

To correct azimuth from Magnetic to True add 8.85 degrees  
For example: if the Magnetic North Azimuth = 90 degs, then the True North Azimuth =  $90 + 8.85 = 98.85$



# Actual Wellpath Report

HOWARD 37-29 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 HOWARD 37-29 (1081'FSL & 1278'FEL)
Area	COLORADO	Well	HOWARD 37-29
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37-29 AWB
Facility	SEC.29-T1N-R67W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 3.0.0
North Reference	True	User	Doddanna
Scale	0.999965	Report Generated	10/28/2011 at 7:25:30 PM
Convergence at slot	0.38° East	Database/Source file	WA_Denver/HOWARD_37-29_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-26.31	53.92	3165399.98	1249882.78	40°01'04.091"N	104°54'34.024"W
Facility Reference Pt			3165345.89	1249908.73	40°01'04.351"N	104°54'34.717"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 15 (RKB) to Facility Vertical Datum	5038.00ft
Horizontal Reference Pt	Slot	XTREME 15 (RKB) to Mean Sea Level	5038.00ft
Vertical Reference Pt	XTREME 15 (RKB)	XTREME 15 (RKB) to Mud Line at Slot (SLOT#07 HOWARD 37-29 (1081'FSL & 1278'FEL))	5038.00ft
MD Reference Pt	XTREME 15 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	182.68°



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REFERENCE WELLPATH IDENTIFICATION			
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Area	COLORADO	Well	HOWARD 37-29
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37-29 AWB
Facility	SEC.29-T1N-R67W		

WELLPATH DATA (84 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	148.100	0.00	0.00	0.00	0.00	0.00	
15.00	0.000	148.100	15.00	0.00	0.00	0.00	0.00	
156.00	0.300	148.100	156.00	0.30	-0.31	0.20	0.21	
249.00	2.700	175.000	248.96	2.68	-2.70	0.51	2.62	
340.00	4.700	173.700	339.77	8.48	-8.54	1.11	2.20	
431.00	6.000	183.900	430.37	16.92	-17.00	1.20	1.76	
520.00	6.900	182.500	518.81	26.92	-26.98	0.65	1.03	
605.00	8.600	179.500	603.03	38.37	-38.43	0.48	2.06	
693.00	10.600	179.700	689.79	53.02	-53.11	0.58	2.27	
783.00	11.300	182.700	778.15	70.11	-70.19	0.21	1.00	
871.00	11.600	183.600	864.40	87.58	-87.64	-0.75	0.40	
959.00	11.400	183.600	950.63	105.12	-105.15	-1.86	0.23	
1048.00	11.300	184.600	1037.89	122.63	-122.62	-3.11	0.25	
1139.00	10.700	183.200	1127.22	139.99	-139.94	-4.29	0.72	
1212.00	9.900	183.900	1199.04	153.04	-152.97	-5.10	1.11	
1301.00	11.200	185.300	1286.54	169.32	-169.21	-6.42	1.49	
1388.00	12.600	187.100	1371.67	187.22	-187.04	-8.37	1.66	
1475.00	13.800	184.600	1456.37	207.06	-206.80	-10.38	1.53	
1564.00	15.500	181.100	1542.47	229.55	-229.27	-11.46	2.15	
1652.00	16.700	182.900	1627.02	253.95	-253.65	-12.32	1.48	
1739.00	17.100	185.000	1710.26	279.23	-278.88	-14.07	0.84	
1827.00	17.100	184.300	1794.37	305.09	-304.67	-16.17	0.23	
1916.00	16.500	181.800	1879.58	330.81	-330.35	-17.54	1.06	
2004.00	16.400	182.900	1963.97	355.73	-355.25	-18.57	0.37	
2094.00	15.100	178.700	2050.60	380.13	-379.66	-18.94	1.92	
2184.00	14.900	181.500	2137.53	403.39	-402.95	-18.98	0.84	
2271.00	16.000	182.900	2221.38	426.57	-426.10	-19.88	1.33	
2359.00	16.200	181.100	2305.93	450.97	-450.49	-20.73	0.61	
2449.00	16.300	178.300	2392.34	476.11	-475.67	-20.59	0.88	
2537.00	16.300	181.100	2476.80	500.77	-500.36	-20.47	0.89	
2625.00	16.800	183.600	2561.16	525.83	-525.40	-21.50	0.99	
2713.00	17.200	184.300	2645.31	551.55	-551.07	-23.28	0.51	
2802.00	17.100	181.800	2730.36	577.79	-577.27	-24.67	0.84	
2889.00	16.800	181.800	2813.58	603.15	-602.62	-25.47	0.34	
2979.00	17.100	183.200	2899.67	629.39	-628.83	-26.62	0.56	
3068.00	18.100	182.500	2984.50	656.30	-655.71	-27.95	1.15	
3156.00	18.100	178.700	3068.15	683.60	-683.03	-28.24	1.34	
3244.00	18.400	180.100	3151.72	711.11	-710.58	-27.95	0.60	
3334.00	18.200	181.100	3237.17	739.35	-738.84	-28.25	0.41	
3423.00	17.500	180.100	3321.89	766.62	-766.12	-28.54	0.86	
3513.00	17.300	185.000	3407.77	793.51	-792.98	-29.73	1.64	
3601.00	16.500	182.500	3491.97	819.08	-818.50	-31.41	1.23	
3689.00	15.500	185.300	3576.57	843.32	-842.70	-33.04	1.44	
3778.00	15.600	188.800	3662.31	867.10	-866.37	-35.97	1.06	
3868.00	16.100	188.100	3748.89	891.56	-890.68	-39.58	0.59	



# Actual Wellpath Report

HOWARD 37-29 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 HOWARD 37-29 (1081'FSL & 1278'FEL)
Area	COLORADO	Well	HOWARD 37-29
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37-29 AWB
Facility	SEC.29-T1N-R67W		

WELLPATH DATA (84 stations)								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
3955.00	15.600	188.800	3832.58	915.20	-914.18	-43.07	0.62	
4043.00	12.500	183.200	3917.94	936.49	-935.39	-45.41	3.84	
4133.00	11.300	183.600	4006.00	955.05	-953.92	-46.51	1.34	
4221.00	10.600	179.400	4092.40	971.75	-970.61	-46.97	1.21	
4309.00	9.100	172.300	4179.11	986.68	-985.61	-45.95	2.19	
4396.00	7.700	170.600	4265.17	999.14	-998.17	-44.08	1.63	
4486.00	5.700	180.100	4354.56	1009.51	-1008.59	-43.10	2.53	
4572.00	4.700	179.700	4440.20	1017.29	-1016.39	-43.09	1.16	
4660.00	3.600	191.000	4527.97	1023.62	-1022.71	-43.60	1.55	
4750.00	1.800	183.600	4617.87	1027.83	-1026.89	-44.22	2.03	
4840.00	1.500	190.300	4707.83	1030.42	-1029.46	-44.52	0.40	
4927.00	1.000	194.100	4794.81	1032.29	-1031.32	-44.91	0.58	
5062.00	0.400	237.000	4929.80	1033.72	-1032.72	-45.59	0.56	
5196.00	0.400	269.000	5063.79	1034.02	-1032.98	-46.45	0.16	
5328.00	0.500	271.500	5195.79	1034.06	-1032.97	-47.49	0.08	
5460.00	1.100	288.300	5327.78	1033.73	-1032.56	-49.27	0.48	
5594.00	0.900	141.400	5461.77	1034.18	-1032.98	-49.83	1.43	
5729.00	1.100	162.100	5596.75	1036.19	-1035.04	-48.77	0.30	
5862.00	1.100	221.300	5729.73	1038.38	-1037.21	-49.22	0.82	
5997.00	0.800	310.000	5864.72	1038.82	-1037.58	-50.80	1.00	
6131.00	1.000	274.300	5998.70	1038.22	-1036.89	-52.68	0.44	
6265.00	0.400	269.000	6132.69	1038.22	-1036.81	-54.32	0.45	
6398.00	0.400	153.000	6265.69	1038.65	-1037.23	-54.57	0.51	
6533.00	1.000	337.600	6400.68	1037.99	-1036.56	-54.81	1.04	
6667.00	2.400	313.700	6534.62	1035.09	-1033.54	-57.28	1.15	
6797.00	1.800	290.800	6664.54	1032.67	-1030.94	-61.16	0.78	
6931.00	1.800	340.400	6798.48	1030.07	-1028.21	-63.83	1.13	
7066.00	0.500	11.300	6933.45	1027.52	-1025.63	-64.43	1.03	
7202.00	1.000	248.300	7069.44	1027.43	-1025.49	-65.41	0.99	
7335.00	0.500	311.500	7202.43	1027.54	-1025.54	-66.93	0.67	
7467.00	0.400	337.200	7334.43	1026.77	-1024.73	-67.54	0.17	
7598.00	0.400	6.400	7465.42	1025.90	-1023.85	-67.66	0.15	
7732.00	0.900	45.800	7599.42	1024.66	-1022.65	-66.86	0.48	
7868.00	0.800	57.000	7735.40	1023.33	-1021.39	-65.29	0.14	
8002.00	1.000	44.700	7869.39	1021.91	-1020.05	-63.69	0.21	
8136.00	0.700	41.200	8003.37	1020.41	-1018.61	-62.32	0.23	
8270.00	0.400	24.000	8137.36	1019.33	-1017.56	-61.60	0.25	
8421.00	0.400	291.200	8288.36	1018.67	-1016.89	-61.87	0.38	LAST BHI MWD SURVEY
8471.00	0.400	291.200	8338.36	1018.56	-1016.76	-62.20	0.00	PROJECTION TO BIT



# Actual Wellpath Report

HOWARD 37-29 AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 HOWARD 37-29 (1081'FSL & 1278'FEL)
Area	COLORADO	Well	HOWARD 37-29
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37-29 AWB
Facility	SEC.29-T1N-R67W		

## HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 37-29 AWB Ref Wellpath: HOWARD 37-29 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]
12.25in Open Hole	15.00	1184.00	1169.00	15.00	1171.47	0.00	0.00	-148.09	-4.78
8.625in Casing Surface	15.00	1194.00	1179.00	15.00	1181.32	0.00	0.00	-149.85	-4.89
7.875in Open Hole	1184.00	8471.00	7287.00	1171.47	8338.36	-148.09	-4.78	-1016.76	-62.20

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
HOWARD 37-29 GEO TARGET 50' RADIUS (50'FSL & 1320'FEL, REV-1)		6000.00	-1030.93	-35.25	3165371.60	1248851.67	40°00'53.903"N	104°54'34.477"W	point
HOWARD 37-29 GEO TARGET 50' RADIUS (50'FSL & 1333'FEL, REV-3)		6000.00	-1030.96	-48.26	3165358.59	1248851.56	40°00'53.903"N	104°54'34.644"W	circle
HOWARD 37-29 GEO TARGET 50' RADIUS (50'FSL & 1410'FEL, REV-2)		6000.00	-1030.96	-125.26	3165281.59	1248851.05	40°00'53.903"N	104°54'35.634"W	point
HOWARD 37-29 HARDLINE 50'S OF GEO TARGET		6000.00	-1080.96	-35.26	3165371.92	1248801.65	40°00'53.409"N	104°54'34.477"W	point

## WELLPATH COMPOSITION - Ref Wellbore: HOWARD 37-29 AWB Ref Wellpath: HOWARD 37-29 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
15.00	8421.00	NaviTrak (Standard)	BHI MWD SURVEYS <156-8421>	HOWARD 37-29 AWB
8421.00	8471.00	Blind Drilling (std)	Projection to bit	HOWARD 37-29 AWB