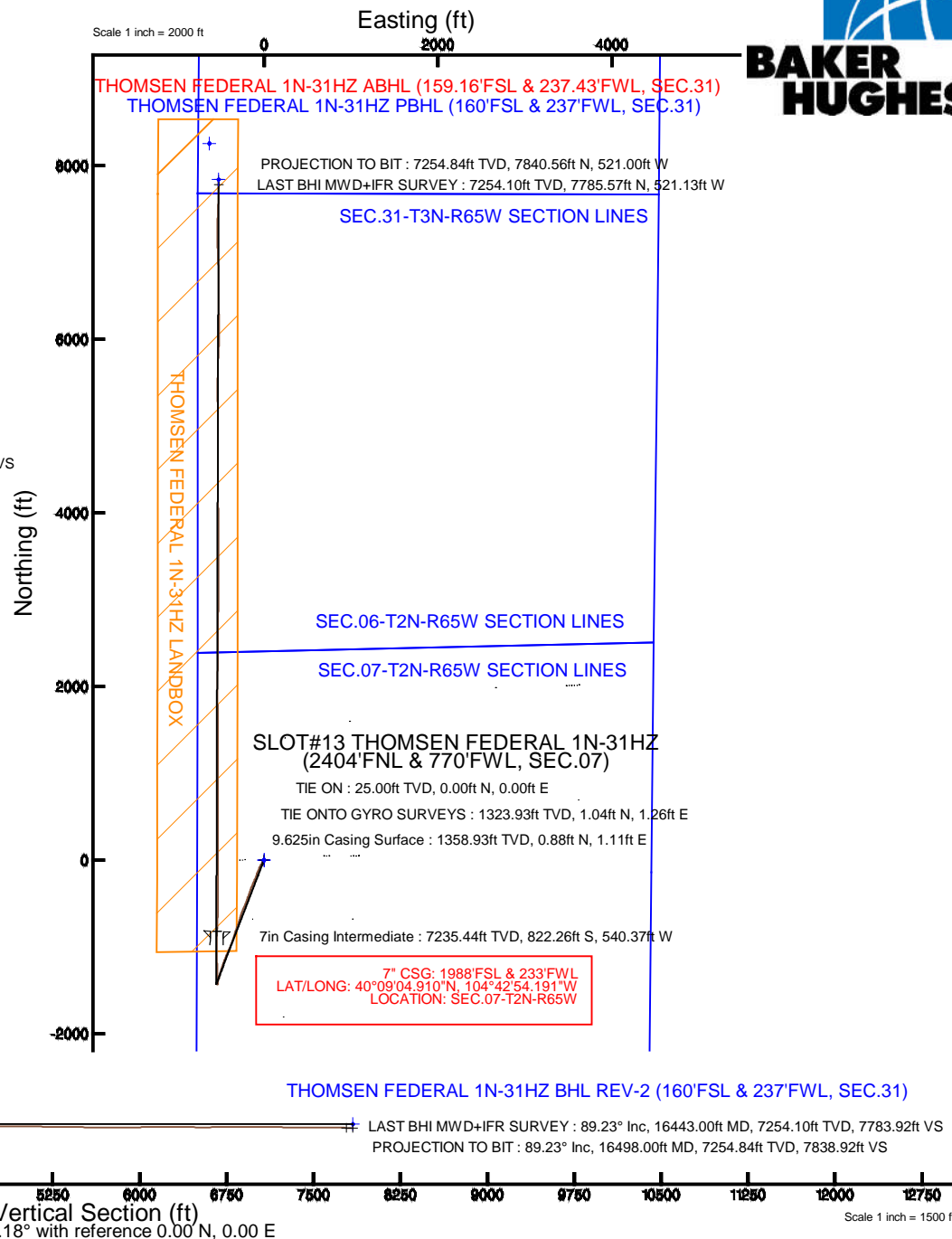
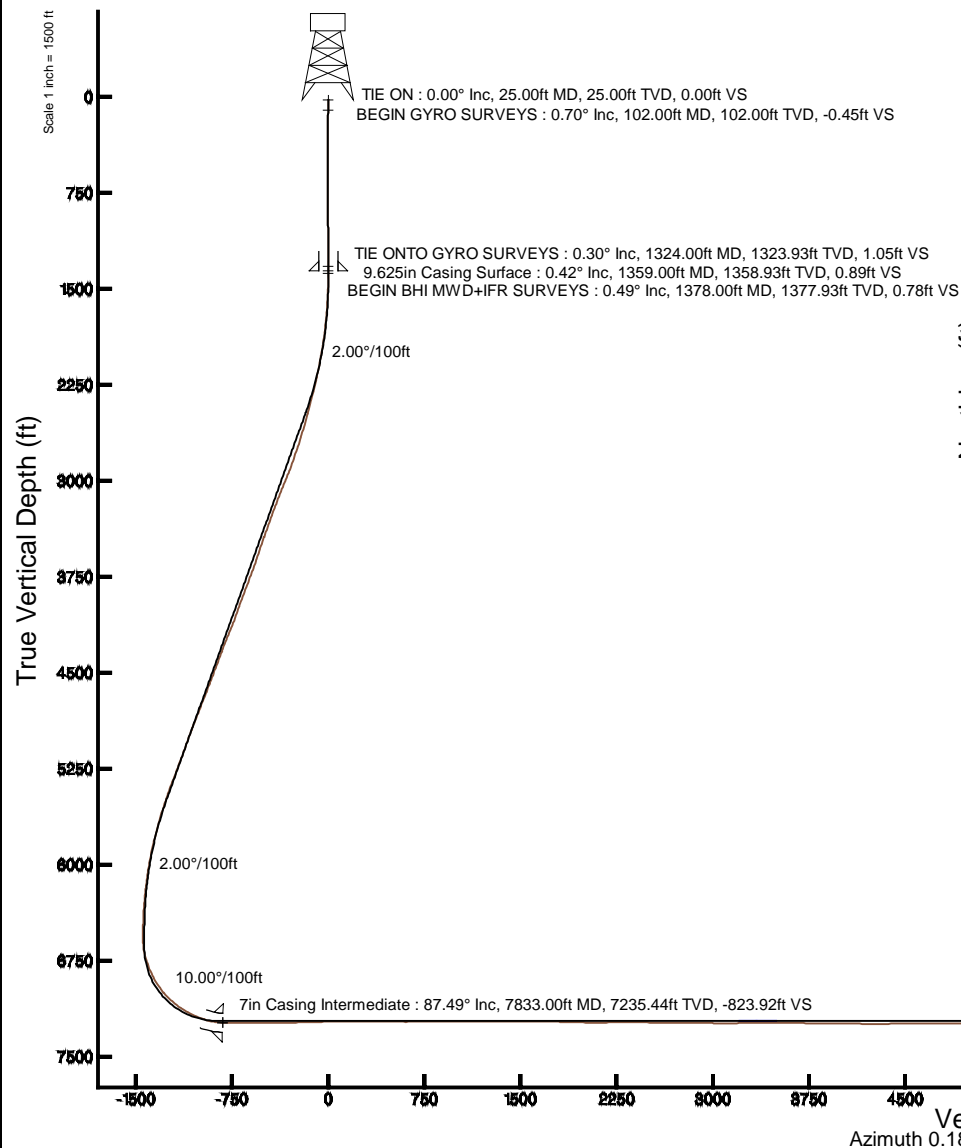


KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)

Location: COLORADO Slot: SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
 Field: WELD COUNTY (KERR MCGEE) Well: THOMSEN FEDERAL 1N-31HZ
 Facility: SEC.07-T2N-R65W Wellbore: THOMSEN FEDERAL 1N-31HZ PWB

Plot reference wellpath is THOMSEN FEDERAL 1N-31HZ (REV-A.0) PWP

True vertical depths are referenced to H&P 307 (25KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to H&P 307 (25KB) (RKB)	North Reference: True north
H&P 307 (25KB) (RKB) to Mean Sea Level: 4972 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: robiale01 on 2/2/2015



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
Facility	SEC.07-T2N-R65W		

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	0.999958	Report Generated	2/2/2015 at 9:11:28 AM
Convergence at slot	n/a	Database/Source file	WellArchitectDB/THOMSEN_FEDERAL_1N-31HZ_AWB_102-16498_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	2291.12	246.84	3219947.79	1299783.36	40°09'13.036"N	104°42'47.232"W
Facility Reference Pt			3219721.27	1297490.24	40°08'50.395"N	104°42'50.411"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	H&P 307 (25'KB) (RKB) to Facility Vertical Datum	4972.00ft
Horizontal Reference Pt	Slot	H&P 307 (25'KB) (RKB) to Mean Sea Level	4972.00ft
Vertical Reference Pt	H&P 307 (25'KB) (RKB)	H&P 307 (25'KB) (RKB) to Mud Line at Slot (SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07))	4972.00ft
MD Reference Pt	H&P 307 (25'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	356.20°

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWP <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (193 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	197.400	0.00	0.00	0.00	0.00	40°09'13.036"N	104°42'47.232"W	0.00	
25.00	0.000	197.400	25.00	0.00	0.00	0.00	40°09'13.036"N	104°42'47.232"W	0.00	TIE ON
102.00	0.700	197.400	102.00	-0.44	-0.45	-0.14	40°09'13.032"N	104°42'47.234"W	0.91	BEGIN GYRO SURVEYS
182.00	0.700	177.600	181.99	-1.38	-1.40	-0.27	40°09'13.022"N	104°42'47.235"W	0.30	
271.00	0.800	183.000	270.98	-2.54	-2.57	-0.28	40°09'13.011"N	104°42'47.236"W	0.14	
351.00	0.900	205.900	350.98	-3.64	-3.69	-0.58	40°09'13.000"N	104°42'47.239"W	0.44	
431.00	0.400	214.700	430.97	-4.41	-4.48	-1.01	40°09'12.992"N	104°42'47.245"W	0.64	
511.00	0.700	44.400	510.97	-4.30	-4.37	-0.83	40°09'12.993"N	104°42'47.243"W	1.37	
591.00	0.010	220.600	590.97	-3.98	-4.02	-0.49	40°09'12.996"N	104°42'47.238"W	0.89	
671.00	0.300	143.600	670.97	-4.16	-4.20	-0.37	40°09'12.995"N	104°42'47.237"W	0.37	
751.00	0.600	19.800	750.97	-3.95	-3.97	-0.11	40°09'12.997"N	104°42'47.233"W	1.01	
831.00	0.800	20.100	830.96	-3.06	-3.05	0.23	40°09'13.006"N	104°42'47.229"W	0.25	
911.00	0.700	28.000	910.95	-2.13	-2.10	0.65	40°09'13.015"N	104°42'47.224"W	0.18	
991.00	0.700	18.200	990.95	-1.27	-1.20	1.03	40°09'13.024"N	104°42'47.219"W	0.15	
1071.00	0.500	17.500	1070.94	-0.49	-0.40	1.29	40°09'13.032"N	104°42'47.215"W	0.25	
1151.00	0.800	12.400	1150.94	0.37	0.48	1.51	40°09'13.041"N	104°42'47.213"W	0.38	
1231.00	0.200	313.700	1230.93	1.01	1.12	1.53	40°09'13.047"N	104°42'47.212"W	0.90	
1324.00	0.300	219.500	1323.93	0.96	1.04	1.26	40°09'13.046"N	104°42'47.216"W	0.40	TIE ONTO GYRO SURVEYS
1378.00	0.490	228.540	1377.93	0.71	0.78	1.00	40°09'13.044"N	104°42'47.219"W	0.37	BEGIN BHI MWD+IFR SURVEYS
1471.00	1.260	208.300	1470.92	-0.40	-0.38	0.21	40°09'13.032"N	104°42'47.229"W	0.88	
1564.00	3.400	212.150	1563.84	-3.50	-3.62	-1.74	40°09'13.000"N	104°42'47.254"W	2.31	
1657.00	5.610	215.830	1656.55	-9.23	-9.64	-5.87	40°09'12.941"N	104°42'47.308"W	2.40	
1750.00	6.670	213.910	1749.01	-17.00	-17.81	-11.54	40°09'12.860"N	104°42'47.381"W	1.16	
1843.00	8.380	214.570	1841.21	-26.59	-27.87	-18.40	40°09'12.761"N	104°42'47.469"W	1.84	
1937.00	9.900	210.200	1934.01	-38.66	-40.50	-26.35	40°09'12.636"N	104°42'47.571"W	1.78	
2030.00	11.950	208.820	2025.32	-53.40	-55.84	-35.02	40°09'12.484"N	104°42'47.683"W	2.22	
2123.00	12.530	206.540	2116.21	-70.21	-73.30	-44.17	40°09'12.312"N	104°42'47.801"W	0.81	
2215.00	13.640	204.430	2205.82	-88.39	-92.11	-53.11	40°09'12.126"N	104°42'47.916"W	1.31	
2309.00	15.050	204.600	2296.88	-108.89	-113.30	-62.78	40°09'11.916"N	104°42'48.040"W	1.50	
2402.00	15.290	198.960	2386.65	-130.82	-135.87	-71.79	40°09'11.693"N	104°42'48.157"W	1.61	
2495.00	16.710	201.220	2476.04	-154.24	-159.94	-80.61	40°09'11.455"N	104°42'48.270"W	1.67	
2588.00	16.520	199.080	2565.16	-178.54	-184.90	-89.77	40°09'11.209"N	104°42'48.388"W	0.69	
2681.00	18.050	203.260	2653.96	-203.55	-210.63	-99.79	40°09'10.955"N	104°42'48.517"W	2.12	
2773.00	20.400	202.600	2740.83	-230.61	-238.53	-111.58	40°09'10.679"N	104°42'48.669"W	2.57	
2867.00	20.490	204.780	2828.91	-259.73	-268.60	-124.77	40°09'10.382"N	104°42'48.839"W	0.82	
2959.00	22.710	203.060	2914.44	-289.72	-299.56	-138.48	40°09'10.076"N	104°42'49.015"W	2.51	
3053.00	23.790	199.770	3000.81	-323.29	-334.10	-152.00	40°09'09.734"N	104°42'49.189"W	1.80	
3147.00	22.880	199.390	3087.12	-357.46	-369.18	-164.48	40°09'09.388"N	104°42'49.350"W	0.98	
3242.00	22.090	199.520	3174.90	-390.84	-403.44	-176.58	40°09'09.049"N	104°42'49.506"W	0.83	
3337.00	20.970	199.430	3263.27	-422.87	-436.30	-188.20	40°09'08.724"N	104°42'49.656"W	1.18	
3432.00	21.050	200.170	3351.95	-454.08	-468.35	-199.74	40°09'08.408"N	104°42'49.804"W	0.29	
3527.00	20.460	201.940	3440.79	-484.62	-499.77	-211.83	40°09'08.097"N	104°42'49.960"W	0.91	
3621.00	20.150	203.280	3528.95	-513.84	-529.88	-224.36	40°09'07.800"N	104°42'50.121"W	0.59	
3716.00	19.930	201.980	3618.20	-542.99	-559.92	-236.89	40°09'07.503"N	104°42'50.283"W	0.52	
3811.00	21.450	201.140	3707.07	-573.32	-591.14	-249.22	40°09'07.194"N	104°42'50.441"W	1.63	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWP <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (193 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3905.00	21.620	201.130	3794.50	-604.61	-623.33	-261.66	40°09'06.876"N	104°42'50.602"W	0.18	
4000.00	22.020	196.440	3882.70	-637.19	-656.73	-273.01	40°09'06.546"N	104°42'50.748"W	1.88	
4095.00	19.780	194.920	3971.45	-669.13	-689.35	-282.19	40°09'06.224"N	104°42'50.866"W	2.43	
4190.00	20.910	198.060	4060.52	-700.08	-721.00	-291.58	40°09'05.911"N	104°42'50.987"W	1.65	
4284.00	22.910	200.350	4147.73	-732.35	-754.11	-303.15	40°09'05.584"N	104°42'51.136"W	2.31	
4378.00	23.370	199.230	4234.17	-766.20	-788.87	-315.65	40°09'05.240"N	104°42'51.297"W	0.68	
4472.00	22.620	197.960	4320.70	-800.15	-823.67	-327.36	40°09'04.896"N	104°42'51.448"W	0.96	
4567.00	20.260	196.760	4409.12	-832.52	-856.80	-337.74	40°09'04.569"N	104°42'51.581"W	2.53	
4661.00	22.440	197.560	4496.66	-864.47	-889.49	-347.85	40°09'04.246"N	104°42'51.712"W	2.34	
4754.00	21.700	198.940	4582.85	-896.86	-922.68	-358.79	40°09'03.918"N	104°42'51.852"W	0.97	
4849.00	22.300	200.470	4670.93	-929.49	-956.18	-370.79	40°09'03.587"N	104°42'52.007"W	0.87	
4943.00	23.370	204.250	4757.57	-962.20	-989.89	-384.69	40°09'03.254"N	104°42'52.186"W	1.93	
5038.00	23.470	203.330	4844.74	-995.67	-1024.44	-399.92	40°09'02.912"N	104°42'52.382"W	0.40	
5132.00	22.250	202.430	4931.36	-1028.29	-1058.08	-414.12	40°09'02.580"N	104°42'52.565"W	1.35	
5226.00	21.640	203.130	5018.55	-1059.71	-1090.47	-427.72	40°09'02.260"N	104°42'52.740"W	0.71	
5320.00	21.090	201.690	5106.09	-1090.43	-1122.12	-440.78	40°09'01.947"N	104°42'52.908"W	0.81	
5415.00	21.840	202.290	5194.50	-1121.73	-1154.35	-453.80	40°09'01.629"N	104°42'53.076"W	0.82	
5509.00	22.090	202.420	5281.67	-1153.29	-1186.87	-467.17	40°09'01.307"N	104°42'53.248"W	0.27	
5604.00	21.800	197.310	5369.80	-1185.77	-1220.23	-479.23	40°09'00.978"N	104°42'53.404"W	2.03	
5698.00	19.860	195.900	5457.65	-1217.09	-1252.25	-488.80	40°09'00.661"N	104°42'53.527"W	2.13	
5792.00	18.720	196.650	5546.37	-1246.25	-1282.06	-497.50	40°09'00.367"N	104°42'53.639"W	1.24	
5886.00	16.950	197.170	5635.85	-1273.18	-1309.61	-505.87	40°09'00.094"N	104°42'53.746"W	1.89	
5980.00	15.880	195.510	5726.02	-1298.12	-1335.09	-513.35	40°08'59.842"N	104°42'53.843"W	1.24	
6075.00	13.480	193.000	5817.91	-1320.99	-1358.41	-519.32	40°08'59.612"N	104°42'53.920"W	2.61	
6169.00	11.930	196.130	5909.61	-1340.61	-1378.42	-524.48	40°08'59.414"N	104°42'53.986"W	1.80	
6264.00	10.180	191.760	6002.84	-1357.93	-1396.07	-528.92	40°08'59.240"N	104°42'54.043"W	2.04	
6358.00	7.950	187.790	6095.67	-1372.30	-1410.65	-531.50	40°08'59.096"N	104°42'54.077"W	2.46	
6452.00	6.440	181.390	6188.92	-1383.92	-1422.36	-532.50	40°08'58.980"N	104°42'54.089"W	1.82	
6547.00	4.840	190.910	6283.46	-1393.10	-1431.62	-533.39	40°08'58.889"N	104°42'54.101"W	1.95	
6641.00	3.490	197.370	6377.21	-1399.61	-1438.24	-535.00	40°08'58.823"N	104°42'54.122"W	1.52	
6735.00	1.590	208.890	6471.12	-1403.37	-1442.12	-536.48	40°08'58.785"N	104°42'54.141"W	2.08	
6830.00	0.310	230.880	6566.10	-1404.63	-1443.43	-537.32	40°08'58.772"N	104°42'54.151"W	1.38	
6877.00	2.730	0.570	6613.09	-1403.59	-1442.39	-537.41	40°08'58.782"N	104°42'54.153"W	6.25	
6924.00	8.350	2.690	6659.85	-1399.08	-1437.86	-537.23	40°08'58.827"N	104°42'54.150"W	11.96	
6971.00	14.380	4.020	6705.90	-1389.90	-1428.62	-536.66	40°08'58.918"N	104°42'54.143"W	12.84	
7019.00	18.150	1.920	6751.98	-1376.55	-1415.20	-536.00	40°08'59.051"N	104°42'54.134"W	7.95	
7066.00	21.510	1.280	6796.18	-1360.68	-1399.26	-535.56	40°08'59.208"N	104°42'54.129"W	7.16	
7113.00	24.140	1.420	6839.50	-1342.52	-1381.04	-535.13	40°08'59.388"N	104°42'54.123"W	5.60	
7160.00	27.570	358.690	6881.79	-1322.08	-1360.55	-535.14	40°08'59.591"N	104°42'54.123"W	7.72	
7207.00	31.520	357.430	6922.67	-1298.92	-1337.39	-535.94	40°08'59.820"N	104°42'54.134"W	8.51	
7254.00	34.330	357.600	6962.12	-1273.38	-1311.87	-537.04	40°09'00.072"N	104°42'54.148"W	5.98	
7302.00	39.750	358.670	7000.42	-1244.50	-1282.99	-537.97	40°09'00.357"N	104°42'54.160"W	11.37	
7349.00	45.720	358.780	7034.92	-1212.65	-1251.12	-538.67	40°09'00.672"N	104°42'54.169"W	12.70	
7396.00	49.070	359.420	7066.74	-1178.10	-1216.53	-539.21	40°09'01.014"N	104°42'54.176"W	7.20	
7443.00	52.410	358.440	7096.47	-1141.76	-1180.15	-539.90	40°09'01.374"N	104°42'54.185"W	7.29	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWP <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (193 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7490.00	55.530	357.700	7124.12	-1103.77	-1142.17	-541.18	40°09'01.749"N	104°42'54.201"W	6.76	
7537.00	59.890	358.000	7149.22	-1064.07	-1102.48	-542.67	40°09'02.141"N	104°42'54.221"W	9.29	
7585.00	65.470	358.990	7171.24	-1021.47	-1059.86	-543.78	40°09'02.562"N	104°42'54.235"W	11.77	
7632.00	67.790	358.840	7189.88	-978.38	-1016.73	-544.60	40°09'02.989"N	104°42'54.245"W	4.94	
7679.00	70.560	0.110	7206.59	-934.53	-972.81	-545.00	40°09'03.423"N	104°42'54.251"W	6.41	
7726.00	75.350	1.550	7220.36	-889.76	-927.89	-544.34	40°09'03.866"N	104°42'54.242"W	10.60	
7774.00	81.240	1.900	7230.10	-842.99	-880.93	-542.92	40°09'04.331"N	104°42'54.224"W	12.29	
7804.00	85.300	2.720	7233.61	-813.38	-851.17	-541.72	40°09'04.625"N	104°42'54.208"W	13.80	
7833.00†	87.488	2.625	7235.44	-784.62	-822.26	-540.37	40°09'04.910"N	104°42'54.191"W	7.55	7" CASING POINT
7859.00	89.450	2.540	7236.13	-758.79	-796.29	-539.20	40°09'05.167"N	104°42'54.176"W	7.55	
7922.00	89.660	2.640	7236.62	-696.19	-733.36	-536.36	40°09'05.789"N	104°42'54.139"W	0.37	
8017.00	89.690	2.250	7237.16	-601.75	-638.45	-532.30	40°09'06.727"N	104°42'54.087"W	0.41	
8111.00	89.200	359.740	7238.07	-508.09	-544.48	-530.67	40°09'07.655"N	104°42'54.066"W	2.72	
8206.00	90.800	0.810	7238.07	-413.34	-449.48	-530.21	40°09'08.594"N	104°42'54.060"W	2.03	
8300.00	91.260	0.130	7236.38	-319.61	-355.50	-529.44	40°09'09.523"N	104°42'54.050"W	0.87	
8395.00	91.170	358.950	7234.37	-224.80	-260.53	-530.21	40°09'10.461"N	104°42'54.060"W	1.25	
8489.00	91.440	359.590	7232.23	-130.96	-166.56	-531.40	40°09'11.390"N	104°42'54.076"W	0.74	
8583.00	91.810	0.170	7229.56	-37.19	-72.60	-531.60	40°09'12.319"N	104°42'54.078"W	0.73	
8678.00	90.890	0.530	7227.32	57.53	22.37	-531.02	40°09'13.257"N	104°42'54.071"W	1.04	
8772.00	89.960	0.090	7226.62	151.29	116.37	-530.51	40°09'14.186"N	104°42'54.064"W	1.09	
8867.00	89.630	0.620	7226.96	246.04	211.37	-529.92	40°09'15.125"N	104°42'54.057"W	0.66	
8961.00	89.960	1.230	7227.30	339.71	305.35	-528.41	40°09'16.053"N	104°42'54.037"W	0.74	
9056.00	89.690	359.580	7227.59	434.45	400.35	-527.73	40°09'16.992"N	104°42'54.029"W	1.76	
9150.00	89.590	0.070	7228.18	528.26	494.34	-528.02	40°09'17.921"N	104°42'54.032"W	0.53	
9245.00	89.660	359.220	7228.80	623.09	589.34	-528.61	40°09'18.860"N	104°42'54.040"W	0.90	
9339.00	91.200	359.360	7228.10	716.95	683.33	-529.77	40°09'19.789"N	104°42'54.055"W	1.65	
9433.00	91.230	359.780	7226.10	810.76	777.30	-530.48	40°09'20.717"N	104°42'54.064"W	0.45	
9526.00	89.900	0.240	7225.19	903.55	870.29	-530.46	40°09'21.636"N	104°42'54.064"W	1.51	
9619.00	89.870	359.440	7225.37	996.36	963.29	-530.72	40°09'22.555"N	104°42'54.067"W	0.86	
9712.00	89.810	0.470	7225.63	1089.16	1056.29	-530.80	40°09'23.474"N	104°42'54.068"W	1.11	
9805.00	89.900	1.140	7225.87	1181.86	1149.28	-529.49	40°09'24.393"N	104°42'54.051"W	0.73	
9898.00	90.060	359.890	7225.90	1274.59	1242.28	-528.65	40°09'25.312"N	104°42'54.041"W	1.36	
9992.00	89.530	0.470	7226.24	1368.37	1336.27	-528.36	40°09'26.241"N	104°42'54.037"W	0.84	
10085.00	89.630	359.130	7226.92	1461.18	1429.27	-528.68	40°09'27.160"N	104°42'54.041"W	1.44	
10178.00	89.820	359.850	7227.37	1554.02	1522.26	-529.51	40°09'28.079"N	104°42'54.052"W	0.80	
10270.00	89.780	359.760	7227.69	1645.84	1614.26	-529.82	40°09'28.988"N	104°42'54.056"W	0.11	
10362.00	90.150	358.430	7227.74	1737.72	1706.25	-531.28	40°09'29.897"N	104°42'54.075"W	1.50	
10454.00	88.640	359.450	7228.71	1829.61	1798.22	-532.98	40°09'30.806"N	104°42'54.096"W	1.98	
10545.00	88.590	359.510	7230.91	1920.43	1889.19	-533.80	40°09'31.705"N	104°42'54.107"W	0.09	
10637.00	88.150	359.680	7233.53	2012.23	1981.15	-534.45	40°09'32.614"N	104°42'54.116"W	0.51	
10729.00	90.000	0.540	7235.02	2104.00	2073.14	-534.28	40°09'33.523"N	104°42'54.113"W	2.22	
10821.00	91.050	0.920	7234.17	2195.71	2165.12	-533.11	40°09'34.432"N	104°42'54.098"W	1.21	
10913.00	90.400	0.670	7233.01	2287.40	2257.11	-531.83	40°09'35.341"N	104°42'54.082"W	0.76	
11004.00	89.750	0.450	7232.89	2378.14	2348.10	-530.94	40°09'36.240"N	104°42'54.070"W	0.75	
11096.00	89.660	0.920	7233.36	2469.85	2440.09	-529.84	40°09'37.149"N	104°42'54.056"W	0.52	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWP <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (193 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11188.00	89.320	0.400	7234.18	2561.57	2532.08	-528.78	40°09'38.058"N	104°42'54.043"W	0.68	
11280.00	89.010	0.670	7235.52	2653.30	2624.07	-527.92	40°09'38.967"N	104°42'54.032"W	0.45	
11372.00	88.950	0.530	7237.16	2745.01	2716.05	-526.96	40°09'39.876"N	104°42'54.019"W	0.17	
11466.00	89.960	0.110	7238.06	2838.76	2810.04	-526.43	40°09'40.805"N	104°42'54.012"W	1.16	
11560.00	90.550	0.520	7237.64	2932.52	2904.04	-525.92	40°09'41.734"N	104°42'54.006"W	0.76	
11654.00	88.300	0.820	7238.58	3026.22	2998.02	-524.82	40°09'42.663"N	104°42'53.992"W	2.41	
11749.00	90.090	0.610	7239.91	3120.91	3093.00	-523.63	40°09'43.601"N	104°42'53.976"W	1.90	
11843.00	90.860	359.700	7239.14	3214.69	3187.00	-523.38	40°09'44.530"N	104°42'53.973"W	1.27	
11938.00	90.610	359.680	7237.92	3309.50	3281.99	-523.89	40°09'45.469"N	104°42'53.980"W	0.26	
12032.00	89.600	359.420	7237.74	3403.34	3375.98	-524.63	40°09'46.398"N	104°42'53.989"W	1.11	
12127.00	89.870	359.780	7238.18	3498.17	3470.98	-525.29	40°09'47.336"N	104°42'53.998"W	0.47	
12221.00	89.630	0.180	7238.59	3591.96	3564.98	-525.33	40°09'48.265"N	104°42'53.998"W	0.50	
12316.00	90.300	1.000	7238.65	3686.68	3659.97	-524.35	40°09'49.204"N	104°42'53.986"W	1.11	
12410.00	88.400	0.620	7239.72	3780.37	3753.95	-523.02	40°09'50.133"N	104°42'53.969"W	2.06	
12505.00	89.720	0.140	7241.28	3875.10	3848.94	-522.39	40°09'51.071"N	104°42'53.961"W	1.48	
12599.00	89.720	359.320	7241.74	3968.92	3942.93	-522.83	40°09'52.000"N	104°42'53.966"W	0.87	
12694.00	89.410	357.370	7242.46	4063.85	4037.89	-525.58	40°09'52.939"N	104°42'54.002"W	2.08	
12789.00	89.320	358.840	7243.51	4158.79	4132.82	-528.72	40°09'53.877"N	104°42'54.042"W	1.55	
12883.00	89.840	359.770	7244.20	4252.64	4226.81	-529.86	40°09'54.806"N	104°42'54.057"W	1.13	
12978.00	90.270	0.010	7244.11	4347.45	4321.81	-530.04	40°09'55.744"N	104°42'54.059"W	0.52	
13072.00	90.180	359.350	7243.74	4441.27	4415.81	-530.56	40°09'56.673"N	104°42'54.066"W	0.71	
13167.00	90.360	0.280	7243.29	4536.08	4510.81	-530.87	40°09'57.612"N	104°42'54.070"W	1.00	
13261.00	91.010	359.650	7242.17	4629.87	4604.80	-530.93	40°09'58.541"N	104°42'54.071"W	0.96	
13355.00	90.490	1.130	7240.94	4723.61	4698.79	-530.29	40°09'59.470"N	104°42'54.063"W	1.67	
13450.00	89.560	0.010	7240.90	4818.33	4793.78	-529.34	40°10'00.408"N	104°42'54.050"W	1.53	
13544.00	89.260	0.290	7241.86	4912.10	4887.77	-529.10	40°10'01.337"N	104°42'54.047"W	0.44	
13639.00	89.840	359.360	7242.61	5006.91	4982.77	-529.39	40°10'02.276"N	104°42'54.051"W	1.15	
13733.00	89.600	359.310	7243.07	5100.76	5076.76	-530.48	40°10'03.205"N	104°42'54.065"W	0.26	
13827.00	89.220	359.400	7244.04	5194.62	5170.75	-531.54	40°10'04.134"N	104°42'54.079"W	0.42	
13921.00	89.230	359.140	7245.31	5288.47	5264.73	-532.73	40°10'05.062"N	104°42'54.094"W	0.28	
14015.00	89.070	359.320	7246.70	5382.33	5358.72	-534.00	40°10'05.991"N	104°42'54.111"W	0.26	
14110.00	89.190	0.310	7248.15	5477.13	5453.70	-534.30	40°10'06.930"N	104°42'54.115"W	1.05	
14204.00	89.780	1.280	7248.99	5570.82	5547.69	-533.00	40°10'07.858"N	104°42'54.098"W	1.21	
14299.00	89.690	1.420	7249.43	5665.44	5642.66	-530.76	40°10'08.797"N	104°42'54.069"W	0.18	
14393.00	89.160	1.870	7250.37	5759.01	5736.62	-528.06	40°10'09.725"N	104°42'54.034"W	0.74	
14487.00	89.780	2.540	7251.24	5852.49	5830.54	-524.45	40°10'10.654"N	104°42'53.988"W	0.97	
14581.00	90.920	3.610	7250.67	5945.80	5924.40	-519.41	40°10'11.581"N	104°42'53.923"W	1.66	
14675.00	91.354	0.910	7248.80	6039.25	6018.30	-515.70	40°10'12.509"N	104°42'53.875"W	2.91	
14770.00	91.070	359.770	7246.79	6133.98	6113.28	-515.14	40°10'13.448"N	104°42'53.868"W	1.24	
14864.00	89.840	358.420	7246.05	6227.85	6207.26	-516.62	40°10'14.376"N	104°42'53.887"W	1.94	
14958.00	89.290	357.930	7246.76	6321.79	6301.21	-519.61	40°10'15.305"N	104°42'53.926"W	0.78	
15052.00	89.320	358.940	7247.90	6415.71	6395.16	-522.18	40°10'16.233"N	104°42'53.959"W	1.07	
15146.00	89.170	0.360	7249.14	6509.53	6489.15	-522.75	40°10'17.162"N	104°42'53.966"W	1.52	
15241.00	90.730	0.280	7249.22	6604.28	6584.15	-522.22	40°10'18.101"N	104°42'53.959"W	1.64	
15335.00	90.490	359.920	7248.22	6698.06	6678.14	-522.06	40°10'19.030"N	104°42'53.957"W	0.46	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (193 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
15429.00	90.460	358.300	7247.44	6791.93	6772.12	-523.52	40°10'19.958"N	104°42'53.976"W	1.72	
15524.00	91.160	357.850	7246.10	6886.87	6867.06	-526.71	40°10'20.897"N	104°42'54.017"W	0.88	
15618.00	90.090	357.860	7245.07	6980.83	6960.99	-530.23	40°10'21.825"N	104°42'54.062"W	1.14	
15712.00	89.960	358.720	7245.03	7074.76	7054.94	-533.03	40°10'22.753"N	104°42'54.099"W	0.93	
15806.00	88.550	358.770	7246.26	7168.66	7148.91	-535.09	40°10'23.682"N	104°42'54.125"W	1.50	
15900.00	88.120	0.060	7248.99	7262.47	7242.87	-536.05	40°10'24.610"N	104°42'54.138"W	1.45	
15994.00	88.980	1.390	7251.37	7356.14	7336.82	-534.86	40°10'25.539"N	104°42'54.122"W	1.68	
16089.00	89.780	3.120	7252.39	7450.60	7431.74	-531.13	40°10'26.477"N	104°42'54.074"W	2.01	
16183.00	90.030	1.680	7252.55	7544.05	7525.66	-527.19	40°10'27.405"N	104°42'54.023"W	1.55	
16278.00	89.930	1.840	7252.58	7638.60	7620.61	-524.27	40°10'28.343"N	104°42'53.986"W	0.20	
16372.00	89.320	1.070	7253.20	7732.20	7714.58	-521.88	40°10'29.272"N	104°42'53.955"W	1.05	
16443.00	89.230	0.140	7254.10	7802.99	7785.57	-521.13	40°10'29.973"N	104°42'53.946"W	1.32	LAST BHI MWD+IFR SURVEY
16498.00	89.230	0.140	7254.84	7857.85	7840.56	-521.00	40°10'30.517"N	104°42'53.944"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: THOMSEN FEDERAL 1N-31HZ AWB <102-16498>

Ref Wellpath: THOMSEN FEDERAL 1N-31HZ 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	25.00	1359.00	1334.00	25.00	1358.93	0.00	0.00	0.88	1.11
9.625in Casing Surface	25.00	1359.00	1334.00	25.00	1358.93	0.00	0.00	0.88	1.11
8.75in Open Hole	1359.00	7852.00	6493.00	1358.93	7236.03	0.88	1.11	-803.29	-539.51
7in Casing Intermediate	25.00	7833.00	7808.00	25.00	7235.44	0.00	0.00	-822.26	-540.37
6.125in Open Hole	7852.00	16498.00	8646.00	7236.03	7254.84	-803.29	-539.51	7840.56	-521.00

WELLPATH COMPOSITION - Ref Wellbore: THOMSEN FEDERAL 1N-31HZ AWB <102-16498>

Ref Wellpath: THOMSEN FEDERAL 1N-31HZ AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	1324.00	ISCWSA MWD, Rev. 2 (Standard)	CATHEDRAL MWD SURVEYS <102-1324>	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
1324.00	7804.00	NaviTrak (MAGCORR,IFR)	BHI NAVITRAK MWD+IFR 8 3/4" <1378-7804>	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
7804.00	16443.00	NaviTrak (MAGCORR,IFR)	BHI NAVITRAK MWD+IFR 6 1/8" <7859-16443>	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
16443.00	16498.00	Blind Drilling (std)	Projection to bit	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (LAMBERT STATE PLANE COORD)	Slot	SLOT#13 THOMSEN FEDERAL 1N-31HZ (2404'FNL & 770'FWL, SEC.07)
Area	COLORADO	Well	THOMSEN FEDERAL 1N-31HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN FEDERAL 1N-31HZ AWB <102-16498>
Facility	SEC.07-T2N-R65W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
25.00	0.000	197.400	25.00	TIE ON
102.00	0.700	197.400	102.00	BEGIN GYRO SURVEYS
1324.00	0.300	219.500	1323.93	TIE ONTO GYRO SURVEYS
1378.00	0.490	228.540	1377.93	BEGIN BHI MWD+IFR SURVEYS
7833.00	87.488	2.625	7235.44	7" CASING POINT
16443.00	89.230	0.140	7254.10	LAST BHI MWD+IFR SURVEY
16498.00	89.230	0.140	7254.84	PROJECTION TO BIT