

KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Field: WELD COUNTY (KERR MCGEE) Well: KERBS 5N-14HZ
Facility: SEC.13-T3N-R68W Wellbore: KERBS 5N-14HZ PWB

Plot reference wellpath is KERBS 5N-14HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (17 KB) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMIT (17 KB) (RKB)	North Reference: True north
PERMIT (17 KB) (RKB) to Mean Sea Level: 4890 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precain on 10/Jul/2013

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.13-T3N-R68W	3155503.948	1323690.531	40°13'14.116"N	104°56'35.262"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)	2856.22	43.67	3155529.678	1323646.841
PERMIT (17 KB) (RKB) to Mud line (At Slot: SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13))				4890R
Mean Sea Level to Mud line (At Slot: SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13))				0R
PERMIT (17 KB) (RKB) to Mean Sea Level				4890R

Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	7358.52	NaviTrak	NaviTrak (Standard)		KERBS 5N-14HZ PWB
7358.52	17278.17	OnTrak	OnTrak (Standard)		KERBS 5N-14HZ PWB

Well Profile Data

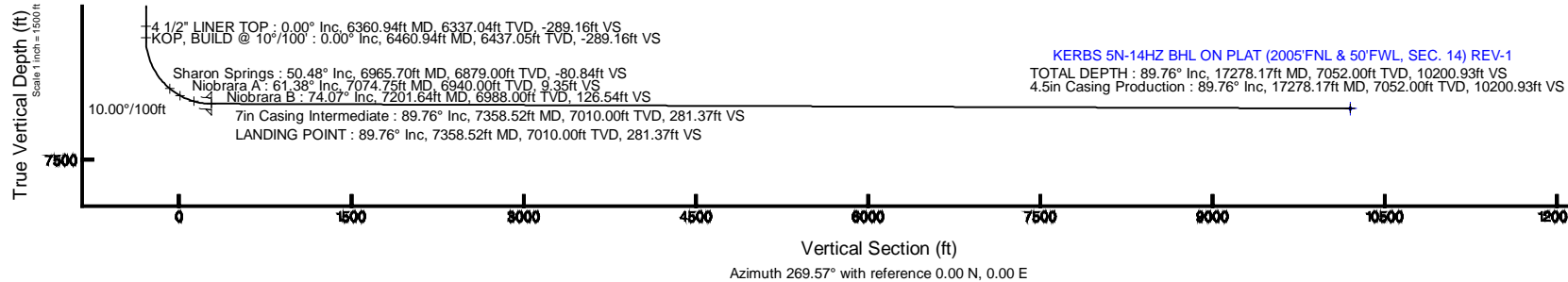
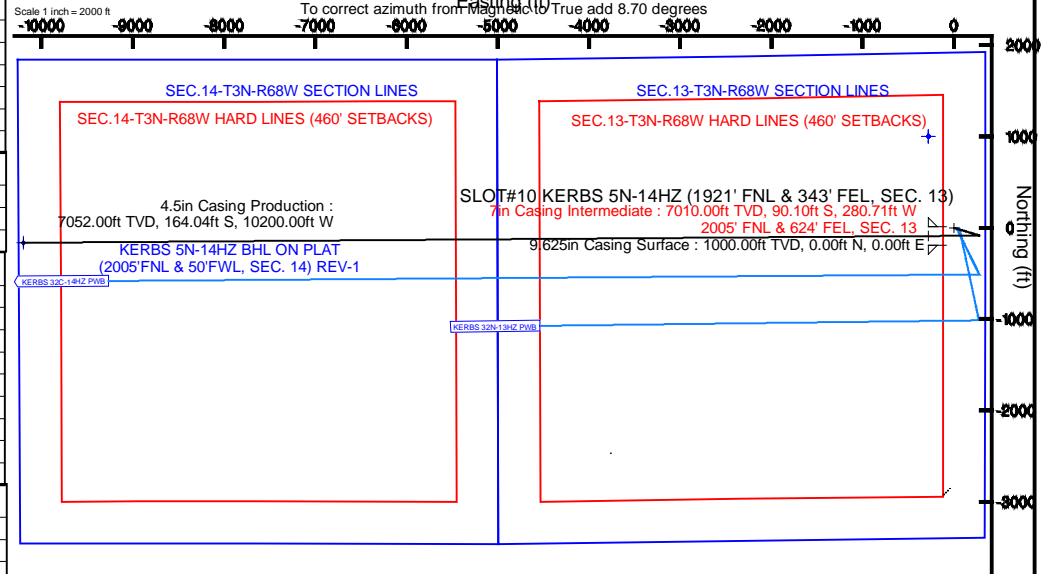
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	106.500	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1100.00	0.000	106.500	1100.00	0.00	0.00	0.00	0.00
END NUDGE	1600.00	10.000	106.500	1597.47	-12.36	41.73	2.00	-41.64
BEGIN DROP	2839.36	10.000	106.500	2818.00	-73.48	248.08	0.00	-247.53
END DROP	3339.36	0.000	269.573	3315.47	-85.85	289.81	2.00	-289.16
KOP, BUILD @ 10°/100'	6460.94	0.000	269.573	6437.05	-85.85	289.81	0.00	-289.16
LANDING POINT	7358.52	89.757	269.573	7010.00	-90.10	-280.70	10.00	281.37
TOTAL DEPTH	17278.17	89.757	269.573	7052.00	-164.04	-10200.00	0.00	10200.93

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.13-T3N-R68W HARD LINES (460' SETBACKS)		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W
SEC.13-T3N-R68W SECTION LINES		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W
SEC.14-T3N-R68W HARD LINES (460' SETBACKS)		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W
SEC.14-T3N-R68W SECTION LINES		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W
KERBS 5N-14HZ BHL ON PLAT (2005'FNL & 50'FWL, SEC. 14) REV-1	17278.17	7052.00	-164.04	-10200.00	3145331.37	1326316.74	40°13'40.699"N	104°56'46.204"W



BGGM (1945.0 to 2015.0) Dip: 66.80° Field: 52738.4 nT
Magnetic North is 8.70 degrees East of True North (at 08/Jul/2013)





Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 1 of 8



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-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	10/Jul/2013 at 08:57
Convergence at slot	n/a	Database/Source file	WellArchitectDB/KERBS_5N-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	2856.22	43.67	3155529.68	1326546.84	40°13'42.341"N	104°56'34.699"W
Facility Reference Pt			3155503.95	1323690.53	40°13'14.116"N	104°56'35.262"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	4890.00ft
Horizontal Reference Pt	Slot	PERMIT (17' KB) (RKB) to Mean Sea Level	4890.00ft
Vertical Reference Pt	PERMIT (17' KB) (RKB)	PERMIT (17' KB) (RKB) to Mud Line at Slot (SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13))	4890.00ft
MD Reference Pt	PERMIT (17' KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.57°



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 2 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH DATA (188 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	106.500	0.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
17.00	0.000	106.500	17.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	TIE-ON
117.00†	0.000	106.500	117.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
217.00†	0.000	106.500	217.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
317.00†	0.000	106.500	317.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
417.00†	0.000	106.500	417.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
517.00†	0.000	106.500	517.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
617.00†	0.000	106.500	617.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
717.00†	0.000	106.500	717.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
817.00†	0.000	106.500	817.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
917.00†	0.000	106.500	917.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
938.00†	0.000	106.500	938.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	Fox Hills Base
1017.00†	0.000	106.500	1017.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	
1100.00	0.000	106.500	1100.00	0.00	0.00	0.00	40°13'42.341"N	104°56'34.699"W	0.00	BEGIN NUDGE
1117.00†	0.340	106.500	1117.00	-0.05	-0.01	0.05	40°13'42.341"N	104°56'34.698"W	2.00	
1217.00†	2.340	106.500	1216.97	-2.29	-0.68	2.29	40°13'42.334"N	104°56'34.669"W	2.00	
1317.00†	4.340	106.500	1316.79	-7.86	-2.33	7.88	40°13'42.318"N	104°56'34.597"W	2.00	
1417.00†	6.340	106.500	1416.35	-16.76	-4.98	16.80	40°13'42.292"N	104°56'34.482"W	2.00	
1517.00†	8.340	106.500	1515.53	-28.98	-8.60	29.05	40°13'42.256"N	104°56'34.324"W	2.00	
1600.00	10.000	106.500	1597.47	-41.64	-12.36	41.73	40°13'42.219"N	104°56'34.161"W	2.00	END NUDGE
1617.00†	10.000	106.500	1614.21	-44.46	-13.20	44.56	40°13'42.211"N	104°56'34.124"W	0.00	
1717.00†	10.000	106.500	1712.69	-61.07	-18.13	61.21	40°13'42.162"N	104°56'33.910"W	0.00	
1817.00†	10.000	106.500	1811.17	-77.69	-23.06	77.86	40°13'42.113"N	104°56'33.695"W	0.00	
1917.00†	10.000	106.500	1909.65	-94.30	-28.00	94.51	40°13'42.064"N	104°56'33.481"W	0.00	
2017.00†	10.000	106.500	2008.13	-110.91	-32.93	111.16	40°13'42.016"N	104°56'33.266"W	0.00	
2117.00†	10.000	106.500	2106.61	-127.52	-37.86	127.81	40°13'41.967"N	104°56'33.051"W	0.00	
2217.00†	10.000	106.500	2205.09	-144.14	-42.79	144.46	40°13'41.918"N	104°56'32.837"W	0.00	
2317.00†	10.000	106.500	2303.57	-160.75	-47.72	161.11	40°13'41.869"N	104°56'32.622"W	0.00	
2417.00†	10.000	106.500	2402.05	-177.36	-52.65	177.76	40°13'41.821"N	104°56'32.407"W	0.00	
2517.00†	10.000	106.500	2500.53	-193.97	-57.59	194.41	40°13'41.772"N	104°56'32.193"W	0.00	
2617.00†	10.000	106.500	2599.01	-210.59	-62.52	211.06	40°13'41.723"N	104°56'31.978"W	0.00	
2717.00†	10.000	106.500	2697.50	-227.20	-67.45	227.71	40°13'41.674"N	104°56'31.763"W	0.00	
2817.00†	10.000	106.500	2795.98	-243.81	-72.38	244.36	40°13'41.626"N	104°56'31.549"W	0.00	
2839.36	10.000	106.500	2818.00	-247.53	-73.48	248.08	40°13'41.615"N	104°56'31.501"W	0.00	BEGIN DROP
2917.00†	8.447	106.500	2894.63	-259.43	-77.02	260.01	40°13'41.580"N	104°56'31.347"W	2.00	
3017.00†	6.447	106.500	2993.78	-271.83	-80.70	272.44	40°13'41.544"N	104°56'31.187"W	2.00	
3117.00†	4.447	106.500	3093.33	-280.91	-83.40	281.54	40°13'41.517"N	104°56'31.069"W	2.00	
3217.00†	2.447	106.500	3193.14	-286.66	-85.10	287.31	40°13'41.500"N	104°56'30.995"W	2.00	
3317.00†	0.447	106.500	3293.10	-289.08	-85.82	289.73	40°13'41.493"N	104°56'30.964"W	2.00	
3339.36	0.000	269.573	3315.47	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	2.00	END DROP
3417.00†	0.000	269.573	3393.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
3517.00†	0.000	269.573	3493.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
3606.90†	0.000	269.573	3583.00	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	Parkman
3617.00†	0.000	269.573	3593.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
3717.00†	0.000	269.573	3693.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 3 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH DATA (188 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3817.00†	0.000	269.573	3793.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
3917.00†	0.000	269.573	3893.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4017.00†	0.000	269.573	3993.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4083.90†	0.000	269.573	4060.00	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	Sussex
4117.00†	0.000	269.573	4093.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4217.00†	0.000	269.573	4193.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4317.00†	0.000	269.573	4293.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4417.00†	0.000	269.573	4393.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4517.00†	0.000	269.573	4493.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4617.00†	0.000	269.573	4593.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4717.00†	0.000	269.573	4693.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4817.00†	0.000	269.573	4793.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
4917.00†	0.000	269.573	4893.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5017.00†	0.000	269.573	4993.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5117.00†	0.000	269.573	5093.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5217.00†	0.000	269.573	5193.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5317.00†	0.000	269.573	5293.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5417.00†	0.000	269.573	5393.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5517.00†	0.000	269.573	5493.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5617.00†	0.000	269.573	5593.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5717.00†	0.000	269.573	5693.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5817.00†	0.000	269.573	5793.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
5917.00†	0.000	269.573	5893.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6017.00†	0.000	269.573	5993.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6117.00†	0.000	269.573	6093.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6217.00†	0.000	269.573	6193.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6317.00†	0.000	269.573	6293.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6360.94†	0.000	269.573	6337.04	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	4 1/2" LINER TOP
6417.00†	0.000	269.573	6393.10	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	
6460.94	0.000	269.573	6437.05	-289.16	-85.85	289.81	40°13'41.493"N	104°56'30.963"W	0.00	KOP, BUILD @ 10°/100'
6517.00†	5.606	269.573	6493.01	-286.42	-85.87	287.07	40°13'41.492"N	104°56'30.998"W	10.00	
6617.00†	15.606	269.573	6591.18	-268.04	-86.00	268.69	40°13'41.491"N	104°56'31.235"W	10.00	
6717.00†	25.606	269.573	6684.66	-232.89	-86.27	233.54	40°13'41.489"N	104°56'31.688"W	10.00	
6817.00†	35.606	269.573	6770.62	-182.05	-86.64	182.70	40°13'41.485"N	104°56'32.344"W	10.00	
6917.00†	45.606	269.573	6846.45	-117.04	-87.13	117.70	40°13'41.480"N	104°56'33.182"W	10.00	
6965.70†	50.476	269.573	6879.00	-80.84	-87.40	81.49	40°13'41.477"N	104°56'33.648"W	10.00	Sharon Springs
7017.00†	55.606	269.573	6909.83	-39.86	-87.70	40.52	40°13'41.474"N	104°56'34.177"W	10.00	
7074.75†	61.381	269.573	6940.00	9.35	-88.07	-8.70	40°13'41.471"N	104°56'34.811"W	10.00	Niobrara A
7117.00†	65.606	269.573	6958.85	47.15	-88.35	-46.50	40°13'41.468"N	104°56'35.298"W	10.00	
7201.64†	74.070	269.573	6988.00	126.54	-88.94	-125.88	40°13'41.462"N	104°56'36.322"W	10.00	Niobrara B
7217.00†	75.606	269.573	6992.02	141.36	-89.06	-140.70	40°13'41.461"N	104°56'36.513"W	10.00	
7317.00†	85.606	269.573	7008.32	239.89	-89.79	-239.23	40°13'41.454"N	104°56'37.783"W	10.00	
7358.52	89.757	269.573	7010.00	281.37	-90.10	-280.70	40°13'41.451"N	104°56'38.318"W	10.00	LANDING POINT
7417.00†	89.757	269.573	7010.25	339.85	-90.53	-339.19	40°13'41.446"N	104°56'39.072"W	0.00	
7517.00†	89.757	269.573	7010.67	439.85	-91.28	-439.18	40°13'41.439"N	104°56'40.361"W	0.00	



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 4 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH DATA (188 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	89.757	269.573	7011.09	539.85	-92.03	-539.18	40°13'41.432"N	104°56'41.650"W	0.00	
7717.00†	89.757	269.573	7011.52	639.85	-92.77	-639.17	40°13'41.424"N	104°56'42.940"W	0.00	
7817.00†	89.757	269.573	7011.94	739.85	-93.52	-739.17	40°13'41.417"N	104°56'44.229"W	0.00	
7917.00†	89.757	269.573	7012.36	839.85	-94.26	-839.17	40°13'41.409"N	104°56'45.518"W	0.00	
8017.00†	89.757	269.573	7012.79	939.85	-95.01	-939.16	40°13'41.402"N	104°56'46.807"W	0.00	
8117.00†	89.757	269.573	7013.21	1039.84	-95.75	-1039.16	40°13'41.395"N	104°56'48.097"W	0.00	
8217.00†	89.757	269.573	7013.63	1139.84	-96.50	-1139.16	40°13'41.387"N	104°56'49.386"W	0.00	
8317.00†	89.757	269.573	7014.06	1239.84	-97.24	-1239.15	40°13'41.380"N	104°56'50.675"W	0.00	
8417.00†	89.757	269.573	7014.48	1339.84	-97.99	-1339.15	40°13'41.372"N	104°56'51.964"W	0.00	
8517.00†	89.757	269.573	7014.90	1439.84	-98.73	-1439.14	40°13'41.365"N	104°56'53.253"W	0.00	
8617.00†	89.757	269.573	7015.33	1539.84	-99.48	-1539.14	40°13'41.357"N	104°56'54.543"W	0.00	
8717.00†	89.757	269.573	7015.75	1639.84	-100.23	-1639.14	40°13'41.350"N	104°56'55.832"W	0.00	
8817.00†	89.757	269.573	7016.17	1739.84	-100.97	-1739.13	40°13'41.343"N	104°56'57.121"W	0.00	
8917.00†	89.757	269.573	7016.60	1839.84	-101.72	-1839.13	40°13'41.335"N	104°56'58.410"W	0.00	
9017.00†	89.757	269.573	7017.02	1939.84	-102.46	-1939.13	40°13'41.328"N	104°56'59.699"W	0.00	
9117.00†	89.757	269.573	7017.44	2039.84	-103.21	-2039.12	40°13'41.320"N	104°57'00.989"W	0.00	
9217.00†	89.757	269.573	7017.87	2139.83	-103.95	-2139.12	40°13'41.313"N	104°57'02.278"W	0.00	
9317.00†	89.757	269.573	7018.29	2239.83	-104.70	-2239.12	40°13'41.305"N	104°57'03.567"W	0.00	
9417.00†	89.757	269.573	7018.71	2339.83	-105.44	-2339.11	40°13'41.298"N	104°57'04.856"W	0.00	
9517.00†	89.757	269.573	7019.14	2439.83	-106.19	-2439.11	40°13'41.290"N	104°57'06.146"W	0.00	
9617.00†	89.757	269.573	7019.56	2539.83	-106.93	-2539.10	40°13'41.283"N	104°57'07.435"W	0.00	
9717.00†	89.757	269.573	7019.98	2639.83	-107.68	-2639.10	40°13'41.276"N	104°57'08.724"W	0.00	
9817.00†	89.757	269.573	7020.41	2739.83	-108.42	-2739.10	40°13'41.268"N	104°57'10.013"W	0.00	
9917.00†	89.757	269.573	7020.83	2839.83	-109.17	-2839.09	40°13'41.261"N	104°57'11.302"W	0.00	
10017.00†	89.757	269.573	7021.25	2939.83	-109.92	-2939.09	40°13'41.253"N	104°57'12.592"W	0.00	
10117.00†	89.757	269.573	7021.68	3039.83	-110.66	-3039.09	40°13'41.246"N	104°57'13.881"W	0.00	
10217.00†	89.757	269.573	7022.10	3139.83	-111.41	-3139.08	40°13'41.238"N	104°57'15.170"W	0.00	
10317.00†	89.757	269.573	7022.52	3239.82	-112.15	-3239.08	40°13'41.231"N	104°57'16.459"W	0.00	
10417.00†	89.757	269.573	7022.95	3339.82	-112.90	-3339.07	40°13'41.223"N	104°57'17.748"W	0.00	
10517.00†	89.757	269.573	7023.37	3439.82	-113.64	-3439.07	40°13'41.216"N	104°57'19.038"W	0.00	
10617.00†	89.757	269.573	7023.80	3539.82	-114.39	-3539.07	40°13'41.208"N	104°57'20.327"W	0.00	
10717.00†	89.757	269.573	7024.22	3639.82	-115.13	-3639.06	40°13'41.201"N	104°57'21.616"W	0.00	
10817.00†	89.757	269.573	7024.64	3739.82	-115.88	-3739.06	40°13'41.193"N	104°57'22.905"W	0.00	
10917.00†	89.757	269.573	7025.07	3839.82	-116.62	-3839.06	40°13'41.186"N	104°57'24.195"W	0.00	
11017.00†	89.757	269.573	7025.49	3939.82	-117.37	-3939.05	40°13'41.178"N	104°57'25.484"W	0.00	
11117.00†	89.757	269.573	7025.91	4039.82	-118.11	-4039.05	40°13'41.171"N	104°57'26.773"W	0.00	
11217.00†	89.757	269.573	7026.34	4139.82	-118.86	-4139.05	40°13'41.163"N	104°57'28.062"W	0.00	
11317.00†	89.757	269.573	7026.76	4239.82	-119.61	-4239.04	40°13'41.155"N	104°57'29.351"W	0.00	
11417.00†	89.757	269.573	7027.18	4339.81	-120.35	-4339.04	40°13'41.148"N	104°57'30.641"W	0.00	
11517.00†	89.757	269.573	7027.61	4439.81	-121.10	-4439.03	40°13'41.140"N	104°57'31.930"W	0.00	
11617.00†	89.757	269.573	7028.03	4539.81	-121.84	-4539.03	40°13'41.133"N	104°57'33.219"W	0.00	
11717.00†	89.757	269.573	7028.45	4639.81	-122.59	-4639.03	40°13'41.125"N	104°57'34.508"W	0.00	
11817.00†	89.757	269.573	7028.88	4739.81	-123.33	-4739.02	40°13'41.118"N	104°57'35.798"W	0.00	
11917.00†	89.757	269.573	7029.30	4839.81	-124.08	-4839.02	40°13'41.110"N	104°57'37.087"W	0.00	
12017.00†	89.757	269.573	7029.72	4939.81	-124.82	-4939.02	40°13'41.103"N	104°57'38.376"W	0.00	



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 5 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH DATA (188 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12117.00†	89.757	269.573	7030.15	5039.81	-125.57	-5039.01	40°13'41.095"N	104°57'39.665"W	0.00	
12217.00†	89.757	269.573	7030.57	5139.81	-126.31	-5139.01	40°13'41.088"N	104°57'40.954"W	0.00	
12317.00†	89.757	269.573	7030.99	5239.81	-127.06	-5239.01	40°13'41.080"N	104°57'42.244"W	0.00	
12417.00†	89.757	269.573	7031.42	5339.81	-127.81	-5339.00	40°13'41.072"N	104°57'43.533"W	0.00	
12517.00†	89.757	269.573	7031.84	5439.80	-128.55	-5439.00	40°13'41.065"N	104°57'44.822"W	0.00	
12617.00†	89.757	269.573	7032.26	5539.80	-129.30	-5538.99	40°13'41.057"N	104°57'46.111"W	0.00	
12717.00†	89.757	269.573	7032.69	5639.80	-130.04	-5638.99	40°13'41.050"N	104°57'47.400"W	0.00	
12817.00†	89.757	269.573	7033.11	5739.80	-130.79	-5738.99	40°13'41.042"N	104°57'48.690"W	0.00	
12917.00†	89.757	269.573	7033.53	5839.80	-131.53	-5838.98	40°13'41.034"N	104°57'49.979"W	0.00	
13017.00†	89.757	269.573	7033.96	5939.80	-132.28	-5938.98	40°13'41.027"N	104°57'51.268"W	0.00	
13117.00†	89.757	269.573	7034.38	6039.80	-133.02	-6038.98	40°13'41.019"N	104°57'52.557"W	0.00	
13217.00†	89.757	269.573	7034.80	6139.80	-133.77	-6138.97	40°13'41.012"N	104°57'53.846"W	0.00	
13317.00†	89.757	269.573	7035.23	6239.80	-134.51	-6238.97	40°13'41.004"N	104°57'55.136"W	0.00	
13417.00†	89.757	269.573	7035.65	6339.80	-135.26	-6338.96	40°13'40.996"N	104°57'56.425"W	0.00	
13517.00†	89.757	269.573	7036.07	6439.80	-136.00	-6438.96	40°13'40.989"N	104°57'57.714"W	0.00	
13617.00†	89.757	269.573	7036.50	6539.79	-136.75	-6538.96	40°13'40.981"N	104°57'59.003"W	0.00	
13717.00†	89.757	269.573	7036.92	6639.79	-137.50	-6638.95	40°13'40.973"N	104°58'00.293"W	0.00	
13817.00†	89.757	269.573	7037.34	6739.79	-138.24	-6738.95	40°13'40.966"N	104°58'01.582"W	0.00	
13917.00†	89.757	269.573	7037.77	6839.79	-138.99	-6838.95	40°13'40.958"N	104°58'02.871"W	0.00	
14017.00†	89.757	269.573	7038.19	6939.79	-139.73	-6938.94	40°13'40.951"N	104°58'04.160"W	0.00	
14117.00†	89.757	269.573	7038.61	7039.79	-140.48	-7038.94	40°13'40.943"N	104°58'05.449"W	0.00	
14217.00†	89.757	269.573	7039.04	7139.79	-141.22	-7138.94	40°13'40.935"N	104°58'06.739"W	0.00	
14317.00†	89.757	269.573	7039.46	7239.79	-141.97	-7238.93	40°13'40.928"N	104°58'08.028"W	0.00	
14417.00†	89.757	269.573	7039.89	7339.79	-142.71	-7338.93	40°13'40.920"N	104°58'09.317"W	0.00	
14517.00†	89.757	269.573	7040.31	7439.79	-143.46	-7438.92	40°13'40.912"N	104°58'10.606"W	0.00	
14617.00†	89.757	269.573	7040.73	7539.79	-144.20	-7538.92	40°13'40.905"N	104°58'11.895"W	0.00	
14717.00†	89.757	269.573	7041.16	7639.79	-144.95	-7638.92	40°13'40.897"N	104°58'13.185"W	0.00	
14817.00†	89.757	269.573	7041.58	7739.78	-145.69	-7738.91	40°13'40.889"N	104°58'14.474"W	0.00	
14917.00†	89.757	269.573	7042.00	7839.78	-146.44	-7838.91	40°13'40.882"N	104°58'15.763"W	0.00	
15017.00†	89.757	269.573	7042.43	7939.78	-147.19	-7938.91	40°13'40.874"N	104°58'17.052"W	0.00	
15117.00†	89.757	269.573	7042.85	8039.78	-147.93	-8038.90	40°13'40.866"N	104°58'18.342"W	0.00	
15217.00†	89.757	269.573	7043.27	8139.78	-148.68	-8138.90	40°13'40.859"N	104°58'19.631"W	0.00	
15317.00†	89.757	269.573	7043.70	8239.78	-149.42	-8238.89	40°13'40.851"N	104°58'20.920"W	0.00	
15417.00†	89.757	269.573	7044.12	8339.78	-150.17	-8338.89	40°13'40.843"N	104°58'22.209"W	0.00	
15517.00†	89.757	269.573	7044.54	8439.78	-150.91	-8438.89	40°13'40.835"N	104°58'23.498"W	0.00	
15617.00†	89.757	269.573	7044.97	8539.78	-151.66	-8538.88	40°13'40.828"N	104°58'24.788"W	0.00	
15717.00†	89.757	269.573	7045.39	8639.78	-152.40	-8638.88	40°13'40.820"N	104°58'26.077"W	0.00	
15817.00†	89.757	269.573	7045.81	8739.78	-153.15	-8738.88	40°13'40.812"N	104°58'27.366"W	0.00	
15917.00†	89.757	269.573	7046.24	8839.77	-153.89	-8838.87	40°13'40.805"N	104°58'28.655"W	0.00	
16017.00†	89.757	269.573	7046.66	8939.77	-154.64	-8938.87	40°13'40.797"N	104°58'29.944"W	0.00	
16117.00†	89.757	269.573	7047.08	9039.77	-155.39	-9038.87	40°13'40.789"N	104°58'31.234"W	0.00	
16217.00†	89.757	269.573	7047.51	9139.77	-156.13	-9138.86	40°13'40.781"N	104°58'32.523"W	0.00	
16317.00†	89.757	269.573	7047.93	9239.77	-156.88	-9238.86	40°13'40.774"N	104°58'33.812"W	0.00	
16417.00†	89.757	269.573	7048.35	9339.77	-157.62	-9338.85	40°13'40.766"N	104°58'35.101"W	0.00	
16517.00†	89.757	269.573	7048.78	9439.77	-158.37	-9438.85	40°13'40.758"N	104°58'36.390"W	0.00	



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 6 of 8



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH DATA (188 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16617.00†	89.757	269.573	7049.20	9539.77	-159.11	-9538.85	40°13'40.751"N	104°58'37.680"W	0.00	
16717.00†	89.757	269.573	7049.62	9639.77	-159.86	-9638.84	40°13'40.743"N	104°58'38.969"W	0.00	
16817.00†	89.757	269.573	7050.05	9739.77	-160.60	-9738.84	40°13'40.735"N	104°58'40.258"W	0.00	
16917.00†	89.757	269.573	7050.47	9839.77	-161.35	-9838.84	40°13'40.727"N	104°58'41.547"W	0.00	
17017.00†	89.757	269.573	7050.89	9939.76	-162.09	-9938.83	40°13'40.719"N	104°58'42.837"W	0.00	
17117.00†	89.757	269.573	7051.32	10039.76	-162.84	-10038.83	40°13'40.712"N	104°58'44.126"W	0.00	
17217.00†	89.757	269.573	7051.74	10139.76	-163.58	-10138.83	40°13'40.704"N	104°58'45.415"W	0.00	
17278.17	89.757	269.573	7052.00 ¹	10200.93	-164.04	-10200.00	40°13'40.699"N	104°58'46.204"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: KERBS 5N-14HZ PWB Ref Wellpath: KERBS 5N-14HZ (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	1000.00	983.00	17.00	1000.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1000.00	983.00	17.00	1000.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1000.00	7358.52	6358.52	1000.00	7010.00	0.00	0.00	-90.10	-280.71
7in Casing Intermediate	17.00	7358.52	7341.52	17.00	7010.00	0.00	0.00	-90.10	-280.71
6.125in Open Hole	7358.52	17278.17	9919.65	7010.00	7052.00	-90.10	-280.71	-164.04	-10200.00
4.5in Casing Production	17.00	17278.17	17261.17	17.00	7052.00	0.00	0.00	-164.04	-10200.00



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 7 of 8



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.13-T3N-R68W HARD LINES (460' SETBACKS)		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W	polygon
SEC.13-T3N-R68W SECTION LINES		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W	polygon
SEC.14-T3N-R68W HARD LINES (460' SETBACKS)		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W	polygon
SEC.14-T3N-R68W SECTION LINES		4890.00	1002.13	-277.59	3155245.81	1327547.17	40°13'52.244"N	104°56'38.278"W	polygon
1) KERBS 5N-14HZ BHL ON PLAT (2005' FNL & 50' FWL, SEC. 14) REV-1	17278.17	7052.00	-164.04	-10200.00	3145331.37	1326318.74	40°13'40.699"N	104°58'46.204"W	point

SURVEY PROGRAM - Ref Wellbore: KERBS 5N-14HZ PWB Ref Wellpath: KERBS 5N-14HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	7358.52	NaviTrak (Standard)		KERBS 5N-14HZ PWB
7358.52	17278.17	OnTrak (Standard)		KERBS 5N-14HZ PWB



Planned Wellpath Report

KERBS 5N-14HZ (PERMIT REV-1) PWP

Page 8 of 8



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 KERBS 5N-14HZ (1921' FNL & 343' FEL, SEC. 13)
Area	COLORADO	Well	KERBS 5N-14HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	KERBS 5N-14HZ PWB
Facility	SEC.13-T3N-R68W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
938.00	0.000	106.500	938.00	Fox Hills Base
3606.90	0.000	269.573	3583.00	Parkman
4083.90	0.000	269.573	4060.00	Sussex
6360.94	0.000	269.573	6337.04	4 1/2" LINER TOP
6965.70	50.476	269.573	6879.00	Sharon Springs
7074.75	61.381	269.573	6940.00	Niobrara A
7201.64	74.070	269.573	6988.00	Niobrara B

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	106.500	17.00	TIE-ON
1100.00	0.000	106.500	1100.00	BEGIN NUDGE
1600.00	10.000	106.500	1597.47	END NUDGE
2839.36	10.000	106.500	2818.00	BEGIN DROP
3339.36	0.000	269.573	3315.47	END DROP
6460.94	0.000	269.573	6437.05	KOP, BUILD @ 10°/100'
7358.52	89.757	269.573	7010.00	LANDING POINT
17278.17	89.757	269.573	7052.00	TOTAL DEPTH