

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)  
Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 38C-33HZ  
Facility: SEC.28-T1N-R67W Wellbore: HOWARD 38C-33HZ PWB

Plot reference wellpath is HOWARD 38C-33HZ (PERMIT REV-1) PWP

True vertical depths are referenced to Rig on SLOTH14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to Rig on SLOTH14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB)	North Reference: True north
Rig on SLOTH14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Mean Sea Level: 5038 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOTH24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by preclin on 24Jul2013

## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.28-T1N-R67W	31653.750	121943.400	38°32'36.000"N	104°37'52.000"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
SLOTH24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)	141340.22	2717059.84	317055.649	1250407.182
Rig on SLOTH14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Mud line (At Slot: SLOTH24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28))				5038ft
Mean Sea Level to Mud line (At Slot: SLOTH24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28))				0ft
Rig on SLOTH14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Mean Sea Level				5038ft

## Survey Program

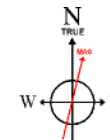
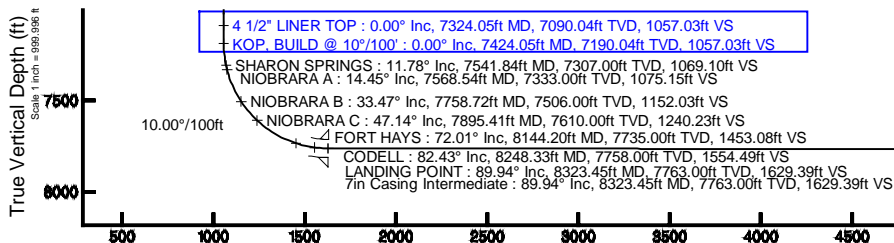
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	8323.45	NaviTrak	NaviTrak (Standard)		HOWARD 38C-33HZ PWB
8323.45	13079.24	OnTrak	OnTrak (Standard)		HOWARD 38C-33HZ PWB

## 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	132.100	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1000.00	0.000	132.100	1000.00	0.00	0.00	0.00	0.00
END NUDGE	1900.00	18.000	132.100	1885.27	-94.00	104.03	2.00	94.29
BEGIN DROP	6079.28	18.000	132.100	5860.00	-959.84	1062.27	0.00	962.74
END DROP	6979.28	0.000	179.843	6745.27	-1053.84	1166.31	2.00	1057.03
KOP, BUILD @ 10°/100'	7424.05	0.000	179.843	7190.04	-1053.84	1166.31	0.00	1057.03
LANDING POINT	8323.45	89.940	179.843	7763.00	-1626.19	1167.87	10.00	1629.39
TOTAL DEPTH	13079.24	89.940	179.843	7768.00	-6381.97	1180.88	0.00	6385.18

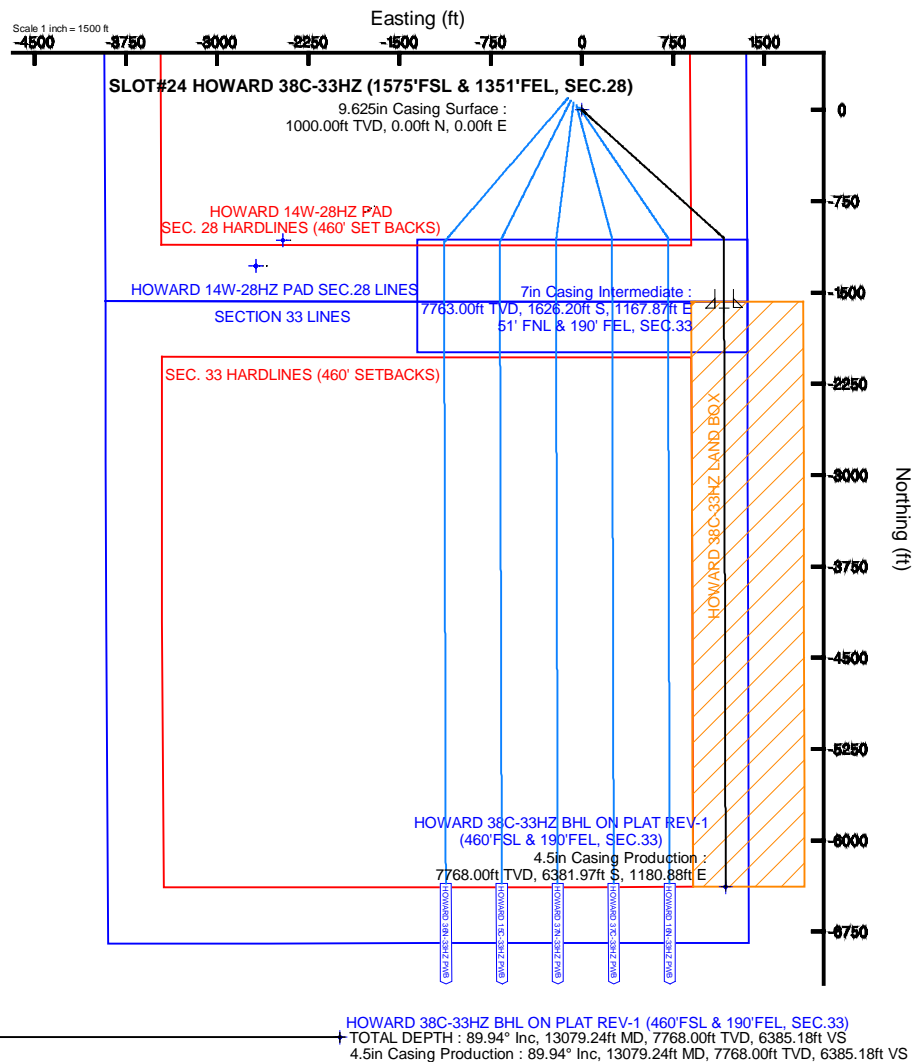
## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SECTION 33 LINES		14.00	-1071.29	-2458.71	3168144.45	1248319.07	40°00'58.338"N	104°33'58.798"W
HOWARD 14W-28HZ PAD SEC. 28 HARDLINES (460' SET BACKS)		5038.00	-1282.15	-2891.95	3167922.66	1248106.69	40°00'56.254"N	104°54'01.667"W
HOWARD 14W-28HZ PAD SEC.28 LINES		5038.00	-1282.15	-2891.95	3167922.66	1248106.69	40°00'56.254"N	104°54'01.667"W
HOWARD 38C-33HZ BHL ON PLAT REV-1 (460'FSL & 190'FEL, SEC.33)	13079.24	7768.00	-6381.97	1180.88	3171820.29	1244033.71	40°00'05.857"N	104°33'12.023"W
HOWARD 38C-33HZ LAND BOX		7768.00	0.00	0.00	3170595.65	1250407.18	40°01'08.926"N	104°33'27.187"W
SEC. 33 HARDLINES (460' SETBACKS)		7814.00	-1071.29	-2458.71	3168144.45	1248319.07	40°00'58.338"N	104°33'58.798"W



BGGM (1945.0 to 2015.0) Dip: 66.64° Field: 52624.9 nT  
Magnetic North is 8.65 degrees East of True North (at 23Jul2013)

To correct azimuth from Magnetic to True add 8.65 degrees



Vertical Section (ft)

Azimuth 179.84° with reference 0.00 N, 0.00 E



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

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	0.999965	Report Generated	24/Jul/2013 at 11:08
Convergence at slot	n/a	Database/Source file	WellArchitectDB/HOWARD_38C-33HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	1413460.22	2717059.84	3170595.65	1250407.18	40°01'08.926"N	104°53'27.197"W
Facility Reference Pt			316923.76	121463.46	36°32'36.656"N	114°37'52.006"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on SLOT#14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Facility Vertical Datum	5038.00ft
Horizontal Reference Pt	Slot	Rig on SLOT#14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Mean Sea Level	5038.00ft
Vertical Reference Pt	Rig on SLOT#14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB)	Rig on SLOT#14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB) to Mud Line at Slot (SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28))	5038.00ft
MD Reference Pt	Rig on SLOT#14 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.84°



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (149 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	132.100	0.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
17.00	0.000	132.100	17.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	TIE-ON
117.00†	0.000	132.100	117.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
217.00†	0.000	132.100	217.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
317.00†	0.000	132.100	317.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
417.00†	0.000	132.100	417.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
517.00†	0.000	132.100	517.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
617.00†	0.000	132.100	617.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
717.00†	0.000	132.100	717.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
788.00†	0.000	132.100	788.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	FOX HILLS BASE
817.00†	0.000	132.100	817.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
917.00†	0.000	132.100	917.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	
1000.00	0.000	132.100	1000.00	0.00	0.00	0.00	40°01'08.926"N	104°53'27.197"W	0.00	BEGIN NUDGE
1017.00†	0.340	132.100	1017.00	0.03	-0.03	0.04	40°01'08.926"N	104°53'27.197"W	2.00	
1117.00†	2.340	132.100	1116.97	1.61	-1.60	1.77	40°01'08.910"N	104°53'27.174"W	2.00	
1217.00†	4.340	132.100	1216.79	5.52	-5.51	6.10	40°01'08.872"N	104°53'27.119"W	2.00	
1317.00†	6.340	132.100	1316.35	11.78	-11.75	13.00	40°01'08.810"N	104°53'27.030"W	2.00	
1417.00†	8.340	132.100	1415.53	20.37	-20.31	22.48	40°01'08.725"N	104°53'26.908"W	2.00	
1517.00†	10.340	132.100	1514.20	31.29	-31.19	34.52	40°01'08.618"N	104°53'26.753"W	2.00	
1617.00†	12.340	132.100	1612.24	44.51	-44.37	49.11	40°01'08.487"N	104°53'26.566"W	2.00	
1717.00†	14.340	132.100	1709.54	60.02	-59.84	66.23	40°01'08.335"N	104°53'26.346"W	2.00	
1817.00†	16.340	132.100	1805.97	77.81	-77.58	85.86	40°01'08.159"N	104°53'26.093"W	2.00	
1900.00	18.000	132.100	1885.27	94.29	-94.00	104.03	40°01'07.997"N	104°53'25.860"W	2.00	END NUDGE
1917.00†	18.000	132.100	1901.44	97.82	-97.52	107.93	40°01'07.962"N	104°53'25.810"W	0.00	
2017.00†	18.000	132.100	1996.54	118.60	-118.24	130.86	40°01'07.757"N	104°53'25.515"W	0.00	
2117.00†	18.000	132.100	2091.65	139.38	-138.96	153.79	40°01'07.553"N	104°53'25.220"W	0.00	
2217.00†	18.000	132.100	2186.75	160.16	-159.68	176.72	40°01'07.348"N	104°53'24.926"W	0.00	
2317.00†	18.000	132.100	2281.86	180.94	-180.39	199.65	40°01'07.143"N	104°53'24.631"W	0.00	
2417.00†	18.000	132.100	2376.96	201.72	-201.11	222.57	40°01'06.939"N	104°53'24.336"W	0.00	
2517.00†	18.000	132.100	2472.07	222.50	-221.83	245.50	40°01'06.734"N	104°53'24.042"W	0.00	
2617.00†	18.000	132.100	2567.18	243.28	-242.55	268.43	40°01'06.529"N	104°53'23.747"W	0.00	
2717.00†	18.000	132.100	2662.28	264.06	-263.26	291.36	40°01'06.324"N	104°53'23.452"W	0.00	
2817.00†	18.000	132.100	2757.39	284.84	-283.98	314.29	40°01'06.120"N	104°53'23.157"W	0.00	
2917.00†	18.000	132.100	2852.49	305.62	-304.70	337.22	40°01'05.915"N	104°53'22.863"W	0.00	
3017.00†	18.000	132.100	2947.60	326.40	-325.41	360.14	40°01'05.710"N	104°53'22.568"W	0.00	
3117.00†	18.000	132.100	3042.70	347.18	-346.13	383.07	40°01'05.505"N	104°53'22.273"W	0.00	
3217.00†	18.000	132.100	3137.81	367.96	-366.85	406.00	40°01'05.301"N	104°53'21.979"W	0.00	
3317.00†	18.000	132.100	3232.92	388.74	-387.57	428.93	40°01'05.096"N	104°53'21.684"W	0.00	
3417.00†	18.000	132.100	3328.02	409.52	-408.28	451.86	40°01'04.891"N	104°53'21.389"W	0.00	
3517.00†	18.000	132.100	3423.13	430.30	-429.00	474.79	40°01'04.686"N	104°53'21.095"W	0.00	
3617.00†	18.000	132.100	3518.23	451.08	-449.72	497.71	40°01'04.482"N	104°53'20.800"W	0.00	
3717.00†	18.000	132.100	3613.34	471.86	-470.44	520.64	40°01'04.277"N	104°53'20.505"W	0.00	
3817.00†	18.000	132.100	3708.44	492.64	-491.15	543.57	40°01'04.072"N	104°53'20.211"W	0.00	
3917.00†	18.000	132.100	3803.55	513.42	-511.87	566.50	40°01'03.867"N	104°53'19.916"W	0.00	
4017.00†	18.000	132.100	3898.66	534.20	-532.59	589.43	40°01'03.663"N	104°53'19.621"W	0.00	



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (149 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	18.000	132.100	3993.76	554.98	-553.31	612.36	40°01'03.458"N	104°53'19.326"W	0.00	
4217.00†	18.000	132.100	4088.87	575.76	-574.02	635.28	40°01'03.253"N	104°53'19.032"W	0.00	
4317.00†	18.000	132.100	4183.97	596.54	-594.74	658.21	40°01'03.049"N	104°53'18.737"W	0.00	
4417.00†	18.000	132.100	4279.08	617.32	-615.46	681.14	40°01'02.844"N	104°53'18.442"W	0.00	
4517.00†	18.000	132.100	4374.18	638.10	-636.17	704.07	40°01'02.639"N	104°53'18.148"W	0.00	
4617.00†	18.000	132.100	4469.29	658.88	-656.89	727.00	40°01'02.434"N	104°53'17.853"W	0.00	
4717.00†	18.000	132.100	4564.39	679.66	-677.61	749.93	40°01'02.230"N	104°53'17.558"W	0.00	
4817.00†	18.000	132.100	4659.50	700.44	-698.33	772.85	40°01'02.025"N	104°53'17.264"W	0.00	
4917.00†	18.000	132.100	4754.61	721.22	-719.04	795.78	40°01'01.820"N	104°53'16.969"W	0.00	
5017.00†	18.000	132.100	4849.71	742.00	-739.76	818.71	40°01'01.615"N	104°53'16.674"W	0.00	
5042.54†	18.000	132.100	4874.00	747.31	-745.05	824.57	40°01'01.563"N	104°53'16.599"W	0.00	SUSSEX
5117.00†	18.000	132.100	4944.82	762.78	-760.48	841.64	40°01'01.411"N	104°53'16.380"W	0.00	
5217.00†	18.000	132.100	5039.92	783.56	-781.20	864.57	40°01'01.206"N	104°53'16.085"W	0.00	
5317.00†	18.000	132.100	5135.03	804.34	-801.91	887.49	40°01'01.001"N	104°53'15.790"W	0.00	
5417.00†	18.000	132.100	5230.13	825.12	-822.63	910.42	40°01'00.796"N	104°53'15.496"W	0.00	
5517.00†	18.000	132.100	5325.24	845.90	-843.35	933.35	40°01'00.592"N	104°53'15.201"W	0.00	
5523.06†	18.000	132.100	5331.00	847.16	-844.60	934.74	40°01'00.579"N	104°53'15.183"W	0.00	SHANNON
5617.00†	18.000	132.100	5420.35	866.68	-864.07	956.28	40°01'00.387"N	104°53'14.906"W	0.00	
5717.00†	18.000	132.100	5515.45	887.46	-884.78	979.21	40°01'00.182"N	104°53'14.611"W	0.00	
5817.00†	18.000	132.100	5610.56	908.24	-905.50	1002.14	40°00'59.977"N	104°53'14.317"W	0.00	
5917.00†	18.000	132.100	5705.66	929.02	-926.22	1025.06	40°00'59.773"N	104°53'14.022"W	0.00	
6017.00†	18.000	132.100	5800.77	949.80	-946.93	1047.99	40°00'59.568"N	104°53'13.727"W	0.00	
6079.28	18.000	132.100	5860.00	962.74	-959.84	1062.27	40°00'59.440"N	104°53'13.544"W	0.00	BEGIN DROP
6117.00†	17.246	132.100	5895.95	970.42	-967.49	1070.75	40°00'59.365"N	104°53'13.435"W	2.00	
6217.00†	15.246	132.100	5991.95	989.24	-986.25	1091.50	40°00'59.179"N	104°53'13.168"W	2.00	
6317.00†	13.246	132.100	6088.87	1005.78	-1002.74	1109.76	40°00'59.016"N	104°53'12.934"W	2.00	
6417.00†	11.246	132.100	6186.59	1020.04	-1016.96	1125.50	40°00'58.876"N	104°53'12.731"W	2.00	
6517.00†	9.246	132.100	6284.99	1032.00	-1028.89	1138.69	40°00'58.758"N	104°53'12.562"W	2.00	
6617.00†	7.246	132.100	6383.95	1041.65	-1038.50	1149.33	40°00'58.663"N	104°53'12.425"W	2.00	
6717.00†	5.246	132.100	6483.35	1048.96	-1045.80	1157.41	40°00'58.591"N	104°53'12.321"W	2.00	
6817.00†	3.246	132.100	6583.08	1053.94	-1050.76	1162.90	40°00'58.542"N	104°53'12.251"W	2.00	
6917.00†	1.246	132.100	6682.99	1056.58	-1053.39	1165.81	40°00'58.516"N	104°53'12.213"W	2.00	
6979.28	0.000	179.843	6745.27	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	2.00	END DROP
7017.00†	0.000	179.843	6782.99	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	
7117.00†	0.000	179.843	6882.99	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	
7217.00†	0.000	179.843	6982.99	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	
7317.00†	0.000	179.843	7082.99	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	
7324.05†	0.000	179.843	7090.04	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	4 1/2" LINER TOP
7417.00†	0.000	179.843	7182.99	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	
7424.05	0.000	179.843	7190.04	1057.03	-1053.84	1166.31	40°00'58.511"N	104°53'12.207"W	0.00	KOP, BUILD @ 10°/100'
7517.00†	9.295	179.843	7282.58	1064.55	-1061.36	1166.33	40°00'58.437"N	104°53'12.207"W	10.00	
7541.84†	11.779	179.843	7307.00	1069.10	-1065.90	1166.34	40°00'58.392"N	104°53'12.206"W	10.00	SHARON SPRINGS
7568.54†	14.449	179.843	7333.00	1075.15	-1071.96	1166.36	40°00'58.332"N	104°53'12.206"W	10.00	NIOBRARA A
7617.00†	19.295	179.843	7379.36	1089.21	-1086.02	1166.40	40°00'58.193"N	104°53'12.206"W	10.00	
7717.00†	29.295	179.843	7470.39	1130.31	-1127.11	1166.51	40°00'57.787"N	104°53'12.204"W	10.00	



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (149 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7758.72†	33.467	179.843	7506.00	1152.03	-1148.83	1166.57	40°00'57.573"N	104°53'12.204"W	10.00	NIOBRARA B
7817.00†	39.295	179.843	7552.90	1186.58	-1183.39	1166.66	40°00'57.231"N	104°53'12.202"W	10.00	
7895.41†	47.136	179.843	7610.00	1240.23	-1237.04	1166.81	40°00'56.701"N	104°53'12.200"W	10.00	NIOBRARA C
7917.00†	49.295	179.843	7624.38	1256.33	-1253.13	1166.85	40°00'56.542"N	104°53'12.200"W	10.00	
8017.00†	59.295	179.843	7682.67	1337.43	-1334.23	1167.07	40°00'55.740"N	104°53'12.197"W	10.00	
8117.00†	69.295	179.843	7725.99	1427.42	-1424.22	1167.32	40°00'54.851"N	104°53'12.194"W	10.00	
8144.20†	72.015	179.843	7735.00	1453.08	-1449.88	1167.39	40°00'54.598"N	104°53'12.193"W	10.00	FORT HAYS
8217.00†	79.295	179.843	7753.02	1523.56	-1520.37	1167.58	40°00'53.901"N	104°53'12.191"W	10.00	
8248.33†	82.428	179.843	7758.00	1554.49	-1551.29	1167.67	40°00'53.595"N	104°53'12.190"W	10.00	CODELL
8317.00†	89.295	179.843	7762.95	1622.94	-1619.75	1167.86	40°00'52.919"N	104°53'12.187"W	10.00	
8323.45	89.940	179.843	7763.00	1629.39	-1626.19	1167.87	40°00'52.855"N	104°53'12.187"W	10.00	LANDING POINT
8417.00†	89.940	179.843	7763.09	1722.94	-1719.74	1168.13	40°00'51.931"N	104°53'12.184"W	0.00	
8517.00†	89.940	179.843	7763.20	1822.94	-1819.74	1168.40	40°00'50.942"N	104°53'12.180"W	0.00	
8617.00†	89.940	179.843	7763.30	1922.94	-1919.74	1168.68	40°00'49.954"N	104°53'12.177"W	0.00	
8717.00†	89.940	179.843	7763.41	2022.94	-2019.74	1168.95	40°00'48.966"N	104°53'12.173"W	0.00	
8817.00†	89.940	179.843	7763.52	2122.94	-2119.74	1169.22	40°00'47.978"N	104°53'12.170"W	0.00	
8917.00†	89.940	179.843	7763.62	2222.94	-2219.74	1169.50	40°00'46.990"N	104°53'12.167"W	0.00	
9017.00†	89.940	179.843	7763.73	2322.94	-2319.74	1169.77	40°00'46.001"N	104°53'12.163"W	0.00	
9117.00†	89.940	179.843	7763.83	2422.94	-2419.74	1170.04	40°00'45.013"N	104°53'12.160"W	0.00	
9217.00†	89.940	179.843	7763.94	2522.94	-2519.74	1170.32	40°00'44.025"N	104°53'12.156"W	0.00	
9317.00†	89.940	179.843	7764.04	2622.94	-2619.74	1170.59	40°00'43.037"N	104°53'12.153"W	0.00	
9417.00†	89.940	179.843	7764.15	2722.94	-2719.74	1170.86	40°00'42.048"N	104°53'12.149"W	0.00	
9517.00†	89.940	179.843	7764.25	2822.94	-2819.74	1171.14	40°00'41.060"N	104°53'12.146"W	0.00	
9617.00†	89.940	179.843	7764.36	2922.94	-2919.74	1171.41	40°00'40.072"N	104°53'12.142"W	0.00	
9717.00†	89.940	179.843	7764.46	3022.94	-3019.74	1171.68	40°00'39.084"N	104°53'12.139"W	0.00	
9817.00†	89.940	179.843	7764.57	3122.94	-3119.74	1171.96	40°00'38.096"N	104°53'12.135"W	0.00	
9917.00†	89.940	179.843	7764.67	3222.94	-3219.74	1172.23	40°00'37.107"N	104°53'12.132"W	0.00	
10017.00†	89.940	179.843	7764.78	3322.94	-3319.74	1172.50	40°00'36.119"N	104°53'12.129"W	0.00	
10117.00†	89.940	179.843	7764.88	3422.94	-3419.74	1172.78	40°00'35.131"N	104°53'12.125"W	0.00	
10217.00†	89.940	179.843	7764.99	3522.94	-3519.74	1173.05	40°00'34.143"N	104°53'12.122"W	0.00	
10317.00†	89.940	179.843	7765.09	3622.94	-3619.74	1173.32	40°00'33.154"N	104°53'12.118"W	0.00	
10417.00†	89.940	179.843	7765.20	3722.94	-3719.74	1173.60	40°00'32.166"N	104°53'12.115"W	0.00	
10517.00†	89.940	179.843	7765.30	3822.94	-3819.74	1173.87	40°00'31.178"N	104°53'12.111"W	0.00	
10617.00†	89.940	179.843	7765.41	3922.94	-3919.74	1174.14	40°00'30.190"N	104°53'12.108"W	0.00	
10717.00†	89.940	179.843	7765.51	4022.94	-4019.73	1174.42	40°00'29.202"N	104°53'12.104"W	0.00	
10817.00†	89.940	179.843	7765.62	4122.94	-4119.73	1174.69	40°00'28.213"N	104°53'12.101"W	0.00	
10917.00†	89.940	179.843	7765.72	4222.94	-4219.73	1174.97	40°00'27.225"N	104°53'12.097"W	0.00	
11017.00†	89.940	179.843	7765.83	4322.94	-4319.73	1175.24	40°00'26.237"N	104°53'12.094"W	0.00	
11117.00†	89.940	179.843	7765.94	4422.94	-4419.73	1175.51	40°00'25.249"N	104°53'12.091"W	0.00	
11217.00†	89.940	179.843	7766.04	4522.94	-4519.73	1175.79	40°00'24.260"N	104°53'12.087"W	0.00	
11317.00†	89.940	179.843	7766.15	4622.94	-4619.73	1176.06	40°00'23.272"N	104°53'12.084"W	0.00	
11417.00†	89.940	179.843	7766.25	4722.94	-4719.73	1176.33	40°00'22.284"N	104°53'12.080"W	0.00	
11517.00†	89.940	179.843	7766.36	4822.94	-4819.73	1176.61	40°00'21.296"N	104°53'12.077"W	0.00	
11617.00†	89.940	179.843	7766.46	4922.94	-4919.73	1176.88	40°00'20.307"N	104°53'12.073"W	0.00	
11717.00†	89.940	179.843	7766.57	5022.94	-5019.73	1177.15	40°00'19.319"N	104°53'12.070"W	0.00	





# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

WELLPATH DATA (149 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11817.00†	89.940	179.843	7766.67	5122.94	-5119.73	1177.43	40°00'18.331"N	104°53'12.066"W	0.00	
11917.00†	89.940	179.843	7766.78	5222.94	-5219.73	1177.70	40°00'17.343"N	104°53'12.063"W	0.00	
12017.00†	89.940	179.843	7766.88	5322.94	-5319.73	1177.97	40°00'16.355"N	104°53'12.059"W	0.00	
12117.00†	89.940	179.843	7766.99	5422.94	-5419.73	1178.25	40°00'15.366"N	104°53'12.056"W	0.00	
12217.00†	89.940	179.843	7767.09	5522.94	-5519.73	1178.52	40°00'14.378"N	104°53'12.053"W	0.00	
12317.00†	89.940	179.843	7767.20	5622.94	-5619.73	1178.79	40°00'13.390"N	104°53'12.049"W	0.00	
12417.00†	89.940	179.843	7767.30	5722.94	-5719.73	1179.07	40°00'12.402"N	104°53'12.046"W	0.00	
12517.00†	89.940	179.843	7767.41	5822.94	-5819.73	1179.34	40°00'11.413"N	104°53'12.042"W	0.00	
12617.00†	89.940	179.843	7767.51	5922.94	-5919.73	1179.61	40°00'10.425"N	104°53'12.039"W	0.00	
12717.00†	89.940	179.843	7767.62	6022.94	-6019.73	1179.89	40°00'09.437"N	104°53'12.035"W	0.00	
12817.00†	89.940	179.843	7767.72	6122.94	-6119.73	1180.16	40°00'08.449"N	104°53'12.032"W	0.00	
12917.00†	89.940	179.843	7767.83	6222.94	-6219.73	1180.43	40°00'07.461"N	104°53'12.028"W	0.00	
13017.00†	89.940	179.843	7767.93	6322.94	-6319.73	1180.71	40°00'06.472"N	104°53'12.025"W	0.00	
13079.24	89.940	179.843	7768.00 <sup>1</sup>	6385.18	-6381.97	1180.88	40°00'05.857"N	104°53'12.023"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 38C-33HZ PWB Ref Wellpath: HOWARD 38C-33HZ (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	8323.45	7323.45	1000.00	7763.00	0.00	0.00	-1626.20	1167.87
7in Casing Intermediate	17.00	8323.45	8306.45	17.00	7763.00	0.00	0.00	-1626.20	1167.87
6.125in Open Hole	8323.45	13079.24	4755.79	7763.00	7768.00	-1626.20	1167.87	-6381.97	1180.88
4.5in Casing Production	17.00	13079.24	13062.24	17.00	7768.00	0.00	0.00	-6381.97	1180.88



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 33 LINES		14.00	-1071.29	-2458.71	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W	polygon
HOWARD 14W-28HZ PAD SEC. 28 HARDLINES (460' SET BACKS)		5038.00	-1282.15	-2681.95	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W	polygon
HOWARD 14W-28HZ PAD SEC.28 LINES		5038.00	-1282.15	-2681.95	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W	polygon
1) HOWARD 38C-33HZ BHL ON PLAT REV-1 (460'FSL & 190'FEL, SEC.33)	13079.24	7768.00	-6381.97	1180.88	3171820.29	1244033.71	40°00'05.857"N	104°53'12.023"W	point
HOWARD 38C-33HZ LAND BOX		7768.00	0.00	0.00	3170595.65	1250407.18	40°01'08.926"N	104°53'27.197"W	polygon
SEC. 33 HARDLINES (460' SETBACKS)		7814.00	-1071.29	-2458.71	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W	polygon

SURVEY PROGRAM - Ref Wellbore: HOWARD 38C-33HZ PWB Ref Wellpath: HOWARD 38C-33HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	8323.45	NaviTrak (Standard)		HOWARD 38C-33HZ PWB
8323.45	13079.24	OnTrak (Standard)		HOWARD 38C-33HZ PWB



# Planned Wellpath Report

HOWARD 38C-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#24 HOWARD 38C-33HZ (1575'FSL & 1351'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 38C-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 38C-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
788.00	0.000	132.100	788.00	FOX HILLS BASE
5042.54	18.000	132.100	4874.00	SUSSEX
5523.06	18.000	132.100	5331.00	SHANNON
7324.05	0.000	179.843	7090.04	4 1/2" LINER TOP
7541.84	11.779	179.843	7307.00	SHARON SPRINGS
7568.54	14.449	179.843	7333.00	NIOBRARA A
7758.72	33.467	179.843	7506.00	NIOBRARA B
7895.41	47.136	179.843	7610.00	NIOBRARA C
8144.20	72.015	179.843	7735.00	FORT HAYS
8248.33	82.428	179.843	7758.00	CODELL

## DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	132.100	17.00	TIE-ON
1000.00	0.000	132.100	1000.00	BEGIN NUDGE
1900.00	18.000	132.100	1885.27	END NUDGE
6079.28	18.000	132.100	5860.00	BEGIN DROP
6979.28	0.000	179.843	6745.27	END DROP
7424.05	0.000	179.843	7190.04	KOP, BUILD @ 10°/100'
8323.45	89.940	179.843	7763.00	LANDING POINT
13079.24	89.940	179.843	7768.00	TOTAL DEPTH