST DD CONAGRA B 30-32D - Wellbore #1 - Wellbore	15,121.4	6,912.9	987.1	757.2	4.294	CC, ES
EXIST DD CONAGRA B 30-32D - Wellbore #1 - Wellbore	15,188.0	6,912.7	989.4	757.6	4.269	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 BLANCA 3N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB EST @ 4712.0usft
<b>Reference Site:</b>	NE SW SEC. 29 T5N R64W 6th P.M. (BLANCA)	<b>MD Reference:</b>	KB EST @ 4712.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BLANCA 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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 NW SEC. 29 T5N R64W 6th P.M. (CASTLE 1N-4N)						
EXIST DD CONAGRA B 30-33D - Wellbore #1 - Wellbore	15,086.9	6,902.6	2,366.6	2,138.0	10.351	CC
EXIST DD CONAGRA B 30-33D - Wellbore #1 - Wellbore	15,188.0	6,901.9	2,368.8	2,137.3	10.234	ES, SF
EXIST DD FAIRBANKS B 29-31 - Wellbore #1 - Wellbore	9,853.9	6,925.5	347.8	264.5	4.171	CC, ES
EXIST DD FAIRBANKS B 29-31 - Wellbore #1 - Wellbore	9,900.0	6,924.7	350.9	266.2	4.146	SF
EXIST DD HELDT B 29-32 - Wellbore #1 - Wellbore #1	9,854.4	6,926.6	1,059.4	976.1	12.719	CC
EXIST DD HELDT B 29-32 - Wellbore #1 - Wellbore #1	9,900.0	6,926.2	1,060.3	975.8	12.545	ES
EXIST DD HELDT B 29-32 - Wellbore #1 - Wellbore #1	10,200.0	6,923.9	1,114.3	1,021.6	12.025	SF
EXIST DD YBARRA B 29-18 - Wellbore #1 - Wellbore #1	7,428.0	6,919.3	353.6	326.8	13.205	CC, ES
EXIST DD YBARRA B 29-18 - Wellbore #1 - Wellbore #1	7,500.0	6,917.0	360.9	333.2	13.033	SF
EXIST HZ MAXEY 24Q-302 - Wellbore #1 - Wellbore #1	11,824.9	12,526.4	1,757.4	1,457.9	5.867	CC, ES
EXIST HZ MAXEY 24Q-302 - Wellbore #1 - Wellbore #1	11,900.0	12,457.8	1,757.6	1,457.9	5.865	SF
EXIST HZ SCHNEIDER 19Q-202 - Wellbore #1 - Wellbo	6,600.0	11,673.1	1,838.4	1,677.1	11.401	SF
EXIST HZ SCHNEIDER 19Q-202 - Wellbore #1 - Wellbo	9,667.0	8,783.3	1,774.8	1,639.2	13.092	CC
EXIST HZ SCHNEIDER 19Q-202 - Wellbore #1 - Wellbo	11,500.0	6,977.8	1,779.1	1,636.4	12.464	ES
EXIST VERT CARLSON 29-1 - Wellbore #1 - Wellbore #	4,975.9	4,795.9	336.4	311.4	13.485	CC
EXIST VERT CARLSON 29-1 - Wellbore #1 - Wellbore #	5,000.0	4,819.0	336.4	311.3	13.405	ES
EXIST VERT CARLSON 29-1 - Wellbore #1 - Wellbore #	5,200.0	5,009.9	342.1	315.9	13.069	SF
EXIST VERT CONAGRA B 30-21 - Wellbore #1 - Design	12,449.1	6,815.6	1,020.9	731.4	3.527	CC
EXIST VERT CONAGRA B 30-21 - Wellbore #1 - Design	12,500.0	6,815.6	1,022.2	731.3	3.514	ES, SF
EXIST VERT GEMINI B29-3 - Wellbore #1 - Design #1	8,068.5	6,821.7	925.2	752.5	5.358	CC
EXIST VERT GEMINI B29-3 - Wellbore #1 - Design #1	8,100.0	6,821.7	925.7	752.3	5.340	ES
EXIST VERT GEMINI B29-3 - Wellbore #1 - Design #1	8,200.0	6,821.5	934.5	758.9	5.322	SF
EXIST VERT GEMINI B29-4 - Wellbore #1 - Design #1	9,344.6	6,805.6	882.6	678.4	4.323	CC, ES
EXIST VERT GEMINI B29-4 - Wellbore #1 - Design #1	9,400.0	6,805.5	884.3	678.7	4.301	SF
EXIST VERT LION #2 - Wellbore #1 - Wellbore #1	13,285.7	6,790.3	502.1	324.0	2.818	CC
EXIST VERT LION #2 - Wellbore #1 - Wellbore #1	13,300.0	6,790.1	502.3	323.8	2.813	ES, SF
EXIST VERT MENONI B30-1 - Wellbore #1 - Design #1	10,671.0	6,810.3	778.2	538.0	3.240	CC
EXIST VERT MENONI B30-1 - Wellbore #1 - Design #1	10,700.0	6,810.3	778.7	537.8	3.232	ES, SF
EXIST VERT MENONI B30-2 - Wellbore #1 - Design #1	11,930.2	6,803.3	994.4	719.6	3.618	CC, ES
EXIST VERT MENONI B30-2 - Wellbore #1 - Design #1	12,000.0	6,803.2	996.8	720.1	3.602	SF
EXIST VERT OCOMA B 29-13 - Wellbore #1 - Wellbore	107.0	142.0	2,786.1	2,785.9	10,000.000	CC, ES
EXIST VERT OCOMA B 29-13 - Wellbore #1 - Wellbore	12,900.0	12,900.0	4,475.1	4,307.6	26.712	SF
EXIST VERT OTTENHOFF 29-1 - Wellbore #1 - Design	6,400.0	6,195.2	1,054.1	1,016.9	28.383	SF
EXIST VERT OTTENHOFF 29-1 - Wellbore #1 - Design	6,433.5	6,228.2	1,054.1	1,016.9	28.391	CC, ES
EXIST VERT YBARRA B 29-29 - Wellbore #1 - Design #	8,713.5	6,800.0	1,508.0	1,320.3	8.036	CC, ES
EXIST VERT YBARRA B 29-29 - Wellbore #1 - Design #	9,000.0	6,800.0	1,534.9	1,339.9	7.872	SF

<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well BLANCA 3N
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB EST @ 4712.0usft
<b>Reference Site:</b>	NE SW SEC. 29 T5N R64W 6th P.M. (BLANCA)	<b>MD Reference:</b>	KB EST @ 4712.0usft
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BLANCA 3N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 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 SW SEC. 29 T5N R64W 6th P.M.(BLANCA)						
BLANCA 10N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	105.1	103.1	53.233	CC, ES
BLANCA 10N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,253.2	1,886.9	1,427.9	4.111	SF
BLANCA 11N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	120.1	118.1	60.844	CC, ES
BLANCA 11N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,312.2	2,160.0	1,699.6	4.692	SF
BLANCA 12N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	135.1	133.1	68.480	CC, ES
BLANCA 12N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,418.9	2,446.6	1,987.4	5.327	SF
BLANCA 13N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	150.1	148.1	76.052	CC, ES
BLANCA 13N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,506.9	2,719.5	2,259.3	5.910	SF
BLANCA 14N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	502.0	165.1	163.1	83.554	CC, ES
BLANCA 14N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,735.7	3,039.9	2,579.6	6.605	SF
BLANCA 15C - ORIGINAL WELLBORE - PROPOSAL #1	500.0	502.0	180.1	178.1	91.142	CC, ES
BLANCA 15C - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,901.0	3,305.6	2,847.4	7.214	SF
BLANCA 1N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	500.0	30.1	28.1	15.268	CC
BLANCA 1N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,321.1	486.0	28.0	1.061	Level 2, ES, SF
BLANCA 2N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	500.0	15.0	13.1	7.634	CC
BLANCA 2N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,168.6	249.1	-193.6	0.563	Level 1, ES, SF
BLANCA 4N - ORIGINAL WELLBORE - PROPOSAL #1	400.0	400.0	15.0	13.5	9.889	CC
BLANCA 4N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,054.9	259.6	-176.8	0.595	Level 1, ES, SF
BLANCA 5N - ORIGINAL WELLBORE - PROPOSAL #1	300.0	300.0	29.8	28.7	27.813	CC, ES
BLANCA 5N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,107.4	527.0	68.3	1.149	Level 2, SF
BLANCA 6N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	500.0	45.1	43.2	22.900	CC, ES
BLANCA 6N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,051.5	778.1	321.4	1.704	SF
BLANCA 7N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	60.1	58.1	30.443	CC, ES
BLANCA 7N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,113.3	1,086.8	628.4	2.371	SF
BLANCA 8C - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	75.1	73.1	38.040	CC, ES
BLANCA 8C - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,220.9	1,345.8	888.1	2.940	SF
BLANCA 9N - ORIGINAL WELLBORE - PROPOSAL #1	500.0	501.0	90.1	88.1	45.651	CC, ES
BLANCA 9N - ORIGINAL WELLBORE - PROPOSAL #1	15,188.0	15,108.9	1,632.3	1,174.2	3.563	SF

<b>Offset Design</b> NE NW SEC. 29 T5N R64W 6th P.M. (CASTLE - GRID) - EXIST VERT BLAKE B 29-23 - Wellbore #1 -												Offset Site Error:	0.0 usft
Survey Program: 100-GYD_CT												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	134.64	-1,029.3	1,042.5	1,465.1				
100.0	100.0	83.9	83.9	0.1	0.0	134.64	-1,029.4	1,042.4	1,465.0	1,464.9	0.09	N/A	
200.0	200.0	186.8	186.8	0.3	0.2	134.65	-1,029.5	1,042.2	1,464.9	1,464.4	0.49	3,016.494	
300.0	300.0	284.6	284.6	0.5	0.3	134.66	-1,029.6	1,041.8	1,464.8	1,464.0	0.81	1,808.914	
318.7	318.7	302.7	302.7	0.6	0.3	134.66	-1,029.7	1,041.8	1,464.8	1,463.9	0.87	1,691.474	CC
400.0	400.0	379.8	379.8	0.8	0.3	134.67	-1,029.8	1,041.8	1,464.9	1,463.8	1.07	1,367.576	
500.0	500.0	477.6	477.6	1.0	0.4	134.67	-1,030.1	1,042.1	1,465.3	1,463.9	1.35	1,086.613	
600.0	600.0	577.8	577.8	1.2	0.4	89.34	-1,030.3	1,042.5	1,465.7	1,464.1	1.63	901.186	
700.0	699.8	681.9	681.9	1.4	0.5	89.54	-1,030.3	1,042.9	1,466.0	1,464.1	1.90	772.531	
800.0	799.5	784.4	784.3	1.7	0.5	89.89	-1,030.3	1,042.9	1,465.9	1,463.8	2.15	681.043	
848.0	847.1	831.4	831.4	1.8	0.5	90.09	-1,030.2	1,043.0	1,465.9	1,463.6	2.29	640.711	
900.0	898.7	881.5	881.5	1.9	0.5	90.34	-1,030.2	1,043.0	1,465.9	1,463.5	2.44	600.647	ES
1,000.0	997.5	977.9	977.9	2.2	0.5	90.93	-1,030.4	1,043.0	1,466.3	1,463.5	2.76	531.215	
1,100.0	1,095.6	1,076.3	1,076.3	2.6	0.6	91.68	-1,031.1	1,042.7	1,467.0	1,463.8	3.14	466.725	
1,200.0	1,193.1	1,174.5	1,174.5	3.0	0.6	92.54	-1,031.6	1,042.4	1,468.0	1,464.5	3.58	409.753	

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