

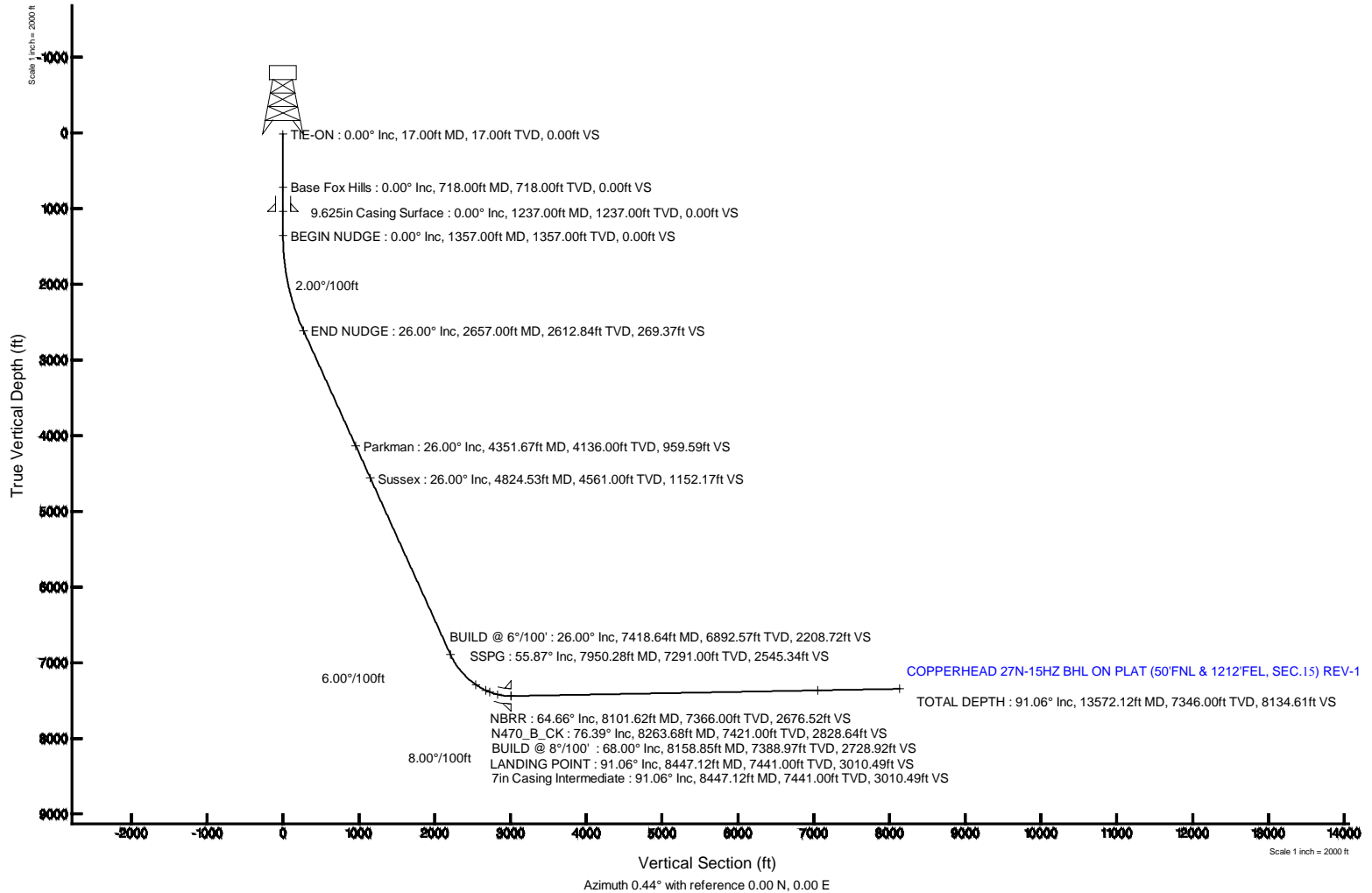


KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
 Field: WELD COUNTY (KERR MCGEE) Well: COPPERHEAD 27N-15HZ
 Facility: SEC.22-T2N-R67W Wellbore: COPPERHEAD 27N-15HZ PWB



All reference values in COPPERHEAD 27N-15HZ (PERMIT REV. 9 PWB)	
True vertical depth as referenced to PERMIT (TVD) (FMS)	Grid System NAD83 Lambert Conformal 5P Northern Zone (SRI, US feet)
Measured depth as referenced to PERMIT (MD) (FMS)	North Reference True north
PERMIT (TVD) (FMS) within 300' Level (300 feet)	Scale True distance
Measured depth as referenced to PERMIT (MD) (FMS) (2368'FSL & 2165'FEL, SEC.22) (FMS)	Depth as a feet
Coordinates as a feet (Horizontal Dist)	Company: 00000000000000000000



KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC. 22)
 Field: WELD COUNTY (KERR MCGEE) Well: COPPERHEAD 27N-15HZ
 Facility: SEC.22-T2N-R67W Wellbore: COPPERHEAD 27N-15HZ PWB

Plot reference wellpath is COPPERHEAD 27N-15HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMT (17KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMT (17KB) (RKB)	North Reference: True north
PERMT (17KB) (RKB) to Mean Sea Level: 5046 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOTS#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by precam on 08/Sep/2014

Location Information

Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
SEC.22-T2N-R67W	3173770.270	1290629.950	40°07'46.204"N	104°52'42.789"W
Slot	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)
SLOTS#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)	-2388.34	942.46	3174729.405	1288248.377
PERMT (17KB) (RKB) to Mud line (At Slot: SLOTS#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22))	5046ft			
Mean Sea Level to Mud line (At Slot: SLOTS#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22))	0ft			
PERMT (17KB) (RKB) to Mean Sea Level	5046ft			

Survey Program

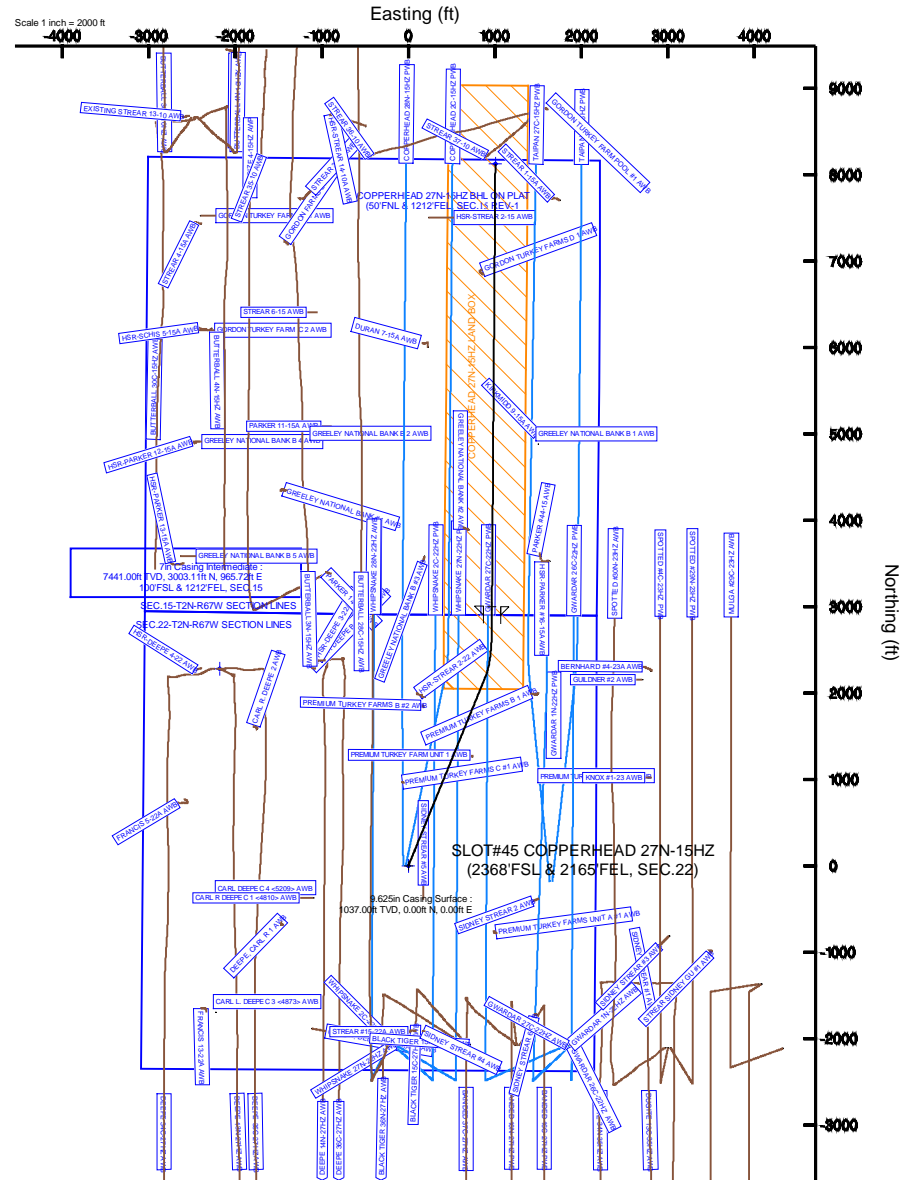
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	13572.12	NavTrak	NavTrak (MAGCORR,IFR)		COPPERHEAD 27N-15HZ PWB

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	22.150	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1357.00	0.000	22.150	1357.00	0.00	0.00	0.00	0.00
END NUDGE	2657.00	26.000	22.150	2612.84	268.54	109.31	2.00	269.37
BUILD @ 6°/100'	7418.64	26.000	22.150	6892.57	2201.85	896.32	0.00	2208.72
BUILD @ 8°/100'	8158.85	68.000	0.443	7388.97	2721.55	963.54	6.00	2728.92
LANDING POINT	8447.12	91.062	0.443	7441.00	3003.11	965.72	8.00	3010.49
TOTAL DEPTH	13572.12	91.062	0.443	7346.00	8127.08	1005.31	0.00	8134.61

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
SEC.15-T2N-R67W SECTION LINES	31.00	12820.29	-1047.10	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	
SEC.22-T2N-R67W SECTION LINES	31.00	2280.18	-2182.86	3172530.63	1290513.02	40°07'45.134"N	104°52'58.739"W	
COPPERHEAD 27N-15HZ BHL ON PLAT (50'FNL & 1212'FEL, SEC.25) REV-1	13572.12	7346.00	8127.08	1005.31	3175677.38	40°08'42.914"N	104°52'17.692"W	
COPPERHEAD 27N-15HZ LAND BOX	7363.00	0.00	-0.02	3174729.39	1288248.38	40°07'22.602"N	104°52'30.637"W	



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-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	Precain
Scale	0.999959	Report Generated	08/Sep/2014 at 14:57
Convergence at slot	n/a	Database/Source file	WellArchitectDB/COPPERHEAD_27N-15HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-2388.34	942.46	3174729.41	1288248.38	40°07'22.602"N	104°52'30.637"W
Facility Reference Pt			3173770.27	1290629.95	40°07'46.204"N	104°52'42.769"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	PERMIT (17'KB) (RKB) to Facility Vertical Datum	5046.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	5046.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22))	5046.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	0.44°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (149 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	22.150	0.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
17.00	0.000	22.150	17.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	TIE-ON
117.00†	0.000	22.150	117.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
217.00†	0.000	22.150	217.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
317.00†	0.000	22.150	317.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
417.00†	0.000	22.150	417.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
517.00†	0.000	22.150	517.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
617.00†	0.000	22.150	617.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
717.00†	0.000	22.150	717.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
718.00†	0.000	22.150	718.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	Base Fox Hills
817.00†	0.000	22.150	817.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
917.00†	0.000	22.150	917.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
1017.00†	0.000	22.150	1017.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
1117.00†	0.000	22.150	1117.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
1217.00†	0.000	22.150	1217.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
1317.00†	0.000	22.150	1317.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	
1357.00	0.000	22.150	1357.00	0.00	0.00	0.00	40°07'22.602"N	104°52'30.637"W	0.00	BEGIN NUDGE
1417.00†	1.200	22.150	1417.00	0.58	0.58	0.24	40°07'22.608"N	104°52'30.634"W	2.00	
1517.00†	3.200	22.150	1516.92	4.15	4.14	1.68	40°07'22.643"N	104°52'30.615"W	2.00	
1617.00†	5.200	22.150	1616.64	10.95	10.92	4.45	40°07'22.710"N	104°52'30.580"W	2.00	
1717.00†	7.200	22.150	1716.05	20.99	20.92	8.52	40°07'22.809"N	104°52'30.527"W	2.00	
1817.00†	9.200	22.150	1815.03	34.24	34.13	13.89	40°07'22.939"N	104°52'30.458"W	2.00	
1917.00†	11.200	22.150	1913.44	50.69	50.53	20.57	40°07'23.101"N	104°52'30.372"W	2.00	
2017.00†	13.200	22.150	2011.18	70.32	70.10	28.54	40°07'23.295"N	104°52'30.270"W	2.00	
2117.00†	15.200	22.150	2108.12	93.11	92.82	37.79	40°07'23.519"N	104°52'30.151"W	2.00	
2217.00†	17.200	22.150	2204.14	119.03	118.66	48.30	40°07'23.775"N	104°52'30.015"W	2.00	
2317.00†	19.200	22.150	2299.13	148.05	147.59	60.08	40°07'24.060"N	104°52'29.864"W	2.00	
2417.00†	21.200	22.150	2392.98	180.13	179.57	73.10	40°07'24.377"N	104°52'29.696"W	2.00	
2517.00†	23.200	22.150	2485.56	215.23	214.56	87.34	40°07'24.722"N	104°52'29.513"W	2.00	
2617.00†	25.200	22.150	2576.77	253.32	252.53	102.80	40°07'25.098"N	104°52'29.314"W	2.00	
2657.00	26.000	22.150	2612.84	269.37	268.54	109.31	40°07'25.256"N	104°52'29.230"W	2.00	END NUDGE
2717.00†	26.000	22.150	2666.77	293.81	292.90	119.23	40°07'25.496"N	104°52'29.102"W	0.00	
2817.00†	26.000	22.150	2756.65	334.54	333.50	135.76	40°07'25.898"N	104°52'28.889"W	0.00	
2917.00†	26.000	22.150	2846.53	375.27	374.10	152.29	40°07'26.299"N	104°52'28.677"W	0.00	
3017.00†	26.000	22.150	2936.41	416.00	414.70	168.82	40°07'26.700"N	104°52'28.464"W	0.00	
3117.00†	26.000	22.150	3026.29	456.72	455.31	185.34	40°07'27.101"N	104°52'28.251"W	0.00	
3217.00†	26.000	22.150	3116.17	497.45	495.91	201.87	40°07'27.503"N	104°52'28.038"W	0.00	
3317.00†	26.000	22.150	3206.04	538.18	536.51	218.40	40°07'27.904"N	104°52'27.826"W	0.00	
3417.00†	26.000	22.150	3295.92	578.91	577.11	234.93	40°07'28.305"N	104°52'27.613"W	0.00	
3517.00†	26.000	22.150	3385.80	619.64	617.71	251.46	40°07'28.706"N	104°52'27.400"W	0.00	
3617.00†	26.000	22.150	3475.68	660.37	658.32	267.98	40°07'29.108"N	104°52'27.187"W	0.00	
3717.00†	26.000	22.150	3565.56	701.10	698.92	284.51	40°07'29.509"N	104°52'26.974"W	0.00	
3817.00†	26.000	22.150	3655.44	741.82	739.52	301.04	40°07'29.910"N	104°52'26.762"W	0.00	
3917.00†	26.000	22.150	3745.32	782.55	780.12	317.57	40°07'30.311"N	104°52'26.549"W	0.00	
4017.00†	26.000	22.150	3835.20	823.28	820.72	334.10	40°07'30.712"N	104°52'26.336"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (149 stations) † = interpolated/extrapolated station											
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments	
4117.00†	26.000	22.150	3925.08	864.01	861.32	350.62	40°07'31.114"N	104°52'26.123"W	0.00		
4217.00†	26.000	22.150	4014.96	904.74	901.93	367.15	40°07'31.515"N	104°52'25.911"W	0.00		
4317.00†	26.000	22.150	4104.84	945.47	942.53	383.68	40°07'31.916"N	104°52'25.698"W	0.00		
4351.67†	26.000	22.150	4136.00	959.59	956.61	389.41	40°07'32.055"N	104°52'25.624"W	0.00		Parkman
4417.00†	26.000	22.150	4194.72	986.20	983.13	400.21	40°07'32.317"N	104°52'25.485"W	0.00		
4517.00†	26.000	22.150	4284.60	1026.92	1023.73	416.74	40°07'32.719"N	104°52'25.272"W	0.00		
4617.00†	26.000	22.150	4374.48	1067.65	1064.33	433.26	40°07'33.120"N	104°52'25.059"W	0.00		
4717.00†	26.000	22.150	4464.36	1108.38	1104.94	449.79	40°07'33.521"N	104°52'24.847"W	0.00		
4817.00†	26.000	22.150	4554.24	1149.11	1145.54	466.32	40°07'33.922"N	104°52'24.634"W	0.00		
4824.53†	26.000	22.150	4561.00	1152.17	1148.59	467.56	40°07'33.952"N	104°52'24.618"W	0.00		Sussex
4917.00†	26.000	22.150	4644.12	1189.84	1186.14	482.85	40°07'34.324"N	104°52'24.421"W	0.00		
5017.00†	26.000	22.150	4733.99	1230.57	1226.74	499.38	40°07'34.725"N	104°52'24.208"W	0.00		
5117.00†	26.000	22.150	4823.87	1271.30	1267.34	515.90	40°07'35.126"N	104°52'23.996"W	0.00		
5217.00†	26.000	22.150	4913.75	1312.02	1307.95	532.43	40°07'35.527"N	104°52'23.783"W	0.00		
5317.00†	26.000	22.150	5003.63	1352.75	1348.55	548.96	40°07'35.928"N	104°52'23.570"W	0.00		
5417.00†	26.000	22.150	5093.51	1393.48	1389.15	565.49	40°07'36.330"N	104°52'23.357"W	0.00		
5517.00†	26.000	22.150	5183.39	1434.21	1429.75	582.02	40°07'36.731"N	104°52'23.144"W	0.00		
5617.00†	26.000	22.150	5273.27	1474.94	1470.35	598.54	40°07'37.132"N	104°52'22.932"W	0.00		
5717.00†	26.000	22.150	5363.15	1515.67	1510.96	615.07	40°07'37.533"N	104°52'22.719"W	0.00		
5817.00†	26.000	22.150	5453.03	1556.39	1551.56	631.60	40°07'37.935"N	104°52'22.506"W	0.00		
5917.00†	26.000	22.150	5542.91	1597.12	1592.16	648.13	40°07'38.336"N	104°52'22.293"W	0.00		
6017.00†	26.000	22.150	5632.79	1637.85	1632.76	664.66	40°07'38.737"N	104°52'22.080"W	0.00		
6117.00†	26.000	22.150	5722.67	1678.58	1673.36	681.18	40°07'39.138"N	104°52'21.868"W	0.00		
6217.00†	26.000	22.150	5812.55	1719.31	1713.97	697.71	40°07'39.539"N	104°52'21.655"W	0.00		
6317.00†	26.000	22.150	5902.43	1760.04	1754.57	714.24	40°07'39.941"N	104°52'21.442"W	0.00		
6417.00†	26.000	22.150	5992.31	1800.77	1795.17	730.77	40°07'40.342"N	104°52'21.229"W	0.00		
6517.00†	26.000	22.150	6082.19	1841.49	1835.77	747.30	40°07'40.743"N	104°52'21.017"W	0.00		
6617.00†	26.000	22.150	6172.07	1882.22	1876.37	763.82	40°07'41.144"N	104°52'20.804"W	0.00		
6717.00†	26.000	22.150	6261.94	1922.95	1916.98	780.35	40°07'41.546"N	104°52'20.591"W	0.00		
6817.00†	26.000	22.150	6351.82	1963.68	1957.58	796.88	40°07'41.947"N	104°52'20.378"W	0.00		
6917.00†	26.000	22.150	6441.70	2004.41	1998.18	813.41	40°07'42.348"N	104°52'20.165"W	0.00		
7017.00†	26.000	22.150	6531.58	2045.14	2038.78	829.94	40°07'42.749"N	104°52'19.953"W	0.00		
7117.00†	26.000	22.150	6621.46	2085.87	2079.38	846.46	40°07'43.151"N	104°52'19.740"W	0.00		
7217.00†	26.000	22.150	6711.34	2126.59	2119.98	862.99	40°07'43.552"N	104°52'19.527"W	0.00		
7317.00†	26.000	22.150	6801.22	2167.32	2160.59	879.52	40°07'43.953"N	104°52'19.314"W	0.00		
7417.00†	26.000	22.150	6891.10	2208.05	2201.19	896.05	40°07'44.354"N	104°52'19.101"W	0.00		
7418.64	26.000	22.150	6892.57	2208.72	2201.85	896.32	40°07'44.361"N	104°52'19.098"W	0.00		BUILD @ 6°/100'
7517.00†	31.269	16.580	6978.89	2253.31	2246.33	911.75	40°07'44.800"N	104°52'18.899"W	6.00		
7617.00†	36.806	12.439	7061.74	2307.59	2300.50	925.62	40°07'45.336"N	104°52'18.721"W	6.00		
7717.00†	42.454	9.256	7138.73	2370.30	2363.12	937.51	40°07'45.954"N	104°52'18.568"W	6.00		
7817.00†	48.173	6.697	7209.03	2440.75	2433.50	947.29	40°07'46.650"N	104°52'18.442"W	6.00		
7917.00†	53.939	4.561	7271.86	2518.18	2510.87	954.86	40°07'47.414"N	104°52'18.344"W	6.00		
7950.28†	55.865	3.920	7291.00	2545.34	2538.02	956.87	40°07'47.683"N	104°52'18.318"W	6.00		SSPG
8017.00†	59.737	2.718	7326.55	2601.72	2594.37	960.12	40°07'48.240"N	104°52'18.276"W	6.00		
8101.62†	64.662	1.323	7366.00	2676.52	2669.15	962.74	40°07'48.979"N	104°52'18.243"W	6.00		NBRR

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (149 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8117.00†	65.559	1.082	7372.47	2690.47	2683.10	963.03	40°07'49.117"N	104°52'18.239"W	6.00	
8158.85	68.000	0.443	7388.97	2728.92	2721.55	963.54	40°07'49.496"N	104°52'18.232"W	6.00	BUILD @ 8°/100'
8217.00†	72.652	0.443	7408.54	2783.67	2776.30	963.97	40°07'50.037"N	104°52'18.227"W	8.00	
8263.68†	76.387	0.443	7421.00	2828.64	2821.27	964.31	40°07'50.482"N	104°52'18.222"W	8.00	N470_B_CK
8317.00†	80.652	0.443	7431.61	2880.89	2873.51	964.72	40°07'50.998"N	104°52'18.217"W	8.00	
8417.00†	88.652	0.443	7440.92	2980.37	2972.99	965.49	40°07'51.981"N	104°52'18.207"W	8.00	
8447.12	91.062	0.443	7441.00	3010.49	3003.11	965.72	40°07'52.279"N	104°52'18.204"W	8.00	LANDING POINT
8517.00†	91.062	0.443	7439.70	3080.35	3072.98	966.26	40°07'52.969"N	104°52'18.197"W	0.00	
8617.00†	91.062	0.443	7437.85	3180.34	3172.96	967.03	40°07'53.957"N	104°52'18.187"W	0.00	
8717.00†	91.062	0.443	7436.00	3280.32	3272.94	967.80	40°07'54.945"N	104°52'18.177"W	0.00	
8817.00†	91.062	0.443	7434.14	3380.30	3372.92	968.58	40°07'55.933"N	104°52'18.167"W	0.00	
8917.00†	91.062	0.443	7432.29	3480.29	3472.90	969.35	40°07'56.921"N	104°52'18.157"W	0.00	
9017.00†	91.062	0.443	7430.43	3580.27	3572.87	970.12	40°07'57.909"N	104°52'18.147"W	0.00	
9117.00†	91.062	0.443	7428.58	3680.25	3672.85	970.89	40°07'58.897"N	104°52'18.137"W	0.00	
9217.00†	91.062	0.443	7426.73	3780.23	3772.83	971.67	40°07'59.885"N	104°52'18.127"W	0.00	
9317.00†	91.062	0.443	7424.87	3880.22	3872.81	972.44	40°08'00.873"N	104°52'18.117"W	0.00	
9417.00†	91.062	0.443	7423.02	3980.20	3972.79	973.21	40°08'01.861"N	104°52'18.107"W	0.00	
9517.00†	91.062	0.443	7421.17	4080.18	4072.77	973.98	40°08'02.849"N	104°52'18.097"W	0.00	
9617.00†	91.062	0.443	7419.31	4180.17	4172.75	974.76	40°08'03.837"N	104°52'18.087"W	0.00	
9717.00†	91.062	0.443	7417.46	4280.15	4272.73	975.53	40°08'04.825"N	104°52'18.077"W	0.00	
9817.00†	91.062	0.443	7415.61	4380.13	4372.71	976.30	40°08'05.813"N	104°52'18.067"W	0.00	
9917.00†	91.062	0.443	7413.75	4480.11	4472.69	977.07	40°08'06.801"N	104°52'18.057"W	0.00	
10017.00†	91.062	0.443	7411.90	4580.10	4572.67	977.85	40°08'07.789"N	104°52'18.047"W	0.00	
10117.00†	91.062	0.443	7410.04	4680.08	4672.65	978.62	40°08'08.777"N	104°52'18.037"W	0.00	
10217.00†	91.062	0.443	7408.19	4780.06	4772.63	979.39	40°08'09.765"N	104°52'18.027"W	0.00	
10317.00†	91.062	0.443	7406.34	4880.05	4872.61	980.16	40°08'10.753"N	104°52'18.017"W	0.00	
10417.00†	91.062	0.443	7404.48	4980.03	4972.59	980.94	40°08'11.741"N	104°52'18.007"W	0.00	
10517.00†	91.062	0.443	7402.63	5080.01	5072.57	981.71	40°08'12.729"N	104°52'17.997"W	0.00	
10617.00†	91.062	0.443	7400.78	5179.99	5172.55	982.48	40°08'13.717"N	104°52'17.987"W	0.00	
10717.00†	91.062	0.443	7398.92	5279.98	5272.53	983.25	40°08'14.706"N	104°52'17.977"W	0.00	
10817.00†	91.062	0.443	7397.07	5379.96	5372.51	984.03	40°08'15.694"N	104°52'17.967"W	0.00	
10917.00†	91.062	0.443	7395.22	5479.94	5472.49	984.80	40°08'16.682"N	104°52'17.957"W	0.00	
11017.00†	91.062	0.443	7393.36	5579.93	5572.47	985.57	40°08'17.670"N	104°52'17.947"W	0.00	
11117.00†	91.062	0.443	7391.51	5679.91	5672.45	986.34	40°08'18.658"N	104°52'17.937"W	0.00	
11217.00†	91.062	0.443	7389.66	5779.89	5772.43	987.12	40°08'19.646"N	104°52'17.927"W	0.00	
11317.00†	91.062	0.443	7387.80	5879.87	5872.41	987.89	40°08'20.634"N	104°52'17.917"W	0.00	
11417.00†	91.062	0.443	7385.95	5979.86	5972.39	988.66	40°08'21.622"N	104°52'17.907"W	0.00	
11517.00†	91.062	0.443	7384.09	6079.84	6072.37	989.43	40°08'22.610"N	104°52'17.897"W	0.00	
11617.00†	91.062	0.443	7382.24	6179.82	6172.35	990.21	40°08'23.598"N	104°52'17.887"W	0.00	
11717.00†	91.062	0.443	7380.39	6279.80	6272.33	990.98	40°08'24.586"N	104°52'17.877"W	0.00	
11817.00†	91.062	0.443	7378.53	6379.79	6372.31	991.75	40°08'25.574"N	104°52'17.867"W	0.00	
11917.00†	91.062	0.443	7376.68	6479.77	6472.29	992.52	40°08'26.562"N	104°52'17.857"W	0.00	
12017.00†	91.062	0.443	7374.83	6579.75	6572.27	993.30	40°08'27.550"N	104°52'17.847"W	0.00	
12117.00†	91.062	0.443	7372.97	6679.74	6672.25	994.07	40°08'28.538"N	104°52'17.837"W	0.00	
12217.00†	91.062	0.443	7371.12	6779.72	6772.23	994.84	40°08'29.526"N	104°52'17.827"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (149 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12317.00†	91.062	0.443	7369.27	6879.70	6872.21	995.61	40°08'30.514"N	104°52'17.817"W	0.00	
12417.00†	91.062	0.443	7367.41	6979.68	6972.19	996.39	40°08'31.502"N	104°52'17.807"W	0.00	
12517.00†	91.062	0.443	7365.56	7079.67	7072.17	997.16	40°08'32.490"N	104°52'17.797"W	0.00	
12617.00†	91.062	0.443	7363.70	7179.65	7172.15	997.93	40°08'33.478"N	104°52'17.787"W	0.00	
12717.00†	91.062	0.443	7361.85	7279.63	7272.13	998.70	40°08'34.466"N	104°52'17.777"W	0.00	
12817.00†	91.062	0.443	7360.00	7379.62	7372.11	999.48	40°08'35.454"N	104°52'17.767"W	0.00	
12917.00†	91.062	0.443	7358.14	7479.60	7472.09	1000.25	40°08'36.442"N	104°52'17.757"W	0.00	
13017.00†	91.062	0.443	7356.29	7579.58	7572.07	1001.02	40°08'37.430"N	104°52'17.747"W	0.00	
13117.00†	91.062	0.443	7354.44	7679.56	7672.05	1001.79	40°08'38.418"N	104°52'17.737"W	0.00	
13217.00†	91.062	0.443	7352.58	7779.55	7772.03	1002.57	40°08'39.406"N	104°52'17.727"W	0.00	
13317.00†	91.062	0.443	7350.73	7879.53	7872.01	1003.34	40°08'40.394"N	104°52'17.717"W	0.00	
13417.00†	91.062	0.443	7348.88	7979.51	7971.99	1004.11	40°08'41.382"N	104°52'17.707"W	0.00	
13517.00†	91.062	0.443	7347.02	8079.50	8071.97	1004.88	40°08'42.370"N	104°52'17.697"W	0.00	
13572.12	91.062	0.443	7346.00 ¹	8134.61	8127.08	1005.31	40°08'42.914"N	104°52'17.692"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: COPPERHEAD 27N-15HZ PWB Ref Wellpath: COPPERHEAD 27N-15HZ (PERMIT REV-1) PWP									
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	17.00	1237.00	1220.00	17.00	1237.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1237.00	1220.00	17.00	1237.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1237.00	8447.12	7210.12	1237.00	7441.00	0.00	0.00	3003.11	965.72
7in Casing Intermediate	17.00	8447.12	8430.12	17.00	7441.00	0.00	0.00	3003.11	965.72
6.125in Open Hole	8447.12	13572.12	5125.00	7441.00	7346.00	3003.11	965.72	8127.08	1005.31
4.5in Casing Production	17.00	13752.12	13735.12	17.00	NA	0.00	0.00	NA	NA

REFERENCE WELLPATH IDENTIFICATION			
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Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.15-T2N-67W SECTION LINES		31.00	12820.29	-1047.10	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
SEC.22-T2N-R67W SECTION LINES		31.00	2280.18	-2182.86	3172530.63	1290513.02	40°07'45.134"N	104°52'58.739"W	polygon
1) COPPERHEAD 27N-15HZ BHL ON PLAT (50'FNL & 1212'FEL, SEC.25) REV-1	13572.12	7346.00	8127.08	1005.31	3175677.38	1296381.99	40°08'42.914"N	104°52'17.692"W	point
COPPERHEAD 27N-15HZ LAND BOX		7363.00	0.00	-0.02	3174729.39	1288248.38	40°07'22.602"N	104°52'30.637"W	polygon

SURVEY PROGRAM - Ref Wellbore: COPPERHEAD 27N-15HZ PWB Ref Wellpath: COPPERHEAD 27N-15HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	13572.12	NaviTrak (MAGCORR,IFR)		COPPERHEAD 27N-15HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#45 COPPERHEAD 27N-15HZ (2368'FSL & 2165'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 27N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 27N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD [ft]	Comment
718.00	0.000	22.150	718.00		Base Fox Hills
4351.67	26.000	22.150	4136.00		Parkman
4824.53	26.000	22.150	4561.00		Sussex
7950.28	55.865	3.920	7291.00		SSPG
8101.62	64.662	1.323	7366.00		NBRR
8263.68	76.387	0.443	7421.00		N470_B_CK

DESIGN COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVD [ft]	Comment
17.00	0.000	22.150	17.00		TIE-ON
1357.00	0.000	22.150	1357.00		BEGIN NUDGE
2657.00	26.000	22.150	2612.84		END NUDGE
7418.64	26.000	22.150	6892.57		BUILD @ 6°/100'
8158.85	68.000	0.443	7388.97		BUILD @ 8°/100'
8447.12	91.062	0.443	7441.00		LANDING POINT
13572.12	91.062	0.443	7346.00		TOTAL DEPTH