



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
 Page 1 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 3.0.2
North Reference	Grid	User	Cookdanm
Scale	0.999972	Report Generated	2/6/2012 at 4:44:59 PM
Convergence at slot	0.78° East	Database/Source file	WA_Denver/CROW_VALLEY_7-62-23-2H_PWB_CR.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-29.99	0.44	3335869.44	1451348.24	40°33'57.835"N	104°17'27.786"W
Facility Reference Pt			3335869.00	1451378.23	40°33'58.132"N	104°17'27.786"W
Field Reference Pt			3476081.76	1512960.14	40°43'43.704"N	103°46'55.829"W

WELLPATH DATUM

Calculation method	Minimum Curvature	H&P 321 (RKB) to Facility Vertical Datum	4916.00ft
Horizontal Reference Pt	Slot	H&P 321 (RKB) to Mean Sea Level	4916.00ft
Vertical Reference Pt	H&P 321 (RKB)	H&P 321 (RKB) to Mud Line at Slot (SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23))	4916.00ft
MD Reference Pt	H&P 321 (RKB)		
Field Vertical Reference	Mean Sea Level		

POSITIONAL UNCERTAINTY CALCULATION SETTINGS

Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	31.00ft	Surface Position Uncertainty	included
Declination	8.52° East of TN	Dip Angle	67.22°	Mag Field Strength	53195 nT
Slot Surface Uncertainty @ 1SD		Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @ 1SD		Horizontal	8.200ft	Vertical	3.000ft

ANTI-COLLISION RULE

Rule Name	Separation Factor : R-type Closest Approach w/Hole&Csg Limit:1.5, StdDev:3.00 w/Surface Uncert R=D/(PU+HnC)	Rule Based On	Ratio
Plane of Rule	Closest Approach	Threshold Value	1.50
Subtract Casing & Hole Size	yes	Apply Cone of Safety	no

HOLE & CASING SECTIONS - Ref Wellbore: CROW VALLEY 7-62-23-2H PWB Ref Wellpath: CROW VALLEY 7-62-23-2H (REV-A.0) 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]
7in Casing Intermediate	31.00	6906.00	6875.00	31.00	6577.00	0.00	0.00	-610.15	2.38



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 2 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL, SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

SURVEY PROGRAM - Ref Wellbore: CROW VALLEY 7-62-23-2H PWB Ref Wellpath: CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	10764.71	NaviTrak (Standard)		CROW VALLEY 7-62-23-2H PWB

CALCULATION RANGE & CUTOFF

From: 31.00ft MD	To: 10764.71ft MD	C-C Cutoff: (none)
------------------	-------------------	--------------------

OFFSET WELL CLEARANCE SUMMARY (8 Offset Wellpaths selected) Ratios are calculated in Closest Approach plane

Offset Facility	Offset Slot	Offset Well	Offset Wellbore	Offset Wellpath	C-C Clearance Distance			ACR Separation Ratio			
					Ref MD [ft]	Min C-C Clear Dist [ft]	Diverging from MD [ft]	Ref MD of Min Ratio [ft]	Min Ratio	Min Ratio Dvrg from [ft]	ACR Status
SEC.23-T7N-R62W	SLOT#01 CROW VALLEY 7-62-14-2H (290'FNL & 2036'FWL, SEC.23)	CROW VALLEY 7-62-14-2H	CROW VALLEY 7-62-14-2H PWB	CROW VALLEY 7-62-14-2H (REV-A.0) PWP	31.00	29.99	6005.41	2731.00	1.51	6005.41	PASS
SEC.35-T7N-R62W	SLOT#02 CROW VALLEY 7-62-26-2H (342'FNL & 1819'FWL, SEC.35)	CROW VALLEY 7-62-26-2H	CROW VALLEY 7-62-26-2H PWB	CROW VALLEY 7-62-26-2H (REV-E.0) PWP	10764.71	940.09	10764.71	10764.71	11.72	10764.71	PASS
SEC.34-T7N-R62W	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)	CROW VALLEY 7-62-27-2H	CROW VALLEY 7-62-27-2H pwb	CROW VALLEY 7-62-27-2H (REV-D.0) PWP	10764.71	5412.87	10764.71	10764.71	16.67	10764.71	PASS
SEC.24-T7N-R62W	SLOT#02 CROW VALLEY 7-62-24-2H (349'FNL & 2069'FWL, SEC.24)	CROW VALLEY 7-62-24-2H	CROW VALLEY 7-62-24-2H PWB	CROW VALLEY 7-62-24-2H (REV-A.0) PWP	6406.00	5150.70	6406.00	10764.71	17.35	10764.71	PASS
SEC.34-T7N-R62W	SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FWL, SEC.34)	BICKFORD #1	BICKFORD #1 AWB	BICKFORD #1 AWP	10764.71	8753.95	10764.71	10764.71	34.50	10764.71	PASS
SEC.24-T7N-R62W	SLOT#01 CROW VALLEY 7-62-13-2H (320'FNL & 2076'FWL, SEC.24)	CROW VALLEY 7-62-13-2H	CROW VALLEY 7-62-13-2H pwb	CROW VALLEY 7-62-13-2H (REV-A.0) PWP	31.00	5377.89	6431.00	10764.71	43.03	10764.71	PASS
SEC.34-T7N-R62W	SLOT#02 CROW VALLEY 7-62-34-2H (455'FNL & 1862'FWL, SEC.34)	CROW VALLEY 7-62-34-2H	CROW VALLEY 7-62-34-2H PWB	CROW VALLEY 7-62-34-2H (REV-D.0) PWP	10764.71	8353.14	10764.71	10764.71	60.31	10764.71	PASS
SEC.35-T7N-R62W	SLOT#01 CROW VALLEY 7-62-35-2H (366'FNL & 1837'FWL, SEC.35)	CROW VALLEY 7-62-35-2H	CROW VALLEY 7-62-35-2H pwb	CROW VALLEY 7-62-35-2H (REV-F.0) PWP	10764.71	6167.72	10764.71	10764.71	83.84	10764.71	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 3 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

Facility: SEC.23-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-14-2H (290'FNL & 2036'FWL, SEC.23) Well: CROW VALLEY 7-62-14-2H Threshold Value=1.50
† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	31.00	31.00	29.99	-0.44	-0.84	29.99	25.35	1.78	PASS
131.00†	131.00	0.00	0.00	131.00	131.00	29.99	-0.44	-0.84	29.99	19.74	2.28	PASS
231.00†	231.00	0.00	0.00	231.00	231.00	29.99	-0.44	-0.84	29.99	14.01	3.21	PASS
331.00†	331.00	0.00	0.00	331.00	331.00	29.99	-0.44	-0.84	29.99	10.63	4.23	PASS
431.00†	431.00	0.00	0.00	431.00	431.00	29.99	-0.44	-0.84	29.99	8.52	5.28	PASS
531.00†	531.00	0.00	0.00	531.00	531.00	29.99	-0.44	-0.84	29.99	7.10	6.34	PASS
631.00†	631.00	0.00	0.00	631.00	631.00	29.99	-0.44	-0.84	29.99	6.08	7.40	PASS
731.00†	731.00	0.00	0.00	731.00	731.00	29.99	-0.44	-0.84	29.99	5.31	8.47	PASS
831.00†	831.00	0.00	0.00	831.00	831.00	29.99	-0.44	-0.84	29.99	4.71	9.55	PASS
931.00†	931.00	0.00	0.00	931.00	931.00	29.99	-0.44	-0.84	29.99	4.24	10.62	PASS
1031.00†	1031.00	0.00	0.00	1031.00	1031.00	29.99	-0.44	-0.84	29.99	3.85	11.69	PASS
1131.00†	1131.00	0.00	0.00	1131.00	1131.00	29.99	-0.44	-0.84	29.99	3.52	12.77	PASS
1231.00†	1231.00	0.00	0.00	1231.00	1231.00	29.99	-0.44	-0.84	29.99	3.25	13.84	PASS
1331.00†	1331.00	0.00	0.00	1331.00	1331.00	29.99	-0.44	-0.84	29.99	3.02	14.92	PASS
1431.00†	1431.00	0.00	0.00	1431.00	1431.00	29.99	-0.44	-0.84	29.99	2.81	15.99	PASS
1531.00†	1531.00	0.00	0.00	1531.00	1531.00	29.99	-0.44	-0.84	29.99	2.64	17.07	PASS
1631.00†	1631.00	0.00	0.00	1631.00	1631.00	29.99	-0.44	-0.84	29.99	2.48	18.15	PASS
1731.00†	1731.00	0.00	0.00	1731.00	1731.00	29.99	-0.44	-0.84	29.99	2.34	19.22	PASS
1831.00†	1831.00	0.00	0.00	1831.00	1831.00	29.99	-0.44	-0.84	29.99	2.22	20.30	PASS
1931.00†	1931.00	0.00	0.00	1931.00	1931.00	29.99	-0.44	-0.84	29.99	2.10	21.38	PASS
2031.00†	2031.00	0.00	0.00	2031.00	2031.00	29.99	-0.44	-0.84	29.99	2.00	22.45	PASS
2131.00†	2131.00	0.00	0.00	2131.00	2131.00	29.99	-0.44	-0.84	29.99	1.91	23.53	PASS
2231.00†	2231.00	0.00	0.00	2231.00	2231.00	29.99	-0.44	-0.84	29.99	1.83	24.61	PASS
2331.00†	2331.00	0.00	0.00	2331.00	2331.00	29.99	-0.44	-0.84	29.99	1.75	25.68	PASS
2431.00†	2431.00	0.00	0.00	2431.00	2431.00	29.99	-0.44	-0.84	29.99	1.68	26.76	PASS
2531.00†	2531.00	0.00	0.00	2531.00	2531.00	29.99	-0.44	-0.84	29.99	1.62	27.84	PASS
2631.00†	2631.00	0.00	0.00	2631.00	2631.00	29.99	-0.44	-0.84	29.99	1.56	28.92	PASS
2731.00†	2731.00	0.00	0.00	2730.68	2730.68	30.16	-0.44	-0.83	30.16	1.51	29.99	PASS
2831.00†	2831.00	0.00	0.00	2829.55	2829.49	32.92	-0.41	-0.72	32.96	1.59	31.11	PASS
2900.00	2900.00	0.00	0.00	2897.61	2897.46	36.80	-0.38	-0.59	36.89	1.73	31.97	PASS
2931.00†	2931.00	-0.17	0.00	2928.11	2927.85	39.07	-0.35	179.71	39.36	1.83	32.35	PASS
3031.00†	3030.95	-2.99	0.01	3026.24	3025.55	48.43	-0.27	179.91	51.71	2.31	33.55	PASS
3131.00†	3130.75	-9.31	0.04	3126.64	3125.49	57.90	-0.18	-179.96	67.41	2.90	34.89	PASS
3200.00	3199.45	-15.69	0.06	3196.56	3195.25	62.49	-0.13	-179.92	78.30	3.28	35.85	PASS
3231.00†	3230.28	-18.93	0.07	3228.08	3226.73	64.01	-0.12	-179.91	83.02	3.44	36.24	PASS
3250.00	3249.18	-20.92	0.08	3247.46	3246.11	64.77	-0.11	-179.91	85.74	3.53	36.48	PASS
3331.00†	3329.84	-28.25	0.11	3330.57	3329.18	66.54	-0.10	-179.90	94.79	3.79	37.53	PASS
3431.00†	3429.66	-34.14	0.13	3431.03	3429.67	66.60	-0.09	-179.91	100.75	3.90	38.72	PASS
3531.00†	3529.63	-36.55	0.14	3531.00	3529.94	66.60	-0.09	-179.91	103.15	3.87	39.94	PASS
3550.00	3548.63	-36.61	0.14	3550.00	3548.63	66.60	-0.09	-0.13	103.22	3.86	40.15	PASS
3631.00†	3629.63	-36.61	0.14	3631.00	3629.63	66.60	-0.09	-0.13	103.22	3.78	41.00	PASS
3731.00†	3729.63	-36.61	0.14	3731.00	3729.63	66.60	-0.09	-0.13	103.22	3.68	42.04	PASS
3831.00†	3829.63	-36.61	0.14	3831.00	3829.63	66.60	-0.09	-0.13	103.22	3.59	43.09	PASS
3931.00†	3929.63	-36.61	0.14	3931.00	3929.63	66.60	-0.09	-0.13	103.22	3.51	44.13	PASS
4031.00†	4029.63	-36.61	0.14	4031.00	4029.63	66.60	-0.09	-0.13	103.22	3.43	45.18	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 4 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

Facility: SEC.23-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-14-2H (290'FNL & 2036'FWL, SEC.23) Well: CROW VALLEY 7-62-14-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	4131.00	4129.63	66.60	-0.09	-0.13	103.22	3.35	46.23	PASS
4231.00†	4229.63	-36.61	0.14	4231.00	4229.63	66.60	-0.09	-0.13	103.22	3.27	47.28	PASS
4331.00†	4329.63	-36.61	0.14	4331.00	4329.63	66.60	-0.09	-0.13	103.22	3.20	48.33	PASS
4431.00†	4429.63	-36.61	0.14	4431.00	4429.63	66.60	-0.09	-0.13	103.22	3.14	49.38	PASS
4531.00†	4529.63	-36.61	0.14	4531.00	4529.63	66.60	-0.09	-0.13	103.22	3.07	50.44	PASS
4631.00†	4629.63	-36.61	0.14	4631.00	4629.63	66.60	-0.09	-0.13	103.22	3.01	51.49	PASS
4731.00†	4729.63	-36.61	0.14	4731.00	4729.63	66.60	-0.09	-0.13	103.22	2.95	52.55	PASS
4831.00†	4829.63	-36.61	0.14	4831.00	4829.63	66.60	-0.09	-0.13	103.22	2.89	53.60	PASS
4931.00†	4929.63	-36.61	0.14	4931.00	4929.63	66.60	-0.09	-0.13	103.22	2.83	54.66	PASS
5031.00†	5029.63	-36.61	0.14	5031.00	5029.63	66.60	-0.09	-0.13	103.22	2.78	55.72	PASS
5131.00†	5129.63	-36.61	0.14	5131.00	5129.63	66.60	-0.09	-0.13	103.22	2.73	56.78	PASS
5231.00†	5229.63	-36.61	0.14	5231.00	5229.63	66.60	-0.09	-0.13	103.22	2.68	57.84	PASS
5331.00†	5329.63	-36.61	0.14	5331.00	5329.63	66.60	-0.09	-0.13	103.22	2.63	58.90	PASS
5431.00†	5429.63	-36.61	0.14	5431.00	5429.63	66.60	-0.09	-0.13	103.22	2.58	59.96	PASS
5531.00†	5529.63	-36.61	0.14	5531.00	5529.63	66.60	-0.09	-0.13	103.22	2.54	61.02	PASS
5631.00†	5629.63	-36.61	0.14	5631.00	5629.63	66.60	-0.09	-0.13	103.22	2.49	62.08	PASS
5731.00†	5729.63	-36.61	0.14	5731.00	5729.63	66.60	-0.09	-0.13	103.22	2.45	63.15	PASS
5831.00†	5829.63	-36.61	0.14	5831.00	5829.63	66.60	-0.09	-0.13	103.22	2.41	64.21	PASS
5931.00†	5929.63	-36.61	0.14	5931.00	5929.63	66.60	-0.09	-0.13	103.22	2.37	65.27	PASS
6005.41	6004.04	-36.61	0.14	6005.41	6004.04	66.60	-0.09	-0.13	103.22	2.34	66.07	PASS
6031.00†	6029.62	-37.18	0.15	6028.60	6027.22	66.75	-0.09	-179.91	103.97	2.35	66.32	PASS
6131.00†	6128.63	-50.32	0.20	6109.72	6107.92	74.35	-0.02	-179.87	126.38	2.79	67.90	PASS
6231.00†	6223.85	-80.45	0.31	6177.87	6174.33	89.48	0.12	-179.81	177.00	3.75	70.80	PASS
6331.00†	6312.39	-126.66	0.49	6228.16	6221.94	105.65	0.27	-179.73	249.30	5.15	72.56	PASS
6431.00†	6391.56	-187.54	0.73	6260.75	6251.96	118.33	0.39	-179.63	336.22	6.88	73.29	PASS
6531.00†	6458.96	-261.24	1.02	6278.27	6267.78	125.85	0.46	-179.35	431.73	8.80	73.58	PASS
6631.00†	6512.53	-345.53	1.35	6283.83	6272.75	128.33	0.49	-169.94	531.08	10.81	73.72	PASS
6731.00†	6550.66	-437.84	1.71	6280.18	6269.49	126.70	0.47	-0.56	630.68	12.80	73.91	PASS
6831.00†	6572.17	-535.36	2.09	6269.51	6259.90	122.03	0.43	-0.23	727.80	14.70	74.25	PASS
6905.41	6577.00	-609.57	2.38	6258.02	6249.47	117.20	0.38	-0.15	797.17	16.03	74.57	PASS
6931.00†	6577.00	-635.15	2.48	6253.70	6245.53	115.45	0.37	-0.14	820.54	16.58	74.22	PASS
7031.00†	6577.00	-735.15	2.87	6238.12	6231.18	109.34	0.31	-0.12	912.56	18.37	74.50	PASS
7131.00†	6577.00	-835.15	3.26	6224.36	6218.39	104.28	0.26	-0.11	1005.56	20.19	74.73	PASS
7231.00†	6577.00	-935.15	3.65	6212.14	6206.93	100.04	0.22	-0.10	1099.36	22.01	74.91	PASS
7331.00†	6577.00	-1035.15	4.04	6201.22	6196.61	96.47	0.19	-0.09	1193.85	23.85	75.07	PASS
7431.00†	6577.00	-1135.15	4.44	6191.42	6187.30	93.43	0.16	-0.08	1288.91	25.70	75.21	PASS
7531.00†	6577.00	-1235.15	4.83	6182.57	6178.83	90.81	0.13	-0.07	1384.46	27.56	75.35	PASS
7631.00†	6577.00	-1335.15	5.22	6174.54	6171.13	88.56	0.11	-0.07	1480.44	29.43	75.47	PASS
7731.00†	6577.00	-1435.15	5.61	6167.23	6164.09	86.60	0.09	-0.06	1576.78	31.30	75.58	PASS
7831.00†	6577.00	-1535.15	6.00	6160.55	6157.64	84.89	0.08	-0.06	1673.44	33.17	75.68	PASS
7931.00†	6577.00	-1635.15	6.39	6154.43	6151.71	83.39	0.06	-0.05	1770.39	35.04	75.78	PASS
8031.00†	6577.00	-1735.15	6.78	6148.79	6146.21	82.06	0.05	-0.05	1867.58	36.92	75.87	PASS
8131.00†	6577.00	-1835.15	7.17	6143.58	6141.15	80.88	0.04	-0.05	1964.99	38.80	75.97	PASS
8231.00†	6577.00	-1935.14	7.56	6138.76	6136.43	79.83	0.03	-0.04	2062.59	40.68	76.06	PASS
8331.00†	6577.00	-2035.14	7.95	6134.28	6132.06	78.89	0.02	-0.04	2160.36	42.56	76.14	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 5 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

Facility: SEC.23-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-14-2H (290'FNL & 2036'FWL, SEC.23) Well: CROW VALLEY 7-62-14-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	6130.11	6127.98	78.04	0.01	-0.04	2258.29	44.43	76.24	PASS
8531.00†	6577.00	-2235.14	8.73	6126.22	6124.17	77.29	0.01	-0.04	2356.36	46.27	76.40	PASS
8631.00†	6577.00	-2335.14	9.12	6122.58	6120.59	76.60	0.00	-0.04	2454.56	48.10	76.55	PASS
8731.00†	6577.00	-2435.14	9.51	6119.17	6117.23	75.97	-0.01	-0.04	2552.87	49.93	76.69	PASS
8831.00†	6577.00	-2535.14	9.91	6115.97	6114.09	75.40	-0.01	-0.04	2651.29	51.76	76.83	PASS
8931.00†	6577.00	-2635.14	10.30	6112.96	6111.13	74.89	-0.02	-0.03	2749.80	53.59	76.97	PASS
9031.00†	6577.00	-2735.14	10.69	6110.13	6108.32	74.41	-0.02	-0.03	2848.39	55.41	77.10	PASS
9131.00†	6577.00	-2835.14	11.08	6107.45	6105.67	73.98	-0.03	-0.03	2947.07	57.23	77.24	PASS
9231.00†	6577.00	-2935.14	11.47	6104.92	6103.18	73.58	-0.03	-0.03	3045.82	59.05	77.37	PASS
9331.00†	6577.00	-3035.14	11.86	6102.52	6100.81	73.21	-0.03	-0.03	3144.63	60.86	77.50	PASS
9431.00†	6577.00	-3135.14	12.25	6100.24	6098.57	72.87	-0.04	-0.03	3243.51	62.67	77.63	PASS
9531.00†	6577.00	-3235.13	12.64	6098.09	6096.43	72.56	-0.04	-0.03	3342.44	64.48	77.76	PASS
9631.00†	6577.00	-3335.13	13.03	6096.03	6094.39	72.26	-0.04	-0.03	3441.43	66.27	77.89	PASS
9731.00†	6577.00	-3435.13	13.42	6094.08	6092.46	71.99	-0.04	-0.03	3540.47	68.07	78.02	PASS
9831.00†	6577.00	-3535.13	13.81	6092.22	6090.62	71.74	-0.05	-0.03	3639.55	69.86	78.15	PASS
9931.00†	6577.00	-3635.13	14.20	6090.44	6088.85	71.51	-0.05	-0.03	3738.67	71.64	78.28	PASS
10031.00†	6577.00	-3735.13	14.59	6088.75	6087.18	71.29	-0.05	-0.03	3837.83	73.42	78.41	PASS
10131.00†	6577.00	-3835.13	14.98	6087.12	6085.56	71.08	-0.05	-0.03	3937.04	75.19	78.54	PASS
10231.00†	6577.00	-3935.13	15.38	6085.57	6084.03	70.89	-0.05	-0.03	4036.27	76.96	78.67	PASS
10331.00†	6577.00	-4035.13	15.77	6084.09	6082.55	70.71	-0.06	-0.03	4135.54	78.72	78.80	PASS
10431.00†	6577.00	-4135.13	16.16	6082.66	6081.15	70.55	-0.06	-0.03	4234.83	80.48	78.93	PASS
10531.00†	6577.00	-4235.13	16.55	6081.29	6079.77	70.39	-0.06	-0.03	4334.16	82.23	79.06	PASS
10631.00†	6577.00	-4335.13	16.94	6079.98	6078.47	70.24	-0.06	-0.03	4433.51	83.97	79.20	PASS
10731.00†	6577.00	-4435.13	17.33	6078.72	6077.21	70.10	-0.06	-0.02	4532.89	85.71	79.33	PASS
10764.71	6577.00	-4468.83	17.46	6078.30	6076.81	70.05	-0.06	-0.02	4566.40	86.29	79.38	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) 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]
7in Casing Intermediate	31.00	6916.00	6885.00	31.00	6587.00	18.28	-0.27	204.25	1.48

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	11390.34	NaviTrak (Standard)		CROW VALLEY 7-62-14-2H PWB

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-14-2H PWB Offset Wellpath: CROW VALLEY 7-62-14-2H (REV-A.0) PWP

MD Reference: H&P 321 (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 6 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-26-2H (342'FNL & 1819'FWL,SEC.35) Well: CROW VALLEY 7-62-26-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8488.49	114.75	110.96	PASS
131.00†	131.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8411.66	113.75	110.92	PASS
231.00†	231.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8335.33	112.75	110.89	PASS
331.00†	331.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8259.49	111.75	110.87	PASS
431.00†	431.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8184.18	110.76	110.84	PASS
531.00†	531.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8109.41	109.77	110.82	PASS
631.00†	631.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	8035.18	108.78	110.80	PASS
731.00†	731.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7961.51	107.80	110.78	PASS
831.00†	831.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7888.43	106.82	110.77	PASS
931.00†	931.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7815.94	105.85	110.76	PASS
1031.00†	1031.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7744.06	104.89	110.75	PASS
1131.00†	1131.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7672.81	103.93	110.74	PASS
1231.00†	1231.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7602.21	102.98	110.73	PASS
1331.00†	1331.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7532.28	102.03	110.73	PASS
1431.00†	1431.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7463.03	101.10	110.73	PASS
1531.00†	1531.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7394.49	100.17	110.73	PASS
1631.00†	1631.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7326.67	99.25	110.73	PASS
1731.00†	1731.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7259.59	98.33	110.74	PASS
1831.00†	1831.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7193.28	97.43	110.74	PASS
1931.00†	1931.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7127.75	96.54	110.75	PASS
2031.00†	2031.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	7063.03	95.65	110.76	PASS
2131.00†	2131.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6999.15	94.78	110.77	PASS
2231.00†	2231.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6936.11	93.92	110.78	PASS
2331.00†	2331.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6873.95	93.07	110.79	PASS
2431.00†	2431.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6812.70	92.23	110.80	PASS
2531.00†	2531.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6752.37	91.40	110.81	PASS
2631.00†	2631.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6692.99	90.59	110.83	PASS
2731.00†	2731.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6634.58	89.79	110.84	PASS
2831.00†	2831.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6577.18	89.00	110.85	PASS
2900.00	2900.00	0.00	0.00	11381.79	6573.00	-5408.89	23.85	179.75	6538.17	88.46	110.86	PASS
2931.00†	2931.00	-0.17	0.00	11381.79	6573.00	-5408.89	23.85	-0.03	6520.66	88.22	110.87	PASS
3031.00†	3030.95	-2.99	0.01	11381.79	6573.00	-5408.89	23.85	-0.03	6463.00	87.41	110.91	PASS
3131.00†	3130.75	-9.31	0.04	11381.79	6573.00	-5408.89	23.85	-0.03	6403.53	86.53	111.00	PASS
3200.00	3199.45	-15.69	0.06	11381.79	6573.00	-5408.89	23.85	-0.03	6361.45	85.92	111.06	PASS
3231.00†	3230.28	-18.93	0.07	11381.79	6573.00	-5408.89	23.85	-0.03	6342.40	85.65	111.07	PASS
3250.00	3249.18	-20.92	0.08	11381.79	6573.00	-5408.89	23.85	-0.03	6330.77	85.50	111.07	PASS
3331.00†	3329.84	-28.25	0.11	11381.79	6573.00	-5408.89	23.85	-0.03	6282.51	84.83	111.09	PASS
3431.00†	3429.66	-34.14	0.13	11381.79	6573.00	-5408.89	23.85	-0.03	6226.48	84.04	111.14	PASS
3531.00†	3529.63	-36.55	0.14	11381.79	6573.00	-5408.89	23.85	-0.03	6174.52	83.28	111.21	PASS
3550.00	3548.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	6165.12	83.15	111.21	PASS
3631.00†	3629.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	6125.80	82.62	111.22	PASS
3731.00†	3729.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	6078.38	81.97	111.23	PASS
3831.00†	3829.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	6032.25	81.34	111.25	PASS
3931.00†	3929.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5987.43	80.72	111.26	PASS
4031.00†	4029.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5943.96	80.13	111.27	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 7 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-26-2H (342'FNL & 1819'FWL,SEC.35) Well: CROW VALLEY 7-62-26-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5901.86	79.55	111.28	PASS
4231.00†	4229.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5861.17	78.99	111.30	PASS
4331.00†	4329.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5821.91	78.46	111.31	PASS
4431.00†	4429.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5784.11	77.94	111.32	PASS
4531.00†	4529.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5747.81	77.44	111.34	PASS
4631.00†	4629.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5713.02	76.96	111.35	PASS
4731.00†	4729.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5679.78	76.50	111.37	PASS
4831.00†	4829.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5648.12	76.06	111.39	PASS
4931.00†	4929.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5618.06	75.63	111.42	PASS
5031.00†	5029.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5589.63	75.23	111.45	PASS
5131.00†	5129.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5562.85	74.85	111.48	PASS
5231.00†	5229.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5537.74	74.49	111.52	PASS
5331.00†	5329.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5514.34	74.14	111.56	PASS
5431.00†	5429.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5492.65	73.82	111.61	PASS
5531.00†	5529.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5472.71	73.51	111.67	PASS
5631.00†	5629.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5454.53	73.23	111.73	PASS
5731.00†	5729.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5438.13	72.96	111.81	PASS
5831.00†	5829.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5423.52	72.71	111.89	PASS
5931.00†	5929.63	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5410.72	72.47	111.99	PASS
6005.41	6004.04	-36.61	0.14	11381.79	6573.00	-5408.89	23.85	179.75	5402.38	72.31	112.06	PASS
6031.00†	6029.62	-37.18	0.15	11381.79	6573.00	-5408.89	23.85	-0.03	5399.17	72.25	112.10	PASS
6131.00†	6128.63	-50.32	0.20	11381.79	6573.00	-5408.89	23.85	-0.03	5377.02	71.59	112.66	PASS
6231.00†	6223.85	-80.45	0.31	11381.79	6573.00	-5408.89	23.85	-0.03	5339.92	70.07	114.31	PASS
6331.00†	6312.39	-126.66	0.49	11381.79	6573.00	-5408.89	23.85	-0.04	5288.71	68.54	115.74	PASS
6431.00†	6391.56	-187.54	0.73	11381.79	6573.00	-5408.89	23.85	-0.04	5224.56	67.04	116.91	PASS
6531.00†	6458.96	-261.24	1.02	11381.79	6573.00	-5408.89	23.85	-0.05	5148.96	65.56	117.80	PASS
6631.00†	6512.53	-345.53	1.35	11381.79	6573.00	-5408.89	23.85	-0.07	5063.78	64.13	118.44	PASS
6731.00†	6550.66	-437.84	1.71	11381.79	6573.00	-5408.89	23.85	-0.11	4971.15	62.76	118.82	PASS
6831.00†	6572.17	-535.36	2.09	11381.79	6573.00	-5408.89	23.85	-0.25	4873.58	61.43	119.01	PASS
6905.41	6577.00	-609.57	2.38	11381.79	6573.00	-5408.89	23.85	-34.19	4799.38	60.47	119.05	PASS
6931.00†	6577.00	-635.15	2.48	11381.79	6573.00	-5408.89	23.85	-34.19	4773.79	60.59	118.18	PASS
7031.00†	6577.00	-735.15	2.87	11381.79	6573.00	-5408.89	23.85	-34.19	4673.79	59.31	118.20	PASS
7131.00†	6577.00	-835.15	3.26	11381.79	6573.00	-5408.89	23.85	-34.19	4573.79	58.04	118.22	PASS
7231.00†	6577.00	-935.15	3.65	11381.79	6573.00	-5408.89	23.85	-34.19	4473.79	56.76	118.24	PASS
7331.00†	6577.00	-1035.15	4.04	11381.79	6573.00	-5408.89	23.85	-34.19	4373.79	55.48	118.26	PASS
7431.00†	6577.00	-1135.15	4.44	11381.79	6573.00	-5408.89	23.85	-34.19	4273.79	54.20	118.28	PASS
7531.00†	6577.00	-1235.15	4.83	11381.79	6573.00	-5408.89	23.85	-34.19	4173.79	52.92	118.31	PASS
7631.00†	6577.00	-1335.15	5.22	11381.79	6573.00	-5408.89	23.85	-34.19	4073.79	51.64	118.34	PASS
7731.00†	6577.00	-1435.15	5.61	11381.79	6573.00	-5408.89	23.85	-34.19	3973.79	50.36	118.37	PASS
7831.00†	6577.00	-1535.15	6.00	11381.79	6573.00	-5408.89	23.85	-34.19	3873.79	49.08	118.40	PASS
7931.00†	6577.00	-1635.15	6.39	11381.79	6573.00	-5408.89	23.85	-34.19	3773.79	47.80	118.43	PASS
8031.00†	6577.00	-1735.15	6.78	11381.79	6573.00	-5408.89	23.85	-34.19	3673.79	46.51	118.47	PASS
8131.00†	6577.00	-1835.15	7.17	11381.79	6573.00	-5408.89	23.85	-34.19	3573.79	45.23	118.51	PASS
8231.00†	6577.00	-1935.14	7.56	11381.79	6573.00	-5408.89	23.85	-34.19	3473.79	43.95	118.55	PASS
8331.00†	6577.00	-2035.14	7.95	11381.79	6573.00	-5408.89	23.85	-34.19	3373.79	42.67	118.59	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 8 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-26-2H (342'FNL & 1819'FWL,SEC.35) Well: CROW VALLEY 7-62-26-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	11381.79	6573.00	-5408.89	23.85	-34.19	3273.79	41.39	118.64	PASS
8531.00†	6577.00	-2235.14	8.73	11381.79	6573.00	-5408.89	23.85	-34.19	3173.79	40.11	118.68	PASS
8631.00†	6577.00	-2335.14	9.12	11381.79	6573.00	-5408.89	23.85	-34.19	3073.79	38.83	118.73	PASS
8731.00†	6577.00	-2435.14	9.51	11381.79	6573.00	-5408.89	23.85	-34.19	2973.79	37.55	118.78	PASS
8831.00†	6577.00	-2535.14	9.91	11381.79	6573.00	-5408.89	23.85	-34.19	2873.79	36.27	118.83	PASS
8931.00†	6577.00	-2635.14	10.30	11381.79	6573.00	-5408.89	23.85	-34.19	2773.79	35.00	118.89	PASS
9031.00†	6577.00	-2735.14	10.69	11381.79	6573.00	-5408.89	23.85	-34.19	2673.79	33.72	118.95	PASS
9131.00†	6577.00	-2835.14	11.08	11381.79	6573.00	-5408.89	23.85	-34.19	2573.79	32.44	119.00	PASS
9231.00†	6577.00	-2935.14	11.47	11381.79	6573.00	-5408.89	23.85	-34.19	2473.79	31.17	119.07	PASS
9331.00†	6577.00	-3035.14	11.86	11381.79	6573.00	-5408.89	23.85	-34.19	2373.79	29.89	119.13	PASS
9431.00†	6577.00	-3135.14	12.25	11381.79	6573.00	-5408.89	23.85	-34.19	2273.79	28.61	119.19	PASS
9531.00†	6577.00	-3235.13	12.64	11381.79	6573.00	-5408.89	23.85	-34.19	2173.79	27.34	119.26	PASS
9631.00†	6577.00	-3335.13	13.03	11381.79	6573.00	-5408.89	23.85	-34.19	2073.79	26.07	119.33	PASS
9731.00†	6577.00	-3435.13	13.42	11381.79	6573.00	-5408.89	23.85	-34.19	1973.79	24.80	119.40	PASS
9831.00†	6577.00	-3535.13	13.81	11381.79	6573.00	-5408.89	23.85	-34.19	1873.79	23.53	119.47	PASS
9931.00†	6577.00	-3635.13	14.20	11381.79	6573.00	-5408.89	23.85	-34.19	1773.79	22.26	119.55	PASS
10031.00†	6577.00	-3735.13	14.59	11381.79	6573.00	-5408.89	23.85	-34.19	1673.79	20.99	119.63	PASS
10131.00†	6577.00	-3835.13	14.98	11381.79	6573.00	-5408.89	23.85	-34.19	1573.79	19.72	119.71	PASS
10231.00†	6577.00	-3935.13	15.38	11381.79	6573.00	-5408.89	23.85	-34.19	1473.79	18.45	119.79	PASS
10331.00†	6577.00	-4035.13	15.77	11381.79	6573.00	-5408.89	23.85	-34.19	1373.79	17.19	119.87	PASS
10431.00†	6577.00	-4135.13	16.16	11381.79	6573.00	-5408.89	23.85	-34.19	1273.79	15.93	119.96	PASS
10531.00†	6577.00	-4235.13	16.55	11381.79	6573.00	-5408.89	23.85	-34.19	1173.80	14.67	120.05	PASS
10631.00†	6577.00	-4335.13	16.94	11381.79	6573.00	-5408.89	23.85	-34.19	1073.80	13.41	120.15	PASS
10731.00†	6577.00	-4435.13	17.33	11381.79	6573.00	-5408.89	23.85	-34.19	973.80	12.15	120.25	PASS
10764.71	6577.00	-4468.83	17.46	11381.79	6573.00	-5408.89	23.85	-34.19	940.09	11.72	120.28	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) 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]
7in Casing Intermediate	31.00	6805.00	6774.00	110.00	6577.00	-6433.44	-97.64	-6259.45	-91.49

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	11381.79	NaviTrak (Standard)		CROW VALLEY 7-62-26-2H PWB

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-26-2H PWB Offset Wellpath: CROW VALLEY 7-62-26-2H (REV-E.0) PWP

MD Reference: Rig on SLOT#02 CROW VALLEY 7-62-26-2H (342'FNL & 1819'FWL,SEC.35) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 9 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) Well: CROW VALLEY 7-62-27-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	10058.64	81.68	184.72	PASS
131.00†	131.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9993.98	80.82	185.48	PASS
231.00†	231.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9929.91	79.97	186.26	PASS
331.00†	331.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9866.43	79.13	187.04	PASS
431.00†	431.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9803.56	78.29	187.83	PASS
531.00†	531.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9741.32	77.46	188.63	PASS
631.00†	631.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9679.70	76.64	189.45	PASS
731.00†	731.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9618.73	75.83	190.27	PASS
831.00†	831.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9558.42	75.03	191.10	PASS
931.00†	931.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9498.78	74.23	191.94	PASS
1031.00†	1031.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9439.82	73.44	192.79	PASS
1131.00†	1131.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9381.56	72.67	193.65	PASS
1231.00†	1231.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9324.00	71.90	194.52	PASS
1331.00†	1331.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9267.17	71.14	195.40	PASS
1431.00†	1431.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9211.07	70.39	196.28	PASS
1531.00†	1531.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9155.72	69.65	197.18	PASS
1631.00†	1631.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9101.13	68.92	198.07	PASS
1731.00†	1731.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	9047.32	68.20	198.98	PASS
1831.00†	1831.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8994.30	67.49	199.89	PASS
1931.00†	1931.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8942.08	66.80	200.81	PASS
2031.00†	2031.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8890.68	66.11	201.73	PASS
2131.00†	2131.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8840.12	65.43	202.65	PASS
2231.00†	2231.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8790.39	64.77	203.58	PASS
2331.00†	2331.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8741.54	64.11	204.52	PASS
2431.00†	2431.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8693.55	63.47	205.45	PASS
2531.00†	2531.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8646.46	62.84	206.39	PASS
2631.00†	2631.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8600.27	62.22	207.33	PASS
2731.00†	2731.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8555.00	61.62	208.27	PASS
2831.00†	2831.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8510.67	61.02	209.20	PASS
2900.00	2900.00	0.00	0.00	11574.52	6564.00	-5521.88	-5291.98	-136.22	8480.63	60.62	209.85	PASS
2931.00†	2931.00	-0.17	0.00	11574.52	6564.00	-5521.88	-5291.98	44.21	8467.17	60.44	210.15	PASS
3031.00†	3030.95	-2.99	0.01	11574.52	6564.00	-5521.88	-5291.98	44.91	8422.92	59.84	211.13	PASS
3131.00†	3130.75	-9.31	0.04	11574.52	6564.00	-5521.88	-5291.98	45.63	8377.41	59.22	212.18	PASS
3200.00	3199.45	-15.69	0.06	11574.52	6564.00	-5521.88	-5291.98	46.15	8345.29	58.79	212.93	PASS
3231.00†	3230.28	-18.93	0.07	11574.52	6564.00	-5521.88	-5291.98	46.15	8330.78	58.59	213.26	PASS
3250.00	3249.18	-20.92	0.08	11574.52	6564.00	-5521.88	-5291.98	46.15	8321.93	58.48	213.47	PASS
3331.00†	3329.84	-28.25	0.11	11574.52	6564.00	-5521.88	-5291.98	45.56	8285.28	57.99	214.31	PASS
3431.00†	3429.66	-34.14	0.13	11574.52	6564.00	-5521.88	-5291.98	44.90	8242.92	57.42	215.34	PASS
3531.00†	3529.63	-36.55	0.14	11574.52	6564.00	-5521.88	-5291.98	44.30	8203.83	56.89	216.33	PASS
3550.00	3548.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8196.77	56.79	216.50	PASS
3631.00†	3629.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8167.32	56.39	217.24	PASS
3731.00†	3729.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8131.93	55.91	218.15	PASS
3831.00†	3829.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8097.62	55.45	219.05	PASS
3931.00†	3929.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8064.40	55.00	219.94	PASS
4031.00†	4029.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8032.29	54.56	220.82	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 10 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) Well: CROW VALLEY 7-62-27-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	8001.30	54.14	221.69	PASS
4231.00†	4229.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7971.45	53.73	222.55	PASS
4331.00†	4329.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7942.74	53.33	223.39	PASS
4431.00†	4429.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7915.19	52.95	224.22	PASS
4531.00†	4529.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7888.81	52.58	225.04	PASS
4631.00†	4629.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7863.62	52.23	225.84	PASS
4731.00†	4729.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7839.62	51.89	226.62	PASS
4831.00†	4829.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7816.82	51.57	227.38	PASS
4931.00†	4929.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7795.24	51.26	228.13	PASS
5031.00†	5029.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7774.89	50.96	228.86	PASS
5131.00†	5129.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7755.78	50.68	229.56	PASS
5231.00†	5229.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7737.91	50.41	230.25	PASS
5331.00†	5329.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7721.29	50.16	230.91	PASS
5431.00†	5429.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7705.94	49.92	231.56	PASS
5531.00†	5529.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7691.85	49.69	232.18	PASS
5631.00†	5629.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7679.04	49.48	232.77	PASS
5731.00†	5729.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7667.52	49.29	233.34	PASS
5831.00†	5829.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7657.28	49.11	233.89	PASS
5931.00†	5929.63	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7648.34	48.94	234.41	PASS
6005.41	6004.04	-36.61	0.14	11574.52	6564.00	-5521.88	-5291.98	-136.03	7642.53	48.83	234.78	PASS
6031.00†	6029.62	-37.18	0.15	11574.52	6564.00	-5521.88	-5291.98	44.35	7640.29	48.79	234.92	PASS
6131.00†	6128.63	-50.32	0.20	11574.52	6564.00	-5521.88	-5291.98	45.48	7624.60	48.49	235.85	PASS
6231.00†	6223.85	-80.45	0.31	11574.52	6564.00	-5521.88	-5291.98	47.46	7598.23	47.96	237.63	PASS
6331.00†	6312.39	-126.66	0.49	11574.52	6564.00	-5521.88	-5291.98	50.41	7561.88	47.34	239.58	PASS
6431.00†	6391.56	-187.54	0.73	11574.52	6564.00	-5521.88	-5291.98	54.45	7516.49	46.65	241.71	PASS
6531.00†	6458.96	-261.24	1.02	11574.52	6564.00	-5521.88	-5291.98	59.72	7463.32	45.87	244.04	PASS
6631.00†	6512.53	-345.53	1.35	11574.52	6564.00	-5521.88	-5291.98	66.32	7403.82	45.04	246.58	PASS
6731.00†	6550.66	-437.84	1.71	11574.52	6564.00	-5521.88	-5291.98	74.19	7339.67	44.15	249.35	PASS
6831.00†	6572.17	-535.36	2.09	11574.52	6564.00	-5521.88	-5291.98	83.01	7272.73	43.23	252.36	PASS
6905.41	6577.00	-609.57	2.38	11574.52	6564.00	-5521.88	-5291.98	89.86	7222.27	42.53	254.75	PASS
6931.00†	6577.00	-635.15	2.48	11574.52	6564.00	-5521.88	-5291.98	89.86	7204.97	42.43	254.72	PASS
7031.00†	6577.00	-735.15	2.87	11574.52	6564.00	-5521.88	-5291.98	89.86	7137.81	41.47	258.20	PASS
7131.00†	6577.00	-835.15	3.26	11574.52	6564.00	-5521.88	-5291.98	89.86	7071.43	40.50	261.94	PASS
7231.00†	6577.00	-935.15	3.65	11574.52	6564.00	-5521.88	-5291.98	89.86	7005.85	39.52	265.92	PASS
7331.00†	6577.00	-1035.15	4.04	11574.52	6564.00	-5521.88	-5291.98	89.86	6941.09	38.54	270.13	PASS
7431.00†	6577.00	-1135.15	4.44	11574.52	6564.00	-5521.88	-5291.98	89.86	6877.17	37.57	274.57	PASS
7531.00†	6577.00	-1235.15	4.83	11574.52	6564.00	-5521.88	-5291.98	89.86	6814.13	36.60	279.23	PASS
7631.00†	6577.00	-1335.15	5.22	11574.52	6564.00	-5521.88	-5291.98	89.86	6751.97	35.65	284.09	PASS
7731.00†	6577.00	-1435.15	5.61	11574.52	6564.00	-5521.88	-5291.98	89.86	6690.73	34.71	289.14	PASS
7831.00†	6577.00	-1535.15	6.00	11574.52	6564.00	-5521.88	-5291.98	89.86	6630.44	33.79	294.38	PASS
7931.00†	6577.00	-1635.15	6.39	11574.52	6564.00	-5521.88	-5291.98	89.86	6571.11	32.88	299.78	PASS
8031.00†	6577.00	-1735.15	6.78	11574.52	6564.00	-5521.88	-5291.98	89.86	6512.78	31.99	305.35	PASS
8131.00†	6577.00	-1835.15	7.17	11574.52	6564.00	-5521.88	-5291.98	89.86	6455.47	31.13	311.07	PASS
8231.00†	6577.00	-1935.14	7.56	11574.52	6564.00	-5521.88	-5291.98	89.86	6399.21	30.29	316.93	PASS
8331.00†	6577.00	-2035.14	7.95	11574.52	6564.00	-5521.88	-5291.98	89.86	6344.03	29.47	322.93	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 11 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL, SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) Well: CROW VALLEY 7-62-27-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	11574.52	6564.00	-5521.88	-5291.98	89.86	6289.96	28.67	329.05	PASS
8531.00†	6577.00	-2235.14	8.73	11574.52	6564.00	-5521.88	-5291.98	89.86	6237.01	27.90	335.29	PASS
8631.00†	6577.00	-2335.14	9.12	11574.52	6564.00	-5521.88	-5291.98	89.86	6185.24	27.16	341.64	PASS
8731.00†	6577.00	-2435.14	9.51	11574.52	6564.00	-5521.88	-5291.98	89.86	6134.65	26.44	348.08	PASS
8831.00†	6577.00	-2535.14	9.91	11574.52	6564.00	-5521.88	-5291.98	89.86	6085.29	25.74	354.62	PASS
8931.00†	6577.00	-2635.14	10.30	11574.52	6564.00	-5521.88	-5291.98	89.86	6037.18	25.07	361.25	PASS
9031.00†	6577.00	-2735.14	10.69	11574.52	6564.00	-5521.88	-5291.98	89.86	5990.35	24.42	367.95	PASS
9131.00†	6577.00	-2835.14	11.08	11574.52	6564.00	-5521.88	-5291.98	89.86	5944.84	23.80	374.72	PASS
9231.00†	6577.00	-2935.14	11.47	11574.52	6564.00	-5521.88	-5291.98	89.86	5900.67	23.20	381.55	PASS
9331.00†	6577.00	-3035.14	11.86	11574.52	6564.00	-5521.88	-5291.98	89.86	5857.88	22.62	388.42	PASS
9431.00†	6577.00	-3135.14	12.25	11574.52	6564.00	-5521.88	-5291.98	89.86	5816.49	22.07	395.35	PASS
9531.00†	6577.00	-3235.13	12.64	11574.52	6564.00	-5521.88	-5291.98	89.86	5776.53	21.54	402.30	PASS
9631.00†	6577.00	-3335.13	13.03	11574.52	6564.00	-5521.88	-5291.98	89.86	5738.04	21.03	409.28	PASS
9731.00†	6577.00	-3435.13	13.42	11574.52	6564.00	-5521.88	-5291.98	89.86	5701.05	20.54	416.28	PASS
9831.00†	6577.00	-3535.13	13.81	11574.52	6564.00	-5521.88	-5291.98	89.86	5665.58	20.08	423.28	PASS
9931.00†	6577.00	-3635.13	14.20	11574.52	6564.00	-5521.88	-5291.98	89.86	5631.66	19.63	430.28	PASS
10031.00†	6577.00	-3735.13	14.59	11574.52	6564.00	-5521.88	-5291.98	89.86	5599.32	19.21	437.27	PASS
10131.00†	6577.00	-3835.13	14.98	11574.52	6564.00	-5521.88	-5291.98	89.86	5568.59	18.80	444.23	PASS
10231.00†	6577.00	-3935.13	15.38	11574.52	6564.00	-5521.88	-5291.98	89.86	5539.49	18.42	451.16	PASS
10331.00†	6577.00	-4035.13	15.77	11574.52	6564.00	-5521.88	-5291.98	89.86	5512.05	18.05	458.05	PASS
10431.00†	6577.00	-4135.13	16.16	11574.52	6564.00	-5521.88	-5291.98	89.86	5486.31	17.70	464.89	PASS
10531.00†	6577.00	-4235.13	16.55	11574.52	6564.00	-5521.88	-5291.98	89.86	5462.27	17.37	471.66	PASS
10631.00†	6577.00	-4335.13	16.94	11574.52	6564.00	-5521.88	-5291.98	89.86	5439.96	17.06	478.36	PASS
10731.00†	6577.00	-4435.13	17.33	11574.52	6564.00	-5521.88	-5291.98	89.86	5419.40	16.76	484.98	PASS
10764.71	6577.00	-4468.83	17.46	11574.52	6564.00	-5521.88	-5291.98	89.86	5412.87	16.67	487.19	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) 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]
7in Casing Intermediate	31.00	6936.00	6905.00	1.00	6571.00	-6570.89	-3307.53	-6381.87	-3302.73

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	11574.52	NaviTrak (Standard)		CROW VALLEY 7-62-27-2H pwb

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-27-2H pwb Offset Wellpath: CROW VALLEY 7-62-27-2H (REV-D.0) PWP

MD Reference: Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 12 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-24-2H (349'FNL & 2069'FWL, SEC.24) Well: CROW VALLEY 7-62-24-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	16.00	31.00	71.88	5370.47	89.23	5370.95	141.78	56.82	PASS
131.00†	131.00	0.00	0.00	116.00	131.00	71.88	5370.47	89.23	5370.95	107.87	74.69	PASS
231.00†	231.00	0.00	0.00	216.00	231.00	71.88	5370.47	89.23	5370.95	107.84	74.71	PASS
331.00†	331.00	0.00	0.00	316.00	331.00	71.88	5370.47	89.23	5370.95	107.78	74.75	PASS
431.00†	431.00	0.00	0.00	416.00	431.00	71.88	5370.47	89.23	5370.95	107.70	74.80	PASS
531.00†	531.00	0.00	0.00	516.00	531.00	71.88	5370.47	89.23	5370.95	107.60	74.87	PASS
631.00†	631.00	0.00	0.00	616.00	631.00	71.88	5370.47	89.23	5370.95	107.48	74.96	PASS
731.00†	731.00	0.00	0.00	716.00	731.00	71.88	5370.47	89.23	5370.95	107.34	75.06	PASS
831.00†	831.00	0.00	0.00	816.00	831.00	71.88	5370.47	89.23	5370.95	107.17	75.17	PASS
931.00†	931.00	0.00	0.00	916.00	931.00	71.88	5370.47	89.23	5370.95	106.98	75.31	PASS
1031.00†	1031.00	0.00	0.00	1079.68	1094.67	72.88	5369.99	89.22	5370.86	106.71	75.50	PASS
1131.00†	1131.00	0.00	0.00	1355.25	1369.40	91.18	5361.06	89.03	5367.13	106.20	75.81	PASS
1231.00†	1231.00	0.00	0.00	1454.70	1468.30	100.52	5356.50	88.93	5362.70	105.83	76.01	PASS
1331.00†	1331.00	0.00	0.00	1554.15	1567.21	109.86	5351.95	88.82	5358.28	105.43	76.23	PASS
1431.00†	1431.00	0.00	0.00	1653.60	1666.12	119.21	5347.39	88.72	5353.88	105.01	76.48	PASS
1531.00†	1531.00	0.00	0.00	1753.06	1765.03	128.55	5342.83	88.62	5349.50	104.56	76.74	PASS
1631.00†	1631.00	0.00	0.00	1852.51	1863.93	137.90	5338.27	88.52	5345.13	104.10	77.02	PASS
1731.00†	1731.00	0.00	0.00	1951.96	1962.84	147.24	5333.72	88.42	5340.78	103.61	77.32	PASS
1831.00†	1831.00	0.00	0.00	2051.41	2061.75	156.58	5329.16	88.32	5336.45	103.10	77.64	PASS
1931.00†	1931.00	0.00	0.00	2150.86	2160.66	165.93	5324.60	88.22	5332.14	102.57	77.98	PASS
2031.00†	2031.00	0.00	0.00	2250.32	2259.56	175.27	5320.05	88.11	5327.84	102.02	78.34	PASS
2131.00†	2131.00	0.00	0.00	2349.77	2358.47	184.61	5315.49	88.01	5323.56	101.45	78.71	PASS
2231.00†	2231.00	0.00	0.00	2449.22	2457.38	193.96	5310.93	87.91	5319.29	100.86	79.11	PASS
2331.00†	2331.00	0.00	0.00	2548.67	2556.29	203.30	5306.37	87.81	5315.04	100.26	79.52	PASS
2431.00†	2431.00	0.00	0.00	2648.12	2655.19	212.64	5301.82	87.70	5310.81	99.64	79.95	PASS
2531.00†	2531.00	0.00	0.00	2747.58	2754.10	221.99	5297.26	87.60	5306.60	99.01	80.40	PASS
2631.00†	2631.00	0.00	0.00	2847.03	2853.01	231.33	5292.70	87.50	5302.41	98.36	80.86	PASS
2731.00†	2731.00	0.00	0.00	2946.48	2951.92	240.67	5288.15	87.39	5298.23	97.71	81.34	PASS
2831.00†	2831.00	0.00	0.00	3045.93	3050.82	250.02	5283.59	87.29	5294.07	97.04	81.83	PASS
2900.00	2900.00	0.00	0.00	3114.56	3119.07	256.46	5280.44	87.22	5291.21	96.57	82.19	PASS
2931.00†	2931.00	-0.17	0.00	3145.37	3149.71	259.36	5279.03	-92.62	5289.93	96.36	82.35	PASS
3031.00†	3030.95	-2.99	0.01	3244.51	3248.31	268.67	5274.49	-92.83	5285.94	95.67	82.88	PASS
3131.00†	3130.75	-9.31	0.04	3343.17	3346.42	277.94	5269.97	-93.08	5282.16	94.97	83.43	PASS
3200.00	3199.45	-15.69	0.06	3410.89	3413.78	284.30	5266.87	-93.26	5279.69	94.48	83.83	PASS
3231.00†	3230.28	-18.93	0.07	3441.25	3443.97	287.16	5265.47	-93.33	5278.62	94.25	84.01	PASS
3250.00	3249.18	-20.92	0.08	3459.85	3462.47	288.90	5264.62	-93.37	5277.96	94.11	84.12	PASS
3331.00†	3329.84	-28.25	0.11	3539.39	3541.57	296.38	5260.98	-93.47	5275.12	93.53	84.60	PASS
3431.00†	3429.66	-34.14	0.13	3638.10	3639.75	305.65	5256.45	-93.57	5271.48	92.80	85.21	PASS
3531.00†	3529.63	-36.55	0.14	3737.30	3738.40	314.97	5251.91	-93.62	5267.66	92.07	85.82	PASS
3550.00	3548.63	-36.61	0.14	3756.19	3757.18	316.74	5251.04	86.15	5266.91	91.93	85.94	PASS
3631.00†	3629.63	-36.61	0.14	3836.74	3837.30	324.31	5247.35	86.07	5263.71	91.34	86.44	PASS
3731.00†	3729.63	-36.61	0.14	3936.19	3936.21	333.66	5242.79	85.96	5259.77	90.61	87.07	PASS
3831.00†	3829.63	-36.61	0.14	4035.65	4035.12	343.00	5238.24	85.86	5255.85	89.87	87.72	PASS
3931.00†	3929.63	-36.61	0.14	4135.10	4134.03	352.34	5233.68	85.75	5251.95	89.14	88.38	PASS
4031.00†	4029.63	-36.61	0.14	4234.55	4232.93	361.69	5229.12	85.64	5248.07	88.40	89.05	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 13 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-24-2H (349'FNL & 2069'FWL, SEC.24) Well: CROW VALLEY 7-62-24-2H Threshold Value=1.50
† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	4334.00	4331.84	371.03	5224.57	85.54	5244.20	87.66	89.73	PASS
4231.00†	4229.63	-36.61	0.14	4433.46	4430.75	380.37	5220.01	85.43	5240.36	86.92	90.43	PASS
4331.00†	4329.63	-36.61	0.14	4532.91	4529.66	389.72	5215.45	85.33	5236.53	86.18	91.14	PASS
4431.00†	4429.63	-36.61	0.14	4632.36	4628.56	399.06	5210.90	85.22	5232.72	85.45	91.86	PASS
4531.00†	4529.63	-36.61	0.14	4731.81	4727.47	408.41	5206.34	85.11	5228.92	84.71	92.59	PASS
4631.00†	4629.63	-36.61	0.14	4831.26	4826.38	417.75	5201.78	85.01	5225.15	83.97	93.34	PASS
4731.00†	4729.63	-36.61	0.14	4930.72	4925.28	427.09	5197.22	84.90	5221.39	83.24	94.09	PASS
4831.00†	4829.63	-36.61	0.14	5030.17	5024.19	436.44	5192.67	84.80	5217.66	82.51	94.85	PASS
4931.00†	4929.63	-36.61	0.14	5129.62	5123.09	445.78	5188.11	84.69	5213.94	81.78	95.63	PASS
5031.00†	5029.63	-36.61	0.14	5229.07	5221.99	455.12	5183.55	84.58	5210.23	81.06	96.42	PASS
5131.00†	5129.63	-36.61	0.14	5328.53	5320.90	464.47	5179.00	84.47	5206.55	80.34	97.21	PASS
5231.00†	5229.63	-36.61	0.14	5427.98	5419.81	473.81	5174.44	84.37	5202.89	79.62	98.02	PASS
5331.00†	5329.63	-36.61	0.14	5527.43	5518.72	483.15	5169.88	84.26	5199.24	78.91	98.83	PASS
5431.00†	5429.63	-36.61	0.14	5626.88	5617.62	492.50	5165.32	84.15	5195.61	78.20	99.66	PASS
5531.00†	5529.63	-36.61	0.14	5726.33	5716.53	501.84	5160.77	84.04	5192.00	77.50	100.49	PASS
5631.00†	5629.63	-36.61	0.14	5825.79	5815.44	511.18	5156.21	83.94	5188.41	76.80	101.33	PASS
5731.00†	5729.63	-36.61	0.14	5925.23	5914.60	521.40	5150.46	83.82	5184.80	75.96	102.39	PASS
5831.00†	5829.63	-36.61	0.14	6200.57	6182.73	472.75	5142.17	84.34	5179.24	74.13	104.81	PASS
5931.00†	5929.63	-36.61	0.14	6382.52	6334.86	374.39	5139.60	85.43	5171.76	74.46	104.19	PASS
6005.41	6004.04	-36.61	0.14	6474.25	6397.88	307.87	5139.55	86.17	5165.97	74.56	103.94	PASS
6031.00†	6029.62	-37.18	0.15	6500.02	6413.61	287.45	5139.69	-93.58	5164.08	74.54	103.92	PASS
6131.00†	6128.63	-50.32	0.20	6589.63	6460.80	211.41	5140.69	-93.43	5157.86	74.33	104.09	PASS
6231.00†	6223.85	-80.45	0.31	6667.59	6491.82	139.95	5142.19	-93.20	5153.57	73.92	104.58	PASS
6331.00†	6312.39	-126.66	0.49	6738.57	6511.39	71.80	5144.04	-92.87	5151.22	73.32	105.39	PASS
6406.00†	6372.78	-171.04	0.67	6793.50	6520.67	17.71	5145.78	-92.50	5150.70	72.66	106.34	PASS
6431.00†	6391.56	-187.54	0.73	6805.06	6521.96	6.22	5146.18	-92.41	5150.74	72.47	106.62	PASS
6531.00†	6458.96	-261.24	1.02	6870.10	6524.93	-58.67	5148.61	-91.82	5152.00	71.39	108.25	PASS
6631.00†	6512.53	-345.53	1.35	6954.41	6525.05	-142.92	5151.92	-91.06	5154.57	69.85	110.70	PASS
6731.00†	6550.66	-437.84	1.71	7046.72	6525.18	-235.15	5155.55	-90.34	5157.89	67.90	113.94	PASS
6831.00†	6572.17	-535.36	2.09	7144.21	6525.32	-332.58	5159.38	-89.75	5161.49	65.62	117.99	PASS
6905.41	6577.00	-609.57	2.38	7218.38	6525.42	-406.67	5162.30	-89.43	5164.16	63.76	121.49	PASS
6931.00†	6577.00	-635.15	2.48	7243.95	6525.46	-432.23	5163.30	-89.43	5165.07	63.56	121.89	PASS
7031.00†	6577.00	-735.15	2.87	7343.89	6525.60	-532.09	5167.23	-89.43	5168.61	60.91	127.28	PASS
7131.00†	6577.00	-835.15	3.26	7443.82	6525.74	-631.95	5171.16	-89.43	5172.14	58.25	133.20	PASS
7231.00†	6577.00	-935.15	3.65	7543.76	6525.88	-731.81	5175.09	-89.43	5175.68	55.62	139.59	PASS
7331.00†	6577.00	-1035.15	4.04	7643.70	6526.02	-831.67	5179.02	-89.44	5179.22	53.07	146.39	PASS
7431.00†	6577.00	-1135.15	4.44	7743.64	6526.16	-931.53	5182.94	-89.44	5182.76	50.63	153.54	PASS
7531.00†	6577.00	-1235.15	4.83	7843.57	6526.31	-1031.39	5186.87	-89.44	5186.30	48.32	161.00	PASS
7631.00†	6577.00	-1335.15	5.22	7943.51	6526.45	-1131.25	5190.80	-89.44	5189.84	46.16	168.66	PASS
7731.00†	6577.00	-1435.15	5.61	8043.45	6526.59	-1231.11	5194.73	-89.44	5193.37	44.09	176.68	PASS
7831.00†	6577.00	-1535.15	6.00	8143.38	6526.73	-1330.97	5198.66	-89.45	5196.91	42.18	184.83	PASS
7931.00†	6577.00	-1635.15	6.39	8243.32	6526.87	-1430.83	5202.58	-89.45	5200.45	40.38	193.17	PASS
8031.00†	6577.00	-1735.15	6.78	8343.26	6527.01	-1530.69	5206.51	-89.45	5203.99	38.71	201.65	PASS
8131.00†	6577.00	-1835.15	7.17	8443.20	6527.15	-1630.55	5210.44	-89.45	5207.53	37.15	210.27	PASS
8231.00†	6577.00	-1935.14	7.56	8543.13	6527.29	-1730.41	5214.37	-89.45	5211.07	35.69	219.02	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 14 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-24-2H (349'FNL & 2069'FWL, SEC.24) Well: CROW VALLEY 7-62-24-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8331.00†	6577.00	-2035.14	7.95	8643.07	6527.43	-1830.27	5218.30	-89.46	5214.61	34.33	227.86	PASS
8431.00†	6577.00	-2135.14	8.34	8743.01	6527.57	-1930.12	5222.22	-89.46	5218.14	33.05	236.80	PASS
8531.00†	6577.00	-2235.14	8.73	8842.95	6527.71	-2029.98	5226.15	-89.46	5221.68	31.86	245.83	PASS
8631.00†	6577.00	-2335.14	9.12	8942.88	6527.85	-2129.84	5230.08	-89.46	5225.22	30.75	254.93	PASS
8731.00†	6577.00	-2435.14	9.51	9042.82	6528.00	-2229.70	5234.01	-89.46	5228.76	29.70	264.09	PASS
8831.00†	6577.00	-2535.14	9.91	9142.76	6528.14	-2329.56	5237.93	-89.47	5232.30	28.72	273.32	PASS
8931.00†	6577.00	-2635.14	10.30	9242.69	6528.28	-2429.42	5241.86	-89.47	5235.84	27.79	282.60	PASS
9031.00†	6577.00	-2735.14	10.69	9342.63	6528.42	-2529.28	5245.79	-89.47	5239.37	26.92	291.93	PASS
9131.00†	6577.00	-2835.14	11.08	9442.57	6528.56	-2629.14	5249.72	-89.47	5242.91	26.10	301.31	PASS
9231.00†	6577.00	-2935.14	11.47	9542.51	6528.70	-2729.00	5253.65	-89.47	5246.45	25.33	310.72	PASS
9331.00†	6577.00	-3035.14	11.86	9642.44	6528.84	-2828.86	5257.57	-89.47	5249.99	24.60	320.17	PASS
9431.00†	6577.00	-3135.14	12.25	9742.38	6528.98	-2928.72	5261.50	-89.48	5253.53	23.90	329.66	PASS
9531.00†	6577.00	-3235.13	12.64	9842.32	6529.12	-3028.58	5265.43	-89.48	5257.07	23.25	339.18	PASS
9631.00†	6577.00	-3335.13	13.03	9942.25	6529.26	-3128.44	5269.36	-89.48	5260.61	22.63	348.72	PASS
9731.00†	6577.00	-3435.13	13.42	10042.19	6529.40	-3228.30	5273.29	-89.48	5264.14	22.04	358.29	PASS
9831.00†	6577.00	-3535.13	13.81	10142.13	6529.55	-3328.16	5277.21	-89.48	5267.68	21.48	367.89	PASS
9931.00†	6577.00	-3635.13	14.20	10242.07	6529.69	-3428.04	5281.14	-89.49	5271.22	20.94	377.50	PASS
10031.00†	6577.00	-3735.13	14.59	10342.00	6529.83	-3527.90	5285.07	-89.49	5274.76	20.44	387.14	PASS
10131.00†	6577.00	-3835.13	14.98	10441.94	6529.97	-3627.76	5289.00	-89.49	5278.30	19.95	396.80	PASS
10231.00†	6577.00	-3935.13	15.38	10541.88	6530.11	-3727.62	5292.93	-89.49	5281.84	19.49	406.48	PASS
10331.00†	6577.00	-4035.13	15.77	10641.82	6530.25	-3827.48	5296.85	-89.49	5285.38	19.05	416.17	PASS
10431.00†	6577.00	-4135.13	16.16	10741.75	6530.39	-3927.34	5300.78	-89.50	5288.91	18.63	425.87	PASS
10531.00†	6577.00	-4235.13	16.55	10841.69	6530.53	-4027.20	5304.71	-89.50	5292.45	18.22	435.60	PASS
10631.00†	6577.00	-4335.13	16.94	10941.63	6530.67	-4127.06	5308.64	-89.50	5295.99	17.84	445.33	PASS
10731.00†	6577.00	-4435.13	17.33	11041.56	6530.81	-4226.92	5312.57	-89.50	5299.53	17.47	455.08	PASS
10764.71	6577.00	-4468.83	17.46	11075.25	6530.86	-4260.56	5313.89	-89.50	5300.72	17.35	458.37	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

Slot Surface Uncertainty @ 1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @ 1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) 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]
7in Casing Intermediate	31.00	6863.00	6832.00	46.00	6524.92	43.82	3273.84	6.19	3206.13

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	11174.47	NaviTrak (Standard)		CROW VALLEY 7-62-24-2H PWB



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 15 of 27

**REFERENCE WELLPATH IDENTIFICATION**

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-24-2H PWB Offset Wellpath: CROW VALLEY 7-62-24-2H (REV-A.0) PWP

MD Reference: Rig on SLOT#02 CROW VALLEY 7-62-24-2H (349'FNL & 2069'FWL, SEC.24) (RKB)	<i>Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)</i>
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
Page 16 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

Facility: SEC.34-T7N-R62W				Slot: SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FEL, SEC.34)				Well: BICKFORD #1		Threshold Value=1.50 † = interpolated/extrapolated station			
Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]		C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	0.00	31.00	-12288.25	-3918.07	-162.32		12897.76	255.37	75.76	PASS
131.00†	131.00	0.00	0.00	100.00	131.03	-12288.25	-3918.07	-162.32		12897.76	244.27	79.20	PASS
231.00†	231.00	0.00	0.00	200.00	231.03	-12288.25	-3918.07	-162.32		12897.76	234.07	82.65	PASS
331.00†	331.00	0.00	0.00	300.00	331.03	-12288.25	-3918.07	-162.32		12897.76	224.67	86.11	PASS
431.00†	431.00	0.00	0.00	400.00	431.03	-12288.25	-3918.07	-162.32		12897.76	215.97	89.58	PASS
531.00†	531.00	0.00	0.00	500.00	531.02	-12288.25	-3918.07	-162.32		12897.76	207.91	93.05	PASS
631.00†	631.00	0.00	0.00	600.00	631.02	-12288.25	-3918.07	-162.32		12897.76	200.41	96.54	PASS
731.00†	731.00	0.00	0.00	700.00	731.02	-12288.25	-3918.07	-162.32		12897.76	193.42	100.03	PASS
831.00†	831.00	0.00	0.00	800.00	831.02	-12288.25	-3918.07	-162.32		12897.76	186.88	103.52	PASS
931.00†	931.00	0.00	0.00	900.00	931.02	-12288.25	-3918.07	-162.32		12897.76	180.76	107.03	PASS
1031.00†	1031.00	0.00	0.00	1000.00	1031.02	-12288.25	-3918.07	-162.32		12897.76	175.01	110.54	PASS
1131.00†	1131.00	0.00	0.00	1100.00	1131.02	-12288.25	-3918.07	-162.32		12897.76	169.61	114.06	PASS
1231.00†	1231.00	0.00	0.00	1200.00	1231.02	-12288.25	-3918.07	-162.32		12897.76	164.52	117.59	PASS
1331.00†	1331.00	0.00	0.00	1300.00	1331.02	-12288.25	-3918.07	-162.32		12897.76	159.72	121.13	PASS
1431.00†	1431.00	0.00	0.00	1400.00	1431.02	-12288.25	-3918.07	-162.32		12897.76	155.18	124.67	PASS
1531.00†	1531.00	0.00	0.00	1500.00	1531.02	-12288.25	-3918.07	-162.32		12897.76	150.88	128.22	PASS
1631.00†	1631.00	0.00	0.00	1600.00	1631.02	-12288.25	-3918.07	-162.32		12897.76	146.81	131.78	PASS
1731.00†	1731.00	0.00	0.00	1700.00	1731.02	-12288.25	-3918.07	-162.32		12897.76	142.94	135.35	PASS
1831.00†	1831.00	0.00	0.00	1800.00	1831.02	-12288.25	-3918.07	-162.32		12897.76	139.27	138.92	PASS
1931.00†	1931.00	0.00	0.00	1900.00	1931.02	-12288.25	-3918.07	-162.32		12897.76	135.77	142.50	PASS
2031.00†	2031.00	0.00	0.00	2000.00	2031.02	-12288.25	-3918.07	-162.32		12897.76	132.43	146.09	PASS
2131.00†	2131.00	0.00	0.00	2100.00	2131.02	-12288.25	-3918.07	-162.32		12897.76	129.25	149.68	PASS
2231.00†	2231.00	0.00	0.00	2200.00	2231.02	-12288.25	-3918.07	-162.32		12897.76	126.22	153.28	PASS
2331.00†	2331.00	0.00	0.00	2300.00	2331.02	-12288.25	-3918.07	-162.32		12897.76	123.32	156.89	PASS
2431.00†	2431.00	0.00	0.00	2400.00	2431.02	-12288.25	-3918.07	-162.32		12897.76	120.54	160.50	PASS
2531.00†	2531.00	0.00	0.00	2500.00	2531.02	-12288.25	-3918.07	-162.32		12897.76	117.88	164.12	PASS
2631.00†	2631.00	0.00	0.00	2600.00	2631.02	-12288.25	-3918.07	-162.32		12897.76	115.33	167.75	PASS
2731.00†	2731.00	0.00	0.00	2700.00	2731.02	-12288.25	-3918.07	-162.32		12897.76	112.89	171.38	PASS
2831.00†	2831.00	0.00	0.00	2800.00	2831.02	-12288.25	-3918.07	-162.32		12897.76	110.54	175.02	PASS
2900.00	2900.00	0.00	0.00	2869.00	2900.02	-12288.25	-3918.07	-162.32		12897.76	108.97	177.54	PASS
2931.00†	2931.00	-0.17	0.00	2900.00	2931.02	-12288.25	-3918.07	17.91		12897.60	108.28	178.67	PASS
3031.00†	3030.95	-2.99	0.01	2999.95	3030.97	-12288.25	-3918.07	17.93		12894.91	106.08	182.34	PASS
3131.00†	3130.75	-9.31	0.04	3099.75	3130.77	-12288.25	-3918.07	17.98		12888.91	103.90	186.07	PASS
3200.00	3199.45	-15.69	0.06	3168.45	3199.47	-12288.25	-3918.07	18.02		12882.83	102.44	188.63	PASS
3231.00†	3230.28	-18.93	0.07	3199.28	3230.30	-12288.25	-3918.07	18.03		12879.75	101.81	189.77	PASS
3250.00	3249.18	-20.92	0.08	3218.18	3249.19	-12288.25	-3918.07	18.03		12877.86	101.42	190.46	PASS
3331.00†	3329.84	-28.25	0.11	3298.84	3329.86	-12288.25	-3918.07	18.00		12870.89	99.81	193.43	PASS
3431.00†	3429.66	-34.14	0.13	3398.66	3429.68	-12288.25	-3918.07	17.97		12865.28	97.88	197.15	PASS
3531.00†	3529.63	-36.55	0.14	3498.63	3529.64	-12288.25	-3918.07	17.96		12862.99	96.04	200.91	PASS
3550.00	3548.63	-36.61	0.14	3517.63	3548.64	-12288.25	-3918.07	-162.27		12862.93	95.70	201.61	PASS
3631.00†	3629.63	-36.61	0.14	3598.63	3629.64	-12288.25	-3918.07	-162.27		12862.93	94.30	204.60	PASS
3731.00†	3729.63	-36.61	0.14	3698.63	3729.62	-12288.25	-3918.07	-162.27		12862.93	92.63	208.29	PASS
3831.00†	3829.63	-36.61	0.14	3798.63	3829.62	-12288.25	-3918.07	-162.27		12862.93	91.02	211.99	PASS
3931.00†	3929.63	-36.61	0.14	3898.63	3929.62	-12288.25	-3918.07	-162.27		12862.93	89.46	215.69	PASS
4031.00†	4029.63	-36.61	0.14	3998.63	4029.62	-12288.25	-3918.07	-162.27		12862.93	87.94	219.39	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
 Page 17 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

Facility: SEC.34-T7N-R62W		Slot: SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FEL, SEC.34)				Well: BICKFORD #1		Threshold Value=1.50 † = interpolated/extrapolated station				
Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	4098.63	4129.61	-12288.25	-3918.07	-162.27	12862.93	86.48	223.11	PASS
4231.00†	4229.63	-36.61	0.14	4198.63	4229.61	-12288.25	-3918.07	-162.27	12862.93	85.06	226.82	PASS
4331.00†	4329.63	-36.61	0.14	4298.63	4329.61	-12288.25	-3918.07	-162.27	12862.93	83.69	230.54	PASS
4431.00†	4429.63	-36.61	0.14	4398.63	4429.61	-12288.25	-3918.07	-162.27	12862.93	82.36	234.27	PASS
4531.00†	4529.63	-36.61	0.14	4498.63	4529.61	-12288.25	-3918.07	-162.27	12862.93	81.07	238.00	PASS
4631.00†	4629.63	-36.61	0.14	4598.63	4629.61	-12288.25	-3918.07	-162.27	12862.93	79.82	241.74	PASS
4731.00†	4729.63	-36.61	0.14	4698.63	4729.61	-12288.25	-3918.07	-162.27	12862.93	78.60	245.48	PASS
4831.00†	4829.63	-36.61	0.14	4798.63	4829.61	-12288.25	-3918.07	-162.27	12862.93	77.42	249.22	PASS
4931.00†	4929.63	-36.61	0.14	4898.63	4929.61	-12288.25	-3918.07	-162.27	12862.93	76.27	252.97	PASS
5031.00†	5029.63	-36.61	0.14	4998.63	5029.61	-12288.25	-3918.07	-162.27	12862.93	75.16	256.72	PASS
5131.00†	5129.63	-36.61	0.14	5098.63	5129.61	-12288.25	-3918.07	-162.27	12862.93	74.07	260.48	PASS
5231.00†	5229.63	-36.61	0.14	5198.63	5229.61	-12288.25	-3918.07	-162.27	12862.93	73.02	264.24	PASS
5331.00†	5329.63	-36.61	0.14	5298.63	5329.61	-12288.25	-3918.07	-162.27	12862.93	71.99	268.01	PASS
5431.00†	5429.63	-36.61	0.14	5398.63	5429.61	-12288.25	-3918.07	-162.27	12862.93	70.99	271.78	PASS
5531.00†	5529.63	-36.61	0.14	5498.63	5529.61	-12288.25	-3918.07	-162.27	12862.93	70.02	275.55	PASS
5631.00†	5629.63	-36.61	0.14	5598.63	5629.61	-12288.25	-3918.07	-162.27	12862.93	69.07	279.33	PASS
5731.00†	5729.63	-36.61	0.14	5698.63	5729.61	-12288.25	-3918.07	-162.27	12862.93	68.15	283.11	PASS
5831.00†	5829.63	-36.61	0.14	5798.63	5829.61	-12288.25	-3918.07	-162.27	12862.93	67.25	286.89	PASS
5931.00†	5929.63	-36.61	0.14	5898.63	5929.61	-12288.25	-3918.07	-162.27	12862.93	66.38	290.68	PASS
6005.41	6004.04	-36.61	0.14	5973.04	6004.02	-12288.25	-3918.07	-162.27	12862.93	65.74	293.50	PASS
6031.00†	6029.62	-37.18	0.15	5998.62	6029.60	-12288.25	-3918.07	17.98	12862.39	65.52	294.47	PASS
6131.00†	6128.63	-50.32	0.20	6097.63	6128.60	-12288.25	-3918.07	18.39	12849.89	64.54	298.65	PASS
6231.00†	6223.85	-80.45	0.31	6192.85	6223.82	-12288.25	-3918.07	19.40	12821.23	63.32	303.70	PASS
6331.00†	6312.39	-126.66	0.49	6281.39	6312.36	-12288.25	-3918.07	21.18	12777.30	62.17	308.31	PASS
6431.00†	6391.56	-187.54	0.73	6360.56	6391.54	-12288.25	-3918.07	24.01	12719.44	61.09	312.33	PASS
6531.00†	6458.96	-261.24	1.02	6427.96	6458.93	-12288.25	-3918.07	28.51	12649.43	60.11	315.67	PASS
6631.00†	6512.53	-345.53	1.35	6481.53	6512.51	-12288.25	-3918.07	35.81	12569.42	59.24	318.29	PASS
6731.00†	6550.66	-437.84	1.71	6519.66	6550.63	-12288.25	-3918.07	48.19	12481.86	58.48	320.16	PASS
6831.00†	6572.17	-535.36	2.09	6541.17	6572.15	-12288.25	-3918.07	69.03	12389.43	57.84	321.31	PASS
6905.41	6577.00	-609.57	2.38	6546.00	6576.98	-12288.25	-3918.07	90.00	12319.15	57.44	321.72	PASS
6931.00†	6577.00	-635.15	2.48	6546.00	6576.98	-12288.25	-3918.07	90.00	12294.93	57.47	320.93	PASS
7031.00†	6577.00	-735.15	2.87	6546.00	6576.98	-12288.25	-3918.07	90.00	12200.32	56.96	321.28	PASS
7131.00†	6577.00	-835.15	3.26	6546.00	6576.98	-12288.25	-3918.07	90.00	12105.79	56.45	321.68	PASS
7231.00†	6577.00	-935.15	3.65	6546.00	6576.98	-12288.25	-3918.07	90.00	12011.36	55.93	322.15	PASS
7331.00†	6577.00	-1035.15	4.04	6546.00	6576.98	-12288.25	-3918.07	90.00	11917.01	55.40	322.67	PASS
7431.00†	6577.00	-1135.15	4.44	6546.00	6576.98	-12288.25	-3918.07	90.00	11822.76	54.86	323.26	PASS
7531.00†	6577.00	-1235.15	4.83	6546.00	6576.98	-12288.25	-3918.07	90.00	11728.60	54.32	323.90	PASS
7631.00†	6577.00	-1335.15	5.22	6546.00	6576.98	-12288.25	-3918.07	90.00	11634.54	53.76	324.61	PASS
7731.00†	6577.00	-1435.15	5.61	6546.00	6576.98	-12288.25	-3918.07	90.00	11540.58	53.20	325.37	PASS
7831.00†	6577.00	-1535.15	6.00	6546.00	6576.98	-12288.25	-3918.07	90.00	11446.72	52.64	326.21	PASS
7931.00†	6577.00	-1635.15	6.39	6546.00	6576.98	-12288.25	-3918.07	90.00	11352.97	52.06	327.10	PASS
8031.00†	6577.00	-1735.15	6.78	6546.00	6576.98	-12288.25	-3918.07	90.00	11259.33	51.48	328.06	PASS
8131.00†	6577.00	-1835.15	7.17	6546.00	6576.98	-12288.25	-3918.07	90.00	11165.79	50.89	329.09	PASS
8231.00†	6577.00	-1935.14	7.56	6546.00	6576.98	-12288.25	-3918.07	90.00	11072.37	50.30	330.18	PASS
8331.00†	6577.00	-2035.14	7.95	6546.00	6576.98	-12288.25	-3918.07	90.00	10979.06	49.70	331.33	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP
Closest Approach
 Page 18 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

Facility: SEC.34-T7N-R62W				Slot: SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FEL, SEC.34)				Well: BICKFORD #1		Threshold Value=1.50 † = interpolated/extrapolated station			
Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]		C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	6546.00	6576.98	-12288.25	-3918.07	90.00		10885.87	49.10	332.56	PASS
8531.00†	6577.00	-2235.14	8.73	6546.00	6576.98	-12288.25	-3918.07	90.00		10792.81	48.49	333.85	PASS
8631.00†	6577.00	-2335.14	9.12	6546.00	6576.98	-12288.25	-3918.07	90.00		10699.87	47.88	335.20	PASS
8731.00†	6577.00	-2435.14	9.51	6546.00	6576.98	-12288.25	-3918.07	90.00		10607.06	47.26	336.63	PASS
8831.00†	6577.00	-2535.14	9.91	6546.00	6576.98	-12288.25	-3918.07	90.00		10514.38	46.65	338.12	PASS
8931.00†	6577.00	-2635.14	10.30	6546.00	6576.98	-12288.25	-3918.07	90.00		10421.83	46.02	339.68	PASS
9031.00†	6577.00	-2735.14	10.69	6546.00	6576.98	-12288.25	-3918.07	90.00		10329.43	45.40	341.30	PASS
9131.00†	6577.00	-2835.14	11.08	6546.00	6576.98	-12288.25	-3918.07	90.00		10237.16	44.77	343.00	PASS
9231.00†	6577.00	-2935.14	11.47	6546.00	6576.98	-12288.25	-3918.07	90.00		10145.05	44.14	344.76	PASS
9331.00†	6577.00	-3035.14	11.86	6546.00	6576.98	-12288.25	-3918.07	90.00		10053.08	43.51	346.59	PASS
9431.00†	6577.00	-3135.14	12.25	6546.00	6576.98	-12288.25	-3918.07	90.00		9961.27	42.88	348.49	PASS
9531.00†	6577.00	-3235.13	12.64	6546.00	6576.98	-12288.25	-3918.07	90.00		9869.62	42.24	350.46	PASS
9631.00†	6577.00	-3335.13	13.03	6546.00	6576.98	-12288.25	-3918.07	90.00		9778.13	41.61	352.50	PASS
9731.00†	6577.00	-3435.13	13.42	6546.00	6576.98	-12288.25	-3918.07	90.00		9686.81	40.98	354.60	PASS
9831.00†	6577.00	-3535.13	13.81	6546.00	6576.98	-12288.25	-3918.07	90.00		9595.66	40.34	356.78	PASS
9931.00†	6577.00	-3635.13	14.20	6546.00	6576.98	-12288.25	-3918.07	90.00		9504.69	39.71	359.03	PASS
10031.00†	6577.00	-3735.13	14.59	6546.00	6576.98	-12288.25	-3918.07	90.00		9413.91	39.08	361.35	PASS
10131.00†	6577.00	-3835.13	14.98	6546.00	6576.98	-12288.25	-3918.07	90.00		9323.31	38.45	363.74	PASS
10231.00†	6577.00	-3935.13	15.38	6546.00	6576.98	-12288.25	-3918.07	90.00		9232.91	37.82	366.20	PASS
10331.00†	6577.00	-4035.13	15.77	6546.00	6576.98	-12288.25	-3918.07	90.00		9142.71	37.19	368.74	PASS
10431.00†	6577.00	-4135.13	16.16	6546.00	6576.98	-12288.25	-3918.07	90.00		9052.71	36.57	371.35	PASS
10531.00†	6577.00	-4235.13	16.55	6546.00	6576.98	-12288.25	-3918.07	90.00		8962.92	35.94	374.03	PASS
10631.00†	6577.00	-4335.13	16.94	6546.00	6576.98	-12288.25	-3918.07	90.00		8873.36	35.32	376.79	PASS
10731.00†	6577.00	-4435.13	17.33	6546.00	6576.98	-12288.25	-3918.07	90.00		8784.02	34.71	379.63	PASS
10764.71	6577.00	-4468.83	17.46	6546.00	6576.98	-12288.25	-3918.07	90.00		8753.95	34.50	380.60	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

Slot Surface Uncertainty @ 1SD	Horizontal	2.000ft	Vertical	1.000ft
Facility Surface Uncertainty @ 1SD	Horizontal	8.200ft	Vertical	3.000ft

WELLPATH COMPOSITION - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	7271.00	Drift Indicator (Standard)	ASSUMED VERTICAL FROM COGIS WEBSITE <7271>	BICKFORD #1 AWB

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: BICKFORD #1 AWB Offset Wellpath: BICKFORD #1 AWP

MD Reference: Rig on SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FEL, SEC.34) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 19 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-13-2H (320'FNL & 2076'FWL, SEC.24) Well: CROW VALLEY 7-62-13-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	14.00	31.00	101.17	5376.94	88.92	5377.89	149.37	54.01	PASS
131.00†	131.00	0.00	0.00	114.00	131.00	101.17	5376.94	88.92	5377.89	108.01	74.69	PASS
231.00†	231.00	0.00	0.00	214.00	231.00	101.17	5376.94	88.92	5377.89	107.98	74.71	PASS
331.00†	331.00	0.00	0.00	314.00	331.00	101.17	5376.94	88.92	5377.89	107.92	74.75	PASS
431.00†	431.00	0.00	0.00	414.00	431.00	101.17	5376.94	88.92	5377.89	107.84	74.80	PASS
531.00†	531.00	0.00	0.00	514.00	531.00	101.17	5376.94	88.92	5377.89	107.74	74.87	PASS
631.00†	631.00	0.00	0.00	614.00	631.00	101.17	5376.94	88.92	5377.89	107.62	74.96	PASS
731.00†	731.00	0.00	0.00	714.00	731.00	101.17	5376.94	88.92	5377.89	107.48	75.06	PASS
831.00†	831.00	0.00	0.00	814.00	831.00	101.17	5376.94	88.92	5377.89	107.31	75.17	PASS
931.00†	931.00	0.00	0.00	914.00	931.00	101.17	5376.94	88.92	5377.89	107.12	75.30	PASS
1031.00†	1031.00	0.00	0.00	1014.00	1031.00	101.17	5376.94	88.92	5377.89	106.92	75.45	PASS
1131.00†	1131.00	0.00	0.00	1114.00	1131.00	101.17	5376.94	88.92	5377.89	106.69	75.61	PASS
1231.00†	1231.00	0.00	0.00	1214.00	1231.00	101.17	5376.94	88.92	5377.89	106.44	75.79	PASS
1331.00†	1331.00	0.00	0.00	1314.00	1331.00	101.17	5376.94	88.92	5377.89	106.17	75.98	PASS
1431.00†	1431.00	0.00	0.00	1414.00	1431.00	101.17	5376.94	88.92	5377.89	105.88	76.19	PASS
1531.00†	1531.00	0.00	0.00	1507.82	1524.82	101.16	5376.95	88.92	5377.90	105.58	76.40	PASS
1631.00†	1631.00	0.00	0.00	1563.64	1580.63	100.54	5377.25	88.93	5378.43	105.34	76.59	PASS
1731.00†	1731.00	0.00	0.00	1619.41	1636.38	98.94	5378.03	88.95	5379.77	105.10	76.78	PASS
1831.00†	1831.00	0.00	0.00	1675.10	1691.99	96.36	5379.29	88.97	5381.95	104.87	76.98	PASS
1931.00†	1931.00	0.00	0.00	1730.65	1747.38	92.83	5381.01	89.01	5384.94	104.65	77.19	PASS
2031.00†	2031.00	0.00	0.00	1786.03	1802.55	88.35	5383.20	89.06	5388.77	104.43	77.40	PASS
2131.00†	2131.00	0.00	0.00	1874.31	1890.35	80.09	5387.23	89.15	5393.19	104.13	77.69	PASS
2231.00†	2231.00	0.00	0.00	1973.76	1989.26	70.74	5391.78	89.25	5397.66	103.78	78.02	PASS
2331.00†	2331.00	0.00	0.00	2073.21	2088.16	61.40	5396.34	89.35	5402.15	103.43	78.35	PASS
2431.00†	2431.00	0.00	0.00	2172.66	2187.07	52.06	5400.90	89.45	5406.65	103.00	78.74	PASS
2531.00†	2531.00	0.00	0.00	2272.11	2285.98	42.71	5405.45	89.55	5411.17	102.59	79.12	PASS
2631.00†	2631.00	0.00	0.00	2371.57	2384.89	33.37	5410.01	89.65	5415.71	102.15	79.53	PASS
2731.00†	2731.00	0.00	0.00	2471.02	2483.80	24.03	5414.57	89.75	5420.26	101.69	79.95	PASS
2831.00†	2831.00	0.00	0.00	2570.47	2582.70	14.68	5419.13	89.85	5424.83	101.22	80.39	PASS
2900.00	2900.00	0.00	0.00	2639.09	2650.95	8.24	5422.27	89.91	5427.99	100.88	80.71	PASS
2931.00†	2931.00	-0.17	0.00	2669.94	2681.63	5.34	5423.68	-89.81	5429.42	100.73	80.85	PASS
3031.00†	3030.95	-2.99	0.01	2769.61	2780.75	-4.03	5428.25	-89.65	5434.00	100.21	81.34	PASS
3131.00†	3130.75	-9.31	0.04	2869.46	2880.05	-13.41	5432.83	-89.52	5438.57	99.68	81.84	PASS
3200.00	3199.45	-15.69	0.06	2938.38	2948.60	-19.88	5435.98	-89.46	5441.71	99.29	82.21	PASS
3231.00†	3230.28	-18.93	0.07	2969.35	2979.40	-22.79	5437.40	-89.46	5443.12	99.11	82.38	PASS
3250.00	3249.18	-20.92	0.08	2988.33	2998.27	-24.58	5438.27	-89.46	5443.98	99.00	82.48	PASS
3331.00†	3329.84	-28.25	0.11	3069.24	3078.74	-32.18	5441.98	-89.53	5447.66	98.53	82.94	PASS
3431.00†	3429.66	-34.14	0.13	3169.07	3178.02	-41.56	5446.56	-89.59	5452.24	97.94	83.50	PASS
3531.00†	3529.63	-36.55	0.14	3268.71	3277.12	-50.92	5451.12	-89.61	5456.84	97.35	84.08	PASS
3550.00	3548.63	-36.61	0.14	3287.62	3295.92	-52.69	5451.99	90.17	5457.72	97.24	84.19	PASS
3631.00†	3629.63	-36.61	0.14	3368.17	3376.03	-60.26	5455.68	90.25	5461.48	96.77	84.66	PASS
3731.00†	3729.63	-36.61	0.14	3467.62	3474.94	-69.60	5460.24	90.35	5466.13	96.18	85.25	PASS
3831.00†	3829.63	-36.61	0.14	3567.08	3573.85	-78.95	5464.79	90.44	5470.80	95.58	85.86	PASS
3931.00†	3929.63	-36.61	0.14	3666.53	3672.75	-88.29	5469.35	90.54	5475.48	94.97	86.48	PASS
4031.00†	4029.63	-36.61	0.14	3765.98	3771.66	-97.64	5473.91	90.64	5480.18	94.36	87.12	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 20 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-13-2H (320'FNL & 2076'FWL, SEC.24) Well: CROW VALLEY 7-62-13-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	3865.43	3870.57	-106.98	5478.46	90.74	5484.89	93.74	87.77	PASS
4231.00†	4229.63	-36.61	0.14	3964.89	3969.48	-116.32	5483.02	90.83	5489.63	93.11	88.44	PASS
4331.00†	4329.63	-36.61	0.14	4064.34	4068.38	-125.67	5487.58	90.93	5494.37	92.48	89.11	PASS
4431.00†	4429.63	-36.61	0.14	4163.79	4167.29	-135.01	5492.14	91.03	5499.13	91.85	89.81	PASS
4531.00†	4529.63	-36.61	0.14	4263.24	4266.20	-144.35	5496.69	91.12	5503.91	91.22	90.51	PASS
4631.00†	4629.63	-36.61	0.14	4362.69	4365.11	-153.70	5501.25	91.22	5508.71	90.58	91.22	PASS
4731.00†	4729.63	-36.61	0.14	4462.15	4464.01	-163.04	5505.81	91.32	5513.52	89.94	91.95	PASS
4831.00†	4829.63	-36.61	0.14	4561.60	4562.92	-172.38	5510.36	91.41	5518.34	89.30	92.69	PASS
4931.00†	4929.63	-36.61	0.14	4661.05	4661.83	-181.73	5514.92	91.51	5523.18	88.66	93.44	PASS
5031.00†	5029.63	-36.61	0.14	4760.50	4760.74	-191.07	5519.48	91.60	5528.04	88.02	94.20	PASS
5131.00†	5129.63	-36.61	0.14	4859.96	4859.64	-200.41	5524.04	91.70	5532.91	87.39	94.97	PASS
5231.00†	5229.63	-36.61	0.14	4959.41	4958.56	-209.76	5528.59	91.79	5537.80	86.75	95.76	PASS
5331.00†	5329.63	-36.61	0.14	5058.86	5057.46	-219.10	5533.15	91.89	5542.70	86.11	96.55	PASS
5431.00†	5429.63	-36.61	0.14	5158.31	5156.37	-228.44	5537.71	91.98	5547.62	85.48	97.35	PASS
5531.00†	5529.63	-36.61	0.14	5257.76	5255.28	-237.79	5542.26	92.08	5552.55	84.85	98.16	PASS
5631.00†	5629.63	-36.61	0.14	5357.22	5354.19	-247.13	5546.82	92.17	5557.50	84.22	98.98	PASS
5731.00†	5729.63	-36.61	0.14	5456.67	5453.09	-256.48	5551.38	92.27	5562.47	83.60	99.81	PASS
5831.00†	5829.63	-36.61	0.14	5556.12	5552.00	-265.82	5555.94	92.36	5567.44	82.97	100.65	PASS
5931.00†	5929.63	-36.61	0.14	5655.57	5650.91	-275.16	5560.49	92.46	5572.44	82.36	101.49	PASS
6005.41	6004.04	-36.61	0.14	5729.58	5724.50	-282.11	5563.88	92.53	5576.17	81.90	102.13	PASS
6031.00†	6029.62	-37.18	0.15	5755.07	5749.86	-284.51	5565.05	-87.11	5577.42	81.74	102.35	PASS
6131.00†	6128.63	-50.32	0.20	5854.77	5849.01	-293.88	5569.62	-86.71	5581.75	81.07	103.28	PASS
6231.00†	6223.85	-80.45	0.31	6145.53	6136.24	-273.39	5580.69	-87.62	5584.40	77.93	107.49	PASS
6331.00†	6312.39	-126.66	0.49	6362.36	6324.93	-169.23	5583.85	-89.51	5583.53	77.78	107.68	PASS
6431.00†	6391.56	-187.54	0.73	6406.30	6357.61	-139.89	5583.89	-89.96	5583.46	77.27	108.39	PASS
6531.00†	6458.96	-261.24	1.02	6402.00	6354.51	-142.87	5583.89	-89.75	5585.10	76.48	109.54	PASS
6631.00†	6512.53	-345.53	1.35	6379.00	6337.56	-158.42	5583.89	-89.19	5588.41	75.44	111.11	PASS
6731.00†	6550.66	-437.84	1.71	6346.97	6312.95	-178.91	5583.79	-88.40	5593.14	74.20	113.07	PASS
6831.00†	6572.17	-535.36	2.09	6309.92	6283.11	-200.86	5583.54	-87.48	5598.93	72.94	115.14	PASS
6905.41	6577.00	-609.57	2.38	6280.31	6258.28	-216.99	5583.23	-86.73	5603.71	72.71	115.60	PASS
6931.00†	6577.00	-635.15	2.48	6270.20	6249.61	-222.20	5583.11	-86.64	5605.45	71.38	117.79	PASS
7031.00†	6577.00	-735.15	2.87	6235.77	6219.45	-238.78	5582.60	-86.34	5613.16	69.80	120.62	PASS
7131.00†	6577.00	-835.15	3.26	6207.89	6194.33	-250.87	5582.10	-86.08	5622.39	68.18	123.70	PASS
7231.00†	6577.00	-935.15	3.65	6184.94	6173.25	-259.88	5581.63	-85.86	5633.19	66.54	126.98	PASS
7331.00†	6577.00	-1035.15	4.04	6165.79	6155.39	-266.76	5581.19	-85.68	5645.60	64.93	130.42	PASS
7431.00†	6577.00	-1135.15	4.44	6149.60	6140.10	-272.11	5580.80	-85.52	5659.64	63.36	133.98	PASS
7531.00†	6577.00	-1235.15	4.83	6135.74	6126.91	-276.34	5580.44	-85.39	5675.33	61.85	137.63	PASS
7631.00†	6577.00	-1335.15	5.22	6123.77	6115.44	-279.74	5580.11	-85.27	5692.66	60.45	141.25	PASS
7731.00†	6577.00	-1435.15	5.61	6113.33	6105.38	-282.51	5579.82	-85.17	5711.64	59.14	144.87	PASS
7831.00†	6577.00	-1535.15	6.00	6104.15	6096.49	-284.79	5579.55	-85.08	5732.26	57.88	148.55	PASS
7931.00†	6577.00	-1635.15	6.39	6096.02	6088.59	-286.69	5579.31	-85.00	5754.50	56.69	152.26	PASS
8031.00†	6577.00	-1735.15	6.78	6088.78	6081.53	-288.29	5579.08	-84.92	5778.36	55.56	156.00	PASS
8131.00†	6577.00	-1835.15	7.17	6082.28	6075.17	-289.65	5578.88	-84.86	5803.82	54.50	159.75	PASS
8231.00†	6577.00	-1935.14	7.56	6076.42	6069.43	-290.82	5578.69	-84.80	5830.86	53.50	163.49	PASS
8331.00†	6577.00	-2035.14	7.95	6071.10	6064.21	-291.82	5578.52	-84.75	5859.47	52.56	167.23	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 21 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL, SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

Facility: SEC.24-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-13-2H (320'FNL & 2076'FWL, SEC.24) Well: CROW VALLEY 7-62-13-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	6066.27	6059.47	-292.69	5578.36	-84.70	5889.62	51.68	170.95	PASS
8531.00†	6577.00	-2235.14	8.73	6061.85	6055.11	-293.45	5578.21	-84.65	5921.29	50.86	174.64	PASS
8631.00†	6577.00	-2335.14	9.12	6057.80	6051.13	-294.12	5578.08	-84.61	5954.46	50.10	178.29	PASS
8731.00†	6577.00	-2435.14	9.51	6054.07	6047.46	-294.71	5577.95	-84.58	5989.10	49.38	181.91	PASS
8831.00†	6577.00	-2535.14	9.91	6050.63	6044.04	-295.24	5577.83	-84.54	6025.20	48.72	185.49	PASS
8931.00†	6577.00	-2635.14	10.30	6047.44	6040.90	-295.70	5577.72	-84.51	6062.72	48.11	189.02	PASS
9031.00†	6577.00	-2735.14	10.69	6044.47	6037.96	-296.12	5577.62	-84.48	6101.65	47.55	192.49	PASS
9131.00†	6577.00	-2835.14	11.08	6041.71	6035.22	-296.50	5577.52	-84.45	6141.95	47.03	195.91	PASS
9231.00†	6577.00	-2935.14	11.47	6039.14	6032.67	-296.84	5577.43	-84.43	6183.59	46.55	199.28	PASS
9331.00†	6577.00	-3035.14	11.86	6036.73	6030.27	-297.15	5577.34	-84.40	6226.56	46.10	202.58	PASS
9431.00†	6577.00	-3135.14	12.25	6034.47	6028.05	-297.42	5577.26	-84.38	6270.83	45.70	205.83	PASS
9531.00†	6577.00	-3235.13	12.64	6032.35	6025.93	-297.68	5577.19	-84.36	6316.37	45.33	209.01	PASS
9631.00†	6577.00	-3335.13	13.03	6030.35	6023.96	-297.91	5577.11	-84.34	6363.14	44.99	212.13	PASS
9731.00†	6577.00	-3435.13	13.42	6028.47	6022.09	-298.12	5577.05	-84.32	6411.14	44.69	215.20	PASS
9831.00†	6577.00	-3535.13	13.81	6026.68	6020.33	-298.32	5576.98	-84.30	6460.32	44.41	218.20	PASS
9931.00†	6577.00	-3635.13	14.20	6025.00	6018.66	-298.50	5576.92	-84.28	6510.66	44.16	221.13	PASS
10031.00†	6577.00	-3735.13	14.59	6023.41	6017.07	-298.66	5576.86	-84.27	6562.14	43.94	224.00	PASS
10131.00†	6577.00	-3835.13	14.98	6021.90	6015.56	-298.81	5576.80	-84.25	6614.72	43.75	226.80	PASS
10231.00†	6577.00	-3935.13	15.38	6020.46	6014.14	-298.95	5576.75	-84.24	6668.39	43.58	229.53	PASS
10331.00†	6577.00	-4035.13	15.77	6019.10	6012.76	-299.09	5576.70	-84.22	6723.12	43.43	232.20	PASS
10431.00†	6577.00	-4135.13	16.16	6017.79	6011.48	-299.21	5576.65	-84.21	6778.88	43.30	234.81	PASS
10531.00†	6577.00	-4235.13	16.55	6016.56	6010.25	-299.32	5576.60	-84.20	6835.64	43.20	237.35	PASS
10631.00†	6577.00	-4335.13	16.94	6015.37	6009.07	-299.43	5576.56	-84.18	6893.39	43.11	239.83	PASS
10731.00†	6577.00	-4435.13	17.33	6014.24	6007.93	-299.53	5576.52	-84.17	6952.09	43.05	242.24	PASS
10764.71	6577.00	-4468.83	17.46	6013.87	6007.57	-299.56	5576.50	-84.17	6972.09	43.03	243.04	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) 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]
7in Casing Intermediate	31.00	6865.00	6834.00	48.00	6532.01	61.68	3277.78	113.45	3337.40

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	11798.83	NaviTrak (Standard)		CROW VALLEY 7-62-13-2H pwb

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-13-2H pwb Offset Wellpath: CROW VALLEY 7-62-13-2H (REV-A.0) PWP

MD Reference: Rig on SLOT#01 CROW VALLEY 7-62-13-2H (320'FNL & 2076'FWL, SEC.24) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 22 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-34-2H (455'FNL & 1862'FWL, SEC.34) Well: CROW VALLEY 7-62-34-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	61.00	31.00	-10765.02	-5399.21	-153.36	12043.14	241.89	74.68	PASS
131.00†	131.00	0.00	0.00	161.00	131.00	-10765.02	-5399.21	-153.36	12043.14	241.86	74.69	PASS
231.00†	231.00	0.00	0.00	261.00	231.00	-10765.02	-5399.21	-153.36	12043.14	241.77	74.72	PASS
331.00†	331.00	0.00	0.00	361.00	331.00	-10765.02	-5399.21	-153.36	12043.14	241.64	74.76	PASS
431.00†	431.00	0.00	0.00	461.00	431.00	-10765.02	-5399.21	-153.36	12043.14	241.45	74.82	PASS
531.00†	531.00	0.00	0.00	561.00	531.00	-10765.02	-5399.21	-153.36	12043.14	241.22	74.89	PASS
631.00†	631.00	0.00	0.00	661.00	631.00	-10765.02	-5399.21	-153.36	12043.14	240.93	74.98	PASS
731.00†	731.00	0.00	0.00	761.00	731.00	-10765.02	-5399.21	-153.36	12043.14	240.60	75.08	PASS
831.00†	831.00	0.00	0.00	861.00	831.00	-10765.02	-5399.21	-153.36	12043.14	240.21	75.20	PASS
931.00†	931.00	0.00	0.00	961.00	931.00	-10765.02	-5399.21	-153.36	12043.14	239.78	75.34	PASS
1031.00†	1031.00	0.00	0.00	1061.00	1031.00	-10765.02	-5399.21	-153.36	12043.14	239.31	75.49	PASS
1131.00†	1131.00	0.00	0.00	1161.00	1131.00	-10765.02	-5399.21	-153.36	12043.14	238.78	75.65	PASS
1231.00†	1231.00	0.00	0.00	1261.00	1231.00	-10765.02	-5399.21	-153.36	12043.14	238.21	75.83	PASS
1331.00†	1331.00	0.00	0.00	1361.00	1331.00	-10765.02	-5399.21	-153.36	12043.14	237.60	76.03	PASS
1431.00†	1431.00	0.00	0.00	1461.00	1431.00	-10765.02	-5399.21	-153.36	12043.14	236.94	76.24	PASS
1531.00†	1531.00	0.00	0.00	1561.00	1531.00	-10765.02	-5399.21	-153.36	12043.14	236.24	76.47	PASS
1631.00†	1631.00	0.00	0.00	1661.00	1631.00	-10765.02	-5399.21	-153.36	12043.14	235.50	76.71	PASS
1731.00†	1731.00	0.00	0.00	1761.00	1731.00	-10765.02	-5399.21	-153.36	12043.14	234.72	76.96	PASS
1831.00†	1831.00	0.00	0.00	1861.00	1831.00	-10765.02	-5399.21	-153.36	12043.14	233.91	77.23	PASS
1931.00†	1931.00	0.00	0.00	1961.00	1931.00	-10765.02	-5399.21	-153.36	12043.14	233.05	77.51	PASS
2031.00†	2031.00	0.00	0.00	2061.00	2031.00	-10765.02	-5399.21	-153.36	12043.14	232.16	77.81	PASS
2131.00†	2131.00	0.00	0.00	2161.00	2131.00	-10765.02	-5399.21	-153.36	12043.14	231.24	78.12	PASS
2231.00†	2231.00	0.00	0.00	2261.00	2231.00	-10765.02	-5399.21	-153.36	12043.14	230.28	78.45	PASS
2331.00†	2331.00	0.00	0.00	2316.10	2286.10	-10765.06	-5399.21	-153.36	12043.25	229.52	78.71	PASS
2431.00†	2431.00	0.00	0.00	2342.50	2312.51	-10765.26	-5399.21	-153.36	12043.93	228.90	78.93	PASS
2531.00†	2531.00	0.00	0.00	2368.89	2338.89	-10765.64	-5399.20	-153.37	12045.22	228.27	79.15	PASS
2631.00†	2631.00	0.00	0.00	2395.28	2365.27	-10766.21	-5399.19	-153.37	12047.12	227.65	79.38	PASS
2731.00†	2731.00	0.00	0.00	2421.66	2391.62	-10766.96	-5399.17	-153.37	12049.63	227.02	79.62	PASS
2831.00†	2831.00	0.00	0.00	2448.02	2417.99	-10767.89	-5399.15	-153.37	12052.75	226.39	79.86	PASS
2900.00	2900.00	0.00	0.00	2466.21	2436.16	-10768.64	-5399.14	-153.37	12055.26	225.95	80.03	PASS
2931.00†	2931.00	-0.17	0.00	2474.38	2444.32	-10769.00	-5399.13	26.84	12056.34	225.75	80.11	PASS
3031.00†	3030.95	-2.99	0.01	2500.74	2470.65	-10770.30	-5399.10	26.82	12058.16	225.01	80.38	PASS
3131.00†	3130.75	-9.31	0.04	2527.11	2496.95	-10771.77	-5399.07	26.83	12057.47	224.09	80.71	PASS
3200.00	3199.45	-15.69	0.06	2545.29	2515.13	-10772.90	-5399.05	26.85	12055.54	223.45	80.93	PASS
3231.00†	3230.28	-18.93	0.07	2553.46	2523.28	-10773.43	-5399.04	26.85	12054.43	223.19	81.01	PASS
3250.00	3249.18	-20.92	0.08	2558.47	2528.27	-10773.76	-5399.03	26.85	12053.79	223.04	81.07	PASS
3331.00†	3329.84	-28.25	0.11	2579.83	2549.58	-10775.27	-5399.00	26.84	12052.29	222.39	81.29	PASS
3431.00†	3429.66	-34.14	0.13	2606.20	2575.87	-10777.29	-5398.96	26.85	12053.81	221.55	81.61	PASS
3531.00†	3529.63	-36.55	0.14	3561.37	3529.63	-10812.09	-5398.23	26.84	12052.16	214.38	84.33	PASS
3550.00	3548.63	-36.61	0.14	3580.37	3548.63	-10812.09	-5398.23	-153.39	12052.11	214.13	84.43	PASS
3631.00†	3629.63	-36.61	0.14	3661.37	3629.63	-10812.09	-5398.23	-153.39	12052.11	213.11	84.83	PASS
3731.00†	3729.63	-36.61	0.14	3761.37	3729.63	-10812.09	-5398.23	-153.39	12052.11	211.85	85.34	PASS
3831.00†	3829.63	-36.61	0.14	3861.37	3829.63	-10812.09	-5398.23	-153.39	12052.11	210.57	85.85	PASS
3931.00†	3929.63	-36.61	0.14	3961.37	3929.63	-10812.09	-5398.23	-153.39	12052.11	209.29	86.38	PASS
4031.00†	4029.63	-36.61	0.14	4061.37	4029.63	-10812.09	-5398.23	-153.39	12052.11	208.00	86.92	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 23 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-34-2H (455'FNL & 1862'FWL, SEC.34) Well: CROW VALLEY 7-62-34-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	4161.37	4129.63	-10812.09	-5398.23	-153.39	12052.11	206.70	87.46	PASS
4231.00†	4229.63	-36.61	0.14	4261.37	4229.63	-10812.09	-5398.23	-153.39	12052.11	205.39	88.02	PASS
4331.00†	4329.63	-36.61	0.14	4361.37	4329.63	-10812.09	-5398.23	-153.39	12052.11	204.07	88.59	PASS
4431.00†	4429.63	-36.61	0.14	4461.37	4429.63	-10812.09	-5398.23	-153.39	12052.11	202.75	89.16	PASS
4531.00†	4529.63	-36.61	0.14	4561.37	4529.63	-10812.09	-5398.23	-153.39	12052.11	201.43	89.75	PASS
4631.00†	4629.63	-36.61	0.14	4661.37	4629.63	-10812.09	-5398.23	-153.39	12052.11	200.10	90.34	PASS
4731.00†	4729.63	-36.61	0.14	4761.37	4729.63	-10812.09	-5398.23	-153.39	12052.11	198.77	90.95	PASS
4831.00†	4829.63	-36.61	0.14	4861.37	4829.63	-10812.09	-5398.23	-153.39	12052.11	197.44	91.56	PASS
4931.00†	4929.63	-36.61	0.14	4961.37	4929.63	-10812.09	-5398.23	-153.39	12052.11	196.11	92.18	PASS
5031.00†	5029.63	-36.61	0.14	5061.37	5029.63	-10812.09	-5398.23	-153.39	12052.11	194.78	92.81	PASS
5131.00†	5129.63	-36.61	0.14	5161.37	5129.63	-10812.09	-5398.23	-153.39	12052.11	193.45	93.45	PASS
5231.00†	5229.63	-36.61	0.14	5261.37	5229.63	-10812.09	-5398.23	-153.39	12052.11	192.12	94.10	PASS
5331.00†	5329.63	-36.61	0.14	5361.37	5329.63	-10812.09	-5398.23	-153.39	12052.11	190.80	94.75	PASS
5431.00†	5429.63	-36.61	0.14	5461.37	5429.63	-10812.09	-5398.23	-153.39	12052.11	189.48	95.41	PASS
5531.00†	5529.63	-36.61	0.14	5561.37	5529.63	-10812.09	-5398.23	-153.39	12052.11	188.16	96.08	PASS
5631.00†	5629.63	-36.61	0.14	5661.37	5629.63	-10812.09	-5398.23	-153.39	12052.11	186.84	96.76	PASS
5731.00†	5729.63	-36.61	0.14	5761.37	5729.63	-10812.09	-5398.23	-153.39	12052.11	185.53	97.44	PASS
5831.00†	5829.63	-36.61	0.14	5861.37	5829.63	-10812.09	-5398.23	-153.39	12052.11	184.22	98.13	PASS
5931.00†	5929.63	-36.61	0.14	5961.37	5929.63	-10812.09	-5398.23	-153.39	12052.11	182.92	98.83	PASS
6005.41	6004.04	-36.61	0.14	6035.78	6004.05	-10812.09	-5398.23	-153.39	12052.11	181.95	99.36	PASS
6031.00†	6029.62	-37.18	0.15	6061.36	6029.63	-10812.09	-5398.23	26.86	12051.60	181.61	99.54	PASS
6131.00†	6128.63	-50.32	0.20	6134.99	6103.24	-10812.09	-5398.23	27.42	12039.90	179.64	100.53	PASS
6231.00†	6223.85	-80.45	0.31	6139.40	6107.67	-10812.12	-5398.23	28.70	12013.59	176.33	102.20	PASS
6331.00†	6312.39	-126.66	0.49	6143.55	6111.81	-10812.18	-5398.22	30.88	11973.59	173.21	103.69	PASS
6431.00†	6391.56	-187.54	0.73	6147.30	6115.56	-10812.27	-5398.22	34.23	11920.98	170.30	105.00	PASS
6531.00†	6458.96	-261.24	1.02	6150.57	6118.83	-10812.36	-5398.22	39.20	11857.22	167.62	106.11	PASS
6631.00†	6512.53	-345.53	1.35	6153.24	6121.51	-10812.46	-5398.22	46.51	11784.09	165.13	107.04	PASS
6731.00†	6550.66	-437.84	1.71	6155.23	6123.48	-10812.54	-5398.22	57.17	11703.68	162.80	107.83	PASS
6831.00†	6572.17	-535.36	2.09	6156.46	6124.72	-10812.59	-5398.22	71.96	11618.30	160.57	108.53	PASS
6905.41	6577.00	-609.57	2.38	6156.85	6125.11	-10812.61	-5398.22	85.25	11553.04	158.95	109.02	PASS
6931.00†	6577.00	-635.15	2.48	6156.91	6125.17	-10812.61	-5398.22	85.25	11530.49	159.03	108.76	PASS
7031.00†	6577.00	-735.15	2.87	6157.13	6125.39	-10812.62	-5398.22	85.26	11442.51	156.77	109.48	PASS
7131.00†	6577.00	-835.15	3.26	6157.35	6125.61	-10812.63	-5398.22	85.26	11354.72	154.39	110.32	PASS
7231.00†	6577.00	-935.15	3.65	6157.58	6125.83	-10812.64	-5398.22	85.26	11267.14	151.90	111.26	PASS
7331.00†	6577.00	-1035.15	4.04	6157.82	6126.06	-10812.65	-5398.22	85.26	11179.77	149.30	112.32	PASS
7431.00†	6577.00	-1135.15	4.44	6158.05	6126.30	-10812.66	-5398.21	85.26	11092.61	146.61	113.49	PASS
7531.00†	6577.00	-1235.15	4.83	6158.30	6126.54	-10812.67	-5398.21	85.27	11005.67	143.84	114.77	PASS
7631.00†	6577.00	-1335.15	5.22	6158.54	6126.79	-10812.68	-5398.21	85.27	10918.95	141.01	116.15	PASS
7731.00†	6577.00	-1435.15	5.61	6158.80	6127.06	-10812.70	-5398.21	85.27	10832.46	138.11	117.65	PASS
7831.00†	6577.00	-1535.15	6.00	6159.06	6127.32	-10812.71	-5398.21	85.28	10746.20	135.17	119.25	PASS
7931.00†	6577.00	-1635.15	6.39	6159.32	6127.58	-10812.72	-5398.21	85.28	10660.19	132.20	120.95	PASS
8031.00†	6577.00	-1735.15	6.78	6159.59	6127.85	-10812.74	-5398.21	85.28	10574.42	129.20	122.76	PASS
8131.00†	6577.00	-1835.15	7.17	6159.86	6128.11	-10812.75	-5398.21	85.28	10488.90	126.19	124.68	PASS
8231.00†	6577.00	-1935.14	7.56	6160.14	6128.39	-10812.76	-5398.21	85.29	10403.64	123.18	126.69	PASS
8331.00†	6577.00	-2035.14	7.95	6160.43	6128.68	-10812.78	-5398.21	85.29	10318.65	120.17	128.80	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 24 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL, SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

Facility: SEC.34-T7N-R62W Slot: SLOT#02 CROW VALLEY 7-62-34-2H (455'FNL & 1862'FWL, SEC.34) Well: CROW VALLEY 7-62-34-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	6160.72	6128.97	-10812.79	-5398.21	85.29	10233.92	117.18	131.01	PASS
8531.00†	6577.00	-2235.14	8.73	6161.02	6129.27	-10812.81	-5398.21	85.30	10149.48	114.20	133.31	PASS
8631.00†	6577.00	-2335.14	9.12	6161.33	6129.57	-10812.82	-5398.21	85.30	10065.32	111.25	135.71	PASS
8731.00†	6577.00	-2435.14	9.51	6161.64	6129.88	-10812.84	-5398.21	85.30	9981.45	108.34	138.20	PASS
8831.00†	6577.00	-2535.14	9.91	6161.96	6130.22	-10812.86	-5398.21	85.31	9897.88	105.46	140.78	PASS
8931.00†	6577.00	-2635.14	10.30	6162.29	6130.55	-10812.88	-5398.21	85.31	9814.62	102.63	143.45	PASS
9031.00†	6577.00	-2735.14	10.69	6162.63	6130.87	-10812.90	-5398.21	85.31	9731.67	99.84	146.21	PASS
9131.00†	6577.00	-2835.14	11.08	6162.97	6131.22	-10812.91	-5398.21	85.32	9649.04	97.10	149.06	PASS
9231.00†	6577.00	-2935.14	11.47	6163.32	6131.57	-10812.93	-5398.21	85.32	9566.75	94.41	152.00	PASS
9331.00†	6577.00	-3035.14	11.86	6163.68	6131.93	-10812.96	-5398.21	85.32	9484.80	91.77	155.03	PASS
9431.00†	6577.00	-3135.14	12.25	6164.05	6132.30	-10812.98	-5398.21	85.33	9403.19	89.19	158.14	PASS
9531.00†	6577.00	-3235.13	12.64	6164.43	6132.68	-10813.00	-5398.21	85.33	9321.95	86.67	161.33	PASS
9631.00†	6577.00	-3335.13	13.03	6164.82	6133.07	-10813.02	-5398.21	85.34	9241.07	84.21	164.62	PASS
9731.00†	6577.00	-3435.13	13.42	6165.22	6133.45	-10813.05	-5398.21	85.34	9160.57	81.80	167.98	PASS
9831.00†	6577.00	-3535.13	13.81	6165.62	6133.86	-10813.07	-5398.21	85.34	9080.46	79.45	171.44	PASS
9931.00†	6577.00	-3635.13	14.20	6166.04	6134.30	-10813.10	-5398.21	85.35	9000.74	77.16	174.97	PASS
10031.00†	6577.00	-3735.13	14.59	6166.47	6134.72	-10813.13	-5398.21	85.35	8921.44	74.93	178.59	PASS
10131.00†	6577.00	-3835.13	14.98	6166.92	6135.15	-10813.15	-5398.21	85.36	8842.55	72.76	182.30	PASS
10231.00†	6577.00	-3935.13	15.38	6167.37	6135.61	-10813.18	-5398.20	85.36	8764.09	70.64	186.09	PASS
10331.00†	6577.00	-4035.13	15.77	6167.84	6136.08	-10813.21	-5398.20	85.37	8686.08	68.59	189.97	PASS
10431.00†	6577.00	-4135.13	16.16	6168.32	6136.55	-10813.25	-5398.20	85.37	8608.52	66.59	193.93	PASS
10531.00†	6577.00	-4235.13	16.55	6168.81	6137.04	-10813.28	-5398.20	85.38	8531.42	64.64	197.97	PASS
10631.00†	6577.00	-4335.13	16.94	6169.32	6137.56	-10813.31	-5398.20	85.38	8454.81	62.75	202.11	PASS
10731.00†	6577.00	-4435.13	17.33	6169.84	6138.07	-10813.35	-5398.20	85.39	8378.68	60.91	206.32	PASS
10764.71	6577.00	-4468.83	17.46	6170.02	6138.25	-10813.36	-5398.20	85.39	8353.14	60.31	207.76	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) 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]
7in Casing Intermediate	31.00	6980.00	6949.00	1.00	6616.99	-6562.35	-3291.36	-6744.78	-3287.71

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	10618.71	NaviTrak (Standard)		CROW VALLEY 7-62-34-2H PWB

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-D.0) PWP

MD Reference: Rig on SLOT#02 CROW VALLEY 7-62-34-2H (455'FNL & 1862'FWL, SEC.34) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 25 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-35-2H (366'FNL & 1837'FWL, SEC.35) Well: CROW VALLEY 7-62-35-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
31.00	31.00	0.00	0.00	0.00	79.00	-10577.55	-142.17	-179.23	10578.61	420.04	37.78	PASS
131.00†	131.00	0.00	0.00	52.00	131.00	-10577.55	-142.17	-179.23	10578.50	212.46	74.69	PASS
231.00†	231.00	0.00	0.00	152.00	231.00	-10577.55	-142.17	-179.23	10578.50	212.41	74.70	PASS
331.00†	331.00	0.00	0.00	252.00	331.00	-10577.55	-142.17	-179.23	10578.50	212.32	74.74	PASS
431.00†	431.00	0.00	0.00	352.00	431.00	-10577.55	-142.17	-179.23	10578.50	212.18	74.78	PASS
531.00†	531.00	0.00	0.00	452.00	531.00	-10577.55	-142.17	-179.23	10578.50	212.00	74.85	PASS
631.00†	631.00	0.00	0.00	552.00	631.00	-10577.55	-142.17	-179.23	10578.50	211.77	74.93	PASS
731.00†	731.00	0.00	0.00	652.00	731.00	-10577.55	-142.17	-179.23	10578.50	211.50	75.02	PASS
831.00†	831.00	0.00	0.00	752.00	831.00	-10577.55	-142.17	-179.23	10578.50	211.19	75.14	PASS
931.00†	931.00	0.00	0.00	852.00	931.00	-10577.55	-142.17	-179.23	10578.50	210.83	75.26	PASS
1031.00†	1031.00	0.00	0.00	952.00	1031.00	-10577.55	-142.17	-179.23	10578.50	210.43	75.40	PASS
1131.00†	1131.00	0.00	0.00	1052.00	1131.00	-10577.55	-142.17	-179.23	10578.50	210.00	75.56	PASS
1231.00†	1231.00	0.00	0.00	1152.00	1231.00	-10577.55	-142.17	-179.23	10578.50	209.52	75.73	PASS
1331.00†	1331.00	0.00	0.00	1252.00	1331.00	-10577.55	-142.17	-179.23	10578.50	209.00	75.92	PASS
1431.00†	1431.00	0.00	0.00	1352.00	1431.00	-10577.55	-142.17	-179.23	10578.50	208.44	76.13	PASS
1531.00†	1531.00	0.00	0.00	1452.00	1531.00	-10577.55	-142.17	-179.23	10578.50	207.85	76.34	PASS
1631.00†	1631.00	0.00	0.00	1552.00	1631.00	-10577.55	-142.17	-179.23	10578.50	207.22	76.57	PASS
1731.00†	1731.00	0.00	0.00	1652.00	1731.00	-10577.55	-142.17	-179.23	10578.50	206.55	76.82	PASS
1831.00†	1831.00	0.00	0.00	1752.00	1831.00	-10577.55	-142.17	-179.23	10578.50	205.85	77.08	PASS
1931.00†	1931.00	0.00	0.00	1852.00	1931.00	-10577.55	-142.17	-179.23	10578.50	205.12	77.36	PASS
2031.00†	2031.00	0.00	0.00	1952.00	2031.00	-10577.55	-142.17	-179.23	10578.50	204.35	77.65	PASS
2131.00†	2131.00	0.00	0.00	2052.00	2131.00	-10577.55	-142.17	-179.23	10578.50	203.56	77.95	PASS
2231.00†	2231.00	0.00	0.00	2152.00	2231.00	-10577.55	-142.17	-179.23	10578.50	202.73	78.27	PASS
2331.00†	2331.00	0.00	0.00	2252.00	2331.00	-10577.55	-142.17	-179.23	10578.50	201.88	78.60	PASS
2431.00†	2431.00	0.00	0.00	2352.00	2431.00	-10577.55	-142.17	-179.23	10578.50	201.00	78.94	PASS
2531.00†	2531.00	0.00	0.00	2452.00	2531.00	-10577.55	-142.17	-179.23	10578.50	200.09	79.30	PASS
2631.00†	2631.00	0.00	0.00	2552.00	2631.00	-10577.55	-142.17	-179.23	10578.50	199.16	79.67	PASS
2731.00†	2731.00	0.00	0.00	2652.00	2731.00	-10577.55	-142.17	-179.23	10578.50	198.20	80.06	PASS
2831.00†	2831.00	0.00	0.00	2752.00	2831.00	-10577.55	-142.17	-179.23	10578.50	197.23	80.45	PASS
2900.00	2900.00	0.00	0.00	2821.00	2900.00	-10577.55	-142.17	-179.23	10578.50	196.54	80.74	PASS
2931.00†	2931.00	-0.17	0.00	2852.00	2931.00	-10577.55	-142.17	0.99	10578.34	196.22	80.86	PASS
3031.00†	3030.95	-2.99	0.01	2911.08	2990.08	-10577.57	-142.17	1.00	10575.61	195.31	81.22	PASS
3131.00†	3130.75	-9.31	0.04	2932.38	3011.40	-10577.73	-142.17	1.00	10570.05	194.38	81.57	PASS
3200.00	3199.45	-15.69	0.06	2947.06	3026.06	-10577.93	-142.16	1.00	10564.62	193.73	81.80	PASS
3231.00†	3230.28	-18.93	0.07	2953.65	3032.65	-10578.05	-142.16	1.00	10561.92	193.47	81.89	PASS
3250.00	3249.18	-20.92	0.08	2957.69	3036.70	-10578.13	-142.16	1.00	10560.30	193.33	81.94	PASS
3331.00†	3329.84	-28.25	0.11	2974.95	3053.94	-10578.53	-142.15	1.00	10554.85	192.69	82.16	PASS
3431.00†	3429.66	-34.14	0.13	2996.30	3075.29	-10579.17	-142.13	1.00	10551.94	191.87	82.49	PASS
3531.00†	3529.63	-36.55	0.14	3017.66	3096.63	-10579.96	-142.11	1.00	10553.26	191.07	82.85	PASS
3550.00	3548.63	-36.61	0.14	3021.72	3100.67	-10580.13	-142.11	-179.23	10553.99	190.94	82.91	PASS
3631.00†	3629.63	-36.61	0.14	3039.00	3117.97	-10580.92	-142.09	-179.23	10557.67	190.48	83.14	PASS
3731.00†	3729.63	-36.61	0.14	3060.33	3139.25	-10582.03	-142.06	-179.23	10562.89	189.91	83.43	PASS
3831.00†	3829.63	-36.61	0.14	3081.63	3160.51	-10583.30	-142.03	-179.23	10568.85	189.35	83.72	PASS
3931.00†	3929.63	-36.61	0.14	3102.92	3181.74	-10584.73	-141.99	-179.23	10575.55	188.81	84.02	PASS
4031.00†	4029.63	-36.61	0.14	3952.00	4029.63	-10614.15	-141.23	-179.23	10578.48	182.93	86.74	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 26 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL,SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-35-2H (366'FNL & 1837'FWL, SEC.35) Well: CROW VALLEY 7-62-35-2H Threshold Value=1.50

† = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
4131.00†	4129.63	-36.61	0.14	4052.00	4129.63	-10614.15	-141.23	-179.23	10578.48	181.80	87.28	PASS
4231.00†	4229.63	-36.61	0.14	4152.00	4229.63	-10614.15	-141.23	-179.23	10578.48	180.66	87.83	PASS
4331.00†	4329.63	-36.61	0.14	4252.00	4329.63	-10614.15	-141.23	-179.23	10578.48	179.52	88.39	PASS
4431.00†	4429.63	-36.61	0.14	4352.00	4429.63	-10614.15	-141.23	-179.23	10578.48	178.37	88.96	PASS
4531.00†	4529.63	-36.61	0.14	4452.00	4529.63	-10614.15	-141.23	-179.23	10578.48	177.21	89.54	PASS
4631.00†	4629.63	-36.61	0.14	4552.00	4629.64	-10614.15	-141.23	-179.23	10578.48	176.05	90.13	PASS
4731.00†	4729.63	-36.61	0.14	4652.00	4729.64	-10614.15	-141.23	-179.23	10578.48	174.89	90.73	PASS
4831.00†	4829.63	-36.61	0.14	4752.00	4829.64	-10614.15	-141.23	-179.23	10578.48	173.73	91.33	PASS
4931.00†	4929.63	-36.61	0.14	4852.00	4929.64	-10614.15	-141.23	-179.23	10578.48	172.57	91.95	PASS
5031.00†	5029.63	-36.61	0.14	4952.00	5029.64	-10614.15	-141.23	-179.23	10578.48	171.41	92.57	PASS
5131.00†	5129.63	-36.61	0.14	5052.00	5129.64	-10614.15	-141.23	-179.23	10578.48	170.24	93.21	PASS
5231.00†	5229.63	-36.61	0.14	5152.00	5229.64	-10614.15	-141.23	-179.23	10578.48	169.08	93.85	PASS
5331.00†	5329.63	-36.61	0.14	5252.00	5329.64	-10614.15	-141.23	-179.23	10578.48	167.92	94.50	PASS
5431.00†	5429.63	-36.61	0.14	5352.00	5429.64	-10614.15	-141.23	-179.23	10578.48	166.76	95.15	PASS
5531.00†	5529.63	-36.61	0.14	5452.00	5529.64	-10614.15	-141.23	-179.23	10578.48	165.61	95.82	PASS
5631.00†	5629.63	-36.61	0.14	5552.00	5629.64	-10614.15	-141.23	-179.23	10578.48	164.45	96.49	PASS
5731.00†	5729.63	-36.61	0.14	5652.00	5729.64	-10614.15	-141.23	-179.23	10578.48	163.30	97.17	PASS
5831.00†	5829.63	-36.61	0.14	5752.00	5829.64	-10614.15	-141.23	-179.23	10578.48	162.16	97.85	PASS
5931.00†	5929.63	-36.61	0.14	5852.00	5929.64	-10614.15	-141.23	-179.23	10578.48	161.02	98.55	PASS
6005.41	6004.04	-36.61	0.14	5926.41	6004.04	-10614.15	-141.23	-179.23	10578.48	160.17	99.07	PASS
6031.00†	6029.62	-37.18	0.15	5951.99	6029.62	-10614.15	-141.23	0.99	10577.91	159.87	99.25	PASS
6131.00†	6128.63	-50.32	0.20	5981.05	6058.74	-10614.16	-141.23	1.01	10565.02	158.22	100.16	PASS
6231.00†	6223.85	-80.45	0.31	5985.63	6063.27	-10614.21	-141.23	1.07	10535.93	154.78	102.10	PASS
6331.00†	6312.39	-126.66	0.49	5989.94	6067.58	-10614.29	-141.23	1.17	10491.45	151.60	103.80	PASS
6431.00†	6391.56	-187.54	0.73	5993.86	6071.49	-10614.40	-141.22	1.33	10432.74	148.73	105.22	PASS
6531.00†	6458.96	-261.24	1.02	5997.26	6074.87	-10614.51	-141.22	1.59	10361.37	146.18	106.32	PASS
6631.00†	6512.53	-345.53	1.35	6000.05	6077.68	-10614.63	-141.22	2.04	10279.29	143.96	107.11	PASS
6731.00†	6550.66	-437.84	1.71	6002.13	6079.75	-10614.72	-141.22	2.99	10188.77	142.03	107.61	PASS
6831.00†	6572.17	-535.36	2.09	6003.44	6081.05	-10614.78	-141.22	5.82	10092.39	140.35	107.86	PASS
6905.41	6577.00	-609.57	2.38	6003.86	6081.48	-10614.80	-141.21	20.24	10018.53	139.24	107.93	PASS
6931.00†	6577.00	-635.15	2.48	6003.93	6081.54	-10614.80	-141.21	20.24	9992.97	139.44	107.50	PASS
7031.00†	6577.00	-735.15	2.87	6004.18	6081.79	-10614.82	-141.21	20.25	9893.12	138.01	107.52	PASS
7131.00†	6577.00	-835.15	3.26	6004.44	6082.06	-10614.83	-141.21	20.26	9793.26	136.59	107.55	PASS
7231.00†	6577.00	-935.15	3.65	6004.70	6082.32	-10614.84	-141.21	20.27	9693.41	135.16	107.57	PASS
7331.00†	6577.00	-1035.15	4.04	6004.97	6082.59	-10614.86	-141.21	20.28	9593.56	133.73	107.60	PASS
7431.00†	6577.00	-1135.15	4.44	6005.24	6082.86	-10614.87	-141.21	20.29	9493.71	132.30	107.64	PASS
7531.00†	6577.00	-1235.15	4.83	6005.52	6083.14	-10614.89	-141.21	20.30	9393.86	130.87	107.67	PASS
7631.00†	6577.00	-1335.15	5.22	6005.80	6083.43	-10614.90	-141.21	20.31	9294.02	129.43	107.71	PASS
7731.00†	6577.00	-1435.15	5.61	6006.10	6083.72	-10614.92	-141.21	20.32	9194.18	128.00	107.75	PASS
7831.00†	6577.00	-1535.15	6.00	6006.39	6084.01	-10614.93	-141.21	20.33	9094.35	126.56	107.79	PASS
7931.00†	6577.00	-1635.15	6.39	6006.70	6084.31	-10614.95	-141.21	20.34	8994.52	125.12	107.83	PASS
8031.00†	6577.00	-1735.15	6.78	6007.01	6084.61	-10614.97	-141.21	20.36	8894.69	123.67	107.88	PASS
8131.00†	6577.00	-1835.15	7.17	6007.32	6084.93	-10614.98	-141.21	20.37	8794.87	122.23	107.93	PASS
8231.00†	6577.00	-1935.14	7.56	6007.65	6085.25	-10615.00	-141.21	20.38	8695.05	120.78	107.98	PASS
8331.00†	6577.00	-2035.14	7.95	6007.98	6085.58	-10615.02	-141.21	20.39	8595.23	119.34	108.04	PASS



Clearance Report

CROW VALLEY 7-62-23-2H (REV-A.0) PWP

Closest Approach

Page 27 of 27



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-23-2H (320'FNL & 2036'FWL, SEC.23)
Area	COLORADO	Well	CROW VALLEY 7-62-23-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-23-2H PWB
Facility	SEC.23-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

Facility: SEC.35-T7N-R62W Slot: SLOT#01 CROW VALLEY 7-62-35-2H (366'FNL & 1837FWL, SEC.35) Well: CROW VALLEY 7-62-35-2H Threshold Value=1.50
 † = interpolated/extrapolated station

Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Angle from Highside [°]	C-C Clear Dist [ft]	Sep Ratio	ACR MASD [ft]	ACR Status
8431.00†	6577.00	-2135.14	8.34	6008.31	6085.92	-10615.04	-141.21	20.41	8495.42	117.89	108.10	PASS
8531.00†	6577.00	-2235.14	8.73	6008.66	6086.26	-10615.06	-141.21	20.42	8395.61	116.44	108.16	PASS
8631.00†	6577.00	-2335.14	9.12	6009.01	6086.61	-10615.08	-141.21	20.43	8295.81	114.98	108.22	PASS
8731.00†	6577.00	-2435.14	9.51	6009.37	6086.97	-10615.10	-141.21	20.45	8196.01	113.53	108.29	PASS
8831.00†	6577.00	-2535.14	9.91	6009.74	6087.34	-10615.12	-141.21	20.46	8096.22	112.08	108.36	PASS
8931.00†	6577.00	-2635.14	10.30	6010.12	6087.74	-10615.15	-141.21	20.48	7996.43	110.62	108.43	PASS
9031.00†	6577.00	-2735.14	10.69	6010.51	6088.12	-10615.17	-141.20	20.49	7896.64	109.17	108.50	PASS
9131.00†	6577.00	-2835.14	11.08	6010.90	6088.52	-10615.20	-141.20	20.50	7796.87	107.71	108.58	PASS
9231.00†	6577.00	-2935.14	11.47	6011.31	6088.92	-10615.22	-141.20	20.52	7697.09	106.25	108.66	PASS
9331.00†	6577.00	-3035.14	11.86	6011.72	6089.34	-10615.25	-141.20	20.54	7597.32	104.80	108.75	PASS
9431.00†	6577.00	-3135.14	12.25	6012.15	6089.76	-10615.28	-141.20	20.55	7497.56	103.34	108.83	PASS
9531.00†	6577.00	-3235.13	12.64	6012.58	6090.20	-10615.30	-141.20	20.57	7397.81	101.88	108.92	PASS
9631.00†	6577.00	-3335.13	13.03	6013.03	6090.64	-10615.33	-141.20	20.59	7298.06	100.42	109.02	PASS
9731.00†	6577.00	-3435.13	13.42	6013.49	6091.09	-10615.36	-141.20	20.60	7198.31	98.96	109.11	PASS
9831.00†	6577.00	-3535.13	13.81	6013.96	6091.56	-10615.40	-141.20	20.62	7098.58	97.49	109.22	PASS
9931.00†	6577.00	-3635.13	14.20	6014.45	6092.05	-10615.43	-141.20	20.64	6998.85	96.03	109.32	PASS
10031.00†	6577.00	-3735.13	14.59	6014.94	6092.55	-10615.46	-141.20	20.66	6899.13	94.57	109.43	PASS
10131.00†	6577.00	-3835.13	14.98	6015.45	6093.06	-10615.50	-141.20	20.68	6799.41	93.11	109.54	PASS
10231.00†	6577.00	-3935.13	15.38	6015.98	6093.58	-10615.54	-141.20	20.70	6699.71	91.65	109.66	PASS
10331.00†	6577.00	-4035.13	15.77	6016.52	6094.12	-10615.58	-141.19	20.72	6600.01	90.18	109.78	PASS
10431.00†	6577.00	-4135.13	16.16	6017.08	6094.66	-10615.62	-141.19	20.74	6500.32	88.72	109.90	PASS
10531.00†	6577.00	-4235.13	16.55	6017.65	6095.23	-10615.66	-141.19	20.77	6400.64	87.26	110.03	PASS
10631.00†	6577.00	-4335.13	16.94	6018.23	6095.82	-10615.71	-141.19	20.79	6300.97	85.80	110.16	PASS
10731.00†	6577.00	-4435.13	17.33	6018.84	6096.42	-10615.75	-141.19	20.81	6201.31	84.33	110.30	PASS
10764.71	6577.00	-4468.83	17.46	6019.04	6096.63	-10615.77	-141.19	20.82	6167.72	83.84	110.35	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

Slot Surface Uncertainty @1SD	Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD	Horizontal	8.200ft	Vertical	3.000ft

HOLE & CASING SECTIONS - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) 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]
7in Casing Intermediate	31.00	6813.00	6782.00	110.00	6587.00	-6448.06	-86.67	-6621.29	-82.21

SURVEY PROGRAM - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	10670.43	NaviTrak (Standard)		CROW VALLEY 7-62-35-2H pwb

OFFSET WELLPATH MD REFERENCE - Offset Wellbore: CROW VALLEY 7-62-35-2H pwb Offset Wellpath: CROW VALLEY 7-62-35-2H (REV-F.0) PWP

MD Reference: Rig on SLOT#01 CROW VALLEY 7-62-35-2H (366'FNL & 1837FWL, SEC.35) (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	