

EXTRACTION OIL & GAS

WELD COUNTY

Sec 17-T2N-R68W

RINN VALLEY EAST N17-20-1C

ORIGINAL WELLBORE

PROPOSAL 1

Anticollision Report

24 May, 2018

Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-1C
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4940.00usft
Reference Site:	Sec 17-T2N-R68W	MD Reference:	KB 25' @ 4940.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	RINN VALLEY EAST N17-20-1C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	Offset TVD Reference:	Offset Datum

Reference	PROPOSAL 1		
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 center-center distance of 9,999.98 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/24/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	17,755.43	PROPOSAL 1 (ORIGINAL WELLBORE)	MWD OWSG	OWSG 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						
Sec 17-T2N-R68W						
ABND VERT FILE 42-17 - Wellbore #1 - Design #1	100.00	55.00	3,193.60	3,192.82	4,139.560	CC
ABND VERT FILE 42-17 - Wellbore #1 - Design #1	200.00	154.98	3,194.54	3,191.63	1,098.702	ES
ABND VERT FILE 42-17 - Wellbore #1 - Design #1	16,200.00	1,020.00	7,939.35	7,860.15	100.247	SF
ABND VERT JEAN CRAIG EVANS #1 - Wellbore #1 - De	100.00	55.00	4,503.43	4,502.63	5,675.759	CC
ABND VERT JEAN CRAIG EVANS #1 - Wellbore #1 - De	200.00	154.98	4,505.11	4,502.16	1,530.355	ES
ABND VERT JEAN CRAIG EVANS #1 - Wellbore #1 - De	13,800.00	4,838.00	5,453.49	5,285.72	32.505	SF
EXIST DD FILE #31-17 - Wellbore #1 - Wellbore #1	12,383.30	7,490.79	1,937.62	1,829.83	17.976	CC
EXIST DD FILE #31-17 - Wellbore #1 - Wellbore #1	12,400.00	7,490.77	1,937.70	1,829.72	17.946	ES
EXIST DD FILE #31-17 - Wellbore #1 - Wellbore #1	12,600.00	7,490.49	1,949.70	1,839.94	17.763	SF
EXIST DD FILE #32-17 - Wellbore #1 - Wellbore #1	10,863.20	7,602.92	1,915.77	1,827.26	21.646	CC, ES
EXIST DD FILE #32-17 - Wellbore #1 - Wellbore #1	11,100.00	7,600.36	1,930.35	1,840.24	21.422	SF
EXIST DD FILE #41-17 - Wellbore #1 - Wellbore #1	12,300.00	7,647.88	321.96	214.51	2.996	ES, SF
EXIST DD FILE #41-17 - Wellbore #1 - Wellbore #1	12,300.66	7,647.90	321.95	214.53	2.997	CC
EXIST DD FILE #4-2-17 - Wellbore #1 - Wellbore #1	11,565.52	7,665.18	2,376.87	2,281.49	24.920	CC
EXIST DD FILE #4-2-17 - Wellbore #1 - Wellbore #1	11,600.00	7,664.81	2,377.12	2,281.41	24.836	ES
EXIST DD FILE #4-2-17 - Wellbore #1 - Wellbore #1	11,900.00	7,661.60	2,400.28	2,302.10	24.448	SF
EXIST DD FILE #42-17X - Wellbore #1 - Wellbore #1	10,856.97	7,721.50	337.94	247.97	3.756	CC, ES, SF
EXIST DD FILE #6-0-17 - Wellbore #1 - Wellbore #1	12,859.39	7,618.47	1,085.98	966.66	9.102	CC, ES, SF
EXIST DD FILE #8-2-17 - Wellbore #1 - Wellbore #1	11,496.64	7,750.09	142.24	46.18	1.481	Level 3, CC
EXIST DD FILE #8-2-17 - Wellbore #1 - Wellbore #1	11,500.00	7,750.08	142.28	46.09	1.479	Level 3, ES, SF
EXIST VERT FILE #1-17 - Wellbore #1 - Design #1	11,857.73	7,484.99	1,507.49	1,408.89	15.288	CC, ES
EXIST VERT FILE #1-17 - Wellbore #1 - Design #1	12,000.00	7,484.98	1,514.19	1,414.62	15.206	SF
EXIST VERT SCHLAGEL #1 - Wellbore #1 - Design #1	100.00	70.00	2,017.96	2,016.99	2,073.570	CC
EXIST VERT SCHLAGEL #1 - Wellbore #1 - Design #1	200.00	169.98	2,019.45	2,016.16	614.421	ES
EXIST VERT SCHLAGEL #1 - Wellbore #1 - Design #1	9,300.00	7,500.00	3,630.79	3,442.47	19.279	SF
EXIST VERT SCHLAGEL #2 - Wellbore #1 - Design #1	468.46	448.45	26.81	16.72	2.657	CC
EXIST VERT SCHLAGEL #2 - Wellbore #1 - Design #1	500.00	479.70	27.14	16.29	2.501	ES, SF
RINN VALLEY EAST N17-20-2N - ORIGINAL WELLBOR	535.90	535.69	24.02	20.54	6.907	CC
RINN VALLEY EAST N17-20-2N - ORIGINAL WELLBOR	6,100.00	6,100.43	66.74	-6.43	0.912	Level 1, ES, SF
RINN VALLEY EAST N17-20-3N - ORIGINAL WELLBOR	535.90	535.38	48.74	45.29	14.148	CC
RINN VALLEY EAST N17-20-3N - ORIGINAL WELLBOR	600.00	599.05	49.05	45.09	12.406	ES
RINN VALLEY EAST N17-20-3N - ORIGINAL WELLBOR	17,755.61	17,428.37	507.36	202.56	1.665	SF
RINN VALLEY EAST N17-20-4C - ORIGINAL WELLBOR	578.26	577.23	72.97	69.20	19.345	CC
RINN VALLEY EAST N17-20-4C - ORIGINAL WELLBOR	600.00	598.62	73.03	69.09	18.539	ES
RINN VALLEY EAST N17-20-4C - ORIGINAL WELLBOR	17,755.61	17,600.05	760.14	415.76	2.207	SF
RINN VALLEY EAST N17-20-5N - ORIGINAL WELLBOR	634.60	633.84	96.58	92.35	22.826	CC, ES
RINN VALLEY EAST N17-20-5N - ORIGINAL WELLBOR	17,755.61	17,287.63	1,108.04	774.10	3.318	SF

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

Anticollision Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-1C
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4940.00usft
Reference Site:	Sec 17-T2N-R68W	MD Reference:	KB 25' @ 4940.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	RINN VALLEY EAST N17-20-1C	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	ORIGINAL WELLBORE	Database:	EDT_32Bit_ODBC
Reference Design:	PROPOSAL 1	Offset TVD Reference:	Offset Datum

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						
Sec 17-T2N-R68W						
RINN VALLEY EAST N17-20-6N - ORIGINAL WELLBOR	699.27	697.70	119.79	115.03	25.138	CC
RINN VALLEY EAST N17-20-6N - ORIGINAL WELLBOR	700.00	698.39	119.79	115.02	25.108	ES
RINN VALLEY EAST N17-20-6N - ORIGINAL WELLBOR	17,755.61	17,275.24	1,423.01	1,083.87	4.196	SF
RINN VALLEY EAST N17-20-7C - ORIGINAL WELLBOR	770.96	770.55	142.26	136.87	26.395	CC, ES
RINN VALLEY EAST N17-20-7C - ORIGINAL WELLBOR	17,721.72	24,142.40	1,719.93	1,259.40	3.735	SF
RINN VALLEY EAST N17-20-8N - ORIGINAL WELLBOR	849.22	845.12	164.87	158.80	27.134	CC, ES
RINN VALLEY EAST N17-20-8N - ORIGINAL WELLBOR	17,755.61	17,319.33	2,056.89	1,713.85	5.996	SF
Sec 18-T2N-R68W						
RINN VALLEY EAST N17-20-10C - ORIGINAL WELLBO	5,809.02	6,900.00	2,646.19	2,585.91	43.900	CC
RINN VALLEY EAST N17-20-10C - ORIGINAL WELLBO	17,755.61	18,128.10	2,716.93	2,365.69	7.735	ES, SF
RINN VALLEY EAST N17-20-11N - ORIGINAL WELLBO	5,466.75	6,531.42	2,894.25	2,837.65	51.129	CC
RINN VALLEY EAST N17-20-11N - ORIGINAL WELLBO	17,755.61	17,779.17	3,049.25	2,700.80	8.751	ES, SF
RINN VALLEY EAST N17-20-12N - ORIGINAL WELLBO	5,369.73	6,400.00	3,203.10	3,148.56	58.730	CC
RINN VALLEY EAST N17-20-12N - ORIGINAL WELLBO	17,755.61	17,661.28	3,367.97	3,019.31	9.660	ES, SF
RINN VALLEY EAST N17-20-13C - ORIGINAL WELLBO	5,529.44	6,532.04	3,573.58	3,519.18	65.686	CC
RINN VALLEY EAST N17-20-13C - ORIGINAL WELLBO	17,755.61	17,810.37	3,677.91	3,326.76	10.474	ES, SF
RINN VALLEY EAST N17-20-14N - ORIGINAL WELLBO	5,164.99	6,155.82	3,975.25	3,925.27	79.542	CC
RINN VALLEY EAST N17-20-14N - ORIGINAL WELLBO	17,755.61	17,406.67	4,166.49	3,817.72	11.946	ES, SF
RINN VALLEY EAST N17-20-15C - ORIGINAL WELLBO	100.00	124.00	4,204.77	4,204.41	10,000.000	CC, ES
RINN VALLEY EAST N17-20-15C - ORIGINAL WELLBO	17,755.61	17,551.54	4,638.38	4,288.15	13.244	SF
RINN VALLEY EAST N17-20-16N - ORIGINAL WELLBO	100.00	125.00	4,232.28	4,231.92	10,000.000	CC, ES
RINN VALLEY EAST N17-20-16N - ORIGINAL WELLBO	17,755.61	17,257.24	4,965.99	4,616.82	14.222	SF
RINN VALLEY EAST N17-20-9N - ORIGINAL WELLBOR	5,646.59	6,823.81	2,238.02	2,177.03	36.692	CC
RINN VALLEY EAST N17-20-9N - ORIGINAL WELLBOR	17,755.61	18,144.53	2,376.63	2,027.05	6.798	ES, SF
Sec 8-T2N-R68W						
ABND VERT LONGMONT 8-10K - Wellbore #1 - Design	14,610.64	7,465.97	1,426.29	1,158.99	5.336	CC, ES, SF
ABND VERT NIWOT 1 - Wellbore #1 - Design #1	14,606.25	7,475.97	3,579.55	3,312.12	13.385	CC, ES
ABND VERT NIWOT 1 - Wellbore #1 - Design #1	15,000.00	7,475.97	3,601.14	3,329.19	13.242	SF
EXIST VERT SAUNDERS TRUST 8-2K8 - Wellbore #1 -	17,052.75	7,561.96	1,486.08	1,174.82	4.774	CC, ES
EXIST VERT SAUNDERS TRUST 8-2K8 - Wellbore #1 -	17,100.00	7,561.96	1,486.84	1,175.30	4.773	SF

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-INC													Offset Well Error:	0.00 usft
Reference														
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	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	1.70	3,192.19	94.77	3,193.91					
100.00	100.00	55.00	55.00	0.13	0.64	1.70	3,192.19	94.77	3,193.60	3,192.82	0.77	4,139.560	CC	
200.00	199.98	154.98	154.98	0.49	2.42	-122.72	3,192.19	94.77	3,194.54	3,191.63	2.91	1,098.702	ES	
300.00	299.84	254.84	254.84	0.85	4.60	-122.75	3,192.19	94.77	3,197.37	3,191.93	5.44	587.442		
400.00	399.45	354.45	354.45	1.22	6.65	-122.80	3,192.19	94.77	3,202.10	3,194.24	7.87	406.976		
500.00	498.70	453.70	453.70	1.62	8.67	-122.87	3,192.19	94.77	3,208.75	3,198.47	10.28	312.198		
600.00	597.47	552.47	552.47	2.05	10.67	-122.96	3,192.19	94.77	3,217.32	3,204.63	12.69	253.566		
700.00	695.62	650.62	650.62	2.51	12.65	-123.06	3,192.19	94.77	3,227.86	3,212.75	15.11	213.690		
800.00	793.06	748.06	748.06	3.01	14.62	-123.18	3,192.19	94.77	3,240.37	3,222.84	17.53	184.825		
900.00	889.64	844.64	844.64	3.56	16.57	-123.31	3,192.19	94.77	3,254.91	3,234.94	19.97	162.986		
990.08	975.83	930.83	930.83	4.09	18.30	-123.43	3,192.19	94.77	3,269.76	3,247.58	22.18	147.436		
1,000.00	985.27	940.27	940.27	4.15	18.49	-123.47	3,192.19	94.77	3,271.48	3,249.06	22.42	145.902		
1,100.00	1,080.49	1,020.00	1,020.00	4.77	20.09	-123.83	3,192.19	94.77	3,289.06	3,264.50	24.55	133.955		

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