



Clearance Report

CROW VALLEY 7-62-27-2H (REV-D.0) PWP
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-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	0.999969	Report Generated	1/31/2012 at 9:41:58 AM
Convergence at slot	0.77° East	Database/Source file	WA_Denver/CROW_VALLEY_7-62-27-2H_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	0.00	0.00	3330443.86	1440569.53	40°32'12.058"N	104°18'39.955"W
Facility Reference Pt			3330443.86	1440569.53	40°32'12.058"N	104°18'39.955"W
Field Reference Pt			3476081.76	1512960.14	40°43'43.704"N	103°46'55.829"W

WELLPATH DATUM

Calculation method	Minimum Curvature	Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (RKB) to Facility Vertical Datum
Horizontal Reference Pt	Slot	Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (RKB) to Mean Sea Level
Vertical Reference Pt	Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (RKB)	Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (RKB) to Mud Line at Slot (SLOT#
MD Reference Pt	Rig on SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34) (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	8.51° East of TN	Dip Angle	67.23°	Mag Field Strength	53202 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

SOLE & CASING SECTIONS - Ref Wellbore: CROW VALLEY 7-62-27-2H pwb Ref 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	31.00	6601.00	0.00	0.00	620.16	15.75



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Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

SURVEY PROGRAM - Ref Wellbore: CROW VALLEY 7-62-27-2H pwb Ref 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

CALCULATION RANGE & CUTOFF

From: 31.00ft MD	To: 11574.52ft MD	C-C Cutoff: (none)
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OFFSET WELL CLEARANCE SUMMARY (2 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.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-C.0) PWP	2379.82	26.20	6019.62	2400.00	1.50	6031.00	PASS
SEC.34-T7N-R62W	SLOT#03 EXISTING BICKFORD #1 (1984'FNL & 1946'FWL, SEC.34)	BICKFORD #1	BICKFORD #1 AWB	BICKFORD #1 AWP	31.00	2133.26	6019.62	6331.00	11.69	6331.00	PASS



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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468°FNL & 1836°FNL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

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

Facility: SEC.34-T7N-R62W		Slot: SLOT#02 CROW VALLEY 7-62-34-2H (455°FNL & 1862°FNL, 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	31.00	31.00	14.01	26.53		62.16	30.00	25.35	1.78	PASS
131.00†	131.00	0.00	0.00	131.00	131.00	14.01	26.53		62.16	30.00	19.75	2.28	PASS
231.00†	231.00	0.00	0.00	231.00	231.00	14.01	26.53		62.16	30.00	14.02	3.21	PASS
331.00†	331.00	0.00	0.00	331.00	331.00	14.01	26.53		62.16	30.00	10.64	4.23	PASS
431.00†	431.00	0.00	0.00	431.00	431.00	14.01	26.53		62.16	30.00	8.52	5.28	PASS
531.00†	531.00	0.00	0.00	531.00	531.00	14.01	26.53		62.16	30.00	7.10	6.34	PASS
631.00†	631.00	0.00	0.00	631.00	631.00	14.01	26.53		62.16	30.00	6.08	7.40	PASS
731.00†	731.00	0.00	0.00	731.00	731.00	14.01	26.53		62.16	30.00	5.31	8.47	PASS
831.00†	831.00	0.00	0.00	831.00	831.00	14.01	26.53		62.16	30.00	4.71	9.55	PASS
931.00†	931.00	0.00	0.00	931.00	931.00	14.01	26.53		62.16	30.00	4.24	10.62	PASS
1031.00†	1031.00	0.00	0.00	1031.00	1031.00	14.01	26.53		62.16	30.00	3.85	11.69	PASS
1131.00†	1131.00	0.00	0.00	1131.00	1131.00	14.01	26.53		62.16	30.00	3.53	12.77	PASS
1231.00†	1231.00	0.00	0.00	1231.00	1231.00	14.01	26.53		62.16	30.00	3.25	13.84	PASS
1331.00†	1331.00	0.00	0.00	1331.00	1331.00	14.01	26.53		62.16	30.00	3.02	14.92	PASS
1431.00†	1431.00	0.00	0.00	1431.00	1431.00	14.01	26.53		62.16	30.00	2.81	15.99	PASS
1531.00†	1531.00	0.00	0.00	1531.00	1531.00	14.01	26.53		62.16	30.00	2.64	17.07	PASS
1631.00†	1631.00	0.00	0.00	1631.00	1631.00	14.01	26.53		62.16	30.00	2.48	18.15	PASS
1731.00†	1731.00	0.00	0.00	1731.00	1731.00	14.01	26.53		62.16	30.00	2.34	19.22	PASS
1831.00†	1831.00	0.00	0.00	1831.00	1831.00	14.01	26.53		62.16	30.00	2.22	20.30	PASS
1931.00†	1931.00	0.00	0.00	1931.00	1931.00	14.01	26.53		62.16	30.00	2.11	21.38	PASS
2031.00†	2031.00	0.00	0.00	2031.00	2031.00	14.01	26.53		62.16	30.00	2.00	22.45	PASS
2100.00	2100.00	0.00	0.00	2100.00	2100.00	14.01	26.53		62.16	30.00	1.94	23.20	PASS
2131.00†	2131.00	0.17	0.00	2131.00	2131.00	14.01	26.53		60.99	29.92	1.91	23.53	PASS
2231.00†	2230.95	2.99	0.08	2230.95	2230.95	14.01	26.53		65.96	28.66	1.75	24.61	PASS
2331.00†	2330.75	9.31	0.24	2330.78	2330.78	13.89	26.53		78.70	26.69	1.56	25.68	PASS
2379.82†	2379.38	13.65	0.35	2379.38	2379.38	13.19	26.55		89.56	26.20	1.50	26.19	PASS
2400.00	2399.45	15.69	0.40	2399.37	2399.36	12.72	26.56		94.97	26.33	1.50	26.41	PASS
2431.00†	2430.28	18.93	0.48	2430.05	2430.00	11.80	26.58		103.69	27.05	1.52	26.77	PASS
2450.00	2449.18	20.91	0.53	2448.81	2448.78	11.11	26.59		108.98	27.84	1.55	27.01	PASS
2531.00†	2529.84	28.24	0.72	2528.68	2528.53	7.17	26.67		127.39	33.46	1.79	28.08	PASS
2631.00†	2629.66	34.13	0.87	2627.09	2626.67	0.02	26.82		141.15	42.97	2.19	29.46	PASS
2731.00†	2729.63	36.54	0.93	2725.60	2724.73	-9.58	27.03		149.02	53.22	2.59	30.82	PASS
2750.00	2748.63	36.60	0.93	2744.49	2743.51	-11.56	27.07		151.51	55.03	2.66	31.05	PASS
2831.00†	2829.63	36.60	0.93	2826.18	2824.83	-19.34	27.23		154.82	62.00	2.91	32.00	PASS
2931.00†	2929.63	36.60	0.93	2927.52	2925.90	-26.58	27.38		157.28	68.59	3.10	33.19	PASS
3031.00†	3029.63	36.60	0.93	3029.18	3027.45	-31.14	27.48		158.60	72.79	3.18	34.39	PASS
3131.00†	3129.63	36.60	0.93	3131.02	3129.28	-33.01	27.52		159.10	74.51	3.14	35.56	PASS
3231.00†	3229.63	36.60	0.93	3231.37	3229.63	-33.06	27.52		159.11	74.56	3.05	36.61	PASS
3331.00†	3329.63	36.60	0.93	3331.37	3329.63	-33.06	27.52		159.11	74.56	2.97	37.65	PASS
3431.00†	3429.63	36.60	0.93	3431.37	3429.64	-33.06	27.52		159.11	74.56	2.89	38.69	PASS
3531.00†	3529.63	36.60	0.93	3531.37	3529.64	-33.06	27.52		159.11	74.56	2.81	39.74	PASS
3631.00†	3629.63	36.60	0.93	3631.37	3629.64	-33.06	27.52		159.11	74.56	2.74	40.78	PASS
3731.00†	3729.63	36.60	0.93	3731.37	3729.64	-33.06	27.52		159.11	74.56	2.67	41.83	PASS
3831.00†	3829.63	36.60	0.93	3831.37	3829.64	-33.06	27.52		159.11	74.56	2.61	42.88	PASS
3931.00†	3929.63	36.60	0.93	3931.37	3929.64	-33.06	27.52		159.11	74.56	2.55	43.93	PASS



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Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

CLEARANCE DATA - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-C.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		C-C Clear Dist [ft]		Sep Ratio	ACR MASD [ft]	ACR Status
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 [°]						
4031.00†	4029.63	36.60	0.93	4031.37	4029.64	-33.06	27.52	159.11		74.56	2.49	44.99	PASS	
4131.00†	4129.63	36.60	0.93	4131.37	4129.64	-33.06	27.52	159.11		74.56	2.43	46.04	PASS	
4231.00†	4229.63	36.60	0.93	4231.37	4229.64	-33.06	27.52	159.11		74.56	2.37	47.09	PASS	
4331.00†	4329.63	36.60	0.93	4331.37	4329.64	-33.06	27.52	159.11		74.56	2.32	48.15	PASS	
4431.00†	4429.63	36.60	0.93	4431.37	4429.64	-33.06	27.52	159.11		74.56	2.27	49.21	PASS	
4531.00†	4529.63	36.60	0.93	4531.37	4529.64	-33.06	27.52	159.11		74.56	2.23	50.26	PASS	
4631.00†	4629.63	36.60	0.93	4631.37	4629.64	-33.06	27.52	159.11		74.56	2.18	51.32	PASS	
4731.00†	4729.63	36.60	0.93	4731.37	4729.64	-33.06	27.52	159.11		74.56	2.14	52.38	PASS	
4831.00†	4829.63	36.60	0.93	4831.37	4829.64	-33.06	27.52	159.11		74.56	2.09	53.44	PASS	
4931.00†	4929.63	36.60	0.93	4931.37	4929.64	-33.06	27.52	159.11		74.56	2.05	54.50	PASS	
5031.00†	5029.63	36.60	0.93	5031.37	5029.64	-33.06	27.52	159.11		74.56	2.01	55.56	PASS	
5131.00†	5129.63	36.60	0.93	5131.37	5129.64	-33.06	27.52	159.11		74.56	1.98	56.63	PASS	
5231.00†	5229.63	36.60	0.93	5231.37	5229.64	-33.06	27.52	159.11		74.56	1.94	57.69	PASS	
5331.00†	5329.63	36.60	0.93	5331.37	5329.64	-33.06	27.52	159.11		74.56	1.90	58.75	PASS	
5431.00†	5429.63	36.60	0.93	5431.37	5429.64	-33.06	27.52	159.11		74.56	1.87	59.82	PASS	
5531.00†	5529.63	36.60	0.93	5531.37	5529.64	-33.06	27.52	159.11		74.56	1.84	60.88	PASS	
5631.00†	5629.63	36.60	0.93	5631.37	5629.64	-33.06	27.52	159.11		74.56	1.81	61.94	PASS	
5731.00†	5729.63	36.60	0.93	5731.37	5729.64	-33.06	27.52	159.11		74.56	1.77	63.01	PASS	
5831.00†	5829.63	36.60	0.93	5831.37	5829.64	-33.06	27.52	159.11		74.56	1.75	64.08	PASS	
5931.00†	5929.63	36.60	0.93	5931.37	5929.64	-33.06	27.52	159.11		74.56	1.72	65.14	PASS	
6019.62	6018.25	36.60	0.93	6019.99	6018.25	-33.06	27.52	159.11		74.56	1.69	66.09	PASS	
6031.00†	6029.63	36.71	0.93	6031.36	6029.64	-33.06	27.52	157.68		74.66	1.69	66.21	PASS	
6131.00†	6128.95	47.21	1.20	6130.69	6128.95	-33.06	27.52	160.06		84.47	1.87	67.83	PASS	
6231.00†	6225.03	74.51	1.89	6211.09	6209.12	-38.04	27.62	163.89		116.54	2.47	70.79	PASS	
6331.00†	6315.02	117.80	2.99	6273.16	6269.93	-50.40	27.86	166.49		175.91	3.61	73.05	PASS	
6431.00†	6396.30	175.83	4.47	6315.63	6310.43	-63.05	28.11	166.69		254.95	5.15	74.28	PASS	
6531.00†	6466.48	246.87	6.27	6340.73	6333.84	-72.11	28.29	163.46		346.16	6.94	74.77	PASS	
6631.00†	6523.49	328.86	8.35	6352.09	6344.27	-76.58	28.38	146.81		443.73	8.88	74.97	PASS	
6731.00†	6565.66	419.37	10.65	6353.07	6345.19	-76.98	28.39	39.29		543.40	10.85	75.12	PASS	
6831.00†	6591.74	515.75	13.10	6346.32	6339.00	-74.28	28.34	11.84		642.06	12.78	75.34	PASS	
6931.00†	6600.99	615.16	15.63	6333.79	6327.43	-69.49	28.24	6.37		737.39	14.61	75.70	PASS	
6935.88	6601.00	620.04	15.75	6333.06	6326.74	-69.22	28.24	6.22		741.93	14.70	75.70	PASS	
7031.00†	6600.86	715.13	18.17	6319.63	6314.20	-64.42	28.14	5.91		830.65	16.50	75.51	PASS	
7131.00†	6600.71	815.10	20.71	6307.32	6302.59	-60.31	28.06	5.65		924.81	18.32	75.72	PASS	
7231.00†	6600.55	915.07	23.24	6296.52	6292.33	-56.94	27.99	5.43		1019.72	20.15	75.91	PASS	
7331.00†	6600.40	1015.03	25.78	6286.99	6283.23	-54.15	27.94	5.26		1115.24	21.99	76.07	PASS	
7431.00†	6600.25	1115.00	28.32	6278.52	6275.08	-51.80	27.89	5.11		1211.27	23.84	76.21	PASS	
7531.00†	6600.10	1214.97	30.87	6270.94	6267.77	-49.82	27.85	4.98		1307.73	25.70	76.33	PASS	
7631.00†	6599.95	1314.94	33.41	6264.13	6261.17	-48.14	27.82	4.87		1404.55	27.56	76.45	PASS	
7731.00†	6599.80	1414.90	35.95	6257.98	6255.18	-46.69	27.79	4.78		1501.69	29.43	76.55	PASS	
7831.00†	6599.65	1514.87	38.49	6252.39	6249.76	-45.44	27.76	4.70		1599.10	31.29	76.65	PASS	
7931.00†	6599.50	1614.84	41.03	6247.30	6244.76	-44.34	27.74	4.63		1696.73	33.16	76.74	PASS	
8031.00†	6599.35	1714.81	43.57	6242.64	6240.20	-43.39	27.72	4.56		1794.57	35.04	76.83	PASS	
8131.00†	6599.20	1814.77	46.11	6238.35	6236.00	-42.55	27.71	4.50		1892.59	36.91	76.92	PASS	
8231.00†	6599.05	1914.74	48.65	6234.40	6232.14	-41.81	27.69	4.45		1990.77	38.78	77.00	PASS	



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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468°FNL & 1836°FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

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

Facility: SEC.34-T7N-R62W		Slot: SLO#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 MASH [ft]	ACR Status
8331.00†	6598.90	2014.71	51.20	6230.76	6227.81	-41.02	27.68	4.40	2089.08	40.65	77.09	PASS
8431.00†	6598.74	2114.68	53.74	6227.38	6225.21	-40.56	27.67	4.36	2187.52	42.49	77.23	PASS
8531.00†	6598.59	2214.64	56.28	6224.23	6222.11	-40.03	27.66	4.33	2286.07	44.32	77.37	PASS
8631.00†	6598.44	2314.61	58.82	6221.30	6219.22	-39.56	27.65	4.29	2384.72	46.15	77.51	PASS
8731.00†	6598.29	2414.58	61.37	6218.56	6216.50	-39.13	27.64	4.26	2483.46	47.98	77.64	PASS
8831.00†	6598.14	2514.55	63.91	6216.00	6213.98	-38.74	27.63	4.23	2582.28	49.80	77.77	PASS
8931.00†	6597.99	2614.51	66.45	6213.59	6211.60	-38.39	27.62	4.20	2681.18	51.63	77.90	PASS
9031.00†	6597.84	2714.48	69.00	6211.34	6209.36	-38.07	27.62	4.18	2780.14	53.45	78.03	PASS
9131.00†	6597.69	2814.45	71.54	6209.21	6207.25	-37.78	27.61	4.15	2879.16	55.26	78.15	PASS
9231.00†	6597.54	2914.42	74.08	6207.20	6205.27	-37.51	27.61	4.13	2978.24	57.07	78.27	PASS
9331.00†	6597.39	3014.38	76.63	6205.30	6203.38	-37.26	27.60	4.11	3077.37	58.88	78.39	PASS
9431.00†	6597.24	3114.35	79.17	6203.51	6201.61	-37.04	27.60	4.09	3176.54	60.69	78.52	PASS
9531.00†	6597.09	3214.32	81.72	6201.81	6199.91	-36.83	27.59	4.08	3275.76	62.48	78.64	PASS
9631.00†	6596.93	3314.29	84.26	6200.20	6198.32	-36.63	27.59	4.06	3375.02	64.28	78.76	PASS
9731.00†	6596.78	3414.25	86.81	6198.66	6196.79	-36.45	27.58	4.04	3474.32	66.07	78.88	PASS
9831.00†	6596.63	3514.22	89.35	6197.20	6195.35	-36.29	27.58	4.03	3573.65	67.85	79.00	PASS
9931.00†	6596.48	3614.19	91.90	6195.82	6193.96	-36.13	27.58	4.02	3673.01	69.63	79.13	PASS
10031.00†	6596.33	3714.16	94.44	6194.49	6192.66	-35.99	27.58	4.00	3772.40	71.40	79.25	PASS
10131.00†	6596.18	3814.12	96.99	6193.23	6191.38	-35.86	27.57	3.99	3871.82	73.17	79.37	PASS
10231.00†	6596.03	3914.09	99.54	6192.02	6190.20	-35.73	27.57	3.98	3971.27	74.93	79.50	PASS
10331.00†	6595.88	4014.06	102.08	6190.86	6189.04	-35.62	27.57	3.97	4070.74	76.69	79.62	PASS
10431.00†	6595.73	4114.03	104.63	6189.75	6187.93	-35.51	27.57	3.96	4170.23	78.44	79.75	PASS
10531.00†	6595.58	4213.99	107.17	6188.69	6186.89	-35.40	27.56	3.95	4269.75	80.18	79.88	PASS
10631.00†	6595.42	4313.96	109.72	6187.68	6185.88	-35.31	27.56	3.94	4369.28	81.92	80.01	PASS
10731.00†	6595.27	4413.93	112.27	6186.70	6184.90	-35.22	27.56	3.93	4468.83	83.65	80.14	PASS
10831.00†	6595.12	4513.90	114.82	6185.76	6183.96	-35.13	27.56	3.93	4568.40	85.37	80.27	PASS
10931.00†	6594.97	4613.86	117.36	6184.86	6183.07	-35.05	27.56	3.92	4667.99	87.09	80.40	PASS
11031.00†	6594.82	4713.83	119.91	6183.99	6182.20	-34.97	27.55	3.91	4767.59	88.80	80.54	PASS
11131.00†	6594.67	4813.80	122.46	6183.15	6181.37	-34.90	27.55	3.90	4867.21	90.50	80.67	PASS
11231.00†	6594.52	4913.77	125.01	6182.35	6180.56	-34.83	27.55	3.90	4966.84	92.20	80.81	PASS
11331.00†	6594.37	5013.73	127.56	6181.57	6179.79	-34.77	27.55	3.89	5066.48	93.89	80.94	PASS
11431.00†	6594.22	5113.70	130.11	6180.82	6179.04	-34.71	27.55	3.89	5166.14	95.57	81.08	PASS
11531.00†	6594.07	5213.67	132.66	6180.09	6178.32	-34.65	27.55	3.88	5265.81	97.25	81.22	PASS
11574.52	6594.00	5257.17	133.76	6179.79	6178.01	-34.63	27.55	3.88	5309.19	97.97	81.29	PASS

POSITIONAL UNCERTAINTY - Offset Wellbore: CROW VALLEY 7-62-34-2H PWB Offset Wellpath: CROW VALLEY 7-62-34-2H (REV-C.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-C.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	6983.00	6952.00	31.00	6646.97	8.54	16.17	-173.95	19.82



Clearance Report
CROW VALLEY 7-62-27-2H (REV-D.0) PWP
Closest Approach
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**REFERENCE WELLPATH IDENTIFICATION**

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

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

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
31.00	10752.25	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-C.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	



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CROW VALLEY 7-62-27-2H (REV-D.0) PWP
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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-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 MASH [ft]	ACR Status					
31.00†	31.00	0.00	0.00	-30.00	31.00	-1509.22	1507.67	135.03	2133.26	2726.39	1.17	PASS					
131.00†	131.00	0.00	0.00	70.00	131.03	-1509.22	1507.67	135.03	2133.26	241.67	13.24	PASS					
231.00†	231.00	0.00	0.00	170.00	231.03	-1509.22	1507.67	135.03	2133.26	182.73	17.51	PASS					
331.00†	331.00	0.00	0.00	270.00	331.03	-1509.22	1507.67	135.03	2133.26	146.60	21.83	PASS					
431.00†	431.00	0.00	0.00	370.00	431.03	-1509.22	1507.67	135.03	2133.26	122.34	26.16	PASS					
531.00†	531.00	0.00	0.00	470.00	531.03	-1509.22	1507.67	135.03	2133.26	104.94	30.49	PASS					
631.00†	631.00	0.00	0.00	570.00	631.02	-1509.22	1507.67	135.03	2133.26	91.87	34.83	PASS					
731.00†	731.00	0.00	0.00	670.00	731.02	-1509.22	1507.67	135.03	2133.26	81.69	39.17	PASS					
831.00†	831.00	0.00	0.00	770.00	831.02	-1509.22	1507.67	135.03	2133.26	73.54	43.51	PASS					
931.00†	931.00	0.00	0.00	870.00	931.02	-1509.22	1507.67	135.03	2133.26	66.87	47.85	PASS					
1031.00†	1031.00	0.00	0.00	970.00	1031.02	-1509.22	1507.67	135.03	2133.26	61.31	52.19	PASS					
1131.00†	1131.00	0.00	0.00	1070.00	1131.02	-1509.22	1507.67	135.03	2133.26	56.60	56.54	PASS					
1231.00†	1231.00	0.00	0.00	1170.00	1231.02	-1509.22	1507.67	135.03	2133.26	52.56	60.88	PASS					
1331.00†	1331.00	0.00	0.00	1270.00	1331.02	-1509.22	1507.67	135.03	2133.26	49.06	65.22	PASS					
1431.00†	1431.00	0.00	0.00	1370.00	1431.02	-1509.22	1507.67	135.03	2133.26	46.00	69.56	PASS					
1531.00†	1531.00	0.00	0.00	1470.00	1531.02	-1509.22	1507.67	135.03	2133.26	43.30	73.91	PASS					
1631.00†	1631.00	0.00	0.00	1570.00	1631.02	-1509.22	1507.67	135.03	2133.26	40.89	78.25	PASS					
1731.00†	1731.00	0.00	0.00	1670.00	1731.02	-1509.22	1507.67	135.03	2133.26	38.74	82.59	PASS					
1831.00†	1831.00	0.00	0.00	1770.00	1831.02	-1509.22	1507.67	135.03	2133.26	36.81	86.94	PASS					
1931.00†	1931.00	0.00	0.00	1870.00	1931.02	-1509.22	1507.67	135.03	2133.26	35.06	91.28	PASS					
2031.00†	2031.00	0.00	0.00	1970.00	2031.02	-1509.22	1507.67	135.03	2133.26	33.46	95.63	PASS					
2100.00	2100.00	0.00	0.00	2039.00	2100.02	-1509.22	1507.67	135.03	2133.26	32.45	98.62	PASS					
2131.00†	2131.00	0.17	0.00	2070.00	2131.02	-1509.22	1507.67	133.57	2133.38	32.01	99.97	PASS					
2231.00†	2230.95	2.99	0.08	2169.95	2230.97	-1509.22	1507.67	133.60	2135.33	30.70	104.35	PASS					
2331.00†	2330.75	9.31	0.24	2269.75	2330.77	-1509.22	1507.67	133.66	2139.69	29.50	108.81	PASS					
2400.00	2399.45	15.69	0.40	2338.45	2399.47	-1509.22	1507.67	133.72	2144.11	28.75	111.85	PASS					
2431.00†	2430.28	18.93	0.48	2369.28	2430.30	-1509.22	1507.67	133.78	2146.36	28.44	113.20	PASS					
2450.00	2449.18	20.91	0.53	2388.18	2449.20	-1509.22	1507.67	133.82	2147.74	28.26	114.02	PASS					
2531.00†	2529.84	28.24	0.72	2468.84	2529.86	-1509.22	1507.67	134.03	2152.83	27.48	117.53	PASS					
2631.00†	2629.66	34.13	0.87	2568.66	2629.68	-1509.22	1507.67	134.20	2156.94	26.53	121.94	PASS					
2731.00†	2729.63	36.54	0.93	2668.63	2729.65	-1509.22	1507.67	134.27	2158.62	25.62	126.39	PASS					
2750.00	2748.63	36.60	0.93	2687.63	2748.65	-1509.22	1507.67	135.73	2158.66	25.45	127.22	PASS					
2831.00†	2829.63	36.60	0.93	2768.63	2829.65	-1509.22	1507.67	135.73	2158.66	24.77	130.73	PASS					
2931.00†	2929.63	36.60	0.93	2868.63	2929.65	-1509.22	1507.67	135.73	2158.66	23.98	135.06	PASS					
3031.00†	3029.63	36.60	0.93	2968.63	3029.65	-1509.22	1507.67	135.73	2158.66	23.23	139.38	PASS					
3131.00†	3129.63	36.60	0.93	3068.63	3129.65	-1509.22	1507.67	135.73	2158.66	22.53	143.71	PASS					
3231.00†	3229.63	36.60	0.93	3168.63	3229.65	-1509.22	1507.67	135.73	2158.66	21.87	148.04	PASS					
3331.00†	3329.63	36.60	0.93	3268.63	3329.64	-1509.22	1507.67	135.73	2158.66	21.25	152.38	PASS					
3431.00†	3429.63	36.60	0.93	3368.63	3429.64	-1509.22	1507.67	135.73	2158.66	20.66	156.71	PASS					
3531.00†	3529.63	36.60	0.93	3468.63	3529.64	-1509.22	1507.67	135.73	2158.66	20.11	161.04	PASS					
3631.00†	3629.63	36.60	0.93	3568.63	3629.64	-1509.22	1507.67	135.73	2158.66	19.58	165.37	PASS					
3731.00†	3729.63	36.60	0.93	3668.63	3729.62	-1509.22	1507.67	135.73	2158.66	19.08	169.71	PASS					
3831.00†	3829.63	36.60	0.93	3768.63	3829.62	-1509.22	1507.67	135.73	2158.66	18.60	174.04	PASS					
3931.00†	3929.63	36.60	0.93	3868.63	3929.62	-1509.22	1507.67	135.73	2158.66	18.15	178.38	PASS					
4031.00†	4029.63	36.60	0.93	3968.63	4029.62	-1509.22	1507.67	135.73	2158.66	17.72	182.71	PASS					



Clearance Report

CROW VALLEY 7-62-27-2H (REV-D.0) PWP
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-17N-R62W		

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

Facility: SEC.34-17N-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 MASH [ft]	ACR Status	
4131.00†	4129.63	36.60	0.93	4068.63	4129.62	-1509.22	1507.67	135.73	2158.66	17.31	187.05	PASS	
4231.00†	4229.63	36.60	0.93	4168.63	4229.61	-1509.22	1507.67	135.73	2158.66	16.92	191.39	PASS	
4331.00†	4329.63	36.60	0.93	4268.63	4329.61	-1509.22	1507.67	135.73	2158.66	16.54	195.72	PASS	
4431.00†	4429.63	36.60	0.93	4368.63	4429.61	-1509.22	1507.67	135.73	2158.66	16.19	200.06	PASS	
4531.00†	4529.63	36.60	0.93	4468.63	4529.61	-1509.22	1507.67	135.73	2158.66	15.84	204.40	PASS	
4631.00†	4629.63	36.60	0.93	4568.63	4629.61	-1509.22	1507.67	135.73	2158.66	15.51	208.73	PASS	
4731.00†	4729.63	36.60	0.93	4668.63	4729.61	-1509.22	1507.67	135.73	2158.66	15.20	213.07	PASS	
4831.00†	4829.63	36.60	0.93	4768.63	4829.61	-1509.22	1507.67	135.73	2158.66	14.89	217.41	PASS	
4931.00†	4929.63	36.60	0.93	4868.63	4929.61	-1509.22	1507.67	135.73	2158.66	14.60	221.75	PASS	
5031.00†	5029.63	36.60	0.93	4968.63	5029.61	-1509.22	1507.67	135.73	2158.66	14.32	226.09	PASS	
5131.00†	5129.63	36.60	0.93	5068.63	5129.61	-1509.22	1507.67	135.73	2158.66	14.05	230.43	PASS	
5231.00†	5229.63	36.60	0.93	5168.63	5229.61	-1509.22	1507.67	135.73	2158.66	13.79	234.76	PASS	
5331.00†	5329.63	36.60	0.93	5268.63	5329.61	-1509.22	1507.67	135.73	2158.66	13.54	239.10	PASS	
5431.00†	5429.63	36.60	0.93	5368.63	5429.61	-1509.22	1507.67	135.73	2158.66	13.30	243.44	PASS	
5531.00†	5529.63	36.60	0.93	5468.63	5529.61	-1509.22	1507.67	135.73	2158.66	13.07	247.78	PASS	
5631.00†	5629.63	36.60	0.93	5568.63	5629.61	-1509.22	1507.67	135.73	2158.66	12.84	252.12	PASS	
5731.00†	5729.63	36.60	0.93	5668.63	5729.61	-1509.22	1507.67	135.73	2158.66	12.63	256.46	PASS	
5831.00†	5829.63	36.60	0.93	5768.63	5829.61	-1509.22	1507.67	135.73	2158.66	12.42	260.80	PASS	
5931.00†	5929.63	36.60	0.93	5868.63	5929.61	-1509.22	1507.67	135.73	2158.66	12.21	265.14	PASS	
6019.62	6018.25	36.60	0.93	5957.25	6018.23	-1509.22	1507.67	135.73	2158.66	12.04	268.99	PASS	
6031.00†	6029.63	36.71	0.93	5968.63	6029.61	-1509.22	1507.67	134.28	2158.74	12.02	269.48	PASS	
6131.00†	6128.95	47.21	1.20	6067.95	6128.93	-1509.22	1507.67	133.95	2166.08	11.85	274.10	PASS	
6231.00†	6225.03	74.51	1.89	6164.03	6225.00	-1509.22	1507.67	133.06	2185.30	11.73	279.44	PASS	
6331.00†	6315.02	117.80	2.99	6254.02	6315.00	-1509.22	1507.67	131.49	2216.13	11.69	284.46	PASS	
6431.00†	6396.30	175.83	4.47	6335.30	6396.28	-1509.22	1507.67	129.03	2258.10	11.72	289.06	PASS	
6531.00†	6466.48	246.87	6.27	6405.48	6466.46	-1509.22	1507.67	125.38	2310.42	11.82	293.18	PASS	
6631.00†	6523.49	328.86	8.35	6462.49	6523.47	-1509.22	1507.67	120.12	2372.02	11.99	296.73	PASS	
6731.00†	6565.66	419.37	10.65	6504.66	6565.63	-1509.22	1507.67	112.75	2441.41	12.22	299.63	PASS	
6831.00†	6591.74	515.75	13.10	6530.74	6591.72	-1509.22	1507.67	102.85	2516.79	12.51	301.85	PASS	
6931.00†	6600.99	615.16	15.63	6539.99	6600.96	-1509.22	1507.67	90.53	2595.99	12.84	303.37	PASS	
6935.88	6601.00	620.04	15.75	6540.00	6600.98	-1509.22	1507.67	89.88	2599.92	12.85	303.42	PASS	
7031.00†	6600.86	715.13	18.17	6539.86	6600.83	-1509.22	1507.67	89.88	2677.00	13.23	303.62	PASS	
7131.00†	6600.71	815.10	20.71	6539.71	6600.68	-1509.22	1507.67	89.87	2759.26	13.58	304.76	PASS	
7231.00†	6600.55	915.07	23.24	6539.55	6600.53	-1509.22	1507.67	89.87	2842.65	13.94	305.91	PASS	
7331.00†	6600.40	1015.03	25.78	6539.40	6600.38	-1509.22	1507.67	89.86	2927.09	14.30	307.04	PASS	
7431.00†	6600.25	1115.00	28.32	6539.25	6600.23	-1509.22	1507.67	89.86	3012.47	14.66	308.14	PASS	
7531.00†	6600.10	1214.97	30.87	6539.10	6600.08	-1509.22	1507.67	89.85	3098.73	15.03	309.23	PASS	
7631.00†	6599.95	1314.94	33.41	6538.95	6599.93	-1509.22	1507.67	89.84	3185.80	15.40	310.28	PASS	
7731.00†	6599.80	1414.90	35.95	6538.80	6599.78	-1509.22	1507.67	89.84	3273.60	15.77	311.30	PASS	
7831.00†	6599.65	1514.87	38.49	6538.65	6599.63	-1509.22	1507.67	89.83	3362.08	16.15	312.29	PASS	
7931.00†	6599.50	1614.84	41.03	6538.50	6599.48	-1509.22	1507.67	89.83	3451.20	16.53	313.24	PASS	
8031.00†	6599.35	1714.81	43.57	6538.35	6599.32	-1509.22	1507.67	89.82	3540.89	16.91	314.15	PASS	
8131.00†	6599.20	1814.77	46.11	6538.20	6599.17	-1509.22	1507.67	89.82	3631.13	17.29	315.04	PASS	
8231.00†	6599.05	1914.74	48.65	6538.05	6599.02	-1509.22	1507.67	89.81	3721.86	17.67	315.89	PASS	
8331.00†	6598.90	2014.71	51.20	6537.90	6598.87	-1509.22	1507.67	89.80	3813.05	18.06	316.71	PASS	



Clearance Report

CROW VALLEY 7-62-27-2H (REV-D.0) PWP
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-17N-R62W		

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

Facility: SEC.34-17N-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 MASH [ft]	ACR Status	
8431.00†	6598.74	2114.68	53.74	6537.74	6598.72	-1509.22	1507.67	89.80	3904.68	18.45	317.50	PASS	
8531.00†	6598.59	2214.64	56.28	6537.59	6598.57	-1509.22	1507.67	89.79	3996.71	18.84	318.26	PASS	
8631.00†	6598.44	2314.61	58.82	6537.44	6598.42	-1509.22	1507.67	89.79	4089.11	19.23	318.99	PASS	
8731.00†	6598.29	2414.58	61.37	6537.29	6598.27	-1509.22	1507.67	89.78	4181.86	19.62	319.69	PASS	
8831.00†	6598.14	2514.55	63.91	6537.14	6598.12	-1509.22	1507.67	89.78	4274.94	20.02	320.37	PASS	
8931.00†	6597.99	2614.51	66.45	6536.99	6597.97	-1509.22	1507.67	89.77	4368.33	20.41	321.03	PASS	
9031.00†	6597.84	2714.48	69.00	6536.84	6597.82	-1509.22	1507.67	89.77	4462.00	20.81	321.66	PASS	
9131.00†	6597.69	2814.45	71.54	6536.69	6597.66	-1509.22	1507.67	89.76	4555.94	21.21	322.27	PASS	
9231.00†	6597.54	2914.42	74.08	6536.54	6597.51	-1509.22	1507.67	89.75	4650.13	21.60	322.85	PASS	
9331.00†	6597.39	3014.38	76.63	6536.39	6597.36	-1509.22	1507.67	89.75	4744.56	22.00	323.42	PASS	
9431.00†	6597.24	3114.35	79.17	6536.24	6597.21	-1509.22	1507.67	89.74	4839.21	22.41	323.97	PASS	
9531.00†	6597.09	3214.32	81.72	6536.09	6597.06	-1509.22	1507.67	89.74	4934.08	22.81	324.50	PASS	
9631.00†	6596.93	3314.29	84.26	6535.93	6596.91	-1509.22	1507.67	89.73	5029.14	23.21	325.02	PASS	
9731.00†	6596.78	3414.25	86.81	6535.78	6596.76	-1509.22	1507.67	89.73	5124.40	23.61	325.52	PASS	
9831.00†	6596.63	3514.22	89.35	6535.63	6596.61	-1509.22	1507.67	89.72	5219.82	24.02	326.00	PASS	
9931.00†	6596.48	3614.19	91.90	6535.48	6596.46	-1509.22	1507.67	89.72	5315.42	24.42	326.47	PASS	
10031.00†	6596.33	3714.16	94.44	6535.33	6596.31	-1509.22	1507.67	89.71	5411.18	24.83	326.92	PASS	
10131.00†	6596.18	3814.12	96.99	6535.18	6596.16	-1509.22	1507.67	89.70	5507.09	25.23	327.37	PASS	
10231.00†	6596.03	3914.09	99.54	6535.03	6596.00	-1509.22	1507.67	89.70	5603.14	25.64	327.80	PASS	
10331.00†	6595.88	4014.06	102.08	6534.88	6595.85	-1509.22	1507.67	89.69	5699.32	26.05	328.21	PASS	
10431.00†	6595.73	4114.03	104.63	6534.73	6595.70	-1509.22	1507.67	89.69	5795.64	26.45	328.62	PASS	
10531.00†	6595.58	4213.99	107.17	6534.58	6595.55	-1509.22	1507.67	89.68	5892.07	26.86	329.02	PASS	
10631.00†	6595.42	4313.96	109.72	6534.42	6595.40	-1509.22	1507.67	89.68	5988.63	27.27	329.41	PASS	
10731.00†	6595.27	4413.93	112.27	6534.27	6595.25	-1509.22	1507.67	89.67	6085.29	27.68	329.78	PASS	
10831.00†	6595.12	4513.90	114.82	6534.12	6595.10	-1509.22	1507.67	89.66	6182.07	28.09	330.15	PASS	
10931.00†	6594.97	4613.86	117.36	6533.97	6594.95	-1509.22	1507.67	89.66	6278.94	28.50	330.51	PASS	
11031.00†	6594.82	4713.83	119.91	6533.82	6594.80	-1509.22	1507.67	89.65	6375.91	28.91	330.86	PASS	
11131.00†	6594.67	4813.80	122.46	6533.67	6594.65	-1509.22	1507.67	89.65	6472.97	29.32	331.21	PASS	
11231.00†	6594.52	4913.77	125.01	6533.52	6594.49	-1509.22	1507.67	89.64	6570.12	29.73	331.54	PASS	
11331.00†	6594.37	5013.73	127.56	6533.37	6594.34	-1509.22	1507.67	89.64	6667.35	30.14	331.87	PASS	
11431.00†	6594.22	5113.70	130.11	6533.22	6594.19	-1509.22	1507.67	89.63	6764.67	30.55	332.20	PASS	
11531.00†	6594.07	5213.67	132.66	6533.07	6594.04	-1509.22	1507.67	89.63	6862.06	30.96	332.51	PASS	
11574.52	6594.00	5257.17	133.76	6533.00	6593.98	-1509.22	1507.67	89.62	6904.47	31.13	332.65	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



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**REFERENCE WELLPATH IDENTIFICATION**

Operator	MARATHON OIL COMPANY	Slot	SLOT#01 CROW VALLEY 7-62-27-2H (468'FNL & 1836'FWL, SEC.34)
Area	COLORADO	Well	CROW VALLEY 7-62-27-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-27-2H pwb
Facility	SEC.34-T7N-R62W		

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	