

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

SW SE SEC. 17 T2N R68W 6th P.M. (RVE PAD)

RINN VALLEY EAST N17-20-3N

FINAL SURVEYS

29 August, 2018

Survey: FINAL SURVEYS





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SW SE SEC. 17 T2N R68W 6th P.M. (RVE PAD)
Well: RINN VALLEY EAST N17-20-3N
Wellbore: FINAL SURVEYS
Design: FINAL SURVEYS

ANNOTATIONS

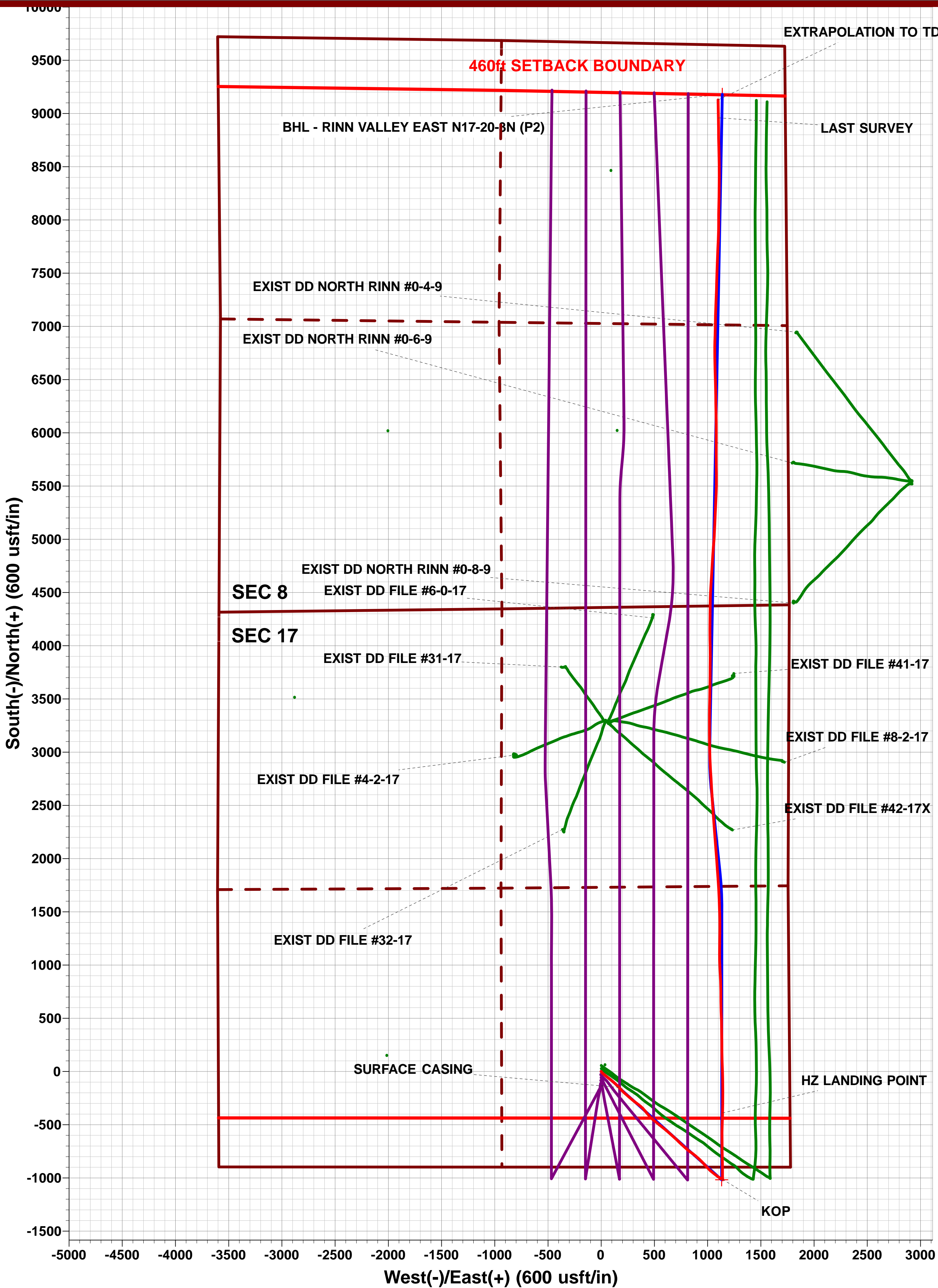
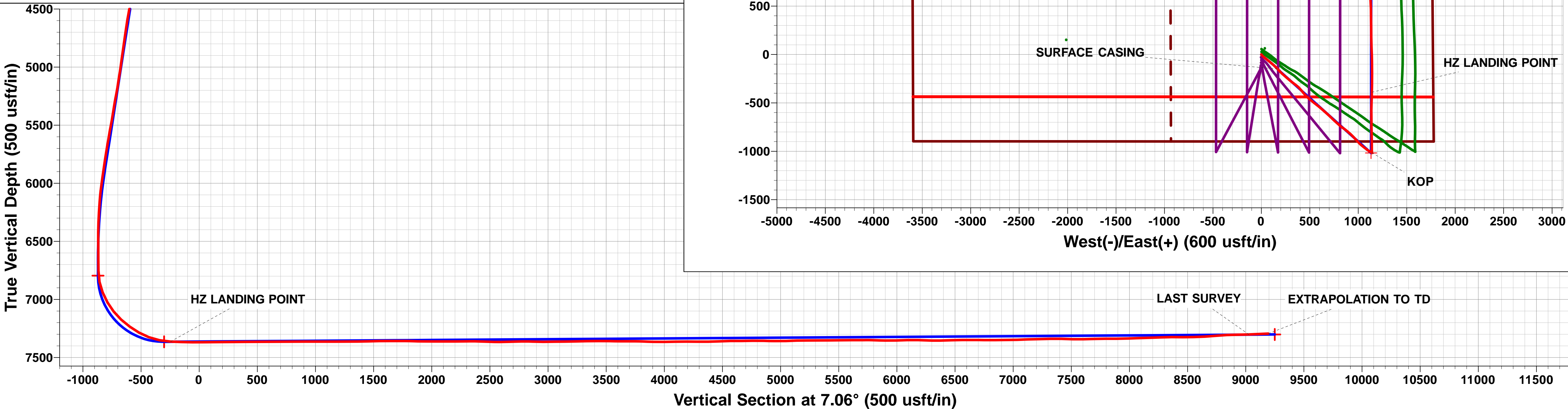
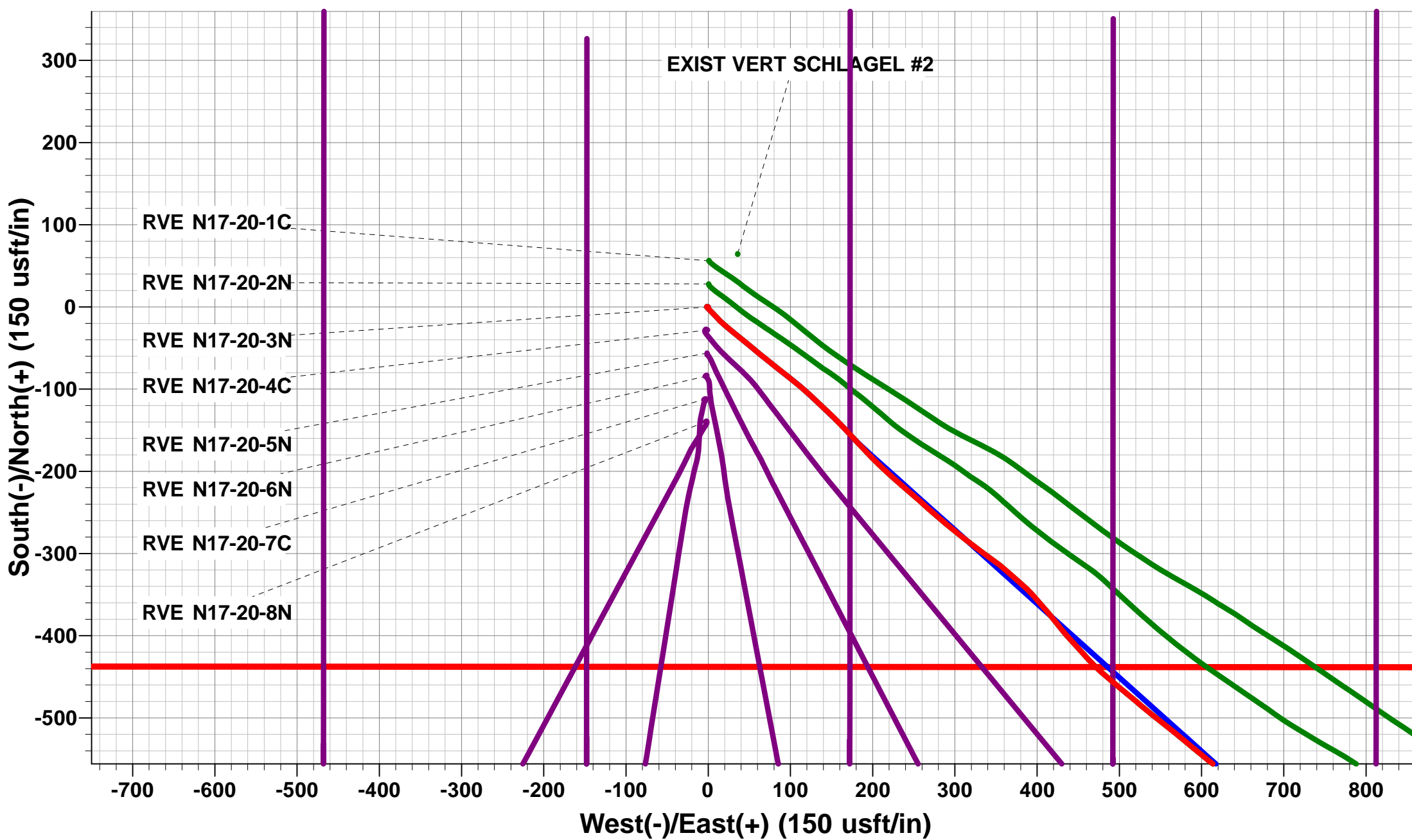
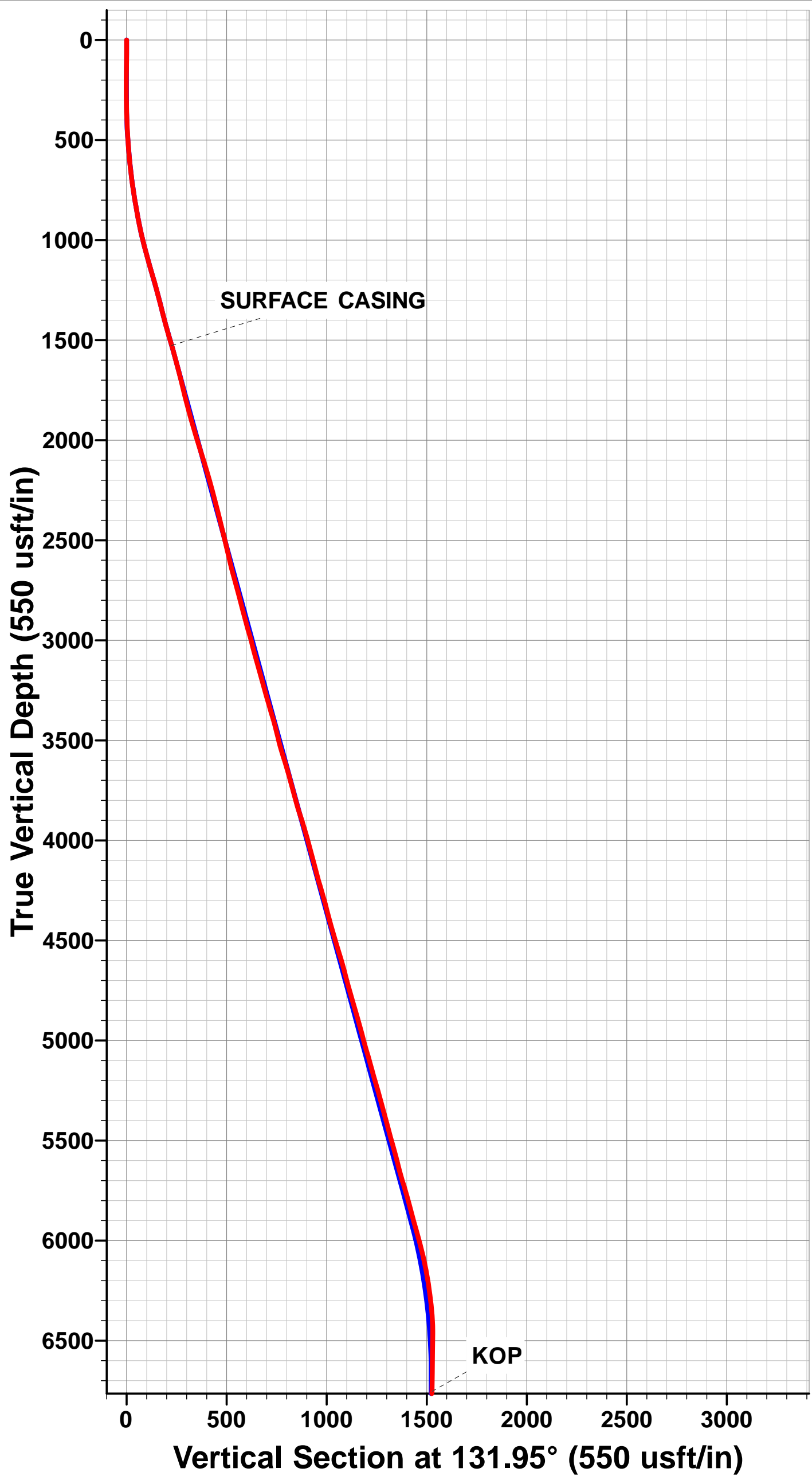
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation
1526.18	1552.00	16.18	137.21	-149.91	167.79	225.00	228.83	SURFACE CASING
6753.37	6955.00	0.71	329.23	-1014.48	1140.98	1526.70	1542.05	KOP
7363.01	7910.00	86.83	1.35	-389.89	1140.35	1106.86	2166.92	HZ LANDING POINT
7302.04	17268.00	92.44	359.06	8959.27	1101.02	-5199.58	11522.46	LAST SURVEY
7294.85	17437.00	92.44	359.06	9128.09	1098.25	-5314.99	11691.31	EXTRAPOLATION TO TD

PROPOSED LOCAL COORDINATES:

SHL: 898ft FSL & 1771ft FEL Sec 17
LANDING PNT: 460ft FSL & 640ft FEL Sec 17
BHL: 460ft FNL & 640ft FEL Sec 8

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - RINN VALLEY EAST N17-20-3N (P2)	6795.80	-1017.37	1131.88	40.131160	-105.019935
BHL - RINN VALLEY EAST N17-20-3N (P2)	7302.00	9179.55	1137.61	40.159151	-105.019913
HZ LP - RINN VALLEY EAST N17-20-3N (P2)	7365.00	-444.41	1132.18	40.132733	-105.019934



Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	SW SE SEC. 17 T2N R68W 6th P.M. (RVE PAD)				
Site Position:		Northing:	1,292,056.11 usft	Latitude:	40.134107
From:	Lat/Long	Easting:	3,133,096.11 usft	Longitude:	-105.023979
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.31 °

Well	RINN VALLEY EAST N17-20-3N					
Well Position	+N-S	0.00 usft	Northing:	1,292,000.00 usft	Latitude:	40.133953
	+E-W	0.00 usft	Easting:	3,133,095.29 usft	Longitude:	-105.023983
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,917.00 usft

Wellbore	FINAL SURVEYS				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/08/2018	8.20	66.57	52,095

Design		FINAL SURVEYS		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	7.06

Survey Program	Date	29/08/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
15.00	17,437.00	FINAL SURVEYS (FINAL SURVEYS)	OWSG (Rev2) MWD	OWSG MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea 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	4,946.00	0.00	0.00	0.00	0.00	0.00	0.00
15.00	0.00	0.00	15.00	4,931.00	0.00	0.00	0.00	0.00	0.00	0.00
118.00	1.04	286.89	117.99	4,828.01	0.27	-0.89	0.16	1.01	1.01	0.00
148.00	0.78	293.23	147.99	4,798.01	0.43	-1.34	0.26	0.93	-0.87	21.13
179.00	0.20	233.03	178.99	4,767.01	0.48	-1.58	0.28	2.27	-1.87	-194.19
209.00	0.19	229.32	208.99	4,737.01	0.42	-1.66	0.21	0.05	-0.03	-12.37
240.00	0.25	198.99	239.99	4,706.01	0.32	-1.72	0.11	0.42	0.19	-97.84
301.00	0.46	172.15	300.99	4,645.01	-0.05	-1.73	-0.26	0.43	0.34	-44.00
331.00	1.00	147.02	330.99	4,615.01	-0.39	-1.57	-0.58	2.05	1.80	-83.77
362.00	1.43	136.58	361.98	4,584.02	-0.89	-1.16	-1.03	1.55	1.39	-33.68
392.00	1.91	133.83	391.97	4,554.03	-1.51	-0.54	-1.57	1.62	1.60	-9.17
423.00	2.25	133.64	422.95	4,523.05	-2.29	0.27	-2.24	1.10	1.10	-0.61
453.00	3.15	134.93	452.91	4,493.09	-3.28	1.28	-3.10	3.01	3.00	4.30

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
484.00	3.80	136.53	483.85	4,462.15	-4.63	2.59	-4.27	2.12	2.10	5.16
515.00	4.60	135.76	514.77	4,431.23	-6.26	4.17	-5.70	2.59	2.58	-2.48
545.00	4.88	136.23	544.67	4,401.33	-8.05	5.89	-7.26	0.94	0.93	1.57
588.00	5.41	134.83	587.49	4,358.51	-10.80	8.59	-9.66	1.27	1.23	-3.26
629.00	5.80	138.51	628.30	4,317.70	-13.71	11.33	-12.21	1.29	0.95	8.98
671.00	6.77	136.16	670.05	4,275.95	-17.09	14.46	-15.18	2.39	2.31	-5.60
714.00	8.00	130.40	712.69	4,233.31	-20.85	18.49	-18.42	3.34	2.86	-13.40
757.00	8.74	131.51	755.23	4,190.77	-24.96	23.21	-21.91	1.76	1.72	2.58
800.00	9.22	127.31	797.70	4,148.30	-29.21	28.40	-25.50	1.89	1.12	-9.77
842.00	9.81	129.58	839.13	4,106.87	-33.53	33.84	-29.11	1.66	1.40	5.40
883.00	10.75	129.37	879.47	4,066.53	-38.18	39.48	-33.04	2.29	2.29	-0.51
926.00	11.24	129.15	921.68	4,024.32	-43.37	45.83	-37.40	1.14	1.14	-0.51
969.00	12.77	129.62	963.74	3,982.26	-49.05	52.74	-42.19	3.57	3.56	1.09
1,001.00	13.68	129.71	994.89	3,951.11	-53.72	58.38	-46.13	2.84	2.84	0.28
1,032.00	14.36	129.29	1,024.96	3,921.04	-58.50	64.18	-50.16	2.22	2.19	-1.35
1,095.00	15.41	127.99	1,085.85	3,860.15	-68.60	76.82	-58.63	1.75	1.67	-2.06
1,127.00	15.73	129.61	1,116.67	3,829.33	-73.98	83.51	-63.15	1.69	1.00	5.06
1,159.00	16.22	127.46	1,147.44	3,798.56	-79.46	90.40	-67.74	2.40	1.53	-6.72
1,191.00	16.77	128.35	1,178.12	3,767.88	-85.05	97.57	-72.40	1.89	1.72	2.78
1,222.00	16.06	129.28	1,207.86	3,738.14	-90.53	104.40	-77.01	2.44	-2.29	3.00
1,254.00	15.74	129.53	1,238.63	3,707.37	-96.10	111.17	-81.70	1.02	-1.00	0.78
1,286.00	14.58	132.54	1,269.52	3,676.48	-101.59	117.48	-86.37	4.38	-3.62	9.41
1,318.00	14.42	133.11	1,300.50	3,645.50	-107.03	123.36	-91.05	0.67	-0.50	1.78
1,349.00	14.42	132.56	1,330.52	3,615.48	-112.28	129.02	-95.56	0.44	0.00	-1.77
1,381.00	14.58	133.32	1,361.51	3,584.49	-117.74	134.89	-100.26	0.78	0.50	2.37
1,412.00	14.90	134.14	1,391.49	3,554.51	-123.19	140.59	-104.97	1.23	1.03	2.65
1,443.00	15.42	133.19	1,421.41	3,524.59	-128.79	146.45	-109.80	1.86	1.68	-3.06
1,475.00	15.66	134.54	1,452.24	3,493.76	-134.73	152.63	-114.93	1.36	0.75	4.22
1,507.00	16.17	133.65	1,483.01	3,462.99	-140.83	158.93	-120.22	1.77	1.59	-2.78
1,538.00	16.58	136.64	1,512.75	3,433.25	-147.03	165.09	-125.61	3.02	1.32	9.65
SURFACE CASING										
1,552.00	16.18	137.21	1,526.18	3,419.82	-149.91	167.79	-128.14	3.09	-2.87	4.06
1,567.00	15.75	137.85	1,540.61	3,405.39	-152.96	170.58	-130.82	3.09	-2.86	4.27
1,680.00	14.72	136.48	1,649.63	3,296.37	-174.74	190.75	-149.95	0.97	-0.91	-1.21
1,776.00	13.26	134.23	1,742.78	3,203.22	-191.26	207.04	-164.35	1.62	-1.52	-2.34
1,871.00	15.82	131.81	1,834.74	3,111.26	-207.50	224.51	-178.31	2.77	2.69	-2.55
1,967.00	15.20	130.31	1,927.24	3,018.76	-224.36	243.86	-192.67	0.77	-0.65	-1.56
2,062.00	17.90	132.25	2,018.30	2,927.70	-242.24	264.16	-207.91	2.90	2.84	2.04
2,157.00	17.01	130.00	2,108.92	2,837.08	-260.99	285.62	-223.88	1.18	-0.94	-2.37
2,253.00	15.91	127.93	2,200.99	2,745.01	-278.10	306.75	-238.26	1.30	-1.15	-2.16
2,348.00	14.89	127.84	2,292.57	2,653.43	-293.59	326.66	-251.19	1.07	-1.07	-0.09
2,443.00	13.52	124.67	2,384.67	2,561.33	-307.40	345.44	-262.58	1.66	-1.44	-3.34
2,539.00	14.23	132.12	2,477.87	2,468.13	-321.70	363.42	-274.56	2.00	0.74	7.76
2,634.00	12.64	130.53	2,570.27	2,375.73	-336.29	379.98	-287.00	1.72	-1.67	-1.67
2,730.00	15.07	138.02	2,663.48	2,282.52	-352.39	396.31	-300.97	3.14	2.53	7.80
2,826.00	15.95	140.14	2,755.98	2,190.02	-371.79	413.12	-318.16	1.09	0.92	2.21
2,921.00	13.79	141.72	2,847.80	2,098.20	-390.70	428.50	-335.04	2.31	-2.27	1.66
3,016.00	16.75	136.87	2,939.44	2,006.56	-409.59	444.88	-351.76	3.39	3.12	-5.11
3,112.00	14.32	138.28	3,031.92	1,914.08	-428.55	462.24	-368.45	2.56	-2.53	1.47
3,207.00	16.26	130.84	3,123.56	1,822.44	-446.02	480.12	-383.58	2.90	2.04	-7.83
3,303.00	14.76	130.09	3,216.07	1,729.93	-462.68	499.64	-397.72	1.58	-1.56	-0.78
3,398.00	17.15	129.29	3,307.40	1,638.60	-479.35	519.75	-411.79	2.53	2.52	-0.84
3,494.00	15.47	129.78	3,399.53	1,546.47	-496.50	540.54	-426.26	1.76	-1.75	0.51

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,589.00	13.57	127.27	3,491.50	1,454.50	-511.36	559.15	-438.71	2.11	-2.00	-2.64
3,685.00	17.81	130.40	3,583.90	1,362.10	-527.71	579.30	-452.45	4.50	4.42	3.26
3,780.00	16.17	129.21	3,674.75	1,271.25	-545.49	600.62	-467.48	1.76	-1.73	-1.25
3,876.00	14.05	127.62	3,767.43	1,178.57	-561.05	620.21	-480.51	2.25	-2.21	-1.66
3,972.00	17.81	132.82	3,859.73	1,086.27	-578.15	640.21	-495.02	4.19	3.92	5.42
4,067.00	16.97	133.22	3,950.38	995.62	-597.52	660.97	-511.69	0.89	-0.88	0.42
4,162.00	15.20	132.12	4,041.66	904.34	-615.37	680.32	-527.02	1.89	-1.86	-1.16
4,257.00	13.65	130.57	4,133.67	812.33	-631.01	698.07	-540.37	1.68	-1.63	-1.63
4,353.00	17.23	134.58	4,226.19	719.81	-648.36	716.81	-555.28	3.89	3.73	4.18
4,448.00	15.25	133.39	4,317.39	628.61	-666.82	735.91	-571.25	2.11	-2.08	-1.25
4,544.00	14.10	133.44	4,410.26	535.74	-683.54	753.58	-585.67	1.20	-1.20	0.05
4,640.00	17.90	132.29	4,502.52	443.48	-701.51	772.99	-601.12	3.97	3.96	-1.20
4,735.00	15.91	132.73	4,593.41	352.59	-720.17	793.35	-617.13	2.10	-2.09	0.46
4,831.00	14.41	130.48	4,686.07	259.93	-736.86	812.11	-631.38	1.68	-1.56	-2.34
4,926.00	16.75	125.73	4,777.58	168.42	-752.53	832.22	-644.46	2.80	2.46	-5.00
5,021.00	16.44	126.87	4,868.62	77.38	-768.59	854.08	-657.71	0.47	-0.33	1.20
5,117.00	13.96	126.17	4,961.26	-15.26	-783.58	874.30	-670.10	2.59	-2.58	-0.73
5,212.00	17.01	131.81	5,052.80	-106.80	-799.61	893.91	-683.60	3.58	3.21	5.94
5,308.00	14.67	130.44	5,145.15	-199.15	-816.86	913.64	-698.29	2.47	-2.44	-1.43
5,404.00	17.15	136.04	5,237.47	-291.47	-834.93	932.72	-713.88	3.04	2.58	5.83
5,499.00	14.54	136.43	5,328.85	-382.85	-853.66	950.66	-730.26	2.75	-2.75	0.41
5,595.00	14.89	134.14	5,421.71	-475.71	-870.98	967.82	-745.34	0.71	0.36	-2.39
5,690.00	16.53	138.73	5,513.16	-567.16	-889.64	985.49	-761.68	2.16	1.73	4.83
5,786.00	13.35	139.74	5,605.90	-659.90	-908.37	1,001.67	-778.28	3.32	-3.31	1.05
5,881.00	17.72	131.37	5,697.42	-751.42	-926.30	1,019.62	-793.87	5.16	4.60	-8.81
6,000.00	14.49	127.49	5,811.74	-865.74	-947.34	1,045.03	-811.62	2.86	-2.71	-3.26
6,096.00	15.42	131.59	5,904.49	-958.49	-963.12	1,064.10	-824.94	1.47	0.97	4.27
6,191.00	16.00	126.12	5,995.94	-1,049.94	-979.22	1,084.13	-838.46	1.67	0.61	-5.76
6,287.00	12.55	123.70	6,088.97	-1,142.97	-992.81	1,103.50	-849.56	3.65	-3.59	-2.52
6,383.00	9.72	121.94	6,183.15	-1,237.15	-1,002.89	1,119.06	-857.65	2.97	-2.95	-1.83
6,478.00	7.78	116.87	6,277.04	-1,331.04	-1,010.04	1,131.60	-863.20	2.20	-2.04	-5.34
6,573.00	4.51	123.21	6,371.48	-1,425.48	-1,014.99	1,140.46	-867.03	3.51	-3.44	6.67
6,669.00	0.49	323.85	6,467.39	-1,521.39	-1,016.73	1,143.38	-868.39	5.18	-4.19	-166.00
6,764.00	0.66	300.63	6,562.39	-1,616.39	-1,016.12	1,142.67	-867.88	0.30	0.18	-24.44
6,860.00	0.75	313.41	6,658.38	-1,712.38	-1,015.41	1,141.74	-867.28	0.19	0.09	13.31
KOP										
6,955.00	0.71	329.23	6,753.37	-1,807.37	-1,014.48	1,140.98	-866.45	0.22	-0.04	16.65
7,051.00	10.83	356.07	6,848.77	-1,902.77	-1,004.94	1,140.06	-857.10	10.63	10.54	27.96
7,146.00	22.14	359.77	6,939.72	-1,993.72	-978.05	1,139.37	-830.50	11.95	11.91	3.89
7,242.00	29.96	0.60	7,025.90	-2,079.90	-935.93	1,139.55	-788.67	8.15	8.15	0.86
7,337.00	38.53	357.78	7,104.36	-2,158.36	-882.54	1,138.65	-735.80	9.17	9.02	-2.97
7,432.00	47.55	359.46	7,173.72	-2,227.72	-817.79	1,137.17	-671.72	9.57	9.49	1.77
7,528.00	54.04	359.81	7,234.37	-2,288.37	-743.44	1,136.71	-597.99	6.77	6.76	0.36
7,623.00	61.16	358.36	7,285.25	-2,339.25	-663.29	1,135.39	-518.62	7.60	7.49	-1.53
7,719.00	68.94	0.69	7,325.71	-2,379.71	-576.33	1,134.73	-432.40	8.40	8.10	2.43
7,814.00	79.45	2.41	7,351.55	-2,405.55	-485.09	1,137.23	-341.54	11.20	11.06	1.81
HZ LANDING POINT										
7,910.00	86.83	1.35	7,363.01	-2,417.01	-389.89	1,140.35	-246.68	7.77	7.69	-1.10
8,005.00	88.29	0.12	7,367.06	-2,421.06	-294.99	1,141.56	-152.35	2.01	1.54	-1.29
8,101.00	89.26	0.12	7,369.11	-2,423.11	-199.01	1,141.77	-57.08	1.01	1.01	0.00
8,196.00	90.99	359.11	7,368.90	-2,422.90	-104.02	1,141.13	37.11	2.11	1.82	-1.06
8,292.00	90.68	359.02	7,367.50	-2,421.50	-8.04	1,139.56	132.17	0.34	-0.32	-0.09
8,387.00	89.93	356.59	7,367.00	-2,421.00	86.88	1,135.92	225.92	2.68	-0.79	-2.56

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,483.00	90.81	0.82	7,366.38	-2,420.38	182.83	1,133.75	320.88	4.50	0.92	4.41
8,579.00	90.10	357.92	7,365.62	-2,419.62	278.81	1,132.70	416.00	3.11	-0.74	-3.02
8,674.00	90.37	0.52	7,365.23	-2,419.23	373.79	1,131.41	510.10	2.75	0.28	2.74
8,770.00	90.41	358.05	7,364.57	-2,418.57	469.77	1,130.21	605.21	2.57	0.04	-2.57
8,865.00	90.37	357.17	7,363.93	-2,417.93	564.69	1,126.25	698.91	0.93	-0.04	-0.93
8,961.00	90.23	0.78	7,363.42	-2,417.42	660.65	1,124.53	793.94	3.76	-0.15	3.76
9,056.00	89.66	358.80	7,363.51	-2,417.51	755.65	1,124.18	888.17	2.17	-0.60	-2.08
9,152.00	90.19	358.31	7,363.64	-2,417.64	851.62	1,121.76	983.11	0.75	0.55	-0.51
9,247.00	89.97	355.67	7,363.51	-2,417.51	946.48	1,116.77	1,076.64	2.79	-0.23	-2.78
9,343.00	89.57	359.41	7,363.89	-2,417.89	1,042.37	1,112.65	1,171.30	3.92	-0.42	3.90
9,438.00	91.16	0.34	7,363.29	-2,417.29	1,137.36	1,112.44	1,265.55	1.94	1.67	0.98
9,533.00	89.57	0.38	7,362.68	-2,416.68	1,232.36	1,113.04	1,359.89	1.67	-1.67	0.04
9,629.00	92.05	0.82	7,361.33	-2,415.33	1,328.34	1,114.05	1,455.27	2.62	2.58	0.46
9,724.00	90.77	359.28	7,358.99	-2,412.99	1,423.30	1,114.13	1,549.52	2.11	-1.35	-1.62
9,820.00	90.10	357.65	7,358.26	-2,412.26	1,519.26	1,111.56	1,644.43	1.84	-0.70	-1.70
9,916.00	89.93	358.31	7,358.23	-2,412.23	1,615.20	1,108.17	1,739.23	0.71	-0.18	0.69
10,011.00	88.20	356.64	7,359.78	-2,413.78	1,710.09	1,103.99	1,832.88	2.53	-1.82	-1.76
10,107.00	89.22	356.07	7,361.94	-2,415.94	1,805.87	1,097.89	1,927.19	1.22	1.06	-0.59
10,202.00	90.50	355.80	7,362.18	-2,416.18	1,900.63	1,091.15	2,020.40	1.38	1.35	-0.28
10,298.00	89.57	356.24	7,362.12	-2,416.12	1,996.39	1,084.49	2,114.62	1.07	-0.97	0.46
10,393.00	90.19	355.05	7,362.32	-2,416.32	2,091.12	1,077.28	2,207.73	1.41	0.65	-1.25
10,489.00	91.34	356.11	7,361.04	-2,415.04	2,186.82	1,069.88	2,301.80	1.63	1.20	1.10
10,585.00	87.89	355.18	7,361.68	-2,415.68	2,282.53	1,062.59	2,395.88	3.72	-3.59	-0.97
10,680.00	88.20	355.93	7,364.92	-2,418.92	2,377.18	1,055.23	2,488.92	0.85	0.33	0.79
10,776.00	89.75	356.24	7,366.64	-2,420.64	2,472.94	1,048.68	2,583.14	1.65	1.61	0.32
10,871.00	92.40	355.80	7,364.86	-2,418.86	2,567.69	1,042.09	2,676.36	2.83	2.79	-0.46
10,967.00	90.63	357.52	7,362.32	-2,416.32	2,663.48	1,036.50	2,770.74	2.57	-1.84	1.79
11,062.00	88.38	356.33	7,363.14	-2,417.14	2,758.34	1,031.40	2,864.24	2.68	-2.37	-1.25
11,158.00	89.35	357.12	7,365.04	-2,419.04	2,854.16	1,025.92	2,958.67	1.30	1.01	0.82
11,254.00	91.47	356.68	7,364.35	-2,418.35	2,950.01	1,020.73	3,053.15	2.26	2.21	-0.46
11,349.00	89.66	0.16	7,363.42	-2,417.42	3,044.95	1,018.11	3,147.05	4.13	-1.91	3.66
11,445.00	92.40	359.46	7,361.69	-2,415.69	3,140.92	1,017.79	3,242.25	2.95	2.85	-0.73
11,541.00	89.84	359.72	7,359.81	-2,413.81	3,236.89	1,017.11	3,337.41	2.68	-2.67	0.27
11,636.00	91.38	0.21	7,358.80	-2,412.80	3,331.89	1,017.05	3,431.68	1.70	1.62	0.52
11,732.00	88.29	1.22	7,359.08	-2,413.08	3,427.87	1,018.24	3,527.07	3.39	-3.22	1.05
11,827.00	89.57	1.09	7,360.85	-2,414.85	3,522.83	1,020.16	3,621.55	1.35	1.35	-0.14
11,922.00	90.37	0.91	7,360.90	-2,414.90	3,617.81	1,021.82	3,716.02	0.86	0.84	-0.19
12,018.00	87.76	0.52	7,362.47	-2,416.47	3,713.78	1,023.02	3,811.41	2.75	-2.72	-0.41
12,113.00	88.78	0.34	7,365.34	-2,419.34	3,808.74	1,023.73	3,905.73	1.09	1.07	-0.19
12,209.00	90.59	0.65	7,365.87	-2,419.87	3,904.73	1,024.56	4,001.09	1.91	1.89	0.32
12,304.00	91.60	358.49	7,364.05	-2,418.05	3,999.70	1,023.84	4,095.26	2.51	1.06	-2.27
12,400.00	89.44	358.67	7,363.18	-2,417.18	4,095.66	1,021.47	4,190.20	2.26	-2.25	0.19
12,495.00	89.22	1.18	7,364.29	-2,418.29	4,190.65	1,021.34	4,284.45	2.65	-0.23	2.64
12,590.00	90.77	0.78	7,364.30	-2,418.30	4,285.63	1,022.97	4,378.91	1.69	1.63	-0.42
12,686.00	92.97	0.34	7,361.17	-2,415.17	4,381.57	1,023.90	4,474.23	2.34	2.29	-0.46
12,781.00	90.90	2.46	7,357.96	-2,411.96	4,476.48	1,026.22	4,568.70	3.12	-2.18	2.23
12,877.00	89.57	3.73	7,357.56	-2,411.56	4,572.33	1,031.41	4,664.47	1.92	-1.39	1.32
12,972.00	91.74	3.38	7,356.48	-2,410.48	4,667.14	1,037.30	4,759.28	2.31	2.28	-0.37
13,067.00	87.98	3.38	7,356.71	-2,410.71	4,761.95	1,042.90	4,854.06	3.96	-3.96	0.00
13,163.00	89.44	3.73	7,358.87	-2,412.87	4,857.74	1,048.85	4,949.86	1.56	1.52	0.36
13,258.00	91.60	5.14	7,358.01	-2,412.01	4,952.44	1,056.19	5,044.75	2.72	2.27	1.48
13,354.00	92.09	2.81	7,354.92	-2,408.92	5,048.16	1,062.84	5,140.55	2.48	0.51	-2.43
13,449.00	89.40	2.15	7,353.68	-2,407.68	5,143.05	1,066.95	5,235.23	2.92	-2.83	-0.69

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,545.00	90.99	2.85	7,353.36	-2,407.36	5,238.96	1,071.14	5,330.92	1.81	1.66	0.73
13,640.00	89.79	2.15	7,352.71	-2,406.71	5,333.86	1,075.29	5,425.61	1.46	-1.26	-0.74
13,736.00	91.65	2.85	7,351.50	-2,405.50	5,429.76	1,079.47	5,521.30	2.07	1.94	0.73
13,831.00	89.17	359.90	7,350.82	-2,404.82	5,524.71	1,081.75	5,615.81	4.06	-2.61	-3.11
13,927.00	91.21	0.30	7,350.50	-2,404.50	5,620.70	1,081.92	5,711.09	2.17	2.12	0.42
14,022.00	87.45	359.19	7,351.62	-2,405.62	5,715.68	1,081.50	5,805.30	4.13	-3.96	-1.17
14,118.00	89.22	359.46	7,354.40	-2,408.40	5,811.63	1,080.37	5,900.38	1.87	1.84	0.28
14,213.00	91.43	0.52	7,353.87	-2,407.87	5,906.62	1,080.35	5,994.65	2.58	2.33	1.12
14,309.00	92.62	0.30	7,350.47	-2,404.47	6,002.55	1,081.04	6,089.94	1.26	1.24	-0.23
14,404.00	87.50	359.06	7,350.37	-2,404.37	6,097.52	1,080.51	6,184.12	5.55	-5.39	-1.31
14,499.00	88.20	358.18	7,353.94	-2,407.94	6,192.42	1,078.22	6,278.02	1.18	0.74	-0.93
14,595.00	91.07	359.55	7,354.55	-2,408.55	6,288.39	1,076.32	6,373.02	3.31	2.99	1.43
14,690.00	92.44	358.93	7,351.64	-2,405.64	6,383.33	1,075.06	6,467.09	1.58	1.44	-0.65
14,786.00	89.70	358.45	7,349.85	-2,403.85	6,479.28	1,072.86	6,562.04	2.90	-2.85	-0.50
14,882.00	90.54	358.40	7,349.65	-2,403.65	6,575.24	1,070.23	6,656.95	0.88	0.87	-0.05
14,977.00	88.95	359.28	7,350.07	-2,404.07	6,670.22	1,068.30	6,750.97	1.91	-1.67	0.93
15,072.00	90.72	359.11	7,350.34	-2,404.34	6,765.21	1,066.97	6,845.07	1.87	1.86	-0.18
15,168.00	90.68	2.46	7,349.17	-2,403.17	6,861.18	1,068.28	6,940.47	3.49	-0.04	3.49
15,263.00	91.21	1.27	7,347.60	-2,401.60	6,956.11	1,071.37	7,035.07	1.37	0.56	-1.25
15,359.00	92.71	0.74	7,344.32	-2,398.32	7,052.04	1,073.06	7,130.47	1.66	1.56	-0.55
15,454.00	89.93	1.88	7,342.13	-2,396.13	7,146.98	1,075.23	7,224.96	3.16	-2.93	1.20
15,550.00	92.62	2.81	7,340.00	-2,394.00	7,242.86	1,079.15	7,320.60	2.96	2.80	0.97
15,645.00	87.72	1.84	7,339.71	-2,393.71	7,337.75	1,083.01	7,415.24	5.26	-5.16	-1.02
15,740.00	88.91	1.09	7,342.51	-2,396.51	7,432.68	1,085.44	7,509.75	1.48	1.25	-0.79
15,835.00	90.68	2.50	7,342.85	-2,396.85	7,527.63	1,088.41	7,604.34	2.38	1.86	1.48
15,930.00	92.49	1.88	7,340.22	-2,394.22	7,622.52	1,092.04	7,698.95	2.01	1.91	-0.65
16,026.00	89.31	2.54	7,338.71	-2,392.71	7,718.42	1,095.74	7,794.59	3.38	-3.31	0.69
16,121.00	90.90	2.37	7,338.54	-2,392.54	7,813.33	1,099.81	7,889.28	1.68	1.67	-0.18
16,217.00	91.25	1.00	7,336.74	-2,390.74	7,909.27	1,102.63	7,984.83	1.47	0.36	-1.43
16,312.00	92.97	359.81	7,333.24	-2,387.24	8,004.20	1,103.30	8,079.12	2.20	1.81	-1.25
16,408.00	90.46	1.57	7,330.37	-2,384.37	8,100.14	1,104.46	8,174.48	3.19	-2.61	1.83
16,504.00	93.20	1.18	7,327.30	-2,381.30	8,196.05	1,106.76	8,269.94	2.88	2.85	-0.41
16,599.00	89.62	0.47	7,324.96	-2,378.96	8,290.99	1,108.13	8,364.34	3.84	-3.77	-0.75
16,695.00	90.01	0.08	7,325.27	-2,379.27	8,386.99	1,108.59	8,459.66	0.57	0.41	-0.41
16,790.00	91.30	0.08	7,324.19	-2,378.19	8,481.98	1,108.72	8,553.95	1.36	1.36	0.00
16,886.00	93.24	358.75	7,320.38	-2,374.38	8,577.90	1,107.74	8,649.01	2.45	2.02	-1.39
16,982.00	95.18	358.31	7,313.34	-2,367.34	8,673.60	1,105.29	8,743.69	2.07	2.02	-0.46
17,077.00	92.58	359.15	7,306.91	-2,360.91	8,768.35	1,103.19	8,837.46	2.88	-2.74	0.88
17,173.00	90.41	359.59	7,304.41	-2,358.41	8,864.31	1,102.13	8,932.56	2.31	-2.26	0.46
LAST SURVEY										
17,268.00	92.44	359.06	7,302.04	-2,356.04	8,959.27	1,101.02	9,026.66	2.21	2.14	-0.56
EXTRAPOLATION TO TD										
17,437.00	92.44	359.06	7,294.85	-2,348.85	9,128.09	1,098.25	9,193.86	0.00	0.00	0.00

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well RINN VALLEY EAST N17-20-3N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB 29' @ 4946.00usft (PATT 901)
Site:	SW SE SEC. 17 T2N R68W 6th P.M.	MD Reference:	KB 29' @ 4946.00usft (PATT 901)
Well:	RINN VALLEY EAST N17-20-3N	North Reference:	True
Wellbore:	FINAL SURVEYS	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - RINN VALLEY - survey misses target center by 10.10usft at 6997.07usft MD (6795.38 TVD, -1012.39 N, 1140.66 E) - Point	0.00	0.00	6,795.80	-1,017.37	1,131.88	1,290,988.76	3,134,232.57	40.131160	-105.019935
BHL - RINN VALLEY - survey misses target center by 65.18usft at 17437.00usft MD (7294.85 TVD, 9128.09 N, 1098.25 E) - Point	0.00	0.00	7,302.00	9,179.55	1,137.61	1,301,185.14	3,134,183.56	40.159151	-105.019913
HZ LP - RINN VALLEY - survey misses target center by 9.61usft at 7855.84usft MD (7358.06 TVD, -443.79 N, 1138.80 E) - Point	0.00	0.00	7,365.00	-444.41	1,132.18	1,291,561.70	3,134,229.79	40.132733	-105.019934

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,552.00	1,526.18	-149.91	167.79	SURFACE CASING
6,955.00	6,753.37	-1,014.48	1,140.98	KOP
7,910.00	7,363.01	-389.89	1,140.35	HZ LANDING POINT
17,268.00	7,302.04	8,959.27	1,101.02	LAST SURVEY
17,437.00	7,294.85	9,128.09	1,098.25	EXTRAPOLATION TO TD

Checked By: _____ Approved By: _____ Date: _____