

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)  
 Field: WELD COUNTY (KERR MCGEE) Well: THOMSEN 1C-18HZ  
 Facility: SEC.07-T2N-R65W Wellbore: THOMSEN 1C-18HZ PWB

Plot reference wellpath is THOMSEN 1C-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#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: rnbale01 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)
SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)		4302.32	3756.64	3223439.469	1301825.503
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07))		4929ft			
Mean Sea Level to Mud line (At Slot: SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07))		0ft			
PERMIT (17KB) (RKB) to Mean Sea Level		4929ft			

## Survey Program

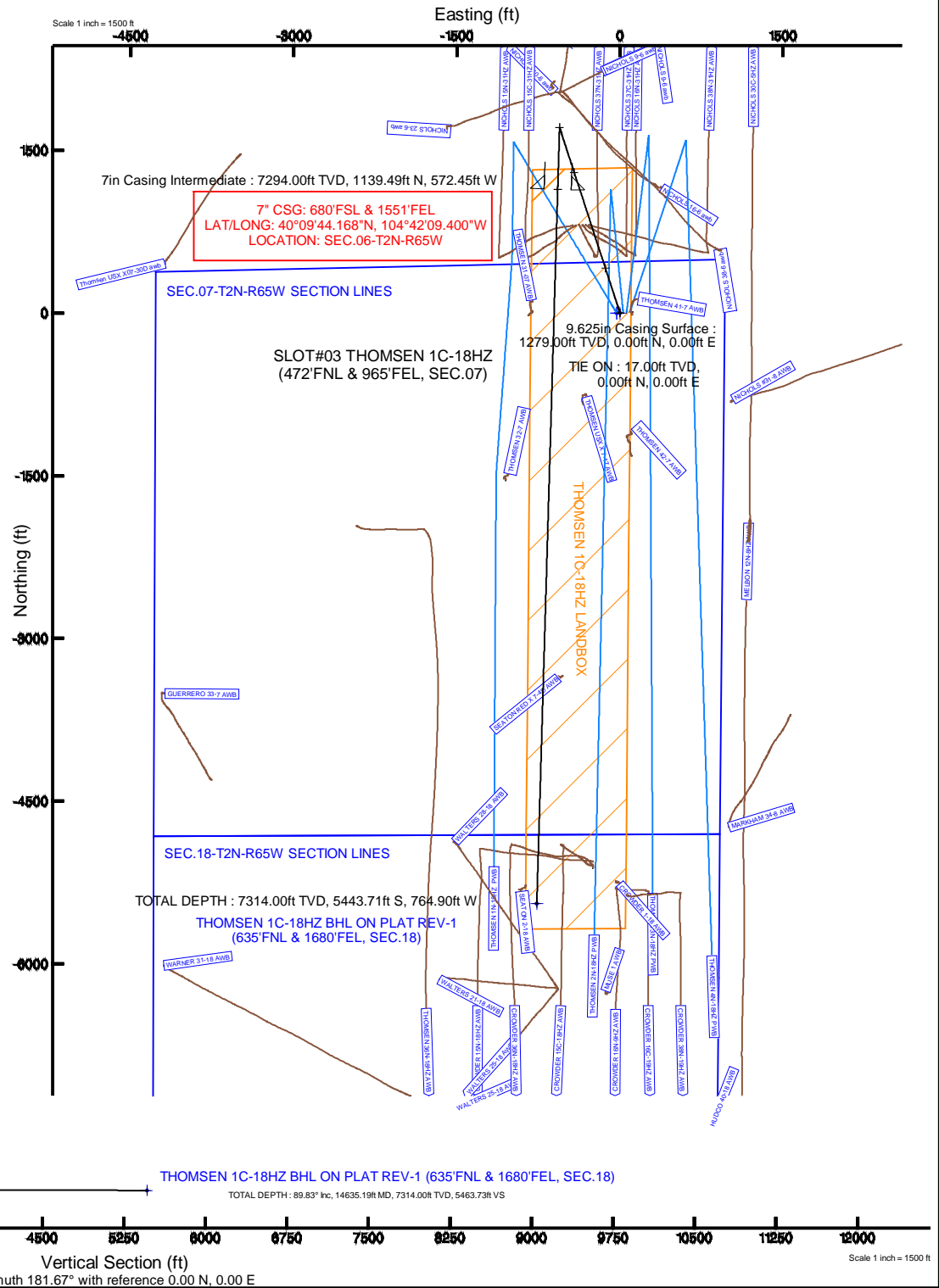
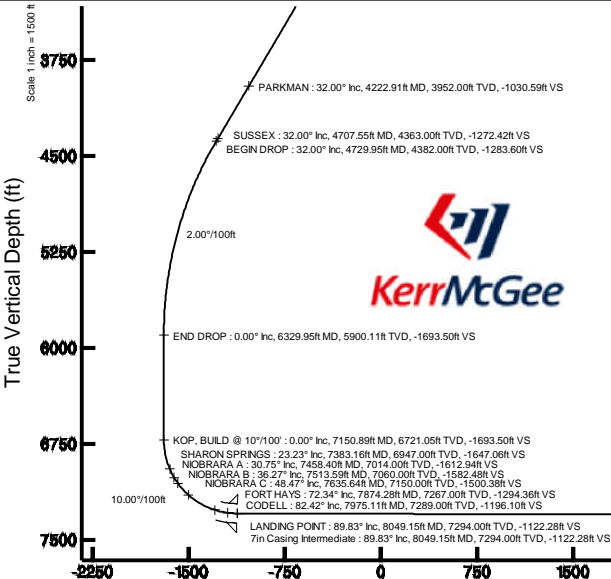
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	14635.19	NaviTrak	NaviTrak (MAGCORR,IFR)		THOMSEN 1C-18HZ PWB

## 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	-0.81	-29.89	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	
SEC.18-T2N-R65W SECTION LINES	0.00	-0.81	-29.89	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	
THOMSEN 1C-18HZ BHL ON PLAT REV-1 (635'FNL & 1680'FEL, SEC.18)	14635.19	7314.00	-6443.71	-764.90	3222723.71	1296375.36	40°08'39.113"N	104°42'11.676"W
THOMSEN 1C-18HZ LANDBOX	7314.00	0.00	0.00	3223439.47	1301825.50	40°09'32.900"N	104°42'02.027"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	342.000	17.00	0.00	0.00	0.00	0.00
BEGIN NUDDGE	1379.00	0.000	342.000	1379.00	0.00	0.00	0.00	0.00
END NUDDGE	2979.00	32.000	342.000	2897.11	414.00	-134.52	2.00	-409.90
BEGIN DROP	4729.95	32.000	342.000	4382.00	1296.46	-421.24	0.00	-1283.60
END DROP	6329.95	0.000	181.674	5900.11	1710.46	-555.76	2.00	-1693.50
KOP, BUILD @ 10°/100'	7150.89	0.000	181.674	6721.05	1710.46	-555.76	0.00	-1693.50
LANDING POINT	8049.15	89.826	181.674	7294.00	1139.49	-572.45	10.00	-1122.28
TOTAL DEPTH	14635.19	89.826	181.674	7314.00	-5443.71	-764.90	0.00	5463.73



Vertical Section (ft)  
 Azimuth 181.67° with reference 0.00 N, 0.00 E

Scale 1 inch = 1500 ft

## REFERENCE WELLPATH IDENTIFICATION

Operator	<b>KERR-MCGEE OIL &amp; GAS ONSHORE LP</b>	Slot	<b>SLOT#03 THOMSEN 1C-18HZ (472'FNL &amp; 965'FEL, SEC.07)</b>
Area	<b>COLORADO</b>	Well	<b>THOMSEN 1C-18HZ</b>
Field	<b>WELD COUNTY (KERR MCGEE)</b>	Wellbore	<b>THOMSEN 1C-18HZ PWB</b>
Facility	<b>SEC.07-T2N-R65W</b>		

## REPORT SETUP INFORMATION

Projection System	<b>NAD83 / Lambert Colorado SP, Northern Zone (501), US feet</b>	Software System	<b>WellArchitect® 4.0.0</b>
North Reference	<b>True</b>	User	<b>Robiale01</b>
Scale	<b>0.999958</b>	Report Generated	<b>05/Aug/2014 at 16:08</b>
Convergence at slot	<b>n/a</b>	Database/Source file	<b>WellArchitectDB/THOMSEN_1C-18HZ_PWB.xml</b>

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	4302.32	3756.64	3223439.47	1301825.50	<b>40°09'32.908"N</b>	<b>104°42'02.027"W</b>
Facility Reference Pt			3219721.27	1297490.24	<b>40°08'50.395"N</b>	<b>104°42'50.411"W</b>
Field Reference Pt			<b>3197771.84</b>	<b>1268891.29</b>	40°04'09.600"N	104°47'36.000"W

## WELLPATH DATUM

Calculation method	<b>Minimum curvature</b>	PERMIT (17'KB) (RKB) to Facility Vertical Datum	<b>4929.00ft</b>
Horizontal Reference Pt	<b>Slot</b>	PERMIT (17'KB) (RKB) to Mean Sea Level	<b>4929.00ft</b>
Vertical Reference Pt	<b>PERMIT (17'KB) (RKB)</b>	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07))	<b>4929.00ft</b>
MD Reference Pt	<b>PERMIT (17'KB) (RKB)</b>	Section Origin	<b>N 0.00, E 0.00 ft</b>
Field Vertical Reference	<b>Mean Sea Level</b>	Section Azimuth	<b>181.67°</b>

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

### WELLPATH DATA (165 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	342.000	0.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
17.00	0.000	342.000	17.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	TIE ON
117.00†	0.000	342.000	117.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
217.00†	0.000	342.000	217.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
317.00†	0.000	342.000	317.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
417.00†	0.000	342.000	417.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
517.00†	0.000	342.000	517.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
617.00†	0.000	342.000	617.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
717.00†	0.000	342.000	717.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
793.00†	0.000	342.000	793.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	BASE FOX HILLS
817.00†	0.000	342.000	817.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
917.00†	0.000	342.000	917.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
1017.00†	0.000	342.000	1017.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
1117.00†	0.000	342.000	1117.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
1217.00†	0.000	342.000	1217.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
1279.00†	0.000	342.000	1279.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	SURFACE CASING SETTING DEPTH
1317.00†	0.000	342.000	1317.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	
1379.00	0.000	342.000	1379.00	0.00	0.00	0.00	40°09'32.908"N	104°42'02.027"W	0.00	BEGIN NUDGE
1417.00†	0.760	342.000	1417.00	-0.24	0.24	-0.08	40°09'32.910"N	104°42'02.028"W	2.00	
1517.00†	2.760	342.000	1516.95	-3.13	3.16	-1.03	40°09'32.939"N	104°42'02.040"W	2.00	
1617.00†	4.760	342.000	1616.73	-9.30	9.40	-3.05	40°09'33.001"N	104°42'02.066"W	2.00	
1717.00†	6.760	342.000	1716.22	-18.75	18.94	-6.15	40°09'33.095"N	104°42'02.106"W	2.00	
1817.00†	8.760	342.000	1815.30	-31.47	31.78	-10.33	40°09'33.222"N	104°42'02.160"W	2.00	
1917.00†	10.760	342.000	1913.84	-47.43	47.90	-15.56	40°09'33.381"N	104°42'02.227"W	2.00	
2017.00†	12.760	342.000	2011.74	-66.62	67.29	-21.86	40°09'33.573"N	104°42'02.309"W	2.00	
2117.00†	14.760	342.000	2108.86	-89.02	89.91	-29.21	40°09'33.796"N	104°42'02.403"W	2.00	
2217.00†	16.760	342.000	2205.10	-114.59	115.74	-37.61	40°09'34.052"N	104°42'02.511"W	2.00	
2317.00†	18.760	342.000	2300.33	-143.31	144.75	-47.03	40°09'34.338"N	104°42'02.633"W	2.00	
2417.00†	20.760	342.000	2394.44	-175.14	176.90	-57.48	40°09'34.656"N	104°42'02.767"W	2.00	
2517.00†	22.760	342.000	2487.31	-210.05	212.15	-68.93	40°09'35.005"N	104°42'02.915"W	2.00	
2617.00†	24.760	342.000	2578.83	-247.99	250.47	-81.38	40°09'35.383"N	104°42'03.075"W	2.00	
2717.00†	26.760	342.000	2668.88	-288.91	291.80	-94.81	40°09'35.792"N	104°42'03.248"W	2.00	
2817.00†	28.760	342.000	2757.37	-332.76	336.10	-109.20	40°09'36.229"N	104°42'03.434"W	2.00	
2917.00†	30.760	342.000	2844.18	-379.50	383.30	-124.54	40°09'36.696"N	104°42'03.631"W	2.00	
2979.00	32.000	342.000	2897.11	-409.90	414.00	-134.52	40°09'36.999"N	104°42'03.760"W	2.00	END NUDGE
3017.00†	32.000	342.000	2929.33	-428.86	433.16	-140.74	40°09'37.188"N	104°42'03.840"W	0.00	
3117.00†	32.000	342.000	3014.14	-478.76	483.55	-157.12	40°09'37.687"N	104°42'04.051"W	0.00	
3217.00†	32.000	342.000	3098.94	-528.66	533.95	-173.49	40°09'38.185"N	104°42'04.262"W	0.00	
3317.00†	32.000	342.000	3183.75	-578.55	584.35	-189.87	40°09'38.683"N	104°42'04.472"W	0.00	
3417.00†	32.000	342.000	3268.55	-628.45	634.75	-206.24	40°09'39.181"N	104°42'04.683"W	0.00	
3517.00†	32.000	342.000	3353.36	-678.35	685.15	-222.62	40°09'39.679"N	104°42'04.894"W	0.00	
3617.00†	32.000	342.000	3438.16	-728.25	735.55	-238.99	40°09'40.177"N	104°42'05.105"W	0.00	
3717.00†	32.000	342.000	3522.97	-778.15	785.94	-255.37	40°09'40.675"N	104°42'05.316"W	0.00	
3817.00†	32.000	342.000	3607.77	-828.05	836.34	-271.74	40°09'41.173"N	104°42'05.527"W	0.00	
3917.00†	32.000	342.000	3692.58	-877.95	886.74	-288.12	40°09'41.671"N	104°42'05.738"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (165 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4017.00†	32.000	342.000	3777.38	-927.84	937.14	-304.49	40°09'42.169"N	104°42'05.949"W	0.00	
4117.00†	32.000	342.000	3862.19	-977.74	987.54	-320.87	40°09'42.667"N	104°42'06.160"W	0.00	
4217.00†	32.000	342.000	3946.99	-1027.64	1037.94	-337.25	40°09'43.165"N	104°42'06.371"W	0.00	
4222.91†	32.000	342.000	3952.00	-1030.59	1040.91	-338.21	40°09'43.194"N	104°42'06.383"W	0.00	PARKMAN
4317.00†	32.000	342.000	4031.80	-1077.54	1088.33	-353.62	40°09'43.663"N	104°42'06.582"W	0.00	
4417.00†	32.000	342.000	4116.60	-1127.44	1138.73	-370.00	40°09'44.161"N	104°42'06.793"W	0.00	
4517.00†	32.000	342.000	4201.40	-1177.34	1189.13	-386.37	40°09'44.659"N	104°42'07.004"W	0.00	
4617.00†	32.000	342.000	4286.21	-1227.23	1239.53	-402.75	40°09'45.157"N	104°42'07.214"W	0.00	
4707.55†	32.000	342.000	4363.00	-1272.42	1285.16	-417.58	40°09'45.608"N	104°42'07.405"W	0.00	SUSSEX
4717.00†	32.000	342.000	4371.01	-1277.13	1289.93	-419.12	40°09'45.655"N	104°42'07.425"W	0.00	
4729.95	32.000	342.000	4382.00	-1283.60	1296.46	-421.24	40°09'45.720"N	104°42'07.453"W	0.00	BEGIN DROP
4817.00†	30.259	342.000	4456.51	-1325.97	1339.25	-435.15	40°09'46.143"N	104°42'07.632"W	2.00	
4917.00†	28.259	342.000	4543.75	-1371.99	1385.73	-450.25	40°09'46.602"N	104°42'07.826"W	2.00	
5017.00†	26.259	342.000	4632.64	-1415.11	1429.29	-464.40	40°09'47.032"N	104°42'08.009"W	2.00	
5117.00†	24.259	342.000	4723.07	-1455.29	1469.87	-477.59	40°09'47.433"N	104°42'08.179"W	2.00	
5217.00†	22.259	342.000	4814.94	-1492.47	1507.43	-489.79	40°09'47.804"N	104°42'08.336"W	2.00	
5317.00†	20.259	342.000	4908.13	-1526.62	1541.91	-501.00	40°09'48.145"N	104°42'08.480"W	2.00	
5417.00†	18.259	342.000	5002.53	-1557.67	1573.28	-511.19	40°09'48.455"N	104°42'08.611"W	2.00	
5517.00†	16.259	342.000	5098.02	-1585.61	1601.49	-520.36	40°09'48.734"N	104°42'08.729"W	2.00	
5617.00†	14.259	342.000	5194.49	-1610.39	1626.52	-528.49	40°09'48.981"N	104°42'08.834"W	2.00	
5717.00†	12.259	342.000	5291.82	-1631.98	1648.33	-535.58	40°09'49.197"N	104°42'08.925"W	2.00	
5817.00†	10.259	342.000	5389.89	-1650.37	1666.90	-541.61	40°09'49.380"N	104°42'09.003"W	2.00	
5917.00†	8.259	342.000	5488.58	-1665.52	1682.20	-546.58	40°09'49.532"N	104°42'09.067"W	2.00	
6017.00†	6.259	342.000	5587.78	-1677.42	1694.22	-550.49	40°09'49.650"N	104°42'09.118"W	2.00	
6117.00†	4.259	342.000	5687.35	-1686.05	1702.94	-553.32	40°09'49.736"N	104°42'09.154"W	2.00	
6217.00†	2.259	342.000	5787.18	-1691.40	1708.34	-555.07	40°09'49.790"N	104°42'09.177"W	2.00	
6317.00†	0.259	342.000	5887.15	-1693.47	1710.43	-555.75	40°09'49.811"N	104°42'09.185"W	2.00	
6329.95	0.000	181.674	5900.11	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	2.00	END DROP
6417.00†	0.000	181.674	5987.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
6517.00†	0.000	181.674	6087.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
6617.00†	0.000	181.674	6187.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
6717.00†	0.000	181.674	6287.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
6817.00†	0.000	181.674	6387.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
6917.00†	0.000	181.674	6487.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
7017.00†	0.000	181.674	6587.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
7117.00†	0.000	181.674	6687.15	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	
7150.89	0.000	181.674	6721.05	-1693.50	1710.46	-555.76	40°09'49.811"N	104°42'09.185"W	0.00	KOP, BUILD @ 10°/100'
7217.00†	6.611	181.674	6787.01	-1689.69	1706.65	-555.87	40°09'49.773"N	104°42'09.187"W	10.00	
7317.00†	16.611	181.674	6884.84	-1669.59	1686.56	-556.46	40°09'49.575"N	104°42'09.194"W	10.00	
7383.16†	23.226	181.674	6947.00	-1647.06	1664.04	-557.12	40°09'49.352"N	104°42'09.203"W	10.00	SHARON SPRINGS
7417.00†	26.611	181.674	6977.69	-1632.80	1649.79	-557.54	40°09'49.211"N	104°42'09.208"W	10.00	
7458.40†	30.750	181.674	7014.00	-1612.94	1629.94	-558.12	40°09'49.015"N	104°42'09.216"W	10.00	NIOBRARA A
7513.59†	36.270	181.674	7060.00	-1582.48	1599.49	-559.01	40°09'48.714"N	104°42'09.227"W	10.00	NIOBRARA B
7517.00†	36.611	181.674	7062.74	-1580.45	1597.47	-559.07	40°09'48.694"N	104°42'09.228"W	10.00	
7617.00†	46.611	181.674	7137.42	-1514.13	1531.17	-561.00	40°09'48.039"N	104°42'09.253"W	10.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (165 stations) † = interpolated/extrapolated station											
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments	
7635.64†	48.475	181.674	7150.00	-1500.38	1517.43	-561.41	40°09'47.903"N	104°42'09.258"W	10.00	NIOBRARA C	
7717.00†	56.611	181.674	7199.44	-1435.85	1452.93	-563.29	40°09'47.266"N	104°42'09.282"W	10.00		
7817.00†	66.611	181.674	7246.92	-1347.99	1365.10	-565.86	40°09'46.398"N	104°42'09.315"W	10.00		
7874.28†	72.339	181.674	7267.00	-1294.36	1311.50	-567.42	40°09'45.868"N	104°42'09.336"W	10.00	FORT HAYS	
7917.00†	76.611	181.674	7278.43	-1253.22	1270.37	-568.63	40°09'45.462"N	104°42'09.351"W	10.00		
7975.11†	82.422	181.674	7289.00	-1196.10	1213.28	-570.30	40°09'44.898"N	104°42'09.373"W	10.00	CODELL	
8017.00†	86.611	181.674	7293.00	-1154.41	1171.61	-571.51	40°09'44.486"N	104°42'09.388"W	10.00		
8049.15	89.826	181.674	7294.00	-1122.28	1139.49	-572.45	40°09'44.168"N	104°42'09.400"W	10.00	LANDING POINT	
8117.00†	89.826	181.674	7294.21	-1054.43	1071.67	-574.44	40°09'43.498"N	104°42'09.426"W	0.00		
8217.00†	89.826	181.674	7294.51	-954.43	971.71	-577.36	40°09'42.510"N	104°42'09.463"W	0.00		
8317.00†	89.826	181.674	7294.82	-854.43	871.76	-580.28	40°09'41.523"N	104°42'09.501"W	0.00		
8417.00†	89.826	181.674	7295.12	-754.43	771.80	-583.20	40°09'40.535"N	104°42'09.539"W	0.00		
8517.00†	89.826	181.674	7295.42	-654.43	671.84	-586.12	40°09'39.547"N	104°42'09.576"W	0.00		
8617.00†	89.826	181.674	7295.73	-554.43	571.89	-589.05	40°09'38.559"N	104°42'09.614"W	0.00		
8717.00†	89.826	181.674	7296.03	-454.43	471.93	-591.97	40°09'37.572"N	104°42'09.651"W	0.00		
8817.00†	89.826	181.674	7296.33	-354.43	371.97	-594.89	40°09'36.584"N	104°42'09.689"W	0.00		
8917.00†	89.826	181.674	7296.64	-254.44	272.01	-597.81	40°09'35.596"N	104°42'09.727"W	0.00		
9017.00†	89.826	181.674	7296.94	-154.44	172.06	-600.73	40°09'34.608"N	104°42'09.764"W	0.00		
9117.00†	89.826	181.674	7297.24	-54.44	72.10	-603.66	40°09'33.620"N	104°42'09.802"W	0.00		
9217.00†	89.826	181.674	7297.55	45.56	-27.86	-606.58	40°09'32.633"N	104°42'09.839"W	0.00		
9317.00†	89.826	181.674	7297.85	145.56	-127.81	-609.50	40°09'31.645"N	104°42'09.877"W	0.00		
9417.00†	89.826	181.674	7298.16	245.56	-227.77	-612.42	40°09'30.657"N	104°42'09.915"W	0.00		
9517.00†	89.826	181.674	7298.46	345.56	-327.73	-615.34	40°09'29.669"N	104°42'09.952"W	0.00		
9617.00†	89.826	181.674	7298.76	445.56	-427.68	-618.27	40°09'28.682"N	104°42'09.990"W	0.00		
9717.00†	89.826	181.674	7299.07	545.56	-527.64	-621.19	40°09'27.694"N	104°42'10.027"W	0.00		
9817.00†	89.826	181.674	7299.37	645.56	-627.60	-624.11	40°09'26.706"N	104°42'10.065"W	0.00		
9917.00†	89.826	181.674	7299.67	745.56	-727.55	-627.03	40°09'25.718"N	104°42'10.103"W	0.00		
10017.00†	89.826	181.674	7299.98	845.56	-827.51	-629.95	40°09'24.730"N	104°42'10.140"W	0.00		
10117.00†	89.826	181.674	7300.28	945.56	-927.47	-632.88	40°09'23.743"N	104°42'10.178"W	0.00		
10217.00†	89.826	181.674	7300.58	1045.56	-1027.42	-635.80	40°09'22.755"N	104°42'10.215"W	0.00		
10317.00†	89.826	181.674	7300.89	1145.56	-1127.38	-638.72	40°09'21.767"N	104°42'10.253"W	0.00		
10417.00†	89.826	181.674	7301.19	1245.56	-1227.34	-641.64	40°09'20.779"N	104°42'10.291"W	0.00		
10517.00†	89.826	181.674	7301.50	1345.56	-1327.29	-644.56	40°09'19.792"N	104°42'10.328"W	0.00		
10617.00†	89.826	181.674	7301.80	1445.56	-1427.25	-647.49	40°09'18.804"N	104°42'10.366"W	0.00		
10717.00†	89.826	181.674	7302.10	1545.56	-1527.21	-650.41	40°09'17.816"N	104°42'10.403"W	0.00		
10817.00†	89.826	181.674	7302.41	1645.56	-1627.16	-653.33	40°09'16.828"N	104°42'10.441"W	0.00		
10917.00†	89.826	181.674	7302.71	1745.56	-1727.12	-656.25	40°09'15.840"N	104°42'10.479"W	0.00		
11017.00†	89.826	181.674	7303.01	1845.56	-1827.08	-659.17	40°09'14.853"N	104°42'10.516"W	0.00		
11117.00†	89.826	181.674	7303.32	1945.55	-1927.04	-662.10	40°09'13.865"N	104°42'10.554"W	0.00		
11217.00†	89.826	181.674	7303.62	2045.55	-2026.99	-665.02	40°09'12.877"N	104°42'10.591"W	0.00		
11317.00†	89.826	181.674	7303.92	2145.55	-2126.95	-667.94	40°09'11.889"N	104°42'10.629"W	0.00		
11417.00†	89.826	181.674	7304.23	2245.55	-2226.91	-670.86	40°09'10.902"N	104°42'10.667"W	0.00		
11517.00†	89.826	181.674	7304.53	2345.55	-2326.86	-673.78	40°09'09.914"N	104°42'10.704"W	0.00		
11617.00†	89.826	181.674	7304.84	2445.55	-2426.82	-676.71	40°09'08.926"N	104°42'10.742"W	0.00		
11717.00†	89.826	181.674	7305.14	2545.55	-2526.78	-679.63	40°09'07.938"N	104°42'10.779"W	0.00		

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

WELLPATH DATA (165 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11817.00†	89.826	181.674	7305.44	2645.55	-2626.73	-682.55	40°09'06.950"N	104°42'10.817"W	0.00	
11917.00†	89.826	181.674	7305.75	2745.55	-2726.69	-685.47	40°09'05.963"N	104°42'10.855"W	0.00	
12017.00†	89.826	181.674	7306.05	2845.55	-2826.65	-688.39	40°09'04.975"N	104°42'10.892"W	0.00	
12117.00†	89.826	181.674	7306.35	2945.55	-2926.60	-691.32	40°09'03.987"N	104°42'10.930"W	0.00	
12217.00†	89.826	181.674	7306.66	3045.55	-3026.56	-694.24	40°09'02.999"N	104°42'10.967"W	0.00	
12317.00†	89.826	181.674	7306.96	3145.55	-3126.52	-697.16	40°09'02.011"N	104°42'11.005"W	0.00	
12417.00†	89.826	181.674	7307.26	3245.55	-3226.47	-700.08	40°09'01.024"N	104°42'11.043"W	0.00	
12517.00†	89.826	181.674	7307.57	3345.55	-3326.43	-703.00	40°09'00.036"N	104°42'11.080"W	0.00	
12617.00†	89.826	181.674	7307.87	3445.55	-3426.39	-705.93	40°08'59.048"N	104°42'11.118"W	0.00	
12717.00†	89.826	181.674	7308.18	3545.55	-3526.34	-708.85	40°08'58.060"N	104°42'11.155"W	0.00	
12817.00†	89.826	181.674	7308.48	3645.55	-3626.30	-711.77	40°08'57.073"N	104°42'11.193"W	0.00	
12917.00†	89.826	181.674	7308.78	3745.55	-3726.26	-714.69	40°08'56.085"N	104°42'11.231"W	0.00	
13017.00†	89.826	181.674	7309.09	3845.55	-3826.22	-717.61	40°08'55.097"N	104°42'11.268"W	0.00	
13117.00†	89.826	181.674	7309.39	3945.55	-3926.17	-720.54	40°08'54.109"N	104°42'11.306"W	0.00	
13217.00†	89.826	181.674	7309.69	4045.54	-4026.13	-723.46	40°08'53.121"N	104°42'11.343"W	0.00	
13317.00†	89.826	181.674	7310.00	4145.54	-4126.09	-726.38	40°08'52.134"N	104°42'11.381"W	0.00	
13417.00†	89.826	181.674	7310.30	4245.54	-4226.04	-729.30	40°08'51.146"N	104°42'11.419"W	0.00	
13517.00†	89.826	181.674	7310.60	4345.54	-4326.00	-732.22	40°08'50.158"N	104°42'11.456"W	0.00	
13617.00†	89.826	181.674	7310.91	4445.54	-4425.96	-735.15	40°08'49.170"N	104°42'11.494"W	0.00	
13717.00†	89.826	181.674	7311.21	4545.54	-4525.91	-738.07	40°08'48.183"N	104°42'11.531"W	0.00	
13817.00†	89.826	181.674	7311.52	4645.54	-4625.87	-740.99	40°08'47.195"N	104°42'11.569"W	0.00	
13917.00†	89.826	181.674	7311.82	4745.54	-4725.83	-743.91	40°08'46.207"N	104°42'11.606"W	0.00	
14017.00†	89.826	181.674	7312.12	4845.54	-4825.78	-746.83	40°08'45.219"N	104°42'11.644"W	0.00	
14117.00†	89.826	181.674	7312.43	4945.54	-4925.74	-749.76	40°08'44.231"N	104°42'11.682"W	0.00	
14217.00†	89.826	181.674	7312.73	5045.54	-5025.70	-752.68	40°08'43.244"N	104°42'11.719"W	0.00	
14317.00†	89.826	181.674	7313.03	5145.54	-5125.65	-755.60	40°08'42.256"N	104°42'11.757"W	0.00	
14417.00†	89.826	181.674	7313.34	5245.54	-5225.61	-758.52	40°08'41.268"N	104°42'11.794"W	0.00	
14517.00†	89.826	181.674	7313.64	5345.54	-5325.57	-761.44	40°08'40.280"N	104°42'11.832"W	0.00	
14617.00†	89.826	181.674	7313.94	5445.54	-5425.52	-764.37	40°08'39.293"N	104°42'11.870"W	0.00	
14635.19	89.826	181.674	7314.00 <sup>1</sup>	5463.73	-5443.71	-764.90	40°08'39.113"N	104°42'11.876"W	0.00	TOTAL DEPTH

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

### HOLE & CASING SECTIONS - Ref Wellbore: THOMSEN 1C-18HZ PWB Ref Wellpath: THOMSEN 1C-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	8049.15	6760.15	1289.00	7294.00	0.00	0.00	1139.49	-572.45
7in Casing Intermediate	17.00	8049.15	8032.15	17.00	7294.00	0.00	0.00	1139.49	-572.45
6.125in Open Hole	8049.15	14635.19	6586.04	7294.00	7314.00	1139.49	-572.45	-5443.71	-764.90
4.5in Casing Production	17.00	14635.19	14618.19	17.00	7314.00	0.00	0.00	-5443.71	-764.90

### 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	-0.81	-29.89	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	polygon
SEC.18-T2N-R65W SECTION LINES		0.00	-0.81	-29.89	3223409.59	1301824.42	40°09'32.900"N	104°42'02.412"W	polygon
1) THOMSEN 1C-18HZ BHL ON PLAT REV-1 (635'FNL & 1680'FEL, SEC.18)	14635.19	7314.00	-5443.71	-764.90	3222723.71	1296375.36	40°08'39.113"N	104°42'11.876"W	point
THOMSEN 1C-18HZ LANDBOX		7314.00	0.00	0.00	3223439.47	1301825.50	40°09'32.908"N	104°42'02.027"W	polygon

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

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	14635.19	NaviTrak (MAGCORR,IFR)		THOMSEN 1C-18HZ PWB

### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#03 THOMSEN 1C-18HZ (472'FNL & 965'FEL, SEC.07)
Area	COLORADO	Well	THOMSEN 1C-18HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	THOMSEN 1C-18HZ PWB
Facility	SEC.07-T2N-R65W		

### WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
793.00	0.000	342.000	793.00	BASE FOX HILLS
1279.00	0.000	342.000	1279.00	SURFACE CASING SETTING DEPTH
4222.91	32.000	342.000	3952.00	PARKMAN
4707.55	32.000	342.000	4363.00	SUSSEX
7383.16	23.226	181.674	6947.00	SHARON SPRINGS
7458.40	30.750	181.674	7014.00	NIOBRARA A
7513.59	36.270	181.674	7060.00	NIOBRARA B
7635.64	48.475	181.674	7150.00	NIOBRARA C
7874.28	72.339	181.674	7267.00	FORT HAYS
7975.11	82.422	181.674	7289.00	CODELL

### DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	342.000	17.00	TIE ON
1379.00	0.000	342.000	1379.00	BEGIN NUDGE
2979.00	32.000	342.000	2897.11	END NUDGE
4729.95	32.000	342.000	4382.00	BEGIN DROP
6329.95	0.000	181.674	5900.11	END DROP
7150.89	0.000	181.674	6721.05	KOP, BUILD @ 10°/100'
8049.15	89.826	181.674	7294.00	LANDING POINT
14635.19	89.826	181.674	7314.00	TOTAL DEPTH