

KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
 Field: WELD COUNTY (KERR MCGEE) Well: THOMSEN 2N-18HZ
 Facility: SEC.07-T2N-R65W Wellbore: THOMSEN 2N-18HZ PWB

Plot reference wellpath is THOMSEN 2N-18HZ (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: 4929 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: robale01 on 05/Aug/2014

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
SEC.07-T2N-R65W	3219721.272	1297490.241	40°08'50.395"N	104°42'50.411"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)	4303.04	3786.84	3223469.663	1301826.484	40°09'32.915"N	104°42'01.638"W
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07))	4929ft					
Mean Sea Level to Mud line (At Slot: SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07))	0ft					
PERMIT (17KB) (RKB) to Mean Sea Level	4929ft					

Survey Program

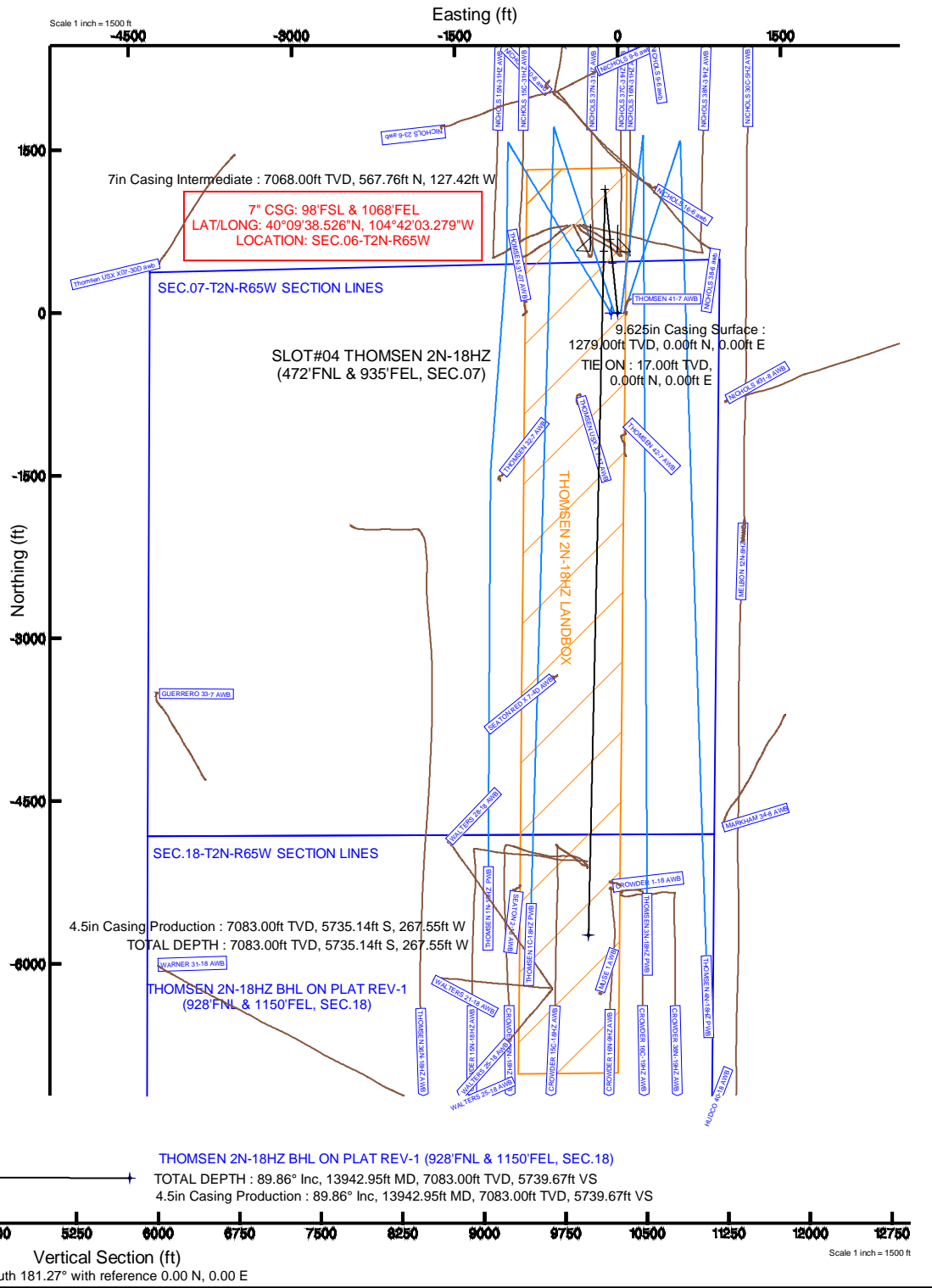
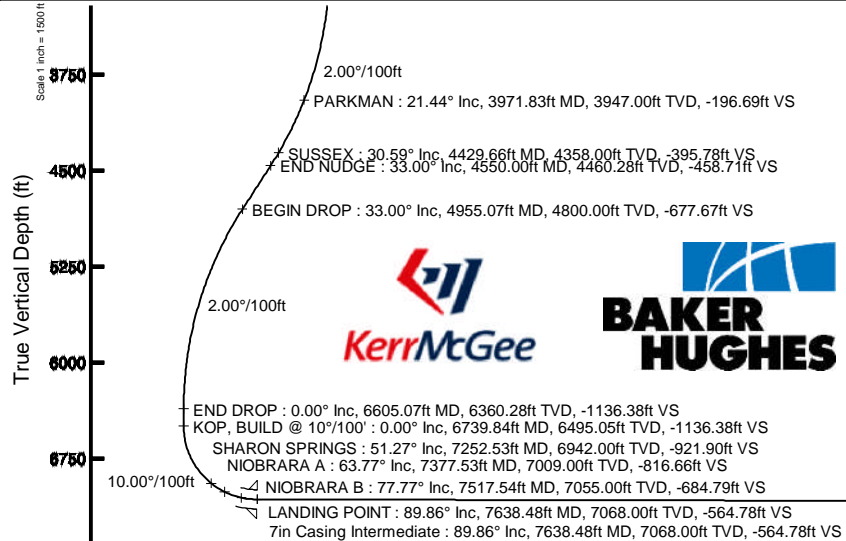
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	13942.95	NaviTrak	NaviTrak (MAGCORR.IFR)		THOMSEN 2N-18HZ PWB

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.07-T2N-R65W SECTION LINES	0.00	-1.52	-60.10	3223469.59	1301824.42	40°09'32.900"N	104°42'02.412"W	
SEC.18-T2N-R65W SECTION LINES	0.00	-1.52	-60.10	3223469.59	1301824.42	40°09'32.900"N	104°42'02.412"W	
THOMSEN 2N-18HZ BHL ON PLAT REV-1 (928'FNL & 1150'FEL, SEC.18)	13942.95	7083.00	-5735.14	-267.55	3223253.84	1296089.42	40°08'36.240"N	104°42'05.083"W
THOMSEN 2N-18HZ LANDBOX	7083.00	0.00	0.00	3223469.66	1301826.48	40°09'32.915"N	104°42'01.638"W	

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE ON	17.00	0.000	354.250	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	2900.00	0.000	354.250	2900.00	0.00	0.00	0.00	0.00
END NUDGE	4550.00	33.000	354.250	4460.28	459.85	-46.30	2.00	-458.71
BEGIN DROP	4955.07	33.000	354.250	4800.00	679.36	-68.41	0.00	-677.67
END DROP	6605.07	0.000	181.274	6360.28	1139.21	-114.71	2.00	-1136.38
KOP, BUILD @ 10°/100'	6739.84	0.000	181.274	6495.05	1139.21	-114.71	0.00	-1136.38
LANDING POINT	7638.48	89.864	181.274	7068.00	567.75	-127.42	10.00	-564.78
TOTAL DEPTH	13942.95	89.864	181.274	7083.00	-5735.14	-267.55	0.00	5739.67



Vertical Section (ft)
 Azimuth 181.27° with reference 0.00 N, 0.00 E

Scale 1 inch = 1500 ft

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Robiale01
Scale	0.999958	Report Generated	05/Aug/2014 at 16:39
Convergence at slot	n/a	Database/Source file	WellArchitectDB/THOMSEN_2N-18HZ_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	4303.04	3786.84	3223469.66	1301826.48	40°09'32.915"N	104°42'01.638"W
Facility Reference Pt			3219721.27	1297490.24	40°08'50.395"N	104°42'50.411"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	4929.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	4929.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07))	4929.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	181.27°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (155 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	354.250	0.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
17.00	0.000	354.250	17.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	TIE ON
117.00†	0.000	354.250	117.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
217.00†	0.000	354.250	217.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
317.00†	0.000	354.250	317.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
417.00†	0.000	354.250	417.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
517.00†	0.000	354.250	517.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
617.00†	0.000	354.250	617.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
717.00†	0.000	354.250	717.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
793.00†	0.000	354.250	793.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	BASE FOX HILLS
817.00†	0.000	354.250	817.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
917.00†	0.000	354.250	917.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1017.00†	0.000	354.250	1017.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1117.00†	0.000	354.250	1117.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1217.00†	0.000	354.250	1217.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1279.00†	0.000	354.250	1279.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	SURFACE CASING SETTING DEPTH
1317.00†	0.000	354.250	1317.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1417.00†	0.000	354.250	1417.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1517.00†	0.000	354.250	1517.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1617.00†	0.000	354.250	1617.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1717.00†	0.000	354.250	1717.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1817.00†	0.000	354.250	1817.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
1917.00†	0.000	354.250	1917.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2017.00†	0.000	354.250	2017.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2117.00†	0.000	354.250	2117.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2217.00†	0.000	354.250	2217.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2317.00†	0.000	354.250	2317.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2417.00†	0.000	354.250	2417.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2517.00†	0.000	354.250	2517.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2617.00†	0.000	354.250	2617.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2717.00†	0.000	354.250	2717.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2817.00†	0.000	354.250	2817.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	
2900.00	0.000	354.250	2900.00	0.00	0.00	0.00	40°09'32.915"N	104°42'01.638"W	0.00	BEGIN NUDGE
2917.00†	0.340	354.250	2917.00	-0.05	0.05	-0.01	40°09'32.915"N	104°42'01.638"W	2.00	
3017.00†	2.340	354.250	3016.97	-2.37	2.38	-0.24	40°09'32.938"N	104°42'01.641"W	2.00	
3117.00†	4.340	354.250	3116.79	-8.15	8.17	-0.82	40°09'32.996"N	104°42'01.649"W	2.00	
3217.00†	6.340	354.250	3216.35	-17.39	17.43	-1.76	40°09'33.087"N	104°42'01.661"W	2.00	
3317.00†	8.340	354.250	3315.53	-30.07	30.14	-3.04	40°09'33.213"N	104°42'01.677"W	2.00	
3417.00†	10.340	354.250	3414.20	-46.18	46.29	-4.66	40°09'33.372"N	104°42'01.698"W	2.00	
3517.00†	12.340	354.250	3512.24	-65.69	65.85	-6.63	40°09'33.566"N	104°42'01.723"W	2.00	
3617.00†	14.340	354.250	3609.54	-88.59	88.81	-8.94	40°09'33.793"N	104°42'01.753"W	2.00	
3717.00†	16.340	354.250	3705.97	-114.84	115.13	-11.59	40°09'34.053"N	104°42'01.787"W	2.00	
3817.00†	18.340	354.250	3801.42	-144.42	144.78	-14.58	40°09'34.346"N	104°42'01.826"W	2.00	
3917.00†	20.340	354.250	3895.77	-177.29	177.73	-17.90	40°09'34.671"N	104°42'01.869"W	2.00	
3971.83†	21.437	354.250	3947.00	-196.69	197.18	-19.86	40°09'34.864"N	104°42'01.894"W	2.00	PARKMAN

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (155 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4017.00†	22.340	354.250	3988.91	-213.40	213.94	-21.54	40°09'35.029"N	104°42'01.915"W	2.00	
4117.00†	24.340	354.250	4080.72	-252.72	253.35	-25.51	40°09'35.419"N	104°42'01.967"W	2.00	
4217.00†	26.340	354.250	4171.10	-295.20	295.93	-29.80	40°09'35.839"N	104°42'02.022"W	2.00	
4317.00†	28.340	354.250	4259.92	-340.78	341.63	-34.40	40°09'36.291"N	104°42'02.081"W	2.00	
4417.00†	30.340	354.250	4347.09	-389.41	390.38	-39.31	40°09'36.773"N	104°42'02.144"W	2.00	
4429.66†	30.593	354.250	4358.00	-395.78	396.76	-39.95	40°09'36.836"N	104°42'02.153"W	2.00	SUSSEX
4517.00†	32.340	354.250	4432.50	-441.03	442.13	-44.52	40°09'37.284"N	104°42'02.211"W	2.00	
4550.00	33.000	354.250	4460.28	-458.71	459.85	-46.30	40°09'37.459"N	104°42'02.234"W	2.00	END NUDGE
4617.00†	33.000	354.250	4516.47	-494.92	496.16	-49.96	40°09'37.818"N	104°42'02.281"W	0.00	
4717.00†	33.000	354.250	4600.33	-548.98	550.35	-55.42	40°09'38.354"N	104°42'02.352"W	0.00	
4817.00†	33.000	354.250	4684.20	-603.03	604.54	-60.87	40°09'38.889"N	104°42'02.422"W	0.00	
4917.00†	33.000	354.250	4768.07	-657.09	658.73	-66.33	40°09'39.425"N	104°42'02.492"W	0.00	
4955.07	33.000	354.250	4800.00	-677.67	679.36	-68.41	40°09'39.628"N	104°42'02.519"W	0.00	BEGIN DROP
5017.00†	31.761	354.250	4852.30	-710.58	712.35	-71.73	40°09'39.955"N	104°42'02.562"W	2.00	
5117.00†	29.761	354.250	4938.22	-761.34	763.24	-76.85	40°09'40.457"N	104°42'02.628"W	2.00	
5217.00†	27.761	354.250	5025.88	-809.10	811.11	-81.67	40°09'40.930"N	104°42'02.690"W	2.00	
5317.00†	25.761	354.250	5115.16	-853.78	855.91	-86.19	40°09'41.373"N	104°42'02.748"W	2.00	
5417.00†	23.761	354.250	5205.97	-895.35	897.58	-90.38	40°09'41.785"N	104°42'02.802"W	2.00	
5517.00†	21.761	354.250	5298.17	-933.75	936.08	-94.26	40°09'42.165"N	104°42'02.852"W	2.00	
5617.00†	19.761	354.250	5391.68	-968.93	971.34	-97.81	40°09'42.514"N	104°42'02.898"W	2.00	
5717.00†	17.761	354.250	5486.36	-1000.85	1003.34	-101.03	40°09'42.830"N	104°42'02.939"W	2.00	
5817.00†	15.761	354.250	5582.10	-1029.47	1032.04	-103.92	40°09'43.114"N	104°42'02.977"W	2.00	
5917.00†	13.761	354.250	5678.80	-1054.76	1057.39	-106.47	40°09'43.364"N	104°42'03.009"W	2.00	
6017.00†	11.761	354.250	5776.32	-1076.68	1079.36	-108.69	40°09'43.581"N	104°42'03.038"W	2.00	
6117.00†	9.761	354.250	5874.56	-1095.21	1097.94	-110.56	40°09'43.765"N	104°42'03.062"W	2.00	
6217.00†	7.761	354.250	5973.39	-1110.33	1113.10	-112.08	40°09'43.915"N	104°42'03.082"W	2.00	
6317.00†	5.761	354.250	6072.69	-1122.01	1124.81	-113.26	40°09'44.030"N	104°42'03.097"W	2.00	
6417.00†	3.761	354.250	6172.34	-1130.25	1133.07	-114.09	40°09'44.112"N	104°42'03.108"W	2.00	
6517.00†	1.761	354.250	6272.22	-1135.03	1137.86	-114.58	40°09'44.159"N	104°42'03.114"W	2.00	
6605.07	0.000	181.274	6360.28	-1136.38	1139.21	-114.71	40°09'44.173"N	104°42'03.116"W	2.00	END DROP
6617.00†	0.000	181.274	6372.20	-1136.38	1139.21	-114.71	40°09'44.173"N	104°42'03.116"W	0.00	
6717.00†	0.000	181.274	6472.20	-1136.38	1139.21	-114.71	40°09'44.173"N	104°42'03.116"W	0.00	
6739.84	0.000	181.274	6495.05	-1136.38	1139.21	-114.71	40°09'44.173"N	104°42'03.116"W	0.00	KOP, BUILD @ 10°/100'
6817.00†	7.716	181.274	6571.97	-1131.19	1134.02	-114.83	40°09'44.121"N	104°42'03.117"W	10.00	
6917.00†	17.716	181.274	6669.39	-1109.21	1112.04	-115.32	40°09'43.904"N	104°42'03.123"W	10.00	
7017.00†	27.716	181.274	6761.52	-1070.64	1073.49	-116.17	40°09'43.523"N	104°42'03.134"W	10.00	
7117.00†	37.716	181.274	6845.55	-1016.66	1019.52	-117.37	40°09'42.990"N	104°42'03.150"W	10.00	
7217.00†	47.716	181.274	6918.93	-948.91	951.79	-118.88	40°09'42.321"N	104°42'03.169"W	10.00	
7252.53†	51.268	181.274	6942.00	-921.90	924.79	-119.48	40°09'42.054"N	104°42'03.177"W	10.00	SHARON SPRINGS
7317.00†	57.716	181.274	6979.43	-869.45	872.35	-120.65	40°09'41.536"N	104°42'03.192"W	10.00	
7377.53†	63.769	181.274	7009.00	-816.66	819.57	-121.82	40°09'41.014"N	104°42'03.207"W	10.00	NIOBRARA A
7417.00†	67.716	181.274	7025.21	-780.69	783.61	-122.62	40°09'40.659"N	104°42'03.217"W	10.00	
7517.00†	77.716	181.274	7054.88	-685.32	688.27	-124.74	40°09'39.716"N	104°42'03.245"W	10.00	
7517.54†	77.770	181.274	7055.00	-684.79	687.74	-124.75	40°09'39.711"N	104°42'03.245"W	10.00	NIOBRARA B
7617.00†	87.716	181.274	7067.55	-586.26	589.22	-126.94	40°09'38.738"N	104°42'03.273"W	10.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (155 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7638.48	89.864	181.274	7068.00	-564.78	567.75	-127.42	40°09'38.526"N	104°42'03.279"W	10.00	LANDING POINT
7717.00†	89.864	181.274	7068.19	-486.26	489.26	-129.16	40°09'37.750"N	104°42'03.302"W	0.00	
7817.00†	89.864	181.274	7068.43	-386.26	389.28	-131.39	40°09'36.762"N	104°42'03.330"W	0.00	
7917.00†	89.864	181.274	7068.66	-286.26	289.31	-133.61	40°09'35.774"N	104°42'03.359"W	0.00	
8017.00†	89.864	181.274	7068.90	-186.26	189.33	-135.83	40°09'34.786"N	104°42'03.387"W	0.00	
8117.00†	89.864	181.274	7069.14	-86.26	89.36	-138.05	40°09'33.798"N	104°42'03.416"W	0.00	
8217.00†	89.864	181.274	7069.38	13.74	-10.62	-140.28	40°09'32.810"N	104°42'03.445"W	0.00	
8317.00†	89.864	181.274	7069.62	113.74	-110.59	-142.50	40°09'31.822"N	104°42'03.473"W	0.00	
8417.00†	89.864	181.274	7069.85	213.74	-210.57	-144.72	40°09'30.834"N	104°42'03.502"W	0.00	
8517.00†	89.864	181.274	7070.09	313.73	-310.54	-146.95	40°09'29.846"N	104°42'03.531"W	0.00	
8617.00†	89.864	181.274	7070.33	413.73	-410.52	-149.17	40°09'28.858"N	104°42'03.559"W	0.00	
8717.00†	89.864	181.274	7070.57	513.73	-510.49	-151.39	40°09'27.870"N	104°42'03.588"W	0.00	
8817.00†	89.864	181.274	7070.81	613.73	-610.47	-153.61	40°09'26.882"N	104°42'03.616"W	0.00	
8917.00†	89.864	181.274	7071.04	713.73	-710.44	-155.84	40°09'25.894"N	104°42'03.645"W	0.00	
9017.00†	89.864	181.274	7071.28	813.73	-810.42	-158.06	40°09'24.906"N	104°42'03.674"W	0.00	
9117.00†	89.864	181.274	7071.52	913.73	-910.39	-160.28	40°09'23.918"N	104°42'03.702"W	0.00	
9217.00†	89.864	181.274	7071.76	1013.73	-1010.37	-162.51	40°09'22.930"N	104°42'03.731"W	0.00	
9317.00†	89.864	181.274	7072.00	1113.73	-1110.34	-164.73	40°09'21.943"N	104°42'03.760"W	0.00	
9417.00†	89.864	181.274	7072.23	1213.73	-1210.32	-166.95	40°09'20.955"N	104°42'03.788"W	0.00	
9517.00†	89.864	181.274	7072.47	1313.73	-1310.29	-169.17	40°09'19.967"N	104°42'03.817"W	0.00	
9617.00†	89.864	181.274	7072.71	1413.73	-1410.27	-171.40	40°09'18.979"N	104°42'03.845"W	0.00	
9717.00†	89.864	181.274	7072.95	1513.73	-1510.24	-173.62	40°09'17.991"N	104°42'03.874"W	0.00	
9817.00†	89.864	181.274	7073.18	1613.73	-1610.22	-175.84	40°09'17.003"N	104°42'03.903"W	0.00	
9917.00†	89.864	181.274	7073.42	1713.73	-1710.19	-178.07	40°09'16.015"N	104°42'03.931"W	0.00	
10017.00†	89.864	181.274	7073.66	1813.73	-1810.17	-180.29	40°09'15.027"N	104°42'03.960"W	0.00	
10117.00†	89.864	181.274	7073.90	1913.73	-1910.14	-182.51	40°09'14.039"N	104°42'03.988"W	0.00	
10217.00†	89.864	181.274	7074.14	2013.73	-2010.12	-184.73	40°09'13.051"N	104°42'04.017"W	0.00	
10317.00†	89.864	181.274	7074.37	2113.73	-2110.09	-186.96	40°09'12.063"N	104°42'04.046"W	0.00	
10417.00†	89.864	181.274	7074.61	2213.73	-2210.07	-189.18	40°09'11.075"N	104°42'04.074"W	0.00	
10517.00†	89.864	181.274	7074.85	2313.73	-2310.04	-191.40	40°09'10.087"N	104°42'04.103"W	0.00	
10617.00†	89.864	181.274	7075.09	2413.73	-2410.02	-193.62	40°09'09.099"N	104°42'04.132"W	0.00	
10717.00†	89.864	181.274	7075.33	2513.73	-2509.99	-195.85	40°09'08.111"N	104°42'04.160"W	0.00	
10817.00†	89.864	181.274	7075.56	2613.73	-2609.97	-198.07	40°09'07.123"N	104°42'04.189"W	0.00	
10917.00†	89.864	181.274	7075.80	2713.73	-2709.94	-200.29	40°09'06.135"N	104°42'04.217"W	0.00	
11017.00†	89.864	181.274	7076.04	2813.73	-2809.92	-202.52	40°09'05.147"N	104°42'04.246"W	0.00	
11117.00†	89.864	181.274	7076.28	2913.73	-2909.89	-204.74	40°09'04.159"N	104°42'04.275"W	0.00	
11217.00†	89.864	181.274	7076.52	3013.73	-3009.87	-206.96	40°09'03.171"N	104°42'04.303"W	0.00	
11317.00†	89.864	181.274	7076.75	3113.73	-3109.84	-209.18	40°09'02.183"N	104°42'04.332"W	0.00	
11417.00†	89.864	181.274	7076.99	3213.73	-3209.82	-211.41	40°09'01.195"N	104°42'04.360"W	0.00	
11517.00†	89.864	181.274	7077.23	3313.73	-3309.79	-213.63	40°09'00.207"N	104°42'04.389"W	0.00	
11617.00†	89.864	181.274	7077.47	3413.73	-3409.77	-215.85	40°08'59.219"N	104°42'04.418"W	0.00	
11717.00†	89.864	181.274	7077.70	3513.73	-3509.74	-218.08	40°08'58.231"N	104°42'04.446"W	0.00	
11817.00†	89.864	181.274	7077.94	3613.73	-3609.72	-220.30	40°08'57.244"N	104°42'04.475"W	0.00	
11917.00†	89.864	181.274	7078.18	3713.73	-3709.69	-222.52	40°08'56.256"N	104°42'04.504"W	0.00	
12017.00†	89.864	181.274	7078.42	3813.72	-3809.67	-224.74	40°08'55.268"N	104°42'04.532"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (155 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12117.00†	89.864	181.274	7078.66	3913.72	-3909.64	-226.97	40°08'54.280"N	104°42'04.561"W	0.00	
12217.00†	89.864	181.274	7078.89	4013.72	-4009.62	-229.19	40°08'53.292"N	104°42'04.589"W	0.00	
12317.00†	89.864	181.274	7079.13	4113.72	-4109.59	-231.41	40°08'52.304"N	104°42'04.618"W	0.00	
12417.00†	89.864	181.274	7079.37	4213.72	-4209.57	-233.64	40°08'51.316"N	104°42'04.647"W	0.00	
12517.00†	89.864	181.274	7079.61	4313.72	-4309.54	-235.86	40°08'50.328"N	104°42'04.675"W	0.00	
12617.00†	89.864	181.274	7079.85	4413.72	-4409.52	-238.08	40°08'49.340"N	104°42'04.704"W	0.00	
12717.00†	89.864	181.274	7080.08	4513.72	-4509.49	-240.30	40°08'48.352"N	104°42'04.732"W	0.00	
12817.00†	89.864	181.274	7080.32	4613.72	-4609.47	-242.53	40°08'47.364"N	104°42'04.761"W	0.00	
12917.00†	89.864	181.274	7080.56	4713.72	-4709.44	-244.75	40°08'46.376"N	104°42'04.790"W	0.00	
13017.00†	89.864	181.274	7080.80	4813.72	-4809.42	-246.97	40°08'45.388"N	104°42'04.818"W	0.00	
13117.00†	89.864	181.274	7081.04	4913.72	-4909.39	-249.20	40°08'44.400"N	104°42'04.847"W	0.00	
13217.00†	89.864	181.274	7081.27	5013.72	-5009.37	-251.42	40°08'43.412"N	104°42'04.876"W	0.00	
13317.00†	89.864	181.274	7081.51	5113.72	-5109.34	-253.64	40°08'42.424"N	104°42'04.904"W	0.00	
13417.00†	89.864	181.274	7081.75	5213.72	-5209.32	-255.86	40°08'41.436"N	104°42'04.933"W	0.00	
13517.00†	89.864	181.274	7081.99	5313.72	-5309.29	-258.09	40°08'40.448"N	104°42'04.961"W	0.00	
13617.00†	89.864	181.274	7082.22	5413.72	-5409.27	-260.31	40°08'39.460"N	104°42'04.990"W	0.00	
13717.00†	89.864	181.274	7082.46	5513.72	-5509.24	-262.53	40°08'38.472"N	104°42'05.019"W	0.00	
13817.00†	89.864	181.274	7082.70	5613.72	-5609.22	-264.76	40°08'37.484"N	104°42'05.047"W	0.00	
13917.00†	89.864	181.274	7082.94	5713.72	-5709.19	-266.98	40°08'36.496"N	104°42'05.076"W	0.00	
13942.95	89.864	181.274	7083.00 ¹	5739.67	-5735.14	-267.55	40°08'36.240"N	104°42'05.083"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: THOMSEN 2N-18HZ PWB Ref Wellpath: THOMSEN 2N-18HZ (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	1289.00	1272.00	17.00	1289.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1279.00	1262.00	17.00	1279.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1289.00	7638.48	6349.48	1289.00	7068.00	0.00	0.00	567.76	-127.42
7in Casing Intermediate	17.00	7638.48	7621.48	17.00	7068.00	0.00	0.00	567.76	-127.42
6.125in Open Hole	7638.48	13942.95	6304.47	7068.00	7083.00	567.76	-127.42	-5735.14	-267.55
4.5in Casing Production	17.00	13942.95	13925.95	17.00	7083.00	0.00	0.00	-5735.14	-267.55

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.07-T2N-R65W SECTION LINES		0.00	-1.52	-60.10	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	polygon
SEC.18-T2N-R65W SECTION LINES		0.00	-1.52	-60.10	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	polygon
1) THOMSEN 2N-18HZ BHL ON PLAT REV-1 (928'FNL & 1150'FEL, SEC.18)	13942.95	7083.00	-5735.14	-267.55	3223253.84	1296089.42	40°08'36.240"N	104°42'05.083"W	point
THOMSEN 2N-18HZ LANDBOX		7083.00	0.00	0.00	3223469.66	1301826.48	40°09'32.915"N	104°42'01.638"W	polygon

SURVEY PROGRAM - Ref Wellbore: THOMSEN 2N-18HZ PWB Ref Wellpath: THOMSEN 2N-18HZ (PERMIT REV-1) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	13942.95	NaviTrak (MAGCORR,IFR)		THOMSEN 2N-18HZ PWB

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#04 THOMSEN 2N-18HZ (472'FNL & 935'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 2N-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 2N-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
793.00	0.000	354.250	793.00	BASE FOX HILLS
1279.00	0.000	354.250	1279.00	SURFACE CASING SETTING DEPTH
3971.83	21.437	354.250	3947.00	PARKMAN
4429.66	30.593	354.250	4358.00	SUSSEX
7252.53	51.268	181.274	6942.00	SHARON SPRINGS
7377.53	63.769	181.274	7009.00	NIOBRARA A
7517.54	77.770	181.274	7055.00	NIOBRARA B

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	354.250	17.00	TIE ON
2900.00	0.000	354.250	2900.00	BEGIN NUDGE
4550.00	33.000	354.250	4460.28	END NUDGE
4955.07	33.000	354.250	4800.00	BEGIN DROP
6605.07	0.000	181.274	6360.28	END DROP
6739.84	0.000	181.274	6495.05	KOP, BUILD @ 10°/100'
7638.48	89.864	181.274	7068.00	LANDING POINT
13942.95	89.864	181.274	7083.00	TOTAL DEPTH