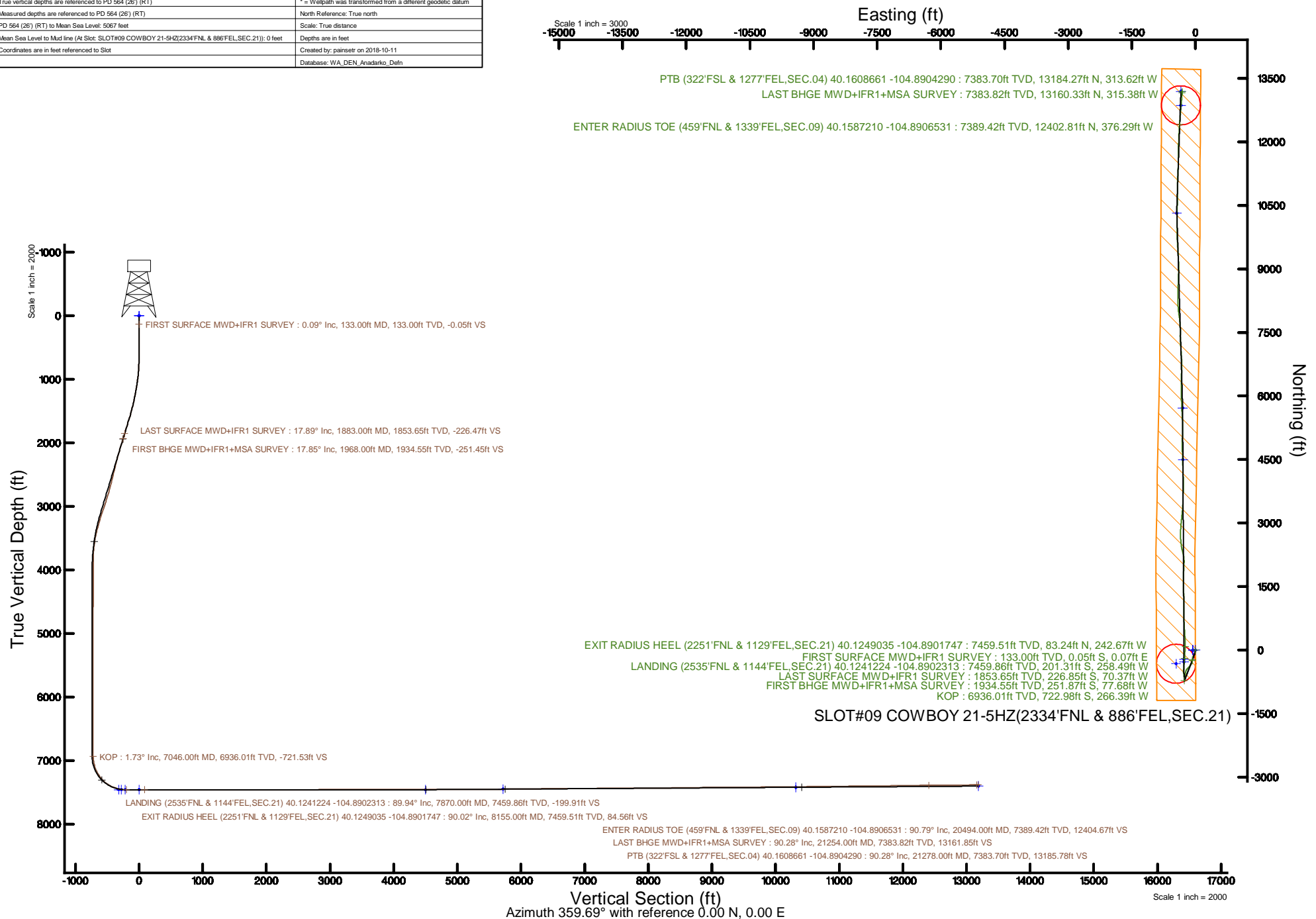


Location:	COLORADO	Slot:	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Field:	WELD COUNTY (UTM/TRUE NORTH)	Well:	COWBOY 21-5HZ
Facility:	SEC.21-T2N-R67W	Wellbore:	COWBOY 21-5HZ PWB



Plot reference wellpath is COWBOY 21-SH2 PWP Rev-A.0	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#09 COWBOY 21-SH2(2334FNL & 886FEL SEC.21)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsett on 2018-10-11
	Database: WA_DEN_Anadarko_Defn



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ 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	10/11/2018 at 8:53 AM
Convergence at slot	0.08° East	Database/Source file	WA_DEN_Anadarko_Defn/COWBOY_21-5HZ_AWP.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1881.58	-225.66	1671359.91	14572152.43	40°07'28.830"N	104°53'21.505"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#09 COWBOY 21-5HZ(2334'FNL & 886'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	359.69°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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	128.460	0.00	0.00	0.00	0.00	1671359.91	14572152.43	40°07'28.830"N	104°53'21.505"W	0.00	
26.00	0.000	128.460	26.00	0.00	0.00	0.00	1671359.91	14572152.43	40°07'28.830"N	104°53'21.505"W	0.00	
133.00	0.090	128.460	133.00	-0.05	-0.05	0.07	1671359.98	14572152.38	40°07'28.829"N	104°53'21.504"W	0.08	FIRST SURFACE MWD+IFR1 SURVEY
165.00	0.040	139.980	165.00	-0.08	-0.08	0.09	1671360.01	14572152.36	40°07'28.829"N	104°53'21.504"W	0.16	
196.00	0.130	98.140	196.00	-0.09	-0.09	0.13	1671360.05	14572152.34	40°07'28.829"N	104°53'21.503"W	0.33	
228.00	0.090	30.640	228.00	-0.07	-0.07	0.18	1671360.10	14572152.36	40°07'28.829"N	104°53'21.503"W	0.40	
260.00	0.040	348.190	260.00	-0.04	-0.04	0.19	1671360.11	14572152.39	40°07'28.830"N	104°53'21.503"W	0.21	
292.00	0.180	324.020	292.00	0.01	0.01	0.16	1671360.07	14572152.44	40°07'28.830"N	104°53'21.503"W	0.45	
323.00	0.220	285.350	323.00	0.07	0.07	0.08	1671359.99	14572152.50	40°07'28.831"N	104°53'21.504"W	0.44	
387.00	0.480	305.470	387.00	0.26	0.25	-0.26	1671359.65	14572152.69	40°07'28.833"N	104°53'21.508"W	0.44	
419.00	0.660	306.260	419.00	0.44	0.44	-0.52	1671359.39	14572152.87	40°07'28.834"N	104°53'21.512"W	0.56	
451.00	0.750	300.640	450.99	0.66	0.66	-0.85	1671359.06	14572153.09	40°07'28.836"N	104°53'21.516"W	0.35	
483.00	1.050	297.120	482.99	0.90	0.90	-1.29	1671358.62	14572153.33	40°07'28.839"N	104°53'21.522"W	0.95	
514.00	1.100	272.080	513.99	1.05	1.04	-1.84	1671358.07	14572153.47	40°07'28.840"N	104°53'21.529"W	1.51	
546.00	1.190	257.050	545.98	0.99	0.97	-2.47	1671357.44	14572153.40	40°07'28.840"N	104°53'21.537"W	0.98	
578.00	1.450	249.140	577.97	0.77	0.76	-3.17	1671356.74	14572153.18	40°07'28.837"N	104°53'21.546"W	0.99	
609.00	1.360	234.990	608.96	0.43	0.40	-3.84	1671356.07	14572152.83	40°07'28.834"N	104°53'21.554"W	1.15	
641.00	1.050	215.910	640.95	-0.03	-0.05	-4.32	1671355.59	14572152.38	40°07'28.829"N	104°53'21.561"W	1.57	
673.00	1.010	184.890	672.95	-0.54	-0.57	-4.52	1671355.40	14572151.86	40°07'28.824"N	104°53'21.563"W	1.73	
704.00	1.190	156.940	703.94	-1.11	-1.14	-4.42	1671355.50	14572151.29	40°07'28.819"N	104°53'21.562"W	1.80	
736.00	1.630	142.520	735.93	-1.78	-1.80	-4.01	1671355.91	14572150.62	40°07'28.812"N	104°53'21.557"W	1.76	
768.00	2.500	144.190	767.91	-2.71	-2.73	-3.32	1671356.59	14572149.70	40°07'28.803"N	104°53'21.548"W	2.72	
800.00	3.080	147.010	799.87	-4.01	-4.02	-2.45	1671357.47	14572148.41	40°07'28.790"N	104°53'21.537"W	1.86	
831.00	3.740	158.780	830.82	-5.65	-5.66	-1.63	1671358.29	14572146.77	40°07'28.774"N	104°53'21.526"W	3.09	
863.00	4.440	168.720	862.74	-7.84	-7.85	-1.01	1671358.92	14572144.59	40°07'28.752"N	104°53'21.518"W	3.11	
895.00	5.190	178.470	894.63	-10.50	-10.51	-0.73	1671359.20	14572141.93	40°07'28.726"N	104°53'21.514"W	3.46	
927.00	6.020	186.210	926.47	-13.62	-13.62	-0.87	1671359.06	14572138.81	40°07'28.695"N	104°53'21.516"W	3.50	
958.00	6.550	190.510	957.29	-16.97	-16.98	-1.37	1671358.57	14572135.46	40°07'28.662"N	104°53'21.523"W	2.29	
990.00	7.080	192.010	989.06	-20.69	-20.70	-2.11	1671357.83	14572131.74	40°07'28.625"N	104°53'21.532"W	1.75	
1022.00	8.040	193.060	1020.78	-24.79	-24.81	-3.03	1671356.92	14572127.63	40°07'28.585"N	104°53'21.544"W	3.03	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
1054.00	8.920	194.820	1052.43	-29.37	-29.39	-4.17	1671355.78	14572123.05	40°07'28.540"N	104°53'21.559"W	2.87	
1085.00	9.580	197.280	1083.03	-34.15	-34.18	-5.55	1671354.41	14572118.26	40°07'28.492"N	104°53'21.576"W	2.48	
1117.00	10.060	198.160	1114.56	-39.33	-39.37	-7.21	1671352.75	14572113.07	40°07'28.441"N	104°53'21.598"W	1.57	
1149.00	10.630	199.830	1146.04	-44.76	-44.81	-9.08	1671350.89	14572107.63	40°07'28.387"N	104°53'21.622"W	2.01	
1181.00	10.810	201.590	1177.48	-50.31	-50.37	-11.19	1671348.79	14572102.07	40°07'28.332"N	104°53'21.649"W	1.17	
1212.00	11.340	200.620	1207.90	-55.86	-55.93	-13.33	1671346.66	14572096.51	40°07'28.277"N	104°53'21.677"W	1.81	
1244.00	11.510	197.460	1239.27	-61.83	-61.92	-15.40	1671344.60	14572090.52	40°07'28.218"N	104°53'21.703"W	2.03	
1276.00	11.910	195.170	1270.60	-68.06	-68.15	-17.22	1671342.79	14572084.29	40°07'28.157"N	104°53'21.727"W	1.92	
1307.00	12.300	195.960	1300.92	-74.31	-74.41	-18.96	1671341.05	14572078.03	40°07'28.095"N	104°53'21.749"W	1.37	
1339.00	12.660	196.580	1332.16	-80.94	-81.05	-20.90	1671339.12	14572071.39	40°07'28.029"N	104°53'21.774"W	1.20	
1370.00	13.180	197.020	1362.37	-87.56	-87.69	-22.91	1671337.13	14572064.75	40°07'27.963"N	104°53'21.800"W	1.71	
1402.00	13.620	197.630	1393.50	-94.63	-94.77	-25.11	1671334.93	14572057.67	40°07'27.894"N	104°53'21.828"W	1.44	
1434.00	14.150	198.510	1424.57	-101.92	-102.07	-27.50	1671332.55	14572050.37	40°07'27.821"N	104°53'21.859"W	1.78	
1465.00	14.850	198.770	1454.58	-109.26	-109.42	-29.98	1671330.08	14572043.02	40°07'27.749"N	104°53'21.891"W	2.27	
1497.00	15.600	199.130	1485.46	-117.19	-117.37	-32.71	1671327.36	14572035.07	40°07'27.670"N	104°53'21.926"W	2.36	
1529.00	16.260	199.650	1516.23	-125.46	-125.65	-35.63	1671324.46	14572026.79	40°07'27.588"N	104°53'21.964"W	2.11	
1560.00	16.920	199.920	1545.94	-133.77	-133.98	-38.62	1671321.47	14572018.46	40°07'27.506"N	104°53'22.002"W	2.14	
1591.00	17.490	200.010	1575.55	-142.37	-142.60	-41.75	1671318.35	14572009.84	40°07'27.421"N	104°53'22.042"W	1.84	
1623.00	18.110	200.530	1606.02	-151.53	-151.78	-45.14	1671314.98	14572000.66	40°07'27.330"N	104°53'22.086"W	2.00	
1655.00	18.630	200.090	1636.39	-160.97	-161.23	-48.64	1671311.49	14571991.20	40°07'27.237"N	104°53'22.131"W	1.68	
1687.00	18.150	199.090	1666.75	-170.46	-170.74	-52.03	1671308.12	14571981.69	40°07'27.143"N	104°53'22.175"W	1.79	
1718.00	18.110	198.340	1696.21	-179.58	-179.88	-55.12	1671305.04	14571972.56	40°07'27.052"N	104°53'22.215"W	0.76	
1750.00	17.140	197.630	1726.71	-188.78	-189.09	-58.12	1671302.06	14571963.34	40°07'26.961"N	104°53'22.253"W	3.10	
1782.00	16.660	197.020	1757.33	-197.64	-197.97	-60.89	1671299.30	14571954.46	40°07'26.874"N	104°53'22.289"W	1.60	
1813.00	17.270	198.600	1786.98	-206.24	-206.59	-63.66	1671296.54	14571945.85	40°07'26.789"N	104°53'22.324"W	2.47	
1843.00	17.890	198.250	1815.58	-214.82	-215.18	-66.52	1671293.69	14571937.26	40°07'26.704"N	104°53'22.361"W	2.10	
1883.00	17.890	198.250	1853.65	-226.47	-226.85	-70.37	1671289.86	14571925.59	40°07'26.588"N	104°53'22.411"W	0.00	LAST SURFACE MWD+IFR1 SURVEY
1968.00	17.850	194.310	1934.55	-251.45	-251.87	-77.68	1671282.58	14571900.56	40°07'26.341"N	104°53'22.505"W	1.42	FIRST BHGE MWD+IFR1+MSA SURVEY
2057.00	17.460	196.570	2019.36	-277.42	-277.89	-84.85	1671275.44	14571874.55	40°07'26.084"N	104°53'22.597"W	0.89	
2146.00	17.680	201.010	2104.21	-302.79	-303.30	-93.51	1671266.82	14571849.13	40°07'25.833"N	104°53'22.709"W	1.53	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
2236.00	17.460	206.480	2190.02	-327.58	-328.15	-104.43	1671255.93	14571824.29	40°07'25.587"N	104°53'22.849"W	1.85	
2325.00	16.870	212.220	2275.06	-350.39	-351.03	-117.27	1671243.13	14571801.40	40°07'25.361"N	104°53'23.015"W	2.01	
2415.00	17.170	217.890	2361.12	-371.84	-372.56	-132.39	1671228.04	14571779.86	40°07'25.148"N	104°53'23.209"W	1.87	
2504.00	18.190	221.080	2445.92	-392.58	-393.40	-149.59	1671210.87	14571759.00	40°07'24.942"N	104°53'23.431"W	1.58	
2594.00	18.010	222.460	2531.47	-413.33	-414.25	-168.21	1671192.28	14571738.14	40°07'24.736"N	104°53'23.670"W	0.52	
2683.00	18.440	222.060	2616.00	-433.83	-434.86	-186.93	1671173.60	14571717.52	40°07'24.533"N	104°53'23.911"W	0.50	
2773.00	18.120	214.690	2701.47	-455.82	-456.93	-204.43	1671156.13	14571695.43	40°07'24.315"N	104°53'24.137"W	2.59	
2862.00	18.340	208.320	2786.01	-479.45	-480.64	-218.95	1671141.65	14571671.71	40°07'24.080"N	104°53'24.324"W	2.25	
2951.00	18.460	200.760	2870.47	-504.89	-506.15	-230.59	1671130.04	14571646.20	40°07'23.828"N	104°53'24.473"W	2.68	
3041.00	18.510	188.600	2955.86	-532.31	-533.61	-237.78	1671122.89	14571618.74	40°07'23.557"N	104°53'24.566"W	4.28	
3130.00	18.490	182.570	3040.27	-560.36	-561.68	-240.53	1671120.18	14571590.68	40°07'23.279"N	104°53'24.601"W	2.15	
3220.00	18.190	183.360	3125.70	-588.64	-589.96	-241.99	1671118.75	14571562.41	40°07'23.000"N	104°53'24.620"W	0.43	
3309.00	17.160	186.750	3210.50	-615.53	-616.87	-244.35	1671116.43	14571535.51	40°07'22.734"N	104°53'24.650"W	1.64	
3399.00	15.610	188.040	3296.84	-640.69	-642.04	-247.60	1671113.21	14571510.34	40°07'22.485"N	104°53'24.692"W	1.77	
3488.00	14.080	189.570	3382.87	-663.20	-664.57	-251.08	1671109.76	14571487.81	40°07'22.263"N	104°53'24.737"W	1.77	
3577.00	11.950	191.730	3469.58	-682.88	-684.27	-254.75	1671106.12	14571468.12	40°07'22.068"N	104°53'24.784"W	2.45	
3667.00	8.700	194.010	3558.11	-698.59	-700.01	-258.29	1671102.59	14571452.39	40°07'21.912"N	104°53'24.830"W	3.64	
3756.00	5.730	195.970	3646.39	-709.38	-710.81	-261.15	1671099.76	14571441.58	40°07'21.806"N	104°53'24.867"W	3.35	
3845.00	3.260	189.370	3735.11	-716.14	-717.58	-262.78	1671098.13	14571434.81	40°07'21.739"N	104°53'24.888"W	2.83	
3935.00	1.200	177.160	3825.04	-719.61	-721.05	-263.15	1671097.76	14571431.35	40°07'21.705"N	104°53'24.892"W	2.34	
4024.00	0.280	268.140	3914.04	-720.54	-721.98	-263.32	1671097.59	14571430.41	40°07'21.695"N	104°53'24.895"W	1.39	
4114.00	0.090	270.820	4004.03	-720.55	-721.99	-263.61	1671097.30	14571430.41	40°07'21.695"N	104°53'24.898"W	0.21	
4203.00	0.090	191.050	4093.03	-720.62	-722.06	-263.70	1671097.22	14571430.34	40°07'21.695"N	104°53'24.899"W	0.13	
4292.00	0.030	188.290	4182.03	-720.71	-722.15	-263.71	1671097.20	14571430.25	40°07'21.694"N	104°53'24.900"W	0.07	
4471.00	0.160	221.300	4361.03	-720.94	-722.38	-263.88	1671097.03	14571430.01	40°07'21.691"N	104°53'24.902"W	0.08	
4561.00	0.140	157.790	4451.03	-721.14	-722.58	-263.93	1671096.99	14571429.82	40°07'21.689"N	104°53'24.902"W	0.18	
4650.00	0.310	239.250	4540.03	-721.36	-722.80	-264.09	1671096.83	14571429.59	40°07'21.687"N	104°53'24.905"W	0.36	
4740.00	0.370	246.900	4630.03	-721.60	-723.04	-264.57	1671096.35	14571429.35	40°07'21.685"N	104°53'24.911"W	0.08	
4829.00	0.110	322.690	4719.03	-721.64	-723.09	-264.88	1671096.03	14571429.31	40°07'21.684"N	104°53'24.915"W	0.40	
4919.00	0.130	276.890	4809.03	-721.56	-723.01	-265.04	1671095.88	14571429.39	40°07'21.685"N	104°53'24.917"W	0.11	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
5008.00	0.360	245.540	4898.03	-721.66	-723.11	-265.39	1671095.53	14571429.28	40°07'21.684"N	104°53'24.921"W	0.29	
5098.00	0.380	188.030	4988.03	-722.07	-723.52	-265.69	1671095.23	14571428.87	40°07'21.680"N	104°53'24.925"W	0.40	
5187.00	0.090	325.220	5077.03	-722.30	-723.76	-265.77	1671095.15	14571428.64	40°07'21.678"N	104°53'24.926"W	0.51	
5277.00	0.110	219.630	5167.03	-722.31	-723.77	-265.87	1671095.05	14571428.63	40°07'21.678"N	104°53'24.927"W	0.18	
5366.00	0.060	306.620	5256.03	-722.35	-723.80	-265.96	1671094.96	14571428.59	40°07'21.677"N	104°53'24.929"W	0.14	
5455.00	0.100	188.770	5345.03	-722.40	-723.85	-266.01	1671094.91	14571428.54	40°07'21.677"N	104°53'24.929"W	0.16	
5545.00	0.070	101.820	5435.03	-722.49	-723.94	-265.97	1671094.95	14571428.45	40°07'21.676"N	104°53'24.929"W	0.13	
5634.00	0.060	212.150	5524.03	-722.54	-723.99	-265.94	1671094.98	14571428.40	40°07'21.675"N	104°53'24.928"W	0.12	
5724.00	0.170	214.620	5614.03	-722.69	-724.14	-266.04	1671094.88	14571428.25	40°07'21.674"N	104°53'24.930"W	0.12	
5813.00	0.060	331.790	5703.03	-722.75	-724.21	-266.14	1671094.78	14571428.18	40°07'21.673"N	104°53'24.931"W	0.23	
5903.00	0.100	301.420	5793.03	-722.67	-724.13	-266.23	1671094.69	14571428.27	40°07'21.674"N	104°53'24.932"W	0.06	
5992.00	0.140	238.880	5882.03	-722.69	-724.14	-266.39	1671094.53	14571428.25	40°07'21.674"N	104°53'24.934"W	0.15	
6081.00	0.070	288.220	5971.03	-722.72	-724.18	-266.53	1671094.39	14571428.21	40°07'21.674"N	104°53'24.936"W	0.12	
6171.00	0.150	176.030	6061.03	-722.82	-724.28	-266.58	1671094.35	14571428.11	40°07'21.673"N	104°53'24.937"W	0.21	
6261.00	0.310	142.450	6151.03	-723.14	-724.59	-266.42	1671094.50	14571427.80	40°07'21.669"N	104°53'24.935"W	0.23	
6350.00	0.340	28.170	6240.03	-723.10	-724.55	-266.15	1671094.77	14571427.84	40°07'21.670"N	104°53'24.931"W	0.61	
6439.00	0.180	295.760	6329.02	-722.80	-724.26	-266.15	1671094.77	14571428.14	40°07'21.673"N	104°53'24.931"W	0.44	
6529.00	0.100	25.090	6419.02	-722.67	-724.12	-266.24	1671094.68	14571428.27	40°07'21.674"N	104°53'24.932"W	0.23	
6618.00	0.060	56.080	6508.02	-722.57	-724.03	-266.17	1671094.75	14571428.36	40°07'21.675"N	104°53'24.931"W	0.06	
6708.00	0.060	334.240	6598.02	-722.50	-723.96	-266.15	1671094.77	14571428.43	40°07'21.676"N	104°53'24.931"W	0.09	
6797.00	0.070	152.710	6687.02	-722.51	-723.97	-266.15	1671094.77	14571428.43	40°07'21.676"N	104°53'24.931"W	0.15	
6886.00	0.130	222.920	6776.02	-722.63	-724.09	-266.19	1671094.73	14571428.30	40°07'21.674"N	104°53'24.932"W	0.14	
6976.00	0.100	331.830	6866.02	-722.64	-724.09	-266.30	1671094.62	14571428.30	40°07'21.674"N	104°53'24.933"W	0.21	
7046.00†	1.734	356.433	6936.01	-721.53	-722.98	-266.39	1671094.53	14571429.41	40°07'21.685"N	104°53'24.934"W	2.35	KOP
7065.00	2.180	356.730	6955.00	-720.88	-722.33	-266.43	1671094.49	14571430.06	40°07'21.692"N	104°53'24.935"W	2.35	
7155.00	12.880	2.120	7044.10	-709.11	-710.57	-266.16	1671094.75	14571441.82	40°07'21.808"N	104°53'24.931"W	11.90	
7244.00	21.060	1.970	7129.15	-683.18	-684.63	-265.24	1671095.63	14571467.75	40°07'22.064"N	104°53'24.919"W	9.19	
7333.00	29.610	354.450	7209.54	-645.23	-646.68	-266.82	1671094.01	14571505.68	40°07'22.439"N	104°53'24.940"W	10.25	
7423.00	40.800	351.090	7282.96	-593.84	-595.34	-273.55	1671087.22	14571557.00	40°07'22.947"N	104°53'25.026"W	12.61	
7512.00	50.310	357.390	7345.24	-530.70	-532.23	-279.63	1671081.06	14571620.07	40°07'23.570"N	104°53'25.105"W	11.81	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWP
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
7602.00	61.090	3.550	7395.92	-456.53	-458.05	-278.76	1671081.84	14571694.22	40°07'24.303"N	104°53'25.093"W	13.24	
7691.00	72.240	5.410	7431.12	-375.23	-376.72	-272.33	1671088.16	14571775.53	40°07'25.107"N	104°53'25.011"W	12.67	
7780.00	80.310	4.620	7452.22	-289.22	-290.66	-264.79	1671095.59	14571861.56	40°07'25.958"N	104°53'24.914"W	9.11	
7870.00	89.940	3.450	7459.86	-199.91	-201.31	-258.49	1671101.77	14571950.88	40°07'26.841"N	104°53'24.833"W	10.78	LANDING (2535'FNL & 1144'FEL,SEC.21) 40.1241224 -104.8902313
7959.00	89.970	2.920	7459.93	-111.07	-112.45	-253.55	1671106.61	14572039.71	40°07'27.719"N	104°53'24.769"W	0.60	
8049.00	90.280	3.630	7459.73	-21.25	-22.60	-248.41	1671111.63	14572129.53	40°07'28.607"N	104°53'24.703"W	0.86	
8138.00	90.000	2.800	7459.52	67.58	66.26	-243.42	1671116.51	14572218.36	40°07'29.485"N	104°53'24.639"W	0.98	
8155.00†	90.023	2.204	7459.51	84.56	83.24	-242.67	1671117.23	14572235.34	40°07'29.653"N	104°53'24.629"W	3.51	EXIT RADIUS HEEL (2251'FNL & 1129'FEL,SEC.21) 40.1249035 -104.8901747
8227.00	90.120	359.680	7459.42	156.54	155.23	-241.49	1671118.33	14572307.30	40°07'30.364"N	104°53'24.614"W	3.51	
8316.00	89.910	357.140	7459.40	245.51	244.19	-243.96	1671115.75	14572396.22	40°07'31.243"N	104°53'24.646"W	2.86	
8406.00	90.000	356.470	7459.47	335.39	334.05	-248.98	1671110.62	14572486.03	40°07'32.131"N	104°53'24.710"W	0.75	
8495.00	90.030	356.490	7459.45	424.25	422.88	-254.44	1671105.05	14572574.82	40°07'33.009"N	104°53'24.780"W	0.04	
8584.00	90.060	355.980	7459.38	513.09	511.68	-260.28	1671099.10	14572663.59	40°07'33.887"N	104°53'24.856"W	0.57	
8674.00	90.370	357.040	7459.04	602.95	601.52	-265.76	1671093.51	14572753.38	40°07'34.774"N	104°53'24.926"W	1.23	
8763.00	90.180	358.610	7458.61	691.90	690.45	-269.14	1671090.02	14572842.27	40°07'35.653"N	104°53'24.970"W	1.78	
8851.00	89.910	359.110	7458.54	779.89	778.43	-270.89	1671088.16	14572930.21	40°07'36.523"N	104°53'24.992"W	0.65	
8940.00	90.030	359.900	7458.59	868.89	867.43	-271.66	1671087.28	14573019.17	40°07'37.402"N	104°53'25.002"W	0.90	
9030.00	90.090	0.360	7458.49	958.88	957.43	-271.46	1671087.37	14573109.14	40°07'38.291"N	104°53'25.000"W	0.52	
9119.00	89.940	359.660	7458.47	1047.88	1046.42	-271.44	1671087.28	14573198.10	40°07'39.171"N	104°53'24.999"W	0.80	
9209.00	89.910	359.090	7458.59	1137.88	1136.42	-272.42	1671086.19	14573288.06	40°07'40.060"N	104°53'25.012"W	0.63	
9299.00	89.820	358.100	7458.80	1227.86	1226.39	-274.63	1671083.87	14573377.99	40°07'40.949"N	104°53'25.040"W	1.10	
9388.00	89.970	358.230	7458.96	1316.83	1315.34	-277.48	1671080.91	14573466.90	40°07'41.828"N	104°53'25.077"W	0.22	
9477.00	89.750	357.990	7459.18	1405.80	1404.30	-280.41	1671077.86	14573555.82	40°07'42.707"N	104°53'25.115"W	0.37	
9567.00	90.120	358.750	7459.28	1495.77	1494.26	-282.97	1671075.19	14573645.74	40°07'43.596"N	104°53'25.148"W	0.94	
9656.00	90.030	358.990	7459.17	1584.76	1583.24	-284.73	1671073.33	14573734.68	40°07'44.476"N	104°53'25.171"W	0.29	
9746.00	90.180	359.020	7459.00	1674.76	1673.23	-286.29	1671071.65	14573824.63	40°07'45.365"N	104°53'25.191"W	0.17	
9835.00	89.910	3.000	7458.93	1763.72	1762.20	-284.72	1671073.11	14573913.57	40°07'46.244"N	104°53'25.171"W	4.48	
9925.00	90.060	3.380	7458.96	1853.55	1852.06	-279.72	1671078.00	14574003.40	40°07'47.132"N	104°53'25.106"W	0.45	
10014.00	89.880	2.630	7459.00	1942.40	1940.93	-275.05	1671082.56	14574092.24	40°07'48.010"N	104°53'25.046"W	0.87	
10103.00	89.940	3.950	7459.14	2031.22	2029.78	-269.94	1671087.55	14574181.07	40°07'48.889"N	104°53'24.980"W	1.48	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
10193.00	89.910	357.540	7459.26	2121.16	2119.73	-268.77	1671088.61	14574270.98	40°07'49.777"N	104°53'24.965"W	7.12	
10282.00	89.970	350.030	7459.35	2209.62	2208.14	-278.40	1671078.88	14574359.34	40°07'50.651"N	104°53'25.089"W	8.44	
10372.00	89.850	345.660	7459.50	2297.68	2296.10	-297.35	1671059.83	14574447.25	40°07'51.520"N	104°53'25.333"W	4.86	
10461.00	89.940	347.990	7459.66	2384.44	2382.76	-317.63	1671039.44	14574533.84	40°07'52.377"N	104°53'25.594"W	2.62	
10551.00	90.060	351.640	7459.66	2473.10	2471.32	-333.54	1671023.43	14574622.35	40°07'53.252"N	104°53'25.799"W	4.06	
10640.00	89.970	354.190	7459.63	2561.47	2559.64	-344.52	1671012.35	14574710.61	40°07'54.125"N	104°53'25.940"W	2.87	
10729.00	90.430	358.410	7459.32	2650.29	2648.43	-350.26	1671006.50	14574799.36	40°07'55.002"N	104°53'26.014"W	4.77	
10819.00	90.550	359.970	7458.55	2740.28	2738.41	-351.53	1671005.11	14574889.31	40°07'55.891"N	104°53'26.031"W	1.74	
10908.00	90.370	2.160	7457.84	2829.25	2827.39	-349.88	1671006.66	14574978.25	40°07'56.771"N	104°53'26.010"W	2.47	
10998.00	90.150	4.090	7457.43	2919.08	2917.25	-344.97	1671011.45	14575068.08	40°07'57.659"N	104°53'25.946"W	2.16	
11087.00	90.150	5.400	7457.20	3007.73	3005.94	-337.61	1671018.70	14575156.75	40°07'58.535"N	104°53'25.852"W	1.47	
11177.00	90.090	6.590	7457.01	3097.19	3095.45	-328.21	1671027.98	14575246.23	40°07'59.420"N	104°53'25.731"W	1.32	
11266.00	90.060	5.860	7456.89	3185.61	3183.92	-318.56	1671037.52	14575334.68	40°08'00.294"N	104°53'25.606"W	0.82	
11355.00	90.000	5.180	7456.85	3274.15	3272.51	-310.00	1671045.96	14575423.24	40°08'01.169"N	104°53'25.496"W	0.77	
11445.00	89.940	3.970	7456.89	3363.82	3362.22	-302.82	1671053.03	14575512.93	40°08'02.056"N	104°53'25.404"W	1.35	
11534.00	89.970	3.930	7456.96	3452.57	3451.01	-296.69	1671059.05	14575601.69	40°08'02.933"N	104°53'25.325"W	0.06	
11624.00	90.220	1.120	7456.81	3542.45	3540.91	-292.73	1671062.90	14575691.56	40°08'03.822"N	104°53'25.274"W	3.13	
11713.00	90.090	1.450	7456.57	3631.42	3629.89	-290.73	1671064.78	14575780.51	40°08'04.701"N	104°53'25.248"W	0.40	
11802.00	90.090	1.530	7456.43	3720.37	3718.86	-288.42	1671066.98	14575869.44	40°08'05.580"N	104°53'25.218"W	0.09	
11892.00	89.910	1.590	7456.43	3810.32	3808.83	-285.97	1671069.32	14575959.38	40°08'06.469"N	104°53'25.187"W	0.21	
11981.00	89.940	359.830	7456.55	3899.31	3897.82	-284.86	1671070.31	14576048.33	40°08'07.349"N	104°53'25.173"W	1.98	
12070.00	90.090	358.710	7456.53	3988.30	3986.81	-286.00	1671069.07	14576137.29	40°08'08.228"N	104°53'25.187"W	1.27	
12160.00	89.970	358.730	7456.48	4078.29	4076.79	-288.01	1671066.95	14576227.22	40°08'09.117"N	104°53'25.213"W	0.14	
12249.00	90.090	357.540	7456.43	4167.26	4165.74	-290.90	1671063.94	14576316.14	40°08'09.996"N	104°53'25.250"W	1.34	
12339.00	90.090	357.610	7456.29	4257.19	4255.66	-294.71	1671060.02	14576406.01	40°08'10.885"N	104°53'25.299"W	0.08	
12428.00	90.250	357.840	7456.03	4346.14	4344.59	-298.24	1671056.38	14576494.90	40°08'11.764"N	104°53'25.345"W	0.31	
12518.00	89.910	357.990	7455.90	4436.10	4434.53	-301.52	1671053.00	14576584.80	40°08'12.652"N	104°53'25.387"W	0.41	
12607.00	89.940	358.330	7456.02	4525.07	4523.48	-304.38	1671050.03	14576673.72	40°08'13.531"N	104°53'25.424"W	0.38	
12697.00	89.970	358.330	7456.09	4615.04	4613.44	-307.00	1671047.30	14576763.64	40°08'14.420"N	104°53'25.458"W	0.03	
12786.00	90.060	358.390	7456.07	4704.02	4702.41	-309.55	1671044.64	14576852.57	40°08'15.300"N	104°53'25.491"W	0.12	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
12875.00	89.970	358.300	7456.04	4792.99	4791.37	-312.12	1671041.96	14576941.49	40°08'16.179"N	104°53'25.524"W	0.14	
12965.00	90.150	0.220	7455.95	4882.99	4881.36	-313.28	1671040.68	14577031.44	40°08'17.068"N	104°53'25.539"W	2.14	
13054.00	90.030	2.840	7455.81	4971.93	4970.32	-310.90	1671042.95	14577120.37	40°08'17.947"N	104°53'25.508"W	2.95	
13144.00	90.220	2.080	7455.61	5061.83	5060.23	-307.04	1671046.70	14577210.25	40°08'18.836"N	104°53'25.458"W	0.87	
13234.00	89.970	0.420	7455.46	5151.79	5150.21	-305.08	1671048.55	14577300.19	40°08'19.725"N	104°53'25.433"W	1.87	
13323.00	90.090	358.860	7455.42	5240.79	5239.20	-305.64	1671047.88	14577389.15	40°08'20.604"N	104°53'25.440"W	1.76	
13412.00	90.000	359.540	7455.35	5329.78	5328.19	-306.88	1671046.53	14577478.11	40°08'21.484"N	104°53'25.456"W	0.77	
13502.00	90.550	358.550	7454.91	5419.77	5418.18	-308.38	1671044.91	14577568.05	40°08'22.373"N	104°53'25.476"W	1.26	
13591.00	90.620	357.600	7454.01	5508.73	5507.12	-311.37	1671041.82	14577656.96	40°08'23.252"N	104°53'25.514"W	1.07	
13681.00	90.740	356.140	7452.94	5598.62	5596.98	-316.28	1671036.79	14577746.77	40°08'24.140"N	104°53'25.577"W	1.63	
13770.00	90.740	357.600	7451.79	5687.50	5685.84	-321.14	1671031.82	14577835.59	40°08'25.018"N	104°53'25.640"W	1.64	
13860.00	90.520	358.790	7450.80	5777.46	5775.79	-323.98	1671028.88	14577925.50	40°08'25.907"N	104°53'25.677"W	1.34	
13949.00	90.490	356.150	7450.01	5866.38	5864.69	-327.90	1671024.84	14578014.36	40°08'26.785"N	104°53'25.727"W	2.97	
14039.00	90.830	358.350	7448.98	5956.29	5954.57	-332.22	1671020.41	14578104.20	40°08'27.674"N	104°53'25.783"W	2.47	
14128.00	90.830	0.460	7447.69	6045.27	6043.55	-333.15	1671019.38	14578193.15	40°08'28.553"N	104°53'25.795"W	2.37	
14218.00	90.550	0.780	7446.60	6135.25	6133.54	-332.17	1671020.24	14578283.10	40°08'29.442"N	104°53'25.782"W	0.47	
14307.00	90.710	359.970	7445.63	6224.24	6222.53	-331.59	1671020.71	14578372.06	40°08'30.322"N	104°53'25.775"W	0.93	
14397.00	90.550	359.950	7444.64	6314.24	6312.53	-331.65	1671020.54	14578462.01	40°08'31.211"N	104°53'25.775"W	0.18	
14486.00	90.740	0.130	7443.63	6403.23	6401.52	-331.59	1671020.49	14578550.97	40°08'32.090"N	104°53'25.775"W	0.29	
14576.00	90.680	1.950	7442.52	6493.19	6491.50	-329.96	1671022.01	14578640.91	40°08'32.980"N	104°53'25.754"W	2.02	
14665.00	90.310	1.900	7441.75	6582.12	6580.44	-326.97	1671024.89	14578729.83	40°08'33.859"N	104°53'25.715"W	0.42	
14754.00	90.340	0.340	7441.25	6671.09	6669.42	-325.23	1671026.52	14578818.77	40°08'34.738"N	104°53'25.693"W	1.75	
14844.00	90.340	359.010	7440.71	6761.09	6759.42	-325.74	1671025.89	14578908.73	40°08'35.627"N	104°53'25.699"W	1.48	
14933.00	90.340	358.490	7440.18	6850.07	6848.39	-327.68	1671023.84	14578997.67	40°08'36.506"N	104°53'25.724"W	0.58	
15023.00	90.400	356.840	7439.60	6940.01	6938.31	-331.35	1671020.07	14579087.55	40°08'37.395"N	104°53'25.772"W	1.83	
15112.00	90.460	355.650	7438.93	7028.85	7027.12	-337.17	1671014.13	14579176.31	40°08'38.273"N	104°53'25.847"W	1.34	
15201.00	90.250	355.360	7438.38	7117.61	7115.84	-344.15	1671007.05	14579264.99	40°08'39.149"N	104°53'25.937"W	0.40	
15291.00	90.460	356.490	7437.82	7207.41	7205.61	-350.54	1671000.54	14579354.72	40°08'40.037"N	104°53'26.019"W	1.28	
15380.00	90.400	357.230	7437.16	7296.30	7294.48	-355.42	1670995.56	14579443.54	40°08'40.915"N	104°53'26.082"W	0.83	
15470.00	90.400	359.070	7436.53	7386.26	7384.42	-358.32	1670992.54	14579533.44	40°08'41.804"N	104°53'26.119"W	2.04	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
15559.00	90.280	1.610	7436.00	7475.24	7473.41	-357.80	1670992.96	14579622.40	40°08'42.683"N	104°53'26.112"W	2.86	
15649.00	90.250	359.500	7435.58	7565.23	7563.40	-356.92	1670993.72	14579712.35	40°08'43.572"N	104°53'26.101"W	2.34	
15738.00	90.400	355.690	7435.08	7654.15	7652.31	-360.66	1670989.88	14579801.22	40°08'44.451"N	104°53'26.149"W	4.28	
15827.00	90.180	355.080	7434.63	7742.90	7741.02	-367.82	1670982.61	14579889.88	40°08'45.327"N	104°53'26.241"W	0.73	
15917.00	90.250	353.150	7434.29	7832.47	7830.54	-377.05	1670973.27	14579979.36	40°08'46.212"N	104°53'26.360"W	2.15	
16006.00	90.120	351.650	7434.00	7920.75	7918.75	-388.82	1670961.40	14580067.52	40°08'47.084"N	104°53'26.512"W	1.69	
16096.00	90.310	353.760	7433.67	8010.07	8008.02	-400.24	1670949.86	14580156.74	40°08'47.966"N	104°53'26.659"W	2.35	
16185.00	90.220	355.950	7433.25	8098.75	8096.65	-408.23	1670941.77	14580245.33	40°08'48.842"N	104°53'26.762"W	2.46	
16275.00	90.400	359.030	7432.77	8188.67	8186.55	-412.17	1670937.72	14580335.19	40°08'49.730"N	104°53'26.813"W	3.43	
16364.00	90.490	1.500	7432.08	8277.66	8275.54	-411.75	1670938.02	14580424.14	40°08'50.610"N	104°53'26.807"W	2.78	
16453.00	90.550	0.800	7431.27	8366.62	8364.52	-409.97	1670939.70	14580513.09	40°08'51.489"N	104°53'26.784"W	0.79	
16543.00	90.740	359.730	7430.25	8456.61	8454.51	-409.55	1670940.00	14580603.04	40°08'52.378"N	104°53'26.779"W	1.21	
16632.00	90.890	0.110	7428.99	8545.60	8543.50	-409.68	1670939.77	14580692.00	40°08'53.258"N	104°53'26.781"W	0.46	
16722.00	90.770	2.120	7427.68	8635.56	8633.47	-407.93	1670941.41	14580781.93	40°08'54.147"N	104°53'26.758"W	2.24	
16811.00	90.950	2.220	7426.35	8724.47	8722.40	-404.56	1670944.66	14580870.83	40°08'55.025"N	104°53'26.715"W	0.23	
16900.00	90.800	2.080	7424.99	8813.37	8811.33	-401.22	1670947.89	14580959.72	40°08'55.904"N	104°53'26.672"W	0.23	
16990.00	90.710	1.650	7423.80	8903.30	8901.27	-398.29	1670950.71	14581049.63	40°08'56.793"N	104°53'26.634"W	0.49	
17080.00	90.180	1.400	7423.10	8993.25	8991.24	-395.89	1670952.99	14581139.56	40°08'57.682"N	104°53'26.603"W	0.65	
17169.00	90.370	358.960	7422.68	9082.24	9080.23	-395.61	1670953.16	14581228.52	40°08'58.562"N	104°53'26.600"W	2.75	
17258.00	90.310	357.600	7422.15	9171.21	9169.18	-398.28	1670950.38	14581317.44	40°08'59.441"N	104°53'26.634"W	1.53	
17348.00	90.310	357.090	7421.66	9261.13	9259.09	-402.45	1670946.10	14581407.30	40°09'00.329"N	104°53'26.688"W	0.57	
17437.00	90.310	356.450	7421.18	9350.02	9347.94	-407.47	1670940.97	14581496.11	40°09'01.207"N	104°53'26.752"W	0.72	
17527.00	90.370	356.310	7420.65	9439.86	9437.76	-413.15	1670935.18	14581585.89	40°09'02.095"N	104°53'26.826"W	0.17	
17616.00	90.490	355.690	7419.98	9528.68	9526.54	-419.36	1670928.87	14581674.63	40°09'02.972"N	104°53'26.905"W	0.71	
17706.00	90.460	357.030	7419.23	9618.52	9616.35	-425.07	1670923.04	14581764.40	40°09'03.860"N	104°53'26.979"W	1.49	
17795.00	90.490	357.560	7418.49	9707.44	9705.25	-429.27	1670918.73	14581853.25	40°09'04.738"N	104°53'27.033"W	0.60	
17885.00	90.460	358.070	7417.75	9797.39	9795.18	-432.70	1670915.19	14581943.14	40°09'05.627"N	104°53'27.077"W	0.57	
17974.00	90.340	359.060	7417.13	9886.37	9884.15	-434.93	1670912.85	14582032.07	40°09'06.506"N	104°53'27.106"W	1.12	
18064.00	90.400	359.940	7416.55	9976.36	9974.15	-435.72	1670911.96	14582122.03	40°09'07.395"N	104°53'27.116"W	0.98	
18153.00	90.310	359.830	7415.99	10065.36	10063.14	-435.90	1670911.67	14582210.99	40°09'08.275"N	104°53'27.119"W	0.16	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
18243.00	90.340	0.570	7415.48	10155.36	10153.14	-435.58	1670911.87	14582300.95	40°09'09.164"N	104°53'27.115"W	0.82	
18332.00	90.430	1.250	7414.89	10244.33	10242.13	-434.17	1670913.17	14582389.91	40°09'10.044"N	104°53'27.096"W	0.77	
18422.00	90.860	1.140	7413.87	10334.30	10332.10	-432.29	1670914.94	14582479.85	40°09'10.933"N	104°53'27.072"W	0.49	
18511.00	91.140	1.470	7412.32	10423.25	10421.07	-430.27	1670916.85	14582568.78	40°09'11.812"N	104°53'27.046"W	0.49	
18601.00	90.860	1.310	7410.75	10513.19	10511.03	-428.08	1670918.92	14582658.70	40°09'12.701"N	104°53'27.018"W	0.36	
18690.00	90.860	0.680	7409.41	10602.16	10600.00	-426.54	1670920.35	14582747.65	40°09'13.580"N	104°53'26.998"W	0.71	
18779.00	91.140	359.910	7407.86	10691.14	10688.99	-426.08	1670920.70	14582836.60	40°09'14.459"N	104°53'26.992"W	0.92	
18869.00	90.310	359.590	7406.72	10781.13	10778.98	-426.47	1670920.20	14582926.55	40°09'15.349"N	104°53'26.997"W	0.99	
18958.00	90.280	0.500	7406.26	10870.13	10867.97	-426.40	1670920.16	14583015.51	40°09'16.228"N	104°53'26.996"W	1.02	
19047.00	90.430	1.070	7405.71	10959.11	10956.96	-425.18	1670921.26	14583104.47	40°09'17.108"N	104°53'26.981"W	0.66	
19137.00	90.340	1.850	7405.11	11049.06	11046.93	-422.89	1670923.44	14583194.40	40°09'17.997"N	104°53'26.951"W	0.87	
19226.00	90.280	1.950	7404.63	11138.00	11135.88	-419.94	1670926.28	14583283.32	40°09'18.876"N	104°53'26.913"W	0.13	
19316.00	90.280	2.290	7404.19	11227.92	11225.82	-416.61	1670929.50	14583373.22	40°09'19.764"N	104°53'26.870"W	0.38	
19405.00	90.340	3.190	7403.70	11316.79	11314.72	-412.36	1670933.64	14583462.09	40°09'20.643"N	104°53'26.816"W	1.01	
19494.00	90.680	2.670	7402.91	11405.64	11403.59	-407.81	1670938.08	14583550.94	40°09'21.521"N	104°53'26.757"W	0.70	
19583.00	90.650	1.280	7401.88	11494.56	11492.53	-404.74	1670941.03	14583639.85	40°09'22.400"N	104°53'26.718"W	1.56	
19673.00	90.590	1.080	7400.90	11584.53	11582.51	-402.89	1670942.77	14583729.79	40°09'23.289"N	104°53'26.694"W	0.23	
19762.00	90.800	359.950	7399.83	11673.51	11671.50	-402.09	1670943.46	14583818.74	40°09'24.169"N	104°53'26.683"W	1.29	
19852.00	90.860	0.370	7398.52	11763.50	11761.49	-401.83	1670943.60	14583908.70	40°09'25.058"N	104°53'26.680"W	0.47	
19942.00	90.680	0.810	7397.31	11853.48	11851.47	-400.91	1670944.42	14583998.65	40°09'25.947"N	104°53'26.668"W	0.53	
20031.00	90.800	1.530	7396.16	11942.44	11940.45	-399.09	1670946.12	14584087.59	40°09'26.826"N	104°53'26.645"W	0.82	
20121.00	90.710	2.480	7394.98	12032.36	12030.38	-395.94	1670949.16	14584177.49	40°09'27.715"N	104°53'26.604"W	1.06	
20210.00	90.950	2.240	7393.69	12121.25	12119.30	-392.28	1670952.71	14584266.38	40°09'28.594"N	104°53'26.557"W	0.38	
20300.00	90.890	3.270	7392.24	12211.11	12209.18	-387.95	1670956.92	14584356.23	40°09'29.482"N	104°53'26.502"W	1.15	
20389.00	90.830	3.210	7390.91	12299.93	12298.03	-382.92	1670961.84	14584445.05	40°09'30.360"N	104°53'26.437"W	0.10	
20479.00	90.800	3.920	7389.63	12389.71	12387.85	-377.33	1670967.32	14584534.83	40°09'31.248"N	104°53'26.365"W	0.79	
20494.00†	90.795	4.046	7389.42	12404.67	12402.81	-376.29	1670968.34	14584549.79	40°09'31.396"N	104°53'26.351"W	0.84	ENTER RADIUS TOE (459'FNL & 1339'FEL,SEC.09) 40.1587210 -104.8906531
20568.00	90.770	4.670	7388.41	12478.42	12476.59	-370.66	1670973.87	14584623.55	40°09'32.125"N	104°53'26.279"W	0.84	
20658.00	90.280	5.220	7387.58	12568.03	12566.25	-362.90	1670981.51	14584713.18	40°09'33.011"N	104°53'26.179"W	0.82	
20747.00	90.370	4.420	7387.08	12656.67	12654.93	-355.43	1670988.88	14584801.84	40°09'33.887"N	104°53'26.083"W	0.90	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH DATA (277 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
20837.00	90.430	5.020	7386.45	12746.32	12744.62	-348.02	1670996.17	14584891.50	40°09'34.773"N	104°53'25.987"W	0.67	
20926.00	90.310	4.680	7385.87	12834.96	12833.30	-340.50	1671003.58	14584980.16	40°09'35.650"N	104°53'25.890"W	0.41	
21016.00	90.280	4.320	7385.41	12924.64	12923.02	-333.44	1671010.53	14585069.85	40°09'36.536"N	104°53'25.799"W	0.40	
21105.00	90.430	4.420	7384.86	13013.34	13011.76	-326.65	1671017.20	14585158.56	40°09'37.413"N	104°53'25.712"W	0.20	
21195.00	90.430	4.340	7384.18	13103.04	13101.50	-319.78	1671023.95	14585248.27	40°09'38.300"N	104°53'25.624"W	0.09	
21254.00	90.280	4.210	7383.82	13161.85	13160.33	-315.38	1671028.28	14585307.09	40°09'38.881"N	104°53'25.567"W	0.34	LAST BHGE MWD+IFR1+MSA SURVEY
21278.00	90.280	4.210	7383.70	13185.78	13184.27	-313.62	1671030.01	14585331.01	40°09'39.118"N	104°53'25.544"W	0.00	PTB (322'FSL & 1277'FEL,SEC.04) 40.1608661 -104.8904290

HOLE & CASING SECTIONS - Ref Wellbore: COWBOY 21-5HZ AWB Ref Wellpath: COWBOY 21-5HZ 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	1880.00	1854.00	26.00	1850.79	0.00	0.00	-225.98	-70.08

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ 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	0.40	-59.89	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
SEC.16-T2N-R67W	0.00	0.40	-59.89	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
SEC.21-T2N-R67W	0.00	0.40	-59.89	1671300.04	14572152.76	40°07'28.834"N	104°53'22.276"W	polygon
COWBOY 21-5HZ BHL REV-1(325'FSL & 1307'FEL,SEC.04)	7403.00	13187.15	-343.53	1671000.11	14585333.86	40°09'39.146"N	104°53'25.930"W	point
COWBOY 21-5HZ LAT. TARGET 2	7421.52	10316.29	-438.49	1670908.76	14582464.03	40°09'10.776"N	104°53'27.152"W	point
COWBOY 21-5HZ LAT. TARGET 1	7451.20	5716.45	-302.98	1671049.94	14577866.21	40°08'25.320"N	104°53'25.406"W	point
COWBOY 21-5HZ HEEL REV-1(2618'FNL & 1155'FEL,SEC.21)	7459.00	-278.32	-270.44	1671089.92	14571873.89	40°07'26.080"N	104°53'24.986"W	point
COWBOY 21-5HZ HEEL REV-2(2558'FNL & 1155'FEL,SEC.21)	7459.00	-218.32	-270.44	1671089.85	14571933.86	40°07'26.673"N	104°53'24.986"W	point
COWBOY 21-5HZ INT. TARGET@4500'VS	7459.00	4498.46	-296.37	1671058.06	14576648.72	40°08'13.284"N	104°53'25.321"W	point
COWBOY 21-5HZ LANDBOX	7459.00	0.00	0.00	1671359.91	14572152.43	40°07'28.830"N	104°53'21.505"W	polygon
COWBOY 21-5HZ RADIUS 1	7459.00	12862.56	-342.94	1671001.10	14585009.40	40°09'35.939"N	104°53'25.922"W	polygon
COWBOY 21-5HZ RADIUS 2	7459.00	-322.39	-457.80	1670902.70	14571829.60	40°07'25.644"N	104°53'27.398"W	polygon

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH COMPOSITION - Ref Wellbore: COWBOY 21-5HZ AWB Ref Wellpath: COWBOY 21-5HZ AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	1883.00	Custom APC ISCWSA REV 2 MWD+IFR1 (approximation)	Custom APC ISCWSA Rev-2 MWD+IFR1 <133 - 1883>	COWBOY 21-5HZ AWB
1883.00	21254.00	Custom APC ISCWSA REV 2 MWD+IFR1+MSA (approximation)	BHGE Custom APC ISCWSA Rev-2 MWD+IFR1+MSA <1968 - 21254>	COWBOY 21-5HZ AWB
21254.00	21278.00	Blind Drilling (std)	Projection to bit	COWBOY 21-5HZ AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP (WA)	Slot	SLOT#09 COWBOY 21-5HZ(2334'FNL & 886'FEL,SEC.21)
Area	COLORADO	Well	COWBOY 21-5HZ
Field	WELD COUNTY (UTM/TRUE NORTH)	Wellbore	COWBOY 21-5HZ AWB
Facility	SEC.21-T2N-R67W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
133.00	0.090	128.460	133.00	FIRST SURFACE MWD+IFR1 SURVEY
1883.00	17.890	198.250	1853.65	LAST SURFACE MWD+IFR1 SURVEY
1968.00	17.850	194.310	1934.55	FIRST BHGE MWD+IFR1+MSA SURVEY
7046.00	1.734	356.433	6936.01	KOP
7870.00	89.940	3.450	7459.86	LANDING (2535'FNL & 1144'FEL,SEC.21) 40.1241224 -104.8902313
8155.00	90.023	2.204	7459.51	EXIT RADIUS HEEL (2251'FNL & 1129'FEL,SEC.21) 40.1249035 -104.8901747
20494.00	90.795	4.046	7389.42	ENTER RADIUS TOE (459'FNL & 1339'FEL,SEC.09) 40.1587210 -104.8906531
21254.00	90.280	4.210	7383.82	LAST BHGE MWD+IFR1+MSA SURVEY
21278.00	90.280	4.210	7383.70	PTB (322'FSL & 1277'FEL,SEC.04) 40.1608661 -104.8904290