

# **EXTRACTION OIL & GAS**

**WELD COUNTY, COLORADO (NAD 83)**

**SW SE SEC 36 T6N R66W 6th P.M.**

**CS-KINKADE 1-1-13**

**JOB #2017-164-341**

**Design: SURFACE**

## **Standard Survey Report**

**09 November, 2018**



## Survey Report



<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well CS-KINKADE 1-1-13
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Site:</b>	SW SE SEC 36 T6N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

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

Site	SW SE SEC 36 T6N R66W 6th P.M.				
Site Position:		Northing:	1,403,485.52 usft	Latitude:	40° 26' 18.132 N
From:	Lat/Long	Easting:	3,216,213.28 usft	Longitude:	104° 43' 23.628 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	CS-KINKADE 1-1-13					
Well Position	+N/-S	0.0 usft	Northing:	1,403,486.63 usft	Latitude:	40° 26' 18.132 N
	+E/-W	0.0 usft	Easting:	3,216,341.32 usft	Longitude:	104° 43' 21.972 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,664.0 usft

<b>Wellbore</b>	JOB #2017-164-341				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	6/23/2015	8.40	66.94	52,644

<b>Design</b>	SURFACE				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.50	

<b>Survey Program</b>	<b>Date</b>	11/9/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
132.0	1,535.0	FINAL SURVEYS - SURFACE (JOB #201	MWD	MWD - Standard	
1,651.0	20,260.0	Survey #2 (JOB #2017-164-341)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
132.0	1.50	190.10	132.0	-1.7	-0.3	1.7	1.14	1.14	0.00	
223.0	0.40	225.60	223.0	-3.1	-0.7	3.1	1.32	-1.21	39.01	
315.0	0.40	294.90	315.0	-3.2	-1.3	3.2	0.49	0.00	75.33	
405.0	0.10	312.00	405.0	-3.0	-1.6	3.0	0.34	-0.33	19.00	
500.0	0.30	8.00	500.0	-2.7	-1.6	2.7	0.27	0.21	58.95	
594.0	0.40	311.00	594.0	-2.2	-1.8	2.3	0.37	0.11	-60.64	
688.0	0.50	330.50	688.0	-1.7	-2.3	1.7	0.19	0.11	20.74	
782.0	0.70	351.70	782.0	-0.7	-2.6	0.8	0.31	0.21	22.55	
876.0	0.70	342.60	876.0	0.4	-2.8	-0.3	0.12	0.00	-9.68	

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<b>Site:</b>	SW SE SEC 36 T6N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
971.0	0.40	133.20	970.9	0.7	-2.8	-0.7	1.12	-0.32	158.53
1,065.0	0.80	113.60	1,064.9	0.2	-1.9	-0.2	0.47	0.43	-20.85
1,159.0	0.70	149.30	1,158.9	-0.5	-1.0	0.6	0.50	-0.11	37.98
1,253.0	0.70	168.00	1,252.9	-1.6	-0.6	1.6	0.24	0.00	19.89
1,347.0	0.60	128.20	1,346.9	-2.5	-0.1	2.5	0.48	-0.11	-42.34
1,442.0	0.40	314.50	1,441.9	-2.5	0.0	2.5	1.05	-0.21	-182.84
1,535.0	0.20	32.50	1,534.9	-2.2	-0.1	2.2	0.44	-0.22	83.87
LAST SURVEY - JUNE 19, 2017									
1,651.0	0.40	25.50	1,650.9	-1.6	0.2	1.6	0.17	0.17	-6.03
1st MWD Survey									
1,747.0	3.40	168.81	1,746.9	-4.1	0.9	4.1	3.88	3.13	149.28
1,841.0	3.71	174.49	1,840.7	-9.9	1.7	9.9	0.50	0.33	6.04
1,936.0	4.11	186.21	1,935.5	-16.3	1.6	16.3	0.94	0.42	12.34
2,031.0	4.91	212.78	2,030.2	-23.1	-0.9	23.1	2.33	0.84	27.97
2,125.0	4.68	207.50	2,123.9	-29.9	-4.9	30.0	0.53	-0.24	-5.62
2,220.0	4.68	203.00	2,218.5	-36.9	-8.2	37.0	0.39	0.00	-4.74
2,316.0	4.60	197.18	2,314.2	-44.2	-10.9	44.3	0.50	-0.08	-6.06
2,411.0	4.68	197.32	2,408.9	-51.6	-13.1	51.7	0.09	0.08	0.15
2,505.0	4.60	192.91	2,502.6	-58.9	-15.1	59.0	0.39	-0.09	-4.69
2,600.0	4.51	190.09	2,597.3	-66.3	-16.6	66.4	0.25	-0.09	-2.97
2,695.0	5.61	204.50	2,691.9	-74.2	-19.2	74.3	1.76	1.16	15.17
2,789.0	5.70	204.50	2,785.5	-82.6	-23.0	82.8	0.10	0.10	0.00
2,883.0	5.21	200.40	2,879.0	-90.9	-26.5	91.1	0.67	-0.52	-4.36
2,977.0	5.21	198.59	2,972.7	-98.9	-29.3	99.2	0.17	0.00	-1.93
3,071.0	4.68	194.58	3,066.3	-106.7	-31.6	106.9	0.67	-0.56	-4.27
3,166.0	4.11	188.28	3,161.0	-113.8	-33.1	114.1	0.79	-0.60	-6.63
3,260.0	3.89	187.01	3,254.8	-120.3	-34.0	120.6	0.25	-0.23	-1.35
3,354.0	4.68	213.00	3,348.5	-126.7	-36.5	127.0	2.21	0.84	27.65
3,542.0	4.99	209.61	3,535.9	-140.2	-44.7	140.6	0.22	0.16	-1.80
3,637.0	5.30	210.49	3,630.5	-147.6	-48.9	148.0	0.34	0.33	0.93
3,732.0	4.02	196.92	3,725.2	-154.5	-52.1	155.0	1.77	-1.35	-14.28
3,826.0	4.02	193.70	3,818.9	-160.9	-53.9	161.4	0.24	0.00	-3.43
3,921.0	3.89	197.40	3,913.7	-167.2	-55.6	167.7	0.30	-0.14	3.89
4,015.0	3.58	199.52	4,007.5	-173.0	-57.6	173.5	0.36	-0.33	2.26
4,110.0	2.92	202.91	4,102.4	-178.0	-59.5	178.5	0.72	-0.69	3.57
4,204.0	2.61	203.09	4,196.3	-182.2	-61.3	182.7	0.33	-0.33	0.19
4,298.0	2.30	202.69	4,290.2	-185.9	-62.8	186.5	0.33	-0.33	-0.43
4,392.0	2.12	205.82	4,384.1	-189.2	-64.3	189.8	0.23	-0.19	3.33
4,486.0	2.12	207.63	4,478.0	-192.3	-65.9	192.9	0.07	0.00	1.93
4,580.0	1.90	189.52	4,572.0	-195.4	-66.9	196.0	0.71	-0.23	-19.27
4,674.0	2.39	267.91	4,665.9	-197.0	-69.2	197.6	2.91	0.52	83.39
4,769.0	1.02	335.29	4,760.9	-196.3	-71.5	196.9	2.32	-1.44	70.93
4,863.0	1.10	346.71	4,854.9	-194.7	-72.1	195.3	0.24	0.09	12.15

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<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,957.0	1.02	78.91	4,948.9	-193.6	-71.4	194.3	1.63	-0.09	98.09
5,051.0	1.19	86.62	5,042.9	-193.4	-69.6	194.0	0.24	0.18	8.20
5,146.0	1.02	87.81	5,137.8	-193.3	-67.8	193.9	0.18	-0.18	1.25
5,240.0	0.71	172.29	5,231.8	-193.9	-66.9	194.5	1.26	-0.33	89.87
5,334.0	0.80	193.31	5,325.8	-195.1	-67.0	195.7	0.31	0.10	22.36
5,429.0	1.19	194.10	5,420.8	-196.7	-67.4	197.3	0.41	0.41	0.83
5,524.0	1.10	220.01	5,515.8	-198.4	-68.2	198.9	0.55	-0.09	27.27
5,618.0	1.19	234.51	5,609.8	-199.6	-69.6	200.2	0.32	0.10	15.43
5,713.0	1.10	224.51	5,704.7	-200.8	-71.0	201.4	0.23	-0.09	-10.53
5,807.0	0.88	203.71	5,798.7	-202.1	-71.9	202.8	0.44	-0.23	-22.13
5,901.0	0.80	196.08	5,892.7	-203.4	-72.4	204.0	0.15	-0.09	-8.12
5,996.0	0.40	183.61	5,987.7	-204.4	-72.6	205.0	0.44	-0.42	-13.13
6,090.0	0.31	180.31	6,081.7	-205.0	-72.6	205.6	0.10	-0.10	-3.51
6,185.0	0.31	234.82	6,176.7	-205.4	-72.8	206.0	0.30	0.00	57.38
6,280.0	0.31	211.90	6,271.7	-205.7	-73.2	206.4	0.13	0.00	-24.13
6,374.0	0.31	188.11	6,365.7	-206.2	-73.4	206.8	0.14	0.00	-25.31
6,433.3	3.98	175.87	6,424.9	-208.4	-73.2	209.1	6.20	6.18	-20.65
KOP - CS-KINKADE 1-1-13									
6,469.0	6.19	175.50	6,460.5	-211.6	-73.0	212.2	6.20	6.20	-1.03
6,564.0	20.68	179.38	6,552.7	-233.6	-72.4	234.2	15.27	15.25	4.08
6,659.0	30.00	180.09	6,638.4	-274.2	-72.3	274.8	9.82	9.81	0.75
6,754.0	41.41	180.09	6,715.5	-329.5	-72.3	330.2	12.01	12.01	0.00
6,848.0	50.69	180.00	6,780.6	-397.1	-72.4	397.8	9.87	9.87	-0.10
6,943.0	58.42	178.98	6,835.7	-474.5	-71.7	475.1	8.18	8.14	-1.07
7,038.0	73.31	179.60	6,874.4	-560.9	-70.6	561.5	15.68	15.67	0.65
7,133.0	77.91	180.09	6,898.0	-652.9	-70.4	653.5	4.87	4.84	0.52
7,227.0	80.91	178.81	6,915.3	-745.3	-69.5	745.9	3.46	3.19	-1.36
7,288.2	84.44	179.18	6,923.1	-806.0	-68.4	806.6	5.80	5.77	0.60
LANDING PNT - CS-KINKADE 1-1-13									
7,322.0	86.39	179.38	6,925.8	-839.7	-68.0	840.2	5.80	5.77	0.60
7,417.0	88.11	179.12	6,930.3	-934.5	-66.8	935.1	1.83	1.81	-0.27
7,512.0	90.50	180.88	6,931.5	-1,029.5	-66.8	1,030.1	3.12	2.52	1.85
7,646.0	89.70	181.32	6,931.3	-1,163.5	-69.3	1,164.1	0.68	-0.60	0.33
7,740.0	90.50	182.51	6,931.1	-1,257.4	-72.5	1,258.0	1.53	0.85	1.27
7,834.0	90.81	182.11	6,930.0	-1,351.4	-76.3	1,352.0	0.54	0.33	-0.43
7,929.0	90.28	180.88	6,929.1	-1,446.3	-78.7	1,446.9	1.41	-0.56	-1.29
8,024.0	90.99	181.50	6,928.1	-1,541.3	-80.7	1,541.9	0.99	0.75	0.65
8,212.0	90.10	181.98	6,926.3	-1,729.2	-86.4	1,729.9	0.54	-0.47	0.26
8,307.0	90.19	180.39	6,926.0	-1,824.2	-88.4	1,824.9	1.68	0.09	-1.67
8,401.0	90.19	182.11	6,925.7	-1,918.1	-90.4	1,918.9	1.83	0.00	1.83
8,496.0	90.10	181.10	6,925.5	-2,013.1	-93.1	2,013.8	1.07	-0.09	-1.06
8,590.0	90.19	182.29	6,925.2	-2,107.1	-95.9	2,107.8	1.27	0.10	1.27
8,684.0	89.88	182.69	6,925.2	-2,201.0	-100.0	2,201.8	0.54	-0.33	0.43
8,778.0	90.10	181.98	6,925.2	-2,294.9	-103.8	2,295.7	0.79	0.23	-0.76

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8,872.0	90.01	180.39	6,925.1	-2,388.9	-105.7	2,389.7	1.69	-0.10	-1.69
8,967.0	90.10	178.81	6,925.0	-2,483.9	-105.1	2,484.7	1.67	0.09	-1.66
9,156.0	89.88	178.50	6,925.1	-2,672.8	-100.6	2,673.6	0.20	-0.12	-0.16
9,251.0	90.28	180.31	6,924.9	-2,767.8	-99.7	2,768.6	1.95	0.42	1.91
9,345.0	89.88	179.51	6,924.8	-2,861.8	-99.5	2,862.6	0.95	-0.43	-0.85
9,439.0	90.59	179.78	6,924.4	-2,955.8	-98.9	2,956.5	0.81	0.76	0.29
9,628.0	90.10	180.70	6,923.3	-3,144.8	-99.7	3,145.5	0.55	-0.26	0.49
9,723.0	90.10	179.29	6,923.1	-3,239.8	-99.7	3,240.5	1.48	0.00	-1.48
9,817.0	90.19	179.78	6,922.9	-3,333.8	-98.9	3,334.5	0.53	0.10	0.52
9,911.0	90.01	179.69	6,922.7	-3,427.8	-98.5	3,428.5	0.21	-0.19	-0.10
10,006.0	90.28	180.70	6,922.5	-3,522.8	-98.8	3,523.5	1.10	0.28	1.06
10,100.0	89.70	179.60	6,922.5	-3,616.8	-99.1	3,617.5	1.32	-0.62	-1.17
10,195.0	90.81	179.91	6,922.1	-3,711.8	-98.7	3,712.5	1.21	1.17	0.33
10,290.0	90.28	180.88	6,921.2	-3,806.8	-99.3	3,807.5	1.16	-0.56	1.02
10,385.0	90.19	181.58	6,920.8	-3,901.7	-101.4	3,902.5	0.74	-0.09	0.74
10,479.0	90.19	180.48	6,920.5	-3,995.7	-103.1	3,996.5	1.17	0.00	-1.17
10,573.0	90.59	181.41	6,919.8	-4,089.7	-104.6	4,090.5	1.08	0.43	0.99
10,668.0	90.28	180.48	6,919.1	-4,184.7	-106.2	4,185.5	1.03	-0.33	-0.98
10,763.0	90.50	179.29	6,918.4	-4,279.7	-106.0	4,280.4	1.27	0.23	-1.25
10,857.0	90.59	180.22	6,917.5	-4,373.7	-105.6	4,374.4	0.99	0.10	0.99
10,952.0	89.79	179.60	6,917.2	-4,468.7	-105.4	4,469.4	1.07	-0.84	-0.65
11,047.0	90.50	180.00	6,917.0	-4,563.7	-105.1	4,564.4	0.86	0.75	0.42
11,142.0	90.28	180.22	6,916.3	-4,658.7	-105.3	4,659.4	0.33	-0.23	0.23
11,237.0	90.01	180.22	6,916.1	-4,753.7	-105.6	4,754.4	0.28	-0.28	0.00
11,427.0	90.10	179.91	6,915.9	-4,943.7	-105.9	4,944.4	0.17	0.05	-0.16
11,519.0	90.41	180.22	6,915.5	-5,035.7	-106.0	5,036.4	0.48	0.34	0.34
11,614.0	90.19	179.91	6,915.0	-5,130.7	-106.1	5,131.4	0.40	-0.23	-0.33
11,708.0	90.28	182.82	6,914.6	-5,224.6	-108.3	5,225.4	3.10	0.10	3.10
11,802.0	89.79	181.72	6,914.6	-5,318.6	-112.0	5,319.3	1.28	-0.52	-1.17
11,897.0	90.41	180.48	6,914.4	-5,413.5	-113.9	5,414.3	1.46	0.65	-1.31
11,992.0	90.19	182.51	6,913.9	-5,508.5	-116.3	5,509.3	2.15	-0.23	2.14
12,086.0	89.79	180.09	6,913.9	-5,602.5	-118.5	5,603.3	2.61	-0.43	-2.57
12,181.0	90.72	178.41	6,913.5	-5,697.4	-117.2	5,698.3	2.02	0.98	-1.77
12,275.0	90.72	177.18	6,912.3	-5,791.4	-113.6	5,792.1	1.31	0.00	-1.31
12,369.0	90.90	176.61	6,911.0	-5,885.2	-108.5	5,885.9	0.64	0.19	-0.61
12,464.0	90.81	176.30	6,909.6	-5,980.0	-102.6	5,980.7	0.34	-0.09	-0.33
12,559.0	90.59	177.80	6,908.4	-6,074.9	-97.8	6,075.5	1.60	-0.23	1.58
12,654.0	91.12	178.10	6,907.0	-6,169.8	-94.4	6,170.4	0.64	0.56	0.32
12,749.0	90.72	177.40	6,905.5	-6,264.7	-90.6	6,265.3	0.85	-0.42	-0.74
12,844.0	90.90	175.90	6,904.1	-6,359.6	-85.1	6,360.1	1.59	0.19	-1.58
12,939.0	90.99	178.41	6,902.6	-6,454.4	-80.4	6,454.9	2.64	0.09	2.64
13,033.0	89.62	176.78	6,902.1	-6,548.3	-76.4	6,548.8	2.27	-1.46	-1.73
13,128.0	90.59	176.21	6,901.9	-6,643.2	-70.6	6,643.5	1.18	1.02	-0.60

## Survey Report



<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well CS-KINKADE 1-1-13
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Site:</b>	SW SE SEC 36 T6N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,222.0	90.59	176.69	6,900.9	-6,737.0	-64.8	6,737.3	0.51	0.00	0.51	
13,317.0	90.59	178.02	6,899.9	-6,831.9	-60.4	6,832.1	1.40	0.00	1.40	
13,412.0	90.99	180.88	6,898.6	-6,926.8	-59.5	6,927.1	3.04	0.42	3.01	
13,506.0	90.28	179.60	6,897.6	-7,020.8	-59.9	7,021.1	1.56	-0.76	-1.36	
13,600.0	90.90	179.51	6,896.6	-7,114.8	-59.2	7,115.1	0.67	0.66	-0.10	
13,695.0	90.50	178.98	6,895.5	-7,209.8	-57.9	7,210.0	0.70	-0.42	-0.56	
13,791.0	90.81	179.38	6,894.4	-7,305.8	-56.5	7,306.0	0.53	0.32	0.42	
13,886.0	90.81	179.60	6,893.0	-7,400.8	-55.7	7,401.0	0.23	0.00	0.23	
13,980.0	90.72	178.98	6,891.8	-7,494.8	-54.5	7,494.9	0.67	-0.10	-0.66	
14,075.0	90.59	180.79	6,890.7	-7,589.7	-54.3	7,589.9	1.91	-0.14	1.91	
14,170.0	90.41	182.69	6,889.9	-7,684.7	-57.2	7,684.9	2.01	-0.19	2.00	
14,266.0	90.41	181.89	6,889.2	-7,780.6	-61.1	7,780.8	0.83	0.00	-0.83	
14,360.0	90.59	183.61	6,888.3	-7,874.5	-65.6	7,874.8	1.84	0.19	1.83	
14,455.0	90.81	182.99	6,887.2	-7,969.3	-71.0	7,969.6	0.69	0.23	-0.65	
14,550.0	90.41	182.82	6,886.2	-8,064.2	-75.8	8,064.6	0.46	-0.42	-0.18	
14,645.0	90.41	181.41	6,885.5	-8,159.1	-79.4	8,159.5	1.48	0.00	-1.48	
14,740.0	91.12	183.30	6,884.2	-8,254.0	-83.3	8,254.5	2.13	0.75	1.99	
14,836.0	89.88	182.20	6,883.4	-8,349.9	-87.9	8,350.4	1.73	-1.29	-1.15	
15,121.0	90.28	183.92	6,883.0	-8,634.5	-103.1	8,635.1	0.62	0.14	0.60	
15,216.0	90.72	182.91	6,882.2	-8,729.3	-108.7	8,729.9	1.16	0.46	-1.06	
15,310.0	89.88	182.11	6,881.7	-8,823.2	-112.9	8,823.9	1.23	-0.89	-0.85	
15,405.0	90.41	180.00	6,881.4	-8,918.2	-114.6	8,918.9	2.29	0.56	-2.22	
15,499.0	90.10	181.72	6,881.0	-9,012.2	-116.0	9,012.9	1.86	-0.33	1.83	
15,594.0	89.88	183.30	6,881.0	-9,107.1	-120.2	9,107.8	1.68	-0.23	1.66	
15,689.0	90.19	182.29	6,881.0	-9,202.0	-124.8	9,202.7	1.11	0.33	-1.06	
15,783.0	90.19	181.01	6,880.7	-9,295.9	-127.5	9,296.7	1.36	0.00	-1.36	
15,878.0	90.01	178.10	6,880.5	-9,390.9	-126.8	9,391.7	3.07	-0.19	-3.06	
15,972.0	90.01	179.60	6,880.5	-9,484.9	-124.9	9,485.6	1.60	0.00	1.60	
16,067.0	90.01	178.81	6,880.5	-9,579.9	-123.6	9,580.6	0.83	0.00	-0.83	
16,162.0	89.70	180.62	6,880.7	-9,674.9	-123.1	9,675.6	1.93	-0.33	1.91	
16,256.0	90.10	179.12	6,880.9	-9,768.9	-122.9	9,769.6	1.65	0.43	-1.60	
16,351.0	90.28	180.70	6,880.5	-9,863.9	-122.7	9,864.6	1.67	0.19	1.66	
16,446.0	89.62	180.31	6,880.6	-9,958.9	-123.6	9,959.6	0.81	-0.69	-0.41	
16,636.0	90.59	179.60	6,880.3	-10,148.9	-123.4	10,149.6	0.63	0.51	-0.37	
16,825.0	90.28	181.01	6,878.8	-10,337.9	-124.4	10,338.6	0.76	-0.16	0.75	
16,919.0	89.22	179.91	6,879.3	-10,431.9	-125.2	10,432.6	1.63	-1.13	-1.17	
17,014.0	90.19	180.00	6,879.7	-10,526.9	-125.1	10,527.5	1.03	1.02	0.09	
17,109.0	90.50	181.98	6,879.2	-10,621.8	-126.7	10,622.5	2.11	0.33	2.08	
17,204.0	90.41	179.10	6,878.4	-10,716.8	-127.6	10,717.5	3.03	-0.09	-3.03	
17,299.0	90.01	179.60	6,878.1	-10,811.8	-126.6	10,812.5	0.67	-0.42	0.53	
17,394.0	90.19	179.21	6,877.9	-10,906.8	-125.6	10,907.5	0.45	0.19	-0.41	
17,489.0	90.01	179.91	6,877.7	-11,001.8	-124.8	11,002.5	0.76	-0.19	0.74	
17,583.0	90.10	180.09	6,877.6	-11,095.8	-124.8	11,096.5	0.21	0.10	0.19	
17,678.0	90.50	181.19	6,877.2	-11,190.8	-125.9	11,191.5	1.23	0.42	1.16	

# Survey Report



<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well CS-KINKADE 1-1-13
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Site:</b>	SW SE SEC 36 T6N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,773.0	90.28	180.31	6,876.5	-11,285.8	-127.2	11,286.5	0.95	-0.23	-0.93
17,868.0	90.28	180.31	6,876.0	-11,380.8	-127.7	11,381.5	0.00	0.00	0.00
18,057.0	90.50	182.51	6,874.8	-11,569.7	-132.3	11,570.4	1.17	0.12	1.16
18,151.0	89.70	179.78	6,874.6	-11,663.7	-134.2	11,664.4	3.03	-0.85	-2.90
18,246.0	90.10	179.78	6,874.8	-11,758.7	-133.8	11,759.4	0.42	0.42	0.00
18,341.0	90.10	180.79	6,874.6	-11,853.7	-134.3	11,854.4	1.06	0.00	1.06
18,436.0	90.41	180.31	6,874.2	-11,948.7	-135.2	11,949.4	0.60	0.33	-0.51
18,531.0	90.28	180.48	6,873.6	-12,043.7	-135.9	12,044.4	0.23	-0.14	0.18
18,625.0	90.01	180.79	6,873.4	-12,137.7	-136.9	12,138.4	0.44	-0.29	0.33
18,719.0	90.10	179.78	6,873.3	-12,231.7	-137.4	12,232.4	1.08	0.10	-1.07
18,814.0	89.31	179.91	6,873.8	-12,326.7	-137.1	12,327.4	0.84	-0.83	0.14
18,908.0	89.62	178.81	6,874.6	-12,420.6	-136.1	12,421.4	1.22	0.33	-1.17
19,098.0	89.40	178.81	6,876.3	-12,610.6	-132.1	12,611.3	0.12	-0.12	0.00
19,193.0	89.88	179.51	6,876.9	-12,705.6	-130.7	12,706.2	0.89	0.51	0.74
19,287.0	90.10	178.98	6,876.9	-12,799.6	-129.5	12,800.2	0.61	0.23	-0.56
19,381.0	90.19	179.38	6,876.6	-12,893.6	-128.2	12,894.2	0.44	0.10	0.43
19,476.0	90.01	178.50	6,876.5	-12,988.5	-126.4	12,989.1	0.95	-0.19	-0.93
19,571.0	90.19	180.39	6,876.3	-13,083.5	-125.5	13,084.1	2.00	0.19	1.99
19,665.0	90.10	179.29	6,876.1	-13,177.5	-125.2	13,178.1	1.17	-0.10	-1.17
19,760.0	89.88	181.50	6,876.1	-13,272.5	-125.9	13,273.1	2.34	-0.23	2.33
19,855.0	90.19	179.51	6,876.0	-13,367.5	-126.7	13,368.1	2.12	0.33	-2.09
19,949.0	90.01	179.29	6,875.9	-13,461.5	-125.7	13,462.1	0.30	-0.19	-0.23
20,044.0	89.88	178.59	6,875.9	-13,556.5	-124.0	13,557.1	0.75	-0.14	-0.74
20,139.0	90.19	179.91	6,875.9	-13,651.5	-122.7	13,652.0	1.43	0.33	1.39
Last MWD Survey									
20,260.0	90.19	179.91	6,875.5	-13,772.5	-122.5	13,773.1	0.00	0.00	0.00
Projection to TD - BHL CS Kinkade 1-1-13 Plan#3									

Design 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 - CS-KINKADE 1-1 - actual wellpath misses target center by 16.7usft at 6433.8usft MD (6425.5 TVD, -208.5 N, -73.2 E) - Point	0.00	0.00	6,424.0	-224.8	-70.3	1,403,261.23	3,216,272.99	40° 26' 15.910 N	104° 43' 22.881 W
BHL - CS-KINKADE 1-1 - actual wellpath misses target center by 123.2usft at 20260.0usft MD (6875.5 TVD, -13772.5 N, -122.5 E) - Point	0.00	0.00	6,997.0	-13,792.8	-119.8	1,389,693.78	3,216,342.45	40° 24' 1.836 N	104° 43' 23.520 W
LANDING PNT - CS-KIN - actual wellpath misses target center by 74.5usft at 7288.2usft MD (6923.1 TVD, -806.0 N, -68.4 E) - Point	0.00	0.00	6,997.0	-797.8	-72.4	1,402,688.22	3,216,275.94	40° 26' 10.248 N	104° 43' 22.908 W

# Survey Report



<b>Company:</b>	EXTRACTION OIL & GAS	<b>Local Co-ordinate Reference:</b>	Well CS-KINKADE 1-1-13
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>TVD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Site:</b>	SW SE SEC 36 T6N R66W 6th P.M.	<b>MD Reference:</b>	KB @ 4689.0usft (PATT 341)
<b>Well:</b>	CS-KINKADE 1-1-13	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB #2017-164-341	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURFACE	<b>Database:</b>	EDM 5000.1

## Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,535.0	1,534.9	-2.2	-0.1	LAST SURVEY - JUNE 19, 2017
1,651.0	1,650.9	-1.6	0.2	1st MWD Survey
20,139.0	6,875.9	-13,651.5	-122.7	Last MWD Survey
20,260.0	6,875.5	-13,772.5	-122.5	Projection to TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_