

# **ANADARKO PETROLEUM CORP**

**WELD COUNTY (NAD 83)**

**SW SW SEC 21 T3N R66W 6th P.M.**

**SARCHET 21-6HZ**

**JOB # 2019-506-464**

**17 August, 2019**

**Survey: FINAL SURVEYS**





Project: WELD COUNTY (NAD 83)  
 Site: SW SW SEC 21 T3N R66W 6th P.M.  
 Well: SARCHET 21-6HZ  
 Wellbore: JOB # 2019-506-464  
 Design: FINAL SURVEYS

ANNOTATIONS

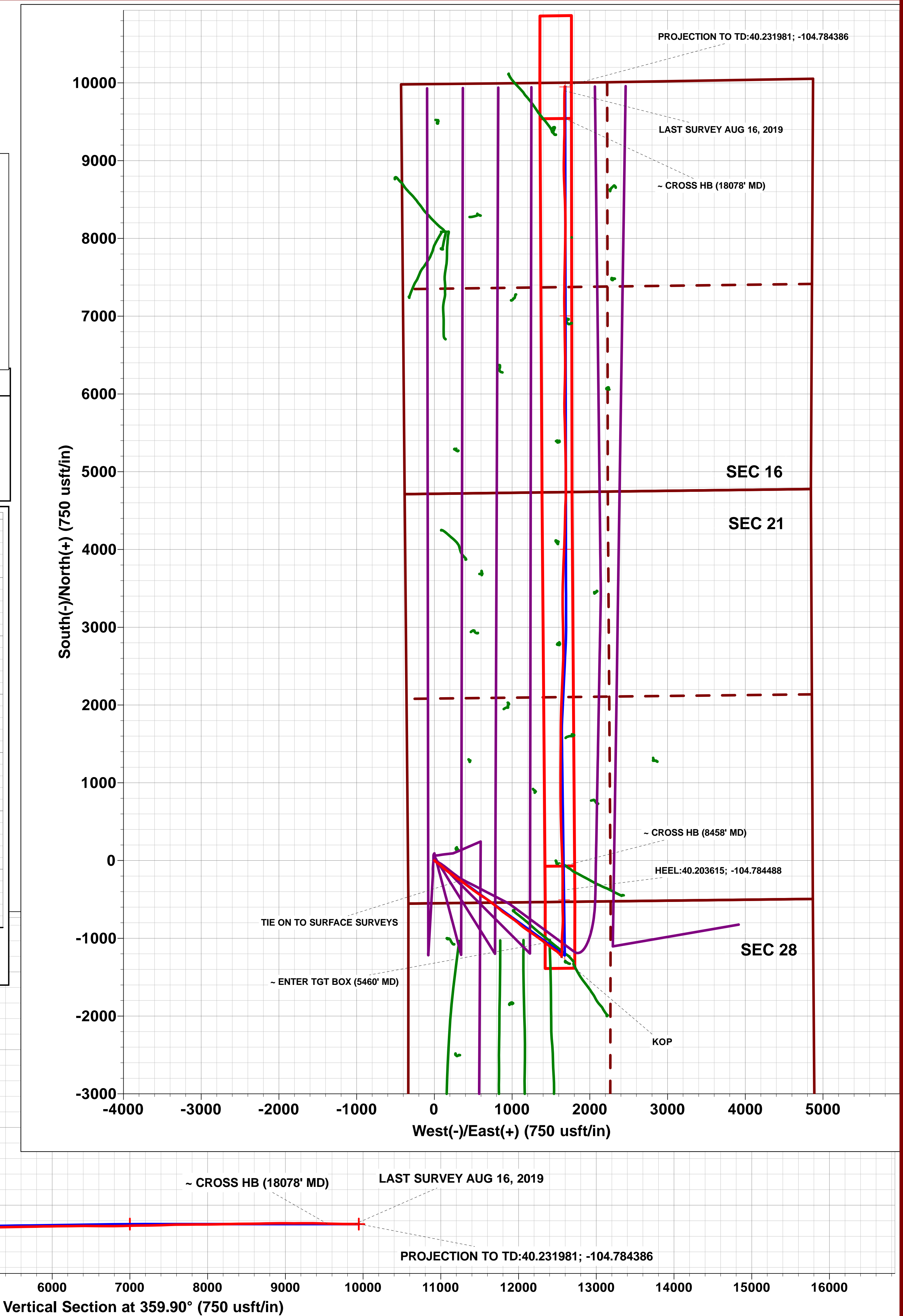
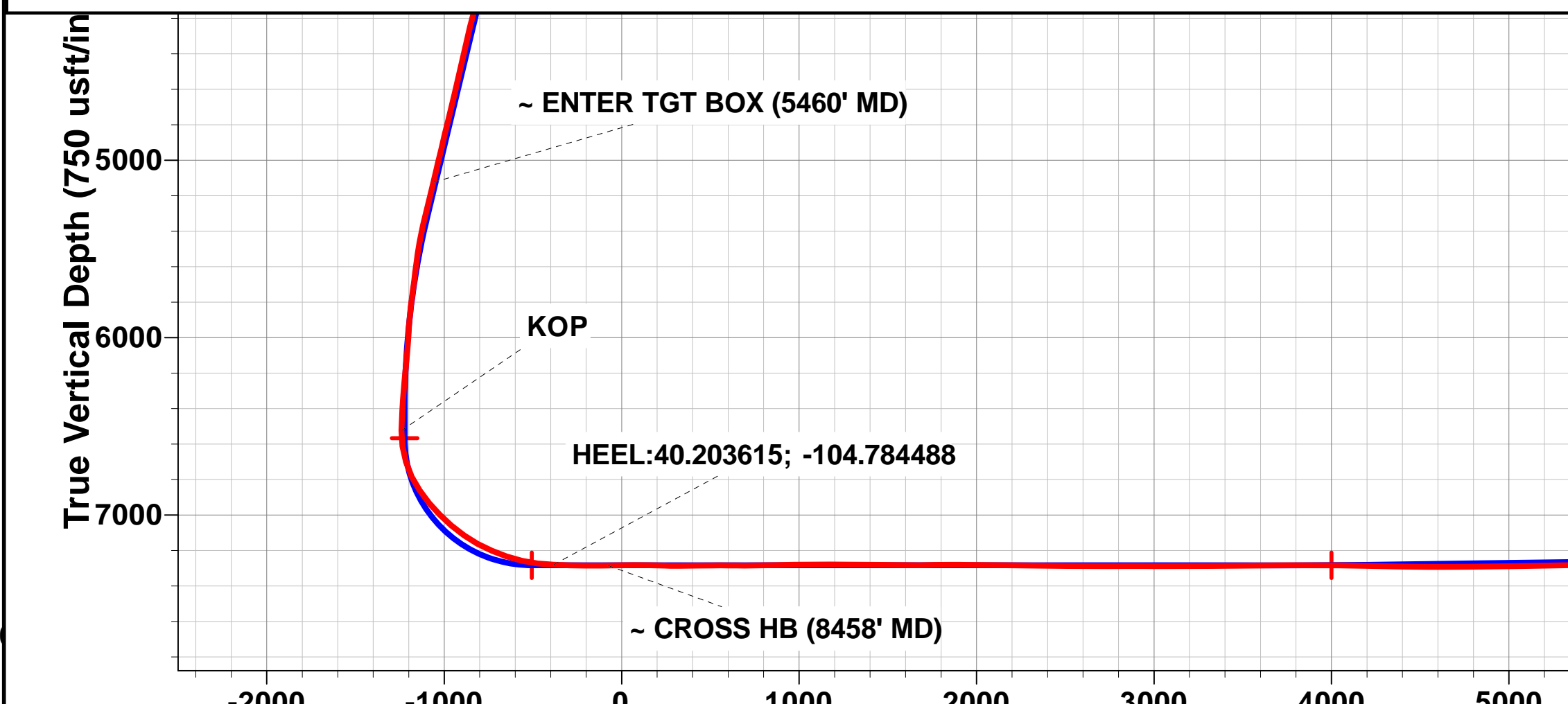
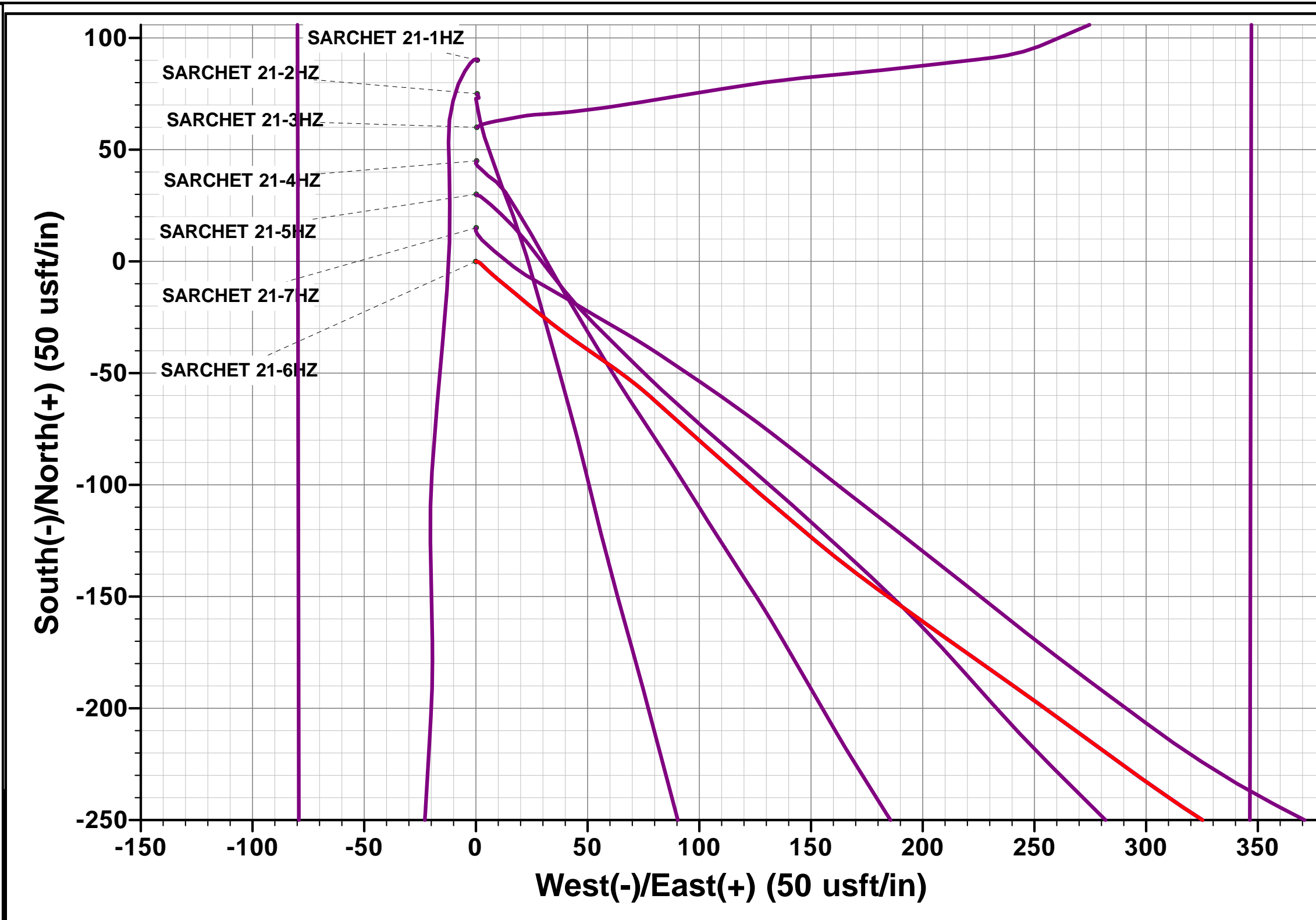
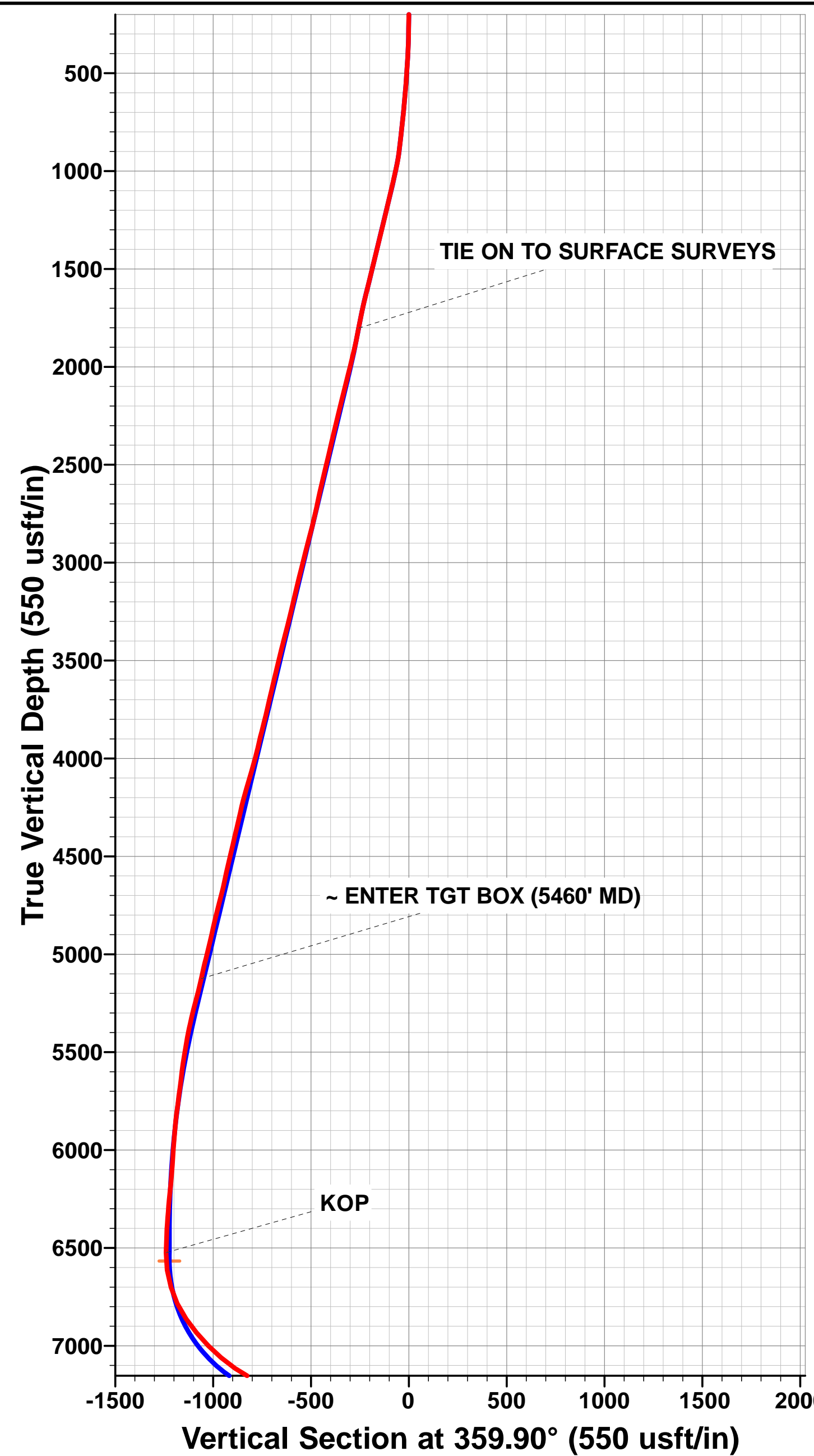
TVD	MD	Inc	Azi	+N-S	+E-W	VSec	Departure	Annotation
1802.2	1871.0	19.64	122.26	-256.1	334.8	-256.7	422.2	TIE ON TO SURFACE SURVEYS
5124.6	5460.0	20.63	127.14	-1058.2	1426.6	-1060.7	1778.4	~ ENTER TGT BOX (5460' MD)
6523.6	6896.0	1.72	208.75	-1238.0	1635.8	-1240.9	2059.4	KOP
7280.0	8151.0	87.25	0.40	-381.1	1650.0	-384.0	2919.7	HEEL:40.203615; -104.784488
7284.6	8458.0	90.81	358.71	-74.2	1647.8	-77.1	3226.6	~ CROSS HB (8458' MD)
7237.5	18078.0	88.13	359.59	9541.8	1673.5	9538.8	12845.4	~ CROSS HB (18078' MD)
7242.4	18434.0	90.97	2.22	9897.7	1675.4	9894.7	13201.3	LAST SURVEY AUG 16, 2019
7241.4	18489.0	90.97	2.22	9952.6	1677.6	9949.7	13256.3	PROJECTION TO TD:40.231981; -104.784386

AS DRILLED LOCAL COORDINATES:

SHL: 550ft FSL & 339ft FWL Sec 21  
 HEEL: 133.20ft FSL & 1986.85ft FWL Sec 21  
 BHL: 44.82ft FNL & 2106.51ft FWL Sec 16

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N-S	+E-W	Latitude	Longitude
BHL - SARCHET 21-6HZ (P3)	7243.0	9947.5	1682.1	40° 13' 55.082 N	104° 47' 3.732 W
HEEL - SARCHET 21-6HZ (P3)	7283.0	-504.3	1668.2	40° 12' 11.798 N	104° 47' 3.920 W
KOP - SARCHET 21-6HZ (P3)	6566.8	-1220.5	1677.8	40° 12' 4.721 N	104° 47' 3.797 W



# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

<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	

<b>Site</b>	SW SW SEC 21 T3N R66W 6th P.M.				
<b>Site Position:</b>		<b>Northing:</b>	14,601,419.51 usft	<b>Latitude:</b>	40° 12' 17.672 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,698,941.78 usft	<b>Longitude:</b>	104° 47' 25.411 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.14 °

<b>Well</b>	SARCHET 21-6HZ					
<b>Well Position</b>	<b>+N-S</b>	0.0 usft	<b>Northing:</b>	14,601,329.48 usft	<b>Latitude:</b>	40° 12' 16.782 N
	<b>+E-W</b>	0.0 usft	<b>Easting:</b>	1,698,941.30 usft	<b>Longitude:</b>	104° 47' 25.420 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	4,982.0 usft

<b>Wellbore</b>	JOB # 2019-506-464				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	29/07/2019	7.98	66.64	52,046

<b>Design</b>	FINAL SURVEYS				
<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	359.90

<b>Survey Program</b>	<b>Date</b>	17/08/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
128.0	18,489.0	FINAL SURVEYS (JOB # 2019-506-464)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	
1,871.0	18,489.0	FINAL SURVEYS (JOB # 2019-506-464)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

<b>Survey</b>										
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)
0.0	0.00	0.00	0.0	5,003.0	0.0	0.0	0.0	0.00	0.00	0.00
128.0	0.53	98.00	128.0	4,875.0	-0.1	0.6	-0.1	0.41	0.41	0.00
223.0	0.44	116.90	223.0	4,780.0	-0.3	1.3	-0.3	0.19	-0.09	19.89
318.0	1.93	134.65	318.0	4,685.0	-1.6	2.8	-1.6	1.60	1.57	18.68
412.0	4.75	132.01	411.8	4,591.2	-5.3	6.8	-5.3	3.00	3.00	-2.81
508.0	6.28	129.03	507.4	4,495.6	-11.3	13.9	-11.3	1.62	1.59	-3.10
603.0	7.87	130.52	601.6	4,401.4	-18.8	22.8	-18.8	1.68	1.67	1.57
699.0	8.61	127.62	696.6	4,306.4	-27.4	33.5	-27.5	0.88	0.77	-3.02
793.0	10.46	125.51	789.3	4,213.7	-36.7	46.1	-36.8	2.00	1.97	-2.24
889.0	11.91	124.37	883.5	4,119.5	-47.3	61.3	-47.5	1.53	1.51	-1.19
984.0	17.36	131.49	975.4	4,027.6	-62.3	80.0	-62.4	6.03	5.74	7.49
1,079.0	19.78	131.93	1,065.4	3,937.6	-82.4	102.6	-82.6	2.55	2.55	0.46

# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TDV Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

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)
1,174.0	20.04	130.70	1,154.8	3,848.2	-103.8	126.9	-104.0	0.52	0.27	-1.29
1,269.0	20.70	129.82	1,243.8	3,759.2	-125.1	152.2	-125.4	0.77	0.69	-0.93
1,364.0	22.15	126.04	1,332.3	3,670.7	-146.4	179.5	-146.7	2.11	1.53	-3.98
1,460.0	22.81	125.33	1,421.0	3,582.0	-167.8	209.4	-168.2	0.74	0.69	-0.74
1,554.0	21.93	125.16	1,507.9	3,495.1	-188.5	238.6	-188.9	0.94	-0.94	-0.18
1,649.0	23.51	126.21	1,595.5	3,407.5	-209.9	268.4	-210.4	1.72	1.66	1.11
1,744.0	21.79	125.60	1,683.2	3,319.8	-231.4	298.0	-231.9	1.83	-1.81	-0.64
1,838.0	19.64	122.96	1,771.1	3,231.9	-250.1	325.4	-250.7	2.49	-2.29	-2.81
TIE ON TO SURFACE SURVEYS										
<b>1,871.0</b>	<b>19.64</b>	<b>122.26</b>	<b>1,802.2</b>	<b>3,200.8</b>	<b>-256.1</b>	<b>334.8</b>	<b>-256.7</b>	<b>0.71</b>	<b>0.00</b>	<b>-2.12</b>
1,942.0	18.72	127.21	1,869.3	3,133.7	-269.3	353.9	-270.0	2.63	-1.30	6.97
2,032.0	21.98	127.81	1,953.6	3,049.4	-288.4	378.8	-289.1	3.63	3.62	0.67
2,121.0	22.06	127.23	2,036.1	2,966.9	-308.7	405.2	-309.4	0.26	0.09	-0.65
2,211.0	23.00	127.80	2,119.3	2,883.7	-329.7	432.6	-330.5	1.07	1.04	0.63
2,301.0	21.31	126.89	2,202.6	2,800.4	-350.3	459.6	-351.1	1.92	-1.88	-1.01
2,390.0	22.70	125.77	2,285.1	2,717.9	-370.1	486.4	-370.9	1.63	1.56	-1.26
2,480.0	21.52	125.81	2,368.5	2,634.5	-389.9	513.9	-390.8	1.31	-1.31	0.04
2,569.0	22.07	125.90	2,451.1	2,551.9	-409.2	540.7	-410.2	0.62	0.62	0.10
2,659.0	22.79	123.50	2,534.3	2,468.7	-428.8	568.9	-429.8	1.29	0.80	-2.67
2,748.0	23.40	124.21	2,616.2	2,386.8	-448.2	597.9	-449.3	0.75	0.69	0.80
2,838.0	21.50	120.57	2,699.4	2,303.6	-466.7	626.9	-467.8	2.61	-2.11	-4.04
2,928.0	23.70	123.41	2,782.5	2,220.5	-485.0	656.2	-486.2	2.73	2.44	3.16
3,018.0	23.97	126.51	2,864.8	2,138.2	-505.9	686.0	-507.0	1.42	0.30	3.44
3,107.0	23.30	126.16	2,946.3	2,056.7	-527.0	714.7	-528.2	0.77	-0.75	-0.39
3,197.0	22.48	126.44	3,029.2	1,973.8	-547.7	742.9	-549.0	0.92	-0.91	0.31
3,287.0	21.69	128.52	3,112.6	1,890.4	-568.3	769.8	-569.6	1.24	-0.88	2.31
3,377.0	19.82	128.34	3,196.8	1,806.2	-588.1	794.8	-589.5	2.08	-2.08	-0.20
3,466.0	21.30	130.08	3,280.1	1,722.9	-607.9	819.0	-609.3	1.80	1.66	1.96
3,556.0	21.63	131.01	3,363.9	1,639.1	-629.3	844.0	-630.8	0.53	0.37	1.03
3,645.0	21.76	129.37	3,446.6	1,556.4	-650.5	869.1	-652.0	0.70	0.15	-1.84
3,735.0	22.17	123.87	3,530.1	1,472.9	-670.6	896.1	-672.1	2.33	0.46	-6.11
3,824.0	23.17	125.64	3,612.2	1,390.8	-690.1	924.3	-691.7	1.36	1.12	1.99
3,914.0	21.59	124.36	3,695.4	1,307.6	-709.8	952.4	-711.5	1.84	-1.76	-1.42
4,003.0	22.45	124.85	3,777.9	1,225.1	-728.8	979.8	-730.5	0.99	0.97	0.55
4,093.0	23.73	126.66	3,860.7	1,142.3	-749.4	1,008.5	-751.1	1.63	1.42	2.01
4,182.0	20.99	125.42	3,943.0	1,060.0	-769.3	1,035.8	-771.1	3.12	-3.08	-1.39
4,272.0	24.77	129.86	4,025.9	977.1	-790.8	1,063.4	-792.6	4.61	4.20	4.93
4,361.0	23.81	130.28	4,107.0	896.0	-814.3	1,091.5	-816.2	1.10	-1.08	0.47
4,451.0	22.85	131.27	4,189.7	813.3	-837.6	1,118.5	-839.5	1.15	-1.07	1.10
4,540.0	21.14	125.32	4,272.2	730.8	-858.3	1,144.5	-860.3	3.15	-1.92	-6.69
4,630.0	21.21	126.71	4,356.1	646.9	-877.4	1,170.8	-879.4	0.56	0.08	1.54
4,719.0	22.54	123.87	4,438.7	564.3	-896.5	1,197.9	-898.6	1.91	1.49	-3.19
4,809.0	23.50	123.75	4,521.5	481.5	-916.1	1,227.2	-918.2	1.07	1.07	-0.13
4,899.0	20.68	123.12	4,604.9	398.1	-934.8	1,255.4	-936.9	3.14	-3.13	-0.70
4,988.0	22.59	126.87	4,687.7	315.3	-953.6	1,282.2	-955.8	2.65	2.15	4.21
5,078.0	24.05	125.89	4,770.3	232.7	-974.7	1,310.9	-977.0	1.68	1.62	-1.09
5,168.0	21.11	124.63	4,853.4	149.6	-994.7	1,339.1	-997.0	3.31	-3.27	-1.40
5,257.0	22.24	124.89	4,936.1	66.9	-1,013.4	1,366.1	-1,015.8	1.27	1.27	0.29
5,347.0	22.69	127.21	5,019.3	-16.3	-1,033.7	1,393.9	-1,036.1	1.10	0.50	2.58
5,437.0	20.19	126.52	5,103.0	-100.0	-1,053.4	1,420.2	-1,055.9	2.79	-2.78	-0.77
~ ENTER TGT BOX (5460' MD)										
<b>5,460.0</b>	<b>20.63</b>	<b>127.14</b>	<b>5,124.6</b>	<b>-121.6</b>	<b>-1,058.2</b>	<b>1,426.6</b>	<b>-1,060.7</b>	<b>2.13</b>	<b>1.91</b>	<b>2.68</b>
5,527.0	21.92	128.80	5,187.0	-184.0	-1,073.2	1,445.8	-1,075.7	2.13	1.93	2.48

Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TDV Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

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)
5,616.0	22.97	128.11	5,269.3	-266.3	-1,094.3	1,472.4	-1,096.9	1.22	1.18	-0.78
5,706.0	20.08	126.78	5,353.0	-350.0	-1,114.4	1,498.6	-1,117.0	3.26	-3.21	-1.48
5,795.0	17.72	124.98	5,437.2	-434.2	-1,131.3	1,522.0	-1,134.0	2.73	-2.65	-2.02
5,885.0	14.90	125.24	5,523.6	-520.6	-1,145.9	1,542.6	-1,148.5	3.13	-3.13	0.29
6,000.0	12.74	122.54	5,635.2	-632.2	-1,161.2	1,565.4	-1,163.9	1.96	-1.88	-2.35
6,090.0	11.59	129.15	5,723.2	-720.2	-1,172.3	1,580.8	-1,175.0	2.01	-1.28	7.34
6,179.0	9.67	138.15	5,810.7	-807.7	-1,183.5	1,592.7	-1,186.2	2.85	-2.16	10.11
6,269.0	7.75	130.33	5,899.7	-896.7	-1,193.0	1,602.4	-1,195.8	2.50	-2.13	-8.69
6,359.0	6.27	123.73	5,989.0	-986.0	-1,199.7	1,611.1	-1,202.5	1.87	-1.64	-7.33
6,448.0	6.43	128.61	6,077.4	-1,074.4	-1,205.5	1,619.0	-1,208.3	0.63	0.18	5.48
6,538.0	7.13	144.30	6,166.8	-1,163.8	-1,213.2	1,626.2	-1,216.0	2.19	0.78	17.43
6,628.0	6.24	147.27	6,256.2	-1,253.2	-1,221.8	1,632.1	-1,224.7	1.06	-0.99	3.30
6,718.0	4.53	162.50	6,345.8	-1,342.8	-1,229.3	1,635.8	-1,232.2	2.46	-1.90	16.92
6,807.0	2.70	186.24	6,434.6	-1,431.6	-1,234.8	1,636.7	-1,237.6	2.61	-2.06	26.67
<b>KOP</b>										
<b>6,896.0</b>	<b>1.72</b>	<b>208.75</b>	<b>6,523.6</b>	<b>-1,520.6</b>	<b>-1,238.0</b>	<b>1,635.8</b>	<b>-1,240.9</b>	<b>1.45</b>	<b>-1.10</b>	<b>25.29</b>
6,986.0	9.29	12.96	6,613.2	-1,610.2	-1,232.1	1,636.8	-1,235.0	12.17	8.41	182.46
7,076.0	16.06	3.81	6,701.0	-1,698.0	-1,212.6	1,639.2	-1,215.4	7.82	7.52	-10.17
7,165.0	26.29	1.29	6,783.9	-1,780.9	-1,180.5	1,640.5	-1,183.4	11.54	11.49	-2.83
7,255.0	34.01	359.75	6,861.6	-1,858.6	-1,135.3	1,640.8	-1,138.2	8.62	8.58	-1.71
7,344.0	39.37	0.37	6,933.0	-1,930.0	-1,082.2	1,640.9	-1,085.1	6.04	6.02	0.70
7,434.0	45.12	1.28	6,999.6	-1,996.6	-1,021.7	1,641.8	-1,024.6	6.42	6.39	1.01
7,523.0	49.22	3.22	7,060.1	-2,057.1	-956.5	1,644.4	-959.4	4.88	4.61	2.18
7,613.0	55.69	4.19	7,114.9	-2,111.9	-885.4	1,649.0	-888.2	7.24	7.19	1.08
7,703.0	60.54	1.20	7,162.4	-2,159.4	-809.0	1,652.6	-811.9	6.08	5.39	-3.32
7,792.0	67.57	359.18	7,201.3	-2,198.3	-729.1	1,652.8	-732.0	8.16	7.90	-2.27
7,882.0	70.63	358.07	7,233.4	-2,230.4	-645.0	1,650.8	-647.9	3.59	3.40	-1.23
7,972.0	77.54	359.74	7,258.1	-2,255.1	-558.6	1,649.1	-561.4	7.88	7.68	1.86
8,061.0	83.50	0.50	7,272.8	-2,269.8	-470.8	1,649.3	-473.7	6.75	6.70	0.85
<b>HEEL:40.203615; -104.784488</b>										
<b>8,151.0</b>	<b>87.25</b>	<b>0.40</b>	<b>7,280.0</b>	<b>-2,277.0</b>	<b>-381.1</b>	<b>1,650.0</b>	<b>-384.0</b>	<b>4.17</b>	<b>4.17</b>	<b>-0.11</b>
8,241.0	88.31	359.86	7,283.5	-2,280.5	-291.2	1,650.2	-294.1	1.32	1.18	-0.60
8,330.0	89.26	359.42	7,285.4	-2,282.4	-202.2	1,649.7	-205.1	1.18	1.07	-0.49
8,420.0	91.00	359.12	7,285.2	-2,282.2	-112.2	1,648.5	-115.1	1.96	1.93	-0.33
<b>- CROSS HB (8458' MD)</b>										
<b>8,458.0</b>	<b>90.81</b>	<b>358.71</b>	<b>7,284.6</b>	<b>-2,281.6</b>	<b>-74.2</b>	<b>1,647.8</b>	<b>-77.1</b>	<b>1.17</b>	<b>-0.49</b>	<b>-1.07</b>
8,510.0	90.56	358.16	7,284.0	-2,281.0	-22.3	1,646.4	-25.1	1.17	-0.49	-1.07
8,599.0	91.41	357.91	7,282.4	-2,279.4	66.7	1,643.4	63.8	1.00	0.96	-0.28
8,689.0	88.47	358.06	7,282.5	-2,279.5	156.6	1,640.2	153.7	3.27	-3.27	0.17
8,778.0	88.39	357.55	7,285.0	-2,282.0	245.5	1,636.8	242.7	0.58	-0.09	-0.57
8,868.0	90.39	358.14	7,285.9	-2,282.9	335.4	1,633.4	332.6	2.32	2.22	0.66
8,958.0	90.71	358.02	7,285.1	-2,282.1	425.4	1,630.4	422.5	0.38	0.36	-0.13
9,047.0	90.62	358.39	7,284.0	-2,281.0	514.3	1,627.6	511.5	0.43	-0.10	0.42
9,137.0	89.09	359.45	7,284.3	-2,281.3	604.3	1,625.9	601.5	2.07	-1.70	1.18
9,227.0	90.24	359.37	7,284.8	-2,281.8	694.3	1,625.0	691.5	1.28	1.28	-0.09
9,316.0	91.07	358.92	7,283.8	-2,280.8	783.3	1,623.6	780.5	1.06	0.93	-0.51
9,406.0	90.76	359.80	7,282.3	-2,279.3	873.3	1,622.6	870.4	1.04	-0.34	0.98
9,496.0	91.37	1.09	7,280.7	-2,277.7	963.2	1,623.3	960.4	1.59	0.68	1.43
9,585.0	89.92	359.97	7,279.6	-2,276.6	1,052.2	1,624.2	1,049.4	2.06	-1.63	-1.26
9,675.0	91.11	359.74	7,278.8	-2,275.8	1,142.2	1,623.9	1,139.4	1.35	1.32	-0.26
9,765.0	89.86	0.53	7,278.1	-2,275.1	1,232.2	1,624.1	1,229.4	1.64	-1.39	0.88
9,854.0	88.23	0.52	7,279.6	-2,276.6	1,321.2	1,625.0	1,318.4	1.83	-1.83	-0.01
9,944.0	89.29	0.18	7,281.5	-2,278.5	1,411.2	1,625.5	1,408.3	1.24	1.18	-0.38

# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TDV Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

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)
10,034.0	90.57	0.34	7,281.6	-2,278.6	1,501.2	1,625.9	1,498.3	1.43	1.42	0.18
10,123.0	88.89	0.34	7,282.0	-2,279.0	1,590.2	1,626.4	1,587.3	1.89	-1.89	0.00
10,213.0	90.19	0.35	7,282.8	-2,279.8	1,680.2	1,627.0	1,677.3	1.44	1.44	0.01
10,303.0	91.39	0.21	7,281.5	-2,278.5	1,770.2	1,627.4	1,767.3	1.34	1.33	-0.16
10,392.0	90.24	1.73	7,280.3	-2,277.3	1,859.1	1,628.9	1,856.3	2.14	-1.29	1.71
10,482.0	88.73	2.07	7,281.1	-2,278.1	1,949.1	1,631.9	1,946.2	1.72	-1.68	0.38
10,572.0	90.02	1.65	7,282.0	-2,279.0	2,039.0	1,634.8	2,036.2	1.51	1.43	-0.47
10,661.0	89.16	2.76	7,282.7	-2,279.7	2,127.9	1,638.3	2,125.1	1.58	-0.97	1.25
10,751.0	89.89	2.81	7,283.4	-2,280.4	2,217.8	1,642.6	2,215.0	0.81	0.81	0.06
10,841.0	88.72	1.87	7,284.5	-2,281.5	2,307.8	1,646.3	2,304.9	1.67	-1.30	-1.04
10,930.0	89.41	2.93	7,286.0	-2,283.0	2,396.7	1,650.0	2,393.8	1.42	0.78	1.19
11,020.0	89.91	2.83	7,286.5	-2,283.5	2,486.5	1,654.6	2,483.7	0.57	0.56	-0.11
11,109.0	89.35	0.96	7,287.1	-2,284.1	2,575.5	1,657.5	2,572.6	2.19	-0.63	-2.10
11,199.0	89.72	0.99	7,287.8	-2,284.8	2,665.5	1,659.0	2,662.6	0.41	0.41	0.03
11,289.0	90.14	358.43	7,287.9	-2,284.9	2,755.5	1,658.6	2,752.6	2.88	0.47	-2.84
11,379.0	90.85	359.85	7,287.1	-2,284.1	2,845.4	1,657.2	2,842.6	1.76	0.79	1.58
11,468.0	89.14	359.09	7,287.2	-2,284.2	2,934.4	1,656.4	2,931.5	2.10	-1.92	-0.85
11,558.0	89.62	358.89	7,288.1	-2,285.1	3,024.4	1,654.8	3,021.5	0.58	0.53	-0.22
11,647.0	90.38	358.98	7,288.1	-2,285.1	3,113.4	1,653.2	3,110.5	0.86	0.85	0.10
11,737.0	89.99	358.35	7,287.8	-2,284.8	3,203.4	1,651.1	3,200.5	0.82	-0.43	-0.70
11,826.0	90.70	0.17	7,287.3	-2,284.3	3,292.4	1,649.9	3,289.5	2.19	0.80	2.04
11,916.0	91.09	359.89	7,285.9	-2,282.9	3,382.4	1,650.0	3,379.5	0.53	0.43	-0.31
12,006.0	90.32	0.92	7,284.8	-2,281.8	3,472.3	1,650.6	3,469.5	1.43	-0.86	1.14
12,095.0	91.00	1.48	7,283.8	-2,280.8	3,561.3	1,652.5	3,558.4	0.99	0.76	0.63
12,185.0	89.36	2.10	7,283.5	-2,280.5	3,651.3	1,655.3	3,648.4	1.95	-1.82	0.69
12,274.0	89.67	1.93	7,284.2	-2,281.2	3,740.2	1,658.4	3,737.3	0.40	0.35	-0.19
12,364.0	90.29	2.53	7,284.3	-2,281.3	3,830.1	1,661.9	3,827.2	0.96	0.69	0.67
12,453.0	91.24	2.32	7,283.1	-2,280.1	3,919.1	1,665.7	3,916.1	1.09	1.07	-0.24
12,543.0	89.39	3.07	7,282.6	-2,279.6	4,008.9	1,669.9	4,006.0	2.22	-2.06	0.83
12,632.0	88.61	1.50	7,284.1	-2,281.1	4,097.9	1,673.5	4,094.9	1.97	-0.88	-1.76
12,722.0	88.87	1.99	7,286.1	-2,283.1	4,187.8	1,676.2	4,184.9	0.62	0.29	0.54
12,812.0	88.85	1.44	7,287.9	-2,284.9	4,277.7	1,678.9	4,274.8	0.61	-0.02	-0.61
12,901.0	88.89	1.51	7,289.7	-2,286.7	4,366.7	1,681.2	4,363.8	0.09	0.04	0.08
12,991.0	88.88	0.96	7,291.4	-2,288.4	4,456.7	1,683.1	4,453.7	0.61	-0.01	-0.61
13,081.0	89.96	2.14	7,292.3	-2,289.3	4,546.6	1,685.5	4,543.7	1.78	1.20	1.31
13,170.0	89.64	2.55	7,292.6	-2,289.6	4,635.5	1,689.2	4,632.6	0.58	-0.36	0.46
13,260.0	91.47	0.43	7,291.8	-2,288.8	4,725.5	1,691.5	4,722.5	3.11	2.03	-2.36
13,349.0	90.44	359.74	7,290.3	-2,287.3	4,814.5	1,691.7	4,811.5	1.39	-1.16	-0.78
13,439.0	90.43	359.61	7,289.6	-2,286.6	4,904.5	1,691.2	4,901.5	0.14	-0.01	-0.14
13,529.0	90.37	359.65	7,289.0	-2,286.0	4,994.5	1,690.6	4,991.5	0.08	-0.07	0.04
13,618.0	91.12	359.22	7,287.8	-2,284.8	5,083.5	1,689.7	5,080.5	0.97	0.84	-0.48
13,708.0	91.62	359.45	7,285.7	-2,282.7	5,173.4	1,688.6	5,170.5	0.61	0.56	0.26
13,797.0	90.69	358.64	7,283.9	-2,280.9	5,262.4	1,687.2	5,259.4	1.39	-1.04	-0.91
13,887.0	91.01	358.27	7,282.5	-2,279.5	5,352.4	1,684.7	5,349.4	0.54	0.36	-0.41
13,977.0	91.51	358.60	7,280.5	-2,277.5	5,442.3	1,682.3	5,439.4	0.67	0.56	0.37
14,067.0	90.68	359.22	7,278.8	-2,275.8	5,532.3	1,680.6	5,529.3	1.15	-0.92	0.69
14,156.0	90.86	358.32	7,277.6	-2,274.6	5,621.2	1,678.7	5,618.3	1.03	0.20	-1.01
14,246.0	91.21	357.85	7,276.0	-2,273.0	5,711.2	1,675.7	5,708.2	0.65	0.39	-0.52
14,335.0	91.05	359.30	7,274.3	-2,271.3	5,800.1	1,673.4	5,797.2	1.64	-0.18	1.63
14,425.0	91.20	0.66	7,272.5	-2,269.5	5,890.1	1,673.4	5,887.2	1.52	0.17	1.51
14,514.0	90.29	1.43	7,271.3	-2,268.3	5,979.1	1,675.0	5,976.1	1.34	-1.02	0.87
14,603.0	91.20	1.14	7,270.2	-2,267.2	6,068.0	1,677.0	6,065.1	1.07	1.02	-0.33
14,693.0	90.01	1.61	7,269.2	-2,266.2	6,158.0	1,679.2	6,155.1	1.42	-1.32	0.52

# Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

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)
14,782.0	90.79	1.22	7,268.6	-2,265.6	6,247.0	1,681.4	6,244.0	0.98	0.88	-0.44
14,872.0	91.32	0.35	7,266.9	-2,263.9	6,337.0	1,682.6	6,334.0	1.13	0.59	-0.97
14,961.0	89.30	359.48	7,266.5	-2,263.5	6,426.0	1,682.5	6,423.0	2.47	-2.27	-0.98
15,051.0	89.56	359.34	7,267.4	-2,264.4	6,515.9	1,681.6	6,513.0	0.33	0.29	-0.16
15,141.0	89.71	358.98	7,267.9	-2,264.9	6,605.9	1,680.2	6,603.0	0.43	0.17	-0.40
15,230.0	89.26	358.89	7,268.7	-2,265.7	6,694.9	1,678.6	6,692.0	0.52	-0.51	-0.10
15,319.0	90.85	359.44	7,268.6	-2,265.6	6,783.9	1,677.3	6,781.0	1.89	1.79	0.62
15,409.0	91.30	359.07	7,267.0	-2,264.0	6,873.9	1,676.1	6,870.9	0.65	0.50	-0.41
15,498.0	91.82	359.10	7,264.5	-2,261.5	6,962.8	1,674.7	6,959.9	0.59	0.58	0.03
15,587.0	90.77	359.07	7,262.5	-2,259.5	7,051.8	1,673.3	7,048.9	1.18	-1.18	-0.03
15,676.0	90.81	358.89	7,261.3	-2,258.3	7,140.8	1,671.7	7,137.8	0.21	0.04	-0.20
15,766.0	90.43	0.72	7,260.3	-2,257.3	7,230.8	1,671.4	7,227.8	2.08	-0.42	2.03
15,855.0	91.43	0.70	7,258.9	-2,255.9	7,319.7	1,672.5	7,316.8	1.12	1.12	-0.02
15,945.0	91.67	0.48	7,256.4	-2,253.4	7,409.7	1,673.4	7,406.8	0.36	0.27	-0.24
16,035.0	92.73	0.49	7,253.0	-2,250.0	7,499.6	1,674.2	7,496.7	1.18	1.18	0.01
16,124.0	91.22	1.64	7,249.9	-2,246.9	7,588.6	1,675.8	7,585.6	2.13	-1.70	1.29
16,214.0	89.90	1.29	7,249.0	-2,246.0	7,678.5	1,678.1	7,675.6	1.52	-1.47	-0.39
16,303.0	90.86	1.57	7,248.4	-2,245.4	7,767.5	1,680.4	7,764.5	1.12	1.08	0.31
16,393.0	89.78	1.15	7,247.9	-2,244.9	7,857.5	1,682.5	7,854.5	1.29	-1.20	-0.47
16,482.0	90.41	0.88	7,247.8	-2,244.8	7,946.5	1,684.1	7,943.5	0.77	0.71	-0.30
16,572.0	91.01	0.69	7,246.7	-2,243.7	8,036.4	1,685.3	8,033.5	0.70	0.67	-0.21
16,661.0	90.89	359.87	7,245.2	-2,242.2	8,125.4	1,685.7	8,122.5	0.93	-0.13	-0.92
16,751.0	90.86	359.69	7,243.8	-2,240.8	8,215.4	1,685.4	8,212.5	0.20	-0.03	-0.20
16,841.0	92.09	359.10	7,241.5	-2,238.5	8,305.4	1,684.4	8,302.4	1.52	1.37	-0.66
16,930.0	90.03	358.55	7,239.9	-2,236.9	8,394.3	1,682.6	8,391.4	2.40	-2.31	-0.62
17,020.0	90.88	357.22	7,239.2	-2,236.2	8,484.3	1,679.3	8,481.3	1.75	0.94	-1.48
17,109.0	90.28	358.02	7,238.3	-2,235.3	8,573.2	1,675.6	8,570.2	1.12	-0.67	0.90
17,199.0	91.27	358.01	7,237.0	-2,234.0	8,663.1	1,672.5	8,660.2	1.10	1.10	-0.01
17,289.0	91.78	357.62	7,234.6	-2,231.6	8,753.0	1,669.0	8,750.1	0.71	0.57	-0.43
17,378.0	90.28	358.89	7,233.0	-2,230.0	8,842.0	1,666.3	8,839.0	2.21	-1.69	1.43
17,468.0	90.59	359.95	7,232.4	-2,229.4	8,932.0	1,665.4	8,929.0	1.23	0.34	1.18
17,558.0	89.41	1.10	7,232.4	-2,229.4	9,021.9	1,666.3	9,019.0	1.83	-1.31	1.28
17,647.0	89.70	1.07	7,233.0	-2,230.0	9,110.9	1,667.9	9,108.0	0.33	0.33	-0.03
17,737.0	90.49	1.04	7,232.9	-2,229.9	9,200.9	1,669.6	9,198.0	0.88	0.88	-0.03
17,826.0	90.00	2.08	7,232.5	-2,229.5	9,289.9	1,672.0	9,286.9	1.29	-0.55	1.17
17,916.0	89.75	0.13	7,232.7	-2,229.7	9,379.9	1,673.8	9,376.9	2.18	-0.28	-2.17
18,006.0	87.57	359.96	7,234.8	-2,231.8	9,469.8	1,673.8	9,466.9	2.43	-2.42	-0.19
<b>~ CROSS HB (18078' MD)</b>										
<b>18,078.0</b>	<b>88.13</b>	<b>359.59</b>	<b>7,237.5</b>	<b>-2,234.5</b>	<b>9,541.8</b>	<b>1,673.5</b>	<b>9,538.8</b>	<b>0.93</b>	<b>0.78</b>	<b>-0.52</b>
18,095.0	88.26	359.50	7,238.1	-2,235.1	9,558.8	1,673.4	9,555.8	0.93	0.78	-0.52
18,185.0	89.01	359.37	7,240.2	-2,237.2	9,648.7	1,672.5	9,645.8	0.85	0.83	-0.14
18,274.0	89.07	0.65	7,241.7	-2,238.7	9,737.7	1,672.5	9,734.8	1.44	0.07	1.44
18,364.0	89.62	0.75	7,242.7	-2,239.7	9,827.7	1,673.6	9,824.8	0.62	0.61	0.11
<b>LAST SURVEY AUG 16, 2019</b>										
<b>18,434.0</b>	<b>90.97</b>	<b>2.22</b>	<b>7,242.4</b>	<b>-2,239.4</b>	<b>9,897.7</b>	<b>1,675.4</b>	<b>9,894.7</b>	<b>2.85</b>	<b>1.93</b>	<b>2.10</b>
<b>PROJECTION TO TD:40.231981; -104.784386</b>										
<b>18,489.0</b>	<b>90.97</b>	<b>2.22</b>	<b>7,241.4</b>	<b>-2,238.4</b>	<b>9,952.6</b>	<b>1,677.6</b>	<b>9,949.7</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Survey Report



<b>Company:</b>	ANADARKO PETROLEUM CORP	<b>Local Co-ordinate Reference:</b>	Well SARCHET 21-6HZ
<b>Project:</b>	WELD COUNTY (NAD 83)	<b>TVD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Site:</b>	SW SW SEC 21 T3N R66W 6th P.M.	<b>MD Reference:</b>	KB 21' @ 5003.0usft (PD 464)
<b>Well:</b>	SARCHET 21-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2019-506-464	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	Database 1

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 - SARCHET 21-6H - survey misses target center by 45.3usft at 6940.8usft MD (6568.4 TVD, -1237.1 N, 1635.7 E) - Point	0.00	0.00	6,566.8	-1,220.5	1,677.8	14,600,113.48	1,700,621.32	40° 12' 4.721 N	104° 47' 3.797 W	
INT PT 1 - SARCHET 21 - survey misses target center by 22.8usft at 12538.1usft MD (7282.5 TVD, 4004.0 N, 1669.6 E) - Point	0.00	0.00	7,283.0	4,003.0	1,692.4	14,605,334.84	1,700,623.58	40° 12' 56.339 N	104° 47' 3.604 W	
BHL - SARCHET 21-6H; - survey misses target center by 50.7usft at 18483.1usft MD (7241.5 TVD, 9946.8 N, 1677.3 E) - Point	0.00	0.00	7,292.0	9,947.5	1,682.1	14,611,276.93	1,700,599.22	40° 13' 55.082 N	104° 47' 3.732 W	
BHL - SARCHET 21-6H; - survey misses target center by 4.9usft at 18484.0usft MD (7241.5 TVD, 9947.6 N, 1677.4 E) - Point	0.00	0.00	7,243.0	9,947.5	1,682.1	14,611,276.93	1,700,599.22	40° 13' 55.082 N	104° 47' 3.732 W	
HEEL - SARCHET 21-6H - survey misses target center by 35.5usft at 8022.2usft MD (7267.5 TVD, -509.2 N, 1649.1 E) - Point	0.00	0.00	7,238.0	-504.3	1,668.2	14,600,829.30	1,700,610.01	40° 12' 11.798 N	104° 47' 3.920 W	
INT PT 2 - SARCHET 21 - survey misses target center by 24.3usft at 15538.4usft MD (7263.4 TVD, 7003.2 N, 1674.1 E) - Point	0.00	0.00	7,243.0	7,003.0	1,687.2	14,608,333.63	1,700,611.28	40° 13' 25.984 N	104° 47' 3.669 W	
HEEL - SARCHET 21-6H - survey misses target center by 24.0usft at 8029.7usft MD (7268.6 TVD, -501.9 N, 1649.1 E) - Point	0.00	0.00	7,283.0	-504.3	1,668.2	14,600,829.30	1,700,610.01	40° 12' 11.798 N	104° 47' 3.920 W	
KOP - SARCHET 21-6H - survey misses target center by 47.0usft at 6893.1usft MD (6520.6 TVD, -1237.9 N, 1635.8 E) - Point	0.00	0.00	6,521.8	-1,216.7	1,677.8	14,600,117.20	1,700,621.27	40° 12' 4.758 N	104° 47' 3.798 W	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,871.0	1,802.2	-256.1	334.8	TIE ON TO SURFACE SURVEYS	
5,460.0	5,124.6	-1,058.2	1,426.6	~ ENTER TGT BOX (5460' MD)	
6,896.0	6,523.6	-1,238.0	1,635.8	KOP	
8,151.0	7,280.0	-381.1	1,650.0	HEEL:40.203615; -104.784488	
8,458.0	7,284.6	-74.2	1,647.8	~ CROSS HB (8458' MD)	
18,078.0	7,237.5	9,541.8	1,673.5	~ CROSS HB (18078' MD)	
18,434.0	7,242.4	9,897.7	1,675.4	LAST SURVEY AUG 16, 2019	
18,489.0	7,241.4	9,952.6	1,677.6	PROJECTION TO TD:40.231981; -104.784386	

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