



Project: WELD COUNTY (NAD 83)
 Site: SW SE SEC. 25 T2N R66W 6th P.M.
 Well: GRACIE 24-9HZ
 Wellbore: JOB #2018-385-461
 Design: FINAL SURVEYS

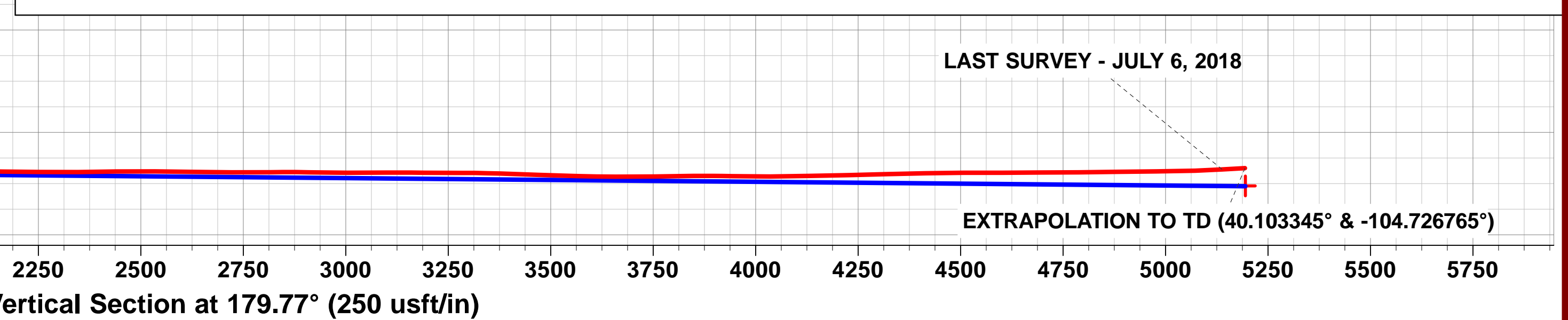
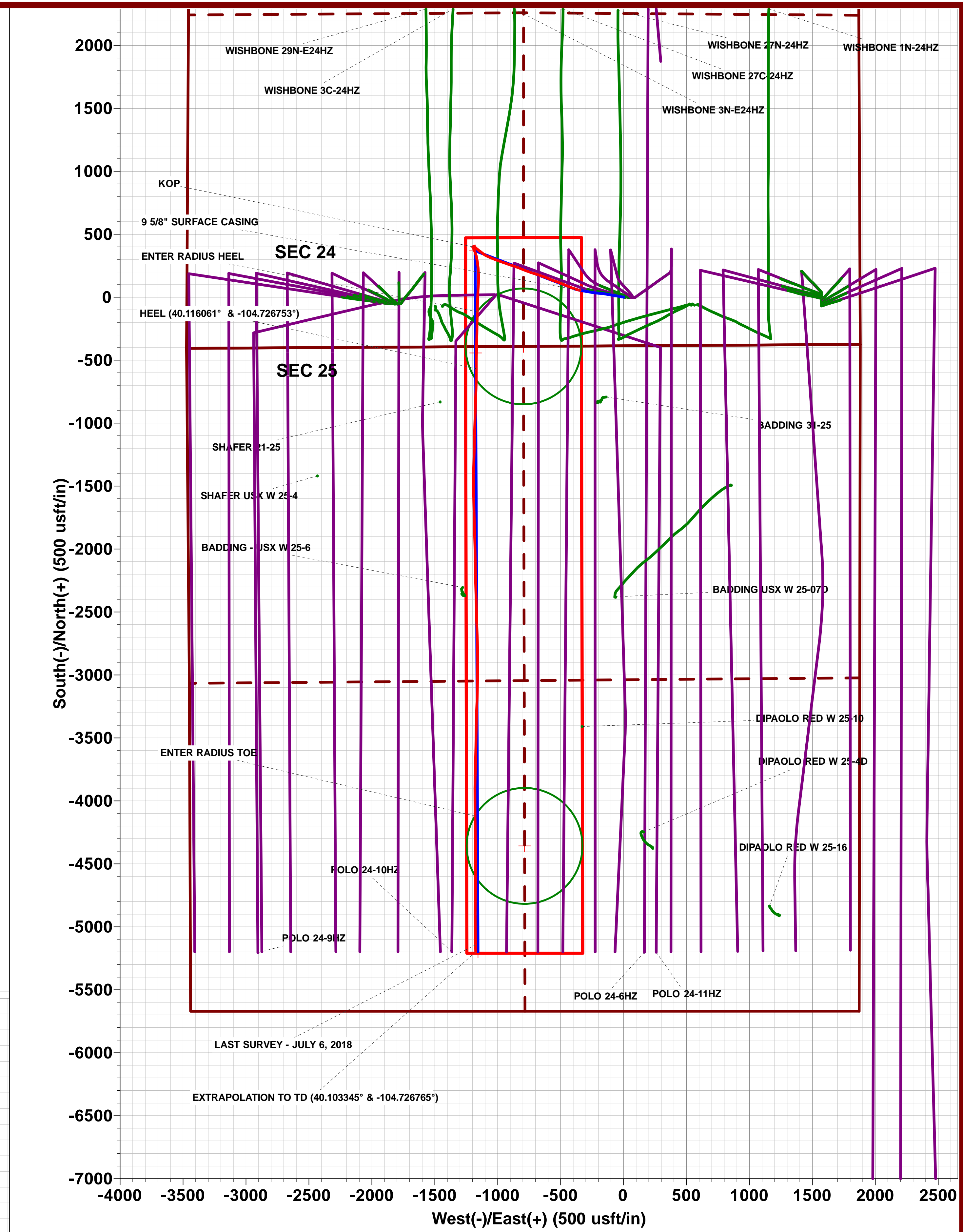
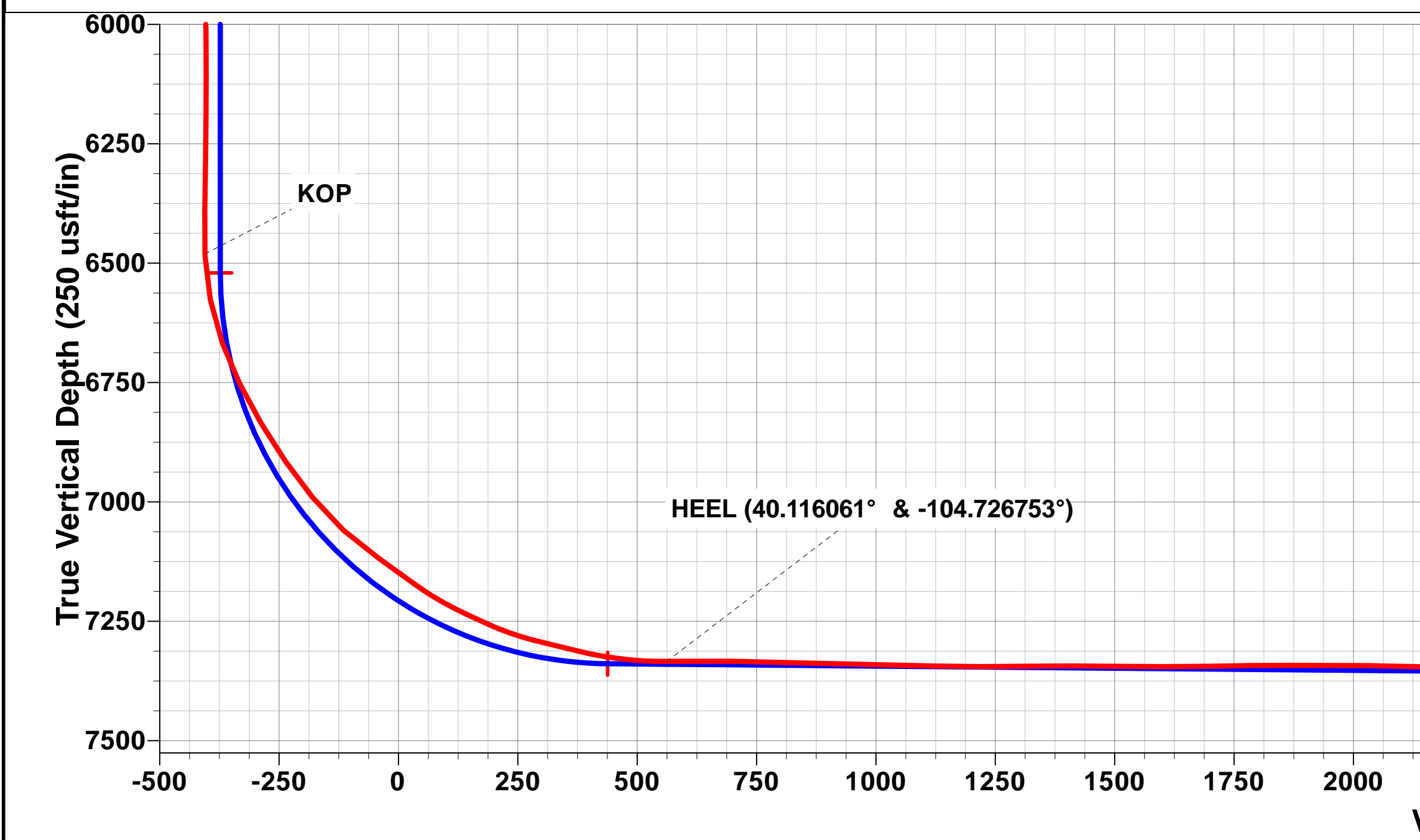
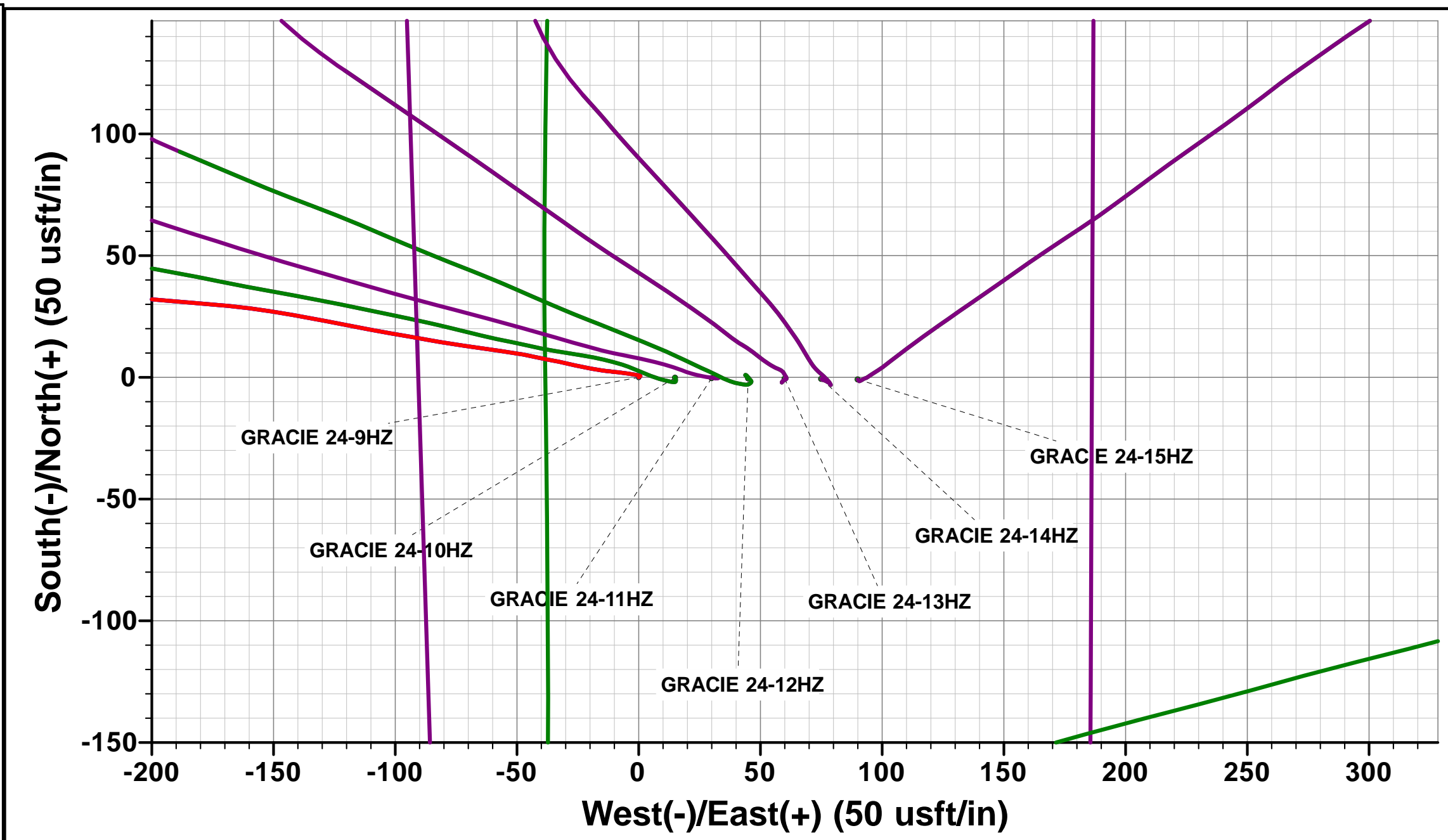
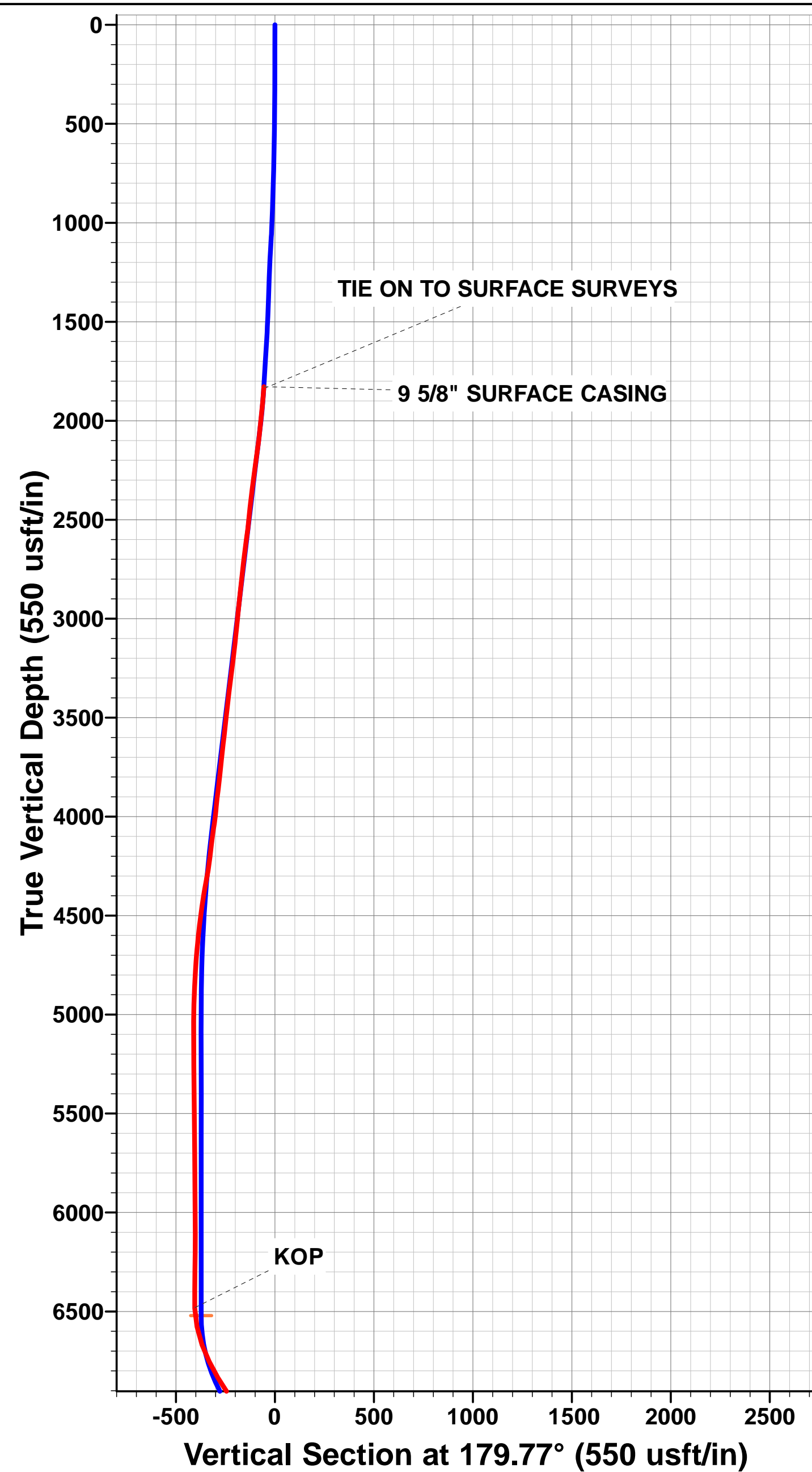
ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
1828.0	1876.0	18.30	279.84	54.6	-345.1	-56.0	0.0	9 5/8" SURFACE CASING
6480.9	6670.0	1.13	162.46	400.5	-1197.4	-405.3	939.5	KOP
7219.1	7610.1	62.53	181.11	-114.4	-1162.3	109.7	1461.4	ENTER RADIUS HEEL
7334.2	8081.0	90.55	179.51	-566.5	-1170.4	561.8	1913.5	HEEL (40.116061° & -104.726753°)
7356.6	11635.5	91.04	179.56	-4119.6	-1180.1	4114.8	5467.5	ENTER RADIUS TOE
7340.7	12659.0	93.41	178.50	-5142.8	-1175.5	5138.0	6490.8	LAST SURVEY - JULY 6, 2018
7337.4	12715.0	93.41	178.50	-5198.7	-1174.1	5193.9	6546.7	EXTRAPOLATION TO TD (40.103345° & -104.726765°)

AS DRILLED LOCAL COORDINATES:
 SHL: 386ft FSL & 1879ft FEL Sec 24
 HEEL: 173.6ft FNL & 2301.1ft FWL Sec 25
 BHL: 470.7ft FSL & 2302.9ft FWL Sec 25

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BHL - GRACIE 24-9HZ (P2)	7381.0	-5199.4	-1156.2	40° 6' 12.038 N	104° 43' 36.124 W
HEEL - GRACIE 24-9HZ (P2)	7339.0	-442.9	-1175.5	40° 6' 59.043 N	104° 43' 36.375 W
KOP - GRACIE 24-9HZ (P2)	6520.5	368.3	-1178.7	40° 7' 7.060 N	104° 43' 36.417 W



Survey Report



Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Project:	WELD COUNTY (NAD 83)	TVD Reference:	KB 20' @ 5075.0usft (PD 461)
Site:	SW SE SEC. 25 T2N R66W 6th P.M.	MD Reference:	KB 20' @ 5075.0usft (PD 461)
Well:	GRACIE 24-9HZ	North Reference:	True
Wellbore:	JOB #2018-385-461	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EOG RESOURCES

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

Site	SW SE SEC. 25 T2N R66W 6th P.M.				
Site Position:		Northing:	14,569,683.89 usft	Latitude:	40° 7' 3.420 N
From:	Lat/Long	Easting:	1,717,978.33 usft	Longitude:	104° 43' 21.245 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.18 °

Well	GRACIE 24-9HZ					
Well Position	+N-S	0.0 usft	Northing:	14,569,683.89 usft	Latitude:	40° 7' 3.420 N
	+E-W	0.0 usft	Easting:	1,717,978.33 usft	Longitude:	104° 43' 21.245 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,055.0 usft

Wellbore	JOB #2018-385-461				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/06/2018	8.06	66.61	52,137

Design	FINAL SURVEYS				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	1,875.9
Vertical Section:		Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
		0.0	0.0	0.0	179.77

Survey Program	Date	06/07/2018			
	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	130.0	1,875.9	FINAL SURVEYS - SURFACE (JOB # 201	APC_ISCWSA REV 2 MV Fixed:v2:crustal field declination	
	1,958.0	12,715.0	FINAL SURVEYS (JOB #2018-385-461)	APC_ISCWSA REV 2 MV Fixed:v2:crustal field declination	

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)
1,875.9	18.30	279.84	1,827.9	3,247.1	54.6	-345.0	-56.0	0.00	0.00	0.00
9 5/8" SURFACE CASING										
1,876.0	18.30	279.84	1,828.0	3,247.0	54.6	-345.1	-56.0	0.00	0.00	0.00
1,958.0	17.73	288.94	1,906.0	3,169.0	60.9	-369.6	-62.4	3.50	-0.70	11.10
2,052.0	17.00	287.23	1,995.7	3,079.3	69.6	-396.2	-71.2	0.95	-0.78	-1.82
2,145.0	17.50	291.38	2,084.6	2,990.4	78.7	-422.2	-80.4	1.43	0.54	4.46
2,238.0	20.11	292.76	2,172.6	2,902.4	90.0	-450.0	-91.8	2.85	2.81	1.48
2,331.0	18.82	292.95	2,260.3	2,814.7	102.1	-478.6	-104.0	1.39	-1.39	0.20
2,425.0	17.69	291.97	2,349.5	2,725.5	113.3	-505.8	-115.3	1.25	-1.20	-1.04
2,520.0	18.81	289.54	2,439.8	2,635.2	123.8	-533.6	-126.0	1.43	1.18	-2.56
2,614.0	16.94	288.21	2,529.2	2,545.8	133.2	-560.9	-135.4	2.04	-1.99	-1.41

Survey Report



Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Project:	WELD COUNTY (NAD 83)	TVL Reference:	KB 20' @ 5075.0usft (PD 461)
Site:	SW SE SEC. 25 T2N R66W 6th P.M.	MD Reference:	KB 20' @ 5075.0usft (PD 461)
Well:	GRACIE 24-9HZ	North Reference:	True
Wellbore:	JOB #2018-385-461	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	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)
2,707.0	19.63	294.76	2,617.5	2,457.5	144.0	-587.9	-146.3	3.64	2.89	7.04
2,801.0	17.15	292.05	2,706.7	2,368.3	155.8	-615.1	-158.2	2.79	-2.64	-2.88
2,893.0	17.64	286.96	2,794.5	2,280.5	164.9	-641.0	-167.5	1.74	0.53	-5.53
2,988.0	18.11	290.06	2,884.9	2,190.1	174.2	-668.7	-176.9	1.12	0.49	3.26
3,081.0	19.08	287.57	2,973.1	2,101.9	183.7	-696.7	-186.5	1.35	1.04	-2.68
3,173.0	17.67	287.33	3,060.4	2,014.6	192.4	-724.4	-195.4	1.53	-1.53	-0.26
3,266.0	19.45	290.24	3,148.5	1,926.5	202.0	-752.4	-205.0	2.16	1.91	3.13
3,358.0	17.60	290.62	3,235.8	1,839.2	212.2	-779.8	-215.3	2.02	-2.01	0.41
3,453.0	18.99	293.07	3,326.0	1,749.0	223.3	-807.5	-226.6	1.67	1.46	2.58
3,546.0	16.96	289.61	3,414.4	1,660.6	233.8	-834.2	-237.2	2.47	-2.18	-3.72
3,639.0	18.82	290.44	3,502.9	1,572.1	243.6	-861.0	-247.1	2.02	2.00	0.89
3,734.0	18.89	286.34	3,592.8	1,482.2	253.3	-890.1	-256.8	1.40	0.07	-4.32
3,828.0	19.59	291.05	3,681.6	1,393.4	263.2	-919.4	-266.9	1.81	0.74	5.01
3,922.0	16.91	287.24	3,770.9	1,304.1	272.9	-947.2	-276.7	3.12	-2.85	-4.05
4,016.0	19.55	291.69	3,860.1	1,214.9	282.8	-974.9	-286.7	3.17	2.81	4.73
4,108.0	16.91	287.12	3,947.5	1,127.5	292.4	-1,002.0	-296.4	3.26	-2.87	-4.97
4,201.0	19.49	292.69	4,035.9	1,039.1	302.4	-1,029.2	-306.5	3.34	2.77	5.99
4,296.0	18.01	295.41	4,125.8	949.2	314.8	-1,057.1	-319.1	1.81	-1.56	2.86
4,390.0	16.48	291.13	4,215.6	859.4	325.9	-1,082.7	-330.2	2.11	-1.63	-4.55
4,484.0	17.99	306.06	4,305.4	769.6	339.2	-1,106.9	-343.7	4.96	1.61	15.88
4,579.0	15.28	307.28	4,396.4	678.6	355.4	-1,128.7	-360.0	2.88	-2.85	1.28
4,672.0	12.14	306.48	4,486.8	588.2	368.7	-1,146.3	-373.3	3.38	-3.38	-0.86
4,766.0	9.78	308.95	4,579.0	496.0	379.6	-1,160.5	-384.2	2.56	-2.51	2.63
4,860.0	7.60	313.95	4,672.0	403.0	388.9	-1,171.2	-393.6	2.45	-2.32	5.32
4,955.0	5.09	314.48	4,766.4	308.6	396.2	-1,178.7	-400.9	2.64	-2.64	0.56
5,050.0	2.99	331.70	4,861.1	213.9	401.4	-1,182.9	-406.1	2.53	-2.21	18.13
5,075.0	2.77	321.01	4,886.1	188.9	402.4	-1,183.6	-407.1	2.32	-0.88	-42.76
5,169.0	1.62	341.91	4,980.0	95.0	405.4	-1,185.4	-410.2	1.47	-1.22	22.23
5,264.0	0.61	214.63	5,075.0	0.0	406.3	-1,186.1	-411.0	2.16	-1.06	-133.98
5,359.0	1.11	251.87	5,170.0	-95.0	405.6	-1,187.3	-410.3	0.76	0.53	39.20
5,453.0	0.63	224.21	5,264.0	-189.0	404.9	-1,188.5	-409.7	0.66	-0.51	-29.43
5,547.0	0.55	207.05	5,358.0	-283.0	404.2	-1,189.1	-408.9	0.21	-0.09	-18.26
5,641.0	0.83	238.10	5,452.0	-377.0	403.4	-1,189.8	-408.2	0.49	0.30	33.03
5,736.0	0.88	223.99	5,547.0	-472.0	402.5	-1,190.9	-407.3	0.23	0.05	-14.85
5,830.0	1.07	227.21	5,641.0	-566.0	401.4	-1,192.1	-406.2	0.21	0.20	3.43
5,924.0	0.70	249.40	5,735.0	-660.0	400.6	-1,193.3	-405.4	0.53	-0.39	23.61
6,017.0	0.53	242.73	5,827.9	-752.9	400.2	-1,194.2	-405.0	0.20	-0.18	-7.17
6,111.0	1.37	236.33	5,921.9	-846.9	399.4	-1,195.5	-404.2	0.90	0.89	-6.81
6,204.0	1.14	239.59	6,014.9	-939.9	398.3	-1,197.2	-403.1	0.26	-0.25	3.51
6,298.0	0.12	283.00	6,108.9	-1,033.9	397.8	-1,198.1	-402.6	1.12	-1.09	46.18
6,390.0	0.51	358.80	6,200.9	-1,125.9	398.3	-1,198.2	-403.1	0.54	0.42	82.39
6,484.0	0.91	16.18	6,294.9	-1,219.9	399.4	-1,198.0	-404.2	0.48	0.43	18.49
6,579.0	0.75	7.66	6,389.9	-1,314.9	400.7	-1,197.7	-405.6	0.21	-0.17	-8.97
KOP										
6,670.0	1.13	162.46	6,480.9	-1,405.9	400.5	-1,197.4	-405.3	2.02	0.42	170.11
6,673.0	1.19	162.97	6,483.9	-1,408.9	400.4	-1,197.4	-405.2	2.02	1.99	16.90
6,767.0	13.47	160.21	6,576.9	-1,501.9	389.1	-1,193.4	-393.9	13.07	13.06	-2.94
6,862.0	20.43	153.92	6,667.8	-1,592.8	363.8	-1,182.3	-368.6	7.57	7.33	-6.62
6,955.0	28.14	167.31	6,752.5	-1,677.5	327.8	-1,170.3	-332.4	10.14	8.29	14.40
7,049.0	29.49	170.45	6,834.9	-1,759.9	283.3	-1,161.6	-288.0	2.16	1.44	3.34
7,144.0	36.02	175.95	6,914.8	-1,839.8	232.3	-1,155.8	-237.0	7.55	6.87	5.79
7,239.0	37.94	176.96	6,990.7	-1,915.7	175.3	-1,152.2	-179.9	2.12	2.02	1.06
7,333.0	48.64	184.16	7,059.0	-1,984.0	111.0	-1,153.3	-115.6	12.52	11.38	7.66

Survey Report



Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Project:	WELD COUNTY (NAD 83)	TVD Reference:	KB 20' @ 5075.0usft (PD 461)
Site:	SW SE SEC. 25 T2N R66W 6th P.M.	MD Reference:	KB 20' @ 5075.0usft (PD 461)
Well:	GRACIE 24-9HZ	North Reference:	True
Wellbore:	JOB #2018-385-461	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	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)
7,426.0	54.40	182.44	7,116.9	-2,041.9	38.4	-1,157.4	-43.0	6.36	6.19	-1.85
7,521.0	54.11	181.91	7,172.4	-2,097.4	-38.7	-1,160.3	34.0	0.55	-0.31	-0.56
ENTER RADIUS HEEL										
7,610.1	62.53	181.11	7,219.1	-2,144.1	-114.4	-1,162.3	109.7	9.48	9.45	-0.90
7,615.0	62.99	181.07	7,221.4	-2,146.4	-118.8	-1,162.4	114.1	9.48	9.45	-0.82
7,709.0	66.92	180.73	7,261.1	-2,186.1	-203.9	-1,163.7	199.2	4.19	4.18	-0.36
7,802.0	75.81	181.30	7,290.8	-2,215.8	-291.9	-1,165.3	287.2	9.58	9.56	0.61
7,895.0	76.71	181.30	7,312.9	-2,237.9	-382.2	-1,167.3	377.5	0.97	0.97	0.00
7,987.0	83.10	181.49	7,329.0	-2,254.0	-472.7	-1,169.5	468.0	6.95	6.95	0.21
HEEL (40.116061° & -104.726753°)										
8,081.0	90.55	179.51	7,334.2	-2,259.2	-566.5	-1,170.4	561.8	8.20	7.93	-2.11
8,176.0	89.96	180.74	7,333.8	-2,258.8	-661.5	-1,170.6	656.8	1.44	-0.62	1.29
8,271.0	88.57	182.47	7,335.0	-2,260.0	-756.5	-1,173.2	751.7	2.34	-1.46	1.82
8,364.0	88.58	181.72	7,337.3	-2,262.3	-849.4	-1,176.6	844.6	0.81	0.01	-0.81
8,457.0	88.49	181.55	7,339.7	-2,264.7	-942.3	-1,179.3	937.6	0.21	-0.10	-0.18
8,551.0	88.89	181.82	7,341.9	-2,266.9	-1,036.2	-1,182.0	1,031.5	0.51	0.43	0.29
8,645.0	88.75	181.19	7,343.8	-2,268.8	-1,130.2	-1,184.5	1,125.4	0.69	-0.15	-0.67
8,740.0	89.72	181.26	7,345.1	-2,270.1	-1,225.2	-1,186.5	1,220.4	1.02	1.02	0.07
8,835.0	91.18	181.77	7,344.3	-2,269.3	-1,320.1	-1,189.1	1,315.3	1.63	1.54	0.54
8,928.0	89.63	181.03	7,343.7	-2,268.7	-1,413.1	-1,191.3	1,408.3	1.85	-1.67	-0.80
9,023.0	89.25	179.42	7,344.6	-2,269.6	-1,508.1	-1,191.7	1,503.3	1.74	-0.40	-1.69
9,117.0	90.02	178.93	7,345.2	-2,270.2	-1,602.1	-1,190.3	1,597.3	0.97	0.82	-0.52
9,210.0	90.62	178.53	7,344.7	-2,269.7	-1,695.0	-1,188.3	1,690.2	0.78	0.65	-0.43
9,306.0	91.54	178.44	7,342.9	-2,267.9	-1,791.0	-1,185.7	1,786.2	0.96	0.96	-0.09
9,399.0	89.00	178.45	7,342.4	-2,267.4	-1,883.9	-1,183.2	1,879.2	2.73	-2.73	0.01
9,493.0	90.41	178.42	7,342.9	-2,267.9	-1,977.9	-1,180.7	1,973.1	1.50	1.50	-0.03
9,587.0	88.44	179.02	7,343.9	-2,268.9	-2,071.9	-1,178.6	2,067.1	2.19	-2.10	0.64
9,681.0	89.15	179.31	7,345.8	-2,270.8	-2,165.8	-1,177.2	2,161.1	0.82	0.76	0.31
9,774.0	89.47	178.34	7,347.0	-2,272.0	-2,258.8	-1,175.3	2,254.1	1.10	0.34	-1.04
9,867.0	90.47	178.79	7,347.0	-2,272.0	-2,351.8	-1,172.9	2,347.0	1.18	1.08	0.48
9,960.0	91.31	178.10	7,345.6	-2,270.6	-2,444.7	-1,170.4	2,440.0	1.17	0.90	-0.74
10,055.0	88.97	178.38	7,345.3	-2,270.3	-2,539.7	-1,167.5	2,535.0	2.48	-2.46	0.29
10,149.0	89.43	178.24	7,346.6	-2,271.6	-2,633.6	-1,164.7	2,628.9	0.51	0.49	-0.15
10,242.0	89.48	178.08	7,347.5	-2,272.5	-2,726.6	-1,161.7	2,721.9	0.18	0.05	-0.17
10,336.0	90.77	178.86	7,347.3	-2,272.3	-2,820.5	-1,159.2	2,815.9	1.60	1.37	0.83
10,430.0	88.85	180.63	7,347.6	-2,272.6	-2,914.5	-1,158.8	2,909.9	2.78	-2.04	1.88
10,524.0	89.81	180.52	7,348.7	-2,273.7	-3,008.5	-1,159.8	3,003.8	1.03	1.02	-0.12
10,618.0	90.53	181.05	7,348.5	-2,273.5	-3,102.5	-1,161.1	3,097.8	0.95	0.77	0.56
10,711.0	89.26	182.63	7,348.6	-2,273.6	-3,195.5	-1,164.0	3,190.8	2.18	-1.37	1.70
10,804.0	90.14	181.34	7,349.1	-2,274.1	-3,288.4	-1,167.3	3,283.7	1.68	0.95	-1.39
10,897.0	87.87	181.54	7,350.7	-2,275.7	-3,381.3	-1,169.6	3,376.6	2.45	-2.44	0.22
10,991.0	88.21	181.04	7,353.9	-2,278.9	-3,475.3	-1,171.7	3,470.5	0.64	0.36	-0.53
11,085.0	88.35	180.98	7,356.8	-2,281.8	-3,569.2	-1,173.4	3,564.5	0.16	0.15	-0.06
11,179.0	89.67	181.07	7,358.4	-2,283.4	-3,663.2	-1,175.0	3,658.4	1.41	1.40	0.10
11,274.0	91.06	181.50	7,357.8	-2,282.8	-3,758.1	-1,177.2	3,753.4	1.53	1.46	0.45
11,369.0	90.58	181.79	7,356.4	-2,281.4	-3,853.1	-1,179.9	3,848.3	0.59	-0.51	0.31
11,463.0	88.42	179.21	7,357.2	-2,282.2	-3,947.1	-1,180.7	3,942.3	3.58	-2.30	-2.74
11,556.0	90.82	180.22	7,357.9	-2,282.9	-4,040.1	-1,180.3	4,035.3	2.80	2.58	1.09
ENTER RADIUS TOE										
11,635.5	91.04	179.56	7,356.6	-2,281.6	-4,119.6	-1,180.1	4,114.8	0.88	0.27	-0.83
11,651.0	91.08	179.43	7,356.3	-2,281.3	-4,135.1	-1,180.0	4,130.3	0.88	0.27	-0.83
11,746.0	91.07	178.62	7,354.5	-2,279.5	-4,230.0	-1,178.4	4,225.3	0.85	-0.01	-0.85
11,842.0	91.65	178.90	7,352.2	-2,277.2	-4,326.0	-1,176.3	4,321.2	0.67	0.60	0.29

Survey Report



Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Project:	WELD COUNTY (NAD 83)	TVD Reference:	KB 20' @ 5075.0usft (PD 461)
Site:	SW SE SEC. 25 T2N R66W 6th P.M.	MD Reference:	KB 20' @ 5075.0usft (PD 461)
Well:	GRACIE 24-9HZ	North Reference:	True
Wellbore:	JOB #2018-385-461	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	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)
11,935.0	91.34	180.07	7,349.8	-2,274.8	-4,418.9	-1,175.4	4,414.2	1.30	-0.33	1.26
12,029.0	90.03	179.68	7,348.7	-2,273.7	-4,512.9	-1,175.2	4,508.2	1.45	-1.39	-0.41
12,123.0	90.05	180.48	7,348.6	-2,273.6	-4,606.9	-1,175.4	4,602.2	0.85	0.02	0.85
12,216.0	90.42	180.68	7,348.2	-2,273.2	-4,699.9	-1,176.3	4,695.2	0.45	0.40	0.22
12,310.0	90.40	180.92	7,347.6	-2,272.6	-4,793.9	-1,177.6	4,789.1	0.26	-0.02	0.26
12,405.0	91.07	180.16	7,346.3	-2,271.3	-4,888.9	-1,178.5	4,884.1	1.07	0.71	-0.80
12,499.0	90.17	179.35	7,345.3	-2,270.3	-4,982.9	-1,178.1	4,978.1	1.29	-0.96	-0.86
12,593.0	91.79	179.16	7,343.7	-2,268.7	-5,076.9	-1,176.9	5,072.1	1.74	1.72	-0.20
LAST SURVEY - JULY 6, 2018										
12,659.0	93.41	178.50	7,340.7	-2,265.7	-5,142.8	-1,175.5	5,138.0	2.65	2.45	-1.00
EXTRAPOLATION TO TD (40.103345° & -104.726765°)										
12,715.0	93.41	178.50	7,337.4	-2,262.4	-5,198.7	-1,174.1	5,193.9	0.00	0.00	0.00

Survey Report



Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well GRACIE 24-9HZ
Project:	WELD COUNTY (NAD 83)	TVD Reference:	KB 20' @ 5075.0usft (PD 461)
Site:	SW SE SEC. 25 T2N R66W 6th P.M.	MD Reference:	KB 20' @ 5075.0usft (PD 461)
Well:	GRACIE 24-9HZ	North Reference:	True
Wellbore:	JOB #2018-385-461	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EOG RESOURCES

Targets										
Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting			
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude	
BHL - GRACIE 24-9H - survey misses target center by 47.1usft at 12713.7usft MD (7337.5 TVD, -5197.3 N, -1174.1 E) - Point	0.00	0.00	7,381.0	-5,199.4	-1,156.2	14,564,482.91	1,716,838.82	40° 6' 12.038 N	104° 43' 36.124 W	
HEEL - GRACIE 24-9 - survey misses target center by 15.5usft at 7959.5usft MD (7325.3 TVD, -445.5 N, -1168.9 E) - Point	0.00	0.00	7,339.0	-442.9	-1,175.5	14,569,237.51	1,716,804.72	40° 6' 59.043 N	104° 43' 36.375 W	
HEEL - GRACIE 24-9 - survey misses target center by 15.5usft at 7959.5usft MD (7325.3 TVD, -445.5 N, -1168.9 E) - Point	0.00	0.00	7,339.0	-442.9	-1,175.5	14,569,237.51	1,716,804.72	40° 6' 59.043 N	104° 43' 36.375 W	
KOP - GRACIE 24-9H - survey misses target center by 34.7usft at 6714.1usft MD (6524.8 TVD, 397.8 N, -1196.4 E) - Point	0.00	0.00	6,520.5	368.3	-1,178.7	14,570,048.40	1,716,798.93	40° 7' 7.060 N	104° 43' 36.417 W	
CIRCLE 1 - GRACIE ; - survey misses target center by 1922.2usft at 1875.9usft MD (1827.9 TVD, 54.6 N, -345.0 E) - Point	0.00	0.00	13.0	-390.8	-795.2	14,569,290.80	1,717,184.70	40° 6' 59.558 N	104° 43' 31.480 W	
CIRCLE 2 - GRACIE ; - survey misses target center by 4790.9usft at 1875.9usft MD (1827.9 TVD, 54.6 N, -345.0 E) - Point	0.00	0.00	13.0	-4,357.2	-786.4	14,565,326.00	1,717,205.80	40° 6' 20.362 N	104° 43' 31.366 W	
BHL - GRACIE 24-9H - survey misses target center by 47.1usft at 12713.7usft MD (7337.5 TVD, -5197.3 N, -1174.1 E) - Point	0.00	0.00	7,381.0	-5,199.4	-1,156.2	14,564,482.91	1,716,838.82	40° 6' 12.038 N	104° 43' 36.124 W	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/-S (usft)	+E/-W (usft)		
1,876.0	1,828.0	54.6	-345.1		9 5/8" SURFACE CASING
6,670.0	6,480.9	400.5	-1,197.4		KOP
7,610.1	7,219.1	-114.4	-1,162.3		ENTER RADIUS HEEL
8,081.0	7,334.2	-566.5	-1,170.4		HEEL (40.116061° & -104.726753°)
11,635.5	7,356.6	-4,119.6	-1,180.1		ENTER RADIUS TOE
12,659.0	7,340.7	-5,142.8	-1,175.5		LAST SURVEY - JULY 6, 2018
12,715.0	7,337.4	-5,198.7	-1,174.1		EXTRAPOLATION TO TD (40.103345° & -104.726765°)

Checked By: _____	Approved By: _____	Date: _____
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