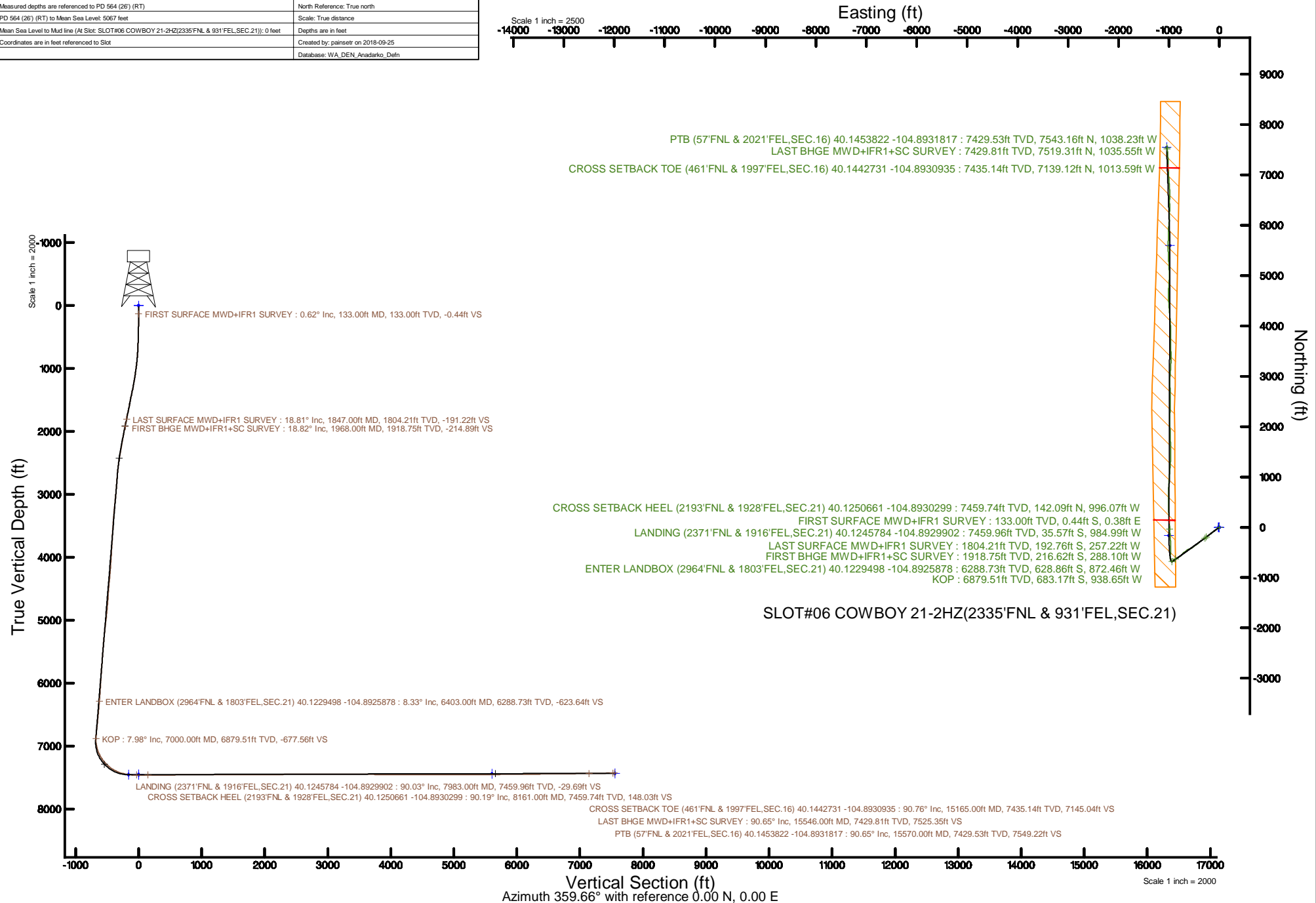


KERR-MCGEE OIL & GAS ONSHORE LP (WA)

Location: COLORADO Slot: SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
 Field: WELD COUNTY (UTM/TRUE NORTH) Well: COWBOY 21-2HZ
 Facility: SEC.21-T2N-R67W Wellbore: COWBOY 21-2HZ PWB

Plot reference wellpath is COWBOY 21-2HZ PWP Rev-8.1	Grid System: NAD83 / UTM Zone 13 North, US feet
True vertical depths are referenced to PD 564 (26) (RT)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to PD 564 (26) (RT)	North Reference: True north
PD 564 (26) (RT) to Mean Sea Level: 5067 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr on 2018-09-25
	Database: WA_DEN_Anadarko_Defn



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWB
Facility	SEC.21-T2N-R67W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 13 North, US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Painsetr
Scale	0.999601	Report Generated	9/25/2018 at 8:17 AM
Convergence at slot	0.08° East	Database/Source file	WA_DEN_Anadarko_Defn/COWBOY_21-2HZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1881.18	-270.72	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W
Facility Reference Pt			1671583.13	14574033.54	40°07'47.424"N	104°53'18.600"W
Field Reference Pt			1698235.31	14552047.82	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	PD 564 (26') (RT) to Facility Vertical Datum	5067.00ft
Horizontal Reference Pt	Slot	PD 564 (26') (RT) to Mean Sea Level	5067.00ft
Vertical Reference Pt	PD 564 (26') (RT)	PD 564 (26') (RT) to Mud Line at Slot (SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21))	5067.00ft
MD Reference Pt	PD 564 (26') (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.66°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWP
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (212 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	139.180	0.00	0.00	0.00	0.00	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W	0.00	
26.00	0.000	139.180	26.00	0.00	0.00	0.00	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W	0.00	
133.00	0.620	139.180	133.00	-0.44	-0.44	0.38	1671315.25	14572152.34	40°07'28.830"N	104°53'22.080"W	0.58	FIRST SURFACE MWD+IFR1 SURVEY
165.00	0.570	137.950	165.00	-0.69	-0.69	0.60	1671315.47	14572152.10	40°07'28.827"N	104°53'22.077"W	0.16	
196.00	0.440	209.760	196.00	-0.91	-0.91	0.64	1671315.52	14572151.88	40°07'28.825"N	104°53'22.077"W	1.94	
228.00	0.830	223.820	227.99	-1.18	-1.18	0.42	1671315.30	14572151.60	40°07'28.822"N	104°53'22.080"W	1.30	
260.00	1.050	233.580	259.99	-1.52	-1.52	0.02	1671314.90	14572151.26	40°07'28.819"N	104°53'22.085"W	0.85	
292.00	1.230	238.500	291.98	-1.87	-1.87	-0.50	1671314.37	14572150.91	40°07'28.815"N	104°53'22.091"W	0.64	
323.00	1.490	240.700	322.97	-2.24	-2.24	-1.14	1671313.74	14572150.54	40°07'28.812"N	104°53'22.100"W	0.86	
355.00	1.890	240.520	354.96	-2.70	-2.71	-1.96	1671312.92	14572150.07	40°07'28.807"N	104°53'22.110"W	1.25	
387.00	2.110	242.460	386.94	-3.22	-3.24	-2.94	1671311.94	14572149.54	40°07'28.802"N	104°53'22.123"W	0.72	
419.00	2.420	245.440	418.92	-3.77	-3.79	-4.08	1671310.80	14572148.98	40°07'28.797"N	104°53'22.138"W	1.04	
451.00	2.810	242.280	450.88	-4.41	-4.44	-5.39	1671309.49	14572148.34	40°07'28.790"N	104°53'22.154"W	1.30	
483.00	3.080	239.380	482.84	-5.20	-5.24	-6.82	1671308.06	14572147.53	40°07'28.782"N	104°53'22.173"W	0.96	
514.00	3.600	239.640	513.79	-6.11	-6.16	-8.38	1671306.51	14572146.62	40°07'28.773"N	104°53'22.193"W	1.68	
546.00	3.910	241.230	545.72	-7.13	-7.19	-10.20	1671304.69	14572145.58	40°07'28.763"N	104°53'22.216"W	1.02	
578.00	4.130	243.340	577.64	-8.16	-8.23	-12.19	1671302.70	14572144.54	40°07'28.753"N	104°53'22.242"W	0.83	
609.00	4.750	240.520	608.55	-9.28	-9.37	-14.30	1671300.59	14572143.40	40°07'28.741"N	104°53'22.269"W	2.12	
641.00	5.190	240.430	640.43	-10.63	-10.73	-16.72	1671298.18	14572142.03	40°07'28.728"N	104°53'22.300"W	1.38	
673.00	5.630	239.730	672.28	-12.12	-12.24	-19.33	1671295.57	14572140.53	40°07'28.713"N	104°53'22.334"W	1.39	
704.00	5.930	241.140	703.13	-13.64	-13.78	-22.05	1671292.85	14572138.98	40°07'28.698"N	104°53'22.369"W	1.07	
736.00	6.330	237.620	734.94	-15.37	-15.52	-24.98	1671289.92	14572137.24	40°07'28.681"N	104°53'22.407"W	1.71	
768.00	6.860	233.840	766.73	-17.42	-17.59	-28.02	1671286.89	14572135.16	40°07'28.660"N	104°53'22.446"W	2.14	
800.00	7.340	232.610	798.49	-19.77	-19.96	-31.18	1671283.73	14572132.79	40°07'28.637"N	104°53'22.486"W	1.57	
831.00	8.390	231.820	829.19	-22.35	-22.56	-34.54	1671280.38	14572130.19	40°07'28.611"N	104°53'22.530"W	3.40	
863.00	9.400	232.790	860.81	-25.35	-25.58	-38.45	1671276.47	14572127.16	40°07'28.581"N	104°53'22.580"W	3.19	
895.00	10.060	232.880	892.35	-28.60	-28.85	-42.76	1671272.17	14572123.89	40°07'28.549"N	104°53'22.635"W	2.06	
927.00	10.460	233.400	923.84	-31.99	-32.27	-47.32	1671267.61	14572120.47	40°07'28.515"N	104°53'22.694"W	1.28	
958.00	10.990	232.790	954.29	-35.42	-35.73	-51.93	1671263.01	14572117.00	40°07'28.481"N	104°53'22.754"W	1.75	
1054.00	13.620	233.400	1048.08	-47.60	-48.01	-68.30	1671246.66	14572104.71	40°07'28.360"N	104°53'22.964"W	2.74	
1085.00	14.060	232.170	1078.18	-52.05	-52.50	-74.20	1671240.77	14572100.21	40°07'28.315"N	104°53'23.040"W	1.71	
1117.00	14.940	233.050	1109.16	-56.88	-57.36	-80.57	1671234.41	14572095.35	40°07'28.267"N	104°53'23.122"W	2.83	
1149.00	15.030	232.880	1140.07	-61.82	-62.34	-87.18	1671227.81	14572090.36	40°07'28.218"N	104°53'23.207"W	0.31	
1181.00	15.340	232.880	1170.96	-66.84	-67.40	-93.86	1671221.14	14572085.29	40°07'28.168"N	104°53'23.293"W	0.97	
1212.00	15.950	233.400	1200.81	-71.81	-72.42	-100.55	1671214.46	14572080.27	40°07'28.118"N	104°53'23.379"W	2.02	
1244.00	16.220	233.670	1231.55	-77.04	-77.68	-107.68	1671207.34	14572074.99	40°07'28.066"N	104°53'23.471"W	0.88	
1276.00	16.480	234.370	1262.26	-82.29	-82.98	-114.97	1671200.06	14572069.70	40°07'28.014"N	104°53'23.565"W	1.02	
1307.00	16.960	233.490	1291.95	-87.50	-88.23	-122.18	1671192.86	14572064.44	40°07'27.962"N	104°53'23.658"W	1.75	
1339.00	18.110	232.260	1322.46	-93.27	-94.05	-129.86	1671185.18	14572058.61	40°07'27.905"N	104°53'23.757"W	3.78	
1402.00	19.600	232.260	1382.08	-105.64	-106.51	-145.96	1671169.11	14572046.13	40°07'27.781"N	104°53'23.964"W	2.37	
1434.00	19.120	232.700	1412.27	-112.05	-112.97	-154.37	1671160.70	14572039.66	40°07'27.718"N	104°53'24.072"W	1.57	
1465.00	18.940	232.090	1441.58	-118.17	-119.14	-162.38	1671152.71	14572033.49	40°07'27.657"N	104°53'24.175"W	0.87	
1497.00	18.410	231.730	1471.89	-124.44	-125.46	-170.45	1671144.65	14572027.16	40°07'27.594"N	104°53'24.279"W	1.69	
1529.00	18.410	232.000	1502.25	-130.63	-131.70	-178.40	1671136.71	14572020.91	40°07'27.533"N	104°53'24.381"W	0.27	
1560.00	17.620	231.820	1531.73	-136.50	-137.62	-185.94	1671129.18	14572014.99	40°07'27.474"N	104°53'24.479"W	2.55	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (212 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
1591.00	17.620	232.350	1561.28	-142.22	-143.38	-193.34	1671121.79	14572009.22	40°07'27.417"N	104°53'24.574"W	0.52	
1623.00	17.970	232.610	1591.75	-148.13	-149.34	-201.10	1671114.04	14572003.25	40°07'27.358"N	104°53'24.674"W	1.12	
1655.00	18.370	232.170	1622.15	-154.18	-155.43	-209.01	1671106.15	14571997.16	40°07'27.298"N	104°53'24.776"W	1.32	
1687.00	18.810	232.260	1652.48	-160.38	-161.68	-217.07	1671098.09	14571990.90	40°07'27.236"N	104°53'24.879"W	1.38	
1750.00	18.460	231.730	1712.18	-172.68	-174.07	-232.93	1671082.25	14571978.49	40°07'27.114"N	104°53'25.084"W	0.62	
1782.00	18.190	232.440	1742.56	-178.81	-180.25	-240.87	1671074.33	14571972.30	40°07'27.053"N	104°53'25.186"W	1.09	
1813.00	18.410	232.610	1771.99	-184.69	-186.18	-248.59	1671066.61	14571966.37	40°07'26.994"N	104°53'25.285"W	0.73	
1847.00	18.810	232.700	1804.21	-191.22	-192.76	-257.22	1671058.00	14571959.78	40°07'26.929"N	104°53'25.396"W	1.18	LAST SURFACE MWD+IFR1 SURVEY
1968.00	18.820	231.920	1918.75	-214.89	-216.62	-288.10	1671027.16	14571935.89	40°07'26.693"N	104°53'25.794"W	0.21	FIRST BHGE MWD+IFR1+SC SURVEY
2058.00	18.500	233.740	2004.02	-232.16	-234.02	-311.04	1671004.25	14571918.47	40°07'26.521"N	104°53'26.089"W	0.74	
2147.00	18.280	237.020	2088.47	-247.97	-249.97	-334.13	1670981.19	14571902.50	40°07'26.364"N	104°53'26.386"W	1.19	
2236.00	18.280	238.330	2172.98	-262.75	-264.89	-357.72	1670957.63	14571887.55	40°07'26.216"N	104°53'26.690"W	0.46	
2326.00	16.810	234.600	2258.80	-277.57	-279.84	-380.35	1670935.03	14571872.58	40°07'26.069"N	104°53'26.981"W	2.06	
2415.00	14.400	227.740	2344.52	-292.36	-294.74	-399.03	1670916.37	14571857.66	40°07'25.921"N	104°53'27.222"W	3.41	
2505.00	12.560	222.990	2432.04	-306.95	-309.43	-413.99	1670901.44	14571842.96	40°07'25.776"N	104°53'27.414"W	2.38	
2594.00	10.300	223.730	2519.26	-319.71	-322.26	-426.09	1670889.36	14571830.12	40°07'25.649"N	104°53'27.570"W	2.54	
2684.00	8.950	227.260	2608.00	-330.21	-332.82	-436.79	1670878.67	14571819.55	40°07'25.545"N	104°53'27.708"W	1.64	
2773.00	8.930	239.540	2695.92	-338.35	-341.03	-447.83	1670867.65	14571811.34	40°07'25.464"N	104°53'27.850"W	2.14	
2863.00	9.180	245.350	2784.80	-344.81	-347.56	-460.38	1670855.11	14571804.79	40°07'25.399"N	104°53'28.011"W	1.05	
2952.00	9.120	241.460	2872.67	-351.06	-353.89	-473.03	1670842.48	14571798.44	40°07'25.337"N	104°53'28.174"W	0.70	
3041.00	9.140	232.460	2960.55	-358.67	-361.57	-484.83	1670830.69	14571790.76	40°07'25.261"N	104°53'28.326"W	1.60	
3131.00	9.100	231.100	3049.41	-367.43	-370.39	-496.04	1670819.50	14571781.92	40°07'25.174"N	104°53'28.470"W	0.24	
3220.00	9.030	232.010	3137.30	-376.08	-379.11	-507.02	1670808.53	14571773.19	40°07'25.088"N	104°53'28.612"W	0.18	
3310.00	7.790	228.520	3226.33	-384.41	-387.50	-517.15	1670798.41	14571764.79	40°07'25.005"N	104°53'28.742"W	1.49	
3399.00	8.090	229.820	3314.48	-392.39	-395.54	-526.46	1670789.12	14571756.75	40°07'24.925"N	104°53'28.862"W	0.39	
3489.00	8.080	236.760	3403.59	-399.88	-403.09	-536.59	1670779.01	14571749.19	40°07'24.851"N	104°53'28.992"W	1.08	
3578.00	8.080	240.190	3491.70	-406.35	-409.63	-547.24	1670768.36	14571742.64	40°07'24.786"N	104°53'29.130"W	0.54	
3668.00	8.040	242.620	3580.81	-412.33	-415.67	-558.32	1670757.29	14571736.59	40°07'24.726"N	104°53'29.272"W	0.38	
3757.00	7.870	244.470	3668.96	-417.75	-421.15	-569.35	1670746.28	14571731.09	40°07'24.672"N	104°53'29.414"W	0.35	
3846.00	7.920	245.780	3757.11	-422.82	-426.30	-580.44	1670735.20	14571725.94	40°07'24.621"N	104°53'29.557"W	0.21	
3936.00	7.840	245.660	3846.26	-427.83	-431.37	-591.68	1670723.96	14571720.85	40°07'24.571"N	104°53'29.702"W	0.09	
4025.00	7.830	247.720	3934.43	-432.56	-436.17	-602.82	1670712.83	14571716.04	40°07'24.524"N	104°53'29.845"W	0.32	
4115.00	7.980	245.420	4023.58	-437.42	-441.09	-614.18	1670701.49	14571711.10	40°07'24.475"N	104°53'29.991"W	0.39	
4204.00	8.200	240.580	4111.69	-443.04	-446.78	-625.33	1670690.36	14571705.40	40°07'24.419"N	104°53'30.135"W	0.80	
4294.00	8.090	235.170	4200.79	-449.74	-453.55	-636.11	1670679.58	14571698.62	40°07'24.352"N	104°53'30.274"W	0.86	
4383.00	8.060	227.150	4288.91	-457.51	-461.37	-645.83	1670669.88	14571690.79	40°07'24.275"N	104°53'30.399"W	1.27	
4472.00	7.930	224.840	4377.04	-466.05	-469.97	-654.73	1670660.99	14571682.19	40°07'24.190"N	104°53'30.513"W	0.39	
4562.00	8.050	232.020	4466.17	-474.27	-478.25	-664.08	1670651.66	14571673.90	40°07'24.108"N	104°53'30.634"W	1.12	
4651.00	7.980	243.320	4554.31	-480.82	-484.86	-674.51	1670641.24	14571667.28	40°07'24.043"N	104°53'30.768"W	1.77	
4741.00	8.080	244.950	4643.42	-486.24	-490.34	-685.82	1670629.94	14571661.79	40°07'23.988"N	104°53'30.913"W	0.28	
4830.00	8.030	237.240	4731.55	-492.18	-496.35	-696.72	1670619.05	14571655.76	40°07'23.929"N	104°53'31.054"W	1.21	
4919.00	8.040	227.940	4819.68	-499.66	-503.89	-706.57	1670609.22	14571648.22	40°07'23.854"N	104°53'31.180"W	1.46	
5009.00	8.240	221.830	4908.77	-508.63	-512.91	-715.54	1670600.26	14571639.19	40°07'23.765"N	104°53'31.296"W	0.99	
5098.00	8.070	214.890	4996.88	-518.46	-522.78	-723.37	1670592.45	14571629.31	40°07'23.668"N	104°53'31.397"W	1.12	
5187.00	8.070	216.720	5085.00	-528.54	-532.92	-730.68	1670585.16	14571619.17	40°07'23.568"N	104°53'31.491"W	0.29	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWP
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (212 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5277.00	8.250	223.340	5174.09	-538.26	-542.68	-738.88	1670576.96	14571609.41	40°07'23.471"N	104°53'31.597"W	1.06	
5366.00	8.340	228.910	5262.16	-547.09	-551.56	-748.13	1670567.73	14571600.51	40°07'23.383"N	104°53'31.716"W	0.91	
5455.00	8.170	232.870	5350.23	-555.09	-559.62	-758.04	1670557.84	14571592.44	40°07'23.304"N	104°53'31.843"W	0.67	
5544.00	8.240	235.760	5438.32	-562.43	-567.03	-768.35	1670547.54	14571585.03	40°07'23.230"N	104°53'31.976"W	0.47	
5634.00	8.270	237.110	5527.39	-569.51	-574.17	-779.12	1670536.78	14571577.87	40°07'23.160"N	104°53'32.114"W	0.22	
5723.00	8.170	235.800	5615.48	-576.48	-581.20	-789.73	1670526.19	14571570.83	40°07'23.090"N	104°53'32.251"W	0.24	
5812.00	8.210	237.090	5703.57	-583.42	-588.21	-800.29	1670515.64	14571563.81	40°07'23.021"N	104°53'32.387"W	0.21	
5902.00	8.200	240.710	5792.65	-589.99	-594.84	-811.28	1670504.66	14571557.17	40°07'22.956"N	104°53'32.528"W	0.57	
5991.00	7.960	241.600	5880.77	-595.96	-600.88	-822.24	1670493.71	14571551.12	40°07'22.896"N	104°53'32.669"W	0.30	
6081.00	7.930	244.080	5969.90	-601.57	-606.55	-833.31	1670482.66	14571545.44	40°07'22.840"N	104°53'32.812"W	0.38	
6170.00	7.880	241.920	6058.06	-607.06	-612.11	-844.21	1670471.77	14571539.87	40°07'22.785"N	104°53'32.952"W	0.34	
6260.00	7.950	241.320	6147.20	-612.89	-618.00	-855.11	1670460.87	14571533.97	40°07'22.727"N	104°53'33.093"W	0.12	
6349.00	8.370	236.540	6235.30	-619.35	-624.53	-865.92	1670450.08	14571527.43	40°07'22.662"N	104°53'33.232"W	0.90	
6403.00†	8.334	236.420	6288.73	-623.64	-628.86	-872.46	1670443.55	14571523.09	40°07'22.619"N	104°53'33.316"W	0.07	ENTER LANDBOX (2964'FNL & 1803'FEL,SEC.21) 40.1229498 -104.8925878
6439.00	8.310	236.340	6324.35	-626.50	-631.74	-876.80	1670439.22	14571520.20	40°07'22.591"N	104°53'33.372"W	0.07	
6528.00	8.380	233.090	6412.41	-633.89	-639.20	-887.33	1670428.69	14571512.73	40°07'22.517"N	104°53'33.507"W	0.54	
6618.00	8.340	229.210	6501.45	-642.04	-647.40	-897.52	1670418.52	14571504.52	40°07'22.436"N	104°53'33.639"W	0.63	
6707.00	8.190	225.390	6589.53	-650.65	-656.07	-906.92	1670409.14	14571495.84	40°07'22.350"N	104°53'33.760"W	0.64	
6797.00	8.240	225.270	6678.60	-659.63	-665.11	-916.07	1670400.00	14571486.80	40°07'22.261"N	104°53'33.877"W	0.06	
6886.00	8.210	229.660	6766.69	-668.18	-673.72	-925.44	1670390.64	14571478.19	40°07'22.176"N	104°53'33.998"W	0.71	
6976.00	8.330	234.520	6855.75	-676.06	-681.66	-935.65	1670380.45	14571470.23	40°07'22.098"N	104°53'34.129"W	0.79	
7000.00†	7.984	252.475	6879.51	-677.56	-683.17	-938.65	1670377.45	14571468.72	40°07'22.083"N	104°53'34.168"W	10.67	KOP
7065.00	10.670	293.160	6943.72	-676.49	-682.16	-948.50	1670367.60	14571469.71	40°07'22.093"N	104°53'34.295"W	10.67	
7154.00	17.180	335.790	7030.26	-661.13	-666.88	-961.51	1670354.58	14571484.97	40°07'22.244"N	104°53'34.462"W	13.18	
7244.00	24.280	351.460	7114.45	-630.60	-636.40	-969.73	1670346.33	14571515.44	40°07'22.545"N	104°53'34.568"W	9.95	
7333.00	32.570	359.880	7192.68	-588.44	-594.26	-972.50	1670343.50	14571557.56	40°07'22.961"N	104°53'34.604"W	10.33	
7423.00	41.520	3.740	7264.45	-534.34	-540.15	-970.60	1670345.33	14571611.65	40°07'23.496"N	104°53'34.579"W	10.27	
7512.00	50.940	3.830	7325.95	-470.31	-476.09	-966.36	1670349.49	14571675.68	40°07'24.129"N	104°53'34.525"W	10.58	
7602.00	59.620	359.710	7377.18	-396.48	-402.24	-964.22	1670351.54	14571749.50	40°07'24.859"N	104°53'34.497"W	10.35	
7691.00	69.920	355.670	7415.07	-316.15	-321.94	-967.58	1670348.09	14571829.77	40°07'25.652"N	104°53'34.541"W	12.28	
7780.00	77.560	356.780	7439.98	-230.93	-236.74	-973.18	1670342.38	14571914.92	40°07'26.494"N	104°53'34.613"W	8.67	
7870.00	83.370	356.760	7454.88	-142.33	-148.17	-978.18	1670337.27	14572003.46	40°07'27.370"N	104°53'34.677"W	6.46	
7959.00	90.060	356.390	7459.98	-53.65	-59.52	-983.49	1670331.86	14572092.06	40°07'28.246"N	104°53'34.745"W	7.53	
7983.00†	90.028	356.422	7459.96	-29.69	-35.57	-984.99	1670330.32	14572116.00	40°07'28.482"N	104°53'34.765"W	0.19	LANDING (2371'FNL & 1916'FEL,SEC.21) 40.1245784 -104.8929902
8049.00	89.940	356.510	7459.98	36.21	30.30	-989.06	1670326.17	14572181.85	40°07'29.133"N	104°53'34.817"W	0.19	
8138.00	90.250	356.320	7459.83	125.07	119.13	-994.63	1670320.50	14572270.63	40°07'30.011"N	104°53'34.889"W	0.41	
8161.00†	90.194	356.504	7459.74	148.03	142.09	-996.07	1670319.03	14572293.57	40°07'30.238"N	104°53'34.908"W	0.84	CROSS SETBACK HEEL (2193'FNL & 1928'FEL,SEC.21) 40.1250661 -104.8930299
8228.00	90.030	357.040	7459.61	214.94	208.98	-999.84	1670315.18	14572360.43	40°07'30.899"N	104°53'34.956"W	0.84	
8317.00	90.250	356.680	7459.39	303.84	297.84	-1004.71	1670310.20	14572449.26	40°07'31.777"N	104°53'35.019"W	0.47	
8407.00	90.220	357.800	7459.02	393.75	387.74	-1009.05	1670305.75	14572539.11	40°07'32.665"N	104°53'35.075"W	1.24	
8496.00	90.220	359.140	7458.68	482.73	476.70	-1011.42	1670303.27	14572628.04	40°07'33.545"N	104°53'35.105"W	1.51	
8585.00	90.550	359.970	7458.08	571.73	565.70	-1012.11	1670302.46	14572716.99	40°07'34.424"N	104°53'35.114"W	1.00	
8675.00	90.400	1.800	7457.34	661.70	655.68	-1010.72	1670303.74	14572806.94	40°07'35.313"N	104°53'35.096"W	2.04	
8764.00	90.280	3.130	7456.81	750.59	744.59	-1006.90	1670307.46	14572895.83	40°07'36.192"N	104°53'35.047"W	1.50	
8853.00	90.280	3.510	7456.37	839.41	833.44	-1001.74	1670312.50	14572984.65	40°07'37.070"N	104°53'34.981"W	0.43	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWP
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (212 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8943.00	90.030	3.250	7456.13	929.22	923.29	-996.44	1670317.69	14573074.46	40°07'37.958"N	104°53'34.913"W	0.40	
9032.00	90.460	3.740	7455.75	1018.02	1012.12	-991.01	1670323.00	14573163.26	40°07'38.836"N	104°53'34.843"W	0.73	
9122.00	90.280	4.200	7455.17	1107.76	1101.90	-984.78	1670329.12	14573253.02	40°07'39.723"N	104°53'34.763"W	0.55	
9211.00	90.220	3.860	7454.78	1196.50	1190.68	-978.53	1670335.26	14573341.77	40°07'40.600"N	104°53'34.682"W	0.39	
9300.00	90.340	4.010	7454.34	1285.25	1279.47	-972.42	1670341.26	14573430.53	40°07'41.478"N	104°53'34.604"W	0.22	
9390.00	90.220	2.880	7453.90	1375.05	1369.30	-967.01	1670346.55	14573520.33	40°07'42.365"N	104°53'34.534"W	1.26	
9479.00	90.310	0.250	7453.49	1463.99	1458.26	-964.58	1670348.87	14573609.26	40°07'43.245"N	104°53'34.503"W	2.96	
9569.00	90.180	358.030	7453.11	1553.98	1548.25	-965.93	1670347.41	14573699.21	40°07'44.134"N	104°53'34.520"W	2.47	
9658.00	90.120	357.740	7452.87	1642.94	1637.18	-969.21	1670344.02	14573788.10	40°07'45.013"N	104°53'34.563"W	0.33	
9748.00	90.090	357.920	7452.71	1732.89	1727.12	-972.62	1670340.50	14573878.00	40°07'45.901"N	104°53'34.607"W	0.20	
9837.00	90.060	358.080	7452.59	1821.86	1816.07	-975.73	1670337.28	14573966.91	40°07'46.780"N	104°53'34.647"W	0.18	
9927.00	90.220	358.570	7452.37	1911.83	1906.03	-978.36	1670334.54	14574056.83	40°07'47.669"N	104°53'34.680"W	0.57	
10016.00	89.910	359.000	7452.27	2000.82	1995.01	-980.25	1670332.54	14574145.77	40°07'48.549"N	104°53'34.705"W	0.60	
10105.00	90.250	0.030	7452.15	2089.82	2084.00	-981.00	1670331.68	14574234.73	40°07'49.428"N	104°53'34.715"W	1.22	
10195.00	90.180	0.370	7451.81	2179.82	2174.00	-980.69	1670331.88	14574324.69	40°07'50.318"N	104°53'34.711"W	0.39	
10285.00	90.310	0.940	7451.42	2269.80	2263.99	-979.66	1670332.80	14574414.65	40°07'51.207"N	104°53'34.697"W	0.65	
10374.00	90.310	1.170	7450.94	2358.77	2352.98	-978.02	1670334.33	14574503.60	40°07'52.086"N	104°53'34.676"W	0.26	
10463.00	90.120	1.000	7450.61	2447.74	2441.96	-976.33	1670335.90	14574592.55	40°07'52.966"N	104°53'34.655"W	0.29	
10553.00	89.910	0.370	7450.59	2537.73	2531.95	-975.26	1670336.86	14574682.51	40°07'53.855"N	104°53'34.641"W	0.74	
10642.00	89.780	359.230	7450.83	2626.73	2620.95	-975.57	1670336.44	14574771.47	40°07'54.734"N	104°53'34.645"W	1.29	
10732.00	89.940	358.170	7451.05	2716.71	2710.93	-977.61	1670334.29	14574861.40	40°07'55.623"N	104°53'34.671"W	1.19	
10821.00	90.030	357.490	7451.07	2805.67	2799.86	-980.98	1670330.81	14574950.30	40°07'56.502"N	104°53'34.715"W	0.77	
10911.00	90.120	359.840	7450.95	2895.65	2889.83	-983.08	1670328.60	14575040.23	40°07'57.391"N	104°53'34.742"W	2.61	
11000.00	90.280	3.230	7450.64	2984.59	2978.79	-980.69	1670330.88	14575129.15	40°07'58.270"N	104°53'34.711"W	3.81	
11090.00	90.710	4.670	7449.86	3074.33	3068.57	-974.49	1670336.96	14575218.90	40°07'59.158"N	104°53'34.631"W	1.67	
11179.00	90.030	3.890	7449.29	3163.04	3157.31	-967.85	1670343.49	14575307.63	40°08'00.035"N	104°53'34.546"W	1.16	
11269.00	89.910	2.320	7449.34	3252.87	3247.18	-962.98	1670348.25	14575397.46	40°08'00.923"N	104°53'34.483"W	1.75	
11358.00	89.850	1.050	7449.52	3341.81	3336.14	-960.36	1670350.76	14575486.39	40°08'01.802"N	104°53'34.449"W	1.43	
11448.00	89.880	358.730	7449.73	3431.80	3426.13	-960.53	1670350.47	14575576.34	40°08'02.691"N	104°53'34.452"W	2.58	
11537.00	89.910	357.170	7449.90	3520.76	3515.07	-963.72	1670347.18	14575665.25	40°08'03.570"N	104°53'34.493"W	1.75	
11627.00	90.000	359.640	7449.97	3610.73	3605.03	-966.22	1670344.56	14575755.16	40°08'04.459"N	104°53'34.525"W	2.75	
11716.00	89.140	0.440	7450.64	3699.73	3694.03	-966.16	1670344.51	14575844.12	40°08'05.339"N	104°53'34.524"W	1.32	
11806.00	89.110	0.200	7452.01	3789.71	3784.01	-965.66	1670344.90	14575934.08	40°08'06.228"N	104°53'34.518"W	0.27	
11895.00	89.080	358.680	7453.42	3878.70	3873.00	-966.53	1670343.92	14576023.02	40°08'07.107"N	104°53'34.529"W	1.71	
11984.00	89.260	358.200	7454.71	3967.67	3961.95	-968.95	1670341.39	14576111.94	40°08'07.986"N	104°53'34.560"W	0.58	
12074.00	89.050	357.090	7456.03	4057.60	4051.87	-972.65	1670337.58	14576201.81	40°08'08.875"N	104°53'34.608"W	1.26	
12163.00	90.000	355.590	7456.77	4146.44	4140.68	-978.33	1670331.80	14576290.58	40°08'09.752"N	104°53'34.681"W	1.99	
12253.00	90.120	354.820	7456.68	4236.17	4230.36	-985.85	1670324.16	14576380.22	40°08'10.639"N	104°53'34.778"W	0.87	
12342.00	90.120	355.190	7456.49	4324.88	4319.02	-993.60	1670316.31	14576468.84	40°08'11.515"N	104°53'34.878"W	0.42	
12431.00	90.090	356.130	7456.33	4413.66	4407.77	-1000.33	1670309.47	14576557.54	40°08'12.392"N	104°53'34.965"W	1.06	
12521.00	90.180	357.330	7456.12	4503.54	4497.62	-1005.47	1670304.22	14576647.35	40°08'13.280"N	104°53'35.031"W	1.34	
12610.00	90.250	359.350	7455.78	4592.51	4586.58	-1008.05	1670301.53	14576736.26	40°08'14.159"N	104°53'35.064"W	2.27	
12700.00	90.150	1.550	7455.47	4682.50	4676.57	-1007.34	1670302.13	14576826.22	40°08'15.048"N	104°53'35.055"W	2.45	
12789.00	90.150	3.590	7455.23	4771.38	4765.47	-1003.35	1670306.01	14576915.09	40°08'15.927"N	104°53'35.004"W	2.29	
12879.00	90.250	2.690	7454.92	4861.21	4855.34	-998.42	1670310.82	14577004.93	40°08'16.815"N	104°53'34.940"W	1.01	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWP
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (212 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12968.00	90.220	1.140	7454.55	4950.14	4944.28	-995.44	1670313.69	14577093.84	40°08'17.694"N	104°53'34.902"W	1.74	
13057.00	90.180	359.910	7454.24	5039.13	5033.28	-994.63	1670314.39	14577182.80	40°08'18.573"N	104°53'34.892"W	1.38	
13147.00	90.370	358.010	7453.81	5129.11	5123.26	-996.26	1670312.65	14577272.74	40°08'19.462"N	104°53'34.913"W	2.12	
13236.00	90.280	356.470	7453.31	5218.03	5212.15	-1000.55	1670308.25	14577361.60	40°08'20.341"N	104°53'34.968"W	1.73	
13326.00	90.180	356.640	7452.95	5307.90	5301.99	-1005.96	1670302.73	14577451.39	40°08'21.229"N	104°53'35.038"W	0.22	
13415.00	90.280	357.590	7452.59	5396.81	5390.87	-1010.44	1670298.15	14577540.23	40°08'22.107"N	104°53'35.095"W	1.07	
13505.00	90.280	358.900	7452.15	5486.78	5480.83	-1013.19	1670295.28	14577630.15	40°08'22.996"N	104°53'35.131"W	1.46	
13594.00	90.250	0.020	7451.74	5575.77	5569.82	-1014.03	1670294.33	14577719.11	40°08'23.875"N	104°53'35.142"W	1.26	
13683.00	90.060	0.940	7451.50	5664.76	5658.82	-1013.28	1670294.96	14577808.07	40°08'24.755"N	104°53'35.132"W	1.06	
13773.00	90.220	1.190	7451.28	5754.74	5748.80	-1011.61	1670296.53	14577898.02	40°08'25.644"N	104°53'35.111"W	0.33	
13862.00	90.460	1.640	7450.75	5843.69	5837.77	-1009.41	1670298.61	14577986.95	40°08'26.523"N	104°53'35.082"W	0.57	
13952.00	90.770	1.750	7449.78	5933.63	5927.73	-1006.75	1670301.16	14578076.88	40°08'27.412"N	104°53'35.048"W	0.37	
14041.00	90.800	5.300	7448.56	6022.41	6016.54	-1001.28	1670306.52	14578165.66	40°08'28.290"N	104°53'34.978"W	3.99	
14130.00	90.740	3.110	7447.37	6111.11	6105.28	-994.76	1670312.93	14578254.38	40°08'29.167"N	104°53'34.894"W	2.46	
14220.00	90.520	2.170	7446.38	6200.98	6195.18	-990.61	1670316.96	14578344.24	40°08'30.055"N	104°53'34.840"W	1.07	
14309.00	90.460	1.350	7445.62	6289.92	6284.14	-987.88	1670319.58	14578433.17	40°08'30.934"N	104°53'34.805"W	0.92	
14399.00	90.800	359.310	7444.63	6379.90	6374.12	-987.36	1670319.99	14578523.12	40°08'31.823"N	104°53'34.799"W	2.30	
14488.00	90.280	359.540	7443.79	6468.90	6463.11	-988.25	1670318.99	14578612.07	40°08'32.703"N	104°53'34.810"W	0.64	
14578.00	90.770	3.090	7442.96	6558.84	6553.07	-986.19	1670320.94	14578702.00	40°08'33.592"N	104°53'34.784"W	3.98	
14667.00	90.680	358.380	7441.84	6647.79	6642.03	-985.05	1670321.97	14578790.92	40°08'34.471"N	104°53'34.769"W	5.29	
14757.00	90.800	355.880	7440.67	6737.69	6731.91	-989.55	1670317.35	14578880.75	40°08'35.359"N	104°53'34.827"W	2.78	
14846.00	90.800	355.700	7439.43	6826.48	6820.66	-996.09	1670310.71	14578969.46	40°08'36.236"N	104°53'34.911"W	0.20	
14936.00	90.800	356.180	7438.17	6916.28	6910.42	-1002.46	1670304.23	14579059.18	40°08'37.123"N	104°53'34.993"W	0.53	
15025.00	90.680	357.010	7437.02	7005.15	6999.26	-1007.74	1670298.84	14579147.97	40°08'38.001"N	104°53'35.061"W	0.94	
15115.00	90.830	357.790	7435.84	7095.07	7089.16	-1011.82	1670294.65	14579237.83	40°08'38.889"N	104°53'35.114"W	0.88	
15165.00†	90.763	358.166	7435.14	7145.04	7139.12	-1013.59	1670292.82	14579287.77	40°08'39.383"N	104°53'35.137"W	0.76	CROSS SETBACK TOE (461'FNL & 1997'FEL,SEC.16) 40.1442731 -104.8930935
15204.00	90.710	358.460	7434.64	7184.03	7178.10	-1014.74	1670291.63	14579326.74	40°08'39.768"N	104°53'35.152"W	0.76	
15294.00	90.890	358.040	7433.39	7273.99	7268.05	-1017.48	1670288.77	14579416.65	40°08'40.657"N	104°53'35.187"W	0.51	
15383.00	90.800	356.660	7432.07	7362.91	7356.94	-1021.60	1670284.54	14579505.50	40°08'41.536"N	104°53'35.240"W	1.55	
15473.00	90.860	354.900	7430.77	7452.69	7446.68	-1028.22	1670277.81	14579595.20	40°08'42.423"N	104°53'35.325"W	1.96	
15546.00	90.650	353.580	7429.81	7525.35	7519.31	-1035.55	1670270.40	14579667.78	40°08'43.140"N	104°53'35.420"W	1.83	LAST BHGE MWD+IFR1+SC SURVEY
15570.00	90.650	353.580	7429.53	7549.22	7543.16	-1038.23	1670267.69	14579691.62	40°08'43.376"N	104°53'35.454"W	0.00	PTB (57'FNL & 2021'FEL,SEC.16) 40.1453822 -104.8931817

HOLE & CASING SECTIONS - Ref Wellbore: COWBOY 21-2HZ AWP Ref Wellpath: COWBOY 21-2HZ AWP									
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]
9.625in Casing Surface	26.00	1887.00	1861.00	26.00	1842.07	0.00	0.00	-200.60	-267.46

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWB
Facility	SEC.21-T2N-R67W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.09-T2N-R67W	0.00	0.00	-14.84	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
SEC.16-T2N-R67W	0.00	0.00	-14.84	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
SEC.21-T2N-R67W	0.00	0.00	-14.84	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
COWBOY 21-2HZ BHL REV-1(51'FNL & 2029'FEL,SEC.16)	7434.00	7548.53	-1045.82	1670260.09	14579696.98	40°08'43.429"N	104°53'35.552"W	point
COWBOY 21-2HZ LAT. TARGET	7439.31	5597.52	-980.19	1670328.12	14577746.84	40°08'24.149"N	104°53'34.706"W	point
COWBOY 21-2HZ HEEL REV-1(2520'FNL & 1930'FEL,SEC.21)	7455.00	-165.77	-999.75	1670315.73	14571985.83	40°07'27.196"N	104°53'34.955"W	point
COWBOY 21-2HZ LANDBOX	7455.00	0.00	0.00	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W	polygon
COWBOY 21-2HZ SETBACK 1	7455.00	0.00	0.00	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W	polygon
COWBOY 21-2HZ SETBACK 2	7455.00	0.00	0.00	1671314.88	14572152.78	40°07'28.834"N	104°53'22.085"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: COWBOY 21-2HZ AWB Ref Wellpath: COWBOY 21-2HZ AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	1847.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)	Custom APC ISCWSA Rev-2 MWD+IFR1 <133 - 1847>	COWBOY 21-2HZ AWB
1847.00	15546.00	Custom APC ISCWSA REV 2 MWD+IFR1+SC (approximation)	BHGE Custom APC ISCWSA Rev-2 MWD+IFR1+SC <1968 - 15546>	COWBOY 21-2HZ AWB
15546.00	15570.00	Blind Drilling (std)	Projection to bit	COWBOY 21-2HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#06 COWBOY 21-2HZ(2335'FNL & 931'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-2HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-2HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
133.00	0.620	139.180	133.00	FIRST SURFACE MWD+IFR1 SURVEY
1847.00	18.810	232.700	1804.21	LAST SURFACE MWD+IFR1 SURVEY
1968.00	18.820	231.920	1918.75	FIRST BHGE MWD+IFR1+SC SURVEY
6403.00	8.334	236.420	6288.73	ENTER LANDBOX (2964'FNL & 1803'FEL,SEC.21) 40.1229498 -104.8925878
7000.00	7.984	252.475	6879.51	KOP
7983.00	90.028	356.422	7459.96	LANDING (2371'FNL & 1916'FEL,SEC.21) 40.1245784 -104.8929902
8161.00	90.194	356.504	7459.74	CROSS SETBACK HEEL (2193'FNL & 1928'FEL,SEC.21) 40.1250661 -104.8930299
15165.00	90.763	358.166	7435.14	CROSS SETBACK TOE (461'FNL & 1997'FEL,SEC.16) 40.1442731 -104.8930935
15546.00	90.650	353.580	7429.81	LAST BHGE MWD+IFR1+SC SURVEY
15570.00	90.650	353.580	7429.53	PTB (57'FNL & 2021'FEL,SEC.16) 40.1453822 -104.8931817