

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)  
Field: WELD COUNTY (KERR MCGEE) Well: REYNOLDS CATTLE 30N-23HZ  
Facility: SEC.23-T3N-R68W Wellbore: REYNOLDS CATTLE 30N-23HZ PWB

Plot reference wellpath is REYNOLDS CATTLE 30N-23HZ (PERMIT REV-2) 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) (RKB) to Mean Sea Level: 4948 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precain on 07/Jan/2014

## Location Information

Facility Name				Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
SEC.23-T3N-R68W				3147390.982	1322769.280	40°13'05.700"N	104°57'19.920"W
Slot	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude	
SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)	-316.39	3020.34	3150413.014	1322490.883	40°13'02.572"N	104°57'40.986"W	
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23))						4948ft	
Mean Sea Level to Mud line (At Slot: SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23))						0ft	
PERMIT (17KB) (RKB) to Mean Sea Level						4948ft	

## Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	13167.45	NaviTrak	NaviTrak (IFR)		REYNOLDS CATTLE 30N-23HZ PWB

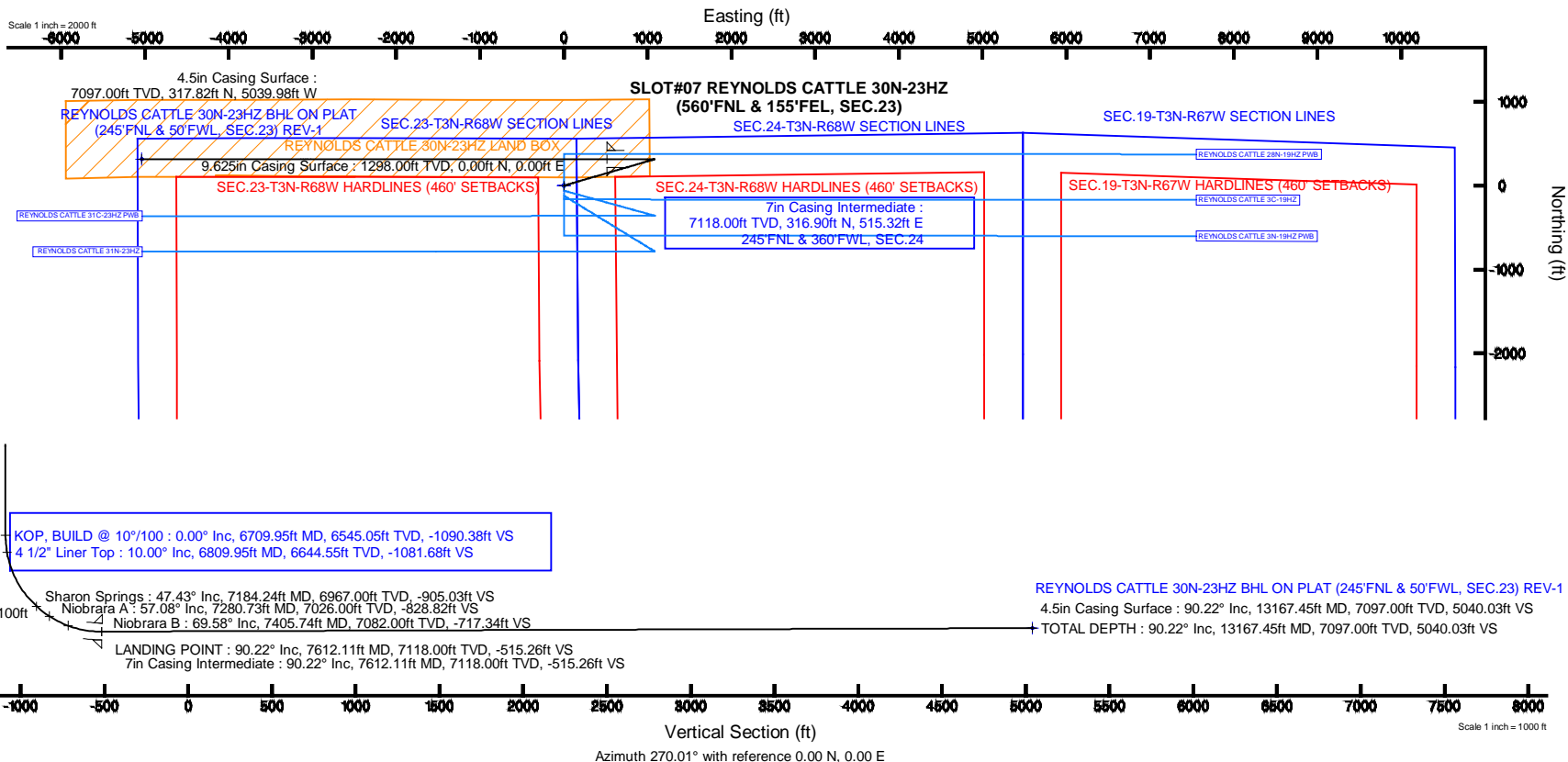


## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	73.800	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1398.00	0.000	73.800	1398.00	0.00	0.00	0.00	0.00
END NUDGE	2298.00	18.000	73.800	2283.27	39.12	134.65	2.00	-134.64
BEGIN DROP	5065.17	18.000	73.800	4915.00	277.68	955.79	0.00	-955.75
END DROP	5965.17	0.000	270.010	5800.27	316.80	1090.44	2.00	-1090.38
KOP, BUILD @ 10°/100	6709.95	0.000	270.010	6545.05	316.80	1090.44	0.00	-1090.38
LANDING POINT	7612.11	90.217	270.010	7118.00	316.90	515.32	10.00	-515.26
TOTAL DEPTH	13167.45	90.217	270.010	7097.00	317.82	-5039.98	0.00	5040.03

## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
SEC.19-T3N-R67W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.19-T3N-R67W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.23-T3N-R68W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.24-T3N-R68W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
REYNOLDS CATTLE 30N-23HZ BHL ON PLAT (245'FNL & 50'FWL, SEC.23) REV-1	13167.45	7097.00	317.82	-5039.98	3145371.43	1322778.07	40°13'05.700"N	104°56'45.955"W
REYNOLDS CATTLE 30N-23HZ LAND BOX		7097.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-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	Precain
Scale	0.999957	Report Generated	07/Jan/2014 at 13:04
Convergence at slot	n/a	Database/Source file	WellArchitectDB/REYNOLDS_CATTLE_30N-23HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-316.39	3020.34	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
Facility Reference Pt			3147390.98	1322789.28	40°13'05.700"N	104°58'19.920"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	4948.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	4948.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23))	4948.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	270.01°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (147 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	73.800	0.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
17.00	0.000	73.800	17.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	TIE-ON
117.00†	0.000	73.800	117.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
217.00†	0.000	73.800	217.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
317.00†	0.000	73.800	317.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
417.00†	0.000	73.800	417.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
517.00†	0.000	73.800	517.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
617.00†	0.000	73.800	617.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
717.00†	0.000	73.800	717.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
817.00†	0.000	73.800	817.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
917.00†	0.000	73.800	917.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
1017.00†	0.000	73.800	1017.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
1117.00†	0.000	73.800	1117.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
1217.00†	0.000	73.800	1217.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
1248.00†	0.000	73.800	1248.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	Fox Hills Marker
1317.00†	0.000	73.800	1317.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	
1398.00	0.000	73.800	1398.00	0.00	0.00	0.00	40°13'02.572"N	104°57'40.986"W	0.00	BEGIN NUDGE
1417.00†	0.380	73.800	1417.00	-0.06	0.02	0.06	40°13'02.572"N	104°57'40.985"W	2.00	
1517.00†	2.380	73.800	1516.97	-2.37	0.69	2.37	40°13'02.578"N	104°57'40.955"W	2.00	
1617.00†	4.380	73.800	1616.79	-8.03	2.33	8.03	40°13'02.595"N	104°57'40.882"W	2.00	
1717.00†	6.380	73.800	1716.34	-17.04	4.95	17.04	40°13'02.621"N	104°57'40.766"W	2.00	
1817.00†	8.380	73.800	1815.51	-29.37	8.53	29.37	40°13'02.656"N	104°57'40.607"W	2.00	
1917.00†	10.380	73.800	1914.17	-45.02	13.08	45.02	40°13'02.701"N	104°57'40.406"W	2.00	
2017.00†	12.380	73.800	2012.19	-63.97	18.58	63.97	40°13'02.755"N	104°57'40.161"W	2.00	
2117.00†	14.380	73.800	2109.48	-86.19	25.04	86.19	40°13'02.819"N	104°57'39.875"W	2.00	
2217.00†	16.380	73.800	2205.89	-111.65	32.44	111.66	40°13'02.892"N	104°57'39.547"W	2.00	
2298.00	18.000	73.800	2283.27	-134.64	39.12	134.65	40°13'02.958"N	104°57'39.250"W	2.00	END NUDGE
2317.00†	18.000	73.800	2301.34	-140.28	40.76	140.28	40°13'02.974"N	104°57'39.178"W	0.00	
2417.00†	18.000	73.800	2396.44	-169.95	49.38	169.96	40°13'03.060"N	104°57'38.795"W	0.00	
2517.00†	18.000	73.800	2491.55	-199.62	58.00	199.63	40°13'03.145"N	104°57'38.413"W	0.00	
2617.00†	18.000	73.800	2586.66	-229.30	66.62	229.31	40°13'03.230"N	104°57'38.030"W	0.00	
2717.00†	18.000	73.800	2681.76	-258.97	75.24	258.98	40°13'03.315"N	104°57'37.648"W	0.00	
2817.00†	18.000	73.800	2776.87	-288.64	83.86	288.66	40°13'03.400"N	104°57'37.265"W	0.00	
2917.00†	18.000	73.800	2871.97	-318.32	92.48	318.33	40°13'03.486"N	104°57'36.882"W	0.00	
3017.00†	18.000	73.800	2967.08	-347.99	101.11	348.01	40°13'03.571"N	104°57'36.500"W	0.00	
3117.00†	18.000	73.800	3062.18	-377.66	109.73	377.68	40°13'03.656"N	104°57'36.117"W	0.00	
3217.00†	18.000	73.800	3157.29	-407.34	118.35	407.36	40°13'03.741"N	104°57'35.735"W	0.00	
3317.00†	18.000	73.800	3252.40	-437.01	126.97	437.03	40°13'03.826"N	104°57'35.352"W	0.00	
3417.00†	18.000	73.800	3347.50	-466.68	135.59	466.71	40°13'03.911"N	104°57'34.970"W	0.00	
3517.00†	18.000	73.800	3442.61	-496.35	144.21	496.38	40°13'03.997"N	104°57'34.587"W	0.00	
3617.00†	18.000	73.800	3537.71	-526.03	152.83	526.05	40°13'04.082"N	104°57'34.205"W	0.00	
3717.00†	18.000	73.800	3632.82	-555.70	161.45	555.73	40°13'04.167"N	104°57'33.822"W	0.00	
3817.00†	18.000	73.800	3727.92	-585.37	170.08	585.40	40°13'04.252"N	104°57'33.440"W	0.00	
3917.00†	18.000	73.800	3823.03	-615.05	178.70	615.08	40°13'04.337"N	104°57'33.057"W	0.00	
4017.00†	18.000	73.800	3918.13	-644.72	187.32	644.75	40°13'04.423"N	104°57'32.675"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (147 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	18.000	73.800	4013.24	-674.39	195.94	674.43	40°13'04.508"N	104°57'32.292"W	0.00	
4217.00†	18.000	73.800	4108.35	-704.07	204.56	704.10	40°13'04.593"N	104°57'31.910"W	0.00	
4269.21†	18.000	73.800	4158.00	-719.56	209.06	719.60	40°13'04.637"N	104°57'31.710"W	0.00	Sussex
4317.00†	18.000	73.800	4203.45	-733.74	213.18	733.78	40°13'04.678"N	104°57'31.527"W	0.00	
4417.00†	18.000	73.800	4298.56	-763.41	221.80	763.45	40°13'04.763"N	104°57'31.145"W	0.00	
4517.00†	18.000	73.800	4393.66	-793.09	230.42	793.13	40°13'04.849"N	104°57'30.762"W	0.00	
4617.00†	18.000	73.800	4488.77	-822.76	239.05	822.80	40°13'04.934"N	104°57'30.379"W	0.00	
4717.00†	18.000	73.800	4583.87	-852.43	247.67	852.48	40°13'05.019"N	104°57'29.997"W	0.00	
4817.00†	18.000	73.800	4678.98	-882.11	256.29	882.15	40°13'05.104"N	104°57'29.614"W	0.00	
4837.00†	18.000	73.800	4698.00	-888.04	258.01	888.09	40°13'05.121"N	104°57'29.538"W	0.00	Shannon
4917.00†	18.000	73.800	4774.09	-911.78	264.91	911.83	40°13'05.189"N	104°57'29.232"W	0.00	
5017.00†	18.000	73.800	4869.19	-941.45	273.53	941.50	40°13'05.274"N	104°57'28.849"W	0.00	
5065.17	18.000	73.800	4915.00	-955.75	277.68	955.79	40°13'05.315"N	104°57'28.665"W	0.00	BEGIN DROP
5117.00†	16.963	73.800	4964.44	-970.70	282.03	970.75	40°13'05.358"N	104°57'28.472"W	2.00	
5217.00†	14.963	73.800	5060.58	-997.10	289.70	997.16	40°13'05.434"N	104°57'28.132"W	2.00	
5317.00†	12.963	73.800	5157.62	-1020.27	296.43	1020.33	40°13'05.501"N	104°57'27.833"W	2.00	
5417.00†	10.963	73.800	5255.44	-1040.18	302.21	1040.23	40°13'05.558"N	104°57'27.577"W	2.00	
5517.00†	8.963	73.800	5353.93	-1056.79	307.04	1056.84	40°13'05.606"N	104°57'27.362"W	2.00	
5617.00†	6.963	73.800	5452.96	-1070.09	310.91	1070.15	40°13'05.644"N	104°57'27.191"W	2.00	
5717.00†	4.963	73.800	5552.41	-1080.07	313.80	1080.12	40°13'05.672"N	104°57'27.062"W	2.00	
5817.00†	2.963	73.800	5652.17	-1086.71	315.73	1086.76	40°13'05.691"N	104°57'26.977"W	2.00	
5917.00†	0.963	73.800	5752.10	-1090.00	316.69	1090.05	40°13'05.701"N	104°57'26.934"W	2.00	
5965.17	0.000	270.010	5800.27	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	2.00	END DROP
6017.00†	0.000	270.010	5852.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6117.00†	0.000	270.010	5952.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6217.00†	0.000	270.010	6052.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6317.00†	0.000	270.010	6152.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6417.00†	0.000	270.010	6252.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6517.00†	0.000	270.010	6352.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6617.00†	0.000	270.010	6452.10	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	
6709.95	0.000	270.010	6545.05	-1090.38	316.80	1090.44	40°13'05.702"N	104°57'26.929"W	0.00	KOP, BUILD @ 10°/100
6717.00†	0.705	270.010	6552.10	-1090.34	316.80	1090.40	40°13'05.702"N	104°57'26.930"W	10.00	
6809.95†	10.000	270.010	6644.55	-1081.68	316.80	1081.73	40°13'05.702"N	104°57'27.042"W	10.00	4 1/2" Liner Top
6817.00†	10.705	270.010	6651.48	-1080.41	316.80	1080.47	40°13'05.702"N	104°57'27.058"W	10.00	
6917.00†	20.705	270.010	6747.62	-1053.38	316.81	1053.43	40°13'05.702"N	104°57'27.406"W	10.00	
7017.00†	30.705	270.010	6837.61	-1010.06	316.82	1010.11	40°13'05.702"N	104°57'27.965"W	10.00	
7117.00†	40.705	270.010	6918.71	-951.77	316.82	951.83	40°13'05.702"N	104°57'28.716"W	10.00	
7184.24†	47.429	270.010	6967.00	-905.03	316.83	905.09	40°13'05.702"N	104°57'29.319"W	10.00	Sharon Springs
7217.00†	50.705	270.010	6988.46	-880.29	316.84	880.34	40°13'05.702"N	104°57'29.638"W	10.00	
7280.73†	57.079	270.010	7026.00	-828.82	316.85	828.88	40°13'05.703"N	104°57'30.301"W	10.00	Niobrara A
7317.00†	60.705	270.010	7044.73	-797.77	316.85	797.83	40°13'05.703"N	104°57'30.701"W	10.00	
7405.74†	69.579	270.010	7082.00	-717.34	316.86	717.39	40°13'05.703"N	104°57'31.738"W	10.00	Niobrara B
7417.00†	70.705	270.010	7085.82	-706.75	316.87	706.80	40°13'05.703"N	104°57'31.875"W	10.00	
7517.00†	80.705	270.010	7110.48	-609.97	316.88	610.02	40°13'05.703"N	104°57'33.122"W	10.00	
7612.11	90.217	270.010	7118.00	-515.26	316.90	515.32	40°13'05.703"N	104°57'34.343"W	10.00	LANDING POINT

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

## WELLPATH DATA (147 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	90.217	270.010	7117.98	-510.37	316.90	510.43	40°13'05.703"N	104°57'34.406"W	0.00	
7717.00†	90.217	270.010	7117.61	-410.37	316.91	410.43	40°13'05.703"N	104°57'35.695"W	0.00	
7817.00†	90.217	270.010	7117.23	-310.37	316.93	310.43	40°13'05.703"N	104°57'36.984"W	0.00	
7917.00†	90.217	270.010	7116.85	-210.37	316.95	210.43	40°13'05.704"N	104°57'38.273"W	0.00	
8017.00†	90.217	270.010	7116.47	-110.38	316.96	110.43	40°13'05.704"N	104°57'39.562"W	0.00	
8117.00†	90.217	270.010	7116.09	-10.38	316.98	10.43	40°13'05.704"N	104°57'40.852"W	0.00	
8217.00†	90.217	270.010	7115.72	89.62	317.00	-89.57	40°13'05.704"N	104°57'42.141"W	0.00	
8317.00†	90.217	270.010	7115.34	189.62	317.01	-189.57	40°13'05.704"N	104°57'43.430"W	0.00	
8417.00†	90.217	270.010	7114.96	289.62	317.03	-289.57	40°13'05.704"N	104°57'44.719"W	0.00	
8517.00†	90.217	270.010	7114.58	389.62	317.05	-389.57	40°13'05.705"N	104°57'46.008"W	0.00	
8617.00†	90.217	270.010	7114.20	489.62	317.06	-489.56	40°13'05.705"N	104°57'47.297"W	0.00	
8717.00†	90.217	270.010	7113.83	589.62	317.08	-589.56	40°13'05.705"N	104°57'48.586"W	0.00	
8817.00†	90.217	270.010	7113.45	689.62	317.10	-689.56	40°13'05.705"N	104°57'49.875"W	0.00	
8917.00†	90.217	270.010	7113.07	789.62	317.11	-789.56	40°13'05.705"N	104°57'51.164"W	0.00	
9017.00†	90.217	270.010	7112.69	889.62	317.13	-889.56	40°13'05.705"N	104°57'52.453"W	0.00	
9117.00†	90.217	270.010	7112.31	989.62	317.15	-989.56	40°13'05.705"N	104°57'53.742"W	0.00	
9217.00†	90.217	270.010	7111.93	1089.62	317.16	-1089.56	40°13'05.706"N	104°57'55.031"W	0.00	
9317.00†	90.217	270.010	7111.56	1189.62	317.18	-1189.56	40°13'05.706"N	104°57'56.320"W	0.00	
9417.00†	90.217	270.010	7111.18	1289.61	317.20	-1289.56	40°13'05.706"N	104°57'57.609"W	0.00	
9517.00†	90.217	270.010	7110.80	1389.61	317.21	-1389.56	40°13'05.706"N	104°57'58.898"W	0.00	
9617.00†	90.217	270.010	7110.42	1489.61	317.23	-1489.56	40°13'05.706"N	104°58'00.188"W	0.00	
9717.00†	90.217	270.010	7110.04	1589.61	317.25	-1589.56	40°13'05.706"N	104°58'01.477"W	0.00	
9817.00†	90.217	270.010	7109.67	1689.61	317.26	-1689.56	40°13'05.706"N	104°58'02.766"W	0.00	
9917.00†	90.217	270.010	7109.29	1789.61	317.28	-1789.56	40°13'05.706"N	104°58'04.055"W	0.00	
10017.00†	90.217	270.010	7108.91	1889.61	317.30	-1889.55	40°13'05.706"N	104°58'05.344"W	0.00	
10117.00†	90.217	270.010	7108.53	1989.61	317.31	-1989.55	40°13'05.706"N	104°58'06.633"W	0.00	
10217.00†	90.217	270.010	7108.15	2089.61	317.33	-2089.55	40°13'05.707"N	104°58'07.922"W	0.00	
10317.00†	90.217	270.010	7107.78	2189.61	317.35	-2189.55	40°13'05.707"N	104°58'09.211"W	0.00	
10417.00†	90.217	270.010	7107.40	2289.61	317.36	-2289.55	40°13'05.707"N	104°58'10.500"W	0.00	
10517.00†	90.217	270.010	7107.02	2389.61	317.38	-2389.55	40°13'05.707"N	104°58'11.789"W	0.00	
10617.00†	90.217	270.010	7106.64	2489.61	317.40	-2489.55	40°13'05.707"N	104°58'13.078"W	0.00	
10717.00†	90.217	270.010	7106.26	2589.61	317.41	-2589.55	40°13'05.707"N	104°58'14.367"W	0.00	
10817.00†	90.217	270.010	7105.89	2689.60	317.43	-2689.55	40°13'05.707"N	104°58'15.656"W	0.00	
10917.00†	90.217	270.010	7105.51	2789.60	317.45	-2789.55	40°13'05.707"N	104°58'16.945"W	0.00	
11017.00†	90.217	270.010	7105.13	2889.60	317.46	-2889.55	40°13'05.707"N	104°58'18.234"W	0.00	
11117.00†	90.217	270.010	7104.75	2989.60	317.48	-2989.55	40°13'05.707"N	104°58'19.524"W	0.00	
11217.00†	90.217	270.010	7104.37	3089.60	317.50	-3089.55	40°13'05.707"N	104°58'20.813"W	0.00	
11317.00†	90.217	270.010	7104.00	3189.60	317.51	-3189.55	40°13'05.707"N	104°58'22.102"W	0.00	
11417.00†	90.217	270.010	7103.62	3289.60	317.53	-3289.54	40°13'05.707"N	104°58'23.391"W	0.00	
11517.00†	90.217	270.010	7103.24	3389.60	317.54	-3389.54	40°13'05.707"N	104°58'24.680"W	0.00	
11617.00†	90.217	270.010	7102.86	3489.60	317.56	-3489.54	40°13'05.707"N	104°58'25.969"W	0.00	
11717.00†	90.217	270.010	7102.48	3589.60	317.58	-3589.54	40°13'05.707"N	104°58'27.258"W	0.00	
11817.00†	90.217	270.010	7102.11	3689.60	317.59	-3689.54	40°13'05.707"N	104°58'28.547"W	0.00	
11917.00†	90.217	270.010	7101.73	3789.60	317.61	-3789.54	40°13'05.707"N	104°58'29.836"W	0.00	
12017.00†	90.217	270.010	7101.35	3889.60	317.63	-3889.54	40°13'05.707"N	104°58'31.125"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (147 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12117.00†	90.217	270.010	7100.97	3989.60	317.64	-3989.54	40°13'05.707"N	104°58'32.414"W	0.00	
12217.00†	90.217	270.010	7100.59	4089.59	317.66	-4089.54	40°13'05.707"N	104°58'33.703"W	0.00	
12317.00†	90.217	270.010	7100.22	4189.59	317.68	-4189.54	40°13'05.707"N	104°58'34.992"W	0.00	
12417.00†	90.217	270.010	7099.84	4289.59	317.69	-4289.54	40°13'05.707"N	104°58'36.281"W	0.00	
12517.00†	90.217	270.010	7099.46	4389.59	317.71	-4389.54	40°13'05.707"N	104°58'37.571"W	0.00	
12617.00†	90.217	270.010	7099.08	4489.59	317.73	-4489.54	40°13'05.707"N	104°58'38.860"W	0.00	
12717.00†	90.217	270.010	7098.70	4589.59	317.74	-4589.54	40°13'05.707"N	104°58'40.149"W	0.00	
12817.00†	90.217	270.010	7098.32	4689.59	317.76	-4689.53	40°13'05.707"N	104°58'41.438"W	0.00	
12917.00†	90.217	270.010	7097.95	4789.59	317.78	-4789.53	40°13'05.707"N	104°58'42.727"W	0.00	
13017.00†	90.217	270.010	7097.57	4889.59	317.79	-4889.53	40°13'05.707"N	104°58'44.016"W	0.00	
13117.00†	90.217	270.010	7097.19	4989.59	317.81	-4989.53	40°13'05.707"N	104°58'45.305"W	0.00	
13167.45	90.217	270.010	7097.00 <sup>1</sup>	5040.03	317.82	-5039.98	40°13'05.707"N	104°58'45.955"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: REYNOLDS CATTLE 30N-23HZ PWB					Ref Wellpath: REYNOLDS CATTLE 30N-23HZ (PERMIT REV-2) 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	1298.00	1281.00	17.00	1298.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1298.00	1281.00	17.00	1298.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1298.00	7612.11	6314.11	1298.00	7118.00	0.00	0.00	316.90	515.32
7in Casing Intermediate	17.00	7612.11	7595.11	17.00	7118.00	0.00	0.00	316.90	515.32
6.125in Open Hole	7612.11	13167.45	5555.34	7118.00	7097.00	316.90	515.32	317.82	-5039.98
4.5in Casing Surface	17.00	13167.45	13150.45	17.00	7097.00	0.00	0.00	317.82	-5039.98



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.19-T3N-R67W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.19-T3N-R67W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.24-T3N-R68W SECTION LINES		0.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
1) REYNOLDS CATTLE 30N-23HZ BHL ON PLAT (245'FNL & 50'FWL, SEC.23) REV-1	13167.45	7097.00	317.82	-5039.98	3145371.43	1322778.07	40°13'05.707"N	104°58'45.955"W	point
REYNOLDS CATTLE 30N-23HZ LAND BOX		7097.00	0.00	0.00	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon

SURVEY PROGRAM -				
Ref Wellbore: REYNOLDS CATTLE 30N-23HZ PWB		Ref Wellpath: REYNOLDS CATTLE 30N-23HZ (PERMIT REV-2) PWP		
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	13167.45	NaviTrak (IFR)		REYNOLDS CATTLE 30N-23HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#07 REYNOLDS CATTLE 30N-23HZ (560'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 30N-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 30N-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1248.00	0.000	73.800	1248.00	Fox Hills Marker
4269.21	18.000	73.800	4158.00	Sussex
4837.00	18.000	73.800	4698.00	Shannon
6809.95	10.000	270.010	6644.55	4 1/2" Liner Top
7184.24	47.429	270.010	6967.00	Sharon Springs
7280.73	57.079	270.010	7026.00	Niobrara A
7405.74	69.579	270.010	7082.00	Niobrara B

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	73.800	17.00	TIE-ON
1398.00	0.000	73.800	1398.00	BEGIN NUDGE
2298.00	18.000	73.800	2283.27	END NUDGE
5065.17	18.000	73.800	4915.00	BEGIN DROP
5965.17	0.000	270.010	5800.27	END DROP
6709.95	0.000	270.010	6545.05	KOP, BUILD @ 10°/100
7612.11	90.217	270.010	7118.00	LANDING POINT
13167.45	90.217	270.010	7097.00	TOTAL DEPTH