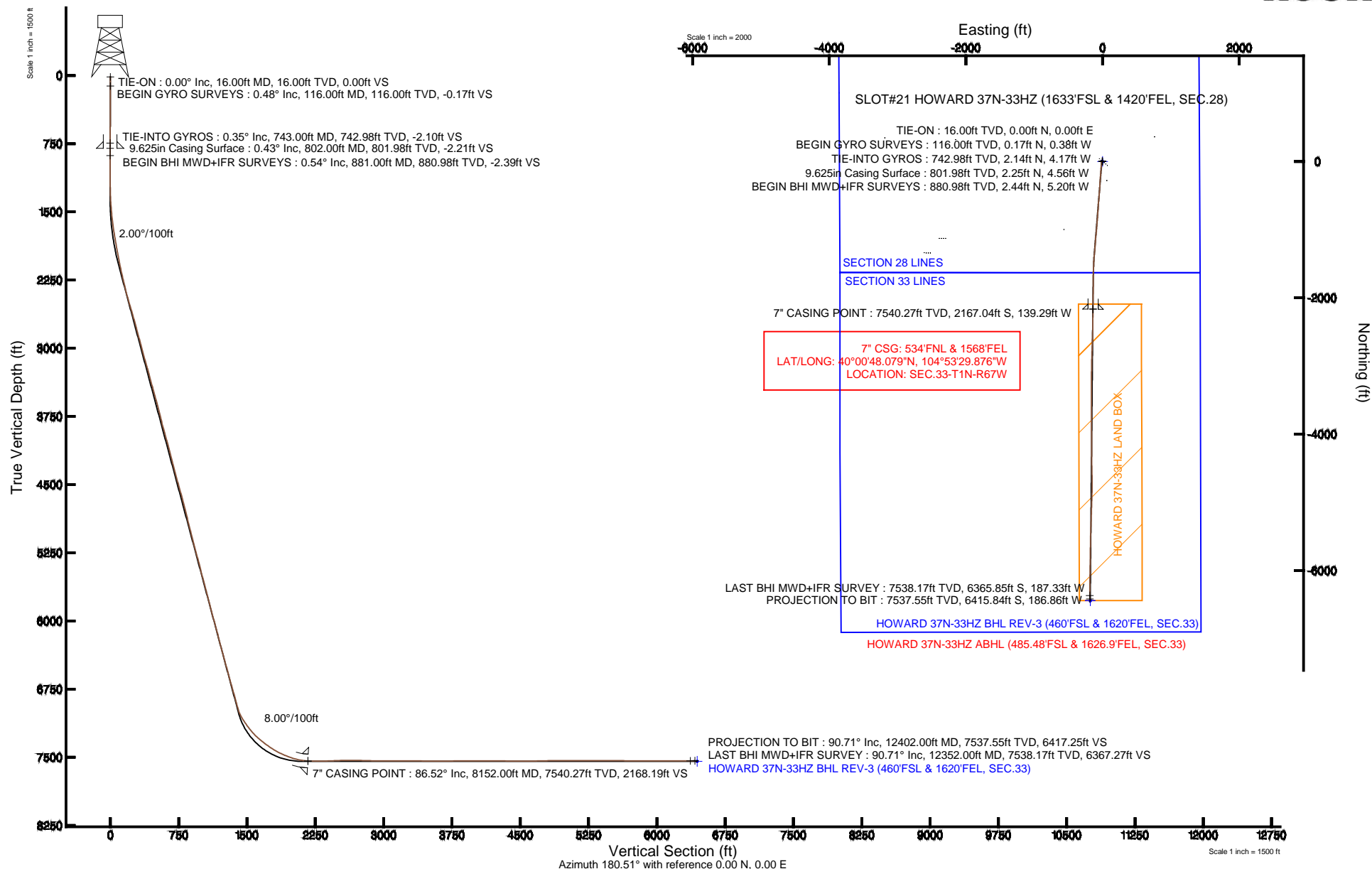


# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)  
 Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 37N-33HZ  
 Facility: SEC.28-T1N-R67W Wellbore: HOWARD 37N-33HZ PWB

Plot reference wellpath is HOWARD 37N-33HZ (REV-A.0) PWP

True vertical depths are referenced to XTREME 6 (16' RKB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to XTREME 6 (16' RKB) (RKB)	North Reference: True north
XTREME 6 (16' RKB) (RKB) to Mean Sea Level: 5037 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: wilsje02 on 2/19/2014





# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Wilsjef02
Scale	0.999965	Report Generated	2/19/2014 at 07:06:36
Convergence at slot	n/a	Database/Source file	WellArchitectDB/HOWARD_37N-33HZ_AWB.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	1413509.67	2716984.94	3170526.09	1250464.18	40°01'09.494"N	104°53'28.086"W
Facility Reference Pt			316923.76	121463.46	36°32'36.656"N	114°37'52.006"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

## WELLPATH DATUM

Calculation method	Minimum curvature	XTREME 6 (16' RKB) (RKB) to Facility Vertical Datum	5037.00ft
Horizontal Reference Pt	Slot	XTREME 6 (16' RKB) (RKB) to Mean Sea Level	5037.00ft
Vertical Reference Pt	XTREME 6 (16' RKB) (RKB)	XTREME 6 (16' RKB) (RKB) to Mud Line at Slot (SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28))	5037.00ft
MD Reference Pt	XTREME 6 (16' RKB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	181.67°



# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (159 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	294.290	0.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
16.00	0.000	294.290	16.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	TIE-ON
116.00	0.480	294.290	116.00	-0.16	0.17	-0.38	40°01'09.496"N	104°53'28.091"W	0.48	BEGIN GYRO SURVEYS
216.00	0.510	321.680	216.00	-0.66	0.69	-1.04	40°01'09.501"N	104°53'28.099"W	0.24	
316.00	0.330	289.990	315.99	-1.09	1.14	-1.59	40°01'09.505"N	104°53'28.106"W	0.29	
416.00	0.370	269.570	415.99	-1.17	1.24	-2.18	40°01'09.506"N	104°53'28.114"W	0.13	
516.00	0.430	288.810	515.99	-1.27	1.36	-2.86	40°01'09.507"N	104°53'28.123"W	0.15	
616.00	0.460	299.530	615.99	-1.57	1.67	-3.56	40°01'09.511"N	104°53'28.132"W	0.09	
716.00	0.270	323.170	715.98	-1.94	2.06	-4.05	40°01'09.514"N	104°53'28.138"W	0.24	
743.00	0.350	286.870	742.98	-2.01	2.14	-4.17	40°01'09.515"N	104°53'28.140"W	0.77	TIE-INTO GYROS
881.00	0.540	286.270	880.98	-2.29	2.44	-5.20	40°01'09.518"N	104°53'28.153"W	0.14	BEGIN BHI MWD+IFR SURVEYS
973.00	0.370	246.760	972.98	-2.27	2.44	-5.89	40°01'09.518"N	104°53'28.162"W	0.38	
1064.00	0.430	259.540	1063.97	-2.08	2.27	-6.49	40°01'09.516"N	104°53'28.169"W	0.12	
1156.00	0.330	254.290	1155.97	-1.93	2.13	-7.09	40°01'09.515"N	104°53'28.177"W	0.11	
1251.00	1.220	218.710	1250.96	-1.04	1.27	-7.98	40°01'09.507"N	104°53'28.189"W	1.02	
1343.00	2.830	206.930	1342.90	1.80	-1.52	-9.62	40°01'09.479"N	104°53'28.210"W	1.80	
1435.00	4.660	202.820	1434.70	7.34	-6.99	-12.10	40°01'09.425"N	104°53'28.242"W	2.01	
1527.00	5.690	186.210	1526.33	15.37	-14.97	-14.05	40°01'09.346"N	104°53'28.267"W	1.96	
1618.00	6.940	184.450	1616.78	25.36	-24.94	-14.96	40°01'09.248"N	104°53'28.278"W	1.39	
1710.00	8.680	185.290	1707.92	37.84	-37.39	-16.03	40°01'09.124"N	104°53'28.292"W	1.90	
1802.00	9.630	185.290	1798.75	52.45	-51.97	-17.38	40°01'08.980"N	104°53'28.309"W	1.03	
1893.00	10.130	184.750	1888.40	68.04	-67.52	-18.74	40°01'08.827"N	104°53'28.327"W	0.56	
1985.00	11.020	187.040	1978.83	84.87	-84.31	-20.49	40°01'08.661"N	104°53'28.349"W	1.07	
2076.00	11.130	184.050	2068.14	102.31	-101.70	-22.18	40°01'08.489"N	104°53'28.371"W	0.64	
2168.00	12.180	182.330	2158.24	120.88	-120.26	-23.20	40°01'08.306"N	104°53'28.384"W	1.20	
2260.00	13.650	185.330	2247.91	141.42	-140.77	-24.60	40°01'08.103"N	104°53'28.402"W	1.76	
2351.00	13.430	182.950	2336.39	162.70	-162.01	-26.15	40°01'07.893"N	104°53'28.422"W	0.66	
2443.00	15.140	185.840	2425.54	185.37	-184.63	-27.92	40°01'07.669"N	104°53'28.445"W	2.01	
2534.00	16.840	184.900	2513.01	210.38	-209.59	-30.25	40°01'07.423"N	104°53'28.475"W	1.89	
2626.00	16.430	183.710	2601.16	236.69	-235.85	-32.23	40°01'07.163"N	104°53'28.500"W	0.58	
2718.00	15.710	183.430	2689.57	262.14	-261.27	-33.82	40°01'06.912"N	104°53'28.521"W	0.79	
2810.00	14.770	183.580	2778.33	286.31	-285.41	-35.30	40°01'06.674"N	104°53'28.540"W	1.02	
2901.00	15.070	186.170	2866.27	309.70	-308.75	-37.29	40°01'06.443"N	104°53'28.565"W	0.80	
2992.00	15.460	183.560	2954.06	333.62	-332.61	-39.32	40°01'06.207"N	104°53'28.591"W	0.87	
3078.00	14.530	182.600	3037.13	355.86	-354.83	-40.52	40°01'05.987"N	104°53'28.607"W	1.12	
3163.00	15.580	181.030	3119.21	377.94	-376.90	-41.21	40°01'05.769"N	104°53'28.616"W	1.33	
3248.00	16.150	183.870	3200.97	401.16	-400.10	-42.21	40°01'05.540"N	104°53'28.629"W	1.13	
3333.00	15.130	183.240	3282.82	424.07	-422.97	-43.64	40°01'05.314"N	104°53'28.647"W	1.22	
3418.00	14.930	187.110	3364.92	446.06	-444.92	-45.62	40°01'05.097"N	104°53'28.672"W	1.20	
3503.00	15.930	184.780	3446.85	468.60	-467.41	-47.95	40°01'04.875"N	104°53'28.702"W	1.38	
3589.00	14.880	183.260	3529.76	491.43	-490.19	-49.56	40°01'04.650"N	104°53'28.723"W	1.31	
3674.00	15.770	185.360	3611.74	513.86	-512.59	-51.26	40°01'04.428"N	104°53'28.745"W	1.23	
3759.00	13.970	183.150	3693.89	535.65	-534.34	-52.90	40°01'04.214"N	104°53'28.766"W	2.22	
3844.00	13.730	182.560	3776.42	555.99	-554.66	-53.91	40°01'04.013"N	104°53'28.779"W	0.33	
3930.00	14.660	187.630	3859.80	577.02	-575.64	-55.81	40°01'03.805"N	104°53'28.803"W	1.80	



# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (159 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4014.00	16.170	186.940	3940.77	599.24	-597.79	-58.64	40°01'03.586"N	104°53'28.840"W	1.81	
4099.00	14.930	186.400	4022.66	621.94	-620.42	-61.29	40°01'03.363"N	104°53'28.874"W	1.47	
4185.00	15.120	180.850	4105.72	644.20	-642.64	-62.69	40°01'03.143"N	104°53'28.892"W	1.69	
4270.00	13.630	178.670	4188.06	665.28	-663.74	-62.62	40°01'02.935"N	104°53'28.891"W	1.86	
4355.00	14.480	183.650	4270.52	685.91	-684.36	-63.07	40°01'02.731"N	104°53'28.897"W	1.74	
4441.00	15.060	185.890	4353.68	707.80	-706.21	-64.90	40°01'02.515"N	104°53'28.920"W	0.95	
4526.00	15.870	187.120	4435.60	730.38	-728.72	-67.47	40°01'02.293"N	104°53'28.953"W	1.03	
4611.00	15.660	185.650	4517.40	753.39	-751.67	-70.04	40°01'02.066"N	104°53'28.986"W	0.53	
4696.00	15.480	183.930	4599.28	776.17	-774.40	-71.95	40°01'01.841"N	104°53'29.011"W	0.58	
4781.00	13.990	180.590	4681.49	797.78	-796.00	-72.83	40°01'01.628"N	104°53'29.022"W	2.02	
4866.00	14.750	184.230	4763.83	818.86	-817.06	-73.74	40°01'01.420"N	104°53'29.034"W	1.39	
4950.00	14.070	184.670	4845.19	839.74	-837.90	-75.36	40°01'01.214"N	104°53'29.055"W	0.82	
5035.00	14.120	184.880	4927.63	860.41	-858.53	-77.08	40°01'01.010"N	104°53'29.077"W	0.08	
5120.00	14.270	185.080	5010.03	881.22	-879.30	-78.89	40°01'00.805"N	104°53'29.100"W	0.19	
5206.00	14.030	185.700	5093.42	902.20	-900.23	-80.86	40°01'00.598"N	104°53'29.125"W	0.33	
5290.00	14.520	185.200	5174.83	922.87	-920.85	-82.83	40°01'00.394"N	104°53'29.151"W	0.60	
5375.00	15.710	183.520	5256.89	945.01	-942.94	-84.50	40°01'00.176"N	104°53'29.172"W	1.49	
5461.00	14.750	183.920	5339.86	967.58	-965.49	-85.96	40°00'59.953"N	104°53'29.191"W	1.12	
5546.00	13.920	184.000	5422.22	988.61	-986.48	-87.42	40°00'59.745"N	104°53'29.210"W	0.98	
5631.00	14.720	182.800	5504.58	1009.62	-1007.47	-88.66	40°00'59.538"N	104°53'29.226"W	1.00	
5716.00	15.840	185.800	5586.57	1031.99	-1029.80	-90.36	40°00'59.317"N	104°53'29.247"W	1.61	
5801.00	14.520	185.790	5668.60	1054.19	-1051.94	-92.61	40°00'59.098"N	104°53'29.276"W	1.55	
5886.00	15.110	188.470	5750.78	1075.82	-1073.50	-95.31	40°00'58.885"N	104°53'29.311"W	1.06	
5972.00	13.820	188.360	5834.05	1097.15	-1094.75	-98.46	40°00'58.675"N	104°53'29.351"W	1.50	
6057.00	14.900	183.950	5916.40	1118.16	-1115.70	-100.69	40°00'58.468"N	104°53'29.380"W	1.81	
6142.00	15.170	182.340	5998.49	1140.20	-1137.71	-101.89	40°00'58.251"N	104°53'29.396"W	0.59	
6228.00	15.950	184.490	6081.33	1163.25	-1160.74	-103.28	40°00'58.023"N	104°53'29.413"W	1.13	
6313.00	13.940	183.860	6163.46	1185.15	-1182.60	-104.88	40°00'57.807"N	104°53'29.434"W	2.37	
6398.00	13.990	183.790	6245.94	1205.65	-1203.06	-106.25	40°00'57.605"N	104°53'29.452"W	0.06	
6484.00	15.670	186.070	6329.08	1227.62	-1224.99	-108.17	40°00'57.388"N	104°53'29.476"W	2.07	
6569.00	15.290	184.070	6410.99	1250.26	-1247.58	-110.17	40°00'57.165"N	104°53'29.502"W	0.77	
6654.00	15.620	182.440	6492.92	1272.90	-1270.19	-111.46	40°00'56.942"N	104°53'29.519"W	0.64	
6739.00	15.130	184.010	6574.88	1295.43	-1292.69	-112.72	40°00'56.719"N	104°53'29.535"W	0.76	
6824.00	14.920	187.080	6656.97	1317.40	-1314.62	-114.84	40°00'56.503"N	104°53'29.562"W	0.97	
6910.00	16.240	184.790	6739.81	1340.44	-1337.59	-117.21	40°00'56.276"N	104°53'29.592"W	1.69	
6995.00	15.510	186.290	6821.57	1363.63	-1360.73	-119.45	40°00'56.047"N	104°53'29.621"W	0.99	
7080.00	15.660	187.070	6903.44	1386.38	-1383.41	-122.11	40°00'55.823"N	104°53'29.655"W	0.30	
7122.00	15.010	186.780	6943.95	1397.44	-1394.44	-123.45	40°00'55.714"N	104°53'29.673"W	1.56	
7165.00	18.460	186.090	6985.12	1409.78	-1406.74	-124.83	40°00'55.592"N	104°53'29.690"W	8.04	
7207.00	23.900	183.230	7024.27	1424.92	-1421.86	-126.01	40°00'55.443"N	104°53'29.706"W	13.18	
7250.00	30.740	182.350	7062.45	1444.64	-1441.56	-126.96	40°00'55.248"N	104°53'29.718"W	15.93	
7293.00	33.230	182.000	7098.92	1467.42	-1464.32	-127.82	40°00'55.023"N	104°53'29.729"W	5.81	
7335.00	34.920	182.080	7133.71	1490.95	-1487.83	-128.66	40°00'54.791"N	104°53'29.740"W	4.03	
7378.00	37.330	182.190	7168.44	1516.30	-1513.16	-129.60	40°00'54.540"N	104°53'29.752"W	5.61	
7421.00	39.550	183.170	7202.12	1543.02	-1539.87	-130.86	40°00'54.277"N	104°53'29.768"W	5.35	



# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (159 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7463.00	41.520	183.510	7234.04	1570.31	-1567.11	-132.45	40°00'54.007"N	104°53'29.788"W	4.72	
7506.00	45.180	182.740	7265.30	1599.81	-1596.58	-134.05	40°00'53.716"N	104°53'29.809"W	8.60	
7549.00	49.680	182.370	7294.38	1631.46	-1628.21	-135.46	40°00'53.404"N	104°53'29.827"W	10.48	
7591.00	51.120	181.940	7321.15	1663.82	-1660.55	-136.67	40°00'53.084"N	104°53'29.843"W	3.52	
7634.00	52.910	180.970	7347.62	1697.71	-1694.43	-137.53	40°00'52.749"N	104°53'29.854"W	4.53	
7676.00	54.320	179.590	7372.53	1731.51	-1728.24	-137.69	40°00'52.415"N	104°53'29.856"W	4.27	
7719.00	56.100	179.320	7397.06	1766.80	-1763.55	-137.36	40°00'52.066"N	104°53'29.851"W	4.17	
7762.00	58.870	179.310	7420.18	1803.02	-1799.80	-136.92	40°00'51.708"N	104°53'29.846"W	6.44	
7804.00	62.320	179.920	7440.79	1839.58	-1836.38	-136.68	40°00'51.346"N	104°53'29.843"W	8.31	
7847.00	64.590	180.550	7460.01	1878.04	-1874.85	-136.84	40°00'50.966"N	104°53'29.845"W	5.44	
7890.00	67.000	180.900	7477.64	1917.25	-1914.06	-137.34	40°00'50.579"N	104°53'29.851"W	5.65	
7932.00	69.330	180.520	7493.26	1956.23	-1953.04	-137.82	40°00'50.193"N	104°53'29.857"W	5.61	
7975.00	72.250	180.560	7507.41	1996.82	-1993.64	-138.20	40°00'49.792"N	104°53'29.862"W	6.79	
8018.00	74.910	180.510	7519.56	2038.05	-2034.88	-138.59	40°00'49.385"N	104°53'29.867"W	6.19	
8060.00	78.990	180.240	7529.04	2078.95	-2075.79	-138.85	40°00'48.980"N	104°53'29.871"W	9.73	
8103.00	83.170	180.030	7535.71	2121.41	-2118.26	-138.95	40°00'48.561"N	104°53'29.872"W	9.73	
8113.00	83.490	180.290	7536.87	2131.33	-2128.19	-138.98	40°00'48.463"N	104°53'29.872"W	4.11	
8152.00†	86.517	180.620	7540.27	2170.17	-2167.04	-139.29	40°00'48.079"N	104°53'29.876"W	7.81	7" CASING POINT
8184.00	89.000	180.890	7541.52	2202.14	-2199.01	-139.71	40°00'47.763"N	104°53'29.882"W	7.81	
8269.00	90.400	180.920	7541.96	2287.13	-2283.99	-141.05	40°00'46.923"N	104°53'29.899"W	1.65	
8355.00	91.600	180.470	7540.46	2373.10	-2369.97	-142.10	40°00'46.073"N	104°53'29.912"W	1.49	
8440.00	92.400	181.150	7537.49	2458.04	-2454.91	-143.30	40°00'45.234"N	104°53'29.928"W	1.23	
8525.00	91.300	182.160	7534.75	2542.99	-2539.83	-145.75	40°00'44.395"N	104°53'29.959"W	1.76	
8610.00	90.270	181.740	7533.59	2627.98	-2624.77	-148.64	40°00'43.555"N	104°53'29.996"W	1.31	
8696.00	89.190	182.370	7533.99	2713.98	-2710.71	-151.73	40°00'42.706"N	104°53'30.036"W	1.45	
8781.00	88.270	181.580	7535.88	2798.96	-2795.64	-154.66	40°00'41.867"N	104°53'30.074"W	1.43	
8866.00	88.920	181.730	7537.96	2883.93	-2880.58	-157.11	40°00'41.027"N	104°53'30.105"W	0.78	
8951.00	89.440	181.050	7539.18	2968.92	-2965.54	-159.17	40°00'40.188"N	104°53'30.132"W	1.01	
9034.00	89.900	180.940	7539.65	3051.91	-3048.53	-160.61	40°00'39.368"N	104°53'30.150"W	0.57	
9120.00	90.710	181.020	7539.20	3137.90	-3134.51	-162.08	40°00'38.518"N	104°53'30.169"W	0.95	
9205.00	89.410	180.040	7539.11	3222.88	-3219.51	-162.87	40°00'37.678"N	104°53'30.179"W	1.92	
9290.00	90.060	180.510	7539.50	3307.86	-3304.50	-163.28	40°00'36.838"N	104°53'30.184"W	0.94	
9375.00	89.440	180.000	7539.87	3392.83	-3389.50	-163.66	40°00'35.998"N	104°53'30.189"W	0.94	
9460.00	90.000	180.210	7540.29	3477.80	-3474.50	-163.81	40°00'35.158"N	104°53'30.191"W	0.70	
9545.00	89.750	179.790	7540.47	3562.76	-3559.50	-163.81	40°00'34.318"N	104°53'30.191"W	0.58	
9630.00	90.370	179.430	7540.38	3647.70	-3644.50	-163.23	40°00'33.478"N	104°53'30.184"W	0.84	
9715.00	89.910	180.160	7540.18	3732.66	-3729.50	-162.93	40°00'32.638"N	104°53'30.180"W	1.02	
9800.00	90.560	179.110	7539.83	3817.60	-3814.49	-162.39	40°00'31.798"N	104°53'30.173"W	1.45	
9885.00	89.940	179.850	7539.46	3902.54	-3899.49	-161.62	40°00'30.958"N	104°53'30.163"W	1.14	
9971.00	90.590	179.060	7539.06	3988.47	-3985.48	-160.80	40°00'30.108"N	104°53'30.152"W	1.19	
10056.00	89.880	179.560	7538.71	4073.40	-4070.47	-159.77	40°00'29.268"N	104°53'30.139"W	1.02	
10141.00	89.570	180.300	7539.12	4158.36	-4155.47	-159.67	40°00'28.428"N	104°53'30.138"W	0.94	
10226.00	89.940	179.800	7539.48	4243.32	-4240.47	-159.75	40°00'27.588"N	104°53'30.139"W	0.73	
10311.00	89.260	179.810	7540.07	4328.28	-4325.47	-159.46	40°00'26.748"N	104°53'30.135"W	0.80	
10396.00	89.570	179.110	7540.94	4413.21	-4410.46	-158.65	40°00'25.909"N	104°53'30.125"W	0.90	



# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (159 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10481.00	89.750	179.000	7541.45	4498.12	-4495.44	-157.25	40°00'25.069"N	104°53'30.107"W	0.25	
10566.00	89.880	178.220	7541.72	4583.00	-4580.42	-155.19	40°00'24.229"N	104°53'30.080"W	0.93	
10652.00	91.510	179.520	7540.68	4668.88	-4666.39	-153.50	40°00'23.379"N	104°53'30.059"W	2.42	
10737.00	91.140	179.600	7538.71	4753.80	-4751.37	-152.84	40°00'22.540"N	104°53'30.050"W	0.45	
10822.00	90.990	181.440	7537.13	4838.77	-4836.34	-153.61	40°00'21.700"N	104°53'30.060"W	2.17	
10908.00	90.760	181.460	7535.82	4924.76	-4922.31	-155.79	40°00'20.850"N	104°53'30.088"W	0.27	
10993.00	89.900	182.100	7535.33	5009.75	-5007.26	-158.43	40°00'20.011"N	104°53'30.122"W	1.26	
11078.00	89.590	182.030	7535.71	5094.75	-5092.21	-161.49	40°00'19.171"N	104°53'30.161"W	0.37	
11163.00	89.900	181.870	7536.09	5179.75	-5177.16	-164.39	40°00'18.332"N	104°53'30.198"W	0.41	
11246.00	90.400	181.960	7535.87	5262.75	-5260.11	-167.16	40°00'17.512"N	104°53'30.234"W	0.61	
11331.00	89.410	182.150	7536.01	5347.74	-5345.05	-170.21	40°00'16.673"N	104°53'30.273"W	1.19	
11417.00	89.560	181.830	7536.78	5433.74	-5431.00	-173.19	40°00'15.823"N	104°53'30.312"W	0.41	
11502.00	90.090	180.990	7537.04	5518.74	-5515.97	-175.28	40°00'14.984"N	104°53'30.338"W	1.17	
11587.00	89.530	181.130	7537.32	5603.73	-5600.96	-176.86	40°00'14.144"N	104°53'30.359"W	0.68	
11672.00	89.660	180.590	7537.92	5688.72	-5685.94	-178.13	40°00'13.304"N	104°53'30.375"W	0.65	
11757.00	90.210	180.040	7538.02	5773.69	-5770.94	-178.60	40°00'12.464"N	104°53'30.381"W	0.92	
11842.00	89.620	181.220	7538.15	5858.68	-5855.93	-179.53	40°00'11.624"N	104°53'30.393"W	1.55	
11928.00	90.120	181.490	7538.34	5944.68	-5941.91	-181.57	40°00'10.774"N	104°53'30.419"W	0.66	
12013.00	89.500	181.340	7538.62	6029.68	-6026.88	-183.67	40°00'09.935"N	104°53'30.446"W	0.75	
12098.00	89.780	180.750	7539.16	6114.67	-6111.87	-185.22	40°00'09.095"N	104°53'30.466"W	0.77	
12183.00	90.060	180.850	7539.28	6199.66	-6196.86	-186.40	40°00'08.255"N	104°53'30.481"W	0.35	
12268.00	90.370	180.470	7538.96	6284.64	-6281.85	-187.38	40°00'07.415"N	104°53'30.494"W	0.58	
12352.00	90.710	179.460	7538.17	6368.60	-6365.85	-187.33	40°00'06.585"N	104°53'30.493"W	1.27	LAST BHI MWD+IFR SURVEY
12402.00	90.710	179.460	7537.55	6418.56	-6415.84	-186.86	40°00'06.091"N	104°53'30.487"W	0.00	PROJECTION TO BIT

## HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 37N-33HZ AWB Ref Wellpath: HOWARD 37N-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	802.00	786.00	16.00	801.98	0.00	0.00	2.25	-4.56
9.625in Casing Surface	16.00	802.00	786.00	16.00	801.98	0.00	0.00	2.25	-4.56
8.75in Open Hole	802.00	8162.00	7360.00	801.98	7540.81	2.25	-4.56	-2177.02	-139.41
7in Casing Intermediate	16.00	8152.00	8136.00	16.00	7540.27	0.00	0.00	-2167.04	-139.29
6.125in Open Hole	8152.00	12402.00	4250.00	7540.27	7537.55	-2167.04	-139.29	-6415.84	-186.86





# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
HOWARD 14W-28HZ PAD SEC.28 LINES		-1.00	-1339.63	-2612.79	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W	polygon
SECTION 33 LINES		-1.00	-1128.77	-2389.54	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W	polygon
HOWARD 37N-33HZ BHL ON PLAT (460'FSL & 1570'FEL, SEC.33)		7364.00	-6441.32	-129.96	3170440.36	1244022.36	40°00'05.839"N	104°53'29.756"W	point
HOWARD 37N-33HZ LAND BOX		7364.00	0.00	0.00	3170526.09	1250464.18	40°01'09.494"N	104°53'28.086"W	polygon
HOWARD 37N-33HZ BHL REV-3 (460'FSL & 1620'FEL, SEC.33)		7544.00	-6441.32	-179.96	3170390.37	1244022.02	40°00'05.839"N	104°53'30.398"W	point
HOWARD 37N-33HZ BHL ON PLAT REV-1 (460'FSL & 1570'FEL, SEC.33)		7547.00	-6441.32	-129.96	3170440.36	1244022.36	40°00'05.839"N	104°53'29.756"W	point
HOWARD 37N-33HZ BHL REV-2 (460'FSL & 1620'FEL, SEC.33)		7547.00	-6441.32	-179.96	3170390.37	1244022.02	40°00'05.839"N	104°53'30.398"W	point

## WELLPATH COMPOSITION - Ref Wellbore: HOWARD 37N-33HZ AWB Ref Wellpath: HOWARD 37N-33HZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	743.00	Generic gyro - continuous (Standard)	MS GYRODATA SURVEYS <116-743>	HOWARD 37N-33HZ AWB
743.00	8113.00	NaviTrak (MAGCORR,IFR)	BHI MWD+IFR SURVEYS 8 3/4" HOLE <881-8113>	HOWARD 37N-33HZ AWB
8113.00	12352.00	NaviTrak (MAGCORR,IFR)	BHI MWD+IFR SURVEYS 6 1/8" HOLE <8184-12352>	HOWARD 37N-33HZ AWB
12352.00	12402.00	Blind Drilling (std)	Projection to bit	HOWARD 37N-33HZ AWB



# Actual Wellpath Report

HOWARD 37N-33HZ AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ AWB
Facility	SEC.28-T1N-R67W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
16.00	0.000	294.290	16.00	TIE-ON
116.00	0.480	294.290	116.00	BEGIN GYRO SURVEYS
743.00	0.350	286.870	742.98	TIE-INTO GYROS
881.00	0.540	286.270	880.98	BEGIN BHI MWD+IFR SURVEYS
8152.00	86.517	180.620	7540.27	7" CASING POINT
12352.00	90.710	179.460	7538.17	LAST BHI MWD+IFR SURVEY
12402.00	90.710	179.460	7537.55	PROJECTION TO BIT