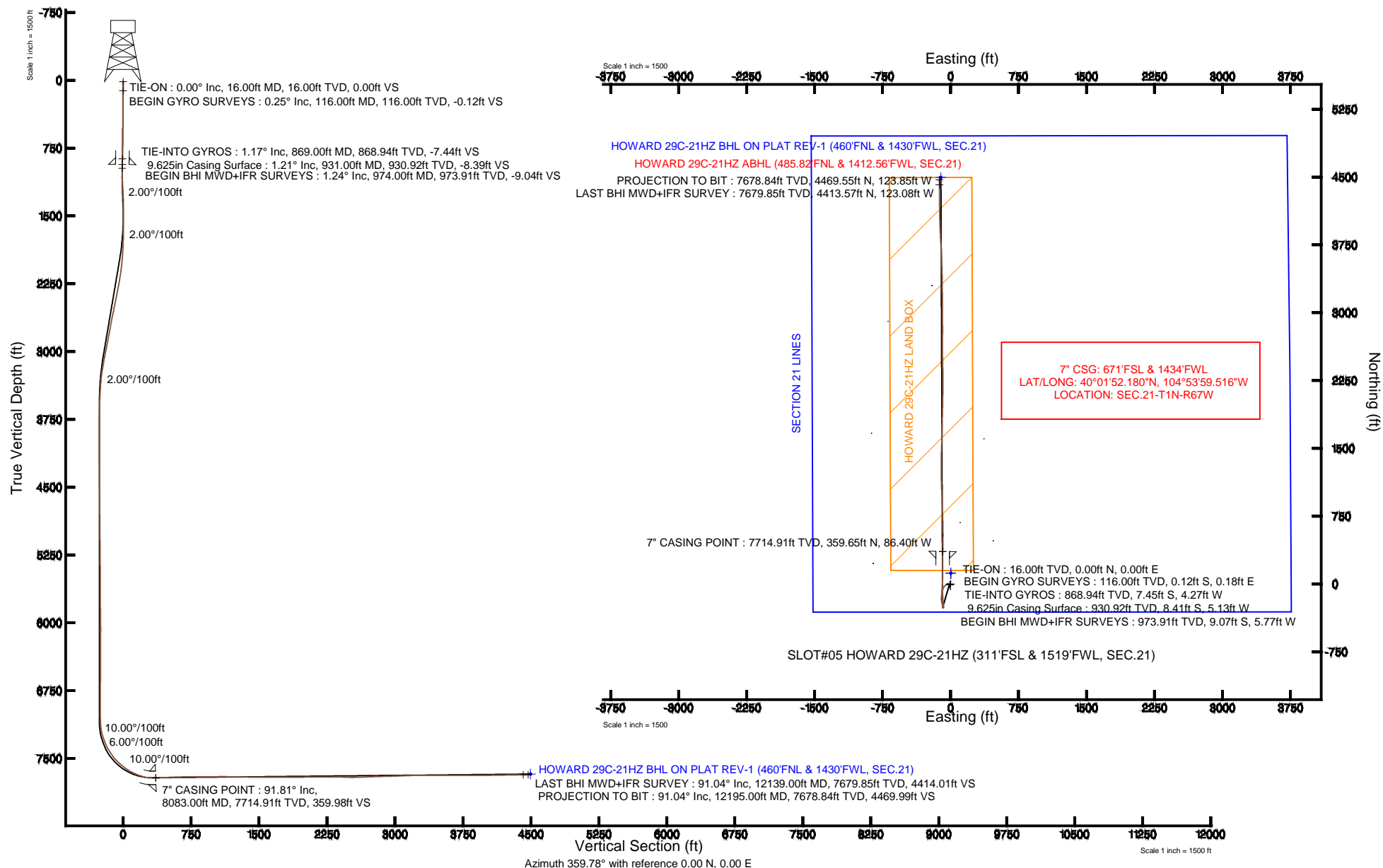


KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
 Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 29C-21HZ
 Facility: SEC.21-T1N-R67W Wellbore: HOWARD 29C-21HZ PWB

Plot reference wellpath is HOWARD 29C-21HZ (REV-B.0) PWP

True vertical depths are referenced to XTREME 6 (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to XTREME 6 (RKB)	North Reference: True north
XTREME 6 (RKB) to Mean Sea Level: 5041 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot.	Created by: wilsjef02 on 1/6/2014





Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-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	0.999964	Report Generated	1/6/2014 at 07:56:02
Convergence at slot	n/a	Database/Source file	WellArchitectDB/HOWARD_29C-21HZ_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-120.01	-2.26	3168140.57	1254407.67	40°01'48.626"N	104°53'58.405"W
Facility Reference Pt			3168142.01	1254527.69	40°01'49.812"N	104°53'58.376"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 (RKB) to Facility Vertical Datum	5041.00ft
Horizontal Reference Pt	Slot	XTREME 6 (RKB) to Mean Sea Level	5041.00ft
Vertical Reference Pt	XTREME 6 (RKB)	XTREME 6 (RKB) to Mud Line at Slot (SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21))	5041.00ft
MD Reference Pt	XTREME 6 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	358.41°



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-T1N-R67W		

WELLPATH DATA (157 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	123.020	0.00	0.00	0.00	0.00	40°01'48.626"N	104°53'58.405"W	0.00	
16.00	0.000	123.020	16.00	0.00	0.00	0.00	40°01'48.626"N	104°53'58.405"W	0.00	TIE-ON
116.00	0.250	123.020	116.00	-0.12	-0.12	0.18	40°01'48.625"N	104°53'58.403"W	0.25	BEGIN GYRO SURVEYS
216.00	0.210	200.840	216.00	-0.42	-0.41	0.30	40°01'48.622"N	104°53'58.401"W	0.29	
316.00	0.480	219.190	316.00	-0.90	-0.90	-0.03	40°01'48.617"N	104°53'58.405"W	0.29	
416.00	0.470	182.970	415.99	-1.63	-1.64	-0.32	40°01'48.610"N	104°53'58.409"W	0.30	
516.00	0.810	209.210	515.99	-2.65	-2.67	-0.68	40°01'48.600"N	104°53'58.414"W	0.44	
616.00	0.850	223.280	615.98	-3.78	-3.82	-1.53	40°01'48.588"N	104°53'58.425"W	0.21	
716.00	0.990	208.790	715.96	-5.05	-5.12	-2.46	40°01'48.575"N	104°53'58.437"W	0.27	
816.00	1.170	221.690	815.95	-6.54	-6.64	-3.55	40°01'48.560"N	104°53'58.451"W	0.30	
869.00	1.170	220.920	868.94	-7.33	-7.45	-4.27	40°01'48.552"N	104°53'58.460"W	0.03	TIE-INTO GYROS
974.00	1.240	224.990	973.91	-8.90	-9.07	-5.77	40°01'48.536"N	104°53'58.479"W	0.11	BEGIN BHI MWD+IFR SURVEYS
1065.00	1.410	309.820	1064.90	-8.84	-9.05	-7.33	40°01'48.537"N	104°53'58.499"W	1.97	
1157.00	3.350	343.150	1156.82	-5.50	-5.75	-8.98	40°01'48.569"N	104°53'58.520"W	2.51	
1248.00	3.620	345.730	1247.65	-0.13	-0.42	-10.46	40°01'48.622"N	104°53'58.539"W	0.34	
1339.00	2.220	312.220	1338.53	3.89	3.55	-12.47	40°01'48.661"N	104°53'58.565"W	2.36	
1431.00	2.920	262.740	1430.45	4.90	4.45	-16.12	40°01'48.670"N	104°53'58.612"W	2.44	
1526.00	3.080	267.040	1525.32	4.60	4.01	-21.07	40°01'48.666"N	104°53'58.676"W	0.29	
1617.00	2.250	267.040	1616.22	4.49	3.80	-25.29	40°01'48.664"N	104°53'58.730"W	0.91	
1709.00	2.990	258.980	1708.12	4.06	3.24	-29.45	40°01'48.658"N	104°53'58.784"W	0.90	
1801.00	4.800	247.260	1799.91	2.28	1.30	-35.36	40°01'48.639"N	104°53'58.860"W	2.14	
1893.00	7.010	238.720	1891.42	-1.89	-3.11	-43.70	40°01'48.595"N	104°53'58.967"W	2.58	
1978.00	8.140	230.590	1975.68	-8.15	-9.62	-52.79	40°01'48.531"N	104°53'59.084"W	1.83	
2063.00	8.800	221.160	2059.75	-16.62	-18.34	-61.72	40°01'48.445"N	104°53'59.198"W	1.81	
2149.00	10.470	218.870	2144.54	-27.40	-29.37	-70.95	40°01'48.336"N	104°53'59.317"W	1.99	
2234.00	11.060	208.200	2228.05	-40.35	-42.57	-79.65	40°01'48.205"N	104°53'59.429"W	2.44	
2319.00	11.660	195.480	2311.40	-55.64	-58.04	-85.80	40°01'48.052"N	104°53'59.508"W	3.02	
2401.00	11.150	185.310	2391.79	-71.43	-73.92	-88.74	40°01'47.895"N	104°53'59.546"W	2.53	
2486.00	11.710	177.010	2475.11	-88.22	-90.72	-89.05	40°01'47.729"N	104°53'59.550"W	2.04	
2571.00	11.500	176.540	2558.37	-105.31	-107.79	-88.09	40°01'47.561"N	104°53'59.537"W	0.27	
2657.00	11.020	175.920	2642.71	-122.09	-124.55	-86.99	40°01'47.395"N	104°53'59.523"W	0.58	
2742.00	10.030	175.030	2726.28	-137.60	-140.02	-85.77	40°01'47.242"N	104°53'59.508"W	1.18	
2827.00	11.130	178.790	2809.84	-153.19	-155.60	-84.96	40°01'47.088"N	104°53'59.497"W	1.53	
2912.00	10.400	176.100	2893.34	-169.06	-171.46	-84.26	40°01'46.932"N	104°53'59.488"W	1.04	
2997.00	11.520	178.830	2976.79	-185.21	-187.60	-83.57	40°01'46.772"N	104°53'59.479"W	1.45	
3082.00	11.030	177.680	3060.15	-201.83	-204.21	-83.06	40°01'46.608"N	104°53'59.473"W	0.63	
3167.00	9.710	175.770	3143.76	-217.12	-219.48	-82.21	40°01'46.457"N	104°53'59.462"W	1.60	
3253.00	8.250	173.120	3228.70	-230.51	-232.84	-80.93	40°01'46.325"N	104°53'59.445"W	1.76	
3336.00	5.630	167.390	3311.09	-240.44	-242.73	-79.33	40°01'46.227"N	104°53'59.425"W	3.26	
3421.00	4.060	172.680	3395.78	-247.53	-249.78	-78.04	40°01'46.158"N	104°53'59.408"W	1.92	
3506.00	2.970	172.410	3480.62	-252.71	-254.95	-77.36	40°01'46.106"N	104°53'59.399"W	1.28	
3591.00	2.350	175.380	3565.53	-256.64	-258.87	-76.93	40°01'46.068"N	104°53'59.394"W	0.75	
3676.00	1.360	184.410	3650.48	-259.38	-261.61	-76.87	40°01'46.041"N	104°53'59.393"W	1.21	
3761.00	0.650	171.740	3735.47	-260.87	-263.10	-76.88	40°01'46.026"N	104°53'59.393"W	0.87	
3846.00	0.610	265.280	3820.47	-261.37	-263.61	-77.26	40°01'46.021"N	104°53'59.398"W	1.08	



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-T1N-R67W		

WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3931.00	0.700	267.710	3905.46	-261.40	-263.67	-78.23	40°01'46.020"N	104°53'59.411"W	0.11	
4017.00	0.810	276.480	3991.45	-261.32	-263.62	-79.36	40°01'46.021"N	104°53'59.425"W	0.19	
4102.00	0.670	280.280	4076.45	-261.14	-263.47	-80.44	40°01'46.022"N	104°53'59.439"W	0.17	
4187.00	0.860	292.920	4161.44	-260.77	-263.13	-81.52	40°01'46.026"N	104°53'59.453"W	0.30	
4272.00	1.060	295.520	4246.43	-260.15	-262.54	-82.82	40°01'46.031"N	104°53'59.470"W	0.24	
4357.00	1.410	298.390	4331.41	-259.27	-261.71	-84.44	40°01'46.040"N	104°53'59.491"W	0.42	
4443.00	1.620	287.330	4417.38	-258.34	-260.84	-86.54	40°01'46.048"N	104°53'59.517"W	0.42	
4528.00	0.440	318.610	4502.36	-257.70	-260.24	-87.90	40°01'46.054"N	104°53'59.535"W	1.49	
4613.00	0.460	330.310	4587.36	-257.15	-259.70	-88.28	40°01'46.060"N	104°53'59.540"W	0.11	
4698.00	0.570	21.120	4672.36	-256.46	-259.00	-88.30	40°01'46.066"N	104°53'59.540"W	0.53	
4783.00	0.650	24.060	4757.35	-255.64	-258.17	-87.95	40°01'46.075"N	104°53'59.536"W	0.10	
4868.00	0.760	28.310	4842.35	-254.71	-257.23	-87.49	40°01'46.084"N	104°53'59.530"W	0.14	
4953.00	0.590	39.100	4927.34	-253.89	-256.40	-86.94	40°01'46.092"N	104°53'59.523"W	0.25	
5038.00	0.630	42.990	5012.33	-253.23	-255.72	-86.35	40°01'46.099"N	104°53'59.515"W	0.07	
5124.00	0.770	41.380	5098.33	-252.47	-254.94	-85.64	40°01'46.107"N	104°53'59.506"W	0.16	
5209.00	1.030	28.860	5183.32	-251.39	-253.84	-84.90	40°01'46.117"N	104°53'59.496"W	0.38	
5294.00	0.240	333.460	5268.31	-250.57	-253.01	-84.61	40°01'46.126"N	104°53'59.493"W	1.08	
5379.00	0.520	298.700	5353.31	-250.21	-252.67	-85.03	40°01'46.129"N	104°53'59.498"W	0.41	
5464.00	0.380	329.820	5438.31	-249.77	-252.24	-85.51	40°01'46.133"N	104°53'59.504"W	0.33	
5549.00	0.060	91.730	5523.31	-249.53	-252.00	-85.60	40°01'46.136"N	104°53'59.505"W	0.49	
5634.00	0.090	333.600	5608.31	-249.47	-251.94	-85.59	40°01'46.136"N	104°53'59.505"W	0.15	
5719.00	0.490	351.770	5693.31	-249.05	-251.52	-85.67	40°01'46.140"N	104°53'59.506"W	0.48	
5804.00	0.550	347.310	5778.30	-248.29	-250.76	-85.81	40°01'46.148"N	104°53'59.508"W	0.09	
5889.00	0.560	343.250	5863.30	-247.49	-249.96	-86.02	40°01'46.156"N	104°53'59.511"W	0.05	
5974.00	0.800	342.050	5948.29	-246.51	-249.00	-86.33	40°01'46.165"N	104°53'59.515"W	0.28	
6060.00	0.810	2.940	6034.28	-245.33	-247.82	-86.48	40°01'46.177"N	104°53'59.517"W	0.34	
6145.00	1.150	140.940	6119.28	-245.41	-247.89	-85.91	40°01'46.176"N	104°53'59.509"W	2.16	
6229.00	0.950	126.050	6203.26	-246.51	-248.95	-84.82	40°01'46.166"N	104°53'59.495"W	0.40	
6315.00	0.480	93.270	6289.26	-246.97	-249.39	-83.88	40°01'46.161"N	104°53'59.483"W	0.70	
6400.00	0.210	1.190	6374.26	-246.85	-249.25	-83.52	40°01'46.163"N	104°53'59.479"W	0.62	
6485.00	0.620	353.490	6459.25	-246.23	-248.64	-83.57	40°01'46.169"N	104°53'59.479"W	0.49	
6570.00	0.830	153.110	6544.25	-246.33	-248.73	-83.34	40°01'46.168"N	104°53'59.476"W	1.68	
6655.00	0.730	152.780	6629.24	-247.37	-249.76	-82.82	40°01'46.158"N	104°53'59.470"W	0.12	
6739.00	0.860	143.770	6713.24	-248.38	-250.75	-82.20	40°01'46.148"N	104°53'59.462"W	0.21	
6825.00	1.230	130.770	6799.22	-249.53	-251.87	-81.12	40°01'46.137"N	104°53'59.448"W	0.51	
6910.00	0.380	84.060	6884.21	-250.12	-252.44	-80.15	40°01'46.131"N	104°53'59.435"W	1.19	
6995.00	0.680	1.590	6969.21	-249.60	-251.91	-79.85	40°01'46.137"N	104°53'59.432"W	0.86	
7080.00	1.350	340.150	7054.20	-248.14	-250.46	-80.18	40°01'46.151"N	104°53'59.436"W	0.89	
7165.00	3.560	335.780	7139.11	-244.76	-247.11	-81.60	40°01'46.184"N	104°53'59.454"W	2.61	
7208.00	9.900	336.980	7181.80	-240.08	-242.49	-83.60	40°01'46.230"N	104°53'59.480"W	14.75	
7250.00	16.140	337.560	7222.70	-231.25	-233.76	-87.24	40°01'46.316"N	104°53'59.527"W	14.86	
7293.00	19.930	340.890	7263.58	-218.67	-221.31	-91.93	40°01'46.439"N	104°53'59.587"W	9.13	
7336.00	20.290	342.660	7303.96	-204.51	-207.26	-96.55	40°01'46.578"N	104°53'59.646"W	1.64	
7378.00	23.610	351.590	7342.92	-189.14	-191.98	-99.95	40°01'46.729"N	104°53'59.690"W	11.19	
7421.00	28.400	358.250	7381.56	-170.35	-173.23	-101.52	40°01'46.914"N	104°53'59.710"W	13.03	



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-T1N-R67W		

WELLPATH DATA (157 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7463.00	32.560	4.170	7417.76	-149.10	-151.96	-101.00	40°01'47.124"N	104°53'59.703"W	12.21	
7506.00	33.940	4.970	7453.72	-125.66	-128.46	-99.12	40°01'47.357"N	104°53'59.679"W	3.37	
7548.00	38.320	4.210	7487.63	-101.05	-103.78	-97.15	40°01'47.600"N	104°53'59.654"W	10.48	
7591.00	44.620	3.770	7519.83	-72.72	-75.39	-95.18	40°01'47.881"N	104°53'59.629"W	14.67	
7633.00	46.730	3.500	7549.18	-42.80	-45.40	-93.27	40°01'48.177"N	104°53'59.604"W	5.04	
7676.00	50.430	2.770	7577.62	-10.67	-13.21	-91.52	40°01'48.495"N	104°53'59.581"W	8.70	
7718.00	53.160	3.430	7603.60	22.22	19.74	-89.73	40°01'48.821"N	104°53'59.558"W	6.62	
7761.00	56.840	2.660	7628.26	57.32	54.91	-87.86	40°01'49.169"N	104°53'59.535"W	8.68	
7804.00	62.950	1.110	7649.81	94.43	92.07	-86.66	40°01'49.536"N	104°53'59.519"W	14.55	
7846.00	66.620	359.730	7667.70	132.40	130.06	-86.38	40°01'49.911"N	104°53'59.515"W	9.23	
7889.00	69.600	0.260	7683.73	172.28	169.95	-86.39	40°01'50.306"N	104°53'59.516"W	7.02	
7931.00	72.000	359.140	7697.55	211.93	209.61	-86.60	40°01'50.697"N	104°53'59.518"W	6.24	
7974.00	78.140	359.320	7708.62	253.45	251.14	-87.15	40°01'51.108"N	104°53'59.525"W	14.28	
8017.00	85.930	0.440	7714.57	295.99	293.69	-87.24	40°01'51.528"N	104°53'59.526"W	18.30	
8041.00	89.440	0.760	7715.54	319.95	317.66	-86.99	40°01'51.765"N	104°53'59.523"W	14.69	
8065.00	91.260	0.760	7715.40	343.93	341.66	-86.67	40°01'52.002"N	104°53'59.519"W	7.58	
8083.00†	91.815	0.920	7714.91	361.91	359.65	-86.40	40°01'52.180"N	104°53'59.516"W	3.21	7" CASING POINT
8102.00	92.400	1.090	7714.21	380.87	378.64	-86.07	40°01'52.368"N	104°53'59.511"W	3.21	
8187.00	93.110	1.340	7710.13	465.67	463.52	-84.27	40°01'53.207"N	104°53'59.488"W	0.89	
8270.00	92.190	359.940	7706.29	548.52	546.42	-83.35	40°01'54.026"N	104°53'59.476"W	2.02	
8355.00	91.480	358.720	7703.57	633.46	631.37	-84.34	40°01'54.865"N	104°53'59.489"W	1.66	
8440.00	90.250	358.520	7702.29	718.45	716.33	-86.39	40°01'55.705"N	104°53'59.516"W	1.47	
8525.00	89.970	357.690	7702.12	803.45	801.29	-89.20	40°01'56.545"N	104°53'59.552"W	1.03	
8610.00	90.890	357.640	7701.49	888.44	886.21	-92.66	40°01'57.384"N	104°53'59.596"W	1.08	
8696.00	89.720	358.090	7701.03	974.43	972.15	-95.86	40°01'58.233"N	104°53'59.637"W	1.46	
8781.00	90.500	357.890	7700.86	1059.43	1057.10	-98.84	40°01'59.073"N	104°53'59.676"W	0.95	
8866.00	89.540	359.090	7700.83	1144.43	1142.06	-101.08	40°01'59.912"N	104°53'59.705"W	1.81	
8952.00	88.300	359.260	7702.46	1230.40	1228.04	-102.32	40°02'00.762"N	104°53'59.720"W	1.46	
9037.00	88.850	0.630	7704.57	1315.34	1313.01	-102.40	40°02'01.602"N	104°53'59.722"W	1.74	
9122.00	89.220	359.980	7706.00	1400.28	1398.00	-101.95	40°02'02.441"N	104°53'59.716"W	0.88	
9207.00	89.190	2.090	7707.18	1485.18	1482.97	-100.42	40°02'03.281"N	104°53'59.696"W	2.48	
9293.00	89.900	1.340	7707.86	1571.03	1568.93	-97.84	40°02'04.131"N	104°53'59.663"W	1.20	
9378.00	90.520	1.390	7707.55	1655.92	1653.90	-95.82	40°02'04.970"N	104°53'59.637"W	0.73	
9464.00	90.390	1.790	7706.87	1741.79	1739.87	-93.43	40°02'05.820"N	104°53'59.606"W	0.49	
9549.00	89.320	1.160	7707.08	1826.66	1824.84	-91.24	40°02'06.660"N	104°53'59.578"W	1.46	
9634.00	90.460	1.460	7707.25	1911.55	1909.81	-89.30	40°02'07.499"N	104°53'59.553"W	1.39	
9719.00	91.070	0.800	7706.11	1996.45	1994.79	-87.62	40°02'08.339"N	104°53'59.532"W	1.06	
9805.00	90.180	1.380	7705.17	2082.35	2080.76	-85.99	40°02'09.189"N	104°53'59.511"W	1.24	
9889.00	90.580	0.040	7704.62	2166.28	2164.75	-84.95	40°02'10.019"N	104°53'59.497"W	1.66	
9974.00	90.400	0.110	7703.89	2251.24	2249.75	-84.84	40°02'10.859"N	104°53'59.496"W	0.23	
10060.00	90.120	359.220	7703.50	2337.21	2335.75	-85.34	40°02'11.708"N	104°53'59.502"W	1.08	
10145.00	86.970	358.900	7705.66	2422.17	2420.70	-86.73	40°02'12.548"N	104°53'59.520"W	3.72	
10230.00	89.100	358.840	7708.57	2507.11	2505.63	-88.41	40°02'13.387"N	104°53'59.542"W	2.51	
10315.00	92.000	359.860	7707.76	2592.09	2590.61	-89.37	40°02'14.227"N	104°53'59.554"W	3.62	
10401.00	92.430	0.510	7704.43	2677.98	2676.54	-89.10	40°02'15.076"N	104°53'59.550"W	0.91	



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWP
Facility	SEC.21-T1N-R67W		

WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10485.00	92.030	0.470	7701.16	2761.86	2760.47	-88.38	40°02'15.906"N	104°53'59.541"W	0.48	
10570.00	91.170	359.660	7698.79	2846.79	2845.44	-88.28	40°02'16.745"N	104°53'59.540"W	1.39	
10655.00	91.610	359.200	7696.73	2931.75	2930.41	-89.13	40°02'17.585"N	104°53'59.551"W	0.75	
10741.00	91.970	359.620	7694.04	3017.70	3016.36	-90.01	40°02'18.435"N	104°53'59.562"W	0.64	
10825.00	92.240	359.550	7690.96	3101.62	3100.30	-90.62	40°02'19.264"N	104°53'59.570"W	0.33	
10911.00	91.320	0.100	7688.29	3187.56	3186.26	-90.88	40°02'20.113"N	104°53'59.573"W	1.25	
10996.00	90.270	359.330	7687.11	3272.52	3271.25	-91.30	40°02'20.953"N	104°53'59.579"W	1.53	
11081.00	90.640	359.500	7686.43	3357.51	3356.24	-92.17	40°02'21.793"N	104°53'59.590"W	0.48	
11166.00	89.470	358.230	7686.35	3442.50	3441.22	-93.86	40°02'22.633"N	104°53'59.612"W	2.03	
11251.00	90.060	358.420	7686.70	3527.50	3526.19	-96.34	40°02'23.473"N	104°53'59.644"W	0.73	
11336.00	89.780	357.420	7686.82	3612.50	3611.13	-99.43	40°02'24.312"N	104°53'59.683"W	1.22	
11421.00	89.470	356.650	7687.37	3697.47	3696.01	-103.82	40°02'25.151"N	104°53'59.740"W	0.98	
11506.00	90.030	356.640	7687.74	3782.43	3780.87	-108.80	40°02'25.990"N	104°53'59.804"W	0.66	
11591.00	90.430	357.800	7687.40	3867.41	3865.76	-112.92	40°02'26.828"N	104°53'59.857"W	1.44	
11676.00	90.150	357.820	7686.97	3952.40	3950.70	-116.17	40°02'27.668"N	104°53'59.899"W	0.33	
11761.00	90.890	358.620	7686.20	4037.40	4035.65	-118.81	40°02'28.507"N	104°53'59.933"W	1.28	
11846.00	90.580	359.200	7685.11	4122.39	4120.63	-120.42	40°02'29.347"N	104°53'59.953"W	0.77	
11931.00	91.320	359.320	7683.70	4207.36	4205.61	-121.52	40°02'30.187"N	104°53'59.967"W	0.88	
12017.00	90.770	359.600	7682.13	4293.33	4291.59	-122.33	40°02'31.037"N	104°53'59.978"W	0.72	
12102.00	91.290	359.820	7680.61	4378.30	4376.58	-122.76	40°02'31.876"N	104°53'59.983"W	0.66	
12139.00	91.040	359.210	7679.85	4415.28	4413.57	-123.08	40°02'32.242"N	104°53'59.987"W	1.78	LAST BHI MWD+IFR SURVEY
12195.00	91.040	359.210	7678.84	4471.27	4469.55	-123.85	40°02'32.795"N	104°54'00.000"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 29C-21HZ AWP Ref Wellpath: HOWARD 29C-21HZ 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	931.00	915.00	16.00	930.92	0.00	0.00	-8.41	-5.13
9.625in Casing Surface	16.00	931.00	915.00	16.00	930.92	0.00	0.00	-8.41	-5.13
8.75in Open Hole	931.00	8086.00	7155.00	930.92	7714.82	-8.41	-5.13	362.65	-86.36
7in Casing Intermediate	16.00	8083.00	8067.00	16.00	7714.91	0.00	0.00	359.65	-86.40
6.125in Open Hole	8083.00	12195.00	4112.00	7714.91	7678.84	359.65	-86.40	4469.55	-123.85



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#05 HOWARD 29C-21HZ (311'FSL & 1519'FWL, SEC.21)
Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-T1N-R67W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 21 LINES		0.00	119.91	2.26	3168142.01	1254527.59	40°01'49.811"N	104°53'58.376"W	polygon
HOWARD 29N-21HZ/29C-21HZ LAND BOX		7400.00	119.91	2.26	3168142.01	1254527.59	40°01'49.811"N	104°53'58.376"W	polygon
HOWARD 29C-21HZ BHL ON PLAT REV-1 (460'FNL & 1430'FWL, SEC.21)		7672.00	4495.37	-106.41	3168003.72	1258902.05	40°02'33.050"N	104°53'59.773"W	point

WELLPATH COMPOSITION - Ref Wellbore: HOWARD 29C-21HZ AWB Ref Wellpath: HOWARD 29C-21HZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
16.00	869.00	Generic gyro - continuous (Standard)	MS ENERGY GYRODATA SURVEYS <116-869>	HOWARD 29C-21HZ AWB
869.00	8041.00	NaviTrak (IFR)	BHI MWD+IFR SURVEYS 8 3/4" HOLE <974-8041>	HOWARD 29C-21HZ AWB
8041.00	12139.00	NaviTrak (IFR)	BHI MWD+IFR SURVEYS 6 1/8" HOLE <8065-12139>	HOWARD 29C-21HZ AWB
12139.00	12195.00	Blind Drilling (std)	Projection to bit	HOWARD 29C-21HZ AWB



Actual Wellpath Report

HOWARD 29C-21HZ AWP

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REFERENCE WELLPATH IDENTIFICATION

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Area	COLORADO	Well	HOWARD 29C-21HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 29C-21HZ AWB
Facility	SEC.21-T1N-R67W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
16.00	0.000	123.020	16.00	TIE-ON
116.00	0.250	123.020	116.00	BEGIN GYRO SURVEYS
869.00	1.170	220.920	868.94	TIE-INTO GYROS
974.00	1.240	224.990	973.91	BEGIN BHI MWD+IFR SURVEYS
8083.00	91.815	0.920	7714.91	7" CASING POINT
12139.00	91.040	359.210	7679.85	LAST BHI MWD+IFR SURVEY
12195.00	91.040	359.210	7678.84	PROJECTION TO BIT