

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)  
Field: WELD COUNTY (KERR MCGEE) Well: HOWARD 2N-33HZ  
Facility: SEC.28-T1N-R67W Wellbore: HOWARD 2N-33HZ PWB

Plot reference wellpath is HOWARD 2N-33HZ PERMIT REV-2) PWP

True vertical depths are referenced to ENSIGN 145 (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to ENSIGN 145 (RKB)	North Reference: True north
ENSGIN 145 (RKB) to Mean Sea Level: 4996 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: wlsje02 on 8/8/2013

## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.28-T1N-R67W	316923.760	121463.460	36°32'36.666"N	114°37'52.006"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)	1416797.55	2716933.35	3170813.315	1253746.525
ENSGIN 145 (RKB) to Mud line (At Slot: SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28))				4996R
Mean Sea Level to Mud line (At Slot: SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28))				OR
ENSGIN 145 (RKB) to Mean Sea Level				4996R

## Survey Program

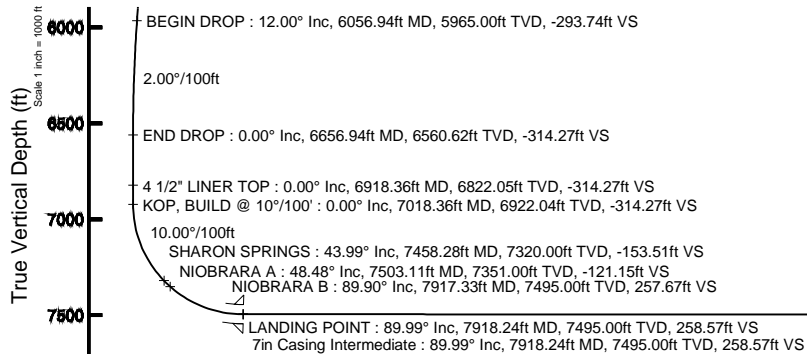
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
13.00	7918.24	Navitrak	Navitrak (MagCorr)		HOWARD 2N-33HZ PWB
7918.24	12768.63	OnTrak	OnTrak (MagCorr)		HOWARD 2N-33HZ PWB

## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	13.00	0.000	288.880	13.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	1450.00	0.000	288.880	1450.00	0.00	0.00	0.00	0.00
END NUDGE	2050.00	12.000	288.880	2045.62	20.26	-59.23	2.00	-20.53
BEGIN DROP	6056.94	12.000	288.880	5965.00	289.83	-847.50	0.00	-293.74
END DROP	6656.94	0.000	179.736	6560.62	310.09	-906.74	2.00	-314.27
KOP, BUILD @ 10°/100'	7018.36	0.000	179.736	6922.04	310.09	-906.74	0.00	-314.27
LANDING POINT	7918.24	89.988	179.736	7495.00	-262.74	-904.10	10.00	258.57
TOTAL DEPTH	12768.63	89.988	179.736	7496.00	-5113.08	-881.79	0.00	5108.96

## Targets

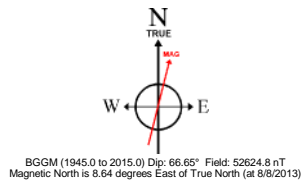
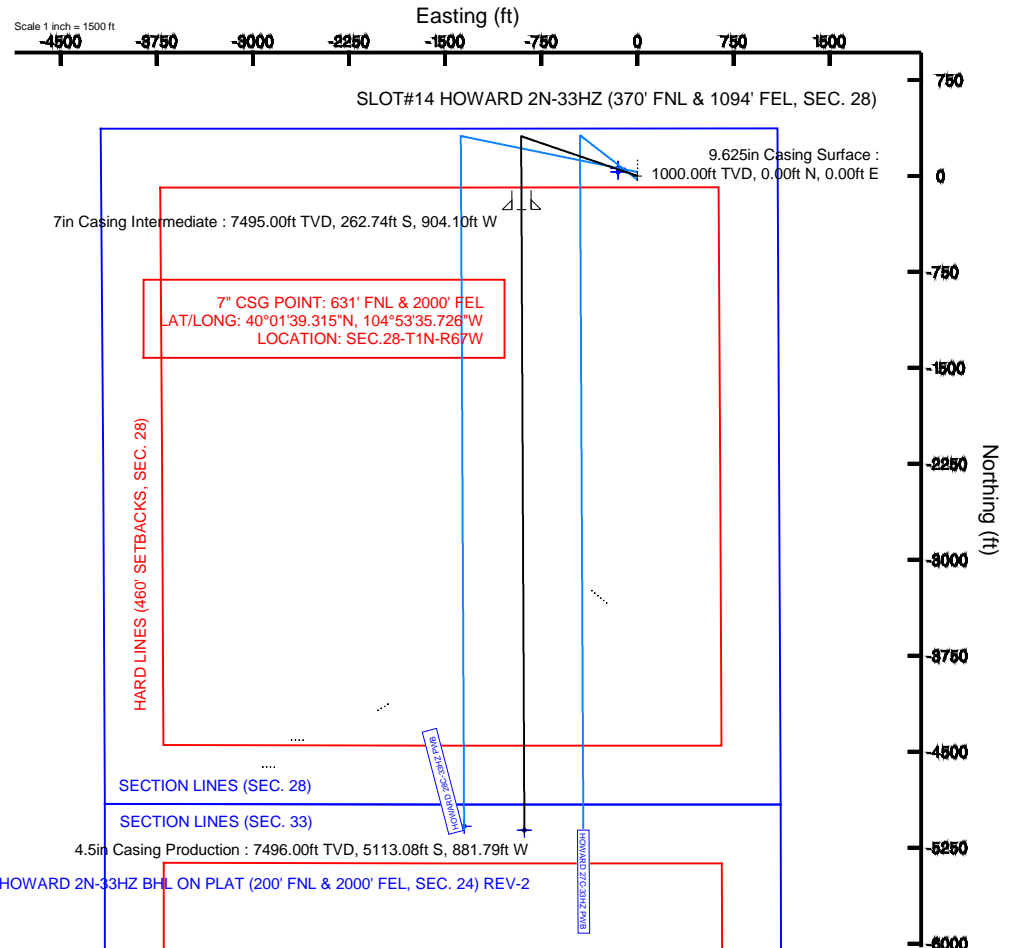
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
HOWARD 27W-28HZ HARD LINES (460' SETBACKS, SEC. 28)	4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	
HOWARD 27W-28HZ HARD LINES (460' SETBACKS, SEC. 33)	4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	
HOWARD 27W-28HZ SECTION LINES (SEC. 28)	4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	
HOWARD 27W-28HZ SECTION LINES (SEC. 33)	4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-1	7492.00	-5113.08	-881.79	3169966.75	1248627.70	40°00'51.383"N	104°53'36.437"W	
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-2	12768.63	7496.00	-5113.08	-881.79	3169966.75	1248627.69	40°00'51.383"N	104°53'36.437"W



Vertical Section (ft)

Scale 1 inch = 1000 ft

Azimuth 179.74° with reference 0.00 N, 0.00 E



To correct azimuth from Magnetic to True add 8.64 degrees

4.5in Casing Production : 89.99° Inc, 12768.63ft MD, 7496.00ft TVD, 5108.96ft VS

TOTAL DEPTH : 89.99° Inc, 12768.63ft MD, 7496.00ft TVD, 5108.96ft VS

HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-2



# Planned Wellpath Report

HOWARD 2N-33HZ (PERMIT REV-2) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	<b>KERR-MCGEE OIL &amp; GAS ONSHORE LP</b>	Slot	<b>SLOT#14 HOWARD 2N-33HZ (370' FNL &amp; 1094' FEL, SEC. 28)</b>
Area	<b>COLORADO</b>	Well	<b>HOWARD 2N-33HZ</b>
Field	<b>WELD COUNTY (KERR MCGEE)</b>	Wellbore	<b>HOWARD 2N-33HZ PWB</b>
Facility	<b>SEC.28-T1N-R67W</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>Wilsjef02</b>
Scale	<b>0.999964</b>	Report Generated	<b>8/8/2013 at 08:00:52</b>
Convergence at slot	<b>n/a</b>	Database/Source file	<b>WellArchitectDB/HOWARD_2N-33HZ_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	1416797.55	2716933.35	3170813.32	1253746.53	<b>40°01'41.912"N</b>	<b>104°53'24.104"W</b>
Facility Reference Pt			<b>316923.76</b>	<b>121463.46</b>	36°32'36.656"N	114°37'52.006"W
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>	ENSIGN 145 (RKB) to Facility Vertical Datum	<b>4996.00ft</b>
Horizontal Reference Pt	<b>Slot</b>	ENSIGN 145 (RKB) to Mean Sea Level	<b>4996.00ft</b>
Vertical Reference Pt	<b>ENSIGN 145 (RKB)</b>	ENSIGN 145 (RKB) to Mud Line at Slot (SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28))	<b>4996.00ft</b>
MD Reference Pt	<b>ENSIGN 145 (RKB)</b>	Section Origin	<b>N 0.00, E 0.00 ft</b>
Field Vertical Reference	<b>Mean Sea Level</b>	Section Azimuth	<b>179.74°</b>



# Planned Wellpath Report

HOWARD 2N-33HZ (PERMIT REV-2) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (142 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	288.880	0.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
13.00	0.000	288.880	13.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	TIE-ON
113.00†	0.000	288.880	113.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
213.00†	0.000	288.880	213.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
313.00†	0.000	288.880	313.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
413.00†	0.000	288.880	413.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
513.00†	0.000	288.880	513.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
613.00†	0.000	288.880	613.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
713.00†	0.000	288.880	713.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
813.00†	0.000	288.880	813.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
913.00†	0.000	288.880	913.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1013.00†	0.000	288.880	1013.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1092.00†	0.000	288.880	1092.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	FOX HILLS BASE
1113.00†	0.000	288.880	1113.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1213.00†	0.000	288.880	1213.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1313.00†	0.000	288.880	1313.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1413.00†	0.000	288.880	1413.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	
1450.00	0.000	288.880	1450.00	0.00	0.00	0.00	40°01'41.912"N	104°53'24.104"W	0.00	BEGIN NUDGE
1513.00†	1.260	288.880	1512.99	-0.23	0.22	-0.66	40°01'41.914"N	104°53'24.112"W	2.00	
1613.00†	3.260	288.880	1612.91	-1.52	1.50	-4.39	40°01'41.927"N	104°53'24.160"W	2.00	
1713.00†	5.260	288.880	1712.63	-3.96	3.90	-11.41	40°01'41.951"N	104°53'24.251"W	2.00	
1813.00†	7.260	288.880	1812.03	-7.53	7.43	-21.73	40°01'41.985"N	104°53'24.383"W	2.00	
1913.00†	9.260	288.880	1910.99	-12.24	12.08	-35.32	40°01'42.031"N	104°53'24.558"W	2.00	
2013.00†	11.260	288.880	2009.38	-18.08	17.84	-52.18	40°01'42.088"N	104°53'24.775"W	2.00	
2050.00	12.000	288.880	2045.62	-20.53	20.26	-59.23	40°01'42.112"N	104°53'24.865"W	2.00	END NUDGE
2113.00†	12.000	288.880	2107.25	-24.83	24.50	-71.63	40°01'42.154"N	104°53'25.025"W	0.00	
2213.00†	12.000	288.880	2205.06	-31.64	31.22	-91.30	40°01'42.221"N	104°53'25.278"W	0.00	
2313.00†	12.000	288.880	2302.88	-38.46	37.95	-110.97	40°01'42.287"N	104°53'25.531"W	0.00	
2413.00†	12.000	288.880	2400.69	-45.28	44.68	-130.65	40°01'42.354"N	104°53'25.783"W	0.00	
2513.00†	12.000	288.880	2498.51	-52.10	51.41	-150.32	40°01'42.420"N	104°53'26.036"W	0.00	
2613.00†	12.000	288.880	2596.32	-58.92	58.13	-169.99	40°01'42.486"N	104°53'26.289"W	0.00	
2713.00†	12.000	288.880	2694.13	-65.74	64.86	-189.66	40°01'42.553"N	104°53'26.542"W	0.00	
2813.00†	12.000	288.880	2791.95	-72.55	71.59	-209.34	40°01'42.619"N	104°53'26.795"W	0.00	
2913.00†	12.000	288.880	2889.76	-79.37	78.32	-229.01	40°01'42.686"N	104°53'27.048"W	0.00	
3013.00†	12.000	288.880	2987.58	-86.19	85.05	-248.68	40°01'42.752"N	104°53'27.301"W	0.00	
3113.00†	12.000	288.880	3085.39	-93.01	91.77	-268.35	40°01'42.819"N	104°53'27.554"W	0.00	
3213.00†	12.000	288.880	3183.21	-99.83	98.50	-288.03	40°01'42.885"N	104°53'27.807"W	0.00	
3313.00†	12.000	288.880	3281.02	-106.65	105.23	-307.70	40°01'42.952"N	104°53'28.059"W	0.00	
3413.00†	12.000	288.880	3378.84	-113.46	111.96	-327.37	40°01'43.018"N	104°53'28.312"W	0.00	
3513.00†	12.000	288.880	3476.65	-120.28	118.68	-347.04	40°01'43.085"N	104°53'28.565"W	0.00	
3613.00†	12.000	288.880	3574.47	-127.10	125.41	-366.72	40°01'43.151"N	104°53'28.818"W	0.00	
3713.00†	12.000	288.880	3672.28	-133.92	132.14	-386.39	40°01'43.218"N	104°53'29.071"W	0.00	
3813.00†	12.000	288.880	3770.10	-140.74	138.87	-406.06	40°01'43.284"N	104°53'29.324"W	0.00	
3913.00†	12.000	288.880	3867.91	-147.56	145.60	-425.73	40°01'43.351"N	104°53'29.577"W	0.00	
4013.00†	12.000	288.880	3965.73	-154.37	152.32	-445.41	40°01'43.417"N	104°53'29.830"W	0.00	



# Planned Wellpath Report

## HOWARD 2N-33HZ (PERMIT REV-2) PWP

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### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZ PWB
Facility	SEC.28-T1N-R67W		

### WELLPATH DATA (142 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4113.00†	12.000	288.880	4063.54	-161.19	159.05	-465.08	40°01'43.484"N	104°53'30.083"W	0.00	
4213.00†	12.000	288.880	4161.36	-168.01	165.78	-484.75	40°01'43.550"N	104°53'30.336"W	0.00	
4313.00†	12.000	288.880	4259.17	-174.83	172.51	-504.42	40°01'43.617"N	104°53'30.588"W	0.00	
4413.00†	12.000	288.880	4356.99	-181.65	179.23	-524.10	40°01'43.683"N	104°53'30.841"W	0.00	
4513.00†	12.000	288.880	4454.80	-188.47	185.96	-543.77	40°01'43.750"N	104°53'31.094"W	0.00	
4613.00†	12.000	288.880	4552.62	-195.28	192.69	-563.44	40°01'43.816"N	104°53'31.347"W	0.00	
4713.00†	12.000	288.880	4650.43	-202.10	199.42	-583.11	40°01'43.883"N	104°53'31.600"W	0.00	
4813.00†	12.000	288.880	4748.24	-208.92	206.15	-602.79	40°01'43.949"N	104°53'31.853"W	0.00	
4845.46†	12.000	288.880	4780.00	-211.13	208.33	-609.17	40°01'43.971"N	104°53'31.935"W	0.00	SUSSEX
4913.00†	12.000	288.880	4846.06	-215.74	212.87	-622.46	40°01'44.016"N	104°53'32.106"W	0.00	
5013.00†	12.000	288.880	4943.87	-222.56	219.60	-642.13	40°01'44.082"N	104°53'32.359"W	0.00	
5113.00†	12.000	288.880	5041.69	-229.38	226.33	-661.81	40°01'44.149"N	104°53'32.612"W	0.00	
5213.00†	12.000	288.880	5139.50	-236.19	233.06	-681.48	40°01'44.215"N	104°53'32.864"W	0.00	
5313.00†	12.000	288.880	5237.32	-243.01	239.78	-701.15	40°01'44.282"N	104°53'33.117"W	0.00	
5413.00†	12.000	288.880	5335.13	-249.83	246.51	-720.82	40°01'44.348"N	104°53'33.370"W	0.00	
5513.00†	12.000	288.880	5432.95	-256.65	253.24	-740.50	40°01'44.414"N	104°53'33.623"W	0.00	
5613.00†	12.000	288.880	5530.76	-263.47	259.97	-760.17	40°01'44.481"N	104°53'33.876"W	0.00	
5713.00†	12.000	288.880	5628.58	-270.29	266.70	-779.84	40°01'44.547"N	104°53'34.129"W	0.00	
5813.00†	12.000	288.880	5726.39	-277.10	273.42	-799.51	40°01'44.614"N	104°53'34.382"W	0.00	
5913.00†	12.000	288.880	5824.21	-283.92	280.15	-819.19	40°01'44.680"N	104°53'34.635"W	0.00	
6013.00†	12.000	288.880	5922.02	-290.74	286.88	-838.86	40°01'44.747"N	104°53'34.888"W	0.00	
6056.94	12.000	288.880	5965.00	-293.74	289.83	-847.50	40°01'44.776"N	104°53'34.999"W	0.00	BEGIN DROP
6113.00†	10.879	288.880	6019.95	-297.38	293.43	-858.02	40°01'44.812"N	104°53'35.134"W	2.00	
6213.00†	8.879	288.880	6118.46	-303.01	298.98	-874.26	40°01'44.866"N	104°53'35.343"W	2.00	
6313.00†	6.879	288.880	6217.51	-307.50	303.42	-887.22	40°01'44.910"N	104°53'35.509"W	2.00	
6413.00†	4.879	288.880	6316.98	-310.86	306.73	-896.92	40°01'44.943"N	104°53'35.634"W	2.00	
6513.00†	2.879	288.880	6416.75	-313.08	308.92	-903.32	40°01'44.965"N	104°53'35.716"W	2.00	
6613.00†	0.879	288.880	6516.69	-314.16	309.98	-906.42	40°01'44.975"N	104°53'35.756"W	2.00	
6656.94	0.000	179.736	6560.62	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	2.00	END DROP
6713.00†	0.000	179.736	6616.69	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	
6813.00†	0.000	179.736	6716.69	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	
6913.00†	0.000	179.736	6816.69	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	
6918.36†	0.000	179.736	6822.05	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	4 1/2" LINER TOP
7013.00†	0.000	179.736	6916.69	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	
7018.36	0.000	179.736	6922.04	-314.27	310.09	-906.74	40°01'44.976"N	104°53'35.760"W	0.00	KOP, BUILD @ 10°/100'
7113.00†	9.464	179.736	7016.26	-306.47	302.29	-906.70	40°01'44.899"N	104°53'35.760"W	10.00	
7213.00†	19.464	179.736	7112.96	-281.52	277.35	-906.59	40°01'44.653"N	104°53'35.758"W	10.00	
7313.00†	29.464	179.736	7203.87	-240.16	235.99	-906.40	40°01'44.244"N	104°53'35.756"W	10.00	
7413.00†	39.464	179.736	7286.21	-183.64	179.47	-906.14	40°01'43.685"N	104°53'35.752"W	10.00	
7458.28†	43.993	179.736	7320.00	-153.51	149.34	-906.00	40°01'43.388"N	104°53'35.751"W	10.00	SHARON SPRINGS
7503.11†	48.475	179.736	7351.00	-121.15	116.97	-905.85	40°01'43.068"N	104°53'35.749"W	10.00	NIOBRARA A
7513.00†	49.464	179.736	7357.49	-113.69	109.51	-905.81	40°01'42.994"N	104°53'35.748"W	10.00	
7613.00†	59.464	179.736	7415.54	-32.42	28.24	-905.44	40°01'42.191"N	104°53'35.743"W	10.00	
7713.00†	69.464	179.736	7458.59	57.70	-61.87	-905.03	40°01'41.300"N	104°53'35.738"W	10.00	
7813.00†	79.464	179.736	7485.34	153.93	-158.10	-904.58	40°01'40.349"N	104°53'35.732"W	10.00	



# Planned Wellpath Report

HOWARD 2N-33HZ (PERMIT REV-2) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH DATA (142 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7913.00†	89.464	179.736	7494.98	253.33	-257.50	-904.13	40°01'39.367"N	104°53'35.726"W	10.00	
7917.33†	89.898	179.736	7495.00	257.67	-261.84	-904.11	40°01'39.324"N	104°53'35.726"W	10.00	NIOBRARA B
7918.24	89.988	179.736	7495.00	258.57	-262.74	-904.10	40°01'39.315"N	104°53'35.726"W	10.00	LANDING POINT
8013.00†	89.988	179.736	7495.02	353.33	-357.50	-903.67	40°01'38.379"N	104°53'35.720"W	0.00	
8113.00†	89.988	179.736	7495.04	453.33	-457.50	-903.21	40°01'37.391"N	104°53'35.714"W	0.00	
8213.00†	89.988	179.736	7495.06	553.33	-557.50	-902.75	40°01'36.402"N	104°53'35.708"W	0.00	
8313.00†	89.988	179.736	7495.08	653.33	-657.50	-902.29	40°01'35.414"N	104°53'35.703"W	0.00	
8413.00†	89.988	179.736	7495.10	753.33	-757.50	-901.83	40°01'34.426"N	104°53'35.697"W	0.00	
8513.00†	89.988	179.736	7495.12	853.33	-857.50	-901.37	40°01'33.438"N	104°53'35.691"W	0.00	
8613.00†	89.988	179.736	7495.14	953.33	-957.49	-900.91	40°01'32.450"N	104°53'35.685"W	0.00	
8713.00†	89.988	179.736	7495.16	1053.33	-1057.49	-900.45	40°01'31.461"N	104°53'35.679"W	0.00	
8813.00†	89.988	179.736	7495.19	1153.33	-1157.49	-899.99	40°01'30.473"N	104°53'35.673"W	0.00	
8913.00†	89.988	179.736	7495.21	1253.33	-1257.49	-899.53	40°01'29.485"N	104°53'35.667"W	0.00	
9013.00†	89.988	179.736	7495.23	1353.33	-1357.49	-899.07	40°01'28.497"N	104°53'35.661"W	0.00	
9113.00†	89.988	179.736	7495.25	1453.33	-1457.49	-898.61	40°01'27.509"N	104°53'35.655"W	0.00	
9213.00†	89.988	179.736	7495.27	1553.33	-1557.49	-898.15	40°01'26.520"N	104°53'35.649"W	0.00	
9313.00†	89.988	179.736	7495.29	1653.33	-1657.49	-897.69	40°01'25.532"N	104°53'35.643"W	0.00	
9413.00†	89.988	179.736	7495.31	1753.33	-1757.49	-897.23	40°01'24.544"N	104°53'35.637"W	0.00	
9513.00†	89.988	179.736	7495.33	1853.33	-1857.49	-896.77	40°01'23.556"N	104°53'35.631"W	0.00	
9613.00†	89.988	179.736	7495.35	1953.33	-1957.48	-896.31	40°01'22.567"N	104°53'35.625"W	0.00	
9713.00†	89.988	179.736	7495.37	2053.33	-2057.48	-895.85	40°01'21.579"N	104°53'35.619"W	0.00	
9813.00†	89.988	179.736	7495.39	2153.33	-2157.48	-895.39	40°01'20.591"N	104°53'35.613"W	0.00	
9913.00†	89.988	179.736	7495.41	2253.33	-2257.48	-894.93	40°01'19.603"N	104°53'35.607"W	0.00	
10013.00†	89.988	179.736	7495.43	2353.33	-2357.48	-894.47	40°01'18.615"N	104°53'35.601"W	0.00	
10113.00†	89.988	179.736	7495.45	2453.33	-2457.48	-894.01	40°01'17.626"N	104°53'35.595"W	0.00	
10213.00†	89.988	179.736	7495.47	2553.33	-2557.48	-893.55	40°01'16.638"N	104°53'35.589"W	0.00	
10313.00†	89.988	179.736	7495.49	2653.33	-2657.48	-893.09	40°01'15.650"N	104°53'35.583"W	0.00	
10413.00†	89.988	179.736	7495.51	2753.33	-2757.48	-892.63	40°01'14.662"N	104°53'35.577"W	0.00	
10513.00†	89.988	179.736	7495.54	2853.33	-2857.47	-892.17	40°01'13.673"N	104°53'35.571"W	0.00	
10613.00†	89.988	179.736	7495.56	2953.33	-2957.47	-891.71	40°01'12.685"N	104°53'35.565"W	0.00	
10713.00†	89.988	179.736	7495.58	3053.33	-3057.47	-891.25	40°01'11.697"N	104°53'35.560"W	0.00	
10813.00†	89.988	179.736	7495.60	3153.33	-3157.47	-890.79	40°01'10.709"N	104°53'35.554"W	0.00	
10913.00†	89.988	179.736	7495.62	3253.33	-3257.47	-890.33	40°01'09.721"N	104°53'35.548"W	0.00	
11013.00†	89.988	179.736	7495.64	3353.33	-3357.47	-889.87	40°01'08.732"N	104°53'35.542"W	0.00	
11113.00†	89.988	179.736	7495.66	3453.33	-3457.47	-889.41	40°01'07.744"N	104°53'35.536"W	0.00	
11213.00†	89.988	179.736	7495.68	3553.33	-3557.47	-888.95	40°01'06.756"N	104°53'35.530"W	0.00	
11313.00†	89.988	179.736	7495.70	3653.33	-3657.47	-888.49	40°01'05.768"N	104°53'35.524"W	0.00	
11413.00†	89.988	179.736	7495.72	3753.33	-3757.46	-888.03	40°01'04.780"N	104°53'35.518"W	0.00	
11513.00†	89.988	179.736	7495.74	3853.33	-3857.46	-887.57	40°01'03.791"N	104°53'35.512"W	0.00	
11613.00†	89.988	179.736	7495.76	3953.33	-3957.46	-887.11	40°01'02.803"N	104°53'35.506"W	0.00	
11713.00†	89.988	179.736	7495.78	4053.33	-4057.46	-886.65	40°01'01.815"N	104°53'35.500"W	0.00	
11813.00†	89.988	179.736	7495.80	4153.33	-4157.46	-886.19	40°01'00.827"N	104°53'35.494"W	0.00	
11913.00†	89.988	179.736	7495.82	4253.33	-4257.46	-885.73	40°00'59.838"N	104°53'35.488"W	0.00	
12013.00†	89.988	179.736	7495.84	4353.33	-4357.46	-885.27	40°00'58.850"N	104°53'35.482"W	0.00	
12113.00†	89.988	179.736	7495.86	4453.33	-4457.46	-884.81	40°00'57.862"N	104°53'35.476"W	0.00	





# Planned Wellpath Report

## HOWARD 2N-33HZ (PERMIT REV-2) PWP

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### REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZ PWB
Facility	SEC.28-T1N-R67W		

### WELLPATH DATA (142 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12213.00†	89.988	179.736	7495.89	4553.33	-4557.46	-884.35	40°00'56.874"N	104°53'35.470"W	0.00	
12313.00†	89.988	179.736	7495.91	4653.33	-4657.46	-883.89	40°00'55.886"N	104°53'35.464"W	0.00	
12413.00†	89.988	179.736	7495.93	4753.33	-4757.45	-883.43	40°00'54.897"N	104°53'35.458"W	0.00	
12513.00†	89.988	179.736	7495.95	4853.33	-4857.45	-882.97	40°00'53.909"N	104°53'35.452"W	0.00	
12613.00†	89.988	179.736	7495.97	4953.33	-4957.45	-882.51	40°00'52.921"N	104°53'35.446"W	0.00	
12713.00†	89.988	179.736	7495.99	5053.33	-5057.45	-882.05	40°00'51.933"N	104°53'35.440"W	0.00	
12768.63	89.988	179.736	7496.00 <sup>1</sup>	5108.96	-5113.08	-881.79	40°00'51.383"N	104°53'35.437"W	0.00	TOTAL DEPTH

### HOLE & CASING SECTIONS - Ref Wellbore: HOWARD 2N-33HZ PWB Ref Wellpath: HOWARD 2N-33HZ (PERMIT REV-2) 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	13.00	1000.00	987.00	13.00	1000.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	13.00	1000.00	987.00	13.00	1000.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1000.00	7918.24	6918.24	1000.00	7495.00	0.00	0.00	-262.74	-904.10
7in Casing Intermediate	13.00	7918.24	7905.24	13.00	7495.00	0.00	0.00	-262.74	-904.10
6.125in Open Hole	7918.24	12768.63	4850.39	7495.00	7496.00	-262.74	-904.10	-5113.08	-881.79
4.5in Casing Production	13.00	12768.63	12755.63	13.00	7496.00	0.00	0.00	-5113.08	-881.79



# Planned Wellpath Report

HOWARD 2N-33HZ (PERMIT REV-2) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-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
HOWARD 27W-28HZ HARD LINES (460' SETBACKS, SEC. 28)		4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ HARD LINES (460' SETBACKS, SEC. 33)		4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ SECTION LINES (SEC. 28)		4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 27W-28HZ SECTION LINES (SEC. 33)		4996.00	30.26	-150.14	3170662.98	1253775.75	40°01'42.211"N	104°53'26.034"W	polygon
HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-1		7492.00	-5113.08	-881.79	3169966.75	1248627.70	40°00'51.383"N	104°53'35.437"W	point
1) HOWARD 2N-33HZ BHL ON PLAT (200' FNL & 2000' FEL, SEC. 24) REV-2	12768.63	7496.00	-5113.08	-881.79	3169966.75	1248627.69	40°00'51.383"N	104°53'35.437"W	point

## SURVEY PROGRAM - Ref Wellbore: HOWARD 2N-33HZ PWB Ref Wellpath: HOWARD 2N-33HZ (PERMIT REV-2) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
13.00	7918.24	NaviTrak (MagCorr)		HOWARD 2N-33HZ PWB
7918.24	12768.63	OnTrak (MagCorr)		HOWARD 2N-33HZ PWB



# Planned Wellpath Report

HOWARD 2N-33HZ (PERMIT REV-2) PWP

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## REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 HOWARD 2N-33HZ (370' FNL & 1094' FEL, SEC. 28)
Area	COLORADO	Well	HOWARD 2N-33HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	HOWARD 2N-33HZ PWB
Facility	SEC.28-T1N-R67W		

## WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1092.00	0.000	288.880	1092.00	FOX HILLS BASE
4845.46	12.000	288.880	4780.00	SUSSEX
6918.36	0.000	179.736	6822.05	4 1/2" LINER TOP
7458.28	43.993	179.736	7320.00	SHARON SPRINGS
7503.11	48.475	179.736	7351.00	NIOBRARA A
7917.33	89.898	179.736	7495.00	NIOBRARA B