

# **ANADARKO PETROLEUM CORP**

**WELD COUNTY (NAD 83)**

**SE SW 13 T1N R67W 6th P.M.**

**QUARTER CIRCLE 24-6HZ - Slot QUARTER CIRCLE 24-6HZ**

**JOB # 2018-306-461**

**28 May, 2018**

**Survey: FINAL SURVEYS**





Project: WELD COUNTY (NAD 83)  
Site: SE SW 13 T1N R67W 6th P.M.  
Well: QUARTER CIRCLE 24-6HZ  
Wellbore: JOB # 2018-306-461  
Design: FINAL SURVEYS

ANNOTATIONS

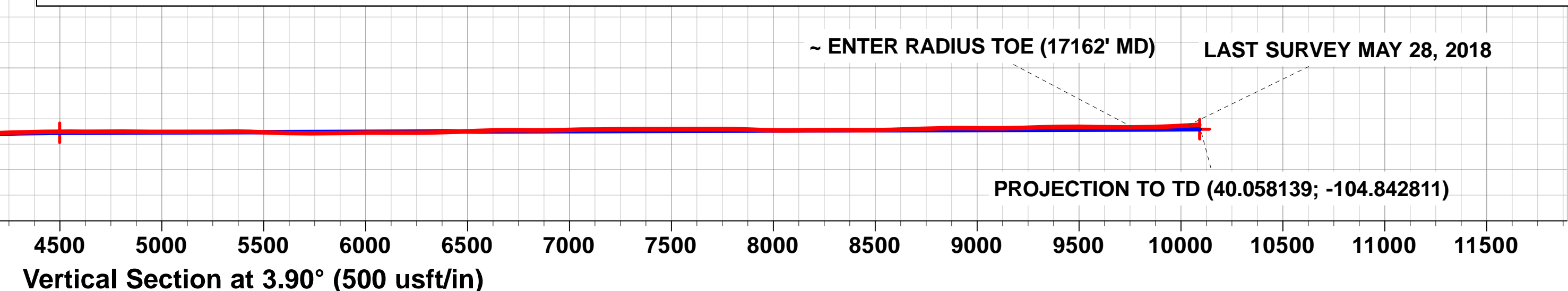
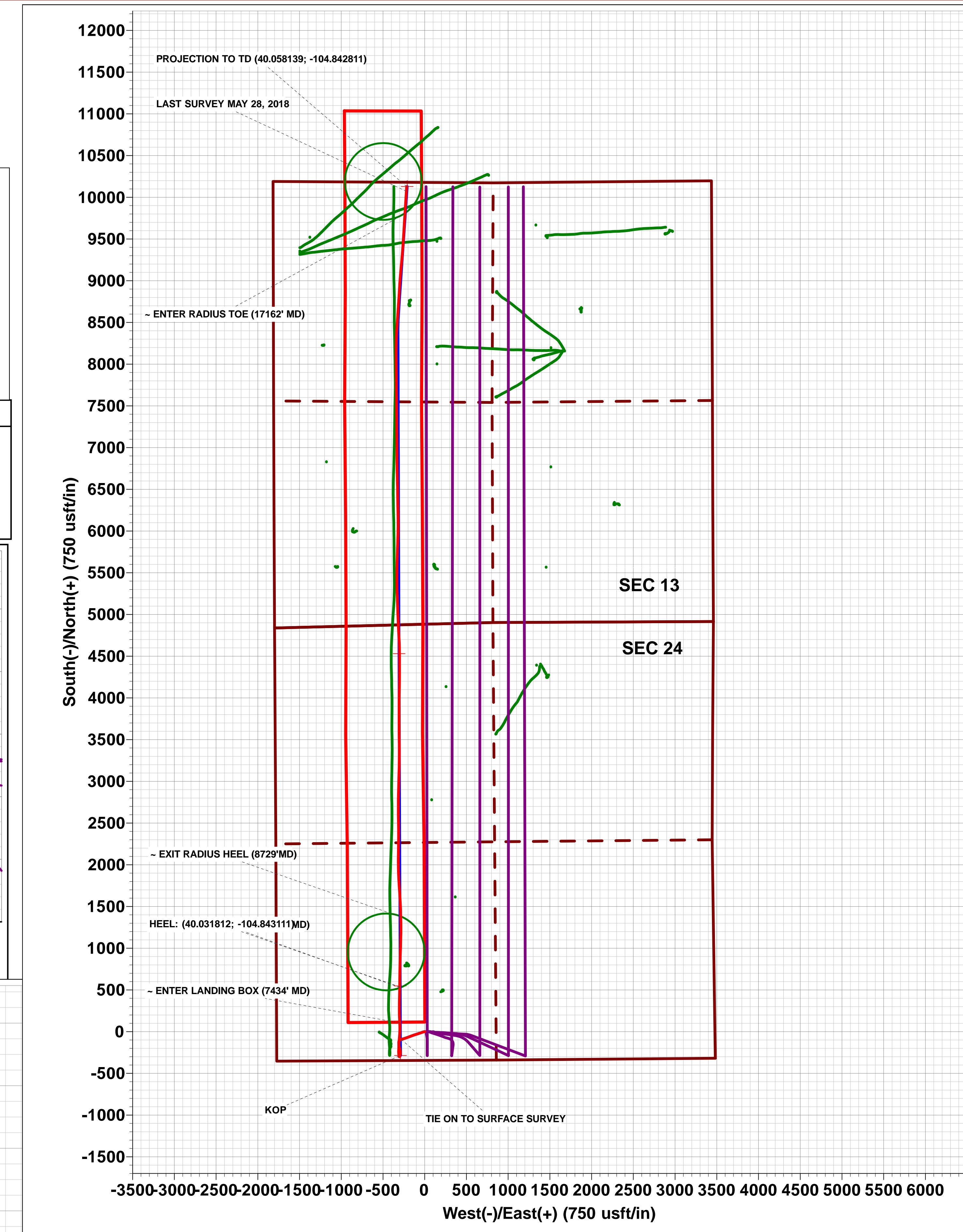
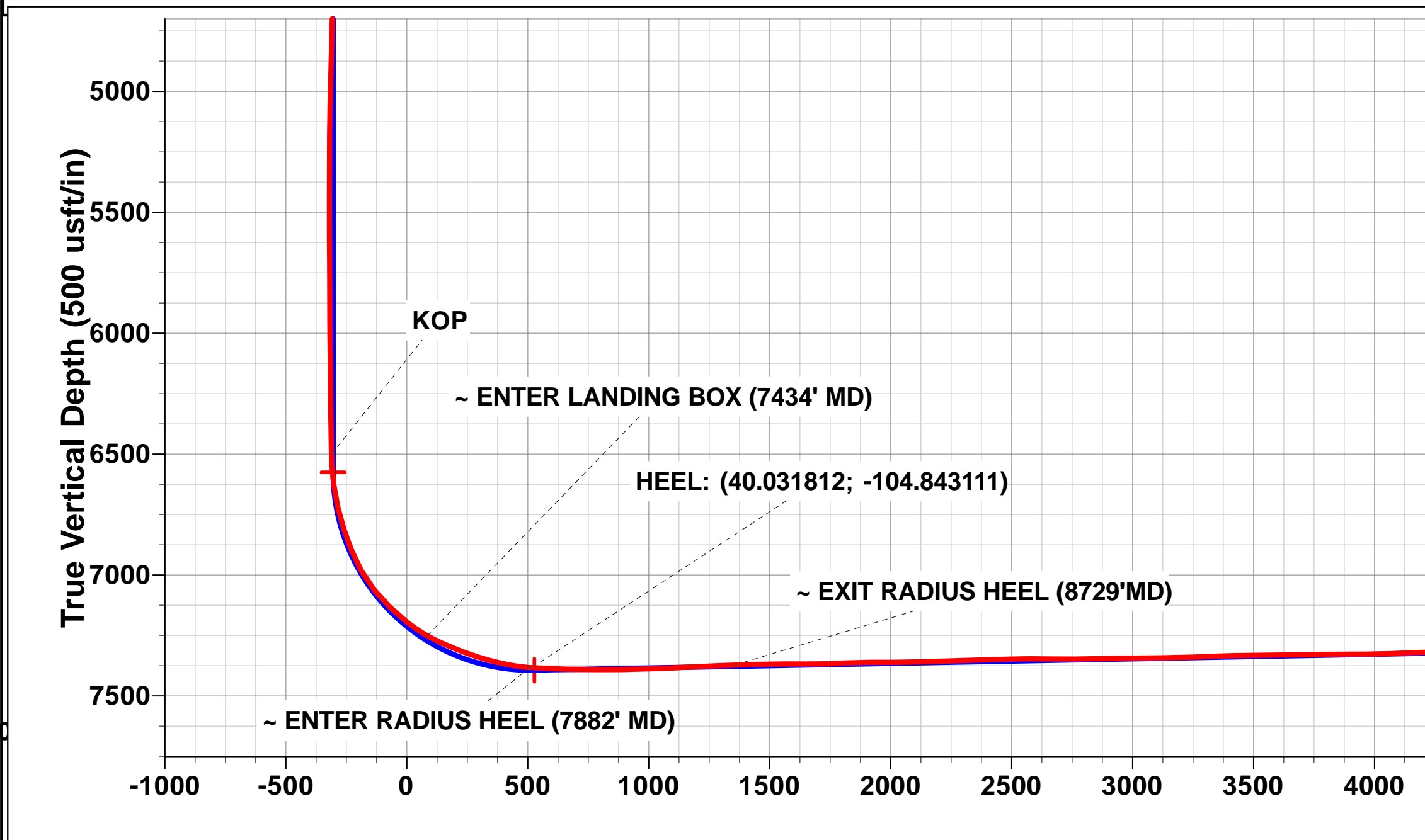
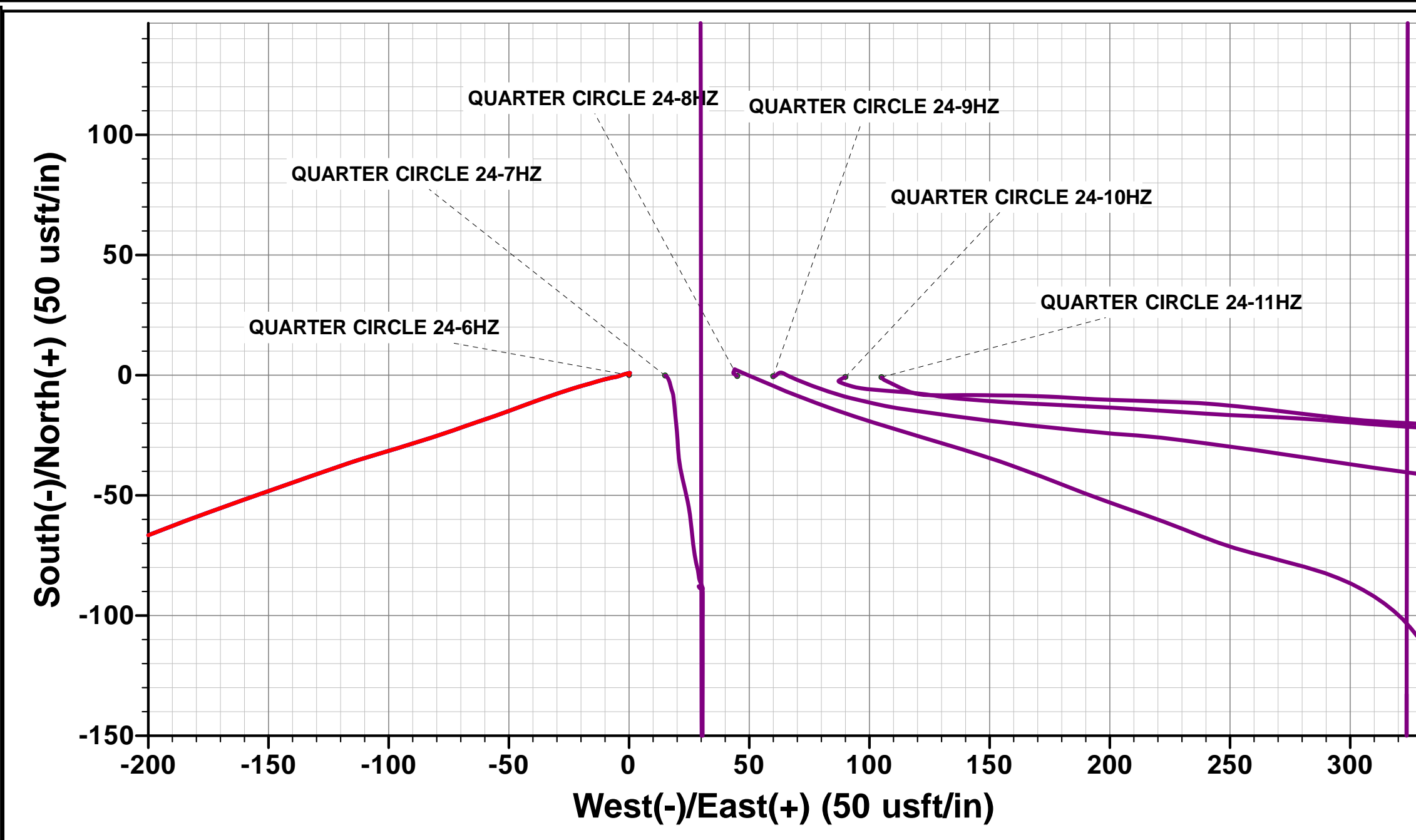
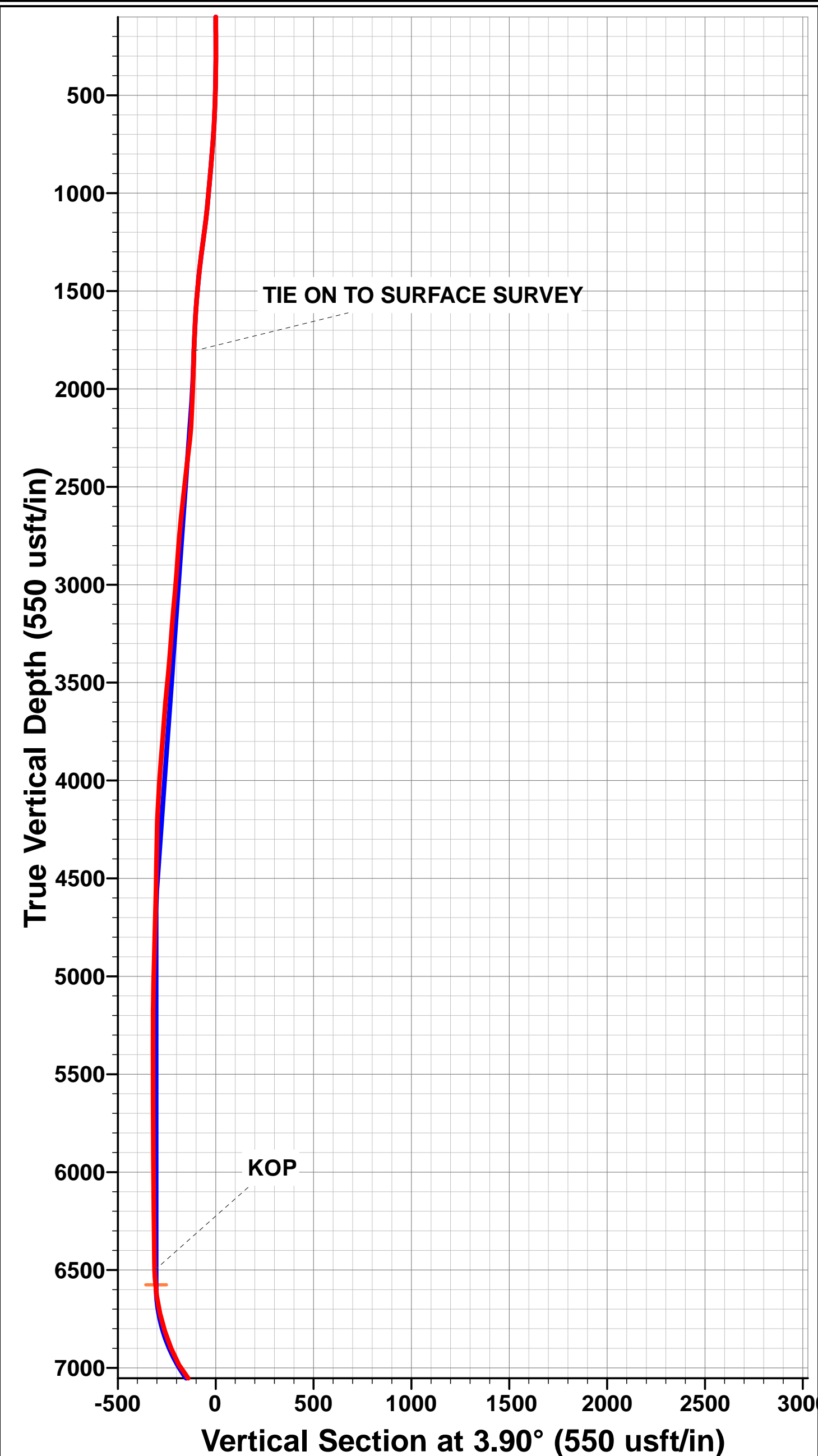
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
1805.7	1840.0	5.49	248.78	-92.3	-281.5	-111.2	298.2	TIE ON TO SURFACE SURVEY
6501.3	6545.0	1.75	346.07	-291.7	-307.6	-311.9	542.3	KOP
7251.4	7434.0	60.72	357.01	104.8	-299.6	84.2	940.2	~ ENTER LANDING BOX (7434' MD)
7383.3	7882.0	86.05	0.88	529.7	-300.1	508.1	1365.1	~ ENTER RADIUS HEEL (7882' MD)
7383.8	7890.0	86.70	0.80	537.7	-300.0	516.0	1373.0	HEEL: (40.031812; -104.843111)
7373.4	8729.0	91.15	358.41	1375.9	-287.4	1353.2	2211.5	~ EXIT RADIUS HEEL (8729' MD)
7292.2	17162.0	90.40	3.53	9801.4	-237.2	9762.5	10642.7	~ ENTER RADIUS TOE (17162' MD)
7283.2	17433.0	93.70	4.00	10071.6	-219.7	10033.3	10913.5	LAST SURVEY MAY 28, 2018
7279.5	17490.0	93.70	4.00	10128.4	-215.8	10090.2	10970.4	PROJECTION TO TD (40.058139; -104.842811)

AS DRILLED LOCAL COORDINATES:

SHL: 344ft FSL & 1774ft FWL Sec 24  
HEEL: 883.3ft FSL & 1476.6ft FWL Sec 24  
BHL: 51.2ft FNL & 1601.2ft FWL Sec 13

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
QUARTER CIRCLE 24-6HZ BHL (P5)	7302.0	10129.6	-210.0	40° 3' 29.311 N	104° 50' 34.044 W
QUARTER CIRCLE 24-6HZ HEEL (P5)	7394.0	548.4	-293.5	40° 1' 54.627 N	104° 50' 35.116 W
QUARTER CIRCLE 24-6HZ INT PT (P5)	7319.0	4530.3	-307.0	40° 2' 33.978 N	104° 50' 35.290 W
QUARTER CIRCLE 24-6HZ KOP (P5)	6575.6	-285.6	-290.6	40° 1' 46.386 N	104° 50' 35.079 W



## Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

<b>Project</b>	WELD COUNTY (NAD 83)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)	Using geodetic scale factor	

Site		SE SW 13 T1N R67W 6th P.M.			
Site Position:		Northing:	14,537,819.11 usft	Latitude:	40° 1' 49.208 N
From:	Lat/Long	Easting:	1,684,634.02 usft	Longitude:	104° 50' 31.343 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.10 °

Well	QUARTER CIRCLE 24-6HZ - Slot QUARTER CIRCLE 24-6HZ					
Well Position	+N/-S	0.0 usft	Northing:	14,537,819.11 usft	Latitude:	40° 1' 49.208 N
	+E/-W	0.0 usft	Easting:	1,684,634.02 usft	Longitude:	104° 50' 31.343 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,941.0 usft

<b>Wellbore</b>	JOB # 2018-306-461				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	17/05/2018	8.12	66.52	52,086

Design	FINAL SURVEYS				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	3.90	

<b>Survey Program</b>	<b>Date</b>	28/05/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
128.0	17,490.0	FINAL SURVEYS (JOB # 2018-306-461)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>Subsea 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	4,961.0	0.0	0.0	0.0	0.00	0.00	0.00
128.0	0.26	3.13	128.0	4,833.0	0.3	0.0	0.3	0.20	0.20	0.00
160.0	0.40	27.39	160.0	4,801.0	0.5	0.1	0.5	0.61	0.44	75.81
192.0	0.26	13.85	192.0	4,769.0	0.6	0.1	0.6	0.50	-0.44	-42.31
224.0	0.44	52.00	224.0	4,737.0	0.8	0.3	0.8	0.89	0.56	119.22
255.0	0.26	5.42	255.0	4,706.0	0.9	0.4	0.9	1.04	-0.58	-150.26
287.0	0.44	264.43	287.0	4,674.0	1.0	0.2	1.0	1.73	0.56	-315.59
318.0	1.01	252.83	318.0	4,643.0	0.9	-0.1	0.9	1.89	1.84	-37.42
350.0	1.85	257.45	350.0	4,611.0	0.7	-0.9	0.6	2.65	2.62	14.44
381.0	2.81	252.56	381.0	4,580.0	0.4	-2.1	0.2	3.16	3.10	-15.77
413.0	2.99	250.89	412.9	4,548.1	-0.2	-3.7	-0.4	0.62	0.56	-5.22
476.0	4.13	259.68	475.8	4,485.2	-1.1	-7.4	-1.6	2.00	1.81	13.95
507.0	4.97	256.52	506.7	4,454.3	-1.6	-9.9	-2.3	2.83	2.71	-10.19

## Survey Report



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<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

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)
539.0	5.89	253.35	538.6	4,422.4	-2.4	-12.8	-3.3	3.02	2.87	-9.91
571.0	6.72	252.92	570.4	4,390.6	-3.4	-16.1	-4.5	2.60	2.59	-1.34
603.0	7.21	255.38	602.1	4,358.9	-4.5	-19.9	-5.8	1.79	1.53	7.69
635.0	8.04	252.48	633.8	4,327.2	-5.7	-23.9	-7.3	2.86	2.59	-9.06
666.0	9.10	250.45	664.5	4,296.5	-7.1	-28.3	-9.0	3.56	3.42	-6.55
698.0	9.76	251.51	696.1	4,264.9	-8.8	-33.3	-11.1	2.13	2.06	3.31
730.0	10.55	250.45	727.6	4,233.4	-10.7	-38.6	-13.3	2.54	2.47	-3.31
762.0	10.59	249.40	759.0	4,202.0	-12.7	-44.1	-15.7	0.61	0.12	-3.28
793.0	11.25	250.45	789.5	4,171.5	-14.7	-49.6	-18.1	2.22	2.13	3.39
825.0	11.73	250.28	820.8	4,140.2	-16.9	-55.6	-20.6	1.50	1.50	-0.53
857.0	12.48	250.98	852.1	4,108.9	-19.1	-62.0	-23.2	2.39	2.34	2.19
889.0	12.61	250.83	883.3	4,077.7	-21.3	-68.5	-26.0	0.42	0.41	-0.47
920.0	12.83	250.98	913.6	4,047.4	-23.6	-75.0	-28.6	0.72	0.71	0.48
952.0	13.71	251.95	944.7	4,016.3	-25.9	-82.0	-31.4	2.84	2.75	3.03
984.0	14.77	253.62	975.7	3,985.3	-28.2	-89.5	-34.3	3.55	3.31	5.22
1,016.0	15.03	252.21	1,006.7	3,954.3	-30.7	-97.3	-37.2	1.39	0.81	-4.41
1,047.0	14.50	254.15	1,036.6	3,924.4	-32.9	-104.9	-40.0	2.34	-1.71	6.26
1,079.0	14.72	252.21	1,067.6	3,893.4	-35.3	-112.6	-42.9	1.68	0.69	-6.06
1,111.0	16.00	251.16	1,098.5	3,862.5	-37.9	-120.7	-46.1	4.09	4.00	-3.28
1,142.0	16.26	250.63	1,128.2	3,832.8	-40.8	-128.8	-49.4	0.96	0.84	-1.71
1,174.0	16.88	250.81	1,158.9	3,802.1	-43.8	-137.4	-53.0	1.94	1.94	0.56
1,206.0	18.06	250.28	1,189.4	3,771.6	-47.0	-146.5	-56.8	3.72	3.69	-1.66
1,238.0	18.81	250.89	1,219.8	3,741.2	-50.3	-156.0	-60.8	2.42	2.34	1.91
1,270.0	19.03	250.37	1,250.1	3,710.9	-53.8	-165.8	-64.9	0.87	0.69	-1.62
1,301.0	18.24	250.19	1,279.4	3,681.6	-57.1	-175.1	-68.9	2.56	-2.55	-0.58
1,333.0	17.36	248.87	1,309.9	3,651.1	-60.5	-184.3	-72.9	3.03	-2.75	-4.12
1,365.0	15.95	249.22	1,340.6	3,620.4	-63.8	-192.9	-76.8	4.42	-4.41	1.09
1,396.0	15.47	248.78	1,370.4	3,590.6	-66.8	-200.7	-80.3	1.60	-1.55	-1.42
1,460.0	14.06	249.58	1,432.3	3,528.7	-72.6	-216.0	-87.2	2.23	-2.20	1.25
1,492.0	13.10	251.68	1,463.4	3,497.6	-75.1	-223.0	-90.1	3.37	-3.00	6.56
1,523.0	12.88	250.63	1,493.6	3,467.4	-77.4	-229.6	-92.8	1.04	-0.71	-3.39
1,555.0	11.91	252.39	1,524.9	3,436.1	-79.6	-236.1	-95.4	3.25	-3.03	5.50
1,586.0	11.91	252.39	1,555.2	3,405.8	-81.5	-242.2	-97.8	0.00	0.00	0.00
1,618.0	11.51	252.56	1,586.5	3,374.5	-83.5	-248.4	-100.2	1.25	-1.25	0.53
1,650.0	11.21	253.71	1,617.9	3,343.1	-85.3	-254.5	-102.4	1.17	-0.94	3.59
1,682.0	10.72	257.40	1,649.3	3,311.7	-86.8	-260.4	-104.3	2.67	-1.53	11.53
1,713.0	9.54	258.19	1,679.8	3,281.2	-88.0	-265.7	-105.8	3.83	-3.81	2.55
1,745.0	8.26	257.75	1,711.4	3,249.6	-89.0	-270.5	-107.2	4.01	-4.00	-1.37
1,777.0	7.34	253.88	1,743.1	3,217.9	-90.0	-274.7	-108.5	3.31	-2.87	-12.09
1,809.0	6.50	251.77	1,774.9	3,186.1	-91.2	-278.4	-109.9	2.74	-2.62	-6.59
<b>TIE ON TO SURFACE SURVEY</b>										
<b>1,840.0</b>	<b>5.49</b>	<b>248.78</b>	<b>1,805.7</b>	<b>3,155.3</b>	<b>-92.3</b>	<b>-281.5</b>	<b>-111.2</b>	<b>3.41</b>	<b>-3.26</b>	<b>-9.65</b>
1,881.0	4.10	248.78	1,846.6	3,114.4	-93.5	-284.7	-112.7	3.39	-3.39	0.00
2,043.0	4.40	249.00	2,008.2	2,952.8	-97.8	-295.9	-117.7	0.19	0.19	0.14
2,137.0	4.10	238.30	2,101.9	2,859.1	-100.9	-302.1	-121.2	0.90	-0.32	-11.38
2,230.0	4.30	204.40	2,194.7	2,766.3	-105.8	-306.4	-126.4	2.64	0.22	-36.45
2,323.0	6.60	189.40	2,287.2	2,673.8	-114.3	-308.7	-135.0	2.89	2.47	-16.13
2,417.0	6.90	192.50	2,380.6	2,580.4	-125.1	-310.8	-146.0	0.50	0.32	3.30
2,509.0	6.60	174.40	2,472.0	2,489.0	-135.8	-311.5	-156.6	2.33	-0.33	-19.67
2,604.0	6.40	173.30	2,566.3	2,394.7	-146.5	-310.3	-167.2	0.25	-0.21	-1.16
2,698.0	5.70	172.60	2,659.8	2,301.2	-156.3	-309.1	-176.9	0.75	-0.74	-0.74
2,792.0	4.80	174.10	2,753.4	2,207.6	-164.8	-308.1	-185.4	0.97	-0.96	1.60
2,885.0	4.30	173.60	2,846.1	2,114.9	-172.2	-307.3	-192.7	0.54	-0.54	-0.54

# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
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<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

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)
2,978.0	4.50	165.70	2,938.9	2,022.1	-179.2	-306.0	-199.6	0.69	0.22	-8.49
3,073.0	5.40	166.10	3,033.5	1,927.5	-187.1	-304.0	-207.4	0.95	0.95	0.42
3,167.0	5.40	166.20	3,127.1	1,833.9	-195.7	-301.9	-215.8	0.01	0.00	0.11
3,262.0	5.00	162.50	3,221.7	1,739.3	-204.0	-299.6	-223.9	0.55	-0.42	-3.89
3,356.0	4.30	163.90	3,315.4	1,645.6	-211.3	-297.4	-231.0	0.75	-0.74	1.49
3,451.0	5.00	164.00	3,410.1	1,550.9	-218.7	-295.3	-238.3	0.74	0.74	0.11
3,546.0	6.00	172.00	3,504.6	1,456.4	-227.6	-293.4	-247.0	1.32	1.05	8.42
3,640.0	5.20	173.50	3,598.2	1,362.8	-236.7	-292.3	-256.0	0.87	-0.85	1.60
3,734.0	4.30	170.20	3,691.9	1,269.1	-244.4	-291.2	-263.6	1.00	-0.96	-3.51
3,828.0	4.30	172.10	3,785.6	1,175.4	-251.4	-290.1	-270.5	0.15	0.00	2.02
3,923.0	4.70	188.30	3,880.3	1,080.7	-258.7	-290.2	-277.9	1.40	0.42	17.05
4,017.0	4.50	192.90	3,974.0	987.0	-266.1	-291.5	-285.3	0.45	-0.21	4.89
4,112.0	3.00	194.10	4,068.8	892.2	-272.2	-293.0	-291.5	1.58	-1.58	1.26
4,206.0	3.00	197.10	4,162.7	798.3	-276.9	-294.3	-296.3	0.17	0.00	3.19
4,300.0	1.20	196.90	4,256.6	704.4	-280.2	-295.3	-299.6	1.91	-1.91	-0.21
4,394.0	1.20	221.60	4,350.6	610.4	-281.9	-296.2	-301.4	0.55	0.00	26.28
4,489.0	1.00	201.30	4,445.6	515.4	-283.4	-297.2	-303.0	0.46	-0.21	-21.37
4,583.0	1.00	202.30	4,539.6	421.4	-284.9	-297.8	-304.5	0.02	0.00	1.06
4,676.0	1.50	178.10	4,632.5	328.5	-286.9	-298.1	-306.5	0.77	0.54	-26.02
4,865.0	1.50	172.50	4,821.5	139.5	-291.8	-297.7	-311.4	0.08	0.00	-2.96
4,959.0	1.70	186.70	4,915.4	45.6	-294.4	-297.7	-314.0	0.47	0.21	15.11
5,076.0	1.30	200.70	5,032.4	-71.4	-297.4	-298.4	-317.0	0.46	-0.34	11.97
5,171.0	1.30	239.10	5,127.4	-166.4	-299.0	-299.7	-318.6	0.90	0.00	40.42
5,266.0	0.30	230.50	5,222.4	-261.4	-299.7	-300.8	-319.4	1.06	-1.05	-9.05
5,361.0	0.30	271.80	5,317.4	-356.4	-299.8	-301.2	-319.6	0.22	0.00	43.47
5,455.0	0.50	276.20	5,411.4	-450.4	-299.8	-301.9	-319.6	0.22	0.21	4.68
5,548.0	0.50	259.60	5,504.4	-543.4	-299.8	-302.7	-319.7	0.16	0.00	-17.85
5,643.0	0.50	290.80	5,599.3	-638.3	-299.7	-303.5	-319.7	0.28	0.00	32.84
5,738.0	0.70	304.60	5,694.3	-733.3	-299.2	-304.3	-319.2	0.26	0.21	14.53
5,833.0	1.00	289.90	5,789.3	-828.3	-298.6	-305.6	-318.7	0.39	0.32	-15.47
5,927.0	0.80	293.80	5,883.3	-922.3	-298.1	-307.0	-318.3	0.22	-0.21	4.15
6,020.0	0.80	299.60	5,976.3	-1,015.3	-297.5	-308.1	-317.8	0.09	0.00	6.24
6,114.0	0.50	297.60	6,070.3	-1,109.3	-297.0	-309.1	-317.3	0.32	-0.32	-2.13
6,207.0	0.90	7.80	6,163.3	-1,202.3	-296.1	-309.3	-316.4	0.93	0.43	75.48
6,300.0	0.90	26.90	6,256.3	-1,295.3	-294.7	-308.9	-315.0	0.32	0.00	20.54
6,393.0	0.80	47.20	6,349.3	-1,388.3	-293.6	-308.1	-313.9	0.34	-0.11	21.83
6,488.0	0.50	19.80	6,444.3	-1,483.3	-292.8	-307.5	-313.0	0.45	-0.32	-28.84
<b>KOP</b>										
6,545.0	1.75	346.07	6,501.3	-1,540.3	-291.7	-307.6	-311.9	2.39	2.19	-59.18
6,581.0	2.60	342.20	6,537.2	-1,576.2	-290.4	-308.0	-310.7	2.39	2.36	-10.75
6,675.0	8.50	349.50	6,630.8	-1,669.8	-281.5	-309.9	-301.9	6.31	6.28	7.77
6,768.0	13.10	354.50	6,722.1	-1,761.1	-264.3	-312.1	-284.9	5.04	4.95	5.38
6,862.0	17.90	2.60	6,812.7	-1,851.7	-239.2	-312.5	-259.9	5.59	5.11	8.62
6,955.0	22.20	2.60	6,900.0	-1,939.0	-207.4	-311.1	-228.0	4.62	4.62	0.00
7,049.0	29.60	0.10	6,984.5	-2,023.5	-166.3	-310.2	-187.1	7.96	7.87	-2.66
7,142.0	38.40	4.80	7,061.5	-2,100.5	-114.5	-307.8	-135.1	9.87	9.46	5.05
7,236.0	46.10	5.60	7,131.1	-2,170.1	-51.6	-302.0	-72.0	8.21	8.19	0.85
7,329.0	51.00	1.50	7,192.6	-2,231.6	17.9	-297.8	-2.4	6.22	5.27	-4.41
7,422.0	59.80	356.90	7,245.4	-2,284.4	94.4	-299.0	73.8	10.30	9.46	-4.95
<b>~ ENTER LANDING BOX (7434' MD)</b>										
7,434.0	60.72	357.01	7,251.4	-2,290.4	104.8	-299.6	84.2	7.72	7.68	0.89
7,517.0	67.10	357.70	7,287.8	-2,326.8	179.2	-303.0	158.2	7.72	7.68	0.83
7,611.0	69.50	0.00	7,322.6	-2,361.6	266.5	-304.7	245.2	3.42	2.55	2.45



# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

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)
7,704.0	74.60	0.80	7,351.2	-2,390.2	355.0	-304.1	333.4	5.54	5.48	0.86
7,796.0	79.10	1.80	7,372.2	-2,411.2	444.5	-302.1	422.9	5.00	4.89	1.09
~ ENTER RADIUS HEEL (7882' MD)										
7,882.0	86.05	0.88	7,383.3	-2,422.3	529.7	-300.1	508.1	8.15	8.09	-1.07
HEEL: (40.031812; -104.843111)										
7,890.0	86.70	0.80	7,383.8	-2,422.8	537.7	-300.0	516.0	8.15	8.09	-1.05
7,984.0	88.00	0.40	7,388.1	-2,427.1	631.6	-299.0	609.8	1.45	1.38	-0.43
8,079.0	88.80	0.80	7,390.8	-2,429.8	726.5	-298.0	704.6	0.94	0.84	0.42
8,173.0	89.90	1.10	7,391.8	-2,430.8	820.5	-296.4	798.4	1.21	1.17	0.32
8,266.0	91.00	2.60	7,391.1	-2,430.1	913.4	-293.4	891.4	2.00	1.18	1.61
8,361.0	91.90	2.00	7,388.7	-2,427.7	1,008.3	-289.6	986.3	1.14	0.95	-0.63
8,453.0	91.80	1.00	7,385.7	-2,424.7	1,100.3	-287.2	1,078.2	1.09	-0.11	-1.09
8,546.0	93.50	1.50	7,381.4	-2,420.4	1,193.1	-285.2	1,171.0	1.91	1.83	0.54
8,640.0	92.70	358.60	7,376.4	-2,415.4	1,287.0	-285.1	1,264.6	3.20	-0.85	-3.09
~ EXIT RADIUS HEEL (8729' MD)										
8,729.0	91.15	358.41	7,373.4	-2,412.4	1,375.9	-287.4	1,353.2	1.75	-1.74	-0.22
8,732.0	91.10	358.40	7,373.3	-2,412.3	1,378.9	-287.5	1,356.2	1.75	-1.74	-0.22
8,826.0	92.40	358.60	7,370.4	-2,409.4	1,472.8	-290.0	1,449.7	1.40	1.38	0.21
8,921.0	90.00	356.50	7,368.4	-2,407.4	1,567.7	-294.0	1,544.1	3.36	-2.53	-2.21
9,015.0	89.90	355.90	7,368.5	-2,407.5	1,661.5	-300.2	1,637.2	0.65	-0.11	-0.64
9,110.0	91.30	356.50	7,367.5	-2,406.5	1,756.3	-306.5	1,731.4	1.60	1.47	0.63
9,203.0	93.00	356.80	7,364.0	-2,403.0	1,849.1	-312.0	1,823.6	1.86	1.83	0.32
9,296.0	89.90	358.90	7,361.7	-2,400.7	1,941.9	-315.5	1,916.0	4.03	-3.33	2.26
9,390.0	89.80	359.90	7,361.9	-2,400.9	2,035.9	-316.4	2,009.7	1.07	-0.11	1.06
9,483.0	92.20	0.70	7,360.3	-2,399.3	2,128.9	-316.0	2,102.5	2.72	2.58	0.86
9,578.0	91.60	1.20	7,357.2	-2,396.2	2,223.8	-314.4	2,197.3	0.82	-0.63	0.53
9,673.0	91.70	0.80	7,354.4	-2,393.4	2,318.8	-312.7	2,292.2	0.43	0.11	-0.42
9,768.0	91.70	359.30	7,351.6	-2,390.6	2,413.7	-312.6	2,386.9	1.58	0.00	-1.58
9,861.0	91.40	358.30	7,349.1	-2,388.1	2,506.7	-314.6	2,479.5	1.12	-0.32	-1.08
9,954.0	90.60	359.70	7,347.5	-2,386.5	2,599.7	-316.2	2,572.1	1.73	-0.86	1.51
10,049.0	89.30	0.10	7,347.6	-2,386.6	2,694.7	-316.4	2,666.9	1.43	-1.37	0.42
10,143.0	89.90	0.80	7,348.2	-2,387.2	2,788.7	-315.6	2,760.7	0.98	0.64	0.74
10,236.0	91.80	1.60	7,346.8	-2,385.8	2,881.6	-313.7	2,853.6	2.22	2.04	0.86
10,329.0	90.30	1.30	7,345.1	-2,384.1	2,974.6	-311.3	2,946.5	1.64	-1.61	-0.32
10,423.0	90.60	1.10	7,344.4	-2,383.4	3,068.5	-309.4	3,040.4	0.38	0.32	-0.21
10,517.0	91.10	2.10	7,343.0	-2,382.0	3,162.5	-306.7	3,134.3	1.19	0.53	1.06
10,611.0	91.50	0.20	7,340.9	-2,379.9	3,256.4	-304.9	3,228.2	2.07	0.43	-2.02
10,704.0	92.90	0.20	7,337.3	-2,376.3	3,349.4	-304.5	3,320.9	1.51	1.51	0.00
10,797.0	90.90	359.40	7,334.2	-2,373.2	3,442.3	-304.9	3,413.6	2.32	-2.15	-0.86
10,890.0	90.90	359.40	7,332.7	-2,371.7	3,535.3	-305.8	3,506.3	0.00	0.00	0.00
10,983.0	90.50	359.50	7,331.6	-2,370.6	3,628.3	-306.7	3,599.0	0.44	-0.43	0.11
11,075.0	90.80	0.00	7,330.6	-2,369.6	3,720.3	-307.1	3,690.8	0.63	0.33	0.54
11,168.0	90.70	0.10	7,329.3	-2,368.3	3,813.3	-307.0	3,783.6	0.15	-0.11	0.11
11,260.0	90.50	0.50	7,328.4	-2,367.4	3,905.3	-306.6	3,875.4	0.49	-0.22	0.43
11,354.0	90.50	0.30	7,327.6	-2,366.6	3,999.3	-305.9	3,969.2	0.21	0.00	-0.21
11,448.0	91.60	1.10	7,325.8	-2,364.8	4,093.2	-304.8	4,063.0	1.45	1.17	0.85
11,540.0	92.90	1.50	7,322.2	-2,361.2	4,185.1	-302.7	4,154.9	1.48	1.41	0.43
11,634.0	91.10	0.10	7,319.0	-2,358.0	4,279.1	-301.4	4,248.7	2.43	-1.91	-1.49
11,728.0	92.00	359.90	7,316.4	-2,355.4	4,373.0	-301.4	4,342.4	0.98	0.96	-0.21
11,821.0	90.60	359.90	7,314.3	-2,353.3	4,466.0	-301.5	4,435.2	1.51	-1.51	0.00
11,915.0	89.80	359.30	7,314.0	-2,353.0	4,560.0	-302.2	4,528.9	1.06	-0.85	-0.64
12,009.0	89.80	357.80	7,314.3	-2,353.3	4,654.0	-304.6	4,622.5	1.60	0.00	-1.60
12,104.0	91.10	356.50	7,313.6	-2,352.6	4,748.8	-309.3	4,716.8	1.94	1.37	-1.37

## Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

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)
12,198.0	89.00	356.70	7,313.5	-2,352.5	4,842.7	-314.9	4,810.0	2.24	-2.23	0.21
12,291.0	89.30	357.90	7,314.8	-2,353.8	4,935.6	-319.2	4,902.4	1.33	0.32	1.29
12,385.0	90.70	358.30	7,314.8	-2,353.8	5,029.5	-322.4	4,995.9	1.55	1.49	0.43
12,478.0	90.10	357.90	7,314.2	-2,353.2	5,122.5	-325.4	5,088.5	0.78	-0.65	-0.43
12,573.0	89.40	358.00	7,314.6	-2,353.6	5,217.4	-328.8	5,182.9	0.74	-0.74	0.11
12,667.0	91.20	358.10	7,314.1	-2,353.1	5,311.3	-332.0	5,276.4	1.92	1.91	0.11
12,760.0	89.80	0.10	7,313.3	-2,352.3	5,404.3	-333.5	5,369.1	2.62	-1.51	2.15
12,853.0	87.80	0.60	7,315.3	-2,354.3	5,497.3	-332.9	5,461.9	2.22	-2.15	0.54
12,947.0	88.10	1.20	7,318.6	-2,357.6	5,591.2	-331.5	5,555.7	0.71	0.32	0.64
13,039.0	89.10	1.70	7,320.9	-2,359.9	5,683.1	-329.1	5,647.6	1.22	1.09	0.54
13,133.0	89.90	1.60	7,321.7	-2,360.7	5,777.1	-326.4	5,741.5	0.86	0.85	-0.11
13,228.0	90.60	1.80	7,321.3	-2,360.3	5,872.1	-323.6	5,836.5	0.77	0.74	0.21
13,322.0	91.70	2.00	7,319.4	-2,358.4	5,966.0	-320.5	5,930.4	1.19	1.17	0.21
13,415.0	90.00	0.30	7,318.0	-2,357.0	6,059.0	-318.6	6,023.3	2.58	-1.83	-1.83
13,510.0	89.40	358.90	7,318.5	-2,357.5	6,153.9	-319.3	6,118.0	1.60	-0.63	-1.47
13,603.0	90.00	358.70	7,319.0	-2,358.0	6,246.9	-321.2	6,210.6	0.68	0.65	-0.22
13,697.0	91.00	359.00	7,318.2	-2,357.2	6,340.9	-323.1	6,304.2	1.11	1.06	0.32
13,791.0	92.40	359.40	7,315.4	-2,354.4	6,434.8	-324.4	6,397.9	1.55	1.49	0.43
13,885.0	92.00	359.20	7,311.8	-2,350.8	6,528.8	-325.6	6,491.5	0.48	-0.43	-0.21
13,980.0	91.50	358.20	7,308.9	-2,347.9	6,623.7	-327.7	6,586.1	1.18	-0.53	-1.05
14,074.0	90.60	359.00	7,307.2	-2,346.2	6,717.7	-330.0	6,679.7	1.28	-0.96	0.85
14,168.0	89.10	359.00	7,307.4	-2,346.4	6,811.6	-331.7	6,773.3	1.60	-1.60	0.00
14,263.0	90.20	359.80	7,308.0	-2,347.0	6,906.6	-332.7	6,868.0	1.43	1.16	0.84
14,358.0	92.30	0.10	7,305.9	-2,344.9	7,001.6	-332.7	6,962.8	2.23	2.21	0.32
14,452.0	91.10	359.60	7,303.1	-2,342.1	7,095.6	-333.0	7,056.5	1.38	-1.28	-0.53
14,547.0	89.20	359.00	7,302.9	-2,341.9	7,190.5	-334.2	7,151.2	2.10	-2.00	-0.63
14,641.0	91.50	359.00	7,302.3	-2,341.3	7,284.5	-335.8	7,244.8	2.45	2.45	0.00
14,735.0	90.30	0.10	7,300.8	-2,339.8	7,378.5	-336.5	7,338.5	1.73	-1.28	1.17
14,829.0	89.10	359.30	7,301.3	-2,340.3	7,472.5	-337.0	7,432.3	1.53	-1.28	-0.85
14,923.0	90.90	359.90	7,301.3	-2,340.3	7,566.5	-337.7	7,526.0	2.02	1.91	0.64
15,016.0	89.80	359.20	7,300.7	-2,339.7	7,659.5	-338.4	7,618.7	1.40	-1.18	-0.75
15,111.0	90.20	359.10	7,300.7	-2,339.7	7,754.5	-339.8	7,713.4	0.43	0.42	-0.11
15,205.0	89.10	359.30	7,301.3	-2,340.3	7,848.5	-341.1	7,807.1	1.19	-1.17	0.21
15,298.0	87.50	359.80	7,304.1	-2,343.1	7,941.4	-341.9	7,899.8	1.80	-1.72	0.54
15,392.0	88.50	359.50	7,307.4	-2,346.4	8,035.4	-342.4	7,993.5	1.11	1.06	-0.32
15,487.0	90.80	359.70	7,307.9	-2,346.9	8,130.3	-343.1	8,088.2	2.43	2.42	0.21
15,582.0	90.40	1.20	7,306.9	-2,345.9	8,225.3	-342.4	8,183.0	1.63	-0.42	1.58
15,676.0	90.60	1.70	7,306.1	-2,345.1	8,319.3	-340.0	8,276.9	0.57	0.21	0.53
15,769.0	89.20	3.70	7,306.3	-2,345.3	8,412.2	-335.6	8,369.9	2.63	-1.51	2.15
15,863.0	90.40	4.10	7,306.6	-2,345.6	8,506.0	-329.2	8,463.9	1.35	1.28	0.43
15,957.0	91.30	4.10	7,305.2	-2,344.2	8,599.7	-322.5	8,557.9	0.96	0.96	0.00
16,050.0	92.30	4.00	7,302.3	-2,341.3	8,692.4	-315.9	8,650.8	1.08	1.08	-0.11
16,142.0	91.20	3.30	7,299.5	-2,338.5	8,784.2	-310.1	8,742.8	1.42	-1.20	-0.76
16,237.0	91.60	3.10	7,297.2	-2,336.2	8,879.0	-304.8	8,837.7	0.47	0.42	-0.21
16,330.0	89.80	4.30	7,296.0	-2,335.0	8,971.8	-298.8	8,930.7	2.33	-1.94	1.29
16,425.0	89.00	4.80	7,297.0	-2,336.0	9,066.5	-291.2	9,025.7	0.99	-0.84	0.53
16,520.0	90.60	5.30	7,297.4	-2,336.4	9,161.1	-282.9	9,120.7	1.76	1.68	0.53
16,614.0	92.10	5.40	7,295.1	-2,334.1	9,254.7	-274.1	9,214.6	1.60	1.60	0.11
16,706.0	91.20	4.20	7,292.5	-2,331.5	9,346.3	-266.4	9,306.6	1.63	-0.98	-1.30
16,800.0	91.30	3.70	7,290.4	-2,329.4	9,440.1	-259.9	9,400.6	0.54	0.11	-0.53
16,892.0	89.40	3.80	7,289.9	-2,328.9	9,531.9	-253.9	9,492.6	2.07	-2.07	0.11
16,986.0	89.00	3.30	7,291.2	-2,330.2	9,625.7	-248.1	9,586.5	0.68	-0.43	-0.53
17,080.0	89.70	3.70	7,292.3	-2,331.3	9,719.5	-242.4	9,680.5	0.86	0.74	0.43

# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

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)
~ ENTER RADIUS TOE (17162' MD)										
17,162.0	90.40	3.53	7,292.2	-2,331.2	9,801.4	-237.2	9,762.5	0.88	0.85	-0.21
17,174.0	90.50	3.50	7,292.1	-2,331.1	9,813.3	-236.5	9,774.5	0.88	0.85	-0.21
17,269.0	91.40	3.70	7,290.5	-2,329.5	9,908.1	-230.5	9,869.5	0.97	0.95	0.21
17,362.0	92.70	3.70	7,287.2	-2,326.2	10,000.9	-224.5	9,962.5	1.40	1.40	0.00
LAST SURVEY MAY 28, 2018										
17,433.0	93.70	4.00	7,283.2	-2,322.2	10,071.6	-219.7	10,033.3	1.47	1.41	0.42
PROJECTION TO TD (40.058139; -104.842811)										
17,490.0	93.70	4.00	7,279.5	-2,318.5	10,128.4	-215.8	10,090.2	0.00	0.00	0.00



# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-252.8	14,542,318.88	1,684,373.32	40° 2' 33.698 N	104° 50' 34.594 W
- survey misses target center by 50.3usft at 11856.7usft MD (7314.0 TVD, 4501.7 N, -301.7 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.7	-289.1	-288.9	14,537,529.58	1,684,345.76	40° 1' 46.351 N	104° 50' 35.057 W
- survey misses target center by 19.7usft at 6619.0usft MD (6575.2 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 19.7usft at 7901.3usft MD (7384.4 TVD, 549.0 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.6	-285.6	-290.6	14,537,533.14	1,684,344.05	40° 1' 46.386 N	104° 50' 35.079 W
- survey misses target center by 18.2usft at 6619.3usft MD (6575.5 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,295.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 16.5usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,386.1	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 17.3usft at 7901.0usft MD (7384.4 TVD, 548.6 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,319.0	4,530.3	-307.0	14,542,347.06	1,684,319.12	40° 2' 33.978 N	104° 50' 35.290 W
- survey misses target center by 7.2usft at 11885.3usft MD (7313.9 TVD, 4530.3 N, -301.9 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-307.0	14,542,318.79	1,684,319.16	40° 2' 33.698 N	104° 50' 35.290 W
- survey misses target center by 13.1usft at 11857.1usft MD (7314.0 TVD, 4502.1 N, -301.7 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,840.0	1,805.7	-92.3	-281.5	TIE ON TO SURFACE SURVEY
6,545.0	6,501.3	-291.7	-307.6	KOP
7,434.0	7,251.4	104.8	-299.6	~ ENTER LANDING BOX (7434' MD)
7,882.0	7,383.3	529.7	-300.1	~ ENTER RADIUS HEEL (7882' MD)
7,890.0	7,383.8	537.7	-300.0	HEEL: (40.031812; -104.843111)
8,729.0	7,373.4	1,375.9	-287.4	~ EXIT RADIUS HEEL (8729' MD)
17,162.0	7,292.2	9,801.4	-237.2	~ ENTER RADIUS TOE (17162' MD)
17,433.0	7,283.2	10,071.6	-219.7	LAST SURVEY MAY 28, 2018
17,490.0	7,279.5	10,128.4	-215.8	PROJECTION TO TD (40.058139; -104.842811)

## Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-252.8	14,542,318.88	1,684,373.32	40° 2' 33.698 N	104° 50' 34.594 W
- survey misses target center by 50.3usft at 11856.7usft MD (7314.0 TVD, 4501.7 N, -301.7 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.7	-289.1	-288.9	14,537,529.58	1,684,345.76	40° 1' 46.351 N	104° 50' 35.057 W
- survey misses target center by 19.7usft at 6619.0usft MD (6575.2 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 19.7usft at 7901.3usft MD (7384.4 TVD, 549.0 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.6	-285.6	-290.6	14,537,533.14	1,684,344.05	40° 1' 46.386 N	104° 50' 35.079 W
- survey misses target center by 18.2usft at 6619.3usft MD (6575.5 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,295.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 16.5usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,386.1	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 17.3usft at 7901.0usft MD (7384.4 TVD, 548.6 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,319.0	4,530.3	-307.0	14,542,347.06	1,684,319.12	40° 2' 33.978 N	104° 50' 35.290 W
- survey misses target center by 7.2usft at 11885.3usft MD (7313.9 TVD, 4530.3 N, -301.9 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-307.0	14,542,318.79	1,684,319.16	40° 2' 33.698 N	104° 50' 35.290 W
- survey misses target center by 13.1usft at 11857.1usft MD (7314.0 TVD, 4502.1 N, -301.7 E)									
- Point									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,840.0	1,805.7	-92.3	-281.5	TIE ON TO SURFACE SURVEY
6,545.0	6,501.3	-291.7	-307.6	KOP
7,434.0	7,251.4	104.8	-299.6	~ ENTER LANDING BOX (7434' MD)
7,882.0	7,383.3	529.7	-300.1	~ ENTER RADIUS HEEL (7882' MD)
7,890.0	7,383.8	537.7	-300.0	HEEL: (40.031812; -104.843111)
8,729.0	7,373.4	1,375.9	-287.4	~ EXIT RADIUS HEEL (8729' MD)
17,162.0	7,292.2	9,801.4	-237.2	~ ENTER RADIUS TOE (17162' MD)
17,433.0	7,283.2	10,071.6	-219.7	LAST SURVEY MAY 28, 2018
17,490.0	7,279.5	10,128.4	-215.8	PROJECTION TO TD (40.058139; -104.842811)

## Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well QUARTER CIRCLE 24-6HZ - Slot QUARTER CIR
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Site:</b>	SE SW 13 T1N R67W 6th P.M.	<b>MD Reference:</b>	KB REV 20' @ 4961.0usft (PD461)
<b>Well:</b>	QUARTER CIRCLE 24-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2018-306-461	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EOG RESOURCES

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-252.8	14,542,318.88	1,684,373.32	40° 2' 33.698 N	104° 50' 34.594 W
- survey misses target center by 50.3usft at 11856.7usft MD (7314.0 TVD, 4501.7 N, -301.7 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 23.2usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.7	-289.1	-288.9	14,537,529.58	1,684,345.76	40° 1' 46.351 N	104° 50' 35.057 W
- survey misses target center by 19.7usft at 6619.0usft MD (6575.2 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 19.7usft at 7901.3usft MD (7384.4 TVD, 549.0 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,394.0	548.4	-293.5	14,538,366.73	1,684,339.67	40° 1' 54.627 N	104° 50' 35.116 W
- survey misses target center by 11.5usft at 7901.2usft MD (7384.4 TVD, 548.9 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	6,575.6	-285.6	-290.6	14,537,533.14	1,684,344.05	40° 1' 46.386 N	104° 50' 35.079 W
- survey misses target center by 18.2usft at 6619.3usft MD (6575.5 TVD, -287.9 N, -308.6 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,295.0	10,129.6	-210.0	14,547,944.25	1,684,406.12	40° 3' 29.311 N	104° 50' 34.044 W
- survey misses target center by 16.5usft at 17490.0usft MD (7279.5 TVD, 10128.4 N, -215.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,386.1	548.4	-282.6	14,538,366.75	1,684,350.56	40° 1' 54.627 N	104° 50' 34.976 W
- survey misses target center by 17.3usft at 7901.0usft MD (7384.4 TVD, 548.6 N, -299.8 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,319.0	4,530.3	-307.0	14,542,347.06	1,684,319.12	40° 2' 33.978 N	104° 50' 35.290 W
- survey misses target center by 7.2usft at 11885.3usft MD (7313.9 TVD, 4530.3 N, -301.9 E)									
- Point									
QUARTER CIRCLE 24-6	0.00	0.00	7,302.0	4,502.0	-307.0	14,542,318.79	1,684,319.16	40° 2' 33.698 N	104° 50' 35.290 W
- survey misses target center by 13.1usft at 11857.1usft MD (7314.0 TVD, 4502.1 N, -301.7 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,840.0	1,805.7	-92.3	-281.5	TIE ON TO SURFACE SURVEY
6,545.0	6,501.3	-291.7	-307.6	KOP
7,434.0	7,251.4	104.8	-299.6	~ ENTER LANDING BOX (7434' MD)
7,882.0	7,383.3	529.7	-300.1	~ ENTER RADIUS HEEL (7882' MD)
7,890.0	7,383.8	537.7	-300.0	HEEL: (40.031812; -104.843111)
8,729.0	7,373.4	1,375.9	-287.4	~ EXIT RADIUS HEEL (8729' MD)
17,162.0	7,292.2	9,801.4	-237.2	~ ENTER RADIUS TOE (17162' MD)
17,433.0	7,283.2	10,071.6	-219.7	LAST SURVEY MAY 28, 2018
17,490.0	7,279.5	10,128.4	-215.8	PROJECTION TO TD (40.058139; -104.842811)

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