

KERR-MCGEE OIL & GAS ONSHORE LP_1



PERMIT PLAN



Location:	Compass Import	Slot:	SLOT#04 FEHRN 37N-29HZ (305FNL & 814FEL, SEC.32)
Field:	WELD COUNTY (UTM ZONE 13)/NAD83/TRUE NORTH	Well:	FEHRN 37N-29HZ
Facility:	SEC.32-T2N-R66W	Wellbore:	FEHRN 37N-29HZ PWB

Plot reference wellpath is FEHRN 37N-29HZ (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: 4943 feet	Scale: Grid distance
Mean Sea Level to Mud line (At Slot: SLOT#04 FEHRN 37N-29HZ (305FNL & 814FEL, SEC.32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: precain on 12/14/2014

Location Information

Facility Name	SEC.32-T2N-R66W	Grid East (US ft)	1694037.424	Grid North (US ft)	14562911.912	Latitude	40°05'57.077"N	Longitude	104°48'18.130"W
Slot	SLOT#04 FEHRN 37N-29HZ (305FNL & 814FEL, SEC.32)	Local N (ft)	670.91	Local E (ft)	2933.73	Grid East (US ft)	1697669.668	Grid North (US ft)	14563589.254
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#04 FEHRN 37N-29HZ (305FNL & 814FEL, SEC.32))									4943ft
Mean Sea Level to Mud line (At Slot: SLOT#04 FEHRN 37N-29HZ (305FNL & 814FEL, SEC.32))									0ft
PERMIT (17KB) (RKB) to Mean Sea Level									4943ft

Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	1078.00	ISCWSA MWD, Rev. 2, axial magnetic correction	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (Mag/VAR IFR Watterberg)		FEHRN 37N-29HZ PWB
1078.00	7694.11	ISCWSA MWD, Rev. 2, axial magnetic correction	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (Mag/VAR IFR Watterberg)		FEHRN 37N-29HZ PWB
7694.11	12962.13	ISCWSA MWD, Rev. 2, axial magnetic correction	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (Mag/VAR IFR Watterberg)		FEHRN 37N-29HZ 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	226.300	17.00	0.00	0.00	0.00	0.00
BEGIN NUDDGE	1300.00	0.000	226.300	1300.00	0.00	0.00	0.00	0.00
END NUDDGE	1800.00	10.000	226.300	1797.47	-30.07	-31.47	2.00	-29.98
BEGIN DROP	3544.03	10.000	226.300	3515.00	-239.30	-250.41	0.00	-238.56
END DROP	4044.03	0.000	359.831	4012.47	-269.37	-281.88	2.00	-268.54
KOP, BUILD @ 10°/100'	6791.61	0.000	359.831	6760.05	-269.37	-281.88	0.00	-268.54
LANDING POINT	7694.11	90.250	359.831	7333.00	306.09	-283.58	10.00	306.92
TOTAL DEPTH	12962.13	90.250	359.831	7310.00	5574.04	-299.15	0.00	5574.89

Targets

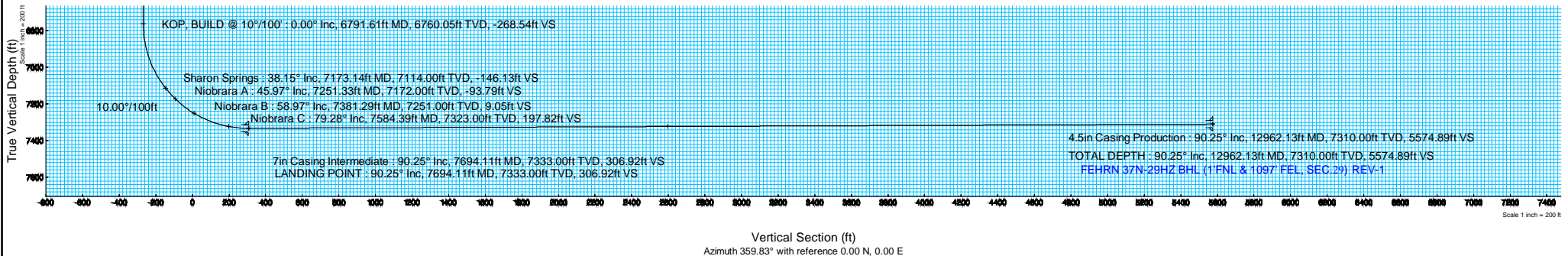
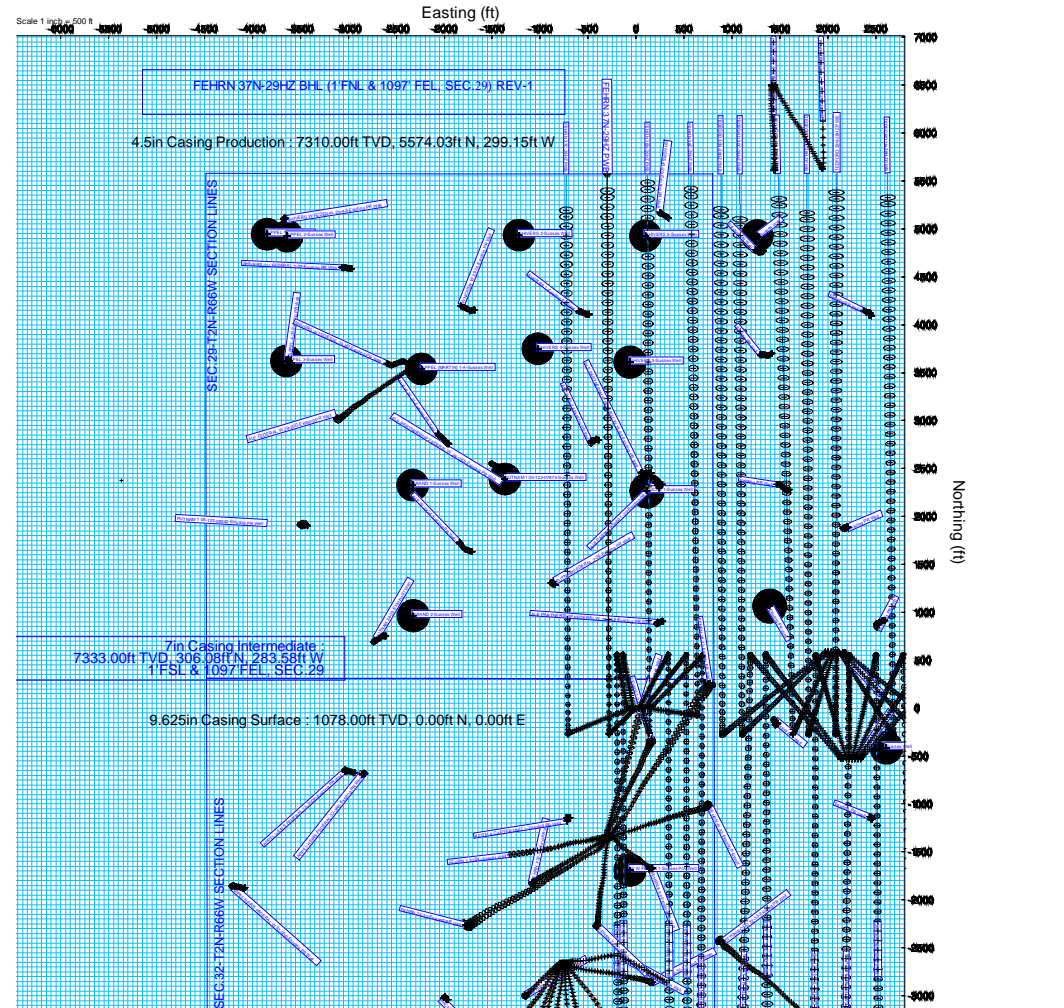
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.29-T2N-R66W SECTION LINES		4.00	0.71	-89.80	1697779.87	14563589.76	40°06'03.715"N	104°47'41.518"W
SEC.32-T2N-R66W SECTION LINES		4.00	0.71	-89.80	1697779.87	14563589.76	40°06'03.715"N	104°47'41.518"W
FEHRN 37N-29HZ BHL (1FNL & 1097FEL, SEC.29) REV-1	12962.13	7310.00	5574.04	-299.15	1697557.65	14569162.57	40°06'58.813"N	104°47'44.214"W

Hole and Casing Sections

Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	End Local N (ft)	Start Local E (ft)	End Local E (ft)	Wellbore
13.5in Open Hole	17.00	1078.00	1061.00	17.00	1078.00	0.00	0.00	0.00	0.00	FEHRN 37N-29HZ PWB
9.625in Casing Surface	17.00	1078.00	1061.00	17.00	1078.00	0.00	0.00	0.00	0.00	FEHRN 37N-29HZ PWB
8.75in Open Hole	1078.00	7694.11	6616.11	1078.00	7333.00	0.00	0.00	306.08	-283.58	FEHRN 37N-29HZ PWB
7in Casing Intermediate	17.00	7694.11	7677.11	17.00	7333.00	0.00	0.00	306.08	-283.58	FEHRN 37N-29HZ PWB
6.125in Open Hole	7694.11	12962.13	5268.02	7333.00	7310.00	306.08	-283.58	5574.03	-299.15	FEHRN 37N-29HZ PWB
4.5in Casing Production	17.00	12962.13	12945.13	17.00	7310.00	0.00	0.00	5574.03	-299.15	FEHRN 37N-29HZ PWB

Wellpath Comments

MD (ft)	X (ft)	Y (ft)	TVD (ft)	Inclination (°)	Azimuth (°)	VS (ft)	Comment
1028.00	0.00	0.00	1028.00	0.000	226.300	0.00	Fox Hills Base
3986.56	-281.46	-268.97	3955.00	1.149	226.300	-268.14	Parkman
4558.56	-281.88	-269.37	4527.00	0.000	359.831	-268.54	Sussex
7173.14	-282.24	-146.96	7114.00	38.153	359.831	-146.13	Sharon Springs
7251.33	-282.40	-94.63	7172.00	45.972	359.831	-93.79	Niobrara A
7381.29	-282.70	8.22	7251.00	58.968	359.831	9.05	Niobrara B
7584.39	-283.26	196.99	7323.00	79.278	359.831	197.82	Niobrara C
9984.26	-290.35	2596.20	7323.00	90.250	359.831	2597.05	Niobrara C



REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Precain
Scale	0.999604	Report Generated	12/14/2014 at 9:22:08 PM
Convergence at slot	n/a	Database/Source file	WellArchitect Review/FEHRN_37N-29HZ_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	670.91	2933.73	1697869.67	14563589.25	40°06'03.708"N	104°47'40.362"W
Facility Reference Pt			1694937.42	14562911.91	40°05'57.077"N	104°48'18.130"W
Field Reference Pt			1700626.56	14568707.73	40°06'54.245"N	104°47'04.711"W

WELLPATH DATUM

Calculation method	Minimum curvature	PERMIT (17'KB) (RKB) to 2N-66W-32 Offsets vertical datum	4943.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	4943.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32))	4943.00ft
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_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

WELLPATH DATA (146 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	226.300	0.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
17.00	0.000	226.300	17.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	TIE-ON
117.00†	0.000	226.300	117.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
217.00†	0.000	226.300	217.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
317.00†	0.000	226.300	317.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
417.00†	0.000	226.300	417.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
517.00†	0.000	226.300	517.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
617.00†	0.000	226.300	617.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
717.00†	0.000	226.300	717.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
817.00†	0.000	226.300	817.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
917.00†	0.000	226.300	917.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
1017.00†	0.000	226.300	1017.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
1028.00†	0.000	226.300	1028.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	Fox Hills Base
1117.00†	0.000	226.300	1117.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
1217.00†	0.000	226.300	1217.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	
1300.00	0.000	226.300	1300.00	0.00	0.00	0.00	40°06'03.708"N	104°47'40.362"W	0.00	BEGIN NUDGE
1317.00†	0.340	226.300	1317.00	-0.03	-0.03	-0.04	40°06'03.708"N	104°47'40.362"W	2.00	
1417.00†	2.340	226.300	1416.97	-1.65	-1.65	-1.73	40°06'03.692"N	104°47'40.384"W	2.00	
1517.00†	4.340	226.300	1516.79	-5.66	-5.68	-5.94	40°06'03.652"N	104°47'40.438"W	2.00	
1617.00†	6.340	226.300	1616.35	-12.07	-12.10	-12.67	40°06'03.588"N	104°47'40.525"W	2.00	
1717.00†	8.340	226.300	1715.53	-20.87	-20.93	-21.90	40°06'03.501"N	104°47'40.644"W	2.00	
1800.00	10.000	226.300	1797.47	-29.98	-30.07	-31.47	40°06'03.411"N	104°47'40.767"W	2.00	END NUDGE
1817.00†	10.000	226.300	1814.21	-32.01	-32.11	-33.60	40°06'03.391"N	104°47'40.795"W	0.00	
1917.00†	10.000	226.300	1912.69	-43.97	-44.11	-46.15	40°06'03.272"N	104°47'40.956"W	0.00	
2017.00†	10.000	226.300	2011.17	-55.93	-56.10	-58.71	40°06'03.153"N	104°47'41.118"W	0.00	
2117.00†	10.000	226.300	2109.65	-67.89	-68.10	-71.26	40°06'03.035"N	104°47'41.279"W	0.00	
2217.00†	10.000	226.300	2208.13	-79.85	-80.10	-83.82	40°06'02.916"N	104°47'41.441"W	0.00	
2317.00†	10.000	226.300	2306.61	-91.81	-92.09	-96.37	40°06'02.798"N	104°47'41.603"W	0.00	
2417.00†	10.000	226.300	2405.09	-103.77	-104.09	-108.92	40°06'02.679"N	104°47'41.764"W	0.00	
2517.00†	10.000	226.300	2503.57	-115.73	-116.09	-121.48	40°06'02.560"N	104°47'41.926"W	0.00	
2617.00†	10.000	226.300	2602.05	-127.69	-128.08	-134.03	40°06'02.442"N	104°47'42.087"W	0.00	
2717.00†	10.000	226.300	2700.53	-139.65	-140.08	-146.59	40°06'02.323"N	104°47'42.249"W	0.00	
2817.00†	10.000	226.300	2799.01	-151.61	-152.08	-159.14	40°06'02.205"N	104°47'42.411"W	0.00	
2917.00†	10.000	226.300	2897.50	-163.57	-164.08	-171.70	40°06'02.086"N	104°47'42.572"W	0.00	
3017.00†	10.000	226.300	2995.98	-175.53	-176.07	-184.25	40°06'01.967"N	104°47'42.734"W	0.00	
3117.00†	10.000	226.300	3094.46	-187.49	-188.07	-196.80	40°06'01.849"N	104°47'42.896"W	0.00	
3217.00†	10.000	226.300	3192.94	-199.45	-200.07	-209.36	40°06'01.730"N	104°47'43.057"W	0.00	
3317.00†	10.000	226.300	3291.42	-211.41	-212.06	-221.91	40°06'01.612"N	104°47'43.219"W	0.00	
3417.00†	10.000	226.300	3389.90	-223.37	-224.06	-234.47	40°06'01.493"N	104°47'43.380"W	0.00	
3517.00†	10.000	226.300	3488.38	-235.33	-236.06	-247.02	40°06'01.374"N	104°47'43.542"W	0.00	
3544.03	10.000	226.300	3515.00	-238.56	-239.30	-250.41	40°06'01.342"N	104°47'43.586"W	0.00	BEGIN DROP
3617.00†	8.541	226.300	3587.01	-246.66	-247.42	-258.91	40°06'01.262"N	104°47'43.695"W	2.00	
3717.00†	6.541	226.300	3686.14	-255.70	-256.49	-268.40	40°06'01.172"N	104°47'43.817"W	2.00	
3817.00†	4.541	226.300	3785.67	-262.34	-263.16	-275.38	40°06'01.106"N	104°47'43.907"W	2.00	
3917.00†	2.541	226.300	3885.48	-266.60	-267.42	-279.84	40°06'01.064"N	104°47'43.965"W	2.00	

Planned Wellpath Report

FEHRN 37N-29HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

WELLPATH DATA (146 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3986.56†	1.149	226.300	3955.00	-268.14	-268.97	-281.46	40°06'01.049"N	104°47'43.985"W	2.00	Parkman
4017.00†	0.541	226.300	3985.44	-268.45	-269.28	-281.79	40°06'01.046"N	104°47'43.990"W	2.00	
4044.03	0.000	359.831	4012.47	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	2.00	END DROP
4117.00†	0.000	359.831	4085.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4217.00†	0.000	359.831	4185.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4317.00†	0.000	359.831	4285.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4417.00†	0.000	359.831	4385.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4517.00†	0.000	359.831	4485.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4558.56†	0.000	359.831	4527.00	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	Sussex
4617.00†	0.000	359.831	4585.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4717.00†	0.000	359.831	4685.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4817.00†	0.000	359.831	4785.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
4917.00†	0.000	359.831	4885.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5017.00†	0.000	359.831	4985.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5117.00†	0.000	359.831	5085.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5217.00†	0.000	359.831	5185.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5317.00†	0.000	359.831	5285.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5417.00†	0.000	359.831	5385.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5517.00†	0.000	359.831	5485.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5617.00†	0.000	359.831	5585.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5717.00†	0.000	359.831	5685.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5817.00†	0.000	359.831	5785.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
5917.00†	0.000	359.831	5885.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6017.00†	0.000	359.831	5985.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6117.00†	0.000	359.831	6085.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6217.00†	0.000	359.831	6185.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6317.00†	0.000	359.831	6285.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6417.00†	0.000	359.831	6385.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6517.00†	0.000	359.831	6485.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6617.00†	0.000	359.831	6585.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6717.00†	0.000	359.831	6685.44	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	
6791.61	0.000	359.831	6760.05	-268.54	-269.37	-281.88	40°06'01.045"N	104°47'43.991"W	0.00	KOP, BUILD @ 10°/100'
6817.00†	2.539	359.831	6785.43	-267.98	-268.81	-281.88	40°06'01.051"N	104°47'43.991"W	10.00	
6917.00†	12.539	359.831	6884.44	-254.87	-255.70	-281.92	40°06'01.180"N	104°47'43.991"W	10.00	
7017.00†	22.539	359.831	6979.67	-224.77	-225.61	-282.01	40°06'01.478"N	104°47'43.992"W	10.00	
7117.00†	32.539	359.831	7068.22	-178.60	-179.43	-282.15	40°06'01.934"N	104°47'43.994"W	10.00	
7173.14†	38.153	359.831	7114.00	-146.13	-146.96	-282.24	40°06'02.255"N	104°47'43.995"W	10.00	Sharon Springs
7217.00†	42.539	359.831	7147.42	-117.75	-118.58	-282.33	40°06'02.536"N	104°47'43.997"W	10.00	
7251.33†	45.972	359.831	7172.00	-93.79	-94.63	-282.40	40°06'02.772"N	104°47'43.997"W	10.00	Niobrara A
7317.00†	52.539	359.831	7214.84	-44.07	-44.90	-282.54	40°06'03.264"N	104°47'43.999"W	10.00	
7381.29†	58.968	359.831	7251.00	9.05	8.22	-282.70	40°06'03.789"N	104°47'44.001"W	10.00	Niobrara B
7417.00†	62.539	359.831	7268.44	40.20	39.37	-282.79	40°06'04.097"N	104°47'44.003"W	10.00	
7517.00†	72.539	359.831	7306.60	132.50	131.67	-283.06	40°06'05.010"N	104°47'44.006"W	10.00	
7584.39†	79.278	359.831	7323.00	197.82	196.99	-283.26	40°06'05.655"N	104°47'44.009"W	10.00	Niobrara C
7617.00†	82.539	359.831	7328.15	230.02	229.19	-283.35	40°06'05.974"N	104°47'44.010"W	10.00	

Planned Wellpath Report

FEHRN 37N-29HZ (PERMIT REV-1) PWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

WELLPATH DATA (146 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7694.11	90.250	359.831	7333.00	306.92	306.09	-283.58	40°06'06.734"N	104°47'44.013"W	10.00	LANDING POINT
7717.00†	90.250	359.831	7332.90	329.81	328.97	-283.65	40°06'06.960"N	104°47'44.014"W	0.00	
7817.00†	90.250	359.831	7332.46	429.81	428.97	-283.94	40°06'07.949"N	104°47'44.017"W	0.00	
7917.00†	90.250	359.831	7332.02	529.81	528.97	-284.24	40°06'08.937"N	104°47'44.021"W	0.00	
8017.00†	90.250	359.831	7331.59	629.81	628.97	-284.53	40°06'09.926"N	104°47'44.025"W	0.00	
8117.00†	90.250	359.831	7331.15	729.81	728.97	-284.83	40°06'10.915"N	104°47'44.029"W	0.00	
8217.00†	90.250	359.831	7330.72	829.80	828.97	-285.13	40°06'11.903"N	104°47'44.033"W	0.00	
8317.00†	90.250	359.831	7330.28	929.80	928.97	-285.42	40°06'12.892"N	104°47'44.037"W	0.00	
8417.00†	90.250	359.831	7329.84	1029.80	1028.96	-285.72	40°06'13.880"N	104°47'44.040"W	0.00	
8517.00†	90.250	359.831	7329.41	1129.80	1128.96	-286.01	40°06'14.869"N	104°47'44.044"W	0.00	
8617.00†	90.250	359.831	7328.97	1229.80	1228.96	-286.31	40°06'15.858"N	104°47'44.048"W	0.00	
8717.00†	90.250	359.831	7328.53	1329.80	1328.96	-286.60	40°06'16.846"N	104°47'44.052"W	0.00	
8817.00†	90.250	359.831	7328.10	1429.80	1428.96	-286.90	40°06'17.835"N	104°47'44.056"W	0.00	
8917.00†	90.250	359.831	7327.66	1529.80	1528.96	-287.19	40°06'18.823"N	104°47'44.059"W	0.00	
9017.00†	90.250	359.831	7327.22	1629.80	1628.96	-287.49	40°06'19.812"N	104°47'44.063"W	0.00	
9117.00†	90.250	359.831	7326.79	1729.80	1728.96	-287.79	40°06'20.801"N	104°47'44.067"W	0.00	
9217.00†	90.250	359.831	7326.35	1829.80	1828.95	-288.08	40°06'21.789"N	104°47'44.071"W	0.00	
9317.00†	90.250	359.831	7325.91	1929.79	1928.95	-288.38	40°06'22.778"N	104°47'44.075"W	0.00	
9417.00†	90.250	359.831	7325.48	2029.79	2028.95	-288.67	40°06'23.766"N	104°47'44.079"W	0.00	
9517.00†	90.250	359.831	7325.04	2129.79	2128.95	-288.97	40°06'24.755"N	104°47'44.082"W	0.00	
9617.00†	90.250	359.831	7324.60	2229.79	2228.95	-289.26	40°06'25.744"N	104°47'44.086"W	0.00	
9717.00†	90.250	359.831	7324.17	2329.79	2328.95	-289.56	40°06'26.732"N	104°47'44.090"W	0.00	
9817.00†	90.250	359.831	7323.73	2429.79	2428.95	-289.85	40°06'27.721"N	104°47'44.094"W	0.00	
9917.00†	90.250	359.831	7323.29	2529.79	2528.94	-290.15	40°06'28.709"N	104°47'44.098"W	0.00	
9984.26†	90.250	359.831	7323.00	2597.05	2596.20	-290.35	40°06'29.374"N	104°47'44.100"W	0.00	Niobrara C
10017.00†	90.250	359.831	7322.86	2629.79	2628.94	-290.45	40°06'29.698"N	104°47'44.102"W	0.00	
10117.00†	90.250	359.831	7322.42	2729.79	2728.94	-290.74	40°06'30.686"N	104°47'44.105"W	0.00	
10217.00†	90.250	359.831	7321.98	2829.79	2828.94	-291.04	40°06'31.675"N	104°47'44.109"W	0.00	
10317.00†	90.250	359.831	7321.55	2929.78	2928.94	-291.33	40°06'32.664"N	104°47'44.113"W	0.00	
10417.00†	90.250	359.831	7321.11	3029.78	3028.94	-291.63	40°06'33.652"N	104°47'44.117"W	0.00	
10517.00†	90.250	359.831	7320.67	3129.78	3128.94	-291.92	40°06'34.641"N	104°47'44.121"W	0.00	
10617.00†	90.250	359.831	7320.24	3229.78	3228.93	-292.22	40°06'35.629"N	104°47'44.124"W	0.00	
10717.00†	90.250	359.831	7319.80	3329.78	3328.93	-292.51	40°06'36.618"N	104°47'44.128"W	0.00	
10817.00†	90.250	359.831	7319.36	3429.78	3428.93	-292.81	40°06'37.607"N	104°47'44.132"W	0.00	
10917.00†	90.250	359.831	7318.93	3529.78	3528.93	-293.11	40°06'38.595"N	104°47'44.136"W	0.00	
11017.00†	90.250	359.831	7318.49	3629.78	3628.93	-293.40	40°06'39.584"N	104°47'44.140"W	0.00	
11117.00†	90.250	359.831	7318.05	3729.78	3728.93	-293.70	40°06'40.572"N	104°47'44.144"W	0.00	
11217.00†	90.250	359.831	7317.62	3829.78	3828.93	-293.99	40°06'41.561"N	104°47'44.147"W	0.00	
11317.00†	90.250	359.831	7317.18	3929.78	3928.92	-294.29	40°06'42.550"N	104°47'44.151"W	0.00	
11417.00†	90.250	359.831	7316.75	4029.77	4028.92	-294.58	40°06'43.538"N	104°47'44.155"W	0.00	
11517.00†	90.250	359.831	7316.31	4129.77	4128.92	-294.88	40°06'44.527"N	104°47'44.159"W	0.00	
11617.00†	90.250	359.831	7315.87	4229.77	4228.92	-295.17	40°06'45.515"N	104°47'44.163"W	0.00	
11717.00†	90.250	359.831	7315.44	4329.77	4328.92	-295.47	40°06'46.504"N	104°47'44.166"W	0.00	
11817.00†	90.250	359.831	7315.00	4429.77	4428.92	-295.76	40°06'47.493"N	104°47'44.170"W	0.00	
11917.00†	90.250	359.831	7314.56	4529.77	4528.92	-296.06	40°06'48.481"N	104°47'44.174"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

WELLPATH DATA (146 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12017.00†	90.250	359.831	7314.13	4629.77	4628.91	-296.36	40°06'49.470"N	104°47'44.178"W	0.00	
12117.00†	90.250	359.831	7313.69	4729.77	4728.91	-296.65	40°06'50.458"N	104°47'44.182"W	0.00	
12217.00†	90.250	359.831	7313.25	4829.77	4828.91	-296.95	40°06'51.447"N	104°47'44.186"W	0.00	
12317.00†	90.250	359.831	7312.82	4929.77	4928.91	-297.24	40°06'52.435"N	104°47'44.189"W	0.00	
12417.00†	90.250	359.831	7312.38	5029.76	5028.91	-297.54	40°06'53.424"N	104°47'44.193"W	0.00	
12517.00†	90.250	359.831	7311.94	5129.76	5128.91	-297.83	40°06'54.413"N	104°47'44.197"W	0.00	
12617.00†	90.250	359.831	7311.51	5229.76	5228.91	-298.13	40°06'55.401"N	104°47'44.201"W	0.00	
12717.00†	90.250	359.831	7311.07	5329.76	5328.91	-298.42	40°06'56.390"N	104°47'44.205"W	0.00	
12817.00†	90.250	359.831	7310.63	5429.76	5428.90	-298.72	40°06'57.378"N	104°47'44.208"W	0.00	
12917.00†	90.250	359.831	7310.20	5529.76	5528.90	-299.02	40°06'58.367"N	104°47'44.212"W	0.00	
12962.13	90.250	359.831	7310.00 ¹	5574.89	5574.04	-299.15	40°06'58.813"N	104°47'44.214"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: FEHRN 37N-29HZ PWB Ref Wellpath: FEHRN 37N-29HZ (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	1078.00	1061.00	17.00	1078.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1078.00	1061.00	17.00	1078.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1078.00	7694.11	6616.11	1078.00	7333.00	0.00	0.00	306.08	-283.58
7in Casing Intermediate	17.00	7694.11	7677.11	17.00	7333.00	0.00	0.00	306.08	-283.58
6.125in Open Hole	7694.11	12962.13	5268.02	7333.00	7310.00	306.08	-283.58	5574.03	-299.15
4.5in Casing Production	17.00	12962.13	12945.13	17.00	7310.00	0.00	0.00	5574.03	-299.15

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.29-T2N-R66W SECTION LINES		4.00	0.71	-89.80	1697779.87	14563589.76	40°06'03.715"N	104°47'41.518"W	polygon
SEC.32-T2N-R66W SECTION LINES		4.00	0.71	-89.80	1697779.87	14563589.76	40°06'03.715"N	104°47'41.518"W	polygon
1) FEHRN 37N-29HZ BHL (1'FNL & 1097' FEL, SEC.32) REV-1	12962.13	7310.00	5574.04	-299.15	1697557.65	14569162.57	40°06'58.813"N	104°47'44.214"W	point

SURVEY PROGRAM - Ref Wellbore: FEHRN 37N-29HZ PWB Ref Wellpath: FEHRN 37N-29HZ (PERMIT REV-1) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1078.00	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)		FEHRN 37N-29HZ PWB
1078.00	7694.11	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)		FEHRN 37N-29HZ PWB
7694.11	12962.13	ISCWSA MWD, Rev. 2, axial magnetic correction (Standard) (MagVAR IFR Wattenberg)		FEHRN 37N-29HZ PWB

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP_1	Slot	SLOT#04 FEHRN 37N-29HZ (305'FNL & 814'FEL, SEC.32)
Area	Compass Import	Well	FEHRN 37N-29HZ
Field	WELD COUNTY (UTM (ZONE 13)/NAD83/TRUE NORTH)	Wellbore	FEHRN 37N-29HZ PWB
Facility	SEC.32-T2N-R66W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1028.00	0.000	226.300	1028.00	Fox Hills Base
3986.56	1.149	226.300	3955.00	Parkman
4558.56	0.000	359.831	4527.00	Sussex
7173.14	38.153	359.831	7114.00	Sharon Springs
7251.33	45.972	359.831	7172.00	Niobrara A
7381.29	58.968	359.831	7251.00	Niobrara B
7584.39	79.278	359.831	7323.00	Niobrara C
9984.26	90.250	359.831	7323.00	Niobrara C

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	226.300	17.00	TIE-ON
1300.00	0.000	226.300	1300.00	BEGIN NUDGE
1800.00	10.000	226.300	1797.47	END NUDGE
3544.03	10.000	226.300	3515.00	BEGIN DROP
4044.03	0.000	359.831	4012.47	END DROP
6791.61	0.000	359.831	6760.05	KOP, BUILD @ 10°/100'
7694.11	90.250	359.831	7333.00	LANDING POINT
12962.13	90.250	359.831	7310.00	TOTAL DEPTH