

ANADARKO PETROLEUM CORP

Project: Weld County, CO (UTM-NAD83)
 Site: MAE J 14-8HZ
 Well: MAE J 8-6HZ
 Wellbore: OH
 Design: OH

20' KB + 5083' GE @ 5103.00usft



Azimuths to True North
 Magnetic North: 8.08°

Magnetic Field
 Strength: 51928.7nT
 Dip Angle: 66.49°
 Date: 9/19/2019
 Model: IGRF2015

PROJECT DETAILS: Weld County, CO (UTM-NAD83)

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Zone 13N (108 W to 102 W)



1N-68W-17

DESIGN TARGET DETAILS

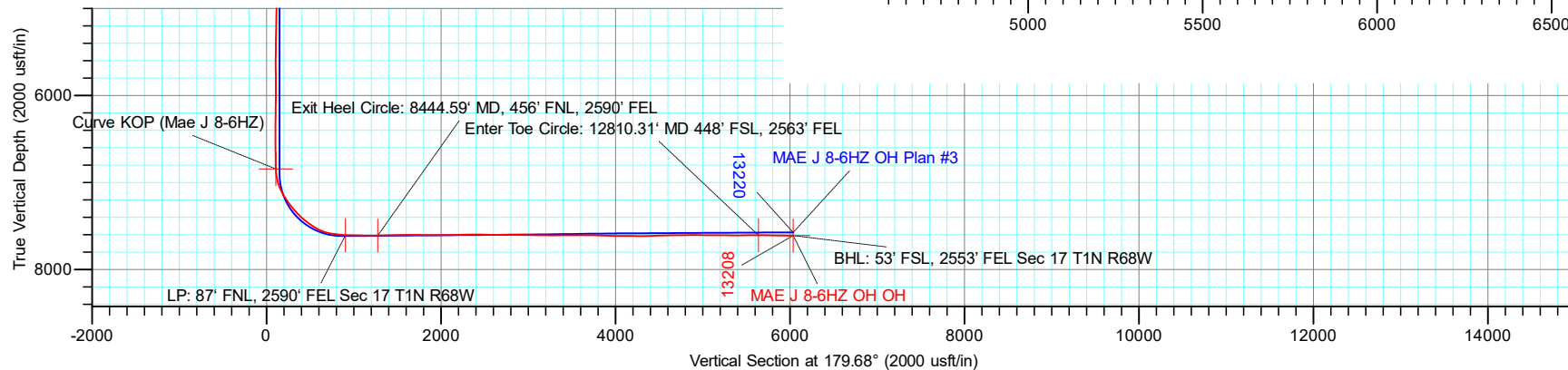
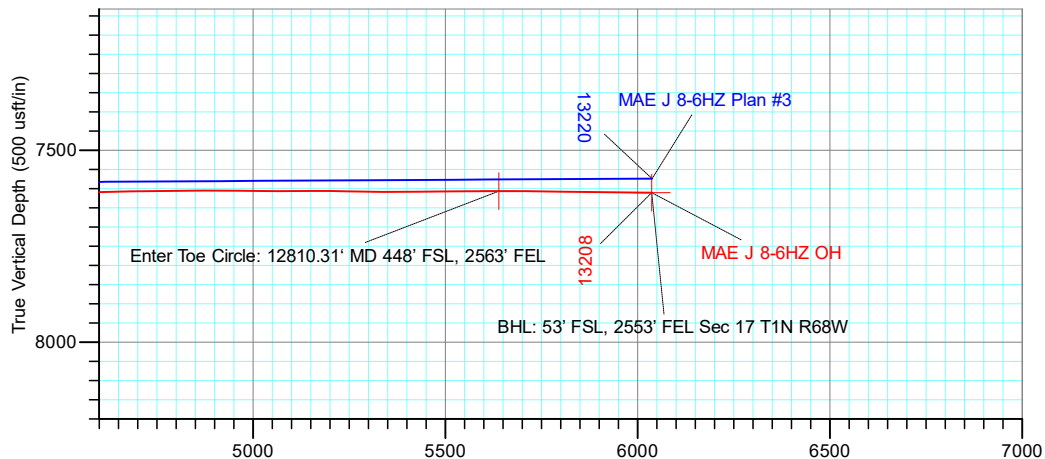
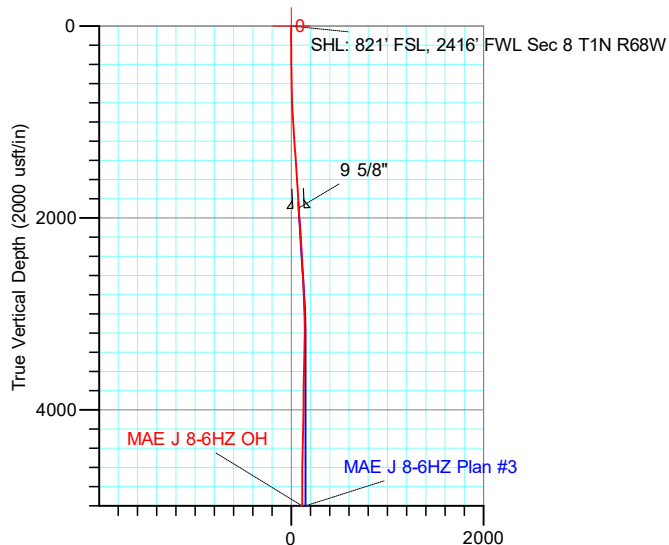
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BHL: 53' FSL, 2553' FEL Sec 17 T1N R68W	7610.87	-6034.77	355.27	40.043932	-105.027332
Curve KOP (Mae J 8-6HZ)	6845.40	-105.57	295.40	40.060215	-105.027545
Enter Toe Circle: 12810.31' MD 448' FSL, 2563' FEL	7606.73	-5637.23	346.20	40.045024	-105.027364
Exit Heel Circle: 8444.59' MD, 456' FNL, 2590' FEL	7610.50	-1273.48	329.09	40.057008	-105.027425
LP: 87' FNL, 2590' FEL Sec 17 T1N R68W	7606.15	-902.99	324.92	40.058025	-105.027440
SHL: 821' FSL, 2416' FWL Sec 8 T1N R68W	0.00	0.00	0.00	40.060505	-105.028601

ACTUAL LINE CALLS

SHL: 821' FSL, 2416' FWL Sec 8 T1N R68W

HEEL: 87' FNL, 2590' FEL Sec 17 T1N R68W

BHL: 53' FSL, 2553' FEL Sec 17 T1N R68W



TOTAL DIRECTIONAL SERVICES LLC
 671 Academy Ct, Windsor, CO 80550
 Phone: (970) 460-9402

Design: OH (MAE J 8-6HZ/OH)
 MAE J 14-8HZ
 Created By: Dustin Ault Date: 15:41, March 14 2020
 Approved: _____ Date: _____

ANADARKO PETROLEUM CORP

Project: Weld County, CO (UTM-NAD83)
 Site: MAE J 14-8HZ
 Well: MAE J 8-6HZ
 Wellbore: OH
 Design: OH

PROJECT DETAILS: Weld County, CO (UTM-NAD83)
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Zone 13N (108 W to 102 W)



Azimuths to True North
 Magnetic North: 8.08°

Magnetic Field
 Strength: 51928.7nT
 Dip Angle: 66.49°
 Date: 9/19/2019
 Model: IGRF2015



DESIGN TARGET DETAILS

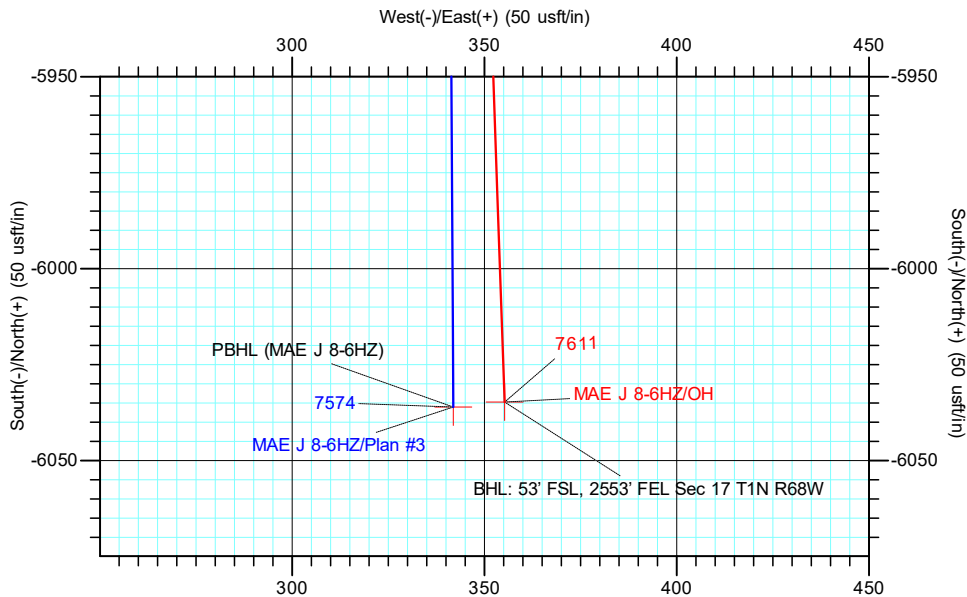
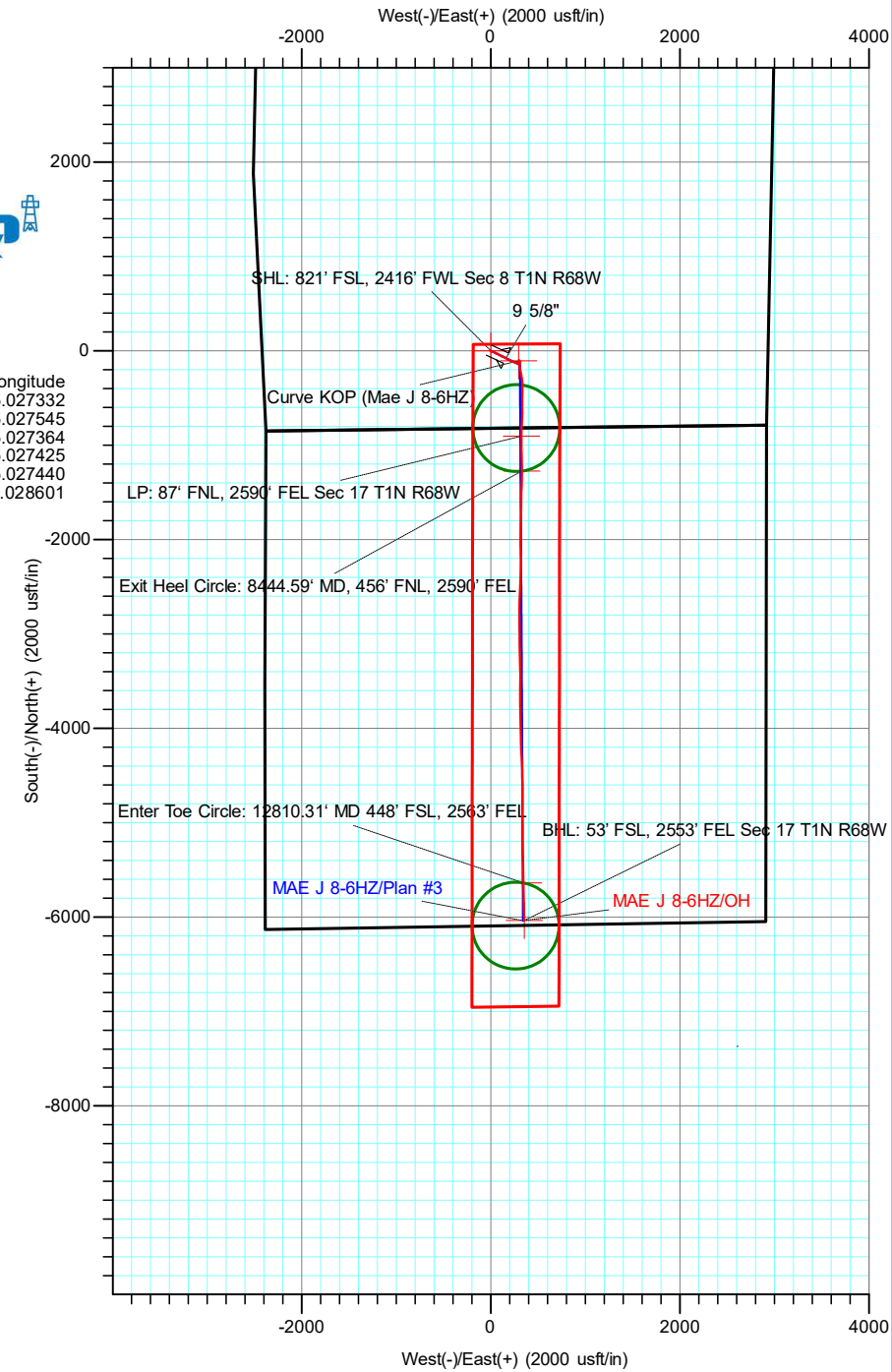
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL: 53' FSL, 2553' FEL Sec 17 T1N R68W	7610.87	-6034.77	355.27	14542732.31	1632767.33	40.043932	-105.027332
Curve KOP (Mae J 8-6HZ)	6845.40	-105.57	295.40	14548661.53	1632709.37	40.060215	-105.027545
Enter Toe Circle: 12810.31' MD 448' FSL, 2563' FEL	7606.73	-5637.23	346.20	14543129.85	1632758.39	40.045024	-105.027364
Exit Heel Circle: 8444.59' MD, 456' FNL, 2590' FEL	7610.50	-1273.48	329.09	14547493.60	1632742.68	40.057008	-105.027425
LP: 87' FNL, 2590' FEL Sec 17 T1N R68W	7606.15	-902.99	324.92	14547864.10	1632738.63	40.058025	-105.027440
SHL: 821' FSL, 2416' FWL Sec 8 T1N R68W	0.00	0.00	0.00	14548767.19	1632414.00	40.060505	-105.028601

ACTUAL LINE CALLS

SHL: 821' FSL, 2416' FWL Sec 8 T1N R68W

HEEL: 87' FNL, 2590' FEL Sec 17 T1N R68W

BHL: 53' FSL, 2553' FEL Sec 17 T1N R68W



TOTAL DIRECTIONAL SERVICES LLC
 671 Academy Ct, Windsor, CO 80550
 Phone: (970) 460-9402

Design: OH (MAE J 8-6HZ/OH)
 MAE J 14-8HZ
 Created By: Dustin Ault
 Date: _____
 Approved: _____
 Date: 15:43, March 14 2020

ANADARKO PETROLEUM CORP

Weld County, CO (UTM-NAD83)

MAE J 14-8HZ

MAE J 8-6HZ

OH

Design: OH

Standard Survey Report

14 March, 2020

Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well MAE J 8-6HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	20' KB + 5083' GE @ 5103.00usft
Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

Project	Weld County, CO (UTM-NAD83)		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	MAE J 14-8HZ				
Site Position:		Northing:	14,548,842.20 usft	Latitude:	40.060711
From:	Map	Easting:	1,632,414.30 usft	Longitude:	-105.028600
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.02 °

Well	MAE J 8-6HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,548,767.19 usft	Latitude:	40.060505
	+E/-W	0.00 usft	Easting:	1,632,414.00 usft	Longitude:	-105.028601
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,083.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/19/2019	8.08	66.49	51,928.69101406

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.68	

Survey Program	Date	3/14/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
130.00	1,849.00	Survey #1 - Surface MWD (OH)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,933.00	13,154.00	Survey #2 - MWD+IFR (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
13,208.00	13,208.00	Survey #3 - Proj to TD (OH)	BLIND	OWSG BLIND	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (MAE J 8-6HZ) - SHL: 821' FSL, 2416' FWL Sec 8 T1N R68W										
130.00	0.97	272.45	129.99	0.05	-1.10	-0.05	0.75	0.75	0.00	
225.00	1.10	140.53	224.99	-0.62	-1.32	0.62	1.99	0.14	-138.86	
320.00	0.53	105.73	319.98	-1.45	-0.32	1.44	0.77	-0.60	-36.63	
415.00	1.32	111.53	414.96	-1.97	1.12	1.97	0.84	0.83	6.11	
510.00	2.68	106.52	509.90	-3.00	4.27	3.02	1.44	1.43	-5.27	
606.00	3.56	107.04	605.76	-4.51	9.27	4.56	0.92	0.92	0.54	
701.00	4.66	105.55	700.52	-6.41	15.81	6.50	1.16	1.16	-1.57	

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Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

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)	
796.00	5.84	110.30	795.12	-9.12	24.06	9.26	1.32	1.24	5.00	
891.00	6.99	119.09	889.52	-13.61	33.64	13.80	1.59	1.21	9.25	
986.00	7.16	120.84	983.80	-19.45	43.78	19.70	0.29	0.18	1.84	
1,081.00	8.26	114.78	1,077.94	-25.35	55.06	25.66	1.44	1.16	-6.38	
1,176.00	9.10	111.62	1,171.85	-30.98	68.24	31.36	1.02	0.88	-3.33	
1,271.00	9.14	119.44	1,265.65	-37.46	81.79	37.91	1.30	0.04	8.23	
1,366.00	8.66	116.98	1,359.51	-44.41	94.74	44.94	0.64	-0.51	-2.59	
1,462.00	8.35	117.33	1,454.45	-50.89	107.37	51.49	0.33	-0.32	0.36	
1,557.00	8.17	114.25	1,548.47	-56.83	119.65	57.49	0.50	-0.19	-3.24	
1,652.00	8.83	113.02	1,642.43	-62.45	132.52	63.19	0.72	0.69	-1.29	
1,746.00	6.99	118.73	1,735.53	-68.02	144.18	68.83	2.13	-1.96	6.07	
1,849.00	6.90	117.59	1,837.77	-73.90	155.16	74.77	0.16	-0.09	-1.11	
1,910.00	6.58	115.20	1,898.35	-77.09	161.56	77.99	0.70	-0.53	-3.92	
9 5/8"										
1,933.00	6.46	114.24	1,921.20	-78.18	163.94	79.09	0.70	-0.51	-4.18	
2,026.00	9.17	120.55	2,013.33	-84.09	175.09	85.07	3.05	2.91	6.78	
2,118.00	8.43	118.97	2,104.25	-91.09	187.30	92.13	0.85	-0.80	-1.72	
2,212.00	7.48	116.27	2,197.34	-97.13	198.82	98.24	1.09	-1.01	-2.87	
2,306.00	9.10	114.62	2,290.36	-102.94	211.06	104.11	1.74	1.72	-1.76	
2,400.00	8.12	112.73	2,383.30	-108.60	223.94	109.85	1.08	-1.04	-2.01	
2,493.00	6.88	110.86	2,475.50	-113.12	235.21	114.43	1.36	-1.33	-2.01	
2,586.00	8.97	113.45	2,567.61	-117.99	247.07	119.37	2.28	2.25	2.78	
2,679.00	7.44	110.83	2,659.65	-123.02	259.35	124.46	1.69	-1.65	-2.82	
2,772.00	6.34	107.76	2,751.98	-126.72	269.86	128.23	1.25	-1.18	-3.30	
2,959.00	6.20	113.09	2,937.86	-133.83	288.99	135.44	0.32	-0.07	2.85	
3,054.00	4.73	114.14	3,032.43	-137.45	297.28	139.10	1.55	-1.55	1.11	
3,149.00	3.84	103.62	3,127.16	-139.80	303.95	141.49	1.25	-0.94	-11.07	
3,245.00	3.26	61.08	3,223.00	-139.23	309.46	140.96	2.74	-0.60	-44.31	
3,337.00	1.52	4.14	3,314.92	-136.75	311.84	138.49	2.98	-1.89	-61.89	
3,430.00	1.31	350.74	3,407.89	-134.47	311.76	136.21	0.42	-0.23	-14.41	
3,523.00	1.13	342.09	3,500.87	-132.55	311.30	134.29	0.28	-0.19	-9.30	
3,618.00	1.19	341.77	3,595.85	-130.72	310.71	132.46	0.06	0.06	-0.34	
3,712.00	0.86	337.89	3,689.84	-129.14	310.14	130.87	0.36	-0.35	-4.13	
3,805.00	0.66	302.80	3,782.83	-128.21	309.42	129.93	0.53	-0.22	-37.73	
3,898.00	0.49	296.33	3,875.83	-127.74	308.62	129.46	0.20	-0.18	-6.96	
3,992.00	1.18	315.59	3,969.82	-126.87	307.58	128.58	0.78	0.73	20.49	
4,086.00	0.87	285.74	4,063.80	-125.98	306.21	127.69	0.65	-0.33	-31.76	
4,179.00	2.08	12.03	4,156.78	-124.14	305.89	125.85	2.37	1.30	92.78	
4,272.00	1.51	5.62	4,249.73	-121.27	306.36	122.98	0.65	-0.61	-6.89	
4,365.00	1.26	2.36	4,342.70	-119.03	306.52	120.74	0.28	-0.27	-3.51	
4,457.00	1.22	0.49	4,434.68	-117.04	306.57	118.75	0.06	-0.04	-2.03	
4,550.00	0.90	353.03	4,527.67	-115.33	306.49	117.04	0.37	-0.34	-8.02	
4,643.00	0.98	58.19	4,620.66	-114.18	307.08	115.89	1.09	0.09	70.06	

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Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

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)	
4,737.00	0.35	48.18	4,714.65	-113.57	307.98	115.28	0.68	-0.67	-10.65	
4,831.00	0.22	180.22	4,808.65	-113.55	308.19	115.27	0.56	-0.14	140.47	
4,925.00	0.53	183.29	4,902.65	-114.17	308.16	115.89	0.33	0.33	3.27	
5,018.00	1.53	339.70	4,995.64	-113.43	307.71	115.15	2.18	1.08	168.18	
5,112.00	1.39	336.06	5,089.61	-111.22	306.81	112.93	0.18	-0.15	-3.87	
5,232.00	1.19	332.11	5,209.58	-108.78	305.64	110.49	0.18	-0.17	-3.29	
5,324.00	1.08	326.14	5,301.56	-107.22	304.71	108.92	0.18	-0.12	-6.49	
5,418.00	1.02	321.53	5,395.54	-105.83	303.69	107.52	0.11	-0.06	-4.90	
5,511.00	0.89	318.22	5,488.53	-104.64	302.70	106.33	0.15	-0.14	-3.56	
5,603.00	0.69	298.42	5,580.52	-103.85	301.73	105.53	0.36	-0.22	-21.52	
5,697.00	0.57	143.33	5,674.52	-103.95	301.51	105.63	1.31	-0.13	-164.99	
5,791.00	0.27	176.64	5,768.52	-104.55	301.81	106.23	0.40	-0.32	35.44	
5,884.00	0.48	251.96	5,861.51	-104.89	301.45	106.57	0.52	0.23	80.99	
5,976.00	0.66	249.04	5,953.51	-105.20	300.59	106.87	0.20	0.20	-3.17	
6,068.00	1.10	46.11	6,045.51	-104.77	300.73	106.45	1.88	0.48	170.73	
6,162.00	0.65	16.34	6,139.49	-103.64	301.53	105.32	0.67	-0.48	-31.67	
6,254.00	0.71	322.11	6,231.49	-102.69	301.33	104.37	0.68	0.07	-58.95	
6,348.00	0.89	304.67	6,325.48	-101.81	300.37	103.49	0.32	0.19	-18.55	
6,441.00	0.74	284.95	6,418.47	-101.24	299.19	102.91	0.34	-0.16	-21.20	
6,535.00	0.72	254.20	6,512.46	-101.25	298.04	102.91	0.41	-0.02	-32.71	
6,628.00	0.65	231.57	6,605.46	-101.74	297.06	103.39	0.30	-0.08	-24.33	
6,721.00	0.79	216.92	6,698.45	-102.58	296.26	104.23	0.25	0.15	-15.75	
6,814.00	0.89	208.24	6,791.44	-103.72	295.54	105.37	0.17	0.11	-9.33	
6,868.00	3.14	177.72	6,845.40	-105.57	295.40	107.22	4.47	4.16	-56.53	
Curve KOP (Mae J 8-6HZ)										
6,907.00	4.86	173.86	6,884.31	-108.28	295.62	109.93	4.47	4.42	-9.89	
7,000.00	13.61	171.43	6,976.01	-123.05	297.67	124.71	9.42	9.41	-2.61	
7,093.00	23.61	170.14	7,064.04	-152.29	302.51	153.98	10.76	10.75	-1.39	
7,186.00	30.89	168.13	7,146.66	-194.06	310.62	195.79	7.89	7.83	-2.16	
7,280.00	35.44	168.67	7,225.33	-244.42	320.94	246.21	4.85	4.84	0.57	
7,374.00	40.00	172.85	7,299.68	-301.16	330.06	302.99	5.56	4.85	4.45	
7,469.00	44.93	177.77	7,369.76	-365.03	335.17	366.90	6.25	5.19	5.18	
7,562.00	50.64	181.73	7,432.23	-433.85	335.36	435.72	6.90	6.14	4.26	
7,654.00	55.04	180.55	7,487.79	-507.14	333.93	508.99	4.89	4.78	-1.28	
7,748.00	61.75	180.14	7,537.03	-587.15	333.45	589.00	7.15	7.14	-0.44	
7,843.00	73.94	181.59	7,572.79	-674.95	332.08	676.80	12.91	12.83	1.53	
7,936.00	82.66	182.57	7,591.63	-765.87	328.77	767.70	9.43	9.38	1.05	
8,029.00	83.25	181.14	7,603.03	-858.12	325.78	859.93	1.65	0.63	-1.54	
8,041.39	84.78	181.12	7,604.33	-870.44	325.54	872.24	12.36	12.36	-0.20	
Heel (MAE J 8-6HZ)										
8,074.00	88.81	181.05	7,606.15	-902.99	324.92	904.79	12.36	12.35	-0.20	
LP: 87' FNL, 2590' FEL Sec 17 T1N R68W										
8,122.00	88.73	180.26	7,607.18	-950.97	324.37	952.77	1.65	-0.17	-1.65	
8,215.00	88.99	179.09	7,609.03	-1,043.95	324.90	1,045.75	1.29	0.28	-1.26	

Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well MAE J 8-6HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	20' KB + 5083' GE @ 5103.00usft
Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

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)	
8,309.00	89.30	179.02	7,610.43	-1,137.93	326.45	1,139.73	0.34	0.33	-0.07	
8,402.00	90.15	178.52	7,610.88	-1,230.90	328.45	1,232.72	1.06	0.91	-0.54	
8,444.58	90.87	179.76	7,610.50	-1,273.48	329.09	1,275.30	3.37	1.70	2.91	
Exit Heel Circle: 8444.59' MD, 456' FNL, 2590' FEL										
8,495.00	91.73	181.23	7,609.35	-1,323.88	328.65	1,325.69	3.37	1.70	2.91	
8,588.00	90.87	181.97	7,607.24	-1,416.82	326.05	1,418.62	1.22	-0.92	0.80	
8,680.00	91.06	180.99	7,605.69	-1,508.77	323.68	1,510.56	1.08	0.21	-1.07	
8,774.00	91.48	180.32	7,603.61	-1,602.74	322.60	1,604.52	0.84	0.45	-0.71	
8,868.00	89.00	181.78	7,603.22	-1,696.72	320.88	1,698.48	3.06	-2.64	1.55	
8,962.00	89.41	181.69	7,604.52	-1,790.66	318.04	1,792.41	0.45	0.44	-0.10	
9,054.00	90.44	180.81	7,604.64	-1,882.64	316.03	1,884.37	1.47	1.12	-0.96	
9,148.00	89.69	180.16	7,604.53	-1,976.63	315.23	1,978.36	1.06	-0.80	-0.69	
9,241.00	90.66	179.27	7,604.25	-2,069.63	315.70	2,071.36	1.42	1.04	-0.96	
9,335.00	90.62	178.15	7,603.20	-2,163.60	317.81	2,165.34	1.19	-0.04	-1.19	
9,430.00	91.59	180.42	7,601.37	-2,258.57	319.00	2,260.31	2.60	1.02	2.39	
9,524.00	91.19	181.78	7,599.09	-2,352.52	317.19	2,354.25	1.51	-0.43	1.45	
9,618.00	88.36	183.31	7,599.46	-2,446.41	313.02	2,448.12	3.42	-3.01	1.63	
9,710.00	88.62	182.78	7,601.88	-2,538.25	308.13	2,539.93	0.64	0.28	-0.58	
9,804.00	90.47	180.82	7,602.63	-2,632.19	305.18	2,633.86	2.87	1.97	-2.09	
9,898.00	91.24	180.84	7,601.22	-2,726.17	303.82	2,727.83	0.82	0.82	0.02	
9,919.95	90.65	180.61	7,600.86	-2,748.12	303.54	2,749.77	2.88	-2.68	-1.06	
Interm TGT#1 (MAE J 8-6HZ)										
9,992.00	88.72	179.84	7,601.26	-2,820.16	303.26	2,821.81	2.88	-2.68	-1.06	
10,086.00	88.73	179.83	7,603.35	-2,914.14	303.53	2,915.79	0.02	0.01	-0.01	
10,180.00	88.86	179.12	7,605.33	-3,008.11	304.40	3,009.77	0.77	0.14	-0.76	
10,272.00	89.19	179.43	7,606.89	-3,100.09	305.56	3,101.75	0.49	0.36	0.34	
10,364.00	89.55	179.25	7,607.90	-3,192.08	306.62	3,193.74	0.44	0.39	-0.20	
10,458.00	89.96	178.46	7,608.30	-3,286.06	308.50	3,287.73	0.95	0.44	-0.84	
10,550.00	90.71	178.00	7,607.77	-3,378.01	311.34	3,379.70	0.96	0.82	-0.50	
10,644.00	90.83	180.56	7,606.50	-3,471.99	312.52	3,473.68	2.73	0.13	2.72	
10,736.00	89.55	180.44	7,606.20	-3,563.98	311.72	3,565.67	1.40	-1.39	-0.13	
10,828.00	90.47	180.20	7,606.18	-3,655.98	311.20	3,657.66	1.03	1.00	-0.26	
10,921.00	87.98	179.06	7,607.44	-3,748.96	311.80	3,750.64	2.94	-2.68	-1.23	
11,014.00	87.97	178.77	7,610.73	-3,841.89	313.56	3,843.58	0.31	-0.01	-0.31	
11,107.00	88.12	179.01	7,613.90	-3,934.82	315.36	3,936.52	0.30	0.16	0.26	
11,170.24	89.51	179.00	7,615.21	-3,998.03	316.46	3,999.73	2.19	2.19	-0.02	
Interm TGT#2 (MAE J 8-6HZ)										
11,200.00	90.16	178.99	7,615.29	-4,027.79	316.99	4,029.49	2.19	2.19	-0.02	
11,294.00	90.77	179.28	7,614.53	-4,121.77	318.41	4,123.49	0.72	0.65	0.31	
11,386.00	87.58	177.09	7,615.86	-4,213.70	321.32	4,215.43	4.21	-3.47	-2.38	
11,481.00	90.11	176.99	7,617.77	-4,308.54	326.22	4,310.30	2.67	2.66	-0.11	
11,575.00	92.38	177.70	7,615.73	-4,402.41	330.58	4,404.19	2.53	2.41	0.76	
11,669.00	92.28	178.99	7,611.91	-4,496.30	333.29	4,498.09	1.38	-0.11	1.37	
11,763.00	90.81	179.48	7,609.37	-4,590.25	334.54	4,592.05	1.65	-1.56	0.52	

Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well MAE J 8-6HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	20' KB + 5083' GE @ 5103.00usft
Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

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)	
11,856.00	91.72	179.19	7,607.32	-4,683.22	335.62	4,685.02	1.03	0.98	-0.31	
11,949.00	89.78	180.57	7,606.10	-4,776.21	335.82	4,778.01	2.56	-2.09	1.48	
12,043.00	91.13	180.43	7,605.36	-4,870.20	335.00	4,871.99	1.44	1.44	-0.15	
12,137.00	88.62	180.98	7,605.56	-4,964.18	333.84	4,965.97	2.73	-2.67	0.59	
12,231.00	90.07	180.62	7,606.64	-5,058.16	332.53	5,059.94	1.59	1.54	-0.38	
12,323.00	90.24	179.50	7,606.39	-5,150.16	332.43	5,151.94	1.23	0.18	-1.22	
12,416.00	88.96	178.01	7,607.04	-5,243.13	334.45	5,244.92	2.11	-1.38	-1.60	
12,509.00	89.22	177.97	7,608.51	-5,336.06	337.71	5,337.87	0.28	0.28	-0.04	
12,603.00	91.38	177.69	7,608.02	-5,429.99	341.27	5,431.81	2.32	2.30	-0.30	
12,697.00	89.52	179.03	7,607.28	-5,523.94	343.96	5,525.78	2.44	-1.98	1.43	
12,791.00	90.87	178.73	7,606.96	-5,617.92	345.80	5,619.76	1.47	1.44	-0.32	
12,810.31	90.52	178.88	7,606.73	-5,637.23	346.20	5,639.07	1.97	-1.82	0.75	
Enter Toe Circle: 12810.31' MD 448' FSL, 2563' FEL										
12,884.00	89.18	179.43	7,606.92	-5,710.91	347.29	5,712.76	1.97	-1.82	0.75	
12,976.00	89.25	179.18	7,608.18	-5,802.89	348.41	5,804.75	0.28	0.08	-0.27	
13,070.00	89.29	178.17	7,609.38	-5,896.86	350.58	5,898.72	1.08	0.04	-1.07	
13,154.00	89.42	178.00	7,610.33	-5,980.80	353.39	5,982.68	0.25	0.15	-0.20	
13,208.00	89.42	178.00	7,610.87	-6,034.77	355.27	6,036.66	0.00	0.00	0.00	
PBHL (MAE J 8-6HZ) - BHL: 53' FSL, 2553' FEL Sec 17 T1N R68W										

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	
SHL: 821' FSL, 2416' FV - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,548,767.19	1,632,414.00	40.060505	-105.028601	
Curve KOP (Mae J 8-6H) - actual wellpath hits target center - Point	0.00	0.00	6,845.40	-105.57	295.40	14,548,661.52	1,632,709.36	40.060215	-105.027546	
LP: 87' FNL, 2590' FEL - actual wellpath hits target center - Point	0.00	0.00	7,606.15	-902.99	324.92	14,547,864.09	1,632,738.63	40.058025	-105.027440	
Enter Toe Circle: 12810. - actual wellpath hits target center - Point	0.00	0.00	7,606.73	-5,637.23	346.20	14,543,129.84	1,632,758.39	40.045024	-105.027364	
Exit Heel Circle: 8444.5 - actual wellpath hits target center - Point	0.00	0.00	7,610.50	-1,273.48	329.09	14,547,493.60	1,632,742.68	40.057008	-105.027425	
BHL: 53' FSL, 2553' FEL - actual wellpath hits target center - Point	0.00	0.00	7,610.87	-6,034.77	355.27	14,542,732.30	1,632,767.33	40.043933	-105.027332	

Company:	ANADARKO PETROLEUM CORP	Local Co-ordinate Reference:	Well MAE J 8-6HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	20' KB + 5083' GE @ 5103.00usft
Site:	MAE J 14-8HZ	MD Reference:	20' KB + 5083' GE @ 5103.00usft
Well:	MAE J 8-6HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.15 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (")	Hole Diameter (")
1,910.00	1,898.35	9 5/8"		9-5/8	13-1/2

Checked By: _____ Approved By: _____ Date: _____