

KERR-MCGEE OIL & GAS ONSHORE LP (WA)

Location: COLORADO Slot: SLOT#35 GARFIELD 27C-14HZ
 Field: WELD COUNTY (UTM/TRUE NORTH) Well: GARFIELD 27C-14HZ
 Facility: SEC.23-T1N-R67W Wellbore: GARFIELD 27C-14HZ PWB

Plot reference wellpath is GARFIELD 27C-14HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (17KB) (RKB)	Grid System: NAD83 / UTM Zone 13 North, US feet
Measured depths are referenced to PERMIT (17KB) (RKB)	North Reference: True north
PERMIT (17KB) (RKB) to Mean Sea Level: 5005 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#35 GARFIELD 27C-14HZ): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: amarc on 22/Jul/2015

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
SEC.23-T1N-R67W	1682294.967	14541905.318	40°02'29.645"N	104°51'01.336"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#35 GARFIELD 27C-14HZ	-4155.89	-1376.40	1680926.100	14537748.781	40°01'48.575"N	104°51'19.030"W
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#35 GARFIELD 27C-14HZ)						5005ft
Mean Sea Level to Mud line (At Slot: SLOT#35 GARFIELD 27C-14HZ)						0ft
PERMIT (17KB) (RKB) to Mean Sea Level						5005ft

Survey Program

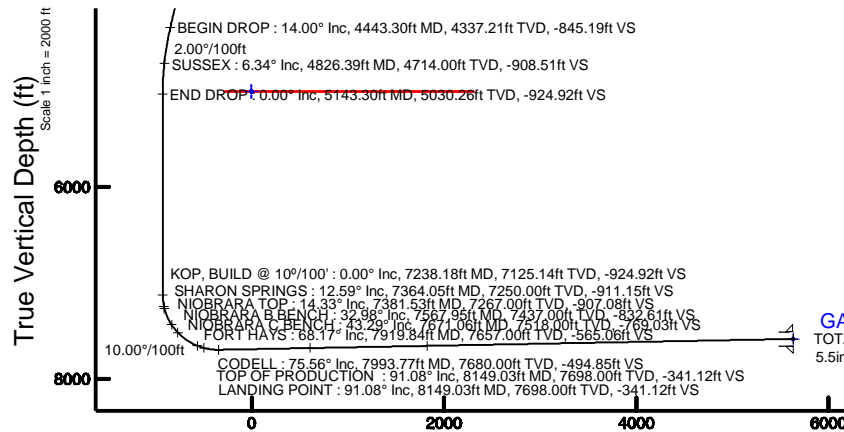
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	8149.03	ISCWSA MWD, Rev. 2, axial magnetic correction	Custom APC_ISCWSA REV 2 MWD+FR1+SC (approximation)		GARFIELD 27C-14HZ PWB
8149.03	14121.19	ISCWSA MWD, Rev. 2, axial magnetic correction	Custom APC_ISCWSA REV 2 MWD+FR1+SC (approximation)		GARFIELD 27C-14HZ PWB

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
GARFIELD 27C-14HZ_SHL	5005.00	0.00	0.00	0.00	1680926.10	14537748.78	40°01'48.575"N	104°51'19.030"W
SEC.14-T1N-R67W LINES	5005.00	1.24	1188.23	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W
SEC.23-T1N-R67W LINES	5005.00	1.24	1188.23	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W
SEC.26-T1N-R67W LINES	5005.00	1.24	1188.23	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W
SEC.35-T1N-R67W LINES	5005.00	1.24	1188.23	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W
GARFIELD 27C-14HZ_BHL	14121.19	7585.00	5630.99	328.12	1681244.94	14543378.05	40°02'44.222"N	104°51'14.811"W

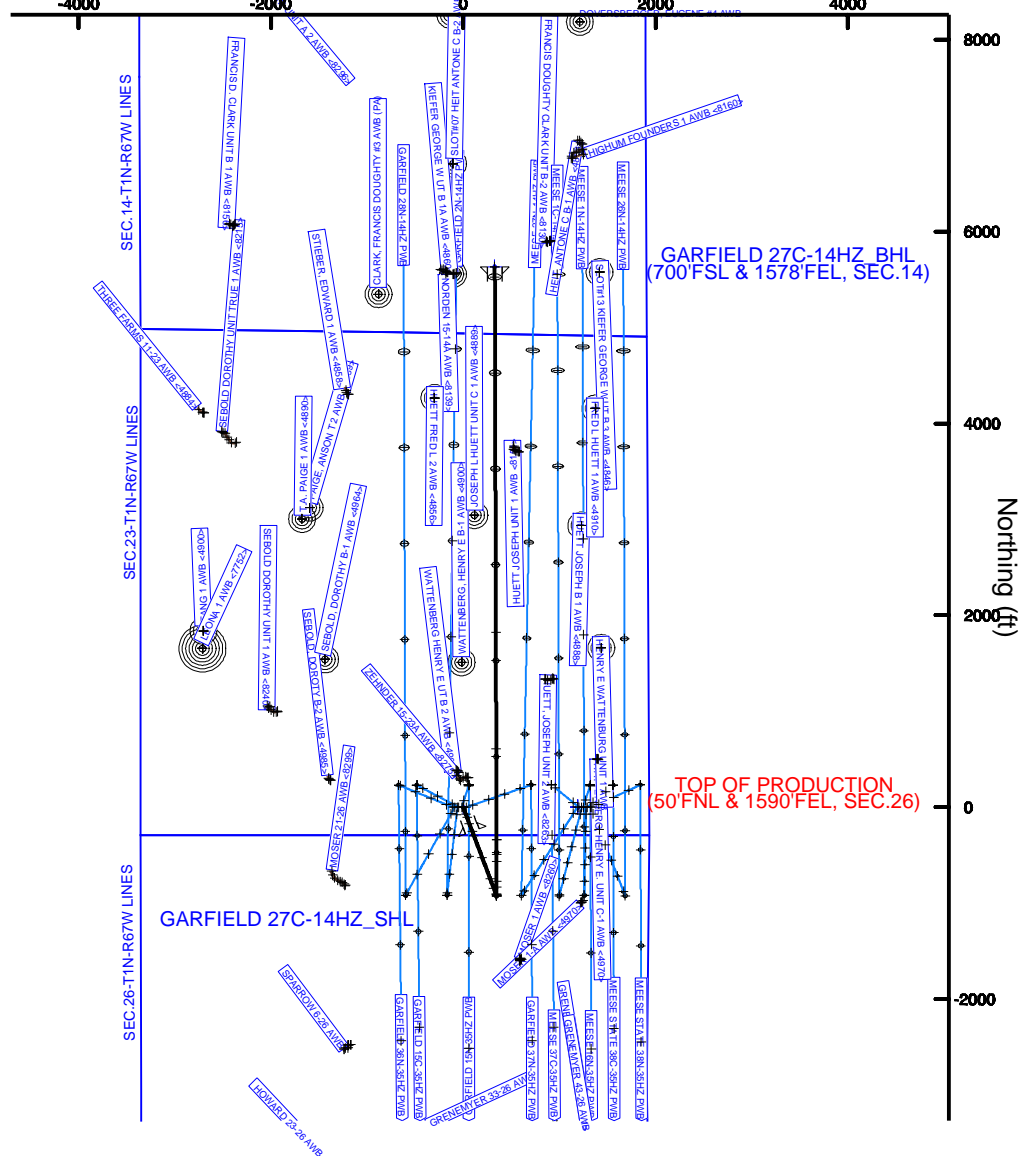
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	159.364	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	250.00	0.000	159.364	250.00	0.00	0.00	0.00	0.00
END NUDGE	1183.33	14.000	159.364	1174.07	-106.18	39.99	1.50	-106.30
BEGIN DROP	4443.30	14.000	159.364	4337.21	-844.24	317.94	0.00	-845.19
END DROP	5143.30	0.000	359.827	5030.26	-923.87	347.93	2.00	-924.92
KOP, BUILD @ 10°/100'	7238.18	0.000	359.827	7125.14	-923.87	347.93	0.00	-924.92
LANDING POINT	8149.03	91.084	359.827	7698.00	-340.08	346.17	10.00	-341.12
TOTAL DEPTH	14121.19	91.084	359.827	7585.00	5630.99	328.12	0.00	5629.98



GARFIELD 27C-14HZ_BHL
 TOTAL DEPTH : 91.08° Inc, 14121.19ft MD, 7585.00ft TVD, 5629.98ft VS
 5.5in Casing Production : 91.08° Inc, 14121.19ft MD, 7585.00ft TVD, 5629.97ft VS

Scale 1 inch = 2000 ft



Vertical Section (ft)

Azimuth 359.83° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000 ft



Planned Wellpath Report

GARFIELD 27C-14HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Amarcar
Scale	0.999602	Report Generated	23/Jul/2015 at 09:04
Convergence at slot	0.09° East	Database/Source file	KERR MCGEE UTM/GARFIELD_27C-14HZ_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-4155.89	-1376.40	1680926.10	14537748.78	40°01'48.575"N	104°51'19.030"W
Facility Reference Pt			1682294.97	14541905.32	40°02'29.645"N	104°51'01.336"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	PERMIT (17'KB) (RKB) to Facility Vertical Datum	5005.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	5005.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#35 GARFIELD 27C-14HZ)	5005.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.83°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (161 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	159.364	0.00	0.00	0.00	0.00	40°01'48.575"N	104°51'19.030"W	0.00	
17.00	0.000	159.364	17.00	0.00	0.00	0.00	40°01'48.575"N	104°51'19.030"W	0.00	TIE-ON
117.00†	0.000	159.364	117.00	0.00	0.00	0.00	40°01'48.575"N	104°51'19.030"W	0.00	
217.00†	0.000	159.364	217.00	0.00	0.00	0.00	40°01'48.575"N	104°51'19.030"W	0.00	
250.00	0.000	159.364	250.00	0.00	0.00	0.00	40°01'48.575"N	104°51'19.030"W	0.00	BEGIN NUDDGE
317.00†	1.005	159.364	317.00	-0.55	-0.55	0.21	40°01'48.570"N	104°51'19.027"W	1.50	
417.00†	2.505	159.364	416.95	-3.42	-3.42	1.29	40°01'48.541"N	104°51'19.013"W	1.50	
517.00†	4.005	159.364	516.78	-8.74	-8.73	3.29	40°01'48.489"N	104°51'18.988"W	1.50	
617.00†	5.505	159.364	616.44	-16.51	-16.49	6.21	40°01'48.412"N	104°51'18.950"W	1.50	
717.00†	7.005	159.364	715.84	-26.71	-26.68	10.05	40°01'48.311"N	104°51'18.901"W	1.50	
817.00†	8.505	159.364	814.92	-39.35	-39.31	14.80	40°01'48.187"N	104°51'18.840"W	1.50	
917.00†	10.005	159.364	913.62	-54.42	-54.36	20.47	40°01'48.038"N	104°51'18.767"W	1.50	
1017.00†	11.505	159.364	1011.86	-71.91	-71.82	27.05	40°01'47.865"N	104°51'18.682"W	1.50	
1117.00†	13.005	159.364	1109.57	-91.79	-91.69	34.53	40°01'47.669"N	104°51'18.586"W	1.50	
1183.33	14.000	159.364	1174.07	-106.30	-106.18	39.99	40°01'47.526"N	104°51'18.516"W	1.50	END NUDDGE
1217.00†	14.000	159.364	1206.74	-113.93	-113.80	42.86	40°01'47.450"N	104°51'18.479"W	0.00	
1317.00†	14.000	159.364	1303.77	-136.60	-136.44	51.38	40°01'47.227"N	104°51'18.369"W	0.00	
1417.00†	14.000	159.364	1400.80	-159.26	-159.08	59.91	40°01'47.003"N	104°51'18.260"W	0.00	
1458.43†	14.000	159.364	1441.00	-168.65	-168.46	63.44	40°01'46.910"N	104°51'18.214"W	0.00	FOX HILLS
1517.00†	14.000	159.364	1497.83	-181.93	-181.72	68.44	40°01'46.779"N	104°51'18.150"W	0.00	
1617.00†	14.000	159.364	1594.86	-204.60	-204.36	76.96	40°01'46.555"N	104°51'18.041"W	0.00	
1717.00†	14.000	159.364	1691.89	-227.26	-227.00	85.49	40°01'46.332"N	104°51'17.931"W	0.00	
1817.00†	14.000	159.364	1788.92	-249.93	-249.64	94.02	40°01'46.108"N	104°51'17.821"W	0.00	
1917.00†	14.000	159.364	1885.95	-272.59	-272.28	102.54	40°01'45.884"N	104°51'17.712"W	0.00	
2017.00†	14.000	159.364	1982.98	-295.26	-294.92	111.07	40°01'45.660"N	104°51'17.602"W	0.00	
2117.00†	14.000	159.364	2080.01	-317.92	-317.56	119.59	40°01'45.437"N	104°51'17.493"W	0.00	
2217.00†	14.000	159.364	2177.04	-340.59	-340.20	128.12	40°01'45.213"N	104°51'17.383"W	0.00	
2317.00†	14.000	159.364	2274.07	-363.25	-362.84	136.65	40°01'44.989"N	104°51'17.273"W	0.00	
2417.00†	14.000	159.364	2371.10	-385.92	-385.48	145.17	40°01'44.766"N	104°51'17.164"W	0.00	
2517.00†	14.000	159.364	2468.12	-408.59	-408.12	153.70	40°01'44.542"N	104°51'17.054"W	0.00	
2617.00†	14.000	159.364	2565.15	-431.25	-430.76	162.23	40°01'44.318"N	104°51'16.945"W	0.00	
2717.00†	14.000	159.364	2662.18	-453.92	-453.40	170.75	40°01'44.094"N	104°51'16.835"W	0.00	
2817.00†	14.000	159.364	2759.21	-476.58	-476.04	179.28	40°01'43.871"N	104°51'16.725"W	0.00	
2917.00†	14.000	159.364	2856.24	-499.25	-498.68	187.80	40°01'43.647"N	104°51'16.616"W	0.00	
3017.00†	14.000	159.364	2953.27	-521.91	-521.32	196.33	40°01'43.423"N	104°51'16.506"W	0.00	
3117.00†	14.000	159.364	3050.30	-544.58	-543.96	204.86	40°01'43.199"N	104°51'16.397"W	0.00	
3217.00†	14.000	159.364	3147.33	-567.24	-566.60	213.38	40°01'42.976"N	104°51'16.287"W	0.00	
3317.00†	14.000	159.364	3244.36	-589.91	-589.24	221.91	40°01'42.752"N	104°51'16.177"W	0.00	
3417.00†	14.000	159.364	3341.39	-612.58	-611.88	230.43	40°01'42.528"N	104°51'16.068"W	0.00	
3517.00†	14.000	159.364	3438.42	-635.24	-634.52	238.96	40°01'42.304"N	104°51'15.958"W	0.00	
3617.00†	14.000	159.364	3535.45	-657.91	-657.16	247.49	40°01'42.081"N	104°51'15.849"W	0.00	
3717.00†	14.000	159.364	3632.48	-680.57	-679.80	256.01	40°01'41.857"N	104°51'15.739"W	0.00	
3817.00†	14.000	159.364	3729.51	-703.24	-702.44	264.54	40°01'41.633"N	104°51'15.629"W	0.00	
3917.00†	14.000	159.364	3826.54	-725.90	-725.08	273.07	40°01'41.410"N	104°51'15.520"W	0.00	
4017.00†	14.000	159.364	3923.57	-748.57	-747.72	281.59	40°01'41.186"N	104°51'15.410"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
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Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

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MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	14.000	159.364	4020.60	-771.23	-770.36	290.12	40°01'40.962"N	104°51'15.301"W	0.00	
4217.00†	14.000	159.364	4117.63	-793.90	-793.00	298.64	40°01'40.738"N	104°51'15.191"W	0.00	
4317.00†	14.000	159.364	4214.66	-816.57	-815.64	307.17	40°01'40.515"N	104°51'15.081"W	0.00	
4417.00†	14.000	159.364	4311.69	-839.23	-838.28	315.70	40°01'40.291"N	104°51'14.972"W	0.00	
4443.30	14.000	159.364	4337.21	-845.19	-844.24	317.94	40°01'40.232"N	104°51'14.943"W	0.00	BEGIN DROP
4517.00†	12.526	159.364	4408.94	-861.03	-860.06	323.90	40°01'40.076"N	104°51'14.866"W	2.00	
4617.00†	10.526	159.364	4506.92	-879.75	-878.76	330.94	40°01'39.891"N	104°51'14.776"W	2.00	
4717.00†	8.526	159.364	4605.53	-895.26	-894.24	336.77	40°01'39.738"N	104°51'14.701"W	2.00	
4817.00†	6.526	159.364	4704.67	-907.53	-906.50	341.39	40°01'39.617"N	104°51'14.642"W	2.00	
4826.39†	6.338	159.364	4714.00	-908.51	-907.49	341.76	40°01'39.607"N	104°51'14.637"W	2.00	SUSSEX
4917.00†	4.526	159.364	4804.20	-916.55	-915.51	344.78	40°01'39.528"N	104°51'14.598"W	2.00	
5017.00†	2.526	159.364	4904.00	-922.31	-921.27	346.95	40°01'39.471"N	104°51'14.570"W	2.00	
5117.00†	0.526	159.364	5003.96	-924.81	-923.76	347.89	40°01'39.446"N	104°51'14.558"W	2.00	
5143.30	0.000	359.827	5030.26	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	2.00	END DROP
5217.00†	0.000	359.827	5103.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5317.00†	0.000	359.827	5203.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5417.00†	0.000	359.827	5303.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5517.00†	0.000	359.827	5403.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5617.00†	0.000	359.827	5503.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5717.00†	0.000	359.827	5603.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5817.00†	0.000	359.827	5703.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
5917.00†	0.000	359.827	5803.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6017.00†	0.000	359.827	5903.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6117.00†	0.000	359.827	6003.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6217.00†	0.000	359.827	6103.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6317.00†	0.000	359.827	6203.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6417.00†	0.000	359.827	6303.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6517.00†	0.000	359.827	6403.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6617.00†	0.000	359.827	6503.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6717.00†	0.000	359.827	6603.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6817.00†	0.000	359.827	6703.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
6917.00†	0.000	359.827	6803.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
7017.00†	0.000	359.827	6903.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
7117.00†	0.000	359.827	7003.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
7217.00†	0.000	359.827	7103.96	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	
7238.18	0.000	359.827	7125.14	-924.92	-923.87	347.93	40°01'39.445"N	104°51'14.557"W	0.00	KOP, BUILD @ 10°/100'
7317.00†	7.882	359.827	7203.71	-919.51	-918.46	347.91	40°01'39.499"N	104°51'14.558"W	10.00	
7364.05†	12.587	359.827	7250.00	-911.15	-910.10	347.89	40°01'39.581"N	104°51'14.558"W	10.00	SHARON SPRINGS
7381.53†	14.335	359.827	7267.00	-907.08	-906.03	347.88	40°01'39.621"N	104°51'14.558"W	10.00	NIOBRARA TOP
7417.00†	17.882	359.827	7301.07	-897.24	-896.20	347.85	40°01'39.719"N	104°51'14.558"W	10.00	
7517.00†	27.882	359.827	7393.09	-858.41	-857.36	347.73	40°01'40.102"N	104°51'14.560"W	10.00	
7567.95†	32.976	359.827	7437.00	-832.61	-831.57	347.65	40°01'40.357"N	104°51'14.561"W	10.00	NIOBRARA B BENCH
7617.00†	37.882	359.827	7476.96	-804.19	-803.14	347.57	40°01'40.638"N	104°51'14.562"W	10.00	
7671.06†	43.288	359.827	7518.00	-769.03	-767.98	347.46	40°01'40.986"N	104°51'14.563"W	10.00	NIOBRARA C BENCH
7717.00†	47.882	359.827	7550.14	-736.22	-735.18	347.36	40°01'41.310"N	104°51'14.565"W	10.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7817.00†	57.882	359.827	7610.41	-656.59	-655.54	347.12	40°01'42.097"N	104°51'14.568"W	10.00	
7917.00†	67.882	359.827	7655.94	-567.69	-566.65	346.85	40°01'42.975"N	104°51'14.571"W	10.00	
7919.84†	68.166	359.827	7657.00	-565.06	-564.01	346.84	40°01'43.001"N	104°51'14.571"W	10.00	FORT HAYS
7993.77†	75.559	359.827	7680.00	-494.85	-493.80	346.63	40°01'43.695"N	104°51'14.574"W	10.00	CODELL
8017.00†	77.882	359.827	7685.33	-472.24	-471.20	346.56	40°01'43.918"N	104°51'14.575"W	10.00	
8117.00†	87.882	359.827	7697.71	-373.14	-372.10	346.26	40°01'44.898"N	104°51'14.579"W	10.00	
8149.03	91.084	359.827	7698.00	-341.12	-340.08	346.17	40°01'45.214"N	104°51'14.580"W	10.00	LANDING POINT
8149.03†	91.084	359.827	7698.00	-341.12	-340.07	346.17	40°01'45.214"N	104°51'14.580"W	0.00	TOP OF PRODUCTION
8217.00†	91.084	359.827	7696.71	-273.16	-272.12	345.96	40°01'45.886"N	104°51'14.583"W	0.00	
8317.00†	91.084	359.827	7694.82	-173.18	-172.13	345.66	40°01'46.874"N	104°51'14.586"W	0.00	
8417.00†	91.084	359.827	7692.93	-73.19	-72.15	345.36	40°01'47.862"N	104°51'14.590"W	0.00	
8517.00†	91.084	359.827	7691.04	26.79	27.83	345.05	40°01'48.850"N	104°51'14.594"W	0.00	
8617.00†	91.084	359.827	7689.15	126.77	127.81	344.75	40°01'49.838"N	104°51'14.598"W	0.00	
8717.00†	91.084	359.827	7687.25	226.75	227.79	344.45	40°01'50.826"N	104°51'14.602"W	0.00	
8817.00†	91.084	359.827	7685.36	326.73	327.77	344.15	40°01'51.814"N	104°51'14.606"W	0.00	
8917.00†	91.084	359.827	7683.47	426.72	427.76	343.84	40°01'52.802"N	104°51'14.610"W	0.00	
9017.00†	91.084	359.827	7681.58	526.70	527.74	343.54	40°01'53.790"N	104°51'14.614"W	0.00	
9100.34†	91.084	359.827	7680.00	610.03	611.07	343.29	40°01'54.614"N	104°51'14.617"W	0.00	CODELL
9117.00†	91.084	359.827	7679.68	626.68	627.72	343.24	40°01'54.778"N	104°51'14.617"W	0.00	
9217.00†	91.084	359.827	7677.79	726.66	727.70	342.94	40°01'55.766"N	104°51'14.621"W	0.00	
9317.00†	91.084	359.827	7675.90	826.64	827.68	342.64	40°01'56.754"N	104°51'14.625"W	0.00	
9417.00†	91.084	359.827	7674.01	926.63	927.66	342.33	40°01'57.742"N	104°51'14.629"W	0.00	
9517.00†	91.084	359.827	7672.12	1026.61	1027.65	342.03	40°01'58.730"N	104°51'14.633"W	0.00	
9617.00†	91.084	359.827	7670.22	1126.59	1127.63	341.73	40°01'59.718"N	104°51'14.637"W	0.00	
9717.00†	91.084	359.827	7668.33	1226.57	1227.61	341.43	40°02'00.707"N	104°51'14.641"W	0.00	
9817.00†	91.084	359.827	7666.44	1326.56	1327.59	341.12	40°02'01.695"N	104°51'14.645"W	0.00	
9917.00†	91.084	359.827	7664.55	1426.54	1427.57	340.82	40°02'02.683"N	104°51'14.648"W	0.00	
10017.00†	91.084	359.827	7662.66	1526.52	1527.55	340.52	40°02'03.671"N	104°51'14.652"W	0.00	
10117.00†	91.084	359.827	7660.76	1626.50	1627.54	340.22	40°02'04.659"N	104°51'14.656"W	0.00	
10217.00†	91.084	359.827	7658.87	1726.48	1727.52	339.92	40°02'05.647"N	104°51'14.660"W	0.00	
10315.92†	91.084	359.827	7657.00	1825.38	1826.42	339.62	40°02'06.624"N	104°51'14.664"W	0.00	FORT HAYS
10317.00†	91.084	359.827	7656.98	1826.47	1827.50	339.61	40°02'06.635"N	104°51'14.664"W	0.00	
10417.00†	91.084	359.827	7655.09	1926.45	1927.48	339.31	40°02'07.623"N	104°51'14.668"W	0.00	
10517.00†	91.084	359.827	7653.20	2026.43	2027.46	339.01	40°02'08.611"N	104°51'14.672"W	0.00	
10617.00†	91.084	359.827	7651.30	2126.41	2127.44	338.71	40°02'09.599"N	104°51'14.675"W	0.00	
10717.00†	91.084	359.827	7649.41	2226.39	2227.43	338.40	40°02'10.587"N	104°51'14.679"W	0.00	
10817.00†	91.084	359.827	7647.52	2326.38	2327.41	338.10	40°02'11.575"N	104°51'14.683"W	0.00	
10917.00†	91.084	359.827	7645.63	2426.36	2427.39	337.80	40°02'12.563"N	104°51'14.687"W	0.00	
11017.00†	91.084	359.827	7643.73	2526.34	2527.37	337.50	40°02'13.551"N	104°51'14.691"W	0.00	
11117.00†	91.084	359.827	7641.84	2626.32	2627.35	337.20	40°02'14.539"N	104°51'14.695"W	0.00	
11217.00†	91.084	359.827	7639.95	2726.30	2727.33	336.89	40°02'15.527"N	104°51'14.699"W	0.00	
11317.00†	91.084	359.827	7638.06	2826.29	2827.32	336.59	40°02'16.515"N	104°51'14.703"W	0.00	
11417.00†	91.084	359.827	7636.17	2926.27	2927.30	336.29	40°02'17.503"N	104°51'14.706"W	0.00	
11517.00†	91.084	359.827	7634.27	3026.25	3027.28	335.99	40°02'18.491"N	104°51'14.710"W	0.00	
11617.00†	91.084	359.827	7632.38	3126.23	3127.26	335.68	40°02'19.479"N	104°51'14.714"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11717.00†	91.084	359.827	7630.49	3226.22	3227.24	335.38	40°02'20.467"N	104°51'14.718"W	0.00	
11817.00†	91.084	359.827	7628.60	3326.20	3327.22	335.08	40°02'21.455"N	104°51'14.722"W	0.00	
11917.00†	91.084	359.827	7626.71	3426.18	3427.21	334.78	40°02'22.444"N	104°51'14.726"W	0.00	
12017.00†	91.084	359.827	7624.81	3526.16	3527.19	334.48	40°02'23.432"N	104°51'14.730"W	0.00	
12117.00†	91.084	359.827	7622.92	3626.14	3627.17	334.17	40°02'24.420"N	104°51'14.733"W	0.00	
12217.00†	91.084	359.827	7621.03	3726.13	3727.15	333.87	40°02'25.408"N	104°51'14.737"W	0.00	
12317.00†	91.084	359.827	7619.14	3826.11	3827.13	333.57	40°02'26.396"N	104°51'14.741"W	0.00	
12417.00†	91.084	359.827	7617.25	3926.09	3927.11	333.27	40°02'27.384"N	104°51'14.745"W	0.00	
12517.00†	91.084	359.827	7615.35	4026.07	4027.10	332.96	40°02'28.372"N	104°51'14.749"W	0.00	
12617.00†	91.084	359.827	7613.46	4126.05	4127.08	332.66	40°02'29.360"N	104°51'14.753"W	0.00	
12717.00†	91.084	359.827	7611.57	4226.04	4227.06	332.36	40°02'30.348"N	104°51'14.757"W	0.00	
12817.00†	91.084	359.827	7609.68	4326.02	4327.04	332.06	40°02'31.336"N	104°51'14.761"W	0.00	
12917.00†	91.084	359.827	7607.78	4426.00	4427.02	331.76	40°02'32.324"N	104°51'14.764"W	0.00	
13017.00†	91.084	359.827	7605.89	4525.98	4527.00	331.45	40°02'33.312"N	104°51'14.768"W	0.00	
13117.00†	91.084	359.827	7604.00	4625.96	4626.99	331.15	40°02'34.300"N	104°51'14.772"W	0.00	
13217.00†	91.084	359.827	7602.11	4725.95	4726.97	330.85	40°02'35.288"N	104°51'14.776"W	0.00	
13317.00†	91.084	359.827	7600.22	4825.93	4826.95	330.55	40°02'36.276"N	104°51'14.780"W	0.00	
13417.00†	91.084	359.827	7598.32	4925.91	4926.93	330.24	40°02'37.264"N	104°51'14.784"W	0.00	
13517.00†	91.084	359.827	7596.43	5025.89	5026.91	329.94	40°02'38.252"N	104°51'14.788"W	0.00	
13617.00†	91.084	359.827	7594.54	5125.87	5126.89	329.64	40°02'39.240"N	104°51'14.791"W	0.00	
13717.00†	91.084	359.827	7592.65	5225.86	5226.88	329.34	40°02'40.228"N	104°51'14.795"W	0.00	
13817.00†	91.084	359.827	7590.76	5325.84	5326.86	329.04	40°02'41.216"N	104°51'14.799"W	0.00	
13917.00†	91.084	359.827	7588.86	5425.82	5426.84	328.73	40°02'42.204"N	104°51'14.803"W	0.00	
14017.00†	91.084	359.827	7586.97	5525.80	5526.82	328.43	40°02'43.192"N	104°51'14.807"W	0.00	
14117.00†	91.084	359.827	7585.08	5625.79	5626.80	328.13	40°02'44.180"N	104°51'14.811"W	0.00	
14121.19	91.084	359.827	7585.00 ¹	5629.98	5630.99	328.12	40°02'44.222"N	104°51'14.811"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: GARFIELD 27C-14HZ PWB Ref Wellpath: GARFIELD 27C-14HZ (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	1828.42	1811.42	17.00	1800.00	0.00	0.00	-252.23	94.99
9.625in Casing Surface	17.00	1828.42	1811.42	17.00	1800.00	0.00	0.00	-252.23	94.99
7.875in Open Hole	1828.42	14121.19	12292.77	1800.00	7585.00	-252.23	94.99	5630.99	328.12
5.5in Casing Production	17.00	14121.19	14104.19	17.00	7585.00	0.00	0.00	5630.99	328.12

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
GARFIELD 27C-14HZ_SHL		5005.00	0.00	0.00	1680926.10	14537748.78	40°01'48.575"N	104°51'19.030"W	point
SEC.14-T1N-R67W LINES		5005.00	1.24	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.23-T1N-R67W LINES		5005.00	1.24	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.26-T1N-R67W LINES		5005.00	1.24	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.35-T1N-R67W LINES		5005.00	1.24	1188.23	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
1) GARFIELD 27C-14HZ_BHL	14121.19	7585.00	5630.99	328.12	1681244.94	14543378.05	40°02'44.222"N	104°51'14.811"W	point

SURVEY PROGRAM - Ref Wellbore: GARFIELD 27C-14HZ PWB Ref Wellpath: GARFIELD 27C-14HZ (PERMIT REV-1) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	8149.03	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)		GARFIELD 27C-14HZ PWB
8149.03	14121.19	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)		GARFIELD 27C-14HZ PWB



Planned Wellpath Report

GARFIELD 27C-14HZ (PERMIT REV-1) PWP
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REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#35 GARFIELD 27C-14HZ
Area	COLORADO	Well	GARFIELD 27C-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	GARFIELD 27C-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
1458.43	14.000	159.364	1441.00	FOX HILLS	
4826.39	6.338	159.364	4714.00	SUSSEX	
7364.05	12.587	359.827	7250.00	SHARON SPRINGS	
7381.53	14.335	359.827	7267.00	NIOBRARA TOP	
7567.95	32.976	359.827	7437.00	NIOBRARA B BENCH	
7671.06	43.288	359.827	7518.00	NIOBRARA C BENCH	
7919.84	68.166	359.827	7657.00	FORT HAYS	
7993.77	75.559	359.827	7680.00	CODELL	
8149.03	91.084	359.827	7698.00	TOP OF PRODUCTION	
9100.34	91.084	359.827	7680.00	CODELL	
10315.92	91.084	359.827	7657.00	FORT HAYS	

DESIGN COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
17.00	0.000	159.364	17.00	TIE-ON	
250.00	0.000	159.364	250.00	BEGIN NUDGE	
1183.33	14.000	159.364	1174.07	END NUDGE	
4443.30	14.000	159.364	4337.21	BEGIN DROP	
5143.30	0.000	359.827	5030.26	END DROP	
7238.18	0.000	359.827	7125.14	KOP, BUILD @ 10°/100'	
8149.03	91.084	359.827	7698.00	LANDING POINT	
14121.19	91.084	359.827	7585.00	TOTAL DEPTH	