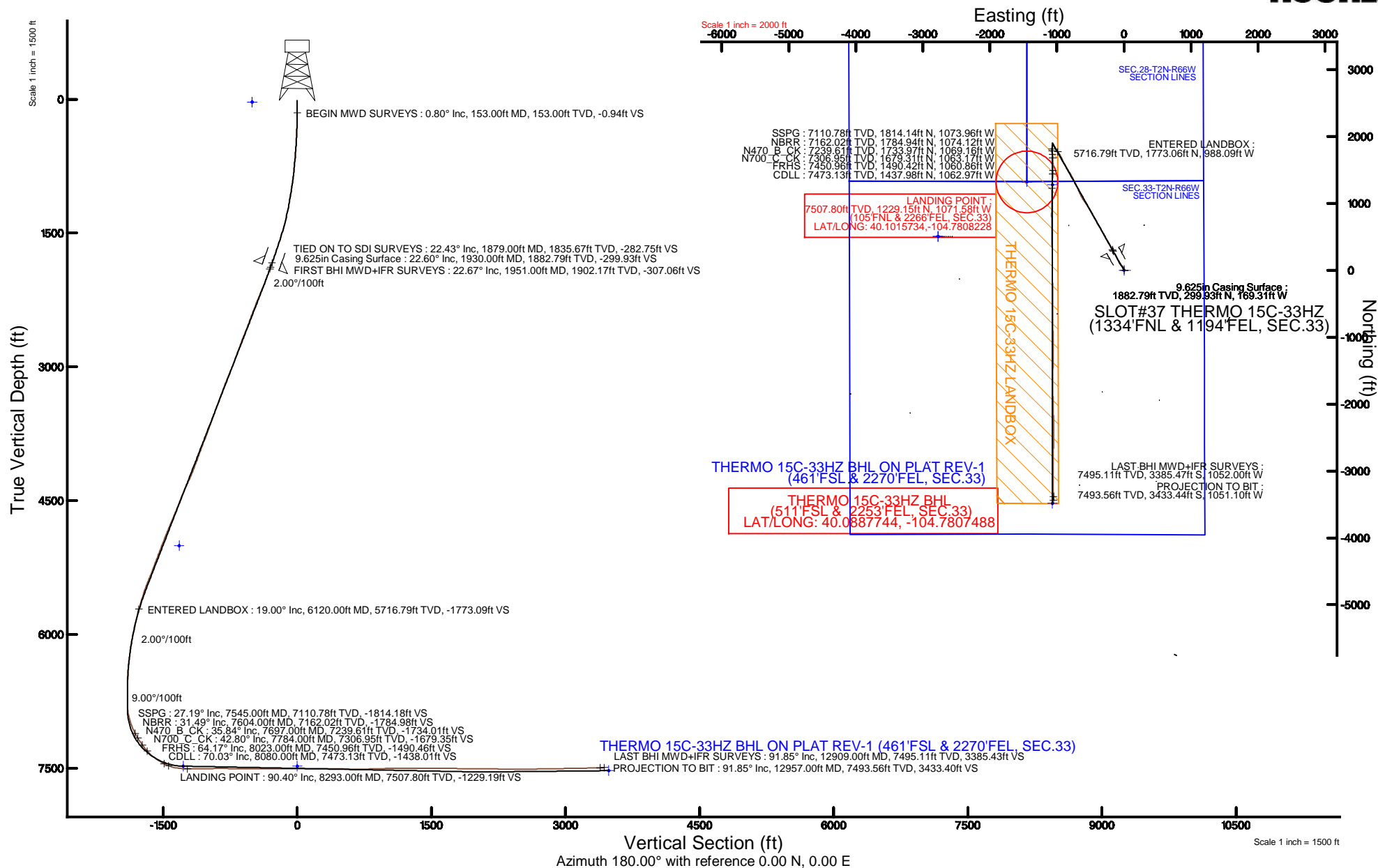


Location:	COLORADO	Slot:	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Field:	WELD COUNTY (UTM/TRUE NORTH)	Well:	THERMO 15C-33HZ
Facility:	SEC.33-T2N-R66W	Wellbore:	THERMO 15C-33HZ PWB

Plot reference wellpath is THERMO 15C-33HZ (REV-A.0) PWP	
True vertical depths are referenced to XTREME 24 (16'KB) (RKB)	Grid System: NAD83 / UTM Zone 13 North, US feet
Measured depths are referenced to XTREME 24 (16'KB) (RKB)	North Reference: True north
XTREME 24 (16'KB) (RKB) to Mean Sea Level: 5006 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)): 0 feet	Depths are in feet
Coordinates are in level referenced to Slot	Created by: amarc on 10/Dec/2015





Actual Wellpath Report

THERMO 15C-33HZ AWP
Page 1 of 7



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWB <12957>
Facility	SEC.33-T2N-R66W		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Amarcar
Scale	0.999604	Report Generated	10/Dec/2015 at 13:16
Convergence at slot	0.14° East	Database/Source file	WA_DEN_Anadarko_Defn/THERMO_15C-33HZ_AWB_12957_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-876.80	3429.80	1702780.68	14562570.34	40°05'53.518"N	104°46'37.172"W
Facility Reference Pt			1699350.17	14563438.66	40°06'02.185"N	104°47'21.307"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	XTREME 24 (16'KB) (RKB) to Facility Vertical Datum	5006.00ft
Horizontal Reference Pt	Slot	XTREME 24 (16'KB) (RKB) to Mean Sea Level	5006.00ft
Vertical Reference Pt	XTREME 24 (16'KB) (RKB)	XTREME 24 (16'KB) (RKB) to Mud Line at Slot (SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33))	5006.00ft
MD Reference Pt	XTREME 24 (16'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	180.00°

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)	
Area	COLORADO	Well	THERMO 15C-33HZ	
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWP <12957>	
Facility	SEC.33-T2N-R66W			

WELLPATH DATA (165 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	348.800	0.00	0.00	0.00	0.00	40°05'53.518"N	104°46'37.172"W	0.00	
16.00	0.000	348.800	16.00	0.00	0.00	0.00	40°05'53.518"N	104°46'37.172"W	0.00	
153.00	0.800	348.800	153.00	-0.94	0.94	-0.19	40°05'53.527"N	104°46'37.174"W	0.58	BEGIN MWD SURVEYS
243.00	1.230	333.960	242.98	-2.42	2.42	-0.73	40°05'53.542"N	104°46'37.181"W	0.56	
336.00	2.660	341.550	335.93	-5.37	5.37	-1.85	40°05'53.571"N	104°46'37.196"W	1.56	
426.00	3.330	333.410	425.80	-9.69	9.69	-3.68	40°05'53.614"N	104°46'37.219"W	0.88	
516.00	3.870	342.400	515.63	-14.92	14.92	-5.77	40°05'53.665"N	104°46'37.246"W	0.87	
606.00	4.450	338.910	605.39	-21.07	21.07	-7.95	40°05'53.726"N	104°46'37.274"W	0.70	
696.00	5.540	335.510	695.04	-28.28	28.28	-11.00	40°05'53.797"N	104°46'37.314"W	1.25	
786.00	6.780	325.520	784.53	-36.62	36.62	-15.81	40°05'53.880"N	104°46'37.375"W	1.82	
966.00	10.240	326.180	962.52	-58.67	58.67	-30.74	40°05'54.098"N	104°46'37.568"W	1.92	
1056.00	10.730	325.380	1051.01	-72.21	72.21	-39.95	40°05'54.232"N	104°46'37.686"W	0.57	
1146.00	11.850	325.760	1139.27	-86.75	86.75	-49.91	40°05'54.375"N	104°46'37.814"W	1.25	
1236.00	13.400	327.950	1227.09	-103.23	103.23	-60.64	40°05'54.538"N	104°46'37.952"W	1.80	
1326.00	14.930	330.310	1314.35	-122.14	122.14	-71.92	40°05'54.725"N	104°46'38.097"W	1.82	
1416.00	16.460	332.450	1401.00	-143.52	143.52	-83.56	40°05'54.936"N	104°46'38.247"W	1.82	
1599.00	20.070	331.190	1574.75	-194.04	194.03	-110.69	40°05'55.435"N	104°46'38.596"W	1.98	
1686.00	20.580	331.330	1656.33	-220.53	220.53	-125.22	40°05'55.697"N	104°46'38.783"W	0.59	
1776.00	21.760	330.150	1740.26	-248.88	248.88	-141.12	40°05'55.977"N	104°46'38.988"W	1.39	
1866.00	22.400	331.300	1823.66	-278.40	278.39	-157.66	40°05'56.269"N	104°46'39.201"W	0.86	
1879.00	22.430	331.440	1835.67	-282.75	282.74	-160.03	40°05'56.312"N	104°46'39.231"W	0.47	TIED ON TO SDI SURVEYS
1951.00	22.670	332.010	1902.17	-307.06	307.06	-173.11	40°05'56.552"N	104°46'39.400"W	0.45	FIRST BHI MWD+IFR SURVEYS
2046.00	23.630	328.140	1989.52	-339.40	339.40	-191.75	40°05'56.872"N	104°46'39.640"W	1.89	
2140.00	24.900	329.330	2075.22	-372.43	372.42	-211.79	40°05'57.198"N	104°46'39.897"W	1.45	
2235.00	25.270	329.120	2161.26	-407.03	407.03	-232.40	40°05'57.540"N	104°46'40.163"W	0.40	
2330.00	25.180	332.150	2247.20	-442.31	442.30	-252.25	40°05'57.889"N	104°46'40.418"W	1.36	
2425.00	23.640	331.480	2333.71	-476.91	476.90	-270.79	40°05'58.231"N	104°46'40.657"W	1.65	
2519.00	23.330	331.020	2419.92	-509.76	509.75	-288.80	40°05'58.555"N	104°46'40.888"W	0.38	
2614.00	23.130	330.550	2507.22	-542.46	542.45	-307.09	40°05'58.879"N	104°46'41.124"W	0.29	
2709.00	23.830	333.480	2594.36	-575.88	575.87	-324.83	40°05'59.209"N	104°46'41.352"W	1.43	
2804.00	24.210	330.900	2681.13	-610.08	610.06	-342.88	40°05'59.547"N	104°46'41.584"W	1.18	
2898.00	23.460	328.350	2767.12	-642.85	642.84	-362.07	40°05'59.871"N	104°46'41.831"W	1.36	
2993.00	22.890	328.760	2854.45	-674.74	674.73	-381.58	40°06'00.186"N	104°46'42.082"W	0.62	
3088.00	23.490	327.990	2941.77	-706.60	706.58	-401.19	40°06'00.501"N	104°46'42.335"W	0.71	
3182.00	25.090	332.720	3027.46	-740.20	740.19	-420.26	40°06'00.833"N	104°46'42.580"W	2.68	
3277.00	25.240	330.360	3113.44	-775.71	775.69	-439.51	40°06'01.183"N	104°46'42.828"W	1.07	
3371.00	23.120	328.560	3199.19	-808.88	808.86	-459.05	40°06'01.511"N	104°46'43.079"W	2.39	
3466.00	23.790	331.150	3286.35	-841.57	841.56	-478.03	40°06'01.834"N	104°46'43.323"W	1.29	
3560.00	21.550	334.070	3373.08	-873.71	873.70	-494.72	40°06'02.152"N	104°46'43.538"W	2.67	
3655.00	23.190	332.420	3460.93	-905.99	905.97	-511.02	40°06'02.471"N	104°46'43.748"W	1.85	
3750.00	22.820	327.690	3548.38	-938.14	938.12	-529.52	40°06'02.789"N	104°46'43.986"W	1.98	
3844.00	23.280	325.570	3634.88	-968.87	968.85	-549.77	40°06'03.092"N	104°46'44.247"W	1.01	
3939.00	23.750	326.340	3721.99	-1000.28	1000.26	-570.99	40°06'03.403"N	104°46'44.520"W	0.59	
4033.00	24.830	329.950	3807.67	-1033.12	1033.10	-591.36	40°06'03.727"N	104°46'44.782"W	1.95	
4128.00	24.320	326.370	3894.07	-1066.67	1066.65	-612.19	40°06'04.059"N	104°46'45.050"W	1.66	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWP <12957>
Facility	SEC.33-T2N-R66W		

WELLPATH DATA (165 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4223.00	22.400	329.320	3981.28	-1098.53	1098.51	-632.26	40°06'04.374"N	104°46'45.308"W	2.37	
4318.00	23.200	331.820	4068.86	-1130.60	1130.58	-650.33	40°06'04.690"N	104°46'45.541"W	1.32	
4413.00	22.770	336.920	4156.33	-1164.01	1163.99	-666.38	40°06'05.021"N	104°46'45.747"W	2.14	
4507.00	25.330	336.520	4242.16	-1199.19	1199.17	-681.52	40°06'05.368"N	104°46'45.942"W	2.73	
4602.00	27.370	337.160	4327.28	-1237.96	1237.94	-698.10	40°06'05.751"N	104°46'46.156"W	2.17	
4697.00	24.620	336.420	4412.67	-1276.23	1276.21	-714.49	40°06'06.130"N	104°46'46.367"W	2.91	
4791.00	23.770	334.300	4498.41	-1311.25	1311.22	-730.54	40°06'06.476"N	104°46'46.573"W	1.29	
4886.00	24.450	331.150	4585.12	-1345.72	1345.70	-748.33	40°06'06.816"N	104°46'46.802"W	1.53	
4981.00	25.030	332.210	4671.41	-1380.72	1380.70	-767.19	40°06'07.162"N	104°46'47.045"W	0.77	
5075.00	25.720	331.120	4756.34	-1416.18	1416.15	-786.31	40°06'07.512"N	104°46'47.291"W	0.89	
5170.00	25.540	329.350	4841.99	-1451.85	1451.82	-806.71	40°06'07.865"N	104°46'47.553"W	0.83	
5264.00	25.220	327.580	4926.92	-1486.19	1486.16	-827.78	40°06'08.204"N	104°46'47.825"W	0.88	
5359.00	23.340	329.650	5013.51	-1519.51	1519.48	-848.14	40°06'08.534"N	104°46'48.087"W	2.17	
5454.00	23.820	330.090	5100.58	-1552.38	1552.35	-867.21	40°06'08.858"N	104°46'48.332"W	0.54	
5549.00	23.230	331.340	5187.69	-1585.45	1585.42	-885.76	40°06'09.185"N	104°46'48.571"W	0.81	
5643.00	22.920	332.890	5274.17	-1618.01	1617.98	-903.00	40°06'09.507"N	104°46'48.793"W	0.73	
5737.00	24.160	335.170	5360.34	-1651.77	1651.74	-919.42	40°06'09.841"N	104°46'49.004"W	1.64	
5832.00	23.520	334.150	5447.24	-1686.47	1686.44	-935.85	40°06'10.183"N	104°46'49.215"W	0.80	
5927.00	20.490	328.880	5535.32	-1717.78	1717.74	-952.71	40°06'10.493"N	104°46'49.432"W	3.80	
6021.00	19.840	327.760	5623.55	-1745.35	1745.32	-969.72	40°06'10.765"N	104°46'49.651"W	0.80	
6069.00	19.830	325.750	5668.71	-1758.97	1758.94	-978.65	40°06'10.900"N	104°46'49.766"W	1.42	
6116.00	19.140	326.690	5713.01	-1772.00	1771.97	-987.37	40°06'11.029"N	104°46'49.878"W	1.61	
6120.00†	19.005	326.489	5716.79	-1773.09	1773.06	-988.09	40°06'11.039"N	104°46'49.888"W	3.76	ENTERED LANDBOX
6164.00	17.530	324.080	5758.58	-1784.43	1784.40	-995.93	40°06'11.152"N	104°46'49.989"W	3.76	
6211.00	16.150	320.630	5803.56	-1795.22	1795.19	-1004.23	40°06'11.258"N	104°46'50.095"W	3.62	
6258.00	15.290	321.070	5848.80	-1805.10	1805.06	-1012.27	40°06'11.356"N	104°46'50.199"W	1.85	
6305.00	15.320	322.770	5894.14	-1814.86	1814.82	-1019.92	40°06'11.452"N	104°46'50.297"W	0.96	
6353.00	14.190	325.220	5940.55	-1824.74	1824.71	-1027.11	40°06'11.550"N	104°46'50.390"W	2.69	
6400.00	14.010	329.950	5986.14	-1834.40	1834.36	-1033.25	40°06'11.645"N	104°46'50.469"W	2.48	
6448.00	12.370	331.620	6032.87	-1843.95	1843.92	-1038.60	40°06'11.740"N	104°46'50.538"W	3.51	
6495.00	11.130	336.450	6078.89	-1852.54	1852.50	-1042.81	40°06'11.825"N	104°46'50.592"W	3.37	
6543.00	9.960	334.130	6126.07	-1860.52	1860.49	-1046.47	40°06'11.903"N	104°46'50.639"W	2.59	
6590.00	9.120	333.580	6172.42	-1867.52	1867.48	-1049.90	40°06'11.972"N	104°46'50.683"W	1.80	
6637.00	8.250	333.130	6218.89	-1873.86	1873.82	-1053.08	40°06'12.035"N	104°46'50.724"W	1.86	
6684.00	7.330	331.360	6265.45	-1879.50	1879.46	-1056.04	40°06'12.091"N	104°46'50.762"W	2.02	
6732.00	6.380	327.880	6313.11	-1884.45	1884.41	-1058.93	40°06'12.140"N	104°46'50.799"W	2.16	
6779.00	5.910	327.600	6359.84	-1888.70	1888.66	-1061.62	40°06'12.182"N	104°46'50.834"W	1.00	
6827.00	4.600	322.180	6407.63	-1892.31	1892.27	-1064.12	40°06'12.217"N	104°46'50.866"W	2.92	
6874.00	3.850	317.270	6454.51	-1894.96	1894.92	-1066.35	40°06'12.244"N	104°46'50.895"W	1.77	
6921.00	2.680	325.380	6501.43	-1897.02	1896.98	-1068.04	40°06'12.264"N	104°46'50.917"W	2.67	
6968.00	1.450	341.120	6548.40	-1898.49	1898.45	-1068.86	40°06'12.279"N	104°46'50.927"W	2.86	
7016.00	1.390	337.410	6596.38	-1899.60	1899.56	-1069.28	40°06'12.290"N	104°46'50.933"W	0.23	
7063.00	1.390	334.000	6643.37	-1900.64	1900.60	-1069.75	40°06'12.300"N	104°46'50.939"W	0.18	
7110.00	0.680	291.330	6690.36	-1901.25	1901.21	-1070.26	40°06'12.306"N	104°46'50.945"W	2.13	
7157.00	0.740	257.190	6737.36	-1901.29	1901.25	-1070.81	40°06'12.306"N	104°46'50.952"W	0.90	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWP <12957>
Facility	SEC.33-T2N-R66W		

WELLPATH DATA (165 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7205.00	0.980	217.680	6785.35	-1900.89	1900.85	-1071.37	40°06'12.302"N	104°46'50.959"W	1.30	
7252.00	5.120	190.540	6832.28	-1898.51	1898.47	-1072.00	40°06'12.279"N	104°46'50.968"W	9.09	
7300.00	9.210	188.000	6879.89	-1892.60	1892.56	-1072.92	40°06'12.220"N	104°46'50.980"W	8.54	
7347.00	12.430	175.730	6926.06	-1883.83	1883.79	-1073.07	40°06'12.134"N	104°46'50.981"W	8.39	
7394.00	17.080	175.010	6971.50	-1871.90	1871.86	-1072.09	40°06'12.016"N	104°46'50.969"W	9.90	
7441.00	20.680	180.030	7015.96	-1856.72	1856.68	-1071.50	40°06'11.866"N	104°46'50.961"W	8.40	
7488.00	24.360	183.920	7059.37	-1838.74	1838.70	-1072.16	40°06'11.688"N	104°46'50.970"W	8.44	
7536.00	26.390	184.500	7102.74	-1818.23	1818.19	-1073.68	40°06'11.485"N	104°46'50.989"W	4.26	
7545.00†	27.195	183.423	7110.78	-1814.18	1814.14	-1073.96	40°06'11.445"N	104°46'50.993"W	10.44	SSPG
7583.00	30.670	179.460	7144.03	-1795.82	1795.78	-1074.38	40°06'11.264"N	104°46'50.998"W	10.44	
7604.00†	31.492	177.778	7162.02	-1784.98	1784.94	-1074.12	40°06'11.157"N	104°46'50.995"W	5.69	NBR
7631.00	32.580	175.730	7184.90	-1770.68	1770.64	-1073.31	40°06'11.016"N	104°46'50.984"W	5.69	
7678.00	34.510	172.340	7224.08	-1744.86	1744.83	-1070.59	40°06'10.760"N	104°46'50.949"W	5.72	
7697.00†	35.844	172.611	7239.61	-1734.01	1733.97	-1069.16	40°06'10.653"N	104°46'50.931"W	7.07	N470_B_CK
7725.00	37.810	172.980	7262.02	-1717.36	1717.32	-1067.05	40°06'10.489"N	104°46'50.904"W	7.07	
7772.00	41.950	174.780	7298.08	-1687.40	1687.37	-1063.86	40°06'10.193"N	104°46'50.863"W	9.14	
7784.00†	42.801	175.372	7306.95	-1679.35	1679.31	-1063.17	40°06'10.113"N	104°46'50.854"W	7.83	N700_C_CK
7820.00	45.370	177.040	7332.80	-1654.36	1654.32	-1061.52	40°06'09.866"N	104°46'50.833"W	7.83	
7867.00	49.280	178.410	7364.66	-1619.84	1619.80	-1060.16	40°06'09.525"N	104°46'50.815"W	8.59	
7915.00	53.000	179.980	7394.77	-1582.47	1582.44	-1059.65	40°06'09.156"N	104°46'50.809"W	8.16	
8010.00	62.840	181.260	7445.16	-1502.09	1502.05	-1060.57	40°06'08.361"N	104°46'50.820"W	10.42	
8023.00†	64.174	181.596	7450.96	-1490.46	1490.42	-1060.86	40°06'08.246"N	104°46'50.824"W	10.52	FRHS
8080.00†	70.031	182.987	7473.13	-1438.01	1437.98	-1062.97	40°06'07.728"N	104°46'50.851"W	10.52	CDLL
8104.00	72.500	183.540	7480.84	-1415.32	1415.29	-1064.26	40°06'07.504"N	104°46'50.868"W	10.52	
8199.00	82.130	181.430	7501.68	-1322.84	1322.81	-1068.24	40°06'06.590"N	104°46'50.919"W	10.37	
8293.00	90.400	182.650	7507.80	-1229.19	1229.15	-1071.58	40°06'05.664"N	104°46'50.962"W	8.89	LANDING POINT
8388.00	90.710	182.000	7506.88	-1134.27	1134.23	-1075.44	40°06'04.726"N	104°46'51.011"W	0.76	
8482.00	90.550	180.930	7505.84	-1040.31	1040.27	-1077.84	40°06'03.798"N	104°46'51.042"W	1.15	
8577.00	91.360	180.690	7504.26	-945.33	945.29	-1079.18	40°06'02.859"N	104°46'51.060"W	0.89	
8672.00	89.880	180.170	7503.23	-850.34	850.30	-1079.90	40°06'01.921"N	104°46'51.069"W	1.65	
8767.00	88.890	179.540	7504.25	-755.35	755.31	-1079.66	40°06'00.982"N	104°46'51.066"W	1.24	
8861.00	89.350	179.200	7505.69	-661.37	661.33	-1078.62	40°06'00.053"N	104°46'51.052"W	0.61	
8956.00	89.820	179.120	7506.38	-566.38	566.34	-1077.23	40°05'59.114"N	104°46'51.034"W	0.50	
9051.00	90.220	178.990	7506.35	-471.39	471.36	-1075.66	40°05'58.176"N	104°46'51.014"W	0.44	
9146.00	90.430	178.590	7505.81	-376.42	376.38	-1073.66	40°05'57.237"N	104°46'50.988"W	0.48	
9240.00	89.510	179.650	7505.86	-282.43	282.39	-1072.21	40°05'56.308"N	104°46'50.970"W	1.49	
9335.00	89.820	179.600	7506.41	-187.43	187.40	-1071.59	40°05'55.370"N	104°46'50.961"W	0.33	
9430.00	90.250	179.330	7506.36	-92.44	92.40	-1070.71	40°05'54.431"N	104°46'50.950"W	0.53	
9524.00	90.680	179.560	7505.59	1.55	-1.59	-1069.79	40°05'53.502"N	104°46'50.938"W	0.52	
9619.00	89.170	178.930	7505.72	96.54	-96.58	-1068.54	40°05'52.563"N	104°46'50.922"W	1.72	
9714.00	89.510	178.420	7506.81	191.51	-191.55	-1066.35	40°05'51.625"N	104°46'50.894"W	0.65	
9808.00	89.880	179.910	7507.31	285.50	-285.53	-1064.98	40°05'50.696"N	104°46'50.876"W	1.63	
9903.00	90.250	179.310	7507.20	380.49	-380.53	-1064.33	40°05'49.757"N	104°46'50.868"W	0.74	
9997.00	88.740	179.930	7508.03	474.49	-474.52	-1063.71	40°05'48.828"N	104°46'50.860"W	1.74	
10092.00	89.510	180.110	7509.48	569.47	-569.51	-1063.74	40°05'47.890"N	104°46'50.860"W	0.83	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWB <12957>
Facility	SEC.33-T2N-R66W		

WELLPATH DATA (165 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10187.00	90.310	180.100	7509.63	664.47	-664.51	-1063.91	40°05'46.951"N	104°46'50.862"W	0.84	
10281.00	90.090	178.490	7509.31	758.46	-758.50	-1062.76	40°05'46.022"N	104°46'50.847"W	1.73	
10376.00	91.170	179.130	7508.26	853.43	-853.47	-1060.78	40°05'45.084"N	104°46'50.822"W	1.32	
10471.00	92.280	178.870	7505.40	948.37	-948.41	-1059.13	40°05'44.145"N	104°46'50.800"W	1.20	
10565.00	90.490	179.500	7503.13	1042.33	-1042.37	-1057.79	40°05'43.217"N	104°46'50.783"W	2.02	
10660.00	91.320	179.300	7501.63	1137.32	-1137.35	-1056.80	40°05'42.278"N	104°46'50.770"W	0.90	
10755.00	90.000	180.090	7500.53	1232.30	-1232.34	-1056.29	40°05'41.340"N	104°46'50.764"W	1.62	
10849.00	89.110	180.970	7501.26	1326.30	-1326.33	-1057.16	40°05'40.411"N	104°46'50.775"W	1.33	
10944.00	89.050	181.020	7502.79	1421.27	-1421.31	-1058.81	40°05'39.472"N	104°46'50.796"W	0.08	
11038.00	90.340	181.960	7503.29	1515.23	-1515.27	-1061.25	40°05'38.544"N	104°46'50.827"W	1.70	
11133.00	90.310	182.560	7502.75	1610.16	-1610.19	-1065.00	40°05'37.606"N	104°46'50.876"W	0.63	
11228.00	89.750	178.860	7502.70	1705.13	-1705.17	-1066.18	40°05'36.667"N	104°46'50.891"W	3.94	
11322.00	88.120	177.420	7504.45	1799.06	-1799.10	-1063.13	40°05'35.739"N	104°46'50.851"W	2.31	
11417.00	89.040	178.240	7506.80	1893.96	-1894.00	-1059.53	40°05'34.801"N	104°46'50.805"W	1.30	
11511.00	90.550	178.630	7507.14	1987.92	-1987.96	-1056.96	40°05'33.872"N	104°46'50.772"W	1.66	
11606.00	90.250	178.820	7506.48	2082.90	-2082.94	-1054.85	40°05'32.934"N	104°46'50.745"W	0.37	
11701.00	88.650	178.700	7507.39	2177.87	-2177.91	-1052.79	40°05'31.995"N	104°46'50.718"W	1.69	
11795.00	88.120	179.250	7510.04	2271.82	-2271.85	-1051.11	40°05'31.067"N	104°46'50.697"W	0.81	
11889.00	89.410	179.120	7512.06	2365.78	-2365.82	-1049.78	40°05'30.138"N	104°46'50.679"W	1.38	
11984.00	90.520	181.190	7512.12	2460.78	-2460.81	-1050.03	40°05'29.200"N	104°46'50.683"W	2.47	
12078.00	90.520	180.340	7511.27	2554.76	-2554.80	-1051.29	40°05'28.271"N	104°46'50.699"W	0.90	
12173.00	91.140	181.870	7509.89	2649.73	-2649.77	-1053.12	40°05'27.332"N	104°46'50.722"W	1.74	
12268.00	91.970	181.870	7507.31	2744.64	-2744.68	-1056.22	40°05'26.394"N	104°46'50.762"W	0.87	
12362.00	90.250	180.390	7505.49	2838.60	-2838.64	-1058.07	40°05'25.466"N	104°46'50.786"W	2.41	
12457.00	90.460	179.790	7504.90	2933.60	-2933.64	-1058.22	40°05'24.527"N	104°46'50.788"W	0.67	
12552.00	91.970	179.550	7502.89	3028.57	-3028.61	-1057.67	40°05'23.589"N	104°46'50.781"W	1.61	
12646.00	90.580	179.320	7500.80	3122.54	-3122.58	-1056.75	40°05'22.660"N	104°46'50.769"W	1.50	
12835.00	91.540	178.720	7497.30	3311.48	-3311.52	-1053.52	40°05'20.793"N	104°46'50.727"W	0.60	
12909.00	91.850	178.930	7495.11	3385.43	-3385.47	-1052.00	40°05'20.062"N	104°46'50.707"W	0.51	LAST BHI MWD+IFR SURVEYS
12957.00	91.850	178.930	7493.56	3433.40	-3433.44	-1051.10	40°05'19.588"N	104°46'50.696"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: THERMO 15C-33HZ AWB <12957> Ref Wellpath: THERMO 15C-33HZ 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]
13.5in Open Hole	16.00	1940.00	1924.00	16.00	1892.02	0.00	0.00	303.32	-171.12
9.625in Casing Surface	16.00	1930.00	1914.00	16.00	1882.79	0.00	0.00	299.93	-169.31
7.875in Open Hole	1940.00	12957.00	11017.00	1892.02	7493.56	303.32	-171.12	-3433.44	-1051.10

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWB <12957>
Facility	SEC.33-T2N-R66W		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.28-T2N-R66W SECTION LINES	31.00	504.17	-2774.28	1700006.25	14563067.36	40°05'58.499"N	104°47'12.872"W	polygon
SEC.33-T2N-R66W SECTION LINES	31.00	504.17	-2774.28	1700006.25	14563067.36	40°05'58.499"N	104°47'12.872"W	polygon
THERMO 15C-33HZ ARC 460'	5006.00	1322.15	-1447.32	1701330.63	14563888.33	40°06'06.583"N	104°46'55.797"W	circle
THERMO 15C-33HZ HEEL (50'FNL & 2258'FEL, SEC.33)	7477.00	1277.27	-1067.86	1701710.05	14563844.42	40°06'06.140"N	104°46'50.914"W	point
THERMO 15C-33HZ LANDBOX	7477.00	0.00	0.00	1702780.68	14562570.34	40°05'53.518"N	104°46'37.172"W	polygon
THERMO 15C-33HZ BHL ON PLAT REV-1 (461'FSL & 2270'FEL, SEC.33)	7528.00	-3483.83	-1067.67	1701722.16	14559085.23	40°05'19.090"N	104°46'50.909"W	point

WELLPATH COMPOSITION - Ref Wellbore: THERMO 15C-33HZ AWB <12957> Ref Wellpath: THERMO 15C-33HZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	1879.00	Custom APC_ISCWSA REV 2 MWD	SDI MWD SURVEYS 13.5" <153-1879>	THERMO 15C-33HZ AWB <12957>
1879.00	12909.00	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)	BHI MWD+IFR 7.875" HOLE <1951-12909>	THERMO 15C-33HZ AWB <12957>
12909.00	12957.00	Blind Drilling (std)	Projection to bit	THERMO 15C-33HZ AWB <12957>



Actual Wellpath Report

THERMO 15C-33HZ AWP
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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#37 THERMO 15C-33HZ (1334'FNL & 1194'FEL, SEC.33)
Area	COLORADO	Well	THERMO 15C-33HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	THERMO 15C-33HZ AWP <12957>
Facility	SEC.33-T2N-R66W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
153.00	0.800	348.800	153.00	BEGIN MWD SURVEYS
1879.00	22.430	331.440	1835.67	TIED ON TO SDI SURVEYS
1951.00	22.670	332.010	1902.17	FIRST BHI MWD+IFR SURVEYS
6120.00	19.005	326.489	5716.79	ENTERED LANDBOX
7545.00	27.195	183.423	7110.78	SSPG
7604.00	31.492	177.778	7162.02	NBRR
7697.00	35.844	172.611	7239.61	N470_B_CK
7784.00	42.801	175.372	7306.95	N700_C_CK
8023.00	64.174	181.596	7450.96	FRHS
8080.00	70.031	182.987	7473.13	CDLL
8293.00	90.400	182.650	7507.80	LANDING POINT
12909.00	91.850	178.930	7495.11	LAST BHI MWD+IFR SURVEYS
12957.00	91.850	178.930	7493.56	PROJECTION TO BIT