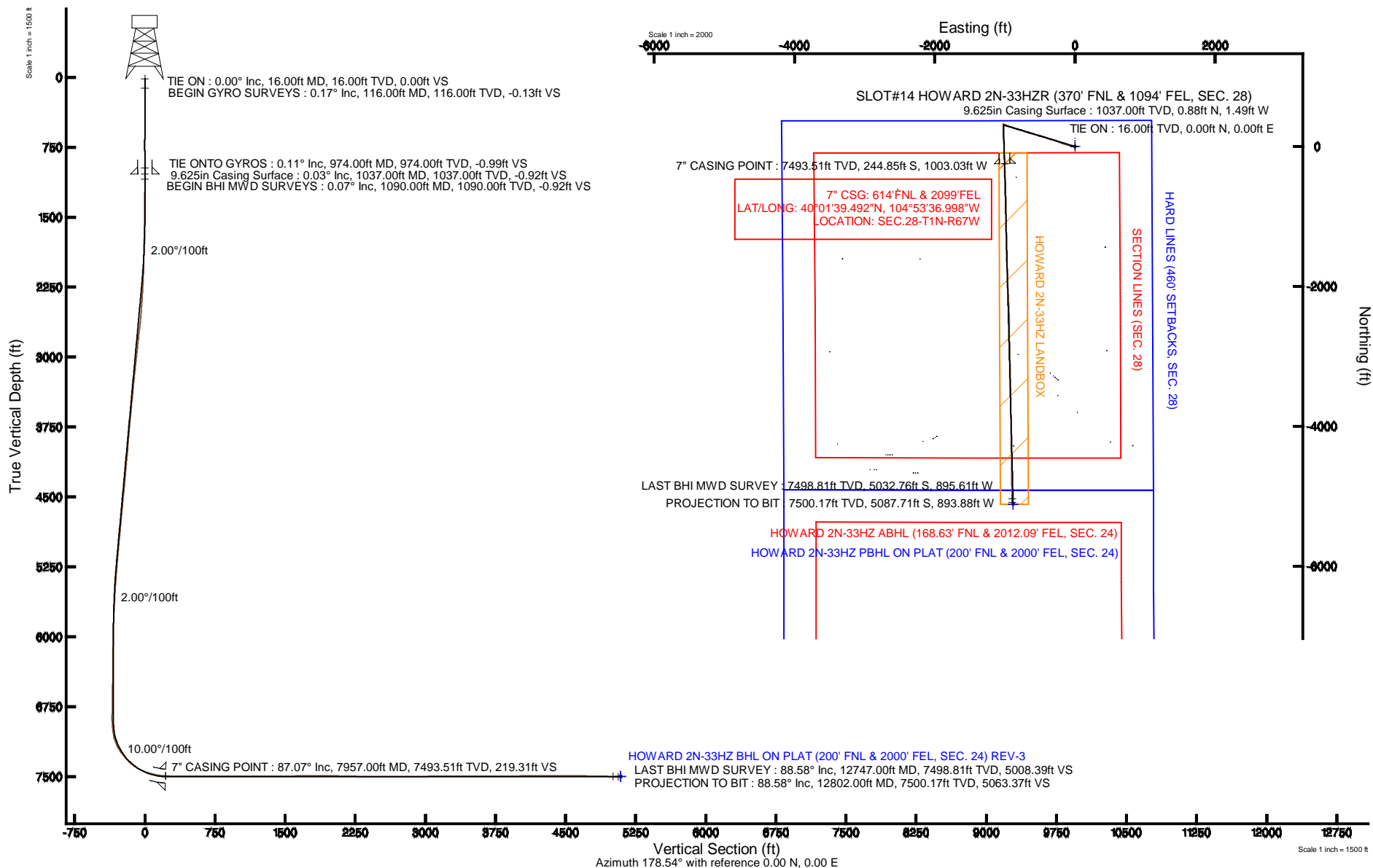


# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)  
 Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 2N-33HZR  
 Facility: SEC.28-T1N-R67W Wellbore: HOWARD 2N-33HZR PWB

Plot reference wellpath is HOWARD 2N-33HZR (REV-B.0) PWP

True vertical depths are referenced to XTREME 20 (16KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to XTREME 20 (16KB) (RKB)	North Reference: True north
XTREME 20 (16KB) (RKB) to Mean Sea Level: 4999 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: robiale01 on 21/Jan/2014



# Actual Wellpath Report

HOWARD 2N-33HZR AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR 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	Robiale01
Scale	0.999964	Report Generated	21/Jan/2014 at 15:47
Convergence at slot	n/a	Database/Source file	WellArchitectDB/HOWARD_2N-33HZR_AWB.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	1416797.55	2716933.35	3170813.32	1253746.53	40°01'41.912"N	104°53'24.104"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 20 (16'KB) (RKB) to Facility Vertical Datum	4999.00ft
Horizontal Reference Pt	Slot	XTREME 20 (16'KB) (RKB) to Mean Sea Level	4999.00ft
Vertical Reference Pt	XTREME 20 (16'KB) (RKB)	XTREME 20 (16'KB) (RKB) to Mud Line at Slot (SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28))	4999.00ft
MD Reference Pt	XTREME 20 (16'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	178.54°

# Actual Wellpath Report

HOWARD 2N-33HZR AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR 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	30.150	0.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
16.00	0.000	30.150	16.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	TIE ON
116.00	0.170	30.150	116.00	-0.13	0.13	0.07	40°01'41.913"N	104°53'24.103"W	0.17	BEGIN GYRO SURVEYS
216.00	0.100	35.150	216.00	-0.32	0.33	0.20	40°01'41.915"N	104°53'24.101"W	0.07	
316.00	0.110	52.060	316.00	-0.45	0.46	0.33	40°01'41.917"N	104°53'24.100"W	0.03	
416.00	0.300	301.030	416.00	-0.65	0.65	0.18	40°01'41.918"N	104°53'24.102"W	0.35	
516.00	0.260	298.250	516.00	-0.90	0.89	-0.25	40°01'41.921"N	104°53'24.107"W	0.04	
616.00	0.040	315.890	616.00	-1.04	1.03	-0.47	40°01'41.922"N	104°53'24.110"W	0.22	
716.00	0.200	275.050	716.00	-1.08	1.07	-0.67	40°01'41.923"N	104°53'24.113"W	0.17	
816.00	0.190	247.670	816.00	-1.04	1.02	-1.00	40°01'41.922"N	104°53'24.117"W	0.09	
916.00	0.220	278.120	916.00	-1.02	0.98	-1.34	40°01'41.922"N	104°53'24.121"W	0.11	
974.00	0.110	204.680	974.00	-0.99	0.95	-1.47	40°01'41.921"N	104°53'24.123"W	0.37	TIE ONTO GYROS
1090.00	0.070	60.810	1090.00	-0.92	0.88	-1.46	40°01'41.921"N	104°53'24.123"W	0.15	BEGIN BHI MWD SURVEYS
1183.00	0.110	49.200	1183.00	-1.00	0.97	-1.34	40°01'41.922"N	104°53'24.121"W	0.05	
1277.00	0.190	30.540	1277.00	-1.19	1.16	-1.19	40°01'41.923"N	104°53'24.119"W	0.10	
1371.00	0.180	351.520	1370.99	-1.47	1.44	-1.14	40°01'41.926"N	104°53'24.119"W	0.13	
1465.00	1.540	287.310	1464.98	-2.02	1.96	-2.36	40°01'41.931"N	104°53'24.134"W	1.56	
1560.00	2.620	288.710	1559.92	-3.18	3.04	-5.64	40°01'41.942"N	104°53'24.176"W	1.14	
1652.00	3.670	285.210	1651.78	-4.75	4.49	-10.47	40°01'41.956"N	104°53'24.239"W	1.16	
1744.00	4.640	284.570	1743.54	-6.62	6.20	-16.92	40°01'41.973"N	104°53'24.321"W	1.06	
1927.00	7.230	280.530	1925.54	-11.06	10.16	-35.40	40°01'42.012"N	104°53'24.559"W	1.43	
2019.00	8.160	278.450	2016.71	-13.38	12.18	-47.55	40°01'42.032"N	104°53'24.715"W	1.06	
2111.00	9.100	280.390	2107.67	-16.00	14.45	-61.17	40°01'42.055"N	104°53'24.890"W	1.07	
2203.00	11.140	281.870	2198.23	-19.54	17.59	-77.02	40°01'42.086"N	104°53'25.094"W	2.24	
2295.00	12.160	285.030	2288.34	-24.34	21.93	-95.08	40°01'42.129"N	104°53'25.326"W	1.31	
2387.00	12.950	285.420	2378.14	-30.08	27.19	-114.38	40°01'42.181"N	104°53'25.574"W	0.86	
2479.00	14.550	285.050	2467.50	-36.36	32.93	-135.48	40°01'42.237"N	104°53'25.846"W	1.74	
2571.00	15.390	285.170	2556.37	-43.13	39.13	-158.42	40°01'42.299"N	104°53'26.140"W	0.91	
2663.00	15.930	292.260	2644.97	-51.71	47.10	-181.89	40°01'42.377"N	104°53'26.442"W	2.16	
2755.00	16.760	290.790	2733.25	-61.81	56.59	-205.97	40°01'42.471"N	104°53'26.752"W	1.01	
2847.00	15.550	290.640	2821.61	-71.47	65.65	-229.92	40°01'42.561"N	104°53'27.060"W	1.32	
2938.00	16.370	290.470	2909.11	-80.84	74.43	-253.34	40°01'42.648"N	104°53'27.361"W	0.90	
3030.00	17.280	289.890	2997.17	-90.66	83.62	-278.34	40°01'42.738"N	104°53'27.682"W	1.01	
3122.00	17.870	287.240	3084.87	-100.16	92.45	-304.67	40°01'42.826"N	104°53'28.021"W	1.08	
3213.00	17.200	287.390	3171.64	-108.98	100.61	-330.85	40°01'42.906"N	104°53'28.357"W	0.74	
3305.00	16.650	288.970	3259.66	-117.97	108.96	-356.29	40°01'42.989"N	104°53'28.684"W	0.78	
3397.00	16.810	286.300	3347.77	-126.63	116.98	-381.52	40°01'43.068"N	104°53'29.008"W	0.85	
3488.00	17.400	287.570	3434.74	-135.07	124.78	-407.13	40°01'43.145"N	104°53'29.338"W	0.77	
3580.00	16.710	285.130	3522.70	-143.33	132.38	-433.01	40°01'43.220"N	104°53'29.670"W	1.08	
3670.00	16.620	288.460	3608.92	-151.41	139.84	-457.71	40°01'43.294"N	104°53'29.988"W	1.07	
3762.00	16.610	287.450	3697.08	-160.15	147.94	-482.73	40°01'43.374"N	104°53'30.310"W	0.31	
3847.00	16.930	286.530	3778.46	-167.91	155.11	-506.19	40°01'43.445"N	104°53'30.611"W	0.49	
3933.00	17.050	283.220	3860.71	-174.97	161.55	-530.47	40°01'43.508"N	104°53'30.923"W	1.13	
4018.00	17.130	282.590	3941.96	-181.17	167.13	-554.81	40°01'43.564"N	104°53'31.236"W	0.24	
4103.00	16.000	286.680	4023.43	-187.85	173.22	-578.25	40°01'43.624"N	104°53'31.537"W	1.91	

# Actual Wellpath Report

HOWARD 2N-33HZR AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR 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
4188.00	16.090	287.980	4105.12	-195.42	180.22	-600.68	40°01'43.693"N	104°53'31.826"W	0.44	
4273.00	15.630	287.310	4186.88	-203.02	187.27	-622.81	40°01'43.763"N	104°53'32.110"W	0.58	
4358.00	15.780	286.970	4268.71	-210.36	194.05	-644.80	40°01'43.830"N	104°53'32.393"W	0.21	
4444.00	16.090	286.450	4351.41	-217.72	200.83	-667.41	40°01'43.897"N	104°53'32.684"W	0.40	
4529.00	16.440	286.420	4433.00	-225.03	207.57	-690.25	40°01'43.963"N	104°53'32.977"W	0.41	
4614.00	16.150	287.850	4514.59	-232.63	214.59	-713.04	40°01'44.033"N	104°53'33.270"W	0.58	
4699.00	15.830	288.810	4596.30	-240.55	221.95	-735.27	40°01'44.105"N	104°53'33.556"W	0.49	
4785.00	16.090	286.230	4678.99	-248.24	229.07	-757.81	40°01'44.176"N	104°53'33.846"W	0.88	
4870.00	16.520	285.450	4760.57	-255.33	235.58	-780.77	40°01'44.240"N	104°53'34.141"W	0.57	
4955.00	17.640	286.300	4841.82	-262.77	242.41	-804.78	40°01'44.307"N	104°53'34.449"W	1.35	
5040.00	17.940	286.500	4922.75	-270.73	249.75	-829.69	40°01'44.380"N	104°53'34.770"W	0.36	
5125.00	16.520	286.120	5003.94	-278.42	256.82	-853.86	40°01'44.450"N	104°53'35.080"W	1.68	
5210.00	16.050	287.300	5085.53	-285.85	263.67	-876.68	40°01'44.518"N	104°53'35.374"W	0.68	
5295.00	14.440	288.030	5167.53	-293.16	270.44	-897.98	40°01'44.584"N	104°53'35.648"W	1.91	
5381.00	13.030	288.050	5251.07	-299.97	276.77	-917.40	40°01'44.647"N	104°53'35.897"W	1.64	
5466.00	12.550	288.730	5333.96	-306.36	282.70	-935.25	40°01'44.706"N	104°53'36.127"W	0.59	
5551.00	11.600	289.550	5417.08	-312.61	288.53	-952.05	40°01'44.763"N	104°53'36.343"W	1.14	
5636.00	10.460	289.830	5500.51	-318.47	294.00	-967.36	40°01'44.817"N	104°53'36.540"W	1.34	
5722.00	8.640	290.270	5585.31	-323.70	298.89	-980.77	40°01'44.866"N	104°53'36.712"W	2.12	
5807.00	7.440	290.050	5669.48	-328.08	302.99	-991.93	40°01'44.906"N	104°53'36.855"W	1.41	
5892.00	6.030	291.680	5753.89	-331.85	306.53	-1001.25	40°01'44.941"N	104°53'36.975"W	1.67	
5977.00	4.530	294.080	5838.53	-335.05	309.55	-1008.46	40°01'44.971"N	104°53'37.068"W	1.78	
6062.00	3.160	293.320	5923.33	-337.48	311.84	-1013.68	40°01'44.994"N	104°53'37.135"W	1.61	
6147.00	1.950	299.760	6008.25	-339.21	313.49	-1017.08	40°01'45.010"N	104°53'37.179"W	1.46	
6232.00	0.830	321.190	6093.22	-340.45	314.69	-1018.73	40°01'45.022"N	104°53'37.200"W	1.43	
6318.00	0.670	336.450	6179.21	-341.41	315.63	-1019.32	40°01'45.031"N	104°53'37.207"W	0.30	
6403.00	0.740	341.970	6264.21	-342.40	316.61	-1019.68	40°01'45.041"N	104°53'37.212"W	0.11	
6488.00	0.860	322.500	6349.20	-343.44	317.64	-1020.24	40°01'45.051"N	104°53'37.219"W	0.35	
6573.00	1.090	316.820	6434.19	-344.56	318.73	-1021.18	40°01'45.062"N	104°53'37.231"W	0.29	
6659.00	1.200	316.220	6520.17	-345.84	319.98	-1022.37	40°01'45.074"N	104°53'37.247"W	0.13	
6744.00	1.230	312.050	6605.15	-347.12	321.23	-1023.66	40°01'45.086"N	104°53'37.263"W	0.11	
6829.00	1.220	331.760	6690.13	-348.56	322.64	-1024.77	40°01'45.100"N	104°53'37.277"W	0.49	
6914.00	0.860	321.760	6775.12	-349.88	323.94	-1025.59	40°01'45.113"N	104°53'37.288"W	0.47	
6999.00	0.800	309.830	6860.11	-350.78	324.82	-1026.44	40°01'45.122"N	104°53'37.299"W	0.21	
7042.00	1.320	195.140	6903.10	-350.50	324.54	-1026.80	40°01'45.119"N	104°53'37.304"W	4.20	
7084.00	3.600	182.520	6945.06	-348.72	322.75	-1026.98	40°01'45.101"N	104°53'37.306"W	5.55	
7127.00	6.120	178.520	6987.90	-345.08	319.11	-1026.98	40°01'45.065"N	104°53'37.306"W	5.91	
7169.00	8.340	175.480	7029.57	-339.80	313.83	-1026.69	40°01'45.013"N	104°53'37.302"W	5.36	
7212.00	13.200	175.130	7071.80	-331.78	305.83	-1026.02	40°01'44.934"N	104°53'37.294"W	11.30	
7254.00	18.650	174.020	7112.17	-320.29	294.36	-1024.92	40°01'44.821"N	104°53'37.279"W	13.00	
7297.00	23.510	176.180	7152.28	-304.86	278.96	-1023.63	40°01'44.669"N	104°53'37.263"W	11.44	
7340.00	28.480	180.050	7190.92	-286.03	260.14	-1023.06	40°01'44.483"N	104°53'37.256"W	12.21	
7383.00	32.860	181.480	7227.90	-264.12	238.21	-1023.38	40°01'44.266"N	104°53'37.260"W	10.33	
7425.00	37.640	179.660	7262.19	-239.90	213.98	-1023.59	40°01'44.026"N	104°53'37.262"W	11.65	
7468.00	40.250	178.880	7295.63	-212.88	186.96	-1023.24	40°01'43.759"N	104°53'37.258"W	6.18	

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR AWP
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
7510.00	44.410	176.700	7326.67	-184.61	158.71	-1022.13	40°01'43.480"N	104°53'37.244"W	10.50	
7553.00	48.700	175.740	7356.24	-153.42	127.56	-1020.07	40°01'43.172"N	104°53'37.217"W	10.11	
7595.00	54.500	176.160	7382.31	-120.56	94.74	-1017.75	40°01'42.848"N	104°53'37.187"W	13.83	
7638.00	59.860	175.730	7405.61	-84.47	58.71	-1015.19	40°01'42.492"N	104°53'37.154"W	12.49	
7680.00	64.840	176.680	7425.10	-47.31	21.60	-1012.73	40°01'42.125"N	104°53'37.123"W	12.03	
7723.00	66.860	176.730	7442.69	-8.10	-17.57	-1010.48	40°01'41.738"N	104°53'37.094"W	4.70	
7765.00	72.700	178.100	7457.20	31.29	-56.92	-1008.71	40°01'41.349"N	104°53'37.071"W	14.24	
7808.00	75.920	178.920	7468.83	72.68	-98.30	-1007.64	40°01'40.940"N	104°53'37.057"W	7.71	
7850.00	76.500	177.840	7478.84	113.47	-139.07	-1006.48	40°01'40.537"N	104°53'37.042"W	2.85	
7893.00	81.390	178.030	7487.08	155.66	-181.23	-1004.96	40°01'40.121"N	104°53'37.023"W	11.38	
7957.00†	87.071	178.487	7493.51	219.31	-244.85	-1003.03	40°01'39.492"N	104°53'36.998"W	8.90	7" CASING POINT
7990.00	90.000	178.720	7494.36	252.29	-277.83	-1002.23	40°01'39.166"N	104°53'36.987"W	8.90	
8075.00	89.960	177.830	7494.38	337.29	-362.79	-999.67	40°01'38.327"N	104°53'36.954"W	1.05	
8160.00	90.150	177.300	7494.30	422.28	-447.71	-996.06	40°01'37.487"N	104°53'36.908"W	0.66	
8245.00	89.810	177.320	7494.33	507.26	-532.62	-992.07	40°01'36.648"N	104°53'36.857"W	0.40	
8331.00	88.610	178.330	7495.52	593.24	-618.55	-988.80	40°01'35.799"N	104°53'36.815"W	1.82	
8416.00	90.240	179.480	7496.37	678.23	-703.52	-987.18	40°01'34.959"N	104°53'36.794"W	2.35	
8501.00	90.640	179.550	7495.72	763.21	-788.52	-986.46	40°01'34.119"N	104°53'36.784"W	0.48	
8586.00	90.520	179.020	7494.86	848.20	-873.51	-985.40	40°01'33.280"N	104°53'36.771"W	0.64	
8671.00	91.320	179.280	7493.49	933.19	-958.48	-984.14	40°01'32.440"N	104°53'36.755"W	0.99	
8757.00	89.720	179.660	7492.71	1019.17	-1044.47	-983.34	40°01'31.590"N	104°53'36.744"W	1.91	
8842.00	89.260	179.270	7493.47	1104.15	-1129.47	-982.55	40°01'30.750"N	104°53'36.734"W	0.71	
8927.00	88.820	179.010	7494.89	1189.14	-1214.45	-981.27	40°01'29.910"N	104°53'36.718"W	0.60	
9012.00	90.120	179.530	7495.68	1274.12	-1299.43	-980.19	40°01'29.070"N	104°53'36.704"W	1.65	
9097.00	90.210	179.490	7495.44	1359.11	-1384.43	-979.46	40°01'28.230"N	104°53'36.694"W	0.12	
9182.00	90.730	178.820	7494.74	1444.10	-1469.42	-978.21	40°01'27.391"N	104°53'36.678"W	1.00	
9268.00	90.890	178.450	7493.52	1530.10	-1555.38	-976.16	40°01'26.541"N	104°53'36.652"W	0.47	
9353.00	90.980	178.460	7492.14	1615.08	-1640.34	-973.87	40°01'25.702"N	104°53'36.622"W	0.11	
9438.00	90.700	177.520	7490.89	1700.07	-1725.28	-970.89	40°01'24.862"N	104°53'36.584"W	1.15	
9523.00	90.670	177.460	7489.87	1785.05	-1810.19	-967.17	40°01'24.023"N	104°53'36.536"W	0.08	
9609.00	90.370	177.100	7489.09	1871.02	-1896.09	-963.09	40°01'23.174"N	104°53'36.483"W	0.54	
9694.00	88.820	177.600	7489.69	1956.00	-1980.99	-959.16	40°01'22.335"N	104°53'36.433"W	1.92	
9779.00	88.490	177.460	7491.69	2040.96	-2065.89	-955.49	40°01'21.496"N	104°53'36.386"W	0.42	
9864.00	88.580	177.380	7493.86	2125.92	-2150.78	-951.67	40°01'20.657"N	104°53'36.337"W	0.14	
9949.00	88.670	176.680	7495.90	2210.86	-2235.64	-947.27	40°01'19.819"N	104°53'36.280"W	0.83	
10034.00	88.950	177.460	7497.67	2295.82	-2320.51	-942.92	40°01'18.980"N	104°53'36.224"W	0.97	
10119.00	89.810	178.760	7498.59	2380.81	-2405.45	-940.12	40°01'18.140"N	104°53'36.188"W	1.83	
10204.00	89.590	178.890	7499.03	2465.81	-2490.44	-938.38	40°01'17.301"N	104°53'36.166"W	0.30	
10289.00	89.130	178.780	7499.98	2550.80	-2575.41	-936.65	40°01'16.461"N	104°53'36.143"W	0.56	
10374.00	90.240	179.770	7500.45	2635.79	-2660.40	-935.57	40°01'15.621"N	104°53'36.129"W	1.75	
10459.00	89.810	178.910	7500.41	2720.78	-2745.40	-934.59	40°01'14.781"N	104°53'36.117"W	1.13	
10544.00	90.800	179.430	7499.96	2805.77	-2830.38	-933.36	40°01'13.941"N	104°53'36.101"W	1.32	
10630.00	90.670	178.960	7498.86	2891.76	-2916.37	-932.16	40°01'13.091"N	104°53'36.085"W	0.57	
10715.00	90.700	178.830	7497.84	2976.75	-3001.35	-930.52	40°01'12.252"N	104°53'36.064"W	0.16	
10800.00	90.550	178.020	7496.91	3061.74	-3086.31	-928.18	40°01'11.412"N	104°53'36.034"W	0.97	

# Actual Wellpath Report

HOWARD 2N-33HZR AWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZR (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR 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
10885.00	90.550	179.130	7496.10	3146.74	-3171.28	-926.07	40°01'10.572"N	104°53'36.007"W	1.31	
10971.00	90.700	179.270	7495.16	3232.73	-3257.26	-924.87	40°01'09.723"N	104°53'35.992"W	0.24	
11056.00	90.560	178.250	7494.22	3317.72	-3342.24	-923.03	40°01'08.883"N	104°53'35.968"W	1.21	
11141.00	90.370	178.890	7493.53	3402.72	-3427.21	-920.91	40°01'08.043"N	104°53'35.941"W	0.79	
11226.00	90.030	178.380	7493.24	3487.72	-3512.18	-918.88	40°01'07.203"N	104°53'35.914"W	0.72	
11311.00	89.780	179.440	7493.38	3572.71	-3597.17	-917.26	40°01'06.364"N	104°53'35.894"W	1.28	
11396.00	90.150	180.210	7493.43	3657.69	-3682.16	-917.00	40°01'05.524"N	104°53'35.890"W	1.01	
11482.00	90.090	179.200	7493.25	3743.67	-3768.16	-916.56	40°01'04.674"N	104°53'35.885"W	1.18	
11567.00	89.750	178.430	7493.37	3828.67	-3853.14	-914.80	40°01'03.834"N	104°53'35.862"W	0.99	
11652.00	90.300	178.800	7493.33	3913.67	-3938.12	-912.75	40°01'02.994"N	104°53'35.835"W	0.78	
11737.00	90.800	178.860	7492.52	3998.67	-4023.10	-911.01	40°01'02.154"N	104°53'35.813"W	0.59	
11822.00	91.780	179.740	7490.60	4083.64	-4108.07	-909.97	40°01'01.315"N	104°53'35.800"W	1.55	
11908.00	90.120	178.860	7489.18	4169.61	-4194.04	-908.92	40°01'00.465"N	104°53'35.786"W	2.18	
11993.00	91.140	180.020	7488.24	4254.59	-4279.03	-908.09	40°00'59.625"N	104°53'35.775"W	1.82	
12078.00	89.590	178.730	7487.70	4339.58	-4364.02	-907.17	40°00'58.785"N	104°53'35.764"W	2.37	
12163.00	89.440	178.890	7488.42	4424.57	-4449.00	-905.40	40°00'57.946"N	104°53'35.741"W	0.26	
12248.00	89.000	180.440	7489.58	4509.55	-4533.99	-904.90	40°00'57.106"N	104°53'35.734"W	1.90	
12333.00	90.460	179.990	7489.98	4594.51	-4618.98	-905.22	40°00'56.266"N	104°53'35.738"W	1.80	
12418.00	88.330	178.660	7490.87	4679.49	-4703.97	-904.22	40°00'55.426"N	104°53'35.726"W	2.95	
12503.00	88.740	178.570	7493.05	4764.46	-4788.91	-902.17	40°00'54.586"N	104°53'35.699"W	0.49	
12588.00	88.580	178.430	7495.04	4849.44	-4873.86	-899.94	40°00'53.747"N	104°53'35.670"W	0.25	
12674.00	88.700	178.550	7497.08	4935.41	-4959.81	-897.68	40°00'52.898"N	104°53'35.641"W	0.20	
12747.00	88.580	178.200	7498.81	5008.39	-5032.76	-895.61	40°00'52.177"N	104°53'35.615"W	0.51	LAST BHI MWD SURVEY
12802.00	88.580	178.200	7500.17	5063.37	-5087.71	-893.88	40°00'51.634"N	104°53'35.592"W	0.00	PROJECTION TO BIT

## HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 2N-33HZR AWB Ref Wellpath: HOWARD 2N-33HZR 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	1046.00	1030.00	16.00	1046.00	0.00	0.00	0.88	-1.49
9.625in Casing Surface	16.00	1037.00	1021.00	16.00	1037.00	0.00	0.00	0.88	-1.49
8.75in Open Hole	1043.00	7966.00	6923.00	1043.00	7493.91	0.88	-1.49	-253.84	-1002.80
7in Casing Intermediate	16.00	7957.00	7941.00	16.00	7493.51	0.00	0.00	-244.85	-1003.03
6.125in Open Hole	7966.00	12802.00	4836.00	7493.91	7500.17	-253.84	-1002.80	-5087.71	-893.88

## REFERENCE WELLPATH IDENTIFICATION

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Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR 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 27W-28HZ HARD LINES (460' SETBACKS, SEC. 28)		4999.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ HARD LINES (460' SETBACKS, SEC. 33)		4999.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ SECTION LINES (SEC. 28)		4999.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ SECTION LINES (SEC. 33)		4999.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-1		7495.00	-5113.08	-881.79	3169966.75	1248627.70	40°00'51.383"N	104°53'35.437"W	point
HOWARD 2N-33HZ LANDBOX		7495.00	0.00	0.00	3170813.31	1253746.53	40°01'41.912"N	104°53'24.104"W	polygon
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-2		7499.00	-5113.08	-881.79	3169966.75	1248627.69	40°00'51.383"N	104°53'35.437"W	point
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-3		7501.00	-5113.08	-881.79	3169966.75	1248627.69	40°00'51.383"N	104°53'35.437"W	point

## WELLPATH COMPOSITION - Ref Wellbore: HOWARD 2N-33HZR AWB Ref Wellpath: HOWARD 2N-33HZR AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	974.00	Generic gyro - continuous (Standard)	MS ENERGY SERVICES GYRO SURVEYS <116-974>	HOWARD 2N-33HZR AWB
974.00	7893.00	NaviTrak (MagCorr)	BHI MWD SURVEYS 8 3/4" HOLE <1090-7893>	HOWARD 2N-33HZR AWB
7893.00	12747.00	NaviTrak (MagCorr)	BHI MWD SURVEYS 6 1/8" HOLE <7990-12747>	HOWARD 2N-33HZR AWB
12747.00	12802.00	Blind Drilling (std)	Projection to bit	HOWARD 2N-33HZR AWB

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Area	COLORADO	Well	HOWARD 2N-33HZR
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZR AWB
Facility	SEC.28-T1N-R67W		

### WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
16.00	0.000	30.150	16.00	TIE ON
116.00	0.170	30.150	116.00	BEGIN GYRO SURVEYS
974.00	0.110	204.680	974.00	TIE ONTO GYROS
1090.00	0.070	60.810	1090.00	BEGIN BHI MWD SURVEYS
7957.00	87.071	178.487	7493.51	7" CASING POINT
12747.00	88.580	178.200	7498.81	LAST BHI MWD SURVEY
12802.00	88.580	178.200	7500.17	PROJECTION TO BIT