

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)  
Field: WELD COUNTY (KERR MCGEE) Well: COMO 13N-14HZ  
Facility: SEC.11-T1N-R68W Wellbore: COMO 13N-14HZ PWB

Plot reference wellpath is COMO 13N-14HZ (PERMIT REV-5) PWP

True vertical depths are referenced to PERMIT (17KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMIT (17KB) (RKB)	North Reference: True north
PERMIT (17KB) to Mean Sea Level: 5047 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Stat	Created by: rbbale01 on 19/Jun/2014

## Location Information

Facility Name				Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.11-T1N-R68W				3146323.286	1269372.662	40°04'17.882"N	104°58'37.744"W
Slot		Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#23 COMO 13N-14HZ (1664FNL & 1264FWL, SEC.11)		-1148.93	476.11	3146806.146	1268226.605	40°04'06.528"N	104°58'31.620"W
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#23 COMO 13N-14HZ (1664FNL & 1264FWL, SEC.11))						5047ft	
Mean Sea Level to Mud line (At Slot: SLOT#23 COMO 13N-14HZ (1664FNL & 1264FWL, SEC.11))						0ft	
PERMIT (17KB) (RKB) to Mean Sea Level						5047ft	

## Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	7999.61	NaviTrak	NaviTrak (MAGCORR,IFR)		COMO 13N-14HZ PWB
7999.61	15870.20	NaviTrak	NaviTrak (MAGCORR,IFR)		COMO 13N-14HZ PWB

## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.11-T1N-R68W SECTION LINES								
		-114.00	-8543.00	955.82	3147812.44	1259689.75	40°02'42.104"N	104°58'19.330"W
SEC.14-T1N-R68W SECTION LINES								
		-114.00	-8543.00	955.82	3147812.44	1259689.75	40°02'42.104"N	104°58'19.330"W
COMO 13N-14HZ BHL ON PLAT REV-1 (50'FSL & 960'FWL, SEC.14)	15870.20	7490.00	-8868.65	-324.50	3146806.14	1259356.54	40°02'38.888"N	104°58'35.792"W
COMO 13N-14HZ BHL REV-2 (50'FSL & 960'FWL, SEC.14)		7490.00	-8868.65	-324.50	3146806.14	1259357.13	40°02'38.888"N	104°58'34.507"W
COMO 13N-14HZ L&NBOX		7490.00	0.00	0.00	3146806.15	1268226.61	40°04'06.528"N	104°58'31.620"W

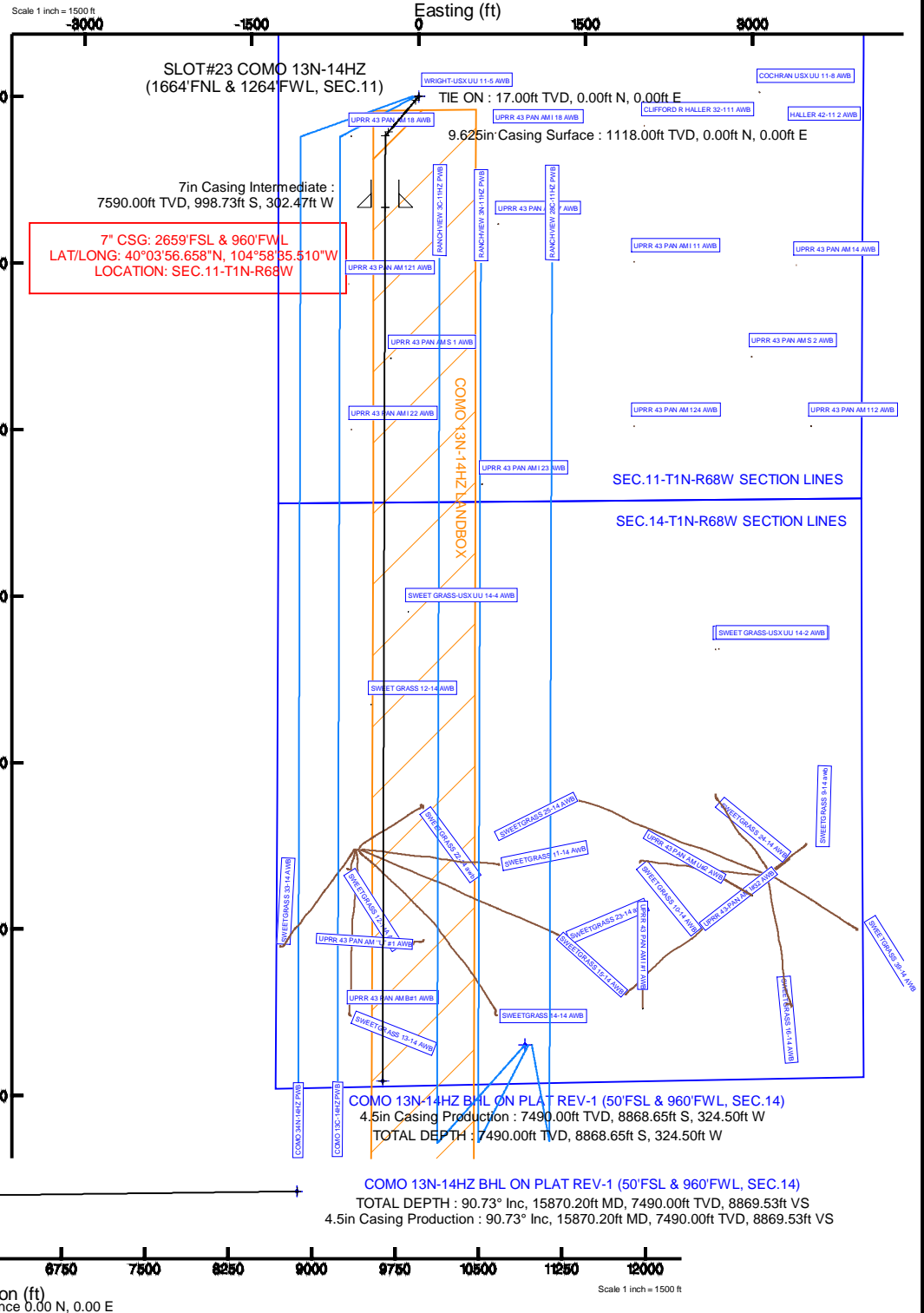
## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE ON	17.00	0.000	220.340	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1318.00	0.000	220.340	1318.00	0.00	0.00	0.00	0.00
END NUDGE	1818.00	10.000	220.340	1815.47	-33.17	-28.17	2.00	33.25
BEGIN DROP	3991.56	10.000	220.340	3956.00	-320.86	-272.49	0.00	321.62
END DROP	4491.56	0.000	180.160	4453.47	-354.03	-300.67	2.00	354.87
KOP, BUILD @ 9°/100'	6991.53	0.000	180.160	6953.44	-354.03	-300.67	0.00	354.87
LANDING POINT	7999.61	90.728	180.160	7590.00	-998.74	-302.47	9.00	999.58
TOTAL DEPTH	15870.20	90.728	180.160	7490.00	-8868.65	-324.50	0.00	8869.53

PARKMAN : 4.67° Inc, 4257.83ft MD, 4220.00ft TVD, 347.59ft VS  
END DROP : 0.00° Inc, 4491.56ft MD, 4453.47ft TVD, 354.87ft VS  
SUSSEX : 0.00° Inc, 4663.09ft MD, 4625.00ft TVD, 354.87ft VS



KOP, BUILD @ 9°/100' : 0.00° Inc, 6991.53ft MD, 6953.44ft TVD, 354.87ft VS  
SHARON SPRINGS : 46.21° Inc, 7504.97ft MD, 7413.00ft TVD, 550.94ft VS  
NIOBRARA A : 52.13° Inc, 7570.77ft MD, 7456.00ft TVD, 600.71ft VS  
NIOBRARA B : 78.83° Inc, 7867.46ft MD, 7578.00ft TVD, 868.21ft VS  
LANDING POINT : 90.73° Inc, 7999.61ft MD, 7590.00ft TVD, 999.58ft VS  
7in Casing Intermediate : 90.73° Inc, 7999.61ft MD, 7590.00ft TVD, 999.58ft VS



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

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	0.999962	Report Generated	19/Jun/2014 at 08:50
Convergence at slot	n/a	Database/Source file	WellArchitectDB/COMO_13N-14HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1148.93	476.11	3146806.15	1268226.61	40°04'06.528"N	104°58'31.620"W
Facility Reference Pt			3146323.29	1269372.66	40°04'17.882"N	104°58'37.744"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	5047.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	5047.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11))	5047.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	180.16°

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

### WELLPATH DATA (174 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	220.340	0.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
17.00	0.000	220.340	17.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	TIE ON
117.00†	0.000	220.340	117.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
217.00†	0.000	220.340	217.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
317.00†	0.000	220.340	317.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
417.00†	0.000	220.340	417.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
517.00†	0.000	220.340	517.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
617.00†	0.000	220.340	617.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
717.00†	0.000	220.340	717.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
817.00†	0.000	220.340	817.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
917.00†	0.000	220.340	917.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
967.00†	0.000	220.340	967.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	BASE FOX HILLS
1017.00†	0.000	220.340	1017.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
1117.00†	0.000	220.340	1117.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
1118.00†	0.000	220.340	1118.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	SURFACE CASING SETTING DEPTH
1217.00†	0.000	220.340	1217.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
1317.00†	0.000	220.340	1317.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	
1318.00	0.000	220.340	1318.00	0.00	0.00	0.00	40°04'06.528"N	104°58'31.620"W	0.00	BEGIN NUDGE
1417.00†	1.980	220.340	1416.98	1.31	-1.30	-1.11	40°04'06.515"N	104°58'31.634"W	2.00	
1517.00†	3.980	220.340	1516.84	5.28	-5.27	-4.47	40°04'06.476"N	104°58'31.678"W	2.00	
1617.00†	5.980	220.340	1616.46	11.91	-11.88	-10.09	40°04'06.411"N	104°58'31.750"W	2.00	
1717.00†	7.980	220.340	1715.71	21.19	-21.14	-17.96	40°04'06.319"N	104°58'31.851"W	2.00	
1817.00†	9.980	220.340	1814.48	33.12	-33.04	-28.06	40°04'06.201"N	104°58'31.981"W	2.00	
1818.00	10.000	220.340	1815.47	33.25	-33.17	-28.17	40°04'06.200"N	104°58'31.982"W	2.00	END NUDGE
1917.00†	10.000	220.340	1912.96	46.39	-46.28	-39.30	40°04'06.071"N	104°58'32.126"W	0.00	
2017.00†	10.000	220.340	2011.44	59.65	-59.51	-50.54	40°04'05.940"N	104°58'32.270"W	0.00	
2117.00†	10.000	220.340	2109.92	72.92	-72.75	-61.78	40°04'05.809"N	104°58'32.415"W	0.00	
2217.00†	10.000	220.340	2208.40	86.19	-85.98	-73.02	40°04'05.678"N	104°58'32.559"W	0.00	
2317.00†	10.000	220.340	2306.88	99.45	-99.22	-84.26	40°04'05.547"N	104°58'32.704"W	0.00	
2417.00†	10.000	220.340	2405.37	112.72	-112.46	-95.50	40°04'05.417"N	104°58'32.848"W	0.00	
2517.00†	10.000	220.340	2503.85	125.99	-125.69	-106.75	40°04'05.286"N	104°58'32.993"W	0.00	
2617.00†	10.000	220.340	2602.33	139.26	-138.93	-117.99	40°04'05.155"N	104°58'33.138"W	0.00	
2717.00†	10.000	220.340	2700.81	152.52	-152.16	-129.23	40°04'05.024"N	104°58'33.282"W	0.00	
2817.00†	10.000	220.340	2799.29	165.79	-165.40	-140.47	40°04'04.893"N	104°58'33.427"W	0.00	
2917.00†	10.000	220.340	2897.77	179.06	-178.63	-151.71	40°04'04.763"N	104°58'33.571"W	0.00	
3017.00†	10.000	220.340	2996.25	192.32	-191.87	-162.95	40°04'04.632"N	104°58'33.716"W	0.00	
3117.00†	10.000	220.340	3094.73	205.59	-205.11	-174.19	40°04'04.501"N	104°58'33.860"W	0.00	
3217.00†	10.000	220.340	3193.21	218.86	-218.34	-185.43	40°04'04.370"N	104°58'34.005"W	0.00	
3317.00†	10.000	220.340	3291.69	232.13	-231.58	-196.67	40°04'04.239"N	104°58'34.150"W	0.00	
3417.00†	10.000	220.340	3390.17	245.39	-244.81	-207.91	40°04'04.109"N	104°58'34.294"W	0.00	
3517.00†	10.000	220.340	3488.65	258.66	-258.05	-219.15	40°04'03.978"N	104°58'34.439"W	0.00	
3617.00†	10.000	220.340	3587.13	271.93	-271.28	-230.39	40°04'03.847"N	104°58'34.583"W	0.00	
3717.00†	10.000	220.340	3685.62	285.19	-284.52	-241.63	40°04'03.716"N	104°58'34.728"W	0.00	
3817.00†	10.000	220.340	3784.10	298.46	-297.76	-252.87	40°04'03.585"N	104°58'34.873"W	0.00	
3917.00†	10.000	220.340	3882.58	311.73	-310.99	-264.11	40°04'03.455"N	104°58'35.017"W	0.00	

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

### WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3991.56	10.000	220.340	3956.00	321.62	-320.86	-272.49	40°04'03.357"N	104°58'35.125"W	0.00	BEGIN DROP
4017.00†	9.491	220.340	3981.08	324.91	-324.14	-275.28	40°04'03.325"N	104°58'35.161"W	2.00	
4117.00†	7.491	220.340	4079.98	336.19	-335.40	-284.84	40°04'03.214"N	104°58'35.284"W	2.00	
4217.00†	5.491	220.340	4179.33	344.83	-344.01	-292.16	40°04'03.128"N	104°58'35.378"W	2.00	
4257.83†	4.674	220.340	4220.00	347.59	-346.77	-294.50	40°04'03.101"N	104°58'35.408"W	2.00	PARKMAN
4317.00†	3.491	220.340	4279.02	350.81	-349.98	-297.23	40°04'03.069"N	104°58'35.443"W	2.00	
4417.00†	1.491	220.340	4378.92	354.13	-353.29	-300.04	40°04'03.037"N	104°58'35.479"W	2.00	
4491.56	0.000	180.160	4453.47	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	2.00	END DROP
4517.00†	0.000	180.160	4478.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
4617.00†	0.000	180.160	4578.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
4663.09†	0.000	180.160	4625.00	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	SUSSEX
4717.00†	0.000	180.160	4678.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
4817.00†	0.000	180.160	4778.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
4917.00†	0.000	180.160	4878.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5017.00†	0.000	180.160	4978.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5117.00†	0.000	180.160	5078.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5217.00†	0.000	180.160	5178.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5317.00†	0.000	180.160	5278.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5417.00†	0.000	180.160	5378.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5517.00†	0.000	180.160	5478.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5617.00†	0.000	180.160	5578.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5717.00†	0.000	180.160	5678.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5817.00†	0.000	180.160	5778.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
5917.00†	0.000	180.160	5878.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6017.00†	0.000	180.160	5978.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6117.00†	0.000	180.160	6078.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6217.00†	0.000	180.160	6178.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6317.00†	0.000	180.160	6278.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6417.00†	0.000	180.160	6378.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6517.00†	0.000	180.160	6478.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6617.00†	0.000	180.160	6578.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6717.00†	0.000	180.160	6678.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6817.00†	0.000	180.160	6778.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6917.00†	0.000	180.160	6878.91	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	
6991.53	0.000	180.160	6953.44	354.87	-354.03	-300.67	40°04'03.029"N	104°58'35.487"W	0.00	KOP, BUILD @ 9°/100'
7017.00†	2.293	180.160	6978.90	355.38	-354.54	-300.67	40°04'03.024"N	104°58'35.487"W	9.00	
7117.00†	11.293	180.160	7078.10	367.20	-366.36	-300.70	40°04'02.908"N	104°58'35.488"W	9.00	
7217.00†	20.293	180.160	7174.23	394.38	-393.55	-300.78	40°04'02.639"N	104°58'35.489"W	9.00	
7317.00†	29.293	180.160	7264.91	436.28	-435.44	-300.90	40°04'02.225"N	104°58'35.490"W	9.00	
7417.00†	38.293	180.160	7347.94	491.84	-491.00	-301.05	40°04'01.676"N	104°58'35.492"W	9.00	
7504.97†	46.210	180.160	7413.00	550.94	-550.10	-301.22	40°04'01.092"N	104°58'35.494"W	9.00	SHARON SPRINGS
7517.00†	47.293	180.160	7421.24	559.70	-558.86	-301.24	40°04'01.005"N	104°58'35.495"W	9.00	
7570.77†	52.132	180.160	7456.00	600.71	-599.87	-301.36	40°04'00.600"N	104°58'35.496"W	9.00	NIOBRARA A
7617.00†	56.293	180.160	7483.03	638.20	-637.36	-301.46	40°04'00.229"N	104°58'35.497"W	9.00	
7717.00†	65.293	180.160	7531.78	725.40	-724.56	-301.70	40°03'59.368"N	104°58'35.501"W	9.00	

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

### WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7817.00†	74.293	180.160	7566.28	819.14	-818.30	-301.97	40°03'58.441"N	104°58'35.504"W	9.00	
7867.46†	78.834	180.160	7578.00	868.21	-867.37	-302.10	40°03'57.956"N	104°58'35.506"W	9.00	NIOBRARA B
7917.00†	83.293	180.160	7585.70	917.14	-916.30	-302.24	40°03'57.473"N	104°58'35.507"W	9.00	
7999.61	90.728	180.160	7590.00	999.58	-998.74	-302.47	40°03'56.658"N	104°58'35.510"W	9.00	LANDING POINT
8017.00†	90.728	180.160	7589.78	1016.96	-1016.12	-302.52	40°03'56.486"N	104°58'35.511"W	0.00	
8117.00†	90.728	180.160	7588.51	1116.96	-1116.12	-302.80	40°03'55.498"N	104°58'35.515"W	0.00	
8217.00†	90.728	180.160	7587.24	1216.95	-1216.11	-303.08	40°03'54.510"N	104°58'35.518"W	0.00	
8317.00†	90.728	180.160	7585.97	1316.94	-1316.10	-303.36	40°03'53.522"N	104°58'35.522"W	0.00	
8417.00†	90.728	180.160	7584.70	1416.93	-1416.09	-303.64	40°03'52.534"N	104°58'35.525"W	0.00	
8517.00†	90.728	180.160	7583.43	1516.92	-1516.08	-303.92	40°03'51.546"N	104°58'35.529"W	0.00	
8617.00†	90.728	180.160	7582.16	1616.92	-1616.07	-304.20	40°03'50.558"N	104°58'35.533"W	0.00	
8717.00†	90.728	180.160	7580.89	1716.91	-1716.06	-304.48	40°03'49.569"N	104°58'35.536"W	0.00	
8817.00†	90.728	180.160	7579.62	1816.90	-1816.06	-304.76	40°03'48.581"N	104°58'35.540"W	0.00	
8917.00†	90.728	180.160	7578.35	1916.89	-1916.05	-305.04	40°03'47.593"N	104°58'35.543"W	0.00	
9017.00†	90.728	180.160	7577.08	2016.88	-2016.04	-305.32	40°03'46.605"N	104°58'35.547"W	0.00	
9117.00†	90.728	180.160	7575.81	2116.88	-2116.03	-305.60	40°03'45.617"N	104°58'35.550"W	0.00	
9217.00†	90.728	180.160	7574.54	2216.87	-2216.02	-305.88	40°03'44.629"N	104°58'35.554"W	0.00	
9317.00†	90.728	180.160	7573.27	2316.86	-2316.01	-306.16	40°03'43.641"N	104°58'35.558"W	0.00	
9417.00†	90.728	180.160	7571.99	2416.85	-2416.00	-306.44	40°03'42.653"N	104°58'35.561"W	0.00	
9517.00†	90.728	180.160	7570.72	2516.84	-2516.00	-306.72	40°03'41.664"N	104°58'35.565"W	0.00	
9617.00†	90.728	180.160	7569.45	2616.84	-2615.99	-307.00	40°03'40.676"N	104°58'35.568"W	0.00	
9717.00†	90.728	180.160	7568.18	2716.83	-2715.98	-307.28	40°03'39.688"N	104°58'35.572"W	0.00	
9817.00†	90.728	180.160	7566.91	2816.82	-2815.97	-307.56	40°03'38.700"N	104°58'35.576"W	0.00	
9917.00†	90.728	180.160	7565.64	2916.81	-2915.96	-307.84	40°03'37.712"N	104°58'35.579"W	0.00	
10017.00†	90.728	180.160	7564.37	3016.80	-3015.95	-308.12	40°03'36.724"N	104°58'35.583"W	0.00	
10117.00†	90.728	180.160	7563.10	3116.79	-3115.95	-308.40	40°03'35.736"N	104°58'35.586"W	0.00	
10217.00†	90.728	180.160	7561.83	3216.79	-3215.94	-308.68	40°03'34.747"N	104°58'35.590"W	0.00	
10317.00†	90.728	180.160	7560.56	3316.78	-3315.93	-308.96	40°03'33.759"N	104°58'35.593"W	0.00	
10417.00†	90.728	180.160	7559.29	3416.77	-3415.92	-309.24	40°03'32.771"N	104°58'35.597"W	0.00	
10517.00†	90.728	180.160	7558.02	3516.76	-3515.91	-309.52	40°03'31.783"N	104°58'35.601"W	0.00	
10617.00†	90.728	180.160	7556.75	3616.75	-3615.90	-309.80	40°03'30.795"N	104°58'35.604"W	0.00	
10717.00†	90.728	180.160	7555.48	3716.75	-3715.89	-310.08	40°03'29.807"N	104°58'35.608"W	0.00	
10817.00†	90.728	180.160	7554.21	3816.74	-3815.89	-310.36	40°03'28.819"N	104°58'35.611"W	0.00	
10917.00†	90.728	180.160	7552.94	3916.73	-3915.88	-310.64	40°03'27.830"N	104°58'35.615"W	0.00	
11017.00†	90.728	180.160	7551.66	4016.72	-4015.87	-310.92	40°03'26.842"N	104°58'35.619"W	0.00	
11117.00†	90.728	180.160	7550.39	4116.71	-4115.86	-311.20	40°03'25.854"N	104°58'35.622"W	0.00	
11217.00†	90.728	180.160	7549.12	4216.71	-4215.85	-311.48	40°03'24.866"N	104°58'35.626"W	0.00	
11317.00†	90.728	180.160	7547.85	4316.70	-4315.84	-311.76	40°03'23.878"N	104°58'35.629"W	0.00	
11417.00†	90.728	180.160	7546.58	4416.69	-4415.84	-312.04	40°03'22.890"N	104°58'35.633"W	0.00	
11517.00†	90.728	180.160	7545.31	4516.68	-4515.83	-312.32	40°03'21.902"N	104°58'35.636"W	0.00	
11617.00†	90.728	180.160	7544.04	4616.67	-4615.82	-312.60	40°03'20.913"N	104°58'35.640"W	0.00	
11717.00†	90.728	180.160	7542.77	4716.67	-4715.81	-312.88	40°03'19.925"N	104°58'35.644"W	0.00	
11817.00†	90.728	180.160	7541.50	4816.66	-4815.80	-313.16	40°03'18.937"N	104°58'35.647"W	0.00	
11917.00†	90.728	180.160	7540.23	4916.65	-4915.79	-313.44	40°03'17.949"N	104°58'35.651"W	0.00	
12017.00†	90.728	180.160	7538.96	5016.64	-5015.78	-313.72	40°03'16.961"N	104°58'35.654"W	0.00	



## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

## WELLPATH DATA (174 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12117.00†	90.728	180.160	7537.69	5116.63	-5115.78	-314.00	40°03'15.973"N	104°58'35.658"W	0.00	
12217.00†	90.728	180.160	7536.42	5216.63	-5215.77	-314.28	40°03'14.985"N	104°58'35.662"W	0.00	
12317.00†	90.728	180.160	7535.15	5316.62	-5315.76	-314.56	40°03'13.997"N	104°58'35.665"W	0.00	
12417.00†	90.728	180.160	7533.88	5416.61	-5415.75	-314.84	40°03'13.008"N	104°58'35.669"W	0.00	
12517.00†	90.728	180.160	7532.61	5516.60	-5515.74	-315.12	40°03'12.020"N	104°58'35.672"W	0.00	
12617.00†	90.728	180.160	7531.34	5616.59	-5615.73	-315.40	40°03'11.032"N	104°58'35.676"W	0.00	
12717.00†	90.728	180.160	7530.06	5716.58	-5715.73	-315.68	40°03'10.044"N	104°58'35.679"W	0.00	
12817.00†	90.728	180.160	7528.79	5816.58	-5815.72	-315.96	40°03'09.056"N	104°58'35.683"W	0.00	
12917.00†	90.728	180.160	7527.52	5916.57	-5915.71	-316.24	40°03'08.068"N	104°58'35.687"W	0.00	
13017.00†	90.728	180.160	7526.25	6016.56	-6015.70	-316.52	40°03'07.080"N	104°58'35.690"W	0.00	
13117.00†	90.728	180.160	7524.98	6116.55	-6115.69	-316.80	40°03'06.091"N	104°58'35.694"W	0.00	
13217.00†	90.728	180.160	7523.71	6216.54	-6215.68	-317.07	40°03'05.103"N	104°58'35.697"W	0.00	
13317.00†	90.728	180.160	7522.44	6316.54	-6315.67	-317.35	40°03'04.115"N	104°58'35.701"W	0.00	
13417.00†	90.728	180.160	7521.17	6416.53	-6415.67	-317.63	40°03'03.127"N	104°58'35.705"W	0.00	
13517.00†	90.728	180.160	7519.90	6516.52	-6515.66	-317.91	40°03'02.139"N	104°58'35.708"W	0.00	
13617.00†	90.728	180.160	7518.63	6616.51	-6615.65	-318.19	40°03'01.151"N	104°58'35.712"W	0.00	
13717.00†	90.728	180.160	7517.36	6716.50	-6715.64	-318.47	40°03'00.163"N	104°58'35.715"W	0.00	
13817.00†	90.728	180.160	7516.09	6816.50	-6815.63	-318.75	40°02'59.174"N	104°58'35.719"W	0.00	
13917.00†	90.728	180.160	7514.82	6916.49	-6915.62	-319.03	40°02'58.186"N	104°58'35.722"W	0.00	
14017.00†	90.728	180.160	7513.55	7016.48	-7015.62	-319.31	40°02'57.198"N	104°58'35.726"W	0.00	
14117.00†	90.728	180.160	7512.28	7116.47	-7115.61	-319.59	40°02'56.210"N	104°58'35.730"W	0.00	
14217.00†	90.728	180.160	7511.01	7216.46	-7215.60	-319.87	40°02'55.222"N	104°58'35.733"W	0.00	
14317.00†	90.728	180.160	7509.73	7316.46	-7315.59	-320.15	40°02'54.234"N	104°58'35.737"W	0.00	
14417.00†	90.728	180.160	7508.46	7416.45	-7415.58	-320.43	40°02'53.246"N	104°58'35.740"W	0.00	
14517.00†	90.728	180.160	7507.19	7516.44	-7515.57	-320.71	40°02'52.257"N	104°58'35.744"W	0.00	
14617.00†	90.728	180.160	7505.92	7616.43	-7615.56	-320.99	40°02'51.269"N	104°58'35.748"W	0.00	
14717.00†	90.728	180.160	7504.65	7716.42	-7715.56	-321.27	40°02'50.281"N	104°58'35.751"W	0.00	
14817.00†	90.728	180.160	7503.38	7816.42	-7815.55	-321.55	40°02'49.293"N	104°58'35.755"W	0.00	
14917.00†	90.728	180.160	7502.11	7916.41	-7915.54	-321.83	40°02'48.305"N	104°58'35.758"W	0.00	
15017.00†	90.728	180.160	7500.84	8016.40	-8015.53	-322.11	40°02'47.317"N	104°58'35.762"W	0.00	
15117.00†	90.728	180.160	7499.57	8116.39	-8115.52	-322.39	40°02'46.329"N	104°58'35.765"W	0.00	
15217.00†	90.728	180.160	7498.30	8216.38	-8215.51	-322.67	40°02'45.340"N	104°58'35.769"W	0.00	
15317.00†	90.728	180.160	7497.03	8316.38	-8315.51	-322.95	40°02'44.352"N	104°58'35.773"W	0.00	
15417.00†	90.728	180.160	7495.76	8416.37	-8415.50	-323.23	40°02'43.364"N	104°58'35.776"W	0.00	
15517.00†	90.728	180.160	7494.49	8516.36	-8515.49	-323.51	40°02'42.376"N	104°58'35.780"W	0.00	
15617.00†	90.728	180.160	7493.22	8616.35	-8615.48	-323.79	40°02'41.388"N	104°58'35.783"W	0.00	
15717.00†	90.728	180.160	7491.95	8716.34	-8715.47	-324.07	40°02'40.400"N	104°58'35.787"W	0.00	
15817.00†	90.728	180.160	7490.68	8816.33	-8815.46	-324.35	40°02'39.412"N	104°58'35.790"W	0.00	
15870.20	90.728	180.160	7490.00 <sup>1</sup>	8869.53	-8868.65	-324.50	40°02'38.886"N	104°58'35.792"W	0.00	TOTAL DEPTH

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

### HOLE & CASING SECTIONS - Ref Wellbore: COMO 13N-14HZ PWB Ref Wellpath: COMO 13N-14HZ (PERMIT REV-5) 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	1118.00	1101.00	17.00	1118.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1118.00	1101.00	17.00	1118.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1118.00	7999.61	6881.61	1118.00	7590.00	0.00	0.00	-998.73	-302.47
7in Casing Intermediate	17.00	7999.61	7982.61	17.00	7590.00	0.00	0.00	-998.73	-302.47
6.125in Open Hole	7999.61	15870.20	7870.59	7590.00	7490.00	-998.73	-302.47	-8868.65	-324.50
4.5in Casing Production	17.00	15870.20	15853.20	17.00	7490.00	0.00	0.00	-8868.65	-324.50

### TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.11-T1N-R68W SECTION LINES		-114.00	-8543.00	955.82	3147812.44	1259689.75	40°02'42.104"N	104°58'19.330"W	polygon
SEC.14-T1N-R68W SECTION LINES		-114.00	-8543.00	955.82	3147812.44	1259689.75	40°02'42.104"N	104°58'19.330"W	polygon
1) COMO 13N-14HZ BHL ON PLAT REV-1 (50'FSL & 960'FWL, SEC.14)	15870.20	7490.00	-8868.65	-324.50	3146534.12	1259356.54	40°02'38.886"N	104°58'35.792"W	point
COMO 13N-14HZ BHL REV-2 (50'FSL & 1060'FWL, SEC.14)		7490.00	-8868.65	-224.50	3146634.12	1259357.13	40°02'38.886"N	104°58'34.507"W	point
COMO 13N-14HZ LANDBOX		7490.00	0.00	0.00	3146806.15	1268226.61	40°04'06.528"N	104°58'31.620"W	polygon

### SURVEY PROGRAM - Ref Wellbore: COMO 13N-14HZ PWB Ref Wellpath: COMO 13N-14HZ (PERMIT REV-5) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	7999.61	NaviTrak (MAGCORR,IFR)		COMO 13N-14HZ PWB
7999.61	15870.20	NaviTrak (MAGCORR,IFR)		COMO 13N-14HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#23 COMO 13N-14HZ (1664'FNL & 1264'FWL, SEC.11)
Area	COLORADO	Well	COMO 13N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	COMO 13N-14HZ PWB
Facility	SEC.11-T1N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
967.00	0.000	220.340	967.00	BASE FOX HILLS
1118.00	0.000	220.340	1118.00	SURFACE CASING SETTING DEPTH
4257.83	4.674	220.340	4220.00	PARKMAN
4663.09	0.000	180.160	4625.00	SUSSEX
7504.97	46.210	180.160	7413.00	SHARON SPRINGS
7570.77	52.132	180.160	7456.00	NIOBRARA A
7867.46	78.834	180.160	7578.00	NIOBRARA B

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	220.340	17.00	TIE ON
1318.00	0.000	220.340	1318.00	BEGIN NUDGE
1818.00	10.000	220.340	1815.47	END NUDGE
3991.56	10.000	220.340	3956.00	BEGIN DROP
4491.56	0.000	180.160	4453.47	END DROP
6991.53	0.000	180.160	6953.44	KOP, BUILD @ 9°/100'
7999.61	90.728	180.160	7590.00	LANDING POINT
15870.20	90.728	180.160	7490.00	TOTAL DEPTH