

KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Field: WELD COUNTY (KERR MCGEE) Well: REYNOLDS CATTLE 31C-23HZ
Facility: SEC.23-T3N-R68W Wellbore: REYNOLDS CATTLE 31C-23HZ PWB

Plot reference wellpath is REYNOLDS CATTLE 31C-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#08 REYNOLDS CATTLE 31C-23HZ (620'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°58'19.920"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)	-376.46	3020.89	3150413.922	1322430.821	40°13'01.978"N	104°57'40.978"W	
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23))						4948ft	
Mean Sea Level to Mud line (At Slot: SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'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	13339.67	NaviTrak	NaviTrak (IFR)		REYNOLDS CATTLE 31C-23HZ PWB

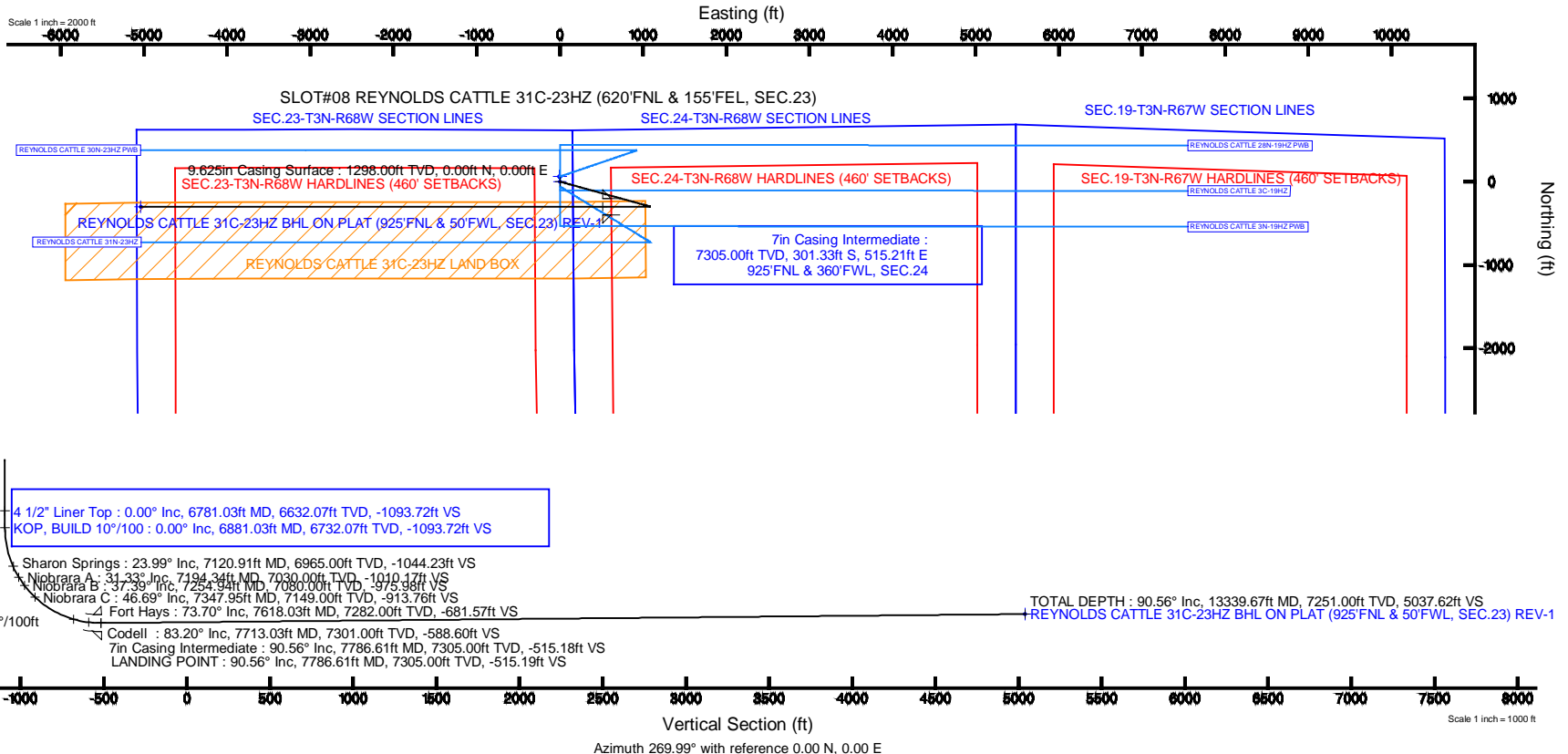


Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	105.400	17.00	0.00	0.00	0.00	0.00
BEGIN BUILD	1398.00	0.000	105.400	1398.00	0.00	0.00	0.00	0.00
END BUILD	2198.00	16.000	105.400	2187.64	-29.47	106.99	2.00	-106.99
BEGIN DROP	5508.60	16.000	105.400	5370.00	-271.80	986.75	0.00	-986.73
END DROP	6308.60	0.000	269.994	6159.64	-301.27	1093.75	2.00	-1093.72
KOP, BUILD 10°/100	6881.03	0.000	269.994	6732.07	-301.27	1093.75	0.00	-1093.72
LANDING POINT	7786.61	90.557	269.994	7305.00	-301.33	515.22	10.00	-515.19
TOTAL DEPTH	13339.67	90.557	269.994	7251.00	-301.90	-5037.59	0.00	5037.62

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	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
SEC.19-T3N-R67W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
SEC.23-T3N-R68W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
SEC.24-T3N-R68W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.988"W
REYNOLDS CATTLE 31C-23HZ BHL ON PLAT (925'FNL & 50'FWL, SEC.23) REV-1	13339.67	7251.00	-301.90	-5037.59	3145378.49	1322098.35	40°12'58.960"N	104°58'45.916"W
REYNOLDS CATTLE 31C-23HZ LAND BOX		7251.00	-0.04	0.02	3150413.94	1322430.78	40°13'01.978"N	104°57'40.978"W



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-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 13:39
Convergence at slot	n/a	Database/Source file	WellArchitectDB/REYNOLDS_CATTLE_31C-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	-376.46	3020.89	3150413.92	1322430.82	40°13'01.978"N	104°57'40.979"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#08 REYNOLDS CATTLE 31C-23HZ (620'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	269.99°

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (152 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	105.400	0.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
17.00	0.000	105.400	17.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	TIE-ON
117.00†	0.000	105.400	117.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
217.00†	0.000	105.400	217.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
317.00†	0.000	105.400	317.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
417.00†	0.000	105.400	417.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
517.00†	0.000	105.400	517.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
617.00†	0.000	105.400	617.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
717.00†	0.000	105.400	717.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
817.00†	0.000	105.400	817.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
917.00†	0.000	105.400	917.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
1017.00†	0.000	105.400	1017.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
1117.00†	0.000	105.400	1117.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
1217.00†	0.000	105.400	1217.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
1248.00†	0.000	105.400	1248.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	Fox Hills Marker
1317.00†	0.000	105.400	1317.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	
1398.00	0.000	105.400	1398.00	0.00	0.00	0.00	40°13'01.978"N	104°57'40.979"W	0.00	BEGIN BUILD
1417.00†	0.380	105.400	1417.00	-0.06	-0.02	0.06	40°13'01.978"N	104°57'40.978"W	2.00	
1517.00†	2.380	105.400	1516.97	-2.38	-0.66	2.38	40°13'01.972"N	104°57'40.948"W	2.00	
1617.00†	4.380	105.400	1616.79	-8.07	-2.22	8.07	40°13'01.956"N	104°57'40.875"W	2.00	
1717.00†	6.380	105.400	1716.34	-17.10	-4.71	17.11	40°13'01.931"N	104°57'40.759"W	2.00	
1817.00†	8.380	105.400	1815.51	-29.49	-8.12	29.49	40°13'01.898"N	104°57'40.599"W	2.00	
1917.00†	10.380	105.400	1914.17	-45.20	-12.45	45.20	40°13'01.855"N	104°57'40.396"W	2.00	
2017.00†	12.380	105.400	2012.19	-64.22	-17.69	64.22	40°13'01.803"N	104°57'40.151"W	2.00	
2117.00†	14.380	105.400	2109.48	-86.53	-23.83	86.53	40°13'01.742"N	104°57'39.864"W	2.00	
2198.00	16.000	105.400	2187.64	-106.99	-29.47	106.99	40°13'01.687"N	104°57'39.600"W	2.00	END BUILD
2217.00†	16.000	105.400	2205.91	-112.04	-30.86	112.04	40°13'01.673"N	104°57'39.535"W	0.00	
2317.00†	16.000	105.400	2302.03	-138.61	-38.18	138.62	40°13'01.601"N	104°57'39.192"W	0.00	
2417.00†	16.000	105.400	2398.16	-165.18	-45.50	165.19	40°13'01.528"N	104°57'38.850"W	0.00	
2517.00†	16.000	105.400	2494.29	-191.76	-52.82	191.76	40°13'01.456"N	104°57'38.507"W	0.00	
2617.00†	16.000	105.400	2590.41	-218.33	-60.14	218.34	40°13'01.384"N	104°57'38.165"W	0.00	
2717.00†	16.000	105.400	2686.54	-244.90	-67.46	244.91	40°13'01.311"N	104°57'37.822"W	0.00	
2817.00†	16.000	105.400	2782.66	-271.48	-74.78	271.49	40°13'01.239"N	104°57'37.479"W	0.00	
2917.00†	16.000	105.400	2878.79	-298.05	-82.10	298.06	40°13'01.167"N	104°57'37.137"W	0.00	
3017.00†	16.000	105.400	2974.92	-324.62	-89.42	324.63	40°13'01.094"N	104°57'36.794"W	0.00	
3117.00†	16.000	105.400	3071.04	-351.20	-96.74	351.21	40°13'01.022"N	104°57'36.452"W	0.00	
3217.00†	16.000	105.400	3167.17	-377.77	-104.06	377.78	40°13'00.950"N	104°57'36.109"W	0.00	
3317.00†	16.000	105.400	3263.29	-404.34	-111.38	404.36	40°13'00.877"N	104°57'35.767"W	0.00	
3417.00†	16.000	105.400	3359.42	-430.92	-118.70	430.93	40°13'00.805"N	104°57'35.424"W	0.00	
3517.00†	16.000	105.400	3455.55	-457.49	-126.02	457.50	40°13'00.733"N	104°57'35.082"W	0.00	
3617.00†	16.000	105.400	3551.67	-484.06	-133.34	484.08	40°13'00.660"N	104°57'34.739"W	0.00	
3717.00†	16.000	105.400	3647.80	-510.64	-140.66	510.65	40°13'00.588"N	104°57'34.396"W	0.00	
3817.00†	16.000	105.400	3743.93	-537.21	-147.98	537.23	40°13'00.516"N	104°57'34.054"W	0.00	
3917.00†	16.000	105.400	3840.05	-563.78	-155.30	563.80	40°13'00.443"N	104°57'33.711"W	0.00	
4017.00†	16.000	105.400	3936.18	-590.36	-162.62	590.37	40°13'00.371"N	104°57'33.369"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (152 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	16.000	105.400	4032.30	-616.93	-169.94	616.95	40°13'00.299"N	104°57'33.026"W	0.00	
4217.00†	16.000	105.400	4128.43	-643.50	-177.26	643.52	40°13'00.226"N	104°57'32.684"W	0.00	
4247.76†	16.000	105.400	4158.00	-651.68	-179.51	651.70	40°13'00.204"N	104°57'32.578"W	0.00	Sussex
4317.00†	16.000	105.400	4224.56	-670.08	-184.58	670.10	40°13'00.154"N	104°57'32.341"W	0.00	
4417.00†	16.000	105.400	4320.68	-696.65	-191.90	696.67	40°13'00.082"N	104°57'31.999"W	0.00	
4517.00†	16.000	105.400	4416.81	-723.22	-199.21	723.25	40°13'00.009"N	104°57'31.656"W	0.00	
4617.00†	16.000	105.400	4512.93	-749.80	-206.53	749.82	40°12'59.937"N	104°57'31.313"W	0.00	
4717.00†	16.000	105.400	4609.06	-776.37	-213.85	776.39	40°12'59.865"N	104°57'30.971"W	0.00	
4809.52†	16.000	105.400	4698.00	-800.96	-220.63	800.98	40°12'59.798"N	104°57'30.654"W	0.00	Shannon
4817.00†	16.000	105.400	4705.19	-802.94	-221.17	802.97	40°12'59.792"N	104°57'30.628"W	0.00	
4917.00†	16.000	105.400	4801.31	-829.52	-228.49	829.54	40°12'59.720"N	104°57'30.286"W	0.00	
5017.00†	16.000	105.400	4897.44	-856.09	-235.81	856.12	40°12'59.648"N	104°57'29.943"W	0.00	
5117.00†	16.000	105.400	4993.57	-882.66	-243.13	882.69	40°12'59.575"N	104°57'29.601"W	0.00	
5217.00†	16.000	105.400	5089.69	-909.24	-250.45	909.26	40°12'59.503"N	104°57'29.258"W	0.00	
5317.00†	16.000	105.400	5185.82	-935.81	-257.77	935.84	40°12'59.431"N	104°57'28.916"W	0.00	
5417.00†	16.000	105.400	5281.94	-962.38	-265.09	962.41	40°12'59.358"N	104°57'28.573"W	0.00	
5508.60	16.000	105.400	5370.00	-986.73	-271.80	986.75	40°12'59.292"N	104°57'28.259"W	0.00	BEGIN DROP
5517.00†	15.832	105.400	5378.07	-988.95	-272.41	988.97	40°12'59.286"N	104°57'28.231"W	2.00	
5617.00†	13.832	105.400	5474.74	-1013.62	-279.21	1013.65	40°12'59.219"N	104°57'27.913"W	2.00	
5717.00†	11.832	105.400	5572.23	-1035.03	-285.10	1035.06	40°12'59.160"N	104°57'27.637"W	2.00	
5817.00†	9.832	105.400	5670.45	-1053.15	-290.09	1053.18	40°12'59.111"N	104°57'27.403"W	2.00	
5917.00†	7.832	105.400	5769.26	-1067.95	-294.17	1067.98	40°12'59.071"N	104°57'27.212"W	2.00	
6017.00†	5.832	105.400	5868.54	-1079.42	-297.33	1079.45	40°12'59.040"N	104°57'27.064"W	2.00	
6117.00†	3.832	105.400	5968.18	-1087.54	-299.57	1087.57	40°12'59.017"N	104°57'26.960"W	2.00	
6217.00†	1.832	105.400	6068.05	-1092.30	-300.88	1092.34	40°12'59.004"N	104°57'26.898"W	2.00	
6308.60	0.000	269.994	6159.64	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	2.00	END DROP
6317.00†	0.000	269.994	6168.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6417.00†	0.000	269.994	6268.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6517.00†	0.000	269.994	6368.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6617.00†	0.000	269.994	6468.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6717.00†	0.000	269.994	6568.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6781.03†	0.000	269.994	6632.07	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	4 1/2" Liner Top
6817.00†	0.000	269.994	6668.04	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	
6881.03	0.000	269.994	6732.07	-1093.72	-301.27	1093.75	40°12'59.001"N	104°57'26.880"W	0.00	KOP, BUILD 10°/100
6917.00†	3.597	269.994	6768.01	-1092.59	-301.27	1092.62	40°12'59.001"N	104°57'26.895"W	10.00	
7017.00†	13.597	269.994	6866.77	-1077.66	-301.27	1077.69	40°12'59.001"N	104°57'27.087"W	10.00	
7117.00†	23.597	269.994	6961.42	-1045.81	-301.27	1045.84	40°12'59.001"N	104°57'27.498"W	10.00	
7120.91†	23.987	269.994	6965.00	-1044.23	-301.27	1044.26	40°12'59.001"N	104°57'27.518"W	10.00	Sharon Springs
7194.34†	31.331	269.994	7030.00	-1010.17	-301.28	1010.20	40°12'59.001"N	104°57'27.957"W	10.00	Niobrara A
7217.00†	33.597	269.994	7049.11	-998.01	-301.28	998.04	40°12'59.001"N	104°57'28.114"W	10.00	
7254.94†	37.391	269.994	7080.00	-975.98	-301.28	976.01	40°12'59.001"N	104°57'28.398"W	10.00	Niobrara B
7317.00†	43.597	269.994	7127.17	-935.70	-301.28	935.73	40°12'59.001"N	104°57'28.917"W	10.00	
7347.95†	46.692	269.994	7149.00	-913.76	-301.29	913.79	40°12'59.001"N	104°57'29.200"W	10.00	Niobrara C
7417.00†	53.597	269.994	7193.22	-860.79	-301.29	860.82	40°12'59.000"N	104°57'29.883"W	10.00	
7517.00†	63.597	269.994	7245.26	-775.55	-301.30	775.58	40°12'59.000"N	104°57'30.981"W	10.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (152 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	73.597	269.994	7281.71	-682.56	-301.31	682.59	40°12'59.000"N	104°57'32.180"W	10.00	
7618.03†	73.700	269.994	7282.00	-681.57	-301.31	681.60	40°12'59.000"N	104°57'32.193"W	10.00	Fort Hays
7713.03†	83.200	269.994	7301.00	-588.60	-301.32	588.63	40°12'59.000"N	104°57'33.391"W	10.00	Codell
7717.00†	83.597	269.994	7301.46	-584.66	-301.32	584.69	40°12'59.000"N	104°57'33.442"W	10.00	
7786.61	90.557	269.994	7305.00	-515.19	-301.33	515.22	40°12'59.000"N	104°57'34.338"W	10.00	LANDING POINT
7817.00†	90.557	269.994	7304.71	-484.79	-301.33	484.83	40°12'59.000"N	104°57'34.729"W	0.00	
7917.00†	90.557	269.994	7303.74	-384.80	-301.34	384.83	40°12'59.000"N	104°57'36.018"W	0.00	
8017.00†	90.557	269.994	7302.76	-284.80	-301.35	284.83	40°12'59.000"N	104°57'37.307"W	0.00	
8117.00†	90.557	269.994	7301.79	-184.81	-301.36	184.84	40°12'59.000"N	104°57'38.596"W	0.00	
8217.00†	90.557	269.994	7300.82	-84.81	-301.37	84.84	40°12'59.000"N	104°57'39.885"W	0.00	
8317.00†	90.557	269.994	7299.85	15.18	-301.38	-15.15	40°12'59.000"N	104°57'41.174"W	0.00	
8417.00†	90.557	269.994	7298.87	115.18	-301.39	-115.15	40°12'59.000"N	104°57'42.463"W	0.00	
8517.00†	90.557	269.994	7297.90	215.17	-301.40	-215.14	40°12'59.000"N	104°57'43.752"W	0.00	
8617.00†	90.557	269.994	7296.93	315.17	-301.41	-315.14	40°12'58.999"N	104°57'45.041"W	0.00	
8717.00†	90.557	269.994	7295.96	415.16	-301.42	-415.13	40°12'58.999"N	104°57'46.330"W	0.00	
8817.00†	90.557	269.994	7294.98	515.16	-301.43	-515.13	40°12'58.999"N	104°57'47.619"W	0.00	
8917.00†	90.557	269.994	7294.01	615.15	-301.44	-615.12	40°12'58.999"N	104°57'48.908"W	0.00	
9017.00†	90.557	269.994	7293.04	715.15	-301.45	-715.12	40°12'58.999"N	104°57'50.197"W	0.00	
9117.00†	90.557	269.994	7292.07	815.14	-301.46	-815.11	40°12'58.999"N	104°57'51.486"W	0.00	
9217.00†	90.557	269.994	7291.09	915.14	-301.47	-915.11	40°12'58.999"N	104°57'52.775"W	0.00	
9317.00†	90.557	269.994	7290.12	1015.14	-301.48	-1015.10	40°12'58.999"N	104°57'54.064"W	0.00	
9417.00†	90.557	269.994	7289.15	1115.13	-301.49	-1115.10	40°12'58.998"N	104°57'55.353"W	0.00	
9517.00†	90.557	269.994	7288.18	1215.13	-301.51	-1215.09	40°12'58.998"N	104°57'56.642"W	0.00	
9617.00†	90.557	269.994	7287.20	1315.12	-301.52	-1315.09	40°12'58.998"N	104°57'57.931"W	0.00	
9717.00†	90.557	269.994	7286.23	1415.12	-301.53	-1415.08	40°12'58.998"N	104°57'59.220"W	0.00	
9817.00†	90.557	269.994	7285.26	1515.11	-301.54	-1515.08	40°12'58.998"N	104°58'00.509"W	0.00	
9917.00†	90.557	269.994	7284.29	1615.11	-301.55	-1615.08	40°12'58.998"N	104°58'01.798"W	0.00	
10017.00†	90.557	269.994	7283.31	1715.10	-301.56	-1715.07	40°12'58.997"N	104°58'03.087"W	0.00	
10117.00†	90.557	269.994	7282.34	1815.10	-301.57	-1815.07	40°12'58.997"N	104°58'04.376"W	0.00	
10217.00†	90.557	269.994	7281.37	1915.09	-301.58	-1915.06	40°12'58.997"N	104°58'05.665"W	0.00	
10317.00†	90.557	269.994	7280.40	2015.09	-301.59	-2015.06	40°12'58.997"N	104°58'06.954"W	0.00	
10417.00†	90.557	269.994	7279.42	2115.08	-301.60	-2115.05	40°12'58.997"N	104°58'08.243"W	0.00	
10517.00†	90.557	269.994	7278.45	2215.08	-301.61	-2215.05	40°12'58.997"N	104°58'09.532"W	0.00	
10617.00†	90.557	269.994	7277.48	2315.07	-301.62	-2315.04	40°12'58.996"N	104°58'10.821"W	0.00	
10717.00†	90.557	269.994	7276.51	2415.07	-301.63	-2415.04	40°12'58.996"N	104°58'12.110"W	0.00	
10817.00†	90.557	269.994	7275.53	2515.06	-301.64	-2515.03	40°12'58.996"N	104°58'13.399"W	0.00	
10917.00†	90.557	269.994	7274.56	2615.06	-301.65	-2615.03	40°12'58.996"N	104°58'14.688"W	0.00	
11017.00†	90.557	269.994	7273.59	2715.05	-301.66	-2715.02	40°12'58.996"N	104°58'15.977"W	0.00	
11117.00†	90.557	269.994	7272.62	2815.05	-301.67	-2815.02	40°12'58.995"N	104°58'17.266"W	0.00	
11217.00†	90.557	269.994	7271.64	2915.05	-301.68	-2915.01	40°12'58.995"N	104°58'18.555"W	0.00	
11317.00†	90.557	269.994	7270.67	3015.04	-301.69	-3015.01	40°12'58.995"N	104°58'19.844"W	0.00	
11417.00†	90.557	269.994	7269.70	3115.04	-301.70	-3115.00	40°12'58.995"N	104°58'21.133"W	0.00	
11517.00†	90.557	269.994	7268.73	3215.03	-301.71	-3215.00	40°12'58.994"N	104°58'22.422"W	0.00	
11617.00†	90.557	269.994	7267.75	3315.03	-301.72	-3314.99	40°12'58.994"N	104°58'23.711"W	0.00	
11717.00†	90.557	269.994	7266.78	3415.02	-301.73	-3414.99	40°12'58.994"N	104°58'25.000"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (152 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11817.00†	90.557	269.994	7265.81	3515.02	-301.74	-3514.99	40°12'58.994"N	104°58'26.289"W	0.00	
11917.00†	90.557	269.994	7264.84	3615.01	-301.75	-3614.98	40°12'58.993"N	104°58'27.578"W	0.00	
12017.00†	90.557	269.994	7263.86	3715.01	-301.76	-3714.98	40°12'58.993"N	104°58'28.867"W	0.00	
12117.00†	90.557	269.994	7262.89	3815.00	-301.77	-3814.97	40°12'58.993"N	104°58'30.156"W	0.00	
12217.00†	90.557	269.994	7261.92	3915.00	-301.78	-3914.97	40°12'58.993"N	104°58'31.445"W	0.00	
12317.00†	90.557	269.994	7260.95	4014.99	-301.79	-4014.96	40°12'58.992"N	104°58'32.734"W	0.00	
12417.00†	90.557	269.994	7259.97	4114.99	-301.80	-4114.96	40°12'58.992"N	104°58'34.023"W	0.00	
12517.00†	90.557	269.994	7259.00	4214.98	-301.81	-4214.95	40°12'58.992"N	104°58'35.311"W	0.00	
12617.00†	90.557	269.994	7258.03	4314.98	-301.82	-4314.95	40°12'58.992"N	104°58'36.600"W	0.00	
12717.00†	90.557	269.994	7257.06	4414.97	-301.83	-4414.94	40°12'58.991"N	104°58'37.889"W	0.00	
12817.00†	90.557	269.994	7256.08	4514.97	-301.84	-4514.94	40°12'58.991"N	104°58'39.178"W	0.00	
12917.00†	90.557	269.994	7255.11	4614.97	-301.85	-4614.93	40°12'58.991"N	104°58'40.467"W	0.00	
13017.00†	90.557	269.994	7254.14	4714.96	-301.86	-4714.93	40°12'58.991"N	104°58'41.756"W	0.00	
13117.00†	90.557	269.994	7253.17	4814.96	-301.87	-4814.92	40°12'58.990"N	104°58'43.045"W	0.00	
13217.00†	90.557	269.994	7252.19	4914.95	-301.88	-4914.92	40°12'58.990"N	104°58'44.334"W	0.00	
13317.00†	90.557	269.994	7251.22	5014.95	-301.90	-5014.91	40°12'58.990"N	104°58'45.623"W	0.00	
13339.67	90.557	269.994	7251.00 ¹	5037.62	-301.90	-5037.59	40°12'58.990"N	104°58'45.916"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: REYNOLDS CATTLE 31C-23HZ PWB					Ref Wellpath: REYNOLDS CATTLE 31C-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	7786.61	6488.61	1298.00	7305.00	0.00	0.00	-301.33	515.21
7in Casing Intermediate	17.00	7786.61	7769.61	17.00	7305.00	0.00	0.00	-301.33	515.21
6.125in Open Hole	7786.61	13339.67	5553.06	7305.00	7251.00	-301.33	515.21	-301.90	-5037.59
4.5in Casing Production	17.00	13339.67	13322.67	17.00	7251.00	0.00	0.00	-301.90	-5037.59

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-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	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.19-T3N-R67W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.24-T3N-R68W SECTION LINES		0.00	60.07	-0.54	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
1) REYNOLDS CATTLE 31C-23HZ BHL ON PLAT (925'FNL & 50'FWL, SEC.23) REV-1	13339.67	7251.00	-301.90	-5037.59	3145378.49	1322098.35	40°12'58.990"N	104°58'45.916"W	point
REYNOLDS CATTLE 31C-23HZ LAND BOX		7251.00	-0.04	0.02	3150413.94	1322430.78	40°13'01.978"N	104°57'40.979"W	polygon
REYNOLDS CATTLE 31C-23HZ LANDBOX		7251.00	-0.04	0.02	3150413.94	1322430.78	40°13'01.978"N	104°57'40.979"W	polygon

SURVEY PROGRAM -				
Ref Wellbore: REYNOLDS CATTLE 31C-23HZ PWB		Ref Wellpath: REYNOLDS CATTLE 31C-23HZ (PERMIT REV-2) PWP		
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	13339.67	NaviTrak (IFR)		REYNOLDS CATTLE 31C-23HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#08 REYNOLDS CATTLE 31C-23HZ (620'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 31C-23HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 31C-23HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1248.00	0.000	105.400	1248.00	Fox Hills Marker
4247.76	16.000	105.400	4158.00	Sussex
4809.52	16.000	105.400	4698.00	Shannon
6781.03	0.000	269.994	6632.07	4 1/2" Liner Top
7120.91	23.987	269.994	6965.00	Sharon Springs
7194.34	31.331	269.994	7030.00	Niobrara A
7254.94	37.391	269.994	7080.00	Niobrara B
7347.95	46.692	269.994	7149.00	Niobrara C
7618.03	73.700	269.994	7282.00	Fort Hays
7713.03	83.200	269.994	7301.00	Codell

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	105.400	17.00	TIE-ON
1398.00	0.000	105.400	1398.00	BEGIN BUILD
2198.00	16.000	105.400	2187.64	END BUILD
5508.60	16.000	105.400	5370.00	BEGIN DROP
6308.60	0.000	269.994	6159.64	END DROP
6881.03	0.000	269.994	6732.07	KOP, BUILD 10°/100
7786.61	90.557	269.994	7305.00	LANDING POINT
13339.67	90.557	269.994	7251.00	TOTAL DEPTH