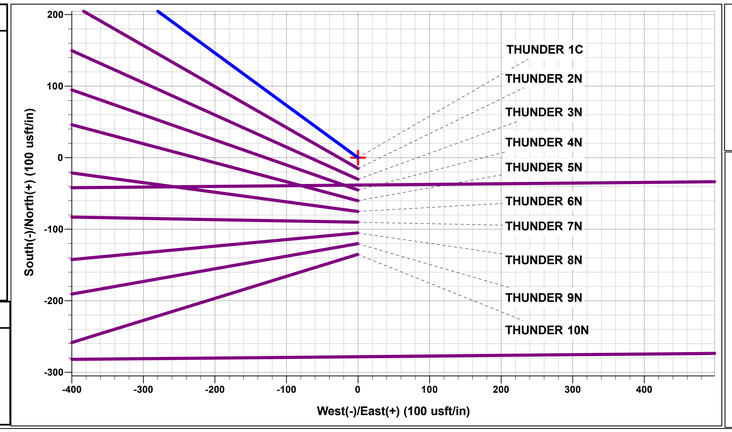
Project: WELD COUNTY, COLORADO (TRUE)
Site: SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)
Well: THUNDER 1C
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 1667ft FNL & 1591ft FWL of Sec 3
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	START NUDGE (2.25°/100ft BUR)
1612.50	29.53	306.19	1555.15	195.33	-267.00	-160.21	330.82	EOB TO 29.53° INC
5162.29	29.53	306.19	4643.78	1228.41	-1679.13	-1007.53	2080.50	END OF TANGENT
6638.85	0.00	0.00	6055.83	1448.16	-1979.51	-1187.76	2452.67	EOD TO VERTICAL
6738.85	0.00	0.00	6155.83	1448.16	-1979.51	-1187.76	2452.67	KOP (8°/100ft BUR)
7870.22	90.51	89.47	6872.00	1454.84	-1256.97	-529.30	3175.24	EP *NEW*: 200ft FNL & 330ft FWL of Sec 3
12359.88	90.51	89.46	6832.00	1496.75	3232.31	3562.04	7664.72	BHL: 200ft FNL & 460ft FEL of Sec 3

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - THUNDER 1C	6155.83	1448.16	-1979.51	40.434923	-104.547158
EP *NEW* - THUNDER 1C	6872.00	1454.84	-1256.97	40.434942	-104.544562
BHL - THUNDER 1C (P2)	6832.00	1496.75	3232.32	40.435056	-104.528436
SHL - THUNDER 1C	0.00	0.00	0.00	40.430948	-104.540047

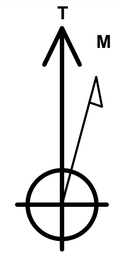


PROPOSED LOCAL COORDINATES:

SHL: 1667ft FNL & 1591ft FWL of Sec 3

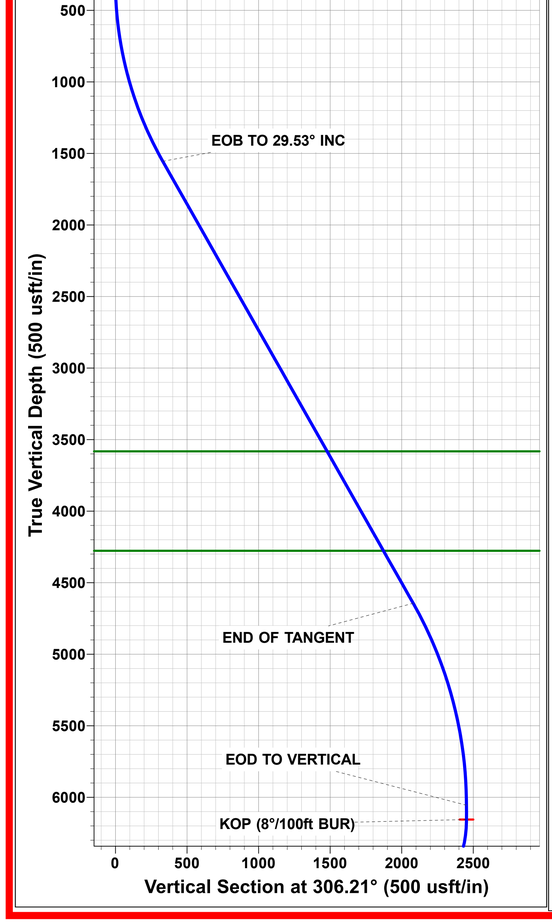
EP *NEW*: 200ft FNL & 330ft FWL of Sec 3

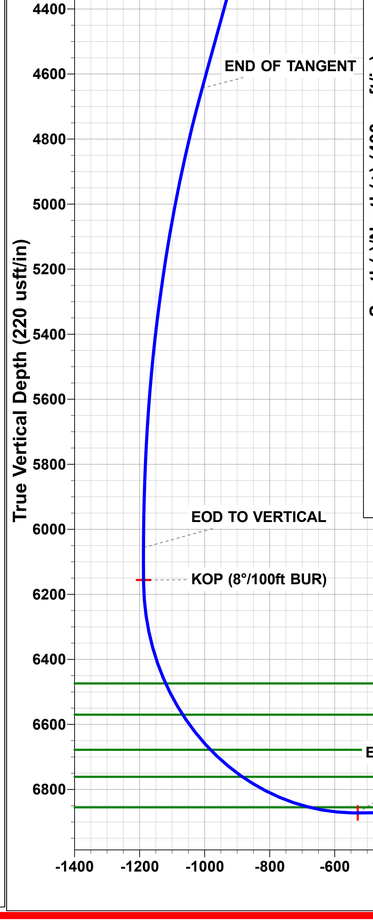
BHL: 200ft FNL & 460ft FEL of Sec 3

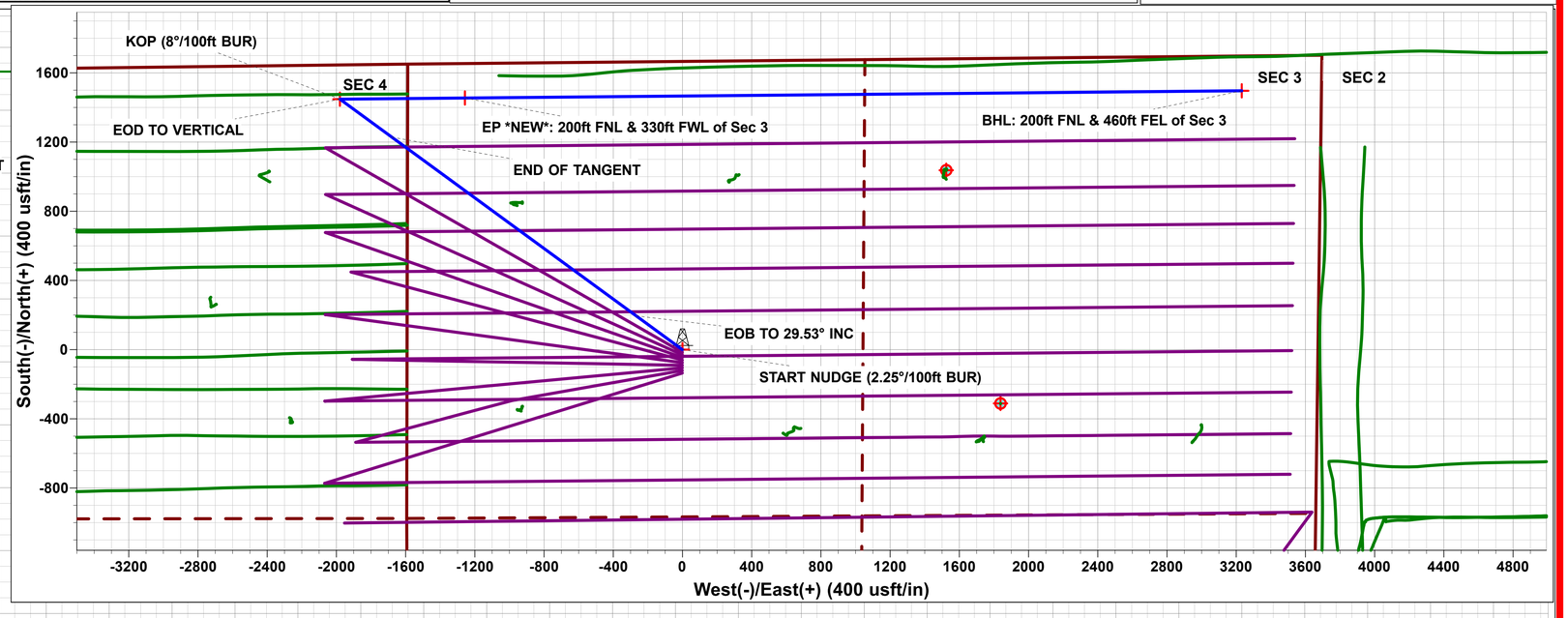


Azimuths to True North
Magnetic North: 7.76°

Magnetic Field
Strength: 52023.1nT
Dip Angle: 66.72°
Date: 2021-03-08
Model: IGRF2020







PDC ENERGY

WELD COUNTY, COLORADO (TRUE)
SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)
THUNDER 1C

ORIGINAL WELLBORE
PROPOSAL #2

Anticollision Report

08 March, 2021

Anticollision Report

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well THUNDER 1C
Project:	WELD COUNTY, COLORADO (TRUE)	**TVD Reference:**	KB-EST @ 4682.00usft
Reference Site:	SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)	**MD Reference:**	KB-EST @ 4682.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	THUNDER 1C	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	Database 1
Reference Design:	PROPOSAL #2	**Offset TVD Reference:**	Offset Datum

Reference	PROPOSAL #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum centre distance of 9,999.98usft	**Error Surface:**	Ellipsoid Separation
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 2021-03-08

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	12,359.88	PROPOSAL #2 (ORIGINAL WELLBORE)	MWD	MWD - Standard

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
NW NE SEC. 5 T5N R64W 6th P.M.						
EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1	6,524.01	5,880.22	584.10	531.29	11.060	CC, ES
EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1	6,638.85	5,993.83	584.56	531.63	11.043	SF
EXIST VERT FRENCH 5 - Wellbore #1 - Wellbore #1	6,752.47	6,122.89	1,372.21	1,318.78	25.685	CC, ES, SF
SNOWMASS 10N - ORIGINAL WELLBORE - ORIGINAL	7,487.03	15,405.00	2,233.52	1,968.44	8.426	CC
SNOWMASS 10N - ORIGINAL WELLBORE - ORIGINAL	7,550.00	15,405.00	2,234.38	1,968.17	8.393	ES
SNOWMASS 10N - ORIGINAL WELLBORE - ORIGINAL	7,700.00	15,405.00	2,243.31	1,974.86	8.357	SF
SNOWMASS 1C - ORIGINAL WELLBORE - ORIGINAL	7,549.54	14,808.00	53.88	-19.33	0.736	Level 3, CC, ES, SF
SNOWMASS 2N - ORIGINAL WELLBORE - ORIGINAL	7,450.00	14,650.84	276.95	27.82	1.112	Level 3, ES, SF
SNOWMASS 2N - ORIGINAL WELLBORE - ORIGINAL	7,450.36	14,651.13	276.95	27.85	1.112	Level 3, CC
SNOWMASS 3N - ORIGINAL WELLBORE - ORIGINAL	7,490.03	15,107.00	722.88	457.89	2.728	CC
SNOWMASS 3N - ORIGINAL WELLBORE - ORIGINAL	7,500.00	15,107.00	722.94	457.45	2.723	ES
SNOWMASS 3N - ORIGINAL WELLBORE - ORIGINAL	7,550.00	15,107.00	725.25	458.14	2.715	SF
SNOWMASS 4N - ORIGINAL WELLBORE - ORIGINAL	7,500.53	15,107.00	733.03	468.27	2.769	CC
SNOWMASS 4N - ORIGINAL WELLBORE - ORIGINAL	7,550.00	15,107.00	734.63	467.94	2.755	ES, SF
SNOWMASS 5N - ORIGINAL WELLBORE - ORIGINAL	7,399.20	15,187.38	956.76	690.55	3.594	CC
SNOWMASS 5N - ORIGINAL WELLBORE - ORIGINAL	7,450.00	15,228.81	957.13	690.41	3.588	ES
SNOWMASS 5N - ORIGINAL WELLBORE - ORIGINAL	7,550.00	15,255.00	961.24	692.83	3.581	SF
SNOWMASS 6N - ORIGINAL WELLBORE - ORIGINAL	7,488.92	15,131.00	1,230.91	966.85	4.661	CC
SNOWMASS 6N - ORIGINAL WELLBORE - ORIGINAL	7,500.00	15,131.00	1,230.96	966.59	4.656	ES
SNOWMASS 6N - ORIGINAL WELLBORE - ORIGINAL	7,600.00	15,131.00	1,235.64	969.33	4.640	SF
SNOWMASS 7N - ORIGINAL WELLBORE - ORIGINAL	7,381.43	15,257.41	1,461.01	1,193.96	5.471	CC
SNOWMASS 7N - ORIGINAL WELLBORE - ORIGINAL	7,500.00	15,340.00	1,462.43	1,193.29	5.434	ES
SNOWMASS 7N - ORIGINAL WELLBORE - ORIGINAL	7,550.00	15,340.00	1,464.55	1,194.55	5.424	SF
SNOWMASS 8N - ORIGINAL WELLBORE - ORIGINAL	7,377.20	15,112.47	1,679.08	1,416.20	6.387	CC
SNOWMASS 8N - ORIGINAL WELLBORE - ORIGINAL	7,500.00	15,219.56	1,680.52	1,414.85	6.325	ES
SNOWMASS 8N - ORIGINAL WELLBORE - ORIGINAL	7,650.00	15,247.00	1,688.24	1,420.02	6.294	SF
SNOWMASS 9N - ORIGINAL WELLBORE - ORIGINAL	7,401.07	15,273.41	1,944.16	1,678.80	7.327	CC
SNOWMASS 9N - ORIGINAL WELLBORE - ORIGINAL	7,500.00	15,323.00	1,945.03	1,677.79	7.278	ES
SNOWMASS 9N - ORIGINAL WELLBORE - ORIGINAL	7,650.00	15,323.00	1,953.74	1,684.24	7.250	SF

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well THUNDER 1C
Project:	WELD COUNTY, COLORADO (TRUE)	**TVD Reference:**	KB-EST @ 4682.00usft
Reference Site:	SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)	**MD Reference:**	KB-EST @ 4682.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	THUNDER 1C	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	Database 1
Reference Design:	PROPOSAL #2	**Offset TVD Reference:**	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
SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)						
ABDN VERT FRENCH #1 - Wellbore #1 - Wellbore #1	4,164.27	3,711.72	1,669.36	1,633.68	46.784	CC
ABDN VERT FRENCH #1 - Wellbore #1 - Wellbore #1	4,300.00	3,833.90	1,670.50	1,633.37	44.984	ES
ABDN VERT FRENCH #1 - Wellbore #1 - Wellbore #1	5,400.00	4,786.91	1,773.27	1,727.14	38.447	SF
EXIST HZ LUCCI STATE #B03-69HNL - Wellbore #1 - W	8,153.96	16,915.31	199.07	65.73	1.493	Level 3, CC
EXIST HZ LUCCI STATE #B03-69HNL - Wellbore #1 - W	12,359.88	12,701.90	237.90	57.42	1.318	Level 3, ES, SF
EXIST VERT CLEMONS #2-3 - Wellbore #1 - Wellbore #	10,648.36	6,700.00	508.69	412.90	5.311	CC, ES
EXIST VERT CLEMONS #2-3 - Wellbore #1 - Wellbore #	10,700.00	6,700.00	511.30	414.06	5.258	SF
EXIST VERT GRANADOS #4-3 - Wellbore #1 - Wellbore	3,529.00	3,176.10	124.89	96.07	4.333	CC, ES, SF
EXIST VERT STOUT #3-3 - Wellbore #1 - Wellbore #1	9,395.48	6,700.00	512.27	445.53	7.676	CC
EXIST VERT STOUT #3-3 - Wellbore #1 - Wellbore #1	9,400.00	6,700.00	512.29	445.34	7.652	ES
EXIST VERT STOUT #3-3 - Wellbore #1 - Wellbore #1	9,500.00	6,700.00	522.83	452.51	7.435	SF
THUNDER 10N - ORIGINAL WELLBORE - PROPOSAL	300.00	300.00	135.13	134.05	126.034	CC, ES
THUNDER 10N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	12,195.10	2,226.50	1,941.97	7.825	SF
THUNDER 2N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	15.16	14.08	14.136	CC, ES
THUNDER 2N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,269.88	335.89	145.27	1.762	SF
THUNDER 3N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	30.17	29.09	28.136	CC, ES
THUNDER 3N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,298.88	560.91	285.19	2.034	SF
THUNDER 4N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	45.14	44.07	42.102	CC, ES
THUNDER 4N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,213.84	790.76	515.05	2.868	SF
THUNDER 5N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	60.15	59.08	56.102	CC, ES
THUNDER 5N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,051.38	1,006.48	727.24	3.604	SF
THUNDER 6N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	75.12	74.05	70.068	CC, ES
THUNDER 6N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,193.57	1,257.10	973.33	4.430	SF
THUNDER 7N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	90.13	89.06	84.068	CC, ES
THUNDER 7N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,035.18	1,509.13	1,228.53	5.378	SF
THUNDER 8N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	105.14	104.07	98.068	CC, ES
THUNDER 8N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	12,171.17	1,753.46	1,468.75	6.159	SF
THUNDER 9N - ORIGINAL WELLBORE - PROPOSAL #	300.00	300.00	120.12	119.04	112.034	CC, ES
THUNDER 9N - ORIGINAL WELLBORE - PROPOSAL #	12,359.88	11,988.51	1,987.67	1,708.49	7.119	SF

Anticollision Report

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well THUNDER 1C
Project:	WELD COUNTY, COLORADO (TRUE)	**TVD Reference:**	KB-EST @ 4682.00usft
Reference Site:	SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)	**MD Reference:**	KB-EST @ 4682.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	THUNDER 1C	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	Database 1
Reference Design:	PROPOSAL #2	**Offset TVD Reference:**	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
SW SE SEC 3 T5N R64W 6th P.M. (LIGHTNING)						
ABDN VERT ANNIE #B 3-09 - Wellbore #1 - Wellbore #1	12,180.64	6,716.48	3,331.17	3,192.45	24.012	CC
ABDN VERT ANNIE #B 3-09 - Wellbore #1 - Wellbore #1	12,300.00	6,717.54	3,333.31	3,191.42	23.492	ES
ABDN VERT ANNIE #B 3-09 - Wellbore #1 - Wellbore #1	12,359.88	6,718.07	3,335.99	3,192.58	23.262	SF
ABDN VERT BUCKLEN B #2-12 - Wellbore #1 - Wellbor	12,359.88	6,621.35	3,324.36	3,188.48	24.465	CC, ES, SF
ABDN VERT CLEMONS #32-3 - Wellbore #1 - Design #1	10,948.89	6,802.58	1,794.37	1,553.53	7.450	CC
ABDN VERT CLEMONS #32-3 - Wellbore #1 - Design #1	11,000.00	6,802.13	1,795.09	1,552.87	7.411	ES
ABDN VERT CLEMONS #32-3 - Wellbore #1 - Design #1	11,200.00	6,800.34	1,811.85	1,565.10	7.343	SF
EXIST HZ JENKINS #B11-79-1HCM - Wellbore #1 - Wel	12,359.88	14,173.00	782.42	582.46	3.913	CC, ES, SF
EXIST HZ LEEROY #B11-79HNM - Wellbore #1 - Wellbo	12,359.88	14,095.00	566.12	365.44	2.821	CC, ES, SF
EXIST HZ LONEWOLF B02-65HC - ORIGINAL WELLBO	12,359.88	6,536.00	2,623.69	2,475.94	17.758	CC, ES, SF
EXIST HZ LONEWOLF B02-65HC - SIDETRACK - SIDE	12,359.88	6,536.00	2,623.68	2,475.93	17.757	CC, ES, SF
EXIST HZ WOLFPACK B02-62-1HN - Wellbore #1 - Wel	300.00	249.00	4,398.36	4,397.57	5,582.256	CC, ES
EXIST HZ WOLFPACK B02-62-1HN - Wellbore #1 - Wel	12,359.88	5,955.00	4,617.47	4,466.17	30.519	SF
EXIST HZ WOLFPACK B02-63-1HN - Wellbore #1 - Wel	12,359.88	6,448.00	4,181.47	4,028.98	27.422	CC, ES, SF
EXIST HZ WOLFPACK B02-64-1HN - Wellbore #1 - Wel	12,359.88	6,419.74	3,531.65	3,380.84	23.418	CC, ES, SF
EXIST HZ WOLFPACK B02-65-1HN - Wellbore #1 - Wel	12,359.88	6,298.00	2,949.90	2,803.71	20.179	CC, ES, SF
EXIST HZ WOLFPACK B02-65HN - Wellbore #1 - Wellb	12,359.88	6,363.84	2,705.83	2,561.15	18.703	CC, ES, SF
EXIST HZ WOLFPACK B02-66-1HN - Wellbore #1 - Wel	12,359.88	6,441.00	2,277.77	2,131.04	15.524	CC, ES, SF
EXIST VERT ANNIE #B 3-10 - Wellbore #1 - Design #1	300.00	245.00	2,095.78	2,091.00	437.781	CC
EXIST VERT ANNIE #B 3-10 - Wellbore #1 - Design #1	400.00	344.97	2,097.73	2,090.65	296.578	ES
EXIST VERT ANNIE #B 3-10 - Wellbore #1 - Design #1	11,300.00	6,786.45	3,026.37	2,778.89	12.229	SF
EXIST VERT ANNIE B #03-23 - Wellbore #1 - Wellbore #	100.00	29.87	3,062.20	3,062.08	10,000.000	CC
EXIST VERT ANNIE B #03-23 - Wellbore #1 - Wellbore #	300.00	218.17	3,062.62	3,061.84	3,923.409	ES
EXIST VERT ANNIE B #03-23 - Wellbore #1 - Wellbore #	12,359.88	6,650.00	3,842.62	3,704.68	27.856	SF
EXIST VERT BUCKLEN #1-2 - Wellbore #1 - Wellbore #	12,359.88	6,725.00	4,651.15	4,510.49	33.065	CC, ES, SF
EXIST VERT CLEMONS #32-3 - Wellbore #1 - Wellbore	308.80	272.67	1,814.10	1,813.27	2,188.144	CC, ES
EXIST VERT CLEMONS #32-3 - Wellbore #1 - Wellbore	11,400.00	6,700.00	2,090.99	1,976.10	18.199	SF
EXIST VERT CLEMONS #42-3 - Wellbore #1 - Wellbore	12,053.64	6,744.98	2,030.89	1,895.50	15.001	CC
EXIST VERT CLEMONS #42-3 - Wellbore #1 - Wellbore	12,100.00	6,744.20	2,031.41	1,894.79	14.868	ES
EXIST VERT CLEMONS #42-3 - Wellbore #1 - Wellbore	12,359.88	6,739.77	2,053.84	1,911.65	14.444	SF
EXIST VERT FLACK #5-3 - Wellbore #1 - Wellbore #1	2,044.08	1,869.12	811.75	799.12	64.255	CC
EXIST VERT FLACK #5-3 - Wellbore #1 - Wellbore #1	2,100.00	1,917.29	812.20	798.97	61.360	ES
EXIST VERT FLACK #5-3 - Wellbore #1 - Wellbore #1	9,000.00	6,700.00	1,993.05	1,931.10	32.176	SF
EXIST VERT MILLAGE #23-3 - Wellbore #1 - Design #1	300.00	245.00	1,498.51	1,493.73	313.019	CC
EXIST VERT MILLAGE #23-3 - Wellbore #1 - Design #1	400.00	344.97	1,499.92	1,492.84	212.066	ES
EXIST VERT MILLAGE #23-3 - Wellbore #1 - Design #1	10,100.00	6,797.15	3,042.53	2,823.54	13.893	SF
EXIST VERT MILLAGE PM B#3-14 - Wellbore #1 - Wellb	100.00	25.28	3,238.70	3,238.59	10,000.000	CC, ES
EXIST VERT MILLAGE PM B#3-14 - Wellbore #1 - Wellb	12,300.00	6,650.00	5,376.39	5,251.69	43.117	SF
EXIST VERT SCHOENLEBER #16-3 - Wellbore #1 - We	100.00	25.65	4,043.39	4,043.28	10,000.000	CC, ES
EXIST VERT SCHOENLEBER #16-3 - Wellbore #1 - We	12,359.88	6,617.87	4,325.31	4,181.71	30.120	SF
EXIST VERT SITZMAN #3-1 - Wellbore #1 - Wellbore #1	241.91	166.92	3,367.97	3,367.47	6,646.127	CC
EXIST VERT SITZMAN #3-1 - Wellbore #1 - Wellbore #1	300.00	211.16	3,368.11	3,367.46	5,157.483	ES
EXIST VERT SITZMAN #3-1 - Wellbore #1 - Wellbore #1	12,359.88	6,700.00	4,706.51	4,571.22	34.789	SF
EXIST VERT STOUT #6-3 - Wellbore #1 - Wellbore #1	100.00	37.87	755.87	755.75	6,183.521	CC
EXIST VERT STOUT #6-3 - Wellbore #1 - Wellbore #1	300.00	237.27	755.90	755.12	968.831	ES
EXIST VERT STOUT #6-3 - Wellbore #1 - Wellbore #1	10,400.00	6,650.00	2,025.73	1,935.51	22.452	SF
LIGHTNING 10N - ORIGINAL WELLBORE - PROPOSA	300.00	251.00	3,808.10	3,807.14	3,958.533	CC, ES
LIGHTNING 10N - ORIGINAL WELLBORE - PROPOSA	6,850.00	12,140.17	4,782.69	4,592.81	25.188	SF
LIGHTNING 11N - ORIGINAL WELLBORE - PROPOSAL	300.00	251.00	3,820.70	3,819.74	3,971.624	CC, ES
LIGHTNING 11N - ORIGINAL WELLBORE - PROPOSAL	7,450.00	11,743.26	4,976.58	4,797.15	27.735	SF
LIGHTNING 1N - ORIGINAL WELLBORE - PROPOSAL	7,050.00	12,567.49	2,468.10	2,280.75	13.174	SF
LIGHTNING 1N - ORIGINAL WELLBORE - PROPOSAL	7,300.00	12,425.21	2,451.82	2,268.56	13.379	ES

Anticollision Report

Company:	PDC ENERGY	**Local Co-ordinate Reference:**	Well THUNDER 1C
Project:	WELD COUNTY, COLORADO (TRUE)	**TVD Reference:**	KB-EST @ 4682.00usft
Reference Site:	SE NW SEC. 3 T5N R64W 6th P.M. (THUNDER)	**MD Reference:**	KB-EST @ 4682.00usft
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	THUNDER 1C	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	**Database:**	Database 1
Reference Design:	PROPOSAL #2	**Offset TVD Reference:**	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
SW SE SEC 3 T5N R64W 6th P.M. (LIGHTNING)						
LIGHTNING 1N - ORIGINAL WELLBORE - PROPOSAL	12,071.89	7,715.42	2,442.26	2,275.03	14.605	CC
LIGHTNING 2N - ORIGINAL WELLBORE - PROPOSAL	7,000.00	12,449.18	2,693.05	2,504.53	14.285	SF
LIGHTNING 2N - ORIGINAL WELLBORE - PROPOSAL	7,250.00	12,321.47	2,679.72	2,495.14	14.518	ES
LIGHTNING 2N - ORIGINAL WELLBORE - PROPOSAL	12,055.97	7,595.58	2,673.19	2,506.98	16.084	CC
LIGHTNING 3N - ORIGINAL WELLBORE - PROPOSAL	7,000.00	12,443.57	2,947.88	2,759.68	15.664	SF
LIGHTNING 3N - ORIGINAL WELLBORE - PROPOSAL	12,152.69	7,503.24	2,899.49	2,730.98	17.207	CC
LIGHTNING 3N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	7,334.76	2,900.95	2,727.82	16.756	ES
LIGHTNING 4N - ORIGINAL WELLBORE - PROPOSAL	6,950.00	12,323.67	3,183.95	2,995.16	16.864	SF
LIGHTNING 4N - ORIGINAL WELLBORE - PROPOSAL	12,129.27	7,400.00	3,130.90	2,963.38	18.690	CC
LIGHTNING 4N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	7,224.90	3,132.97	2,960.39	18.153	ES
LIGHTNING 5N - ORIGINAL WELLBORE - PROPOSAL	6,950.00	12,316.98	3,429.88	3,241.58	18.215	SF
LIGHTNING 5N - ORIGINAL WELLBORE - PROPOSAL	11,831.43	7,700.00	3,360.70	3,198.65	20.739	CC
LIGHTNING 5N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	7,200.00	3,363.08	3,190.00	19.431	ES
LIGHTNING 6N - ORIGINAL WELLBORE - PROPOSAL	6,900.00	12,230.17	3,670.33	3,480.75	19.360	SF
LIGHTNING 6N - ORIGINAL WELLBORE - PROPOSAL	12,144.54	7,284.13	3,611.09	3,443.39	21.533	CC
LIGHTNING 6N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	7,123.59	3,612.79	3,440.24	20.937	ES
LIGHTNING 7N - ORIGINAL WELLBORE - PROPOSAL	300.00	251.00	3,770.43	3,769.47	3,919.371	CC
LIGHTNING 7N - ORIGINAL WELLBORE - PROPOSAL	6,900.00	12,246.35	3,905.40	3,715.45	20.560	SF
LIGHTNING 7N - ORIGINAL WELLBORE - PROPOSAL	12,359.88	7,118.65	3,856.47	3,683.57	22.305	ES
LIGHTNING 8N - ORIGINAL WELLBORE - PROPOSAL	300.00	251.00	3,782.99	3,782.02	3,932.422	CC, ES
LIGHTNING 8N - ORIGINAL WELLBORE - PROPOSAL	6,900.00	12,191.89	4,350.03	4,159.38	22.817	SF
LIGHTNING 9N - ORIGINAL WELLBORE - PROPOSAL	300.00	251.00	3,795.54	3,794.58	3,945.476	CC, ES
LIGHTNING 9N - ORIGINAL WELLBORE - PROPOSAL	6,850.00	12,127.82	4,562.10	4,370.47	23.806	SF

Offset Design: NW NE SEC. 5 T5N R64W 6th P.M. - EXIST VERT FRENCH 41-4 - Wellbore #1 - Wellbore #1

Offset Site Error: 0.00 usft

Survey Program: 100-GYD_CT

Rule Assigned:

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-67.86	970.18	-2,384.07	2,574.61				
100.00	100.00	25.85	25.85	0.09	0.02	-67.86	970.19	-2,384.14	2,574.02	2,573.91	0.11	N/A	
200.00	200.00	100.00	99.99	0.31	0.09	-67.86	970.35	-2,385.15	2,575.29	2,574.89	0.40	6,486.469	
300.00	300.00	184.03	184.00	0.54	0.21	-67.87	970.81	-2,386.91	2,577.39	2,576.65	0.74	3,463.930	
400.00	399.97	262.18	262.13	0.76	0.29	-14.06	971.66	-2,388.69	2,578.02	2,576.98	1.04	2,478.936	
500.00	499.79	336.71	336.61	0.99	0.35	-14.08	973.13	-2,390.92	2,575.82	2,574.50	1.32	1,947.669	
600.00	599.31	414.41	414.23	1.24	0.41	-14.14	975.05	-2,393.91	2,570.79	2,569.18	1.61	1,598.639	
700.00	698.36	508.12	507.82	1.53	0.47	-14.24	977.55	-2,397.94	2,562.46	2,560.55	1.91	1,342.855	
800.00	796.79	606.80	606.36	1.88	0.53	-14.38	980.28	-2,402.28	2,550.48	2,548.26	2.22	1,149.763	
900.00	894.46	710.63	710.06	2.29	0.58	-14.57	983.13	-2,406.73	2,534.62	2,532.08	2.54	997.387	
1,000.00	991.22	809.56	808.87	2.77	0.63	-14.82	985.61	-2,410.93	2,514.92	2,512.04	2.87	875.266	
1,100.00	1,086.91	901.72	900.91	3.32	0.67	-15.11	987.75	-2,415.01	2,491.60	2,488.39	3.22	774.680	
1,200.00	1,181.38	998.69	997.76	3.95	0.72	-15.46	989.97	-2,419.38	2,464.72	2,461.14	3.58	688.576	
1,300.00	1,274.50	1,099.78	1,098.73	4.66	0.76	-15.89	992.31	-2,423.77	2,434.09	2,430.13	3.96	614.098	
1,400.00	1,366.11	1,206.26	1,205.10	5.45	0.81	-16.41	994.60	-2,428.01	2,399.56	2,395.19	4.37	549.010	
1,500.00	1,456.08	1,298.09	1,296.85	6.33	0.85	-16.96	996.45	-2,431.45	2,361.32	2,356.53	4.79	492.649	
1,600.00	1,544.26	1,399.29	1,397.96	7.29	0.89	-17.63	998.58	-2,434.94	2,319.47	2,314.23	5.24	442.416	
1,612.50	1,555.15	1,412.84	1,411.51	7.42	0.89	-17.72	998.87	-2,435.36	2,313.97	2,308.66	5.31	435.887	
1,700.00	1,631.29	1,507.62	1,506.22	8.31	0.93	-18.10	1,000.71	-2,437.95	2,275.00	2,269.29	5.71	398.643	
1,800.00	1,718.30	1,597.17	1,595.74	9.35	0.97	-18.48	1,002.13	-2,440.16	2,230.20	2,224.03	6.17	361.458	

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