

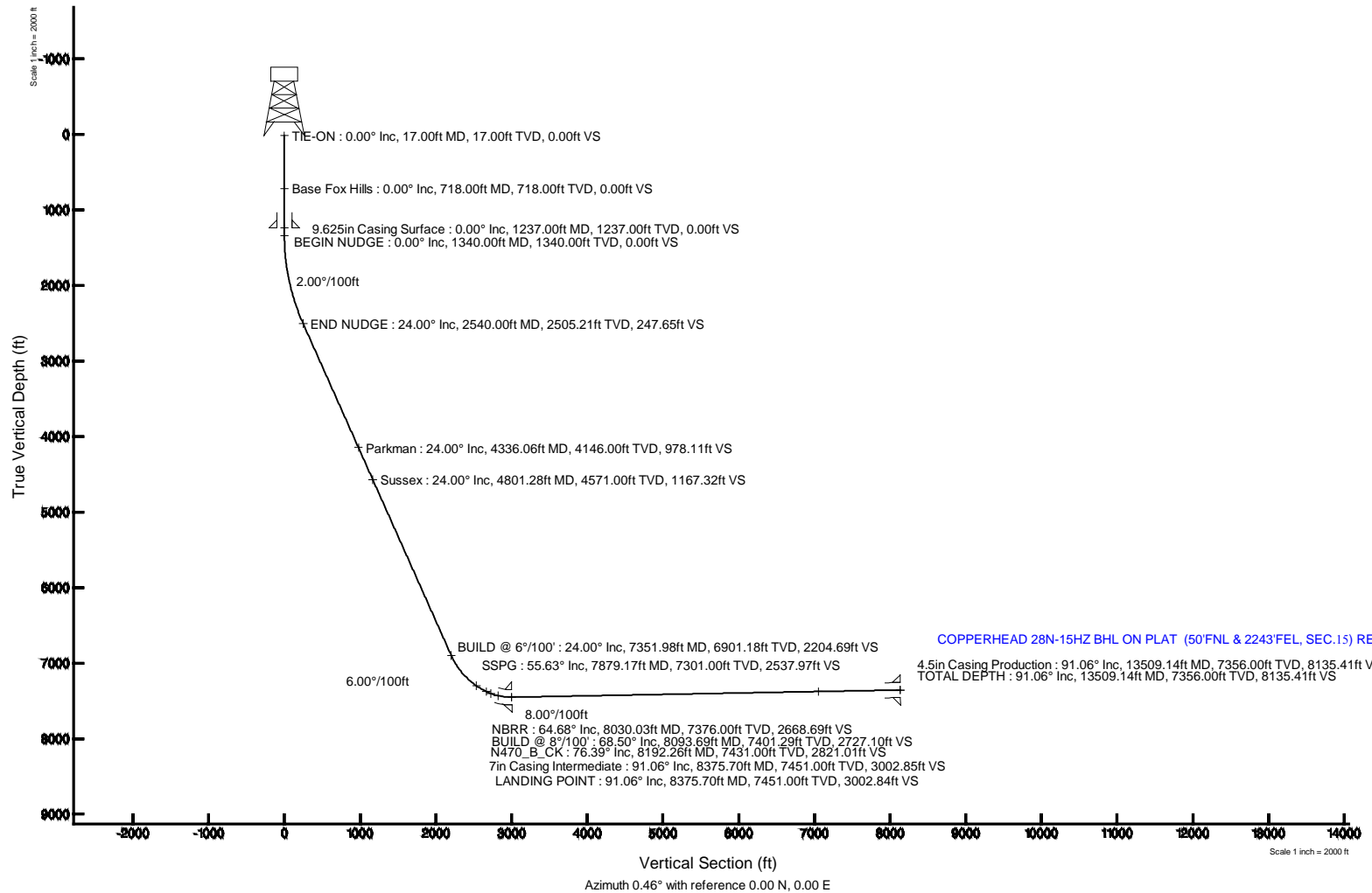


# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#43 COPPERHEAD 28N-15HZ (2368°FSL & 2225°FEL, SEC.22)  
Field: WELD COUNTY (KERR MCGEE) Well: COPPERHEAD 28N-15HZ  
Facility: SEC.22-T2N-R67W Wellbore: COPPERHEAD 28N-15HZ PWB



Plus reference wellbore is COPPERHEAD 28N-15HZ (FEDRAT REV. 5 PWB)	
True vertical depths are referenced to PERMIT (1748) (BAG)	Grid System NAD83 (Lambert Conformal SP Northern Zone (8N), U.S. feet)
Measured depths are referenced to PERMIT (1748) (BAG)	North Reference: True north
PERMIT (1748) (BAG) within 300 feet	Scale: True distance
Also see wellbore information in SEC. 22 (FNL) COPPERHEAD 28N-15HZ (2368°FSL & 2225°FEL, SEC.22) (FEL)	Depth units in feet
Coordinates are in feet, referenced to BAG	Consistency program is BAG/US/2011



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Location: COLORADO Slot: SLOT#43 COPPERHEAD 28N-15HZ (2368FSL & 2225FEL, SEC.22)  
Field: WELD COUNTY (KERR MCGEE) Well: COPPERHEAD 28N-15HZ  
Facility: SEC.22-T2N-R67W Wellbore: COPPERHEAD 28N-15HZ PWB

Plot reference wellpath is COPPERHEAD 28N-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: SLOT#43 COPPERHEAD 28N-15HZ (2368FSL & 2225FEL, SEC.22)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by precain on 08/Sep/2014

## Location Information

Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
SEC.22-T2N-R67W	3173770.270	1299629.950	40°07'46.204"N	104°52'42.769"W
Slot	Local N (ft)	Local E (ft)	Grid North (US Ft)	Longitude
SLOT#43 COPPERHEAD 28N-15HZ (2368FSL & 2225FEL, SEC.22)	-2367.94	882.33	3174669.279	1298248.358
PERMT (17KB) (RKB) to Mud line (At Slot: SLOT#43 COPPERHEAD 28N-15HZ (2368FSL & 2225FEL, SEC.22))				5046ft
Mean Sea Level to Mud line (At Slot: SLOT#43 COPPERHEAD 28N-15HZ (2368FSL & 2225FEL, SEC.22))				0ft
PERMT (17KB) (RKB) to Mean Sea Level				5046ft

## Survey Program

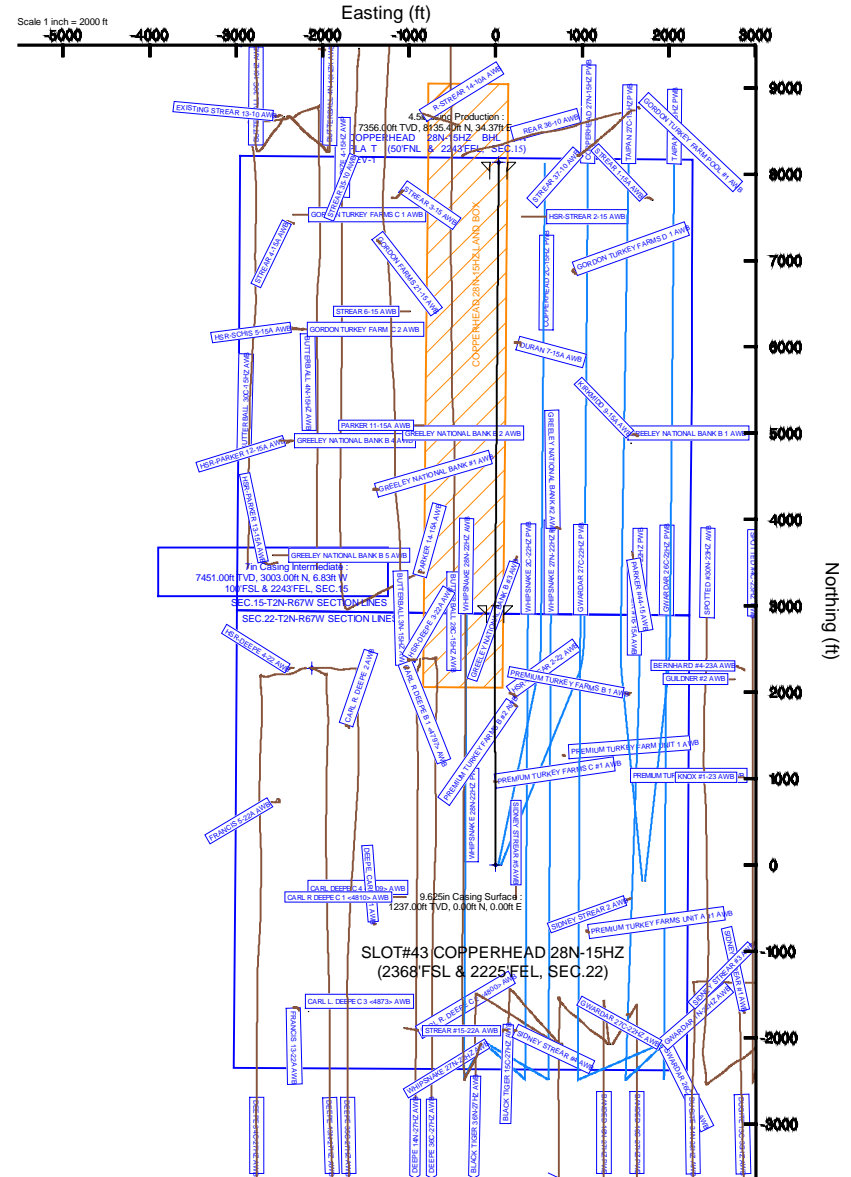
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	13509.14	NavTrak	NavTrak (MAGCORR, IFR)		COPPERHEAD 28N-15HZ PWB

## 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	359.710	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1340.00	0.000	359.710	1340.00	0.00	0.00	0.00	0.00
END NUDGE	2540.00	24.000	359.710	2505.21	247.67	-1.25	2.00	247.65
BUILD @ 6°/100'	7351.98	24.000	359.710	6901.18	2204.85	-11.16	0.00	2204.69
BUILD @ 8°/100'	8093.69	68.500	0.460	7401.29	2727.26	-9.05	6.00	2727.10
LANDING POINT	8375.70	91.060	0.460	7451.00	3003.00	-6.83	8.00	3002.84
TOTAL DEPTH	13509.14	91.060	0.460	7356.00	8135.40	34.37	0.00	8135.41

## 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	12819.88	-987.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W
SEC.22-T2N-R67W SECTION LINES		31.00	2279.77	-2122.74	3172530.63	1290513.02	40°07'45.134"N	104°52'58.739"W
COPPERHEAD 28N-15HZ BHL ON PLAT (50FNL & 2243FEL, SEC.22) REV-1	13509.14	7356.00	8135.40	34.37	3174646.35	1296383.45	40°08'43.001"N	104°52'30.968"W
COPPERHEAD 28N-15HZ LAND BOX		7356.00	0.00	0.00	3174669.28	1298248.36	40°07'22.606"N	104°52'31.411"W



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-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 14:21
Convergence at slot	n/a	Database/Source file	WellArchitectDB/COPPERHEAD_28N-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	-2387.94	882.33	3174669.28	1288248.36	40°07'22.606"N	104°52'31.411"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#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'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	0.46°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (148 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	359.710	0.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
17.00	0.000	359.710	17.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	TIE-ON
117.00†	0.000	359.710	117.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
217.00†	0.000	359.710	217.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
317.00†	0.000	359.710	317.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
417.00†	0.000	359.710	417.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
517.00†	0.000	359.710	517.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
617.00†	0.000	359.710	617.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
717.00†	0.000	359.710	717.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
718.00†	0.000	359.710	718.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	Base Fox Hills
817.00†	0.000	359.710	817.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
917.00†	0.000	359.710	917.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
1017.00†	0.000	359.710	1017.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
1117.00†	0.000	359.710	1117.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
1217.00†	0.000	359.710	1217.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
1317.00†	0.000	359.710	1317.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	
1340.00	0.000	359.710	1340.00	0.00	0.00	0.00	40°07'22.606"N	104°52'31.411"W	0.00	BEGIN NUDGE
1417.00†	1.540	359.710	1416.99	1.03	1.03	-0.01	40°07'22.616"N	104°52'31.411"W	2.00	
1517.00†	3.540	359.710	1516.89	5.47	5.47	-0.03	40°07'22.660"N	104°52'31.411"W	2.00	
1617.00†	5.540	359.710	1616.57	13.38	13.38	-0.07	40°07'22.738"N	104°52'31.412"W	2.00	
1717.00†	7.540	359.710	1715.91	24.77	24.77	-0.13	40°07'22.851"N	104°52'31.413"W	2.00	
1817.00†	9.540	359.710	1814.80	39.62	39.62	-0.20	40°07'22.998"N	104°52'31.414"W	2.00	
1917.00†	11.540	359.710	1913.11	57.91	57.91	-0.29	40°07'23.178"N	104°52'31.415"W	2.00	
2017.00†	13.540	359.710	2010.72	79.62	79.62	-0.40	40°07'23.393"N	104°52'31.416"W	2.00	
2117.00†	15.540	359.710	2107.51	104.72	104.72	-0.53	40°07'23.641"N	104°52'31.418"W	2.00	
2217.00†	17.540	359.710	2203.37	133.18	133.19	-0.67	40°07'23.922"N	104°52'31.420"W	2.00	
2317.00†	19.540	359.710	2298.17	164.97	164.99	-0.84	40°07'24.236"N	104°52'31.422"W	2.00	
2417.00†	21.540	359.710	2391.81	200.06	200.07	-1.01	40°07'24.583"N	104°52'31.424"W	2.00	
2517.00†	23.540	359.710	2484.17	238.38	238.40	-1.21	40°07'24.962"N	104°52'31.427"W	2.00	
2540.00	24.000	359.710	2505.21	247.65	247.67	-1.25	40°07'25.054"N	104°52'31.427"W	2.00	END NUDGE
2617.00†	24.000	359.710	2575.56	278.97	278.99	-1.41	40°07'25.363"N	104°52'31.429"W	0.00	
2717.00†	24.000	359.710	2666.91	319.64	319.66	-1.62	40°07'25.765"N	104°52'31.432"W	0.00	
2817.00†	24.000	359.710	2758.27	360.31	360.34	-1.82	40°07'26.167"N	104°52'31.434"W	0.00	
2917.00†	24.000	359.710	2849.62	400.98	401.01	-2.03	40°07'26.569"N	104°52'31.437"W	0.00	
3017.00†	24.000	359.710	2940.98	441.65	441.68	-2.24	40°07'26.971"N	104°52'31.440"W	0.00	
3117.00†	24.000	359.710	3032.33	482.32	482.35	-2.44	40°07'27.373"N	104°52'31.442"W	0.00	
3217.00†	24.000	359.710	3123.68	522.99	523.03	-2.65	40°07'27.775"N	104°52'31.445"W	0.00	
3317.00†	24.000	359.710	3215.04	563.66	563.70	-2.85	40°07'28.177"N	104°52'31.448"W	0.00	
3417.00†	24.000	359.710	3306.39	604.33	604.37	-3.06	40°07'28.578"N	104°52'31.450"W	0.00	
3517.00†	24.000	359.710	3397.75	645.00	645.05	-3.26	40°07'28.980"N	104°52'31.453"W	0.00	
3617.00†	24.000	359.710	3489.10	685.67	685.72	-3.47	40°07'29.382"N	104°52'31.456"W	0.00	
3717.00†	24.000	359.710	3580.46	726.34	726.39	-3.68	40°07'29.784"N	104°52'31.458"W	0.00	
3817.00†	24.000	359.710	3671.81	767.01	767.07	-3.88	40°07'30.186"N	104°52'31.461"W	0.00	
3917.00†	24.000	359.710	3763.17	807.68	807.74	-4.09	40°07'30.588"N	104°52'31.464"W	0.00	
4017.00†	24.000	359.710	3854.52	848.35	848.41	-4.29	40°07'30.990"N	104°52'31.466"W	0.00	

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)	
Area	COLORADO	Well	COPPERHEAD 28N-15HZ	
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-15HZ PWB	
Facility	SEC.22-T2N-R67W			

WELLPATH DATA (148 stations) † = interpolated/extrapolated station											
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments	
4117.00†	24.000	359.710	3945.88	889.02	889.09	-4.50	40°07'31.392"N	104°52'31.469"W	0.00		
4217.00†	24.000	359.710	4037.23	929.69	929.76	-4.71	40°07'31.794"N	104°52'31.472"W	0.00		
4317.00†	24.000	359.710	4128.58	970.36	970.43	-4.91	40°07'32.196"N	104°52'31.474"W	0.00		
4336.06†	24.000	359.710	4146.00	978.11	978.19	-4.95	40°07'32.273"N	104°52'31.475"W	0.00	Parkman	
4417.00†	24.000	359.710	4219.94	1011.03	1011.11	-5.12	40°07'32.598"N	104°52'31.477"W	0.00		
4517.00†	24.000	359.710	4311.29	1051.70	1051.78	-5.32	40°07'33.000"N	104°52'31.480"W	0.00		
4617.00†	24.000	359.710	4402.65	1092.37	1092.45	-5.53	40°07'33.402"N	104°52'31.482"W	0.00		
4717.00†	24.000	359.710	4494.00	1133.04	1133.13	-5.74	40°07'33.804"N	104°52'31.485"W	0.00		
4801.28†	24.000	359.710	4571.00	1167.32	1167.41	-5.91	40°07'34.142"N	104°52'31.487"W	0.00	Sussex	
4817.00†	24.000	359.710	4585.36	1173.71	1173.80	-5.94	40°07'34.206"N	104°52'31.487"W	0.00		
4917.00†	24.000	359.710	4676.71	1214.38	1214.47	-6.15	40°07'34.608"N	104°52'31.490"W	0.00		
5017.00†	24.000	359.710	4768.07	1255.05	1255.14	-6.35	40°07'35.009"N	104°52'31.493"W	0.00		
5117.00†	24.000	359.710	4859.42	1295.72	1295.82	-6.56	40°07'35.411"N	104°52'31.495"W	0.00		
5217.00†	24.000	359.710	4950.78	1336.39	1336.49	-6.76	40°07'35.813"N	104°52'31.498"W	0.00		
5317.00†	24.000	359.710	5042.13	1377.06	1377.16	-6.97	40°07'36.215"N	104°52'31.501"W	0.00		
5417.00†	24.000	359.710	5133.48	1417.73	1417.84	-7.18	40°07'36.617"N	104°52'31.503"W	0.00		
5517.00†	24.000	359.710	5224.84	1458.40	1458.51	-7.38	40°07'37.019"N	104°52'31.506"W	0.00		
5617.00†	24.000	359.710	5316.19	1499.07	1499.18	-7.59	40°07'37.421"N	104°52'31.509"W	0.00		
5717.00†	24.000	359.710	5407.55	1539.74	1539.86	-7.79	40°07'37.823"N	104°52'31.511"W	0.00		
5817.00†	24.000	359.710	5498.90	1580.41	1580.53	-8.00	40°07'38.225"N	104°52'31.514"W	0.00		
5917.00†	24.000	359.710	5590.26	1621.08	1621.20	-8.21	40°07'38.627"N	104°52'31.517"W	0.00		
6017.00†	24.000	359.710	5681.61	1661.75	1661.88	-8.41	40°07'39.029"N	104°52'31.519"W	0.00		
6117.00†	24.000	359.710	5772.97	1702.43	1702.55	-8.62	40°07'39.431"N	104°52'31.522"W	0.00		
6217.00†	24.000	359.710	5864.32	1743.10	1743.22	-8.82	40°07'39.833"N	104°52'31.525"W	0.00		
6317.00†	24.000	359.710	5955.68	1783.77	1783.90	-9.03	40°07'40.235"N	104°52'31.527"W	0.00		
6417.00†	24.000	359.710	6047.03	1824.44	1824.57	-9.24	40°07'40.637"N	104°52'31.530"W	0.00		
6517.00†	24.000	359.710	6138.38	1865.11	1865.24	-9.44	40°07'41.039"N	104°52'31.533"W	0.00		
6617.00†	24.000	359.710	6229.74	1905.78	1905.91	-9.65	40°07'41.440"N	104°52'31.535"W	0.00		
6717.00†	24.000	359.710	6321.09	1946.45	1946.59	-9.85	40°07'41.842"N	104°52'31.538"W	0.00		
6817.00†	24.000	359.710	6412.45	1987.12	1987.26	-10.06	40°07'42.244"N	104°52'31.540"W	0.00		
6917.00†	24.000	359.710	6503.80	2027.79	2027.93	-10.26	40°07'42.646"N	104°52'31.543"W	0.00		
7017.00†	24.000	359.710	6595.16	2068.46	2068.61	-10.47	40°07'43.048"N	104°52'31.546"W	0.00		
7117.00†	24.000	359.710	6686.51	2109.13	2109.28	-10.68	40°07'43.450"N	104°52'31.548"W	0.00		
7217.00†	24.000	359.710	6777.87	2149.80	2149.95	-10.88	40°07'43.852"N	104°52'31.551"W	0.00		
7317.00†	24.000	359.710	6869.22	2190.47	2190.63	-11.09	40°07'44.254"N	104°52'31.554"W	0.00		
7351.98	24.000	359.710	6901.18	2204.69	2204.85	-11.16	40°07'44.395"N	104°52'31.555"W	0.00	BUILD @ 6°/100'	
7417.00†	27.901	359.855	6959.63	2233.14	2233.30	-11.27	40°07'44.676"N	104°52'31.556"W	6.00		
7517.00†	33.900	0.017	7045.40	2284.47	2284.63	-11.32	40°07'45.183"N	104°52'31.557"W	6.00		
7617.00†	39.900	0.135	7125.33	2344.48	2344.65	-11.23	40°07'45.776"N	104°52'31.556"W	6.00		
7717.00†	45.899	0.227	7198.55	2412.52	2412.69	-11.01	40°07'46.448"N	104°52'31.553"W	6.00		
7817.00†	51.899	0.302	7264.26	2487.84	2488.01	-10.66	40°07'47.193"N	104°52'31.548"W	6.00		
7879.17†	55.629	0.343	7301.00	2537.97	2538.14	-10.38	40°07'47.688"N	104°52'31.545"W	6.00	SSPG	
7917.00†	57.899	0.365	7321.73	2569.62	2569.78	-10.19	40°07'48.001"N	104°52'31.542"W	6.00		
8017.00†	63.899	0.421	7370.35	2656.95	2657.12	-9.59	40°07'48.864"N	104°52'31.534"W	6.00		
8030.03†	64.680	0.428	7376.00	2668.69	2668.86	-9.50	40°07'48.980"N	104°52'31.533"W	6.00	NBRR	

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP		Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO		Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)		Wellbore	COPPERHEAD 28N-15HZ PWB
Facility	SEC.22-T2N-R67W			

WELLPATH DATA (148 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8093.69	68.500	0.460	7401.29	2727.10	2727.26	-9.05	40°07'49.557"N	104°52'31.527"W	6.00	BUILD @ 8°/100'
8117.00†	70.365	0.460	7409.48	2748.93	2749.09	-8.87	40°07'49.773"N	104°52'31.525"W	8.00	
8192.26†	76.386	0.460	7431.00	2821.01	2821.16	-8.29	40°07'50.485"N	104°52'31.518"W	8.00	N470_B_CK
8217.00†	78.365	0.460	7436.41	2845.15	2845.30	-8.10	40°07'50.724"N	104°52'31.515"W	8.00	
8317.00†	86.365	0.460	7449.68	2944.18	2944.33	-7.30	40°07'51.702"N	104°52'31.505"W	8.00	
8375.70	91.060	0.460	7451.00	3002.84	3003.00	-6.83	40°07'52.282"N	104°52'31.499"W	8.00	LANDING POINT
8417.00†	91.060	0.460	7450.24	3044.14	3044.29	-6.50	40°07'52.690"N	104°52'31.495"W	0.00	
8517.00†	91.060	0.460	7448.39	3144.12	3144.27	-5.70	40°07'53.678"N	104°52'31.484"W	0.00	
8617.00†	91.060	0.460	7446.54	3244.11	3244.25	-4.90	40°07'54.666"N	104°52'31.474"W	0.00	
8717.00†	91.060	0.460	7444.68	3344.09	3344.23	-4.09	40°07'55.654"N	104°52'31.464"W	0.00	
8817.00†	91.060	0.460	7442.83	3444.07	3444.21	-3.29	40°07'56.642"N	104°52'31.453"W	0.00	
8917.00†	91.060	0.460	7440.98	3544.06	3544.19	-2.49	40°07'57.630"N	104°52'31.443"W	0.00	
9017.00†	91.060	0.460	7439.13	3644.04	3644.17	-1.68	40°07'58.618"N	104°52'31.433"W	0.00	
9117.00†	91.060	0.460	7437.28	3744.02	3744.15	-0.88	40°07'59.606"N	104°52'31.422"W	0.00	
9217.00†	91.060	0.460	7435.43	3844.00	3844.13	-0.08	40°08'00.594"N	104°52'31.412"W	0.00	
9317.00†	91.060	0.460	7433.58	3943.99	3944.11	0.72	40°08'01.582"N	104°52'31.402"W	0.00	
9417.00†	91.060	0.460	7431.73	4043.97	4044.09	1.53	40°08'02.570"N	104°52'31.391"W	0.00	
9517.00†	91.060	0.460	7429.88	4143.95	4144.07	2.33	40°08'03.558"N	104°52'31.381"W	0.00	
9617.00†	91.060	0.460	7428.03	4243.94	4244.05	3.13	40°08'04.546"N	104°52'31.371"W	0.00	
9717.00†	91.060	0.460	7426.18	4343.92	4344.03	3.93	40°08'05.534"N	104°52'31.360"W	0.00	
9817.00†	91.060	0.460	7424.33	4443.90	4444.01	4.74	40°08'06.522"N	104°52'31.350"W	0.00	
9917.00†	91.060	0.460	7422.48	4543.88	4543.99	5.54	40°08'07.510"N	104°52'31.340"W	0.00	
10017.00†	91.060	0.460	7420.63	4643.87	4643.97	6.34	40°08'08.498"N	104°52'31.329"W	0.00	
10117.00†	91.060	0.460	7418.78	4743.85	4743.95	7.14	40°08'09.486"N	104°52'31.319"W	0.00	
10217.00†	91.060	0.460	7416.93	4843.83	4843.93	7.95	40°08'10.474"N	104°52'31.309"W	0.00	
10317.00†	91.060	0.460	7415.07	4943.82	4943.91	8.75	40°08'11.462"N	104°52'31.298"W	0.00	
10417.00†	91.060	0.460	7413.22	5043.80	5043.89	9.55	40°08'12.450"N	104°52'31.288"W	0.00	
10517.00†	91.060	0.460	7411.37	5143.78	5143.86	10.36	40°08'13.438"N	104°52'31.278"W	0.00	
10617.00†	91.060	0.460	7409.52	5243.77	5243.84	11.16	40°08'14.426"N	104°52'31.267"W	0.00	
10717.00†	91.060	0.460	7407.67	5343.75	5343.82	11.96	40°08'15.414"N	104°52'31.257"W	0.00	
10817.00†	91.060	0.460	7405.82	5443.73	5443.80	12.76	40°08'16.402"N	104°52'31.247"W	0.00	
10917.00†	91.060	0.460	7403.97	5543.71	5543.78	13.57	40°08'17.390"N	104°52'31.236"W	0.00	
11017.00†	91.060	0.460	7402.12	5643.70	5643.76	14.37	40°08'18.378"N	104°52'31.226"W	0.00	
11117.00†	91.060	0.460	7400.27	5743.68	5743.74	15.17	40°08'19.366"N	104°52'31.216"W	0.00	
11217.00†	91.060	0.460	7398.42	5843.66	5843.72	15.97	40°08'20.354"N	104°52'31.205"W	0.00	
11317.00†	91.060	0.460	7396.57	5943.65	5943.70	16.78	40°08'21.342"N	104°52'31.195"W	0.00	
11417.00†	91.060	0.460	7394.72	6043.63	6043.68	17.58	40°08'22.330"N	104°52'31.185"W	0.00	
11517.00†	91.060	0.460	7392.87	6143.61	6143.66	18.38	40°08'23.318"N	104°52'31.174"W	0.00	
11617.00†	91.060	0.460	7391.02	6243.59	6243.64	19.18	40°08'24.306"N	104°52'31.164"W	0.00	
11717.00†	91.060	0.460	7389.17	6343.58	6343.62	19.99	40°08'25.294"N	104°52'31.154"W	0.00	
11817.00†	91.060	0.460	7387.32	6443.56	6443.60	20.79	40°08'26.282"N	104°52'31.143"W	0.00	
11917.00†	91.060	0.460	7385.46	6543.54	6543.58	21.59	40°08'27.270"N	104°52'31.133"W	0.00	
12017.00†	91.060	0.460	7383.61	6643.53	6643.56	22.39	40°08'28.258"N	104°52'31.123"W	0.00	
12117.00†	91.060	0.460	7381.76	6743.51	6743.54	23.20	40°08'29.246"N	104°52'31.112"W	0.00	
12217.00†	91.060	0.460	7379.91	6843.49	6843.52	24.00	40°08'30.234"N	104°52'31.102"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH DATA (148 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12317.00†	91.060	0.460	7378.06	6943.47	6943.50	24.80	40°08'31.222"N	104°52'31.092"W	0.00	
12417.00†	91.060	0.460	7376.21	7043.46	7043.48	25.61	40°08'32.210"N	104°52'31.081"W	0.00	
12517.00†	91.060	0.460	7374.36	7143.44	7143.46	26.41	40°08'33.198"N	104°52'31.071"W	0.00	
12617.00†	91.060	0.460	7372.51	7243.42	7243.44	27.21	40°08'34.186"N	104°52'31.061"W	0.00	
12717.00†	91.060	0.460	7370.66	7343.41	7343.42	28.01	40°08'35.174"N	104°52'31.050"W	0.00	
12817.00†	91.060	0.460	7368.81	7443.39	7443.40	28.82	40°08'36.162"N	104°52'31.040"W	0.00	
12917.00†	91.060	0.460	7366.96	7543.37	7543.38	29.62	40°08'37.150"N	104°52'31.030"W	0.00	
13017.00†	91.060	0.460	7365.11	7643.35	7643.36	30.42	40°08'38.138"N	104°52'31.019"W	0.00	
13117.00†	91.060	0.460	7363.26	7743.34	7743.34	31.22	40°08'39.126"N	104°52'31.009"W	0.00	
13217.00†	91.060	0.460	7361.41	7843.32	7843.32	32.03	40°08'40.114"N	104°52'30.999"W	0.00	
13317.00†	91.060	0.460	7359.56	7943.30	7943.30	32.83	40°08'41.102"N	104°52'30.988"W	0.00	
13417.00†	91.060	0.460	7357.71	8043.29	8043.27	33.63	40°08'42.090"N	104°52'30.978"W	0.00	
13509.14	91.060	0.460	7356.00 <sup>†</sup>	8135.41	8135.40	34.37	40°08'43.001"N	104°52'30.968"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: COPPERHEAD 28N-15HZ PWB      Ref Wellpath: COPPERHEAD 28N-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	8375.70	7138.70	1237.00	7451.00	0.00	0.00	3003.00	-6.83
7in Casing Intermediate	17.00	8375.70	8358.70	17.00	7451.00	0.00	0.00	3003.00	-6.83
6.125in Open Hole	8375.70	13509.14	5133.44	7451.00	7356.00	3003.00	-6.83	8135.40	34.37
4.5in Casing Production	17.00	13509.14	13492.14	17.00	7356.00	0.00	0.00	8135.40	34.37



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-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	12819.88	-987.00	3173592.05	1301060.42	40°09'29.293"N	104°52'44.123"W	polygon
SEC.22-T2N-R67W SECTION LINES		31.00	2279.77	-2122.74	3172530.63	1290513.02	40°07'45.134"N	104°52'58.739"W	polygon
1) COPPERHEAD 28N-15HZ BHL ON PLAT (50'FNL & 2243'FEL, SEC.22) REV-1	13509.14	7356.00	8135.40	34.37	3174646.35	1296383.45	40°08'43.001"N	104°52'30.968"W	point
COPPERHEAD 28N-15HZ LAND BOX		7356.00	0.00	0.00	3174669.28	1288248.36	40°07'22.606"N	104°52'31.411"W	polygon

SURVEY PROGRAM - Ref Wellbore: COPPERHEAD 28N-15HZ PWB					Ref Wellpath: COPPERHEAD 28N-15HZ (PERMIT REV-1) PWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
17.00	13509.14	NaviTrak (MAGCORR,IFR)				COPPERHEAD 28N-15HZ PWB



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#43 COPPERHEAD 28N-15HZ (2368'FSL & 2225'FEL, SEC.22)
Area	COLORADO	Well	COPPERHEAD 28N-15HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COPPERHEAD 28N-15HZ PWB
Facility	SEC.22-T2N-R67W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
718.00	0.000	359.710	718.00	Base Fox Hills	
4336.06	24.000	359.710	4146.00	Parkman	
4801.28	24.000	359.710	4571.00	Sussex	
7879.17	55.629	0.343	7301.00	SSPG	
8030.03	64.680	0.428	7376.00	NBRR	
8192.26	76.386	0.460	7431.00	N470_B_CK	

DESIGN COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
17.00	0.000	359.710	17.00	TIE-ON	
1340.00	0.000	359.710	1340.00	BEGIN NUDGE	
2540.00	24.000	359.710	2505.21	END NUDGE	
7351.98	24.000	359.710	6901.18	BUILD @ 6°/100'	
8093.69	68.500	0.460	7401.29	BUILD @ 8°/100'	
8375.70	91.060	0.460	7451.00	LANDING POINT	
13509.14	91.060	0.460	7356.00	TOTAL DEPTH	