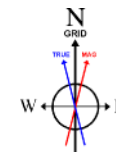
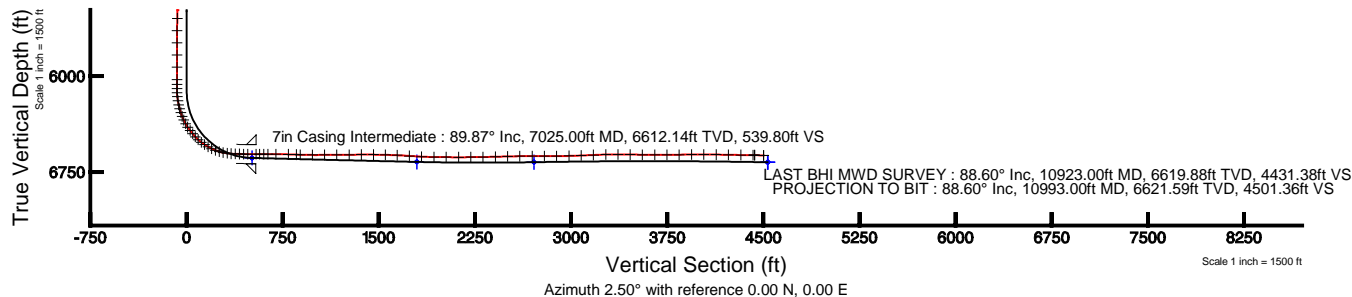
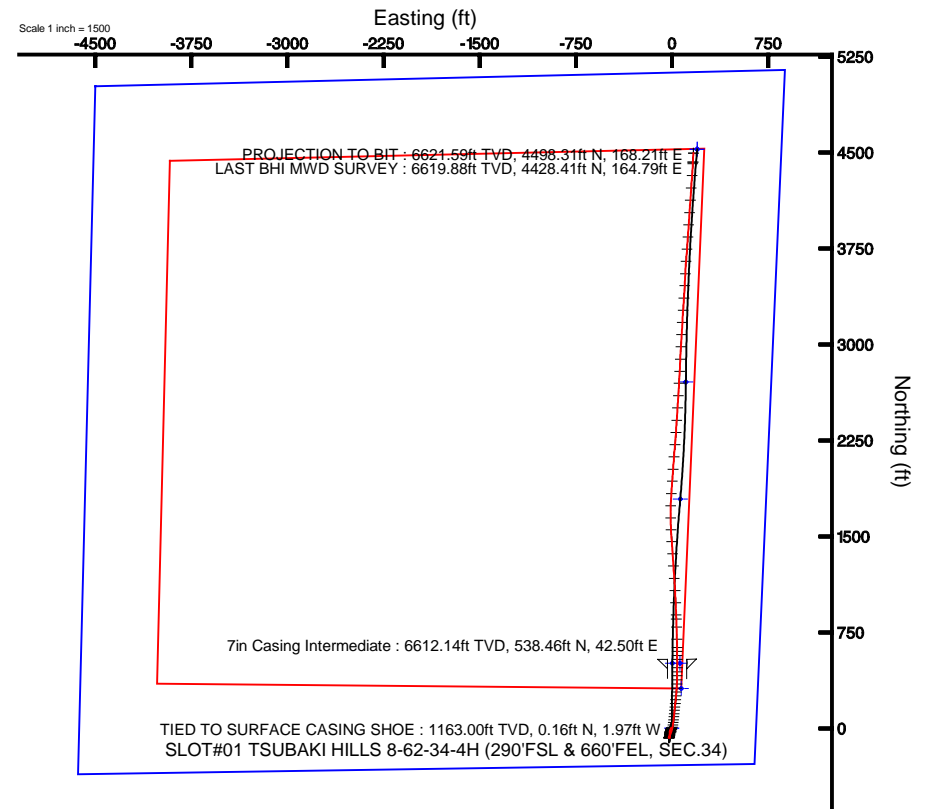




# MARATHON OIL COMPANY

Location: COLORADO Slot: SLOT#01 TSUBAKI HILLS 8-62-34-4H (290°FSL & 660°FEL, SEC.34)  
Field: WELD COUNTY (NAD 83, GRID NORTH) Well: TSUBAKI HILLS 8-62-34-4H  
Facility: SEC.34-T8N-R62W Wellbore: TSUBAKI HILLS 8-62-34-4H PWB

This reference wellbore is TSUBAKI HILLS 8-62-34-4H (REV-2.0) PWB	
True vertical depths are referenced to MDP 201 (1992)	Grid System: NAD83 / Lambert Colorado SP / Northern Zone (2011 US feet)
Measured depths are referenced to MDP 201 (1992)	North Reference: Grid north
MDP 201 (1992) is Mean Sea Level +555 feet	Graticule: True azimuth
Mean Sea Level is Modified US Sea Level TSUBAKI HILLS 8-62-34-4H (290°FSL & 660°FEL, SEC.34) 0 feet	Depths are in feet
Coordinates are in feet referenced to Sea	Created by: landbarn on 11/16/2011



BGGM (1945.0 to 2012.0) Dip: 67.29° Field: 53256.2 nT  
Magnetic North is 8.52 degrees East of True North (at 11/14/2011)  
Grid North is 0.78 degrees East of True North  
To correct azimuth from True to Grid subtract 0.78 degrees  
To correct azimuth from Magnetic to Grid add 7.75 degrees  
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.75 = 97.75



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 3.0.2
North Reference	Grid	User	Cookdanm
Scale	0.999977	Report Generated	1/18/2012 at 11:37:52 PM
Convergence at slot	0.78° East	Database/Source file	WA_Denver/TSUBAKI_HILLS_8-62-34-4H_awb.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	3333233.57	1467731.62	40°36'40.068"N	104°17'59.064"W
Facility Reference Pt			3333233.57	1467731.62	40°36'40.068"N	104°17'59.064"W
Field Reference Pt			3476081.76	1512960.14	40°43'43.704"N	103°46'55.829"W

## WELLPATH DATUM

Calculation method	Minimum curvature	H&P 321 (RKB) to Facility Vertical Datum	4908.00ft
Horizontal Reference Pt	Slot	H&P 321 (RKB) to Mean Sea Level	4908.00ft
Vertical Reference Pt	H&P 321 (RKB)	H&P 321 (RKB) to Mud Line at Slot (SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34))	4908.00ft
MD Reference Pt	H&P 321 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	2.50°



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
1163.00	0.200	274.500	1163.00	0.07	0.16	-1.97	0.00	TIED TO SURFACE CASING SHOE
1256.00	0.100	246.200	1256.00	0.04	0.14	-2.21	0.13	
1348.00	0.200	242.600	1348.00	-0.07	0.03	-2.42	0.11	
1440.00	0.400	205.500	1440.00	-0.45	-0.33	-2.70	0.29	
1532.00	0.400	205.600	1532.00	-1.04	-0.91	-2.98	0.00	
1625.00	0.600	228.000	1624.99	-1.68	-1.53	-3.48	0.30	
1717.00	0.300	212.200	1716.99	-2.23	-2.05	-3.97	0.35	
1810.00	0.500	210.200	1809.99	-2.80	-2.61	-4.30	0.22	
1905.00	0.400	196.900	1904.98	-3.48	-3.29	-4.61	0.15	
2000.00	0.600	187.500	1999.98	-4.30	-4.10	-4.77	0.23	
2095.00	0.700	180.100	2094.97	-5.38	-5.17	-4.83	0.14	
2192.00	0.700	199.800	2191.97	-6.53	-6.32	-5.04	0.25	
2287.00	0.700	202.400	2286.96	-7.63	-7.40	-5.45	0.03	
2384.00	0.600	202.500	2383.95	-8.67	-8.42	-5.87	0.10	
2479.00	0.700	214.100	2478.95	-9.63	-9.36	-6.39	0.17	
2575.00	0.700	219.400	2574.94	-10.60	-10.30	-7.09	0.07	
2670.00	0.700	202.100	2669.93	-11.61	-11.28	-7.68	0.22	
2766.00	0.700	198.300	2765.93	-12.73	-12.38	-8.08	0.05	
2861.00	0.900	202.200	2860.92	-13.99	-13.63	-8.55	0.22	
2956.00	1.000	199.700	2955.90	-15.48	-15.10	-9.11	0.11	
3052.00	1.100	199.600	3051.89	-17.16	-16.75	-9.70	0.10	
3147.00	1.100	199.000	3146.87	-18.91	-18.48	-10.30	0.01	
3243.00	1.100	192.600	3242.85	-20.70	-20.25	-10.80	0.13	
3340.00	1.200	196.400	3339.83	-22.60	-22.13	-11.29	0.13	
3436.00	0.900	202.700	3435.82	-24.29	-23.79	-11.87	0.33	
3533.00	1.100	206.400	3532.80	-25.85	-25.33	-12.58	0.22	
3629.00	1.200	205.600	3628.78	-27.62	-27.06	-13.42	0.11	
3726.00	1.300	201.400	3725.76	-29.59	-29.00	-14.26	0.14	
3821.00	1.600	199.300	3820.73	-31.88	-31.25	-15.09	0.32	
3918.00	1.400	199.000	3917.70	-34.32	-33.65	-15.92	0.21	
4014.00	1.500	191.500	4013.67	-36.68	-35.99	-16.56	0.22	
4110.00	1.400	188.800	4109.63	-39.09	-38.38	-16.99	0.13	
4207.00	1.300	171.500	4206.61	-41.35	-40.64	-17.01	0.43	
4301.00	1.400	185.900	4300.58	-43.54	-42.84	-16.97	0.38	
4398.00	1.700	183.800	4397.55	-46.16	-45.45	-17.18	0.31	
4494.00	1.700	180.900	4493.50	-49.01	-48.30	-17.30	0.09	
4591.00	1.500	178.100	4590.47	-51.71	-51.01	-17.28	0.22	
4687.00	1.600	173.500	4686.43	-54.29	-53.59	-17.09	0.17	
4783.00	1.800	173.400	4782.39	-57.10	-56.42	-16.76	0.21	
4878.00	1.800	173.900	4877.34	-60.05	-59.39	-16.43	0.02	
4974.00	1.800	171.200	4973.30	-63.02	-62.38	-16.04	0.09	
5070.00	1.400	177.900	5069.26	-65.67	-65.04	-15.77	0.46	
5166.00	1.300	192.500	5165.23	-67.91	-67.27	-15.96	0.37	
5262.00	1.200	195.500	5261.21	-69.96	-69.31	-16.46	0.12	
5358.00	0.900	201.600	5357.19	-71.65	-70.98	-17.01	0.33	



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5453.00	0.900	205.600	5452.18	-73.04	-72.34	-17.61	0.07	
5548.00	0.800	218.800	5547.17	-74.26	-73.53	-18.35	0.23	
5644.00	0.800	240.000	5643.16	-75.16	-74.39	-19.35	0.31	
5740.00	0.700	261.100	5739.15	-75.64	-74.81	-20.51	0.30	
5836.00	0.700	258.500	5835.15	-75.90	-75.02	-21.66	0.03	
5931.00	0.500	258.600	5930.14	-76.14	-75.22	-22.63	0.21	
6027.00	0.400	245.400	6026.14	-76.39	-75.44	-23.35	0.15	
6067.00	0.400	225.800	6066.14	-76.56	-75.60	-23.58	0.34	
6099.00	0.200	11.800	6098.14	-76.58	-75.62	-23.65	1.80	
6130.00	2.800	17.500	6129.12	-75.80	-74.85	-23.41	8.39	
6162.00	6.300	19.600	6161.02	-73.36	-72.45	-22.58	10.95	
6194.00	9.900	18.900	6192.69	-69.04	-68.19	-21.10	11.25	
6227.00	12.900	26.180	6225.04	-62.95	-62.20	-18.56	10.07	
6259.00	15.800	25.100	6256.04	-55.65	-55.04	-15.13	9.10	
6291.00	19.500	22.500	6286.53	-46.61	-46.16	-11.24	11.82	
6322.00	23.100	21.300	6315.40	-35.99	-35.71	-7.05	11.70	
6354.00	26.300	19.400	6344.47	-23.26	-23.17	-2.41	10.30	
6386.00	29.800	15.200	6372.71	-8.71	-8.81	2.03	12.55	
6418.00	32.900	11.100	6400.04	7.65	7.40	5.79	11.75	
6450.00	36.000	8.200	6426.43	25.60	25.24	8.80	10.96	
6482.00	40.200	6.900	6451.60	45.27	44.81	11.39	13.36	
6514.00	43.900	6.500	6475.36	66.64	66.10	13.88	11.59	
6546.00	47.500	6.300	6497.71	89.48	88.85	16.44	11.26	
6578.00	51.900	5.600	6518.40	113.84	113.12	18.96	13.85	
6610.00	56.100	5.700	6537.21	139.68	138.88	21.51	13.13	
6642.00	59.900	6.800	6554.16	166.76	165.85	24.47	12.23	
6673.00	64.500	5.400	6568.61	194.12	193.11	27.37	15.37	
6705.00	68.800	5.900	6581.29	223.44	222.33	30.27	13.51	
6737.00	73.200	5.400	6591.71	253.65	252.44	33.24	13.83	
6769.00	78.000	4.400	6599.67	284.61	283.31	35.89	15.30	
6800.00	82.300	4.000	6604.97	315.13	313.76	38.12	13.93	
6832.00	86.100	2.300	6608.20	346.96	345.54	39.87	13.00	
6864.00	88.700	1.000	6609.65	378.92	377.49	40.79	9.08	
6896.00	89.000	1.200	6610.30	410.90	409.48	41.40	1.13	
6928.00	89.000	0.900	6610.85	442.88	441.47	41.99	0.94	
6960.00	88.900	0.600	6611.44	474.86	473.46	42.41	0.99	
7054.00	90.300	359.100	6612.10	568.76	567.46	42.16	2.18	
7086.00	90.500	359.100	6611.87	600.70	599.45	41.66	0.62	
7118.00	90.300	359.000	6611.65	632.64	631.45	41.13	0.70	
7182.00	90.100	358.800	6611.43	696.51	695.43	39.90	0.44	
7278.00	87.800	358.200	6613.19	792.26	791.38	37.39	2.48	
7341.00	88.500	357.900	6615.22	855.03	854.31	35.25	1.21	
7372.00	88.000	357.900	6616.17	885.92	885.27	34.11	1.61	
7468.00	89.800	357.400	6618.01	981.55	981.17	30.18	1.95	
7563.00	90.500	356.600	6617.76	1076.11	1076.04	25.20	1.12	



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## WELLPATH DATA (127 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
7659.00	90.400	356.400	6617.01	1171.58	1171.86	19.34	0.23	
7756.00	90.700	355.700	6616.08	1267.96	1268.62	12.66	0.79	
7851.00	90.300	356.900	6615.25	1362.40	1363.42	6.53	1.33	
7946.00	89.500	355.400	6615.41	1456.81	1458.20	0.15	1.79	
8041.00	88.400	357.100	6617.15	1551.23	1552.97	-6.06	2.13	
8132.00	87.400	358.800	6620.49	1641.88	1643.85	-9.31	2.17	
8228.00	86.500	2.500	6625.60	1737.67	1739.69	-8.23	3.96	
8324.00	87.100	3.900	6630.96	1833.51	1835.39	-2.88	1.58	
8420.00	88.700	4.000	6634.47	1929.41	1931.09	3.73	1.67	
8515.00	90.000	4.000	6635.55	2024.37	2025.85	10.36	1.37	
8612.00	89.600	4.300	6635.89	2121.33	2122.60	17.38	0.52	
8707.00	91.500	5.300	6634.98	2216.25	2217.26	25.33	2.26	
8803.00	90.200	3.400	6633.55	2312.18	2312.96	32.61	2.40	
8899.00	91.500	3.700	6632.13	2408.15	2408.77	38.55	1.39	
8995.00	91.400	4.000	6629.70	2504.09	2504.52	44.99	0.33	
9091.00	90.700	3.400	6627.94	2600.06	2600.30	51.19	0.96	
9188.00	90.600	2.900	6626.84	2697.04	2697.15	56.52	0.53	
9283.00	90.200	3.400	6626.18	2792.03	2792.00	61.74	0.67	
9378.00	89.800	1.900	6626.18	2887.03	2886.90	66.13	1.63	
9475.00	91.000	3.800	6625.50	2984.02	2983.77	70.95	2.32	
9570.00	92.400	3.500	6622.68	3078.96	3078.53	77.00	1.51	
9666.00	93.000	3.400	6618.16	3174.84	3174.25	82.77	0.63	
9762.00	90.700	3.700	6615.06	3270.76	3270.01	88.71	2.42	
9857.00	89.500	3.700	6614.90	3365.74	3364.81	94.84	1.26	
9953.00	90.000	3.300	6615.31	3461.73	3460.63	100.70	0.67	
10048.00	89.300	2.400	6615.89	3556.72	3555.51	105.42	1.20	
10144.00	90.300	4.800	6616.23	3652.69	3651.31	111.45	2.71	
10240.00	89.600	3.900	6616.31	3748.64	3747.03	118.73	1.19	
10335.00	90.900	4.200	6615.90	3843.60	3841.79	125.44	1.40	
10431.00	90.700	3.700	6614.56	3939.56	3937.55	132.05	0.56	
10526.00	89.500	3.800	6614.39	4034.54	4032.35	138.27	1.27	
10623.00	89.500	4.300	6615.24	4131.50	4129.10	145.12	0.52	
10720.00	88.700	3.700	6616.76	4228.45	4225.85	151.88	1.03	
10816.00	89.600	4.200	6618.19	4324.41	4321.61	158.50	1.07	
10911.00	88.700	2.700	6619.60	4419.38	4416.43	164.21	1.84	
10923.00	88.600	2.800	6619.88	4431.38	4428.41	164.79	1.18	LAST BHI MWD SURVEY
10993.00	88.600	2.800	6621.59	4501.36	4498.31	168.21	0.00	PROJECTION TO BIT



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## HOLE & CASING SECTIONS - Ref Wellbore: TSUBAKI HILLS 8-62-34-4H awb Ref Wellpath: TSUBAKI HILLS 8-62-34-4H awp

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing Surface	31.00	1114.00	1083.00	31.00	1114.00	0.16	-1.97	0.16	-1.97
8.75in Open Hole	1114.00	7025.00	5911.00	1114.00	6612.14	0.16	-1.97	538.46	42.50
7in Casing Intermediate	31.00	7025.00	6994.00	31.00	6612.14	0.16	-1.97	538.46	42.50
6in Open Hole	7025.00	10993.00	3968.00	6612.14	6621.59	538.46	42.50	4498.31	168.21

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
TSUBAKI HILLS 8-62-34-4H SECTION LINES		0.00	0.00	0.00	3333233.57	1467731.62	40°36'40.068"N	104°17'59.064"W	polygon
TSUBAKI HILLS 8-62-34-4H ENTRY POINT ON PLAT (600'FS & 600'FEL, REV-1)		6641.00	310.70	73.54	3333307.11	1468042.32	40°36'43.128"N	104°17'58.056"W	point
TSUBAKI HILLS 8-62-34-4H HEEL ON EXCEL (REV-1)		6641.33	507.67	64.59	3333298.16	1468239.28	40°36'45.075"N	104°17'58.137"W	point
TSUBAKI HILLS 8-62-34-4H HEEL ON EXCEL (REV-2)		6641.33	507.64	4.63	3333238.20	1468239.25	40°36'45.083"N	104°17'58.915"W	point
TSUBAKI HILLS 8-62-34-4H PT 2 ON EXCEL (REV-1)		6672.29	1792.52	126.10	3333359.66	1469524.10	40°36'57.762"N	104°17'57.114"W	point
TSUBAKI HILLS 8-62-34-4H PT 2 ON EXCEL (REV-2)		6672.29	1792.53	66.13	3333299.70	1469524.11	40°36'57.770"N	104°17'57.892"W	point
TSUBAKI HILLS 8-62-34-4H PT 3 ON EXCEL (REV-1)		6674.67	2707.13	169.89	3333403.45	1470438.68	40°37'06.793"N	104°17'56.386"W	point
TSUBAKI HILLS 8-62-34-4H PT 3 ON EXCEL (REV-2)		6674.67	2707.16	109.89	3333343.45	1470438.72	40°37'06.801"N	104°17'57.164"W	point
TSUBAKI HILLS 8-62-34-4H BHL (600'FNL & 660'FEL, REV-2)		6675.00	4528.84	197.96	3333431.52	1472260.35	40°37'24.788"N	104°17'55.702"W	point
TSUBAKI HILLS 8-62-34-4H BHL ON PLAT (600'FNL & 600'FEL, REV-1)		6675.00	4528.84	257.96	3333491.52	1472260.35	40°37'24.780"N	104°17'54.924"W	point
TSUBAKI HILLS 8-62-34-4H HARDLINES (600' SETBACKS)		6675.00	0.00	0.00	3333233.57	1467731.62	40°36'40.068"N	104°17'59.064"W	polygon
TSUBAKI HILLS 8-62-34-4H BHL ON EXCEL (REV-1)		6675.14	4529.32	257.91	3333491.47	1472260.83	40°37'24.785"N	104°17'54.925"W	point
TSUBAKI HILLS 8-62-34-4H BHL ON EXCEL (REV-2)		6675.14	4529.32	197.91	3333431.47	1472260.83	40°37'24.793"N	104°17'55.703"W	point



# Actual Wellpath Report

TSUBAKI HILLS 8-62-34-4H awp

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## REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

## WELLPATH COMPOSITION - Ref Wellbore: TSUBAKI HILLS 8-62-34-4H awb    Ref Wellpath: TSUBAKI HILLS 8-62-34-4H awp

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
1163.00	6960.00	NaviTrak (Standard)	BHI MWD SURVEYS NAVITRAK 8.75 HOLE <1256-6960>	TSUBAKI HILLS 8-62-34-4H awb
6960.00	10923.00	OnTrak (Standard)	BHI MWD SURVEYS ONTRAK 6 HOLE <7054--10923>	TSUBAKI HILLS 8-62-34-4H awb
10923.00	10993.00	Blind Drilling (std)	Projection to bit	TSUBAKI HILLS 8-62-34-4H awb

**Actual Wellpath Report****TSUBAKI HILLS 8-62-34-4H awp**

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**REFERENCE WELLPATH IDENTIFICATION**

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 TSUBAKI HILLS 8-62-34-4H (290'FSL & 660'FEL, SEC.34)
Area	COLORADO	Well	TSUBAKI HILLS 8-62-34-4H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	TSUBAKI HILLS 8-62-34-4H awb
Facility	SEC.34-T8N-R62W		

**WELLPATH COMMENTS**

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1163.00	0.200	274.500	1163.00	TIED TO SURFACE CASING SHOE
10923.00	88.600	2.800	6619.88	LAST BHI MWD SURVEY
10993.00	88.600	2.800	6621.59	PROJECTION TO BIT