

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)  
Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 37N-33HZ  
Facility: SEC.28-T1N-R67W Wellbore: HOWARD 37N-33HZ PWB

Plot reference wellpath is HOWARD 37N-33HZ (PERMIT REV-1) PWP

True vertical depths are referenced to Rig on SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet  
Measured depths are referenced to Rig on SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) North Reference: True north  
Rig on SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Mean Sea Level: 5238 feet Scale: True distance  
Mean Sea Level to Mud line (At Slot: SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)): 0 feet Depths are in feet  
Coordinates are in feet referenced to Slot Created by precalm on 24Jul2013

## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.28-T1N-R67W	316623.700	121463.460	38°32'36.000"N	114°37'52.080"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)	141398.07	271684.94	3170526.093	1205454.180
Rig on SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Mud line (At Slot: SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28))				50381
Mean Sea Level to Mud line (At Slot: SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28))				01
Rig on SLOTH11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Mean Sea Level				50381

## Survey Program

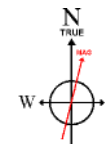
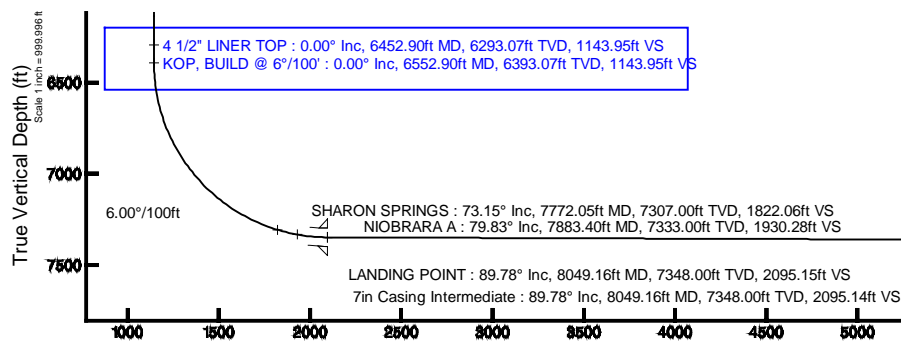
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	8049.16	NaviTrak	NaviTrak (Standard)		HOWARD 37N-33HZ PWB
8049.16	12394.95	OnTrak	OnTrak (Standard)		HOWARD 37N-33HZ PWB

## 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	187.250	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1200.00	0.000	187.250	1200.00	0.00	0.00	0.00	0.00
END NUDGE	2050.00	17.000	187.250	2037.58	-124.18	-15.80	2.00	124.13
BEGIN DROP	5139.41	17.000	187.250	4992.00	-1020.21	-129.79	0.00	1019.82
END DROP	5989.41	0.000	179.831	5829.58	-1144.39	-145.58	2.00	1143.95
KOP, BUILD @ 6°/100'	6552.90	0.000	179.831	6393.07	-1144.39	-145.58	0.00	1143.95
LANDING POINT	8049.16	89.776	179.831	7348.00	-2095.58	-142.78	6.00	2095.15
TOTAL DEPTH	12394.95	89.776	179.831	7365.00	-6441.32	-129.96	0.00	6440.90

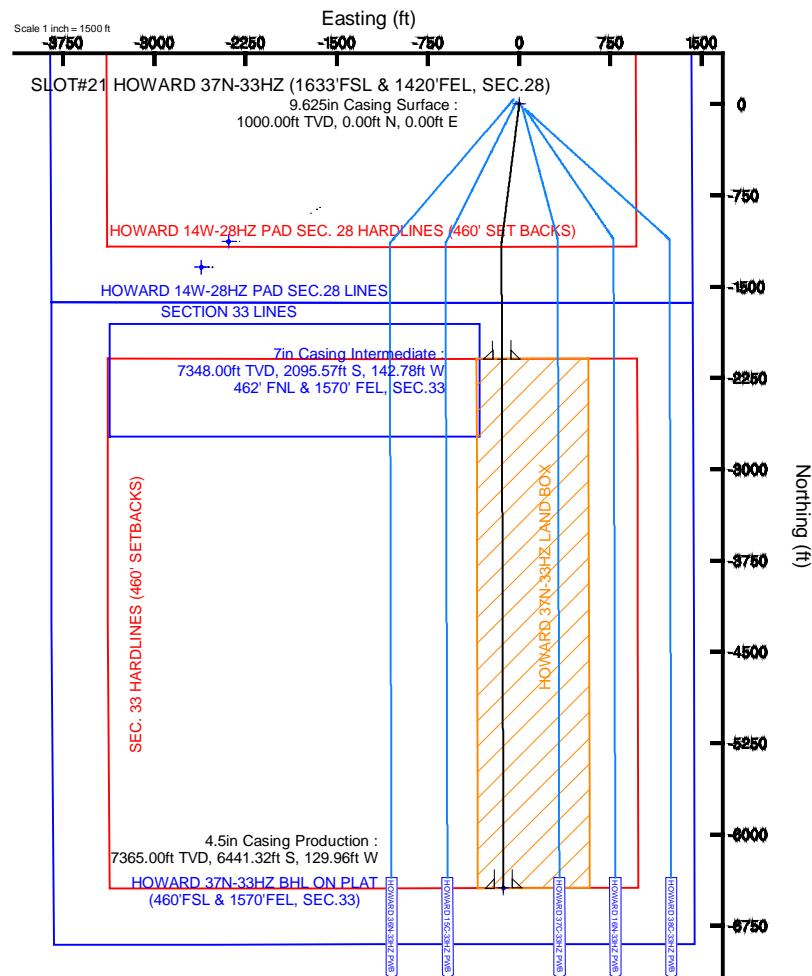
## Targets

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	-1128.77	-2389.54	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W
HOWARD 14W-28HZ PAD SEC. 28 HARDLINES (460' SET BACKS)		5038.00	-1339.63	-2612.79	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W
HOWARD 14W-28HZ PAD SEC.28 LINES		5038.00	-1339.63	-2612.79	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W
HOWARD 37N-33HZ BHL ON PLAT (460'FSL & 1570'FEL, SEC.33)	12394.95	7365.00	-6441.32	-129.96	3170440.36	1244022.36	40°00'05.839"N	104°53'29.756"W
HOWARD 37N-33HZ LAND BOX		7365.00	0.00	0.00	3170526.09	1250464.18	40°01'09.494"N	104°53'28.086"W
SEC. 33 HARDLINES (460' SETBACKS)		7814.00	-1128.77	-2389.54	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W



BGGM (1945.0 to 2015.0) Dip: 66.64° Field: 52625 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 179.83° with reference 0.00 N, 0.00 E



# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-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 10:56
Convergence at slot	n/a	Database/Source file	WellArchitectDB/HOWARD_37N-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	1413509.67	2716984.94	3170526.09	1250464.18	40°01'09.494"N	104°53'28.086"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#11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Facility Vertical Datum	5038.00ft
Horizontal Reference Pt	Slot	Rig on SLOT#11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Mean Sea Level	5038.00ft
Vertical Reference Pt	Rig on SLOT#11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB)	Rig on SLOT#11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB) to Mud Line at Slot (SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28))	5038.00ft
MD Reference Pt	Rig on SLOT#11 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.83°



# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (138 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	187.250	0.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
17.00	0.000	187.250	17.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	TIE-ON
117.00†	0.000	187.250	117.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
217.00†	0.000	187.250	217.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
317.00†	0.000	187.250	317.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
417.00†	0.000	187.250	417.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
517.00†	0.000	187.250	517.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
617.00†	0.000	187.250	617.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
717.00†	0.000	187.250	717.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
788.00†	0.000	187.250	788.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	FOX HILLS BASE
817.00†	0.000	187.250	817.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
917.00†	0.000	187.250	917.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
1017.00†	0.000	187.250	1017.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
1117.00†	0.000	187.250	1117.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	
1200.00	0.000	187.250	1200.00	0.00	0.00	0.00	40°01'09.494"N	104°53'28.086"W	0.00	BEGIN NUDGE
1217.00†	0.340	187.250	1217.00	0.05	-0.05	-0.01	40°01'09.494"N	104°53'28.086"W	2.00	
1317.00†	2.340	187.250	1316.97	2.37	-2.37	-0.30	40°01'09.471"N	104°53'28.090"W	2.00	
1417.00†	4.340	187.250	1416.79	8.15	-8.15	-1.04	40°01'09.413"N	104°53'28.099"W	2.00	
1517.00†	6.340	187.250	1516.35	17.37	-17.38	-2.21	40°01'09.322"N	104°53'28.114"W	2.00	
1617.00†	8.340	187.250	1615.53	30.04	-30.05	-3.82	40°01'09.197"N	104°53'28.135"W	2.00	
1717.00†	10.340	187.250	1714.20	46.13	-46.15	-5.87	40°01'09.038"N	104°53'28.161"W	2.00	
1817.00†	12.340	187.250	1812.24	65.63	-65.66	-8.35	40°01'08.845"N	104°53'28.193"W	2.00	
1917.00†	14.340	187.250	1909.54	88.51	-88.54	-11.26	40°01'08.619"N	104°53'28.231"W	2.00	
2017.00†	16.340	187.250	2005.97	114.74	-114.79	-14.60	40°01'08.360"N	104°53'28.274"W	2.00	
2050.00	17.000	187.250	2037.58	124.13	-124.18	-15.80	40°01'08.267"N	104°53'28.289"W	2.00	END NUDGE
2117.00†	17.000	187.250	2101.66	143.55	-143.61	-18.27	40°01'08.075"N	104°53'28.321"W	0.00	
2217.00†	17.000	187.250	2197.29	172.55	-172.61	-21.96	40°01'07.788"N	104°53'28.368"W	0.00	
2317.00†	17.000	187.250	2292.92	201.54	-201.62	-25.65	40°01'07.502"N	104°53'28.416"W	0.00	
2417.00†	17.000	187.250	2388.55	230.53	-230.62	-29.34	40°01'07.215"N	104°53'28.463"W	0.00	
2517.00†	17.000	187.250	2484.18	259.52	-259.62	-33.03	40°01'06.928"N	104°53'28.511"W	0.00	
2617.00†	17.000	187.250	2579.81	288.52	-288.63	-36.72	40°01'06.642"N	104°53'28.558"W	0.00	
2717.00†	17.000	187.250	2675.44	317.51	-317.63	-40.41	40°01'06.355"N	104°53'28.605"W	0.00	
2817.00†	17.000	187.250	2771.07	346.50	-346.63	-44.10	40°01'06.068"N	104°53'28.653"W	0.00	
2917.00†	17.000	187.250	2866.70	375.49	-375.64	-47.79	40°01'05.782"N	104°53'28.700"W	0.00	
3017.00†	17.000	187.250	2962.33	404.49	-404.64	-51.48	40°01'05.495"N	104°53'28.748"W	0.00	
3117.00†	17.000	187.250	3057.96	433.48	-433.64	-55.17	40°01'05.209"N	104°53'28.795"W	0.00	
3217.00†	17.000	187.250	3153.59	462.47	-462.65	-58.86	40°01'04.922"N	104°53'28.842"W	0.00	
3317.00†	17.000	187.250	3249.22	491.46	-491.65	-62.55	40°01'04.635"N	104°53'28.890"W	0.00	
3417.00†	17.000	187.250	3344.85	520.46	-520.65	-66.24	40°01'04.349"N	104°53'28.937"W	0.00	
3517.00†	17.000	187.250	3440.48	549.45	-549.66	-69.93	40°01'04.062"N	104°53'28.985"W	0.00	
3617.00†	17.000	187.250	3536.11	578.44	-578.66	-73.61	40°01'03.776"N	104°53'29.032"W	0.00	
3717.00†	17.000	187.250	3631.74	607.43	-607.66	-77.30	40°01'03.489"N	104°53'29.080"W	0.00	
3817.00†	17.000	187.250	3727.37	636.43	-636.67	-80.99	40°01'03.202"N	104°53'29.127"W	0.00	
3917.00†	17.000	187.250	3823.00	665.42	-665.67	-84.68	40°01'02.916"N	104°53'29.174"W	0.00	
4017.00†	17.000	187.250	3918.63	694.41	-694.67	-88.37	40°01'02.629"N	104°53'29.222"W	0.00	



# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (138 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	17.000	187.250	4014.27	723.40	-723.68	-92.06	40°01'02.342"N	104°53'29.269"W	0.00	
4217.00†	17.000	187.250	4109.90	752.40	-752.68	-95.75	40°01'02.056"N	104°53'29.317"W	0.00	
4317.00†	17.000	187.250	4205.53	781.39	-781.68	-99.44	40°01'01.769"N	104°53'29.364"W	0.00	
4417.00†	17.000	187.250	4301.16	810.38	-810.69	-103.13	40°01'01.483"N	104°53'29.412"W	0.00	
4517.00†	17.000	187.250	4396.79	839.37	-839.69	-106.82	40°01'01.196"N	104°53'29.459"W	0.00	
4617.00†	17.000	187.250	4492.42	868.36	-868.69	-110.51	40°01'00.909"N	104°53'29.506"W	0.00	
4717.00†	17.000	187.250	4588.05	897.36	-897.70	-114.20	40°01'00.623"N	104°53'29.554"W	0.00	
4817.00†	17.000	187.250	4683.68	926.35	-926.70	-117.89	40°01'00.336"N	104°53'29.601"W	0.00	
4917.00†	17.000	187.250	4779.31	955.34	-955.70	-121.58	40°01'00.049"N	104°53'29.649"W	0.00	
5016.02†	17.000	187.250	4874.00	984.05	-984.42	-125.23	40°00'59.766"N	104°53'29.696"W	0.00	SUSSEX
5017.00†	17.000	187.250	4874.94	984.33	-984.71	-125.27	40°00'59.763"N	104°53'29.696"W	0.00	
5117.00†	17.000	187.250	4970.57	1013.33	-1013.71	-128.96	40°00'59.476"N	104°53'29.743"W	0.00	
5139.41	17.000	187.250	4992.00	1019.82	-1020.21	-129.79	40°00'59.412"N	104°53'29.754"W	0.00	BEGIN DROP
5217.00†	15.448	187.250	5066.50	1041.32	-1041.72	-132.52	40°00'59.199"N	104°53'29.789"W	2.00	
5317.00†	13.448	187.250	5163.33	1066.06	-1066.47	-135.67	40°00'58.955"N	104°53'29.830"W	2.00	
5417.00†	11.448	187.250	5260.98	1087.43	-1087.85	-138.39	40°00'58.744"N	104°53'29.865"W	2.00	
5488.27†	10.023	187.250	5331.00	1100.60	-1101.02	-140.07	40°00'58.613"N	104°53'29.886"W	2.00	SHANNON
5517.00†	9.448	187.250	5359.31	1105.42	-1105.84	-140.68	40°00'58.566"N	104°53'29.894"W	2.00	
5617.00†	7.448	187.250	5458.22	1119.98	-1120.41	-142.53	40°00'58.422"N	104°53'29.918"W	2.00	
5717.00†	5.448	187.250	5557.58	1131.12	-1131.55	-143.95	40°00'58.312"N	104°53'29.936"W	2.00	
5817.00†	3.448	187.250	5657.28	1138.81	-1139.24	-144.93	40°00'58.236"N	104°53'29.949"W	2.00	
5917.00†	1.448	187.250	5757.18	1143.05	-1143.48	-145.47	40°00'58.194"N	104°53'29.956"W	2.00	
5989.41	0.000	179.831	5829.58	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	2.00	END DROP
6017.00†	0.000	179.831	5857.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6117.00†	0.000	179.831	5957.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6217.00†	0.000	179.831	6057.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6317.00†	0.000	179.831	6157.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6417.00†	0.000	179.831	6257.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6452.90†	0.000	179.831	6293.07	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	4 1/2" LINER TOP
6517.00†	0.000	179.831	6357.17	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	
6552.90	0.000	179.831	6393.07	1143.95	-1144.39	-145.58	40°00'58.185"N	104°53'29.957"W	0.00	KOP, BUILD @ 6°/100'
6617.00†	3.846	179.831	6457.13	1146.10	-1146.54	-145.58	40°00'58.164"N	104°53'29.957"W	6.00	
6717.00†	9.846	179.831	6556.37	1158.02	-1158.45	-145.54	40°00'58.046"N	104°53'29.957"W	6.00	
6817.00†	15.846	179.831	6653.82	1180.24	-1180.68	-145.48	40°00'57.826"N	104°53'29.956"W	6.00	
6917.00†	21.846	179.831	6748.42	1212.53	-1212.96	-145.38	40°00'57.507"N	104°53'29.955"W	6.00	
7017.00†	27.846	179.831	6839.12	1254.53	-1254.96	-145.26	40°00'57.092"N	104°53'29.953"W	6.00	
7117.00†	33.846	179.831	6924.93	1305.78	-1306.21	-145.11	40°00'56.586"N	104°53'29.951"W	6.00	
7217.00†	39.846	179.831	7004.92	1365.72	-1366.15	-144.93	40°00'55.993"N	104°53'29.949"W	6.00	
7317.00†	45.846	179.831	7078.21	1433.69	-1434.12	-144.73	40°00'55.322"N	104°53'29.946"W	6.00	
7417.00†	51.846	179.831	7143.99	1508.95	-1509.38	-144.51	40°00'54.578"N	104°53'29.943"W	6.00	
7517.00†	57.846	179.831	7201.54	1590.67	-1591.11	-144.27	40°00'53.770"N	104°53'29.940"W	6.00	
7617.00†	63.846	179.831	7250.23	1677.96	-1678.40	-144.01	40°00'52.908"N	104°53'29.937"W	6.00	
7717.00†	69.846	179.831	7289.53	1769.87	-1770.30	-143.74	40°00'51.999"N	104°53'29.933"W	6.00	
7772.05†	73.149	179.831	7307.00	1822.06	-1822.50	-143.58	40°00'51.484"N	104°53'29.931"W	6.00	SHARON SPRINGS
7817.00†	75.846	179.831	7319.01	1865.38	-1865.81	-143.46	40°00'51.056"N	104°53'29.930"W	6.00	



# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (138 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7883.40†	79.830	179.831	7333.00	1930.28	-1930.71	-143.27	40°00'50.414"N	104°53'29.927"W	6.00	NIOBRARA A
7917.00†	81.846	179.831	7338.35	1963.44	-1963.87	-143.17	40°00'50.086"N	104°53'29.926"W	6.00	
8017.00†	87.846	179.831	7347.33	2062.99	-2063.42	-142.87	40°00'49.103"N	104°53'29.922"W	6.00	
8049.16	89.776	179.831	7348.00	2095.15	-2095.58	-142.78	40°00'48.785"N	104°53'29.921"W	6.00	LANDING POINT
8117.00†	89.776	179.831	7348.26	2162.98	-2163.41	-142.58	40°00'48.115"N	104°53'29.918"W	0.00	
8217.00†	89.776	179.831	7348.65	2262.98	-2263.41	-142.28	40°00'47.126"N	104°53'29.915"W	0.00	
8317.00†	89.776	179.831	7349.04	2362.98	-2363.41	-141.99	40°00'46.138"N	104°53'29.911"W	0.00	
8417.00†	89.776	179.831	7349.43	2462.98	-2463.41	-141.69	40°00'45.150"N	104°53'29.907"W	0.00	
8517.00†	89.776	179.831	7349.83	2562.98	-2563.41	-141.40	40°00'44.162"N	104°53'29.903"W	0.00	
8617.00†	89.776	179.831	7350.22	2662.98	-2663.41	-141.10	40°00'43.173"N	104°53'29.899"W	0.00	
8717.00†	89.776	179.831	7350.61	2762.98	-2763.41	-140.81	40°00'42.185"N	104°53'29.896"W	0.00	
8817.00†	89.776	179.831	7351.00	2862.98	-2863.41	-140.51	40°00'41.197"N	104°53'29.892"W	0.00	
8917.00†	89.776	179.831	7351.39	2962.98	-2963.40	-140.22	40°00'40.209"N	104°53'29.888"W	0.00	
9017.00†	89.776	179.831	7351.78	3062.98	-3063.40	-139.92	40°00'39.221"N	104°53'29.884"W	0.00	
9117.00†	89.776	179.831	7352.17	3162.98	-3163.40	-139.63	40°00'38.232"N	104°53'29.880"W	0.00	
9217.00†	89.776	179.831	7352.57	3262.98	-3263.40	-139.33	40°00'37.244"N	104°53'29.877"W	0.00	
9317.00†	89.776	179.831	7352.96	3362.97	-3363.40	-139.04	40°00'36.256"N	104°53'29.873"W	0.00	
9417.00†	89.776	179.831	7353.35	3462.97	-3463.40	-138.74	40°00'35.268"N	104°53'29.869"W	0.00	
9517.00†	89.776	179.831	7353.74	3562.97	-3563.40	-138.45	40°00'34.279"N	104°53'29.865"W	0.00	
9617.00†	89.776	179.831	7354.13	3662.97	-3663.40	-138.16	40°00'33.291"N	104°53'29.861"W	0.00	
9717.00†	89.776	179.831	7354.52	3762.97	-3763.39	-137.86	40°00'32.303"N	104°53'29.858"W	0.00	
9817.00†	89.776	179.831	7354.91	3862.97	-3863.39	-137.57	40°00'31.315"N	104°53'29.854"W	0.00	
9917.00†	89.776	179.831	7355.30	3962.97	-3963.39	-137.27	40°00'30.327"N	104°53'29.850"W	0.00	
10017.00†	89.776	179.831	7355.70	4062.97	-4063.39	-136.98	40°00'29.338"N	104°53'29.846"W	0.00	
10117.00†	89.776	179.831	7356.09	4162.97	-4163.39	-136.68	40°00'28.350"N	104°53'29.842"W	0.00	
10217.00†	89.776	179.831	7356.48	4262.97	-4263.39	-136.39	40°00'27.362"N	104°53'29.839"W	0.00	
10317.00†	89.776	179.831	7356.87	4362.97	-4363.39	-136.09	40°00'26.374"N	104°53'29.835"W	0.00	
10417.00†	89.776	179.831	7357.26	4462.97	-4463.39	-135.80	40°00'25.385"N	104°53'29.831"W	0.00	
10517.00†	89.776	179.831	7357.65	4562.97	-4563.38	-135.50	40°00'24.397"N	104°53'29.827"W	0.00	
10617.00†	89.776	179.831	7358.04	4662.96	-4663.38	-135.21	40°00'23.409"N	104°53'29.824"W	0.00	
10717.00†	89.776	179.831	7358.43	4762.96	-4763.38	-134.91	40°00'22.421"N	104°53'29.820"W	0.00	
10817.00†	89.776	179.831	7358.83	4862.96	-4863.38	-134.62	40°00'21.433"N	104°53'29.816"W	0.00	
10917.00†	89.776	179.831	7359.22	4962.96	-4963.38	-134.32	40°00'20.444"N	104°53'29.812"W	0.00	
11017.00†	89.776	179.831	7359.61	5062.96	-5063.38	-134.03	40°00'19.456"N	104°53'29.808"W	0.00	
11117.00†	89.776	179.831	7360.00	5162.96	-5163.38	-133.73	40°00'18.468"N	104°53'29.805"W	0.00	
11217.00†	89.776	179.831	7360.39	5262.96	-5263.38	-133.44	40°00'17.480"N	104°53'29.801"W	0.00	
11317.00†	89.776	179.831	7360.78	5362.96	-5363.38	-133.14	40°00'16.492"N	104°53'29.797"W	0.00	
11417.00†	89.776	179.831	7361.17	5462.96	-5463.37	-132.85	40°00'15.503"N	104°53'29.793"W	0.00	
11517.00†	89.776	179.831	7361.56	5562.96	-5563.37	-132.55	40°00'14.515"N	104°53'29.789"W	0.00	
11617.00†	89.776	179.831	7361.96	5662.96	-5663.37	-132.26	40°00'13.527"N	104°53'29.786"W	0.00	
11717.00†	89.776	179.831	7362.35	5762.96	-5763.37	-131.96	40°00'12.539"N	104°53'29.782"W	0.00	
11817.00†	89.776	179.831	7362.74	5862.96	-5863.37	-131.67	40°00'11.550"N	104°53'29.778"W	0.00	
11917.00†	89.776	179.831	7363.13	5962.95	-5963.37	-131.37	40°00'10.562"N	104°53'29.774"W	0.00	
12017.00†	89.776	179.831	7363.52	6062.95	-6063.37	-131.08	40°00'09.574"N	104°53'29.770"W	0.00	
12117.00†	89.776	179.831	7363.91	6162.95	-6163.37	-130.78	40°00'08.586"N	104°53'29.767"W	0.00	





# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ PWB
Facility	SEC.28-T1N-R67W		

WELLPATH DATA (138 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12217.00†	89.776	179.831	7364.30	6262.95	-6263.36	-130.49	40°00'07.598"N	104°53'29.763"W	0.00	
12317.00†	89.776	179.831	7364.69	6362.95	-6363.36	-130.19	40°00'06.609"N	104°53'29.759"W	0.00	
12394.95	89.776	179.831	7365.00 <sup>1</sup>	6440.90	-6441.32	-129.96	40°00'05.839"N	104°53'29.756"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 37N-33HZ PWB Ref Wellpath: HOWARD 37N-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	8049.16	7049.16	1000.00	7348.00	0.00	0.00	-2095.57	-142.78
7in Casing Intermediate	17.00	8049.16	8032.16	17.00	7348.00	0.00	0.00	-2095.57	-142.78
6.125in Open Hole	8049.16	12394.95	4345.79	7348.00	7365.00	-2095.57	-142.78	-6441.32	-129.96
4.5in Casing Production	17.00	12394.95	12377.95	17.00	7365.00	0.00	0.00	-6441.32	-129.96

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	-1128.77	-2389.54	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	-1339.63	-2612.79	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W	polygon
HOWARD 14W-28HZ PAD SEC.28 LINES		5038.00	-1339.63	-2612.79	3167922.66	1249106.69	40°00'56.254"N	104°54'01.667"W	polygon
1) HOWARD 37N-33HZ BHL ON PLAT (460'FSL & 1570'FEL, SEC.33)	12394.95	7365.00	-6441.32	-129.96	3170440.36	1244022.36	40°00'05.839"N	104°53'29.756"W	point
HOWARD 37N-33HZ LAND BOX		7365.00	0.00	0.00	3170526.09	1250464.18	40°01'09.494"N	104°53'28.086"W	polygon
SEC. 33 HARDLINES (460' SETBACKS)		7814.00	-1128.77	-2389.54	3168144.45	1249319.07	40°00'58.338"N	104°53'58.798"W	polygon

SURVEY PROGRAM - Ref Wellbore: HOWARD 37N-33HZ PWB Ref Wellpath: HOWARD 37N-33HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	8049.16	NaviTrak (Standard)		HOWARD 37N-33HZ PWB
8049.16	12394.95	OnTrak (Standard)		HOWARD 37N-33HZ PWB



# Planned Wellpath Report

HOWARD 37N-33HZ (PERMIT REV-1) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#21 HOWARD 37N-33HZ (1633'FSL & 1420'FEL, SEC.28)
Area	COLORADO	Well	HOWARD 37N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 37N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
788.00	0.000	187.250	788.00	FOX HILLS BASE
5016.02	17.000	187.250	4874.00	SUSSEX
5488.27	10.023	187.250	5331.00	SHANNON
6452.90	0.000	179.831	6293.07	4 1/2" LINER TOP
7772.05	73.149	179.831	7307.00	SHARON SPRINGS
7883.40	79.830	179.831	7333.00	NIOBRARA A

## DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	187.250	17.00	TIE-ON
1200.00	0.000	187.250	1200.00	BEGIN NUDGE
2050.00	17.000	187.250	2037.58	END NUDGE
5139.41	17.000	187.250	4992.00	BEGIN DROP
5989.41	0.000	179.831	5829.58	END DROP
6552.90	0.000	179.831	6393.07	KOP, BUILD @ 6°/100'
8049.16	89.776	179.831	7348.00	LANDING POINT
12394.95	89.776	179.831	7365.00	TOTAL DEPTH