

KERR-MCGEE OIL & GAS ONSHORE LP (WA)

OR COLORADO Slot: SLOT#39 JAGUAR 3N-14HZ

Field: WELD COUNTY (UTM/TRUE NORTH) Well: JAGUAR 3N-14HZ

Facility: SEC.23-T1N-R67W Wellbore: JAGUAR 3N-14HZ PWB

Plot reference wellpath is JAGUAR 3N-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: 5009 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#39 JAGUAR 3N-14HZ): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: amarcar on 31/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)
LOT#39 JAGUAR 3N-14H	-4021.37	-2966.93	1679335.978	14537880.577
PERMIT (17KB) (RKB) to Mud line (At Slot: SLOT#39 JAGUAR 3N-14HZ)			5009ft	
Mean Sea Level to Mud line (At Slot: SLOT#39 JAGUAR 3N-14HZ)			0ft	
PERMIT (17KB) (RKB) to Mean Sea Level			5009ft	

Survey Program

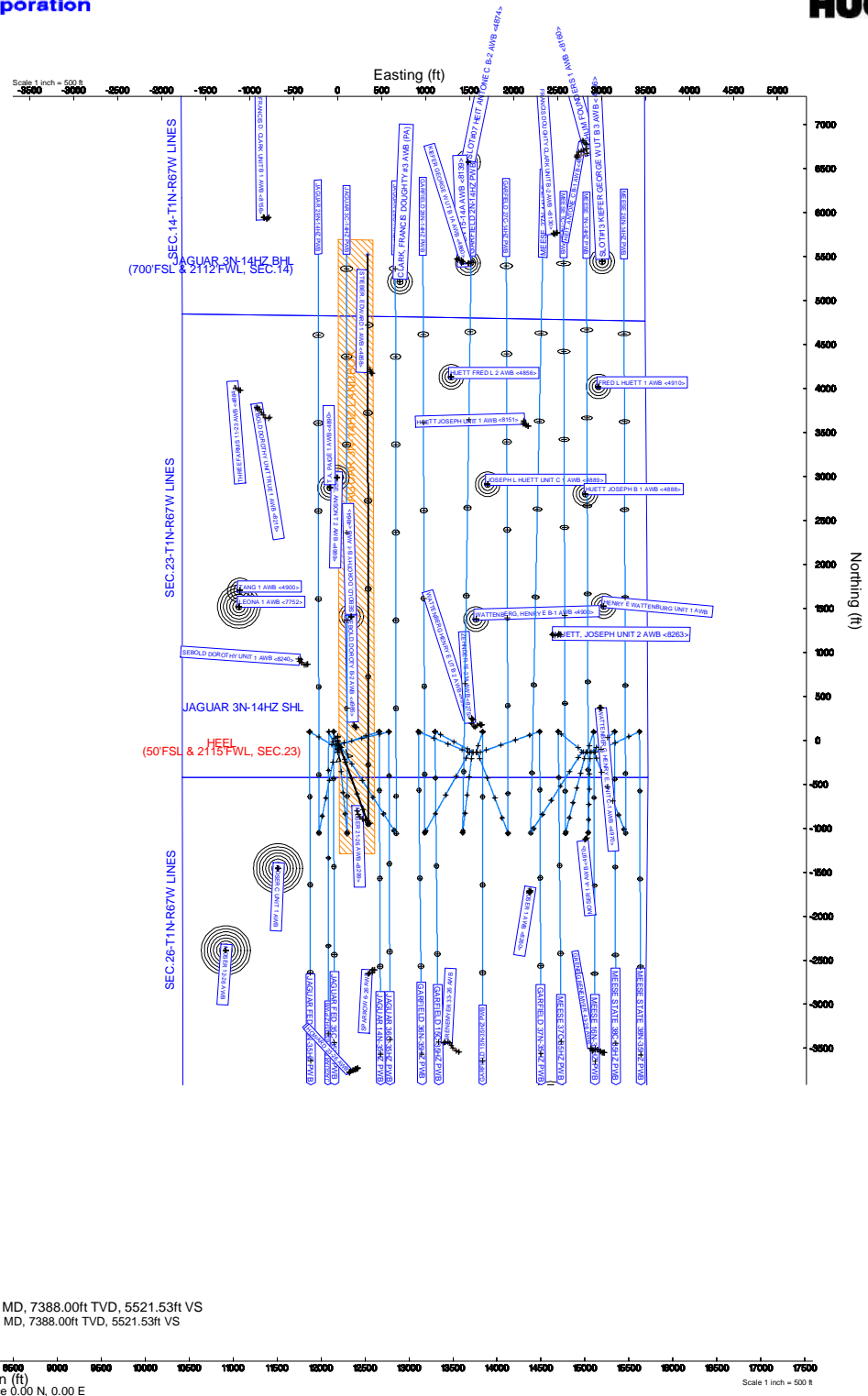
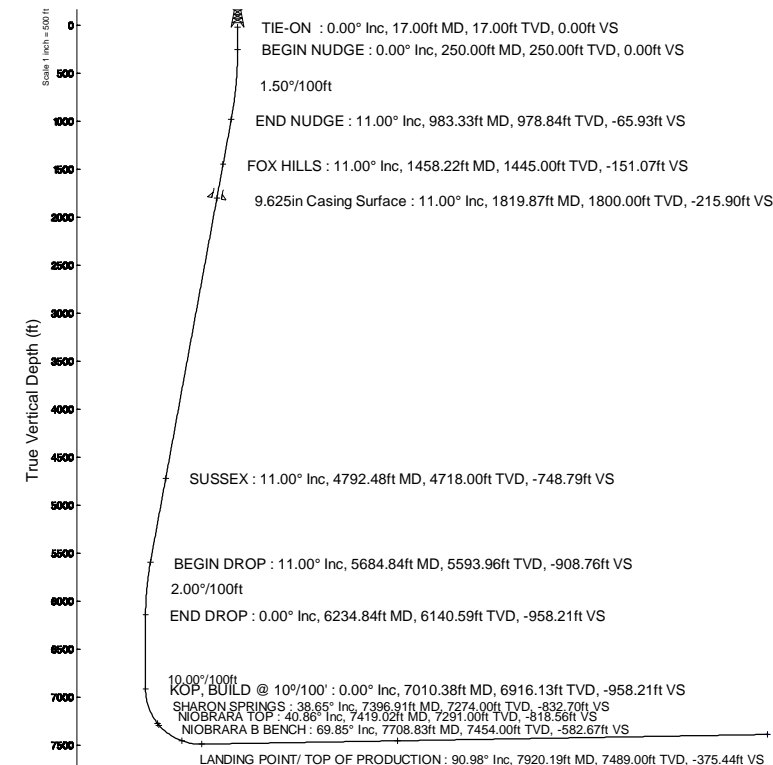
Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	7920.19	ISCWSA MWD, Rev. 2, axial magnetic correction	Custom APC, ISCWSA REV 2 MWD+IFR1+SC (approximation)		JAGUAR 3N-14HZ PIWB
7920.19	13818.03	ISCWSA MWD, Rev. 2, axial magnetic correction	Custom APC, ISCWSA REV 2 MWD+IFR1+SC (approximation)		JAGUAR 3N-14HZ PIWB

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
JAGUAR 3N-14HZ LANDBOX	5009.00	0.00	0.00	0.00	1679335.98	14537880.58	40°01'49.903"N	104°51'39.477"W
JAGUAR 3N-14HZ SHL	5009.00	0.00	0.00	0.00	1679335.98	14537880.58	40°01'49.903"N	104°51'39.477"W
SEC.14-T1N-R67W LINES	5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	
SEC.23-T1N-R67W LINES	5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	
SEC.26-T1N-R67W LINES	5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	
SEC.35-T1N-R67W LINES	5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	
JAGUAR 3N-14HZ BHL	13818.03	7388.00	5521.99	341.97	1679669.20	14543400.89	40°02'44.473"N	104°51'35.080"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	0.00	159.894	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	250.00	0.00	159.894	250.00	0.00	0.00	0.00	0.00
END NUDGE	983.33	11.00	159.894	978.84	-65.90	24.12	1.50	-65.93
BEGIN DROP	5684.84	11.00	159.894	5593.96	-908.32	332.50	0.00	-908.76
END DROP	6234.84	0.00	359.924	6140.59	-957.75	350.60	2.00	-958.21
KOP, BUILD @ 10°/100'	7010.38	0.00	359.924	6916.13	-957.75	350.60	0.00	-958.21
LANDING POINT/ TOP OF PRODUCTION	7920.19	90.98	359.924	7489.00	-374.98	349.82	10.00	-375.44
TOTAL DEPTH	13818.03	90.98	359.924	7388.00	5521.99	341.97	0.00	5521.53



Vertical Section (ft)
Azimuth 359.92° with reference 0.00 N, 0.00 E

Scale 1 inch = 500 ft

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-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	31/Jul/2015 at 10:12
Convergence at slot	0.09° East	Database/Source file	KERR MCGEE UTM/JAGUAR_3N-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	-4021.37	-2966.93	1679335.98	14537880.58	40°01'49.903"N	104°51'39.477"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	5009.00ft
Horizontal Reference Pt	Slot	PERMIT (17'KB) (RKB) to Mean Sea Level	5009.00ft
Vertical Reference Pt	PERMIT (17'KB) (RKB)	PERMIT (17'KB) (RKB) to Mud Line at Slot (SLOT#39 JAGUAR 3N-14HZ)	5009.00ft
MD Reference Pt	PERMIT (17'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.92°

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (153 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	159.894	0.00	0.00	0.00	0.00	40°01'49.903"N	104°51'39.477"W	0.00	
17.00	0.000	159.894	17.00	0.00	0.00	0.00	40°01'49.903"N	104°51'39.477"W	0.00	TIE-ON
117.00†	0.000	159.894	117.00	0.00	0.00	0.00	40°01'49.903"N	104°51'39.477"W	0.00	
217.00†	0.000	159.894	217.00	0.00	0.00	0.00	40°01'49.903"N	104°51'39.477"W	0.00	
250.00	0.000	159.894	250.00	0.00	0.00	0.00	40°01'49.903"N	104°51'39.477"W	0.00	BEGIN NUDGE
317.00†	1.005	159.894	317.00	-0.55	-0.55	0.20	40°01'49.898"N	104°51'39.474"W	1.50	
417.00†	2.505	159.894	416.95	-3.43	-3.43	1.25	40°01'49.869"N	104°51'39.461"W	1.50	
517.00†	4.005	159.894	516.78	-8.76	-8.76	3.21	40°01'49.816"N	104°51'39.436"W	1.50	
617.00†	5.505	159.894	616.44	-16.55	-16.54	6.06	40°01'49.740"N	104°51'39.399"W	1.50	
717.00†	7.005	159.894	715.84	-26.79	-26.77	9.80	40°01'49.638"N	104°51'39.351"W	1.50	
817.00†	8.505	159.894	814.92	-39.46	-39.45	14.44	40°01'49.513"N	104°51'39.291"W	1.50	
917.00†	10.005	159.894	913.62	-54.57	-54.55	19.97	40°01'49.364"N	104°51'39.220"W	1.50	
983.33	11.000	159.894	978.84	-65.93	-65.90	24.12	40°01'49.252"N	104°51'39.167"W	1.50	END NUDGE
1017.00†	11.000	159.894	1011.88	-71.97	-71.93	26.33	40°01'49.192"N	104°51'39.138"W	0.00	
1117.00†	11.000	159.894	1110.05	-89.90	-89.85	32.89	40°01'49.015"N	104°51'39.054"W	0.00	
1217.00†	11.000	159.894	1208.21	-107.82	-107.77	39.45	40°01'48.838"N	104°51'38.970"W	0.00	
1317.00†	11.000	159.894	1306.37	-125.75	-125.69	46.01	40°01'48.661"N	104°51'38.886"W	0.00	
1417.00†	11.000	159.894	1404.54	-143.68	-143.61	52.57	40°01'48.484"N	104°51'38.801"W	0.00	
1458.22†	11.000	159.894	1445.00	-151.07	-150.99	55.27	40°01'48.411"N	104°51'38.766"W	0.00	FOX HILLS
1517.00†	11.000	159.894	1502.70	-161.60	-161.53	59.13	40°01'48.307"N	104°51'38.717"W	0.00	
1617.00†	11.000	159.894	1600.86	-179.53	-179.44	65.69	40°01'48.130"N	104°51'38.633"W	0.00	
1717.00†	11.000	159.894	1699.02	-197.46	-197.36	72.25	40°01'47.953"N	104°51'38.548"W	0.00	
1817.00†	11.000	159.894	1797.19	-215.38	-215.28	78.81	40°01'47.776"N	104°51'38.464"W	0.00	
1917.00†	11.000	159.894	1895.35	-233.31	-233.20	85.37	40°01'47.598"N	104°51'38.380"W	0.00	
2017.00†	11.000	159.894	1993.51	-251.24	-251.12	91.92	40°01'47.421"N	104°51'38.295"W	0.00	
2117.00†	11.000	159.894	2091.67	-269.16	-269.03	98.48	40°01'47.244"N	104°51'38.211"W	0.00	
2217.00†	11.000	159.894	2189.84	-287.09	-286.95	105.04	40°01'47.067"N	104°51'38.127"W	0.00	
2317.00†	11.000	159.894	2288.00	-305.02	-304.87	111.60	40°01'46.890"N	104°51'38.042"W	0.00	
2417.00†	11.000	159.894	2386.16	-322.94	-322.79	118.16	40°01'46.713"N	104°51'37.958"W	0.00	
2517.00†	11.000	159.894	2484.33	-340.87	-340.71	124.72	40°01'46.536"N	104°51'37.874"W	0.00	
2617.00†	11.000	159.894	2582.49	-358.80	-358.62	131.28	40°01'46.359"N	104°51'37.789"W	0.00	
2717.00†	11.000	159.894	2680.65	-376.72	-376.54	137.84	40°01'46.182"N	104°51'37.705"W	0.00	
2817.00†	11.000	159.894	2778.81	-394.65	-394.46	144.40	40°01'46.005"N	104°51'37.621"W	0.00	
2917.00†	11.000	159.894	2876.98	-412.58	-412.38	150.96	40°01'45.828"N	104°51'37.536"W	0.00	
3017.00†	11.000	159.894	2975.14	-430.51	-430.30	157.52	40°01'45.651"N	104°51'37.452"W	0.00	
3117.00†	11.000	159.894	3073.30	-448.43	-448.21	164.08	40°01'45.474"N	104°51'37.368"W	0.00	
3217.00†	11.000	159.894	3171.46	-466.36	-466.13	170.63	40°01'45.297"N	104°51'37.283"W	0.00	
3317.00†	11.000	159.894	3269.63	-484.29	-484.05	177.19	40°01'45.119"N	104°51'37.199"W	0.00	
3417.00†	11.000	159.894	3367.79	-502.21	-501.97	183.75	40°01'44.942"N	104°51'37.115"W	0.00	
3517.00†	11.000	159.894	3465.95	-520.14	-519.89	190.31	40°01'44.765"N	104°51'37.031"W	0.00	
3617.00†	11.000	159.894	3564.12	-538.07	-537.81	196.87	40°01'44.588"N	104°51'36.946"W	0.00	
3717.00†	11.000	159.894	3662.28	-555.99	-555.72	203.43	40°01'44.411"N	104°51'36.862"W	0.00	
3817.00†	11.000	159.894	3760.44	-573.92	-573.64	209.99	40°01'44.234"N	104°51'36.778"W	0.00	
3917.00†	11.000	159.894	3858.60	-591.85	-591.56	216.55	40°01'44.057"N	104°51'36.693"W	0.00	
4017.00†	11.000	159.894	3956.77	-609.77	-609.48	223.11	40°01'43.880"N	104°51'36.609"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (153 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4117.00†	11.000	159.894	4054.93	-627.70	-627.40	229.67	40°01'43.703"N	104°51'36.525"W	0.00	
4217.00†	11.000	159.894	4153.09	-645.63	-645.31	236.23	40°01'43.526"N	104°51'36.440"W	0.00	
4317.00†	11.000	159.894	4251.25	-663.55	-663.23	242.79	40°01'43.349"N	104°51'36.356"W	0.00	
4417.00†	11.000	159.894	4349.42	-681.48	-681.15	249.34	40°01'43.172"N	104°51'36.272"W	0.00	
4517.00†	11.000	159.894	4447.58	-699.41	-699.07	255.90	40°01'42.995"N	104°51'36.187"W	0.00	
4617.00†	11.000	159.894	4545.74	-717.33	-716.99	262.46	40°01'42.818"N	104°51'36.103"W	0.00	
4717.00†	11.000	159.894	4643.91	-735.26	-734.90	269.02	40°01'42.640"N	104°51'36.019"W	0.00	
4792.48†	11.000	159.894	4718.00	-748.79	-748.43	273.97	40°01'42.507"N	104°51'35.955"W	0.00	SUSSEX
4817.00†	11.000	159.894	4742.07	-753.19	-752.82	275.58	40°01'42.463"N	104°51'35.934"W	0.00	
4917.00†	11.000	159.894	4840.23	-771.11	-770.74	282.14	40°01'42.286"N	104°51'35.850"W	0.00	
5017.00†	11.000	159.894	4938.39	-789.04	-788.66	288.70	40°01'42.109"N	104°51'35.766"W	0.00	
5117.00†	11.000	159.894	5036.56	-806.97	-806.58	295.26	40°01'41.932"N	104°51'35.681"W	0.00	
5217.00†	11.000	159.894	5134.72	-824.89	-824.49	301.82	40°01'41.755"N	104°51'35.597"W	0.00	
5317.00†	11.000	159.894	5232.88	-842.82	-842.41	308.38	40°01'41.578"N	104°51'35.513"W	0.00	
5417.00†	11.000	159.894	5331.04	-860.75	-860.33	314.94	40°01'41.401"N	104°51'35.429"W	0.00	
5517.00†	11.000	159.894	5429.21	-878.67	-878.25	321.50	40°01'41.224"N	104°51'35.344"W	0.00	
5617.00†	11.000	159.894	5527.37	-896.60	-896.17	328.05	40°01'41.047"N	104°51'35.260"W	0.00	
5684.84	11.000	159.894	5593.96	-908.76	-908.32	332.50	40°01'40.927"N	104°51'35.203"W	0.00	BEGIN DROP
5717.00†	10.357	159.894	5625.57	-914.36	-913.92	334.55	40°01'40.871"N	104°51'35.176"W	2.00	
5817.00†	8.357	159.894	5724.23	-929.64	-929.19	340.14	40°01'40.721"N	104°51'35.105"W	2.00	
5917.00†	6.357	159.894	5823.40	-941.67	-941.21	344.54	40°01'40.602"N	104°51'35.048"W	2.00	
6017.00†	4.357	159.894	5922.96	-950.44	-949.98	347.75	40°01'40.515"N	104°51'35.007"W	2.00	
6117.00†	2.357	159.894	6022.78	-955.94	-955.47	349.76	40°01'40.461"N	104°51'34.981"W	2.00	
6217.00†	0.357	159.894	6122.75	-958.16	-957.70	350.58	40°01'40.439"N	104°51'34.970"W	2.00	
6234.84	0.000	359.924	6140.59	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	2.00	END DROP
6317.00†	0.000	359.924	6222.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6417.00†	0.000	359.924	6322.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6517.00†	0.000	359.924	6422.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6617.00†	0.000	359.924	6522.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6717.00†	0.000	359.924	6622.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6817.00†	0.000	359.924	6722.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
6917.00†	0.000	359.924	6822.75	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	
7010.38	0.000	359.924	6916.13	-958.21	-957.75	350.60	40°01'40.438"N	104°51'34.970"W	0.00	KOP, BUILD @ 10°/100'
7017.00†	0.662	359.924	6922.75	-958.18	-957.71	350.60	40°01'40.439"N	104°51'34.970"W	10.00	
7117.00†	10.662	359.924	7022.14	-948.32	-947.86	350.58	40°01'40.536"N	104°51'34.970"W	10.00	
7217.00†	20.662	359.924	7118.30	-921.36	-920.89	350.55	40°01'40.802"N	104°51'34.971"W	10.00	
7317.00†	30.662	359.924	7208.32	-878.11	-877.64	350.49	40°01'41.230"N	104°51'34.971"W	10.00	
7396.91†	38.653	359.924	7274.00	-832.70	-832.24	350.43	40°01'41.679"N	104°51'34.972"W	10.00	SHARON SPRINGS
7417.00†	40.662	359.924	7289.47	-819.88	-819.42	350.41	40°01'41.805"N	104°51'34.972"W	10.00	
7419.02†	40.865	359.924	7291.00	-818.56	-818.09	350.41	40°01'41.818"N	104°51'34.972"W	10.00	NIORARA TOP
7517.00†	50.662	359.924	7359.27	-748.45	-747.98	350.32	40°01'42.511"N	104°51'34.974"W	10.00	
7617.00†	60.662	359.924	7415.60	-665.98	-665.51	350.21	40°01'43.326"N	104°51'34.975"W	10.00	
7708.83†	69.845	359.924	7454.00	-582.67	-582.21	350.10	40°01'44.149"N	104°51'34.976"W	10.00	NIORARA B BENCH
7717.00†	70.662	359.924	7456.76	-574.98	-574.52	350.09	40°01'44.225"N	104°51'34.977"W	10.00	
7817.00†	80.662	359.924	7481.49	-478.22	-477.75	349.96	40°01'45.182"N	104°51'34.978"W	10.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (153 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7917.00†	90.662	359.924	7489.05	-378.63	-378.17	349.83	40°01'46.166"N	104°51'34.980"W	10.00	
7920.19	90.981	359.924	7489.00	-375.44	-374.98	349.82	40°01'46.197"N	104°51'34.980"W	10.00	LANDING POINT/ TOP OF PRODUCTION
8017.00†	90.981	359.924	7487.34	-278.65	-278.18	349.69	40°01'47.154"N	104°51'34.982"W	0.00	
8117.00†	90.981	359.924	7485.63	-178.66	-178.20	349.56	40°01'48.142"N	104°51'34.983"W	0.00	
8217.00†	90.981	359.924	7483.92	-78.67	-78.21	349.43	40°01'49.130"N	104°51'34.985"W	0.00	
8317.00†	90.981	359.924	7482.20	21.31	21.77	349.29	40°01'50.118"N	104°51'34.987"W	0.00	
8417.00†	90.981	359.924	7480.49	121.30	121.76	349.16	40°01'51.106"N	104°51'34.988"W	0.00	
8517.00†	90.981	359.924	7478.78	221.28	221.74	349.03	40°01'52.094"N	104°51'34.990"W	0.00	
8617.00†	90.981	359.924	7477.07	321.27	321.73	348.89	40°01'53.082"N	104°51'34.992"W	0.00	
8717.00†	90.981	359.924	7475.35	421.25	421.71	348.76	40°01'54.070"N	104°51'34.993"W	0.00	
8817.00†	90.981	359.924	7473.64	521.24	521.70	348.63	40°01'55.059"N	104°51'34.995"W	0.00	
8917.00†	90.981	359.924	7471.93	621.22	621.69	348.49	40°01'56.047"N	104°51'34.997"W	0.00	
9017.00†	90.981	359.924	7470.22	721.21	721.67	348.36	40°01'57.035"N	104°51'34.999"W	0.00	
9117.00†	90.981	359.924	7468.50	821.19	821.66	348.23	40°01'58.023"N	104°51'35.000"W	0.00	
9217.00†	90.981	359.924	7466.79	921.18	921.64	348.10	40°01'59.011"N	104°51'35.002"W	0.00	
9317.00†	90.981	359.924	7465.08	1021.16	1021.63	347.96	40°02'00.000"N	104°51'35.004"W	0.00	
9417.00†	90.981	359.924	7463.37	1121.15	1121.61	347.83	40°02'00.987"N	104°51'35.005"W	0.00	
9517.00†	90.981	359.924	7461.65	1221.13	1221.60	347.70	40°02'01.975"N	104°51'35.007"W	0.00	
9617.00†	90.981	359.924	7459.94	1321.12	1321.58	347.56	40°02'02.963"N	104°51'35.009"W	0.00	
9717.00†	90.981	359.924	7458.23	1421.11	1421.57	347.43	40°02'03.951"N	104°51'35.010"W	0.00	
9817.00†	90.981	359.924	7456.52	1521.09	1521.55	347.30	40°02'04.939"N	104°51'35.012"W	0.00	
9917.00†	90.981	359.924	7454.80	1621.08	1621.54	347.16	40°02'05.927"N	104°51'35.014"W	0.00	
9963.99†	90.981	359.924	7454.00	1668.06	1668.53	347.10	40°02'06.392"N	104°51'35.015"W	0.00	NIOBRARA B BENCH
10017.00†	90.981	359.924	7453.09	1721.06	1721.52	347.03	40°02'06.916"N	104°51'35.015"W	0.00	
10117.00†	90.981	359.924	7451.38	1821.05	1821.51	346.90	40°02'07.904"N	104°51'35.017"W	0.00	
10217.00†	90.981	359.924	7449.67	1921.03	1921.49	346.76	40°02'08.892"N	104°51'35.019"W	0.00	
10317.00†	90.981	359.924	7447.95	2021.02	2021.48	346.63	40°02'09.880"N	104°51'35.021"W	0.00	
10417.00†	90.981	359.924	7446.24	2121.00	2121.46	346.50	40°02'10.868"N	104°51'35.022"W	0.00	
10517.00†	90.981	359.924	7444.53	2220.99	2221.45	346.37	40°02'11.856"N	104°51'35.024"W	0.00	
10617.00†	90.981	359.924	7442.82	2320.97	2321.43	346.23	40°02'12.844"N	104°51'35.026"W	0.00	
10717.00†	90.981	359.924	7441.10	2420.96	2421.42	346.10	40°02'13.832"N	104°51'35.027"W	0.00	
10817.00†	90.981	359.924	7439.39	2520.94	2521.41	345.97	40°02'14.820"N	104°51'35.029"W	0.00	
10917.00†	90.981	359.924	7437.68	2620.93	2621.39	345.83	40°02'15.808"N	104°51'35.031"W	0.00	
11017.00†	90.981	359.924	7435.97	2720.91	2721.38	345.70	40°02'16.796"N	104°51'35.032"W	0.00	
11117.00†	90.981	359.924	7434.25	2820.90	2821.36	345.57	40°02'17.784"N	104°51'35.034"W	0.00	
11217.00†	90.981	359.924	7432.54	2920.89	2921.35	345.43	40°02'18.772"N	104°51'35.036"W	0.00	
11317.00†	90.981	359.924	7430.83	3020.87	3021.33	345.30	40°02'19.761"N	104°51'35.037"W	0.00	
11417.00†	90.981	359.924	7429.12	3120.86	3121.32	345.17	40°02'20.749"N	104°51'35.039"W	0.00	
11517.00†	90.981	359.924	7427.40	3220.84	3221.30	345.03	40°02'21.737"N	104°51'35.041"W	0.00	
11617.00†	90.981	359.924	7425.69	3320.83	3321.29	344.90	40°02'22.725"N	104°51'35.043"W	0.00	
11717.00†	90.981	359.924	7423.98	3420.81	3421.27	344.77	40°02'23.713"N	104°51'35.044"W	0.00	
11817.00†	90.981	359.924	7422.27	3520.80	3521.26	344.64	40°02'24.701"N	104°51'35.046"W	0.00	
11917.00†	90.981	359.924	7420.55	3620.78	3621.24	344.50	40°02'25.689"N	104°51'35.048"W	0.00	
12017.00†	90.981	359.924	7418.84	3720.77	3721.23	344.37	40°02'26.677"N	104°51'35.049"W	0.00	
12117.00†	90.981	359.924	7417.13	3820.75	3821.21	344.24	40°02'27.665"N	104°51'35.051"W	0.00	

REFERENCE WELLPATH IDENTIFICATION

Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH DATA (153 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12217.00†	90.981	359.924	7415.42	3920.74	3921.20	344.10	40°02'28.653"N	104°51'35.053"W	0.00	
12317.00†	90.981	359.924	7413.71	4020.72	4021.18	343.97	40°02'29.641"N	104°51'35.054"W	0.00	
12417.00†	90.981	359.924	7411.99	4120.71	4121.17	343.84	40°02'30.629"N	104°51'35.056"W	0.00	
12517.00†	90.981	359.924	7410.28	4220.69	4221.15	343.70	40°02'31.618"N	104°51'35.058"W	0.00	
12617.00†	90.981	359.924	7408.57	4320.68	4321.14	343.57	40°02'32.606"N	104°51'35.060"W	0.00	
12717.00†	90.981	359.924	7406.86	4420.67	4421.12	343.44	40°02'33.594"N	104°51'35.061"W	0.00	
12817.00†	90.981	359.924	7405.14	4520.65	4521.11	343.30	40°02'34.582"N	104°51'35.063"W	0.00	
12917.00†	90.981	359.924	7403.43	4620.64	4621.10	343.17	40°02'35.570"N	104°51'35.065"W	0.00	
13017.00†	90.981	359.924	7401.72	4720.62	4721.08	343.04	40°02'36.558"N	104°51'35.066"W	0.00	
13117.00†	90.981	359.924	7400.01	4820.61	4821.07	342.90	40°02'37.546"N	104°51'35.068"W	0.00	
13217.00†	90.981	359.924	7398.29	4920.59	4921.05	342.77	40°02'38.534"N	104°51'35.070"W	0.00	
13317.00†	90.981	359.924	7396.58	5020.58	5021.04	342.64	40°02'39.522"N	104°51'35.071"W	0.00	
13417.00†	90.981	359.924	7394.87	5120.56	5121.02	342.51	40°02'40.510"N	104°51'35.073"W	0.00	
13517.00†	90.981	359.924	7393.16	5220.55	5221.01	342.37	40°02'41.498"N	104°51'35.075"W	0.00	
13617.00†	90.981	359.924	7391.44	5320.53	5320.99	342.24	40°02'42.486"N	104°51'35.076"W	0.00	
13717.00†	90.981	359.924	7389.73	5420.52	5420.98	342.11	40°02'43.474"N	104°51'35.078"W	0.00	
13817.00†	90.981	359.924	7388.02	5520.50	5520.96	341.97	40°02'44.463"N	104°51'35.080"W	0.00	
13818.03	90.981	359.924	7388.00 [†]	5521.53	5521.99	341.97	40°02'44.473"N	104°51'35.080"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS - Ref Wellbore: JAGUAR 3N-14HZ PWB Ref Wellpath: JAGUAR 3N-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	1819.87	1802.87	17.00	1800.00	0.00	0.00	-215.79	78.99
9.625in Casing Surface	17.00	1819.87	1802.87	17.00	1800.00	0.00	0.00	-215.79	78.99
7.875in Open Hole	1819.87	13818.03	11998.16	1800.00	7388.00	-215.79	78.99	5521.99	341.97
5.5in Open Hole	17.00	13818.03	13801.03	17.00	7388.00	0.00	0.00	5521.99	341.97

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-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
JAGUAR 3N-14HZ LANDBOX		5009.00	0.00	0.00	1679335.98	14537880.58	40°01'49.903"N	104°51'39.477"W	polygon
JAGUAR 3N-14HZ SHL		5009.00	0.00	0.00	1679335.98	14537880.58	40°01'49.903"N	104°51'39.477"W	point
SEC.14-T1N-R67W LINES		5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.23-T1N-R67W LINES		5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.26-T1N-R67W LINES		5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
SEC.35-T1N-R67W LINES		5009.00	-133.01	2778.78	1682113.85	14537751.95	40°01'48.587"N	104°51'03.755"W	polygon
1) JAGUAR 3N-14HZ BHL	13818.03	7388.00	5521.99	341.97	1679669.20	14543400.89	40°02'44.473"N	104°51'35.080"W	point

SURVEY PROGRAM - Ref Wellbore: JAGUAR 3N-14HZ PWB Ref Wellpath: JAGUAR 3N-14HZ (PERMIT REV-1) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	7920.19	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)		JAGUAR 3N-14HZ PWB
7920.19	13818.03	Custom APC_ISCWSA REV 2 MWD+IFR1+SC (approximation)		JAGUAR 3N-14HZ PWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#39 JAGUAR 3N-14HZ
Area	COLORADO	Well	JAGUAR 3N-14HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	JAGUAR 3N-14HZ PWB
Facility	SEC.23-T1N-R67W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]		Azimuth [°]	TVD [ft]	Comment
1458.22		11.000	159.894	1445.00	FOX HILLS
4792.48		11.000	159.894	4718.00	SUSSEX
7396.91		38.653	359.924	7274.00	SHARON SPRINGS
7419.02		40.865	359.924	7291.00	NIOBRARA TOP
7708.83		69.845	359.924	7454.00	NIOBRARA B BENCH
9963.99		90.981	359.924	7454.00	NIOBRARA B BENCH

DESIGN COMMENTS					
MD [ft]	Inclination [°]		Azimuth [°]	TVD [ft]	Comment
17.00		0.000	159.894	17.00	TIE-ON
250.00		0.000	159.894	250.00	BEGIN NUDGE
983.33		11.000	159.894	978.84	END NUDGE
5684.84		11.000	159.894	5593.96	BEGIN DROP
6234.84		0.000	359.924	6140.59	END DROP
7010.38		0.000	359.924	6916.13	KOP, BUILD @ 10°/100'
7920.19		90.981	359.924	7489.00	LANDING POINT/ TOP OF PRODUCTION
13818.03		90.981	359.924	7388.00	TOTAL DEPTH