

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#10 REYNOLDS CATTLE 28N-19HZ (590°FNL & 155°FEL, SEC.23)  
Field: WELD COUNTY (KERR MCGEE) Well: REYNOLDS CATTLE 28N-19HZ  
Facility: SEC.23-T3N-R68W Wellbore: REYNOLDS CATTLE 28N-19HZ PWB

Plot reference wellpath is REYNOLDS CATTLE 28N-19HZ (PERMIT REV-1) 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#10 REYNOLDS CATTLE 28N-19HZ (590°FNL & 155°FEL, SEC.23)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precan on 09/Dec/2013

## 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#10 REYNOLDS CATTLE 28N-19HZ (590°FNL & 155°FEL, SEC.23)	-346.27	3020.90	3150413.754	1322461.016	40°13'02.276"N	104°57'40.979"W	
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#10 REYNOLDS CATTLE 28N-19HZ (590°FNL & 155°FEL, SEC.23))						4948ft	
Mean Sea Level to Mud line (At Slot: SLOT#10 REYNOLDS CATTLE 28N-19HZ (590°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	14427.62	NaviTrak	NaviTrak (IFR)		REYNOLDS CATTLE 28N-19HZ PWB

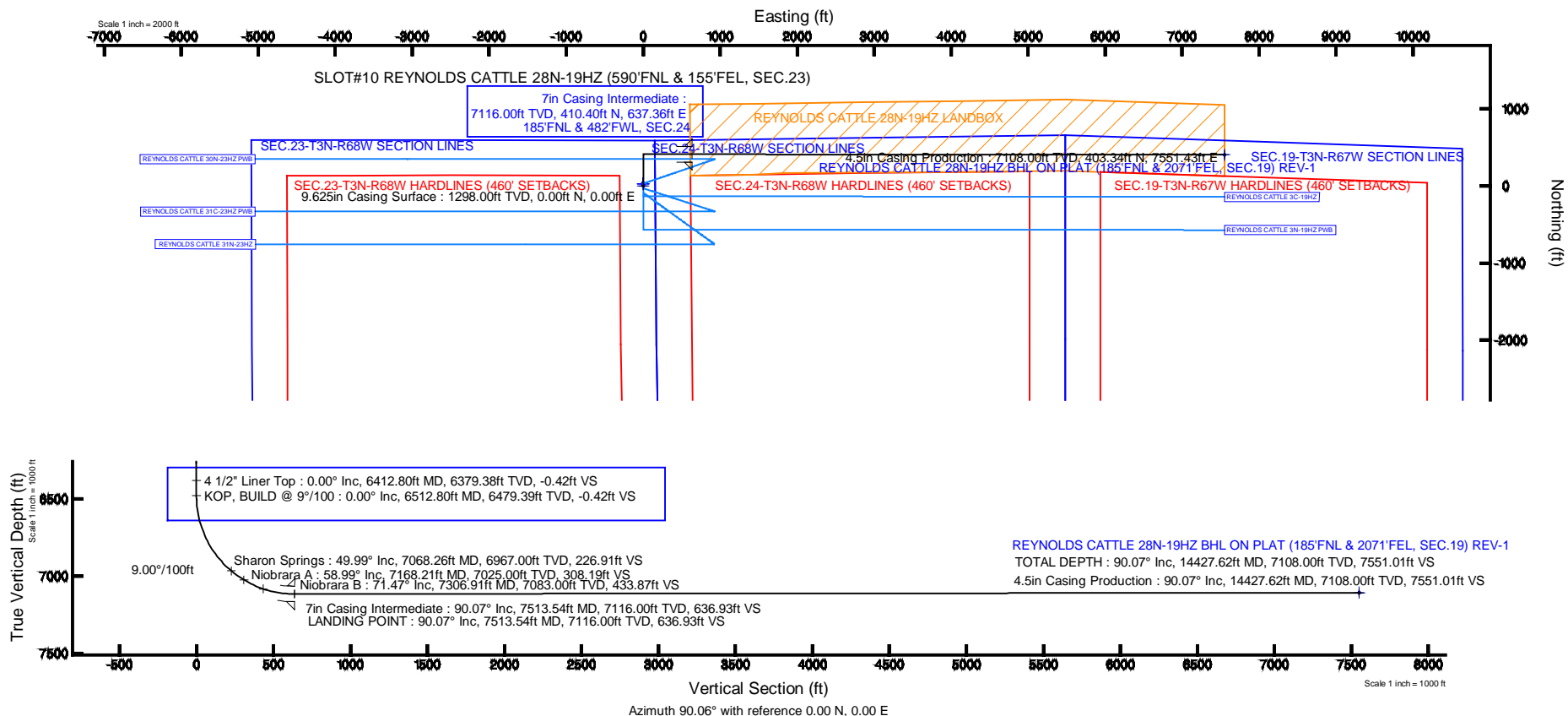


## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	0.000	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	2755.00	0.000	0.000	2755.00	0.00	0.00	0.00	0.00
END NUDGE	3255.00	10.000	0.000	3252.47	43.52	0.00	2.00	-0.04
BEGIN DROP	5120.88	10.000	0.000	5090.00	367.53	0.00	0.00	-0.38
END DROP	5620.88	0.000	90.059	5587.47	411.05	0.00	2.00	-0.42
KOP, BUILD @ 9°/100	6512.80	0.000	90.059	6479.39	411.05	0.00	0.00	-0.42
LANDING POINT	7513.54	90.066	90.059	7116.00	410.40	637.36	9.00	636.93
TOTAL DEPTH	14427.62	90.066	90.059	7108.00	403.34	7551.43	0.00	7551.01

## 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	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.19-T3N-R67W SECTION LINES		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.23-T3N-R68W SECTION LINES		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
SEC.24-T3N-R68W SECTION LINES		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W
REYNOLDS CATTLE 28N-19HZ BHL ON PLAT (185°FNL & 2071°FEL, SEC.19) REV-1	14427.62	7108.00	403.34	7551.43	3157962.26	1322910.19	40°13'06.251"N	104°56'03.635"W
REYNOLDS CATTLE 28N-19HZ LANDBOX		7108.00	0.00	0.00	3150413.75	1322461.02	40°13'02.276"N	104°57'40.979"W



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ 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	09/Dec/2013 at 14:53
Convergence at slot	n/a	Database/Source file	WellArchitectDB/REYNOLDS_CATTLE_28N-19HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-346.27	3020.90	3150413.75	1322461.02	40°13'02.276"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#10 REYNOLDS CATTLE 28N-19HZ (590'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	90.06°

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ PWB
Facility	SEC.23-T3N-R68W		

## WELLPATH DATA (160 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	0.000	0.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
17.00	0.000	0.000	17.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	TIE-ON
117.00†	0.000	0.000	117.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
217.00†	0.000	0.000	217.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
317.00†	0.000	0.000	317.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
417.00†	0.000	0.000	417.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
517.00†	0.000	0.000	517.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
617.00†	0.000	0.000	617.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
717.00†	0.000	0.000	717.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
817.00†	0.000	0.000	817.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
917.00†	0.000	0.000	917.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1017.00†	0.000	0.000	1017.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1117.00†	0.000	0.000	1117.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1217.00†	0.000	0.000	1217.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1248.00†	0.000	0.000	1248.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	Fox Hills Marker
1317.00†	0.000	0.000	1317.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1417.00†	0.000	0.000	1417.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1517.00†	0.000	0.000	1517.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1617.00†	0.000	0.000	1617.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1717.00†	0.000	0.000	1717.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1817.00†	0.000	0.000	1817.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
1917.00†	0.000	0.000	1917.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2017.00†	0.000	0.000	2017.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2117.00†	0.000	0.000	2117.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2217.00†	0.000	0.000	2217.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2317.00†	0.000	0.000	2317.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2417.00†	0.000	0.000	2417.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2517.00†	0.000	0.000	2517.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2617.00†	0.000	0.000	2617.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2717.00†	0.000	0.000	2717.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	
2755.00	0.000	0.000	2755.00	0.00	0.00	0.00	40°13'02.276"N	104°57'40.979"W	0.00	BEGIN NUDGE
2817.00†	1.240	0.000	2817.00	0.00	0.67	0.00	40°13'02.283"N	104°57'40.979"W	2.00	
2917.00†	3.240	0.000	2916.91	0.00	4.58	0.00	40°13'02.322"N	104°57'40.979"W	2.00	
3017.00†	5.240	0.000	3016.63	-0.01	11.97	0.00	40°13'02.395"N	104°57'40.979"W	2.00	
3117.00†	7.240	0.000	3116.04	-0.02	22.84	0.00	40°13'02.502"N	104°57'40.979"W	2.00	
3217.00†	9.240	0.000	3215.00	-0.04	37.17	0.00	40°13'02.644"N	104°57'40.979"W	2.00	
3255.00	10.000	0.000	3252.47	-0.04	43.52	0.00	40°13'02.706"N	104°57'40.979"W	2.00	END NUDGE
3317.00†	10.000	0.000	3313.52	-0.06	54.29	0.00	40°13'02.813"N	104°57'40.979"W	0.00	
3417.00†	10.000	0.000	3412.00	-0.07	71.65	0.00	40°13'02.984"N	104°57'40.979"W	0.00	
3517.00†	10.000	0.000	3510.49	-0.09	89.02	0.00	40°13'03.156"N	104°57'40.979"W	0.00	
3617.00†	10.000	0.000	3608.97	-0.11	106.38	0.00	40°13'03.328"N	104°57'40.979"W	0.00	
3717.00†	10.000	0.000	3707.45	-0.13	123.75	0.00	40°13'03.499"N	104°57'40.979"W	0.00	
3817.00†	10.000	0.000	3805.93	-0.15	141.11	0.00	40°13'03.671"N	104°57'40.979"W	0.00	
3917.00†	10.000	0.000	3904.41	-0.16	158.48	0.00	40°13'03.842"N	104°57'40.979"W	0.00	
4017.00†	10.000	0.000	4002.89	-0.18	175.84	0.00	40°13'04.014"N	104°57'40.979"W	0.00	

## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ PWB
Facility	SEC.23-T3N-R68W		

## WELLPATH DATA (160 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	10.000	0.000	4101.37	-0.20	193.21	0.00	40°13'04.186"N	104°57'40.979"W	0.00	
4174.50†	10.000	0.000	4158.00	-0.21	203.19	0.00	40°13'04.284"N	104°57'40.979"W	0.00	Sussex
4217.00†	10.000	0.000	4199.85	-0.22	210.57	0.00	40°13'04.357"N	104°57'40.979"W	0.00	
4317.00†	10.000	0.000	4298.33	-0.23	227.94	0.00	40°13'04.529"N	104°57'40.979"W	0.00	
4417.00†	10.000	0.000	4396.81	-0.25	245.30	0.00	40°13'04.700"N	104°57'40.979"W	0.00	
4517.00†	10.000	0.000	4495.29	-0.27	262.67	0.00	40°13'04.872"N	104°57'40.979"W	0.00	
4617.00†	10.000	0.000	4593.77	-0.29	280.03	0.00	40°13'05.044"N	104°57'40.979"W	0.00	
4717.00†	10.000	0.000	4692.25	-0.31	297.40	0.00	40°13'05.215"N	104°57'40.979"W	0.00	
4722.83†	10.000	0.000	4698.00	-0.31	298.41	0.00	40°13'05.225"N	104°57'40.979"W	0.00	Shannon
4817.00†	10.000	0.000	4790.74	-0.32	314.76	0.00	40°13'05.387"N	104°57'40.979"W	0.00	
4917.00†	10.000	0.000	4889.22	-0.34	332.13	0.00	40°13'05.558"N	104°57'40.979"W	0.00	
5017.00†	10.000	0.000	4987.70	-0.36	349.49	0.00	40°13'05.730"N	104°57'40.979"W	0.00	
5117.00†	10.000	0.000	5086.18	-0.38	366.86	0.00	40°13'05.902"N	104°57'40.979"W	0.00	
5120.88	10.000	0.000	5090.00	-0.38	367.53	0.00	40°13'05.908"N	104°57'40.979"W	0.00	BEGIN DROP
5217.00†	8.078	0.000	5184.92	-0.39	382.63	0.00	40°13'06.058"N	104°57'40.979"W	2.00	
5317.00†	6.078	0.000	5284.15	-0.41	394.95	0.00	40°13'06.179"N	104°57'40.979"W	2.00	
5417.00†	4.078	0.000	5383.76	-0.42	403.80	0.00	40°13'06.267"N	104°57'40.979"W	2.00	
5517.00†	2.078	0.000	5483.61	-0.42	409.17	0.00	40°13'06.320"N	104°57'40.979"W	2.00	
5617.00†	0.078	0.000	5583.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	2.00	
5620.88	0.000	90.059	5587.47	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	2.00	END DROP
5717.00†	0.000	90.059	5683.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
5817.00†	0.000	90.059	5783.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
5917.00†	0.000	90.059	5883.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6017.00†	0.000	90.059	5983.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6117.00†	0.000	90.059	6083.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6217.00†	0.000	90.059	6183.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6317.00†	0.000	90.059	6283.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6412.80†	0.000	90.059	6379.38	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	4 1/2" Liner Top
6417.00†	0.000	90.059	6383.58	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	
6512.80	0.000	90.059	6479.39	-0.42	411.05	0.00	40°13'06.338"N	104°57'40.979"W	0.00	KOP, BUILD @ 9°/100
6517.00†	0.378	90.059	6483.58	-0.41	411.05	0.01	40°13'06.338"N	104°57'40.979"W	9.00	
6617.00†	9.378	90.059	6583.12	8.09	411.04	8.51	40°13'06.338"N	104°57'40.869"W	9.00	
6717.00†	18.378	90.059	6680.10	32.05	411.02	32.47	40°13'06.338"N	104°57'40.560"W	9.00	
6817.00†	27.378	90.059	6772.14	70.88	410.98	71.31	40°13'06.338"N	104°57'40.060"W	9.00	
6917.00†	36.378	90.059	6856.97	123.64	410.93	124.06	40°13'06.337"N	104°57'39.380"W	9.00	
7017.00†	45.378	90.059	6932.50	189.02	410.86	189.44	40°13'06.336"N	104°57'38.537"W	9.00	
7068.26†	49.991	90.059	6967.00	226.91	410.82	227.33	40°13'06.336"N	104°57'38.048"W	9.00	Sharon Springs
7117.00†	54.378	90.059	6996.88	265.41	410.78	265.83	40°13'06.336"N	104°57'37.552"W	9.00	
7168.21†	58.987	90.059	7025.00	308.19	410.74	308.61	40°13'06.335"N	104°57'37.001"W	9.00	Niobrara A
7217.00†	63.378	90.059	7048.51	350.92	410.69	351.35	40°13'06.335"N	104°57'36.450"W	9.00	
7306.91†	71.470	90.059	7083.00	433.87	410.61	434.30	40°13'06.334"N	104°57'35.380"W	9.00	Niobrara B
7317.00†	72.378	90.059	7086.13	443.47	410.60	443.89	40°13'06.334"N	104°57'35.257"W	9.00	
7417.00†	81.378	90.059	7108.81	540.76	410.50	541.18	40°13'06.333"N	104°57'34.003"W	9.00	
7513.54	90.066	90.059	7116.00	636.93	410.40	637.36	40°13'06.332"N	104°57'32.763"W	9.00	LANDING POINT
7517.00†	90.066	90.059	7116.00	640.39	410.40	640.82	40°13'06.332"N	104°57'32.718"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (160 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7617.00†	90.066	90.059	7115.88	740.39	410.30	740.82	40°13'06.331"N	104°57'31.429"W	0.00	
7717.00†	90.066	90.059	7115.77	840.39	410.19	840.82	40°13'06.330"N	104°57'30.140"W	0.00	
7817.00†	90.066	90.059	7115.65	940.39	410.09	940.82	40°13'06.329"N	104°57'28.851"W	0.00	
7917.00†	90.066	90.059	7115.54	1040.39	409.99	1040.82	40°13'06.328"N	104°57'27.562"W	0.00	
8017.00†	90.066	90.059	7115.42	1140.39	409.89	1140.82	40°13'06.327"N	104°57'26.273"W	0.00	
8117.00†	90.066	90.059	7115.31	1240.39	409.78	1240.82	40°13'06.326"N	104°57'24.984"W	0.00	
8217.00†	90.066	90.059	7115.19	1340.39	409.68	1340.82	40°13'06.325"N	104°57'23.695"W	0.00	
8317.00†	90.066	90.059	7115.07	1440.39	409.58	1440.82	40°13'06.323"N	104°57'22.406"W	0.00	
8417.00†	90.066	90.059	7114.96	1540.39	409.48	1540.82	40°13'06.322"N	104°57'21.116"W	0.00	
8517.00†	90.066	90.059	7114.84	1640.39	409.38	1640.82	40°13'06.321"N	104°57'19.827"W	0.00	
8617.00†	90.066	90.059	7114.73	1740.39	409.27	1740.82	40°13'06.320"N	104°57'18.538"W	0.00	
8717.00†	90.066	90.059	7114.61	1840.39	409.17	1840.82	40°13'06.319"N	104°57'17.249"W	0.00	
8817.00†	90.066	90.059	7114.50	1940.39	409.07	1940.82	40°13'06.318"N	104°57'15.960"W	0.00	
8917.00†	90.066	90.059	7114.38	2040.39	408.97	2040.82	40°13'06.317"N	104°57'14.671"W	0.00	
9017.00†	90.066	90.059	7114.26	2140.39	408.87	2140.82	40°13'06.316"N	104°57'13.382"W	0.00	
9117.00†	90.066	90.059	7114.15	2240.39	408.76	2240.82	40°13'06.315"N	104°57'12.093"W	0.00	
9217.00†	90.066	90.059	7114.03	2340.39	408.66	2340.82	40°13'06.314"N	104°57'10.804"W	0.00	
9317.00†	90.066	90.059	7113.92	2440.39	408.56	2440.82	40°13'06.313"N	104°57'09.515"W	0.00	
9417.00†	90.066	90.059	7113.80	2540.39	408.46	2540.82	40°13'06.311"N	104°57'08.226"W	0.00	
9517.00†	90.066	90.059	7113.69	2640.39	408.35	2640.82	40°13'06.310"N	104°57'06.937"W	0.00	
9617.00†	90.066	90.059	7113.57	2740.39	408.25	2740.82	40°13'06.309"N	104°57'05.647"W	0.00	
9717.00†	90.066	90.059	7113.45	2840.39	408.15	2840.82	40°13'06.308"N	104°57'04.358"W	0.00	
9817.00†	90.066	90.059	7113.34	2940.39	408.05	2940.82	40°13'06.307"N	104°57'03.069"W	0.00	
9917.00†	90.066	90.059	7113.22	3040.39	407.95	3040.82	40°13'06.306"N	104°57'01.780"W	0.00	
10017.00†	90.066	90.059	7113.11	3140.39	407.84	3140.81	40°13'06.305"N	104°57'00.491"W	0.00	
10117.00†	90.066	90.059	7112.99	3240.39	407.74	3240.81	40°13'06.304"N	104°56'59.202"W	0.00	
10217.00†	90.066	90.059	7112.87	3340.39	407.64	3340.81	40°13'06.302"N	104°56'57.913"W	0.00	
10317.00†	90.066	90.059	7112.76	3440.39	407.54	3440.81	40°13'06.301"N	104°56'56.624"W	0.00	
10417.00†	90.066	90.059	7112.64	3540.39	407.44	3540.81	40°13'06.300"N	104°56'55.335"W	0.00	
10517.00†	90.066	90.059	7112.53	3640.39	407.33	3640.81	40°13'06.299"N	104°56'54.046"W	0.00	
10617.00†	90.066	90.059	7112.41	3740.39	407.23	3740.81	40°13'06.298"N	104°56'52.757"W	0.00	
10717.00†	90.066	90.059	7112.30	3840.39	407.13	3840.81	40°13'06.297"N	104°56'51.468"W	0.00	
10817.00†	90.066	90.059	7112.18	3940.39	407.03	3940.81	40°13'06.296"N	104°56'50.179"W	0.00	
10917.00†	90.066	90.059	7112.06	4040.39	406.92	4040.81	40°13'06.294"N	104°56'48.889"W	0.00	
11017.00†	90.066	90.059	7111.95	4140.39	406.82	4140.81	40°13'06.293"N	104°56'47.600"W	0.00	
11117.00†	90.066	90.059	7111.83	4240.39	406.72	4240.81	40°13'06.292"N	104°56'46.311"W	0.00	
11217.00†	90.066	90.059	7111.72	4340.39	406.62	4340.81	40°13'06.291"N	104°56'45.022"W	0.00	
11317.00†	90.066	90.059	7111.60	4440.39	406.52	4440.81	40°13'06.290"N	104°56'43.733"W	0.00	
11417.00†	90.066	90.059	7111.49	4540.39	406.41	4540.81	40°13'06.288"N	104°56'42.444"W	0.00	
11517.00†	90.066	90.059	7111.37	4640.39	406.31	4640.81	40°13'06.287"N	104°56'41.155"W	0.00	
11617.00†	90.066	90.059	7111.25	4740.39	406.21	4740.81	40°13'06.286"N	104°56'39.866"W	0.00	
11717.00†	90.066	90.059	7111.14	4840.39	406.11	4840.81	40°13'06.285"N	104°56'38.577"W	0.00	
11817.00†	90.066	90.059	7111.02	4940.39	406.01	4940.81	40°13'06.284"N	104°56'37.288"W	0.00	
11917.00†	90.066	90.059	7110.91	5040.39	405.90	5040.81	40°13'06.282"N	104°56'35.999"W	0.00	
12017.00†	90.066	90.059	7110.79	5140.39	405.80	5140.81	40°13'06.281"N	104°56'34.710"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH DATA (160 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12117.00†	90.066	90.059	7110.68	5240.39	405.70	5240.81	40°13'06.280"N	104°56'33.421"W	0.00	
12217.00†	90.066	90.059	7110.56	5340.39	405.60	5340.81	40°13'06.279"N	104°56'32.131"W	0.00	
12317.00†	90.066	90.059	7110.44	5440.39	405.49	5440.81	40°13'06.278"N	104°56'30.842"W	0.00	
12417.00†	90.066	90.059	7110.33	5540.39	405.39	5540.81	40°13'06.276"N	104°56'29.553"W	0.00	
12517.00†	90.066	90.059	7110.21	5640.39	405.29	5640.81	40°13'06.275"N	104°56'28.264"W	0.00	
12617.00†	90.066	90.059	7110.10	5740.39	405.19	5740.81	40°13'06.274"N	104°56'26.975"W	0.00	
12717.00†	90.066	90.059	7109.98	5840.39	405.09	5840.81	40°13'06.273"N	104°56'25.686"W	0.00	
12817.00†	90.066	90.059	7109.86	5940.39	404.98	5940.81	40°13'06.271"N	104°56'24.397"W	0.00	
12917.00†	90.066	90.059	7109.75	6040.39	404.88	6040.81	40°13'06.270"N	104°56'23.108"W	0.00	
13017.00†	90.066	90.059	7109.63	6140.39	404.78	6140.81	40°13'06.269"N	104°56'21.819"W	0.00	
13117.00†	90.066	90.059	7109.52	6240.39	404.68	6240.81	40°13'06.268"N	104°56'20.530"W	0.00	
13217.00†	90.066	90.059	7109.40	6340.39	404.58	6340.81	40°13'06.266"N	104°56'19.241"W	0.00	
13317.00†	90.066	90.059	7109.29	6440.39	404.47	6440.81	40°13'06.265"N	104°56'17.952"W	0.00	
13417.00†	90.066	90.059	7109.17	6540.39	404.37	6540.81	40°13'06.264"N	104°56'16.663"W	0.00	
13517.00†	90.066	90.059	7109.05	6640.39	404.27	6640.81	40°13'06.263"N	104°56'15.373"W	0.00	
13617.00†	90.066	90.059	7108.94	6740.39	404.17	6740.81	40°13'06.261"N	104°56'14.084"W	0.00	
13717.00†	90.066	90.059	7108.82	6840.39	404.07	6840.81	40°13'06.260"N	104°56'12.795"W	0.00	
13817.00†	90.066	90.059	7108.71	6940.39	403.96	6940.81	40°13'06.259"N	104°56'11.506"W	0.00	
13917.00†	90.066	90.059	7108.59	7040.39	403.86	7040.81	40°13'06.257"N	104°56'10.217"W	0.00	
14017.00†	90.066	90.059	7108.48	7140.39	403.76	7140.81	40°13'06.256"N	104°56'08.928"W	0.00	
14117.00†	90.066	90.059	7108.36	7240.39	403.66	7240.81	40°13'06.255"N	104°56'07.639"W	0.00	
14217.00†	90.066	90.059	7108.24	7340.39	403.55	7340.81	40°13'06.254"N	104°56'06.350"W	0.00	
14317.00†	90.066	90.059	7108.13	7440.39	403.45	7440.81	40°13'06.252"N	104°56'05.061"W	0.00	
14417.00†	90.066	90.059	7108.01	7540.39	403.35	7540.81	40°13'06.251"N	104°56'03.772"W	0.00	
14427.62	90.066	90.059	7108.00 <sup>1</sup>	7551.01	403.34	7551.43	40°13'06.251"N	104°56'03.635"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: REYNOLDS CATTLE 28N-19HZ PWB					Ref Wellpath: REYNOLDS CATTLE 28N-19HZ (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	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	7513.54	6215.54	1298.00	7116.00	0.00	0.00	410.40	637.36
7in Casing Intermediate	17.00	7513.54	7496.54	17.00	7116.00	0.00	0.00	410.40	637.36
6.125in Open Hole	7513.54	14427.62	6914.08	7116.00	7108.00	410.40	637.36	403.34	7551.43
4.5in Casing Production	17.00	14427.62	14410.62	17.00	7108.00	0.00	0.00	403.34	7551.43



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ 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
REYNOLDS CATTLE 3C-19Hz (730'FNL & 2071'FWL, SEC.19) REV-1		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.19-T3N-R67W HARDLINES (460' SETBACKS)		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.19-T3N-R67W SECTION LINES		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W HARDLINES (460' SETBACKS)		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.23-T3N-R68W SECTION LINES		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
SEC.24-T3N-R68W HARDLINES (460' SETBACKS)		0.00	29.87	-0.56	3150413.01	1322490.88	40°13'02.572"N	104°57'40.986"W	polygon
1) REYNOLDS CATTLE 28N-19HZ BHL ON PLAT (185'FNL & 2071'FEL, SEC.19) REV-1	14427.62	7108.00	403.34	7551.43	3157962.26	1322910.19	40°13'06.251"N	104°56'03.635"W	point
REYNOLDS CATTLE 28N-19HZ LANDBOX		7108.00	0.00	0.00	3150413.75	1322461.02	40°13'02.276"N	104°57'40.979"W	polygon

SURVEY PROGRAM -				
Ref Wellbore: REYNOLDS CATTLE 28N-19HZ PWB		Ref Wellpath: REYNOLDS CATTLE 28N-19HZ (PERMIT REV-1) PWP		
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	14427.62	NaviTrak (IFR)		REYNOLDS CATTLE 28N-19HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#10 REYNOLDS CATTLE 28N-19HZ (590'FNL & 155'FEL, SEC.23)
Area	COLORADO	Well	REYNOLDS CATTLE 28N-19HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	REYNOLDS CATTLE 28N-19HZ PWB
Facility	SEC.23-T3N-R68W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1248.00	0.000	0.000	1248.00	Fox Hills Marker
4174.50	10.000	0.000	4158.00	Sussex
4722.83	10.000	0.000	4698.00	Shannon
6412.80	0.000	90.059	6379.38	4 1/2" Liner Top
7068.26	49.991	90.059	6967.00	Sharon Springs
7168.21	58.987	90.059	7025.00	Niobrara A
7306.91	71.470	90.059	7083.00	Niobrara B

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	0.000	17.00	TIE-ON
2755.00	0.000	0.000	2755.00	BEGIN NUDGE
3255.00	10.000	0.000	3252.47	END NUDGE
5120.88	10.000	0.000	5090.00	BEGIN DROP
5620.88	0.000	90.059	5587.47	END DROP
6512.80	0.000	90.059	6479.39	KOP, BUILD @ 9°/100
7513.54	90.066	90.059	7116.00	LANDING POINT
14427.62	90.066	90.059	7108.00	TOTAL DEPTH