

MARATHON OIL COMPANY

Location: COLORADO Slot: SLOT#02 CROW VALLEY 7-62-30-2H (437FSL & 2137FWL, SEC. 30)
Field: WELD COUNTY (NAD 83, GRID NORTH) Well: CROW VALLEY 7-62-30-2H
Facility: SEC.30-T7N-R62W Wellbore: CROW VALLEY 7-62-30-2H PWB

Well Profile Data

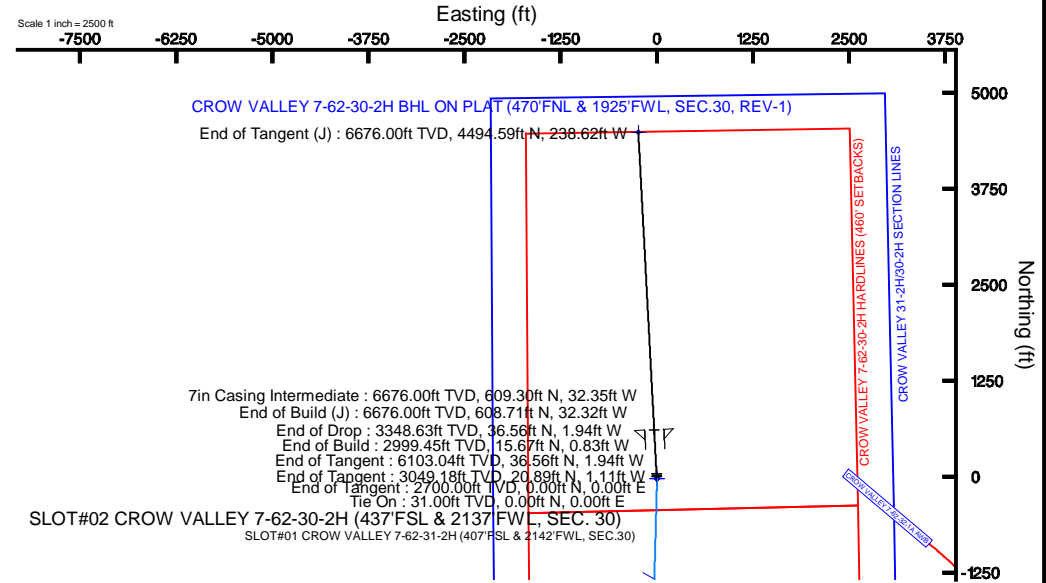
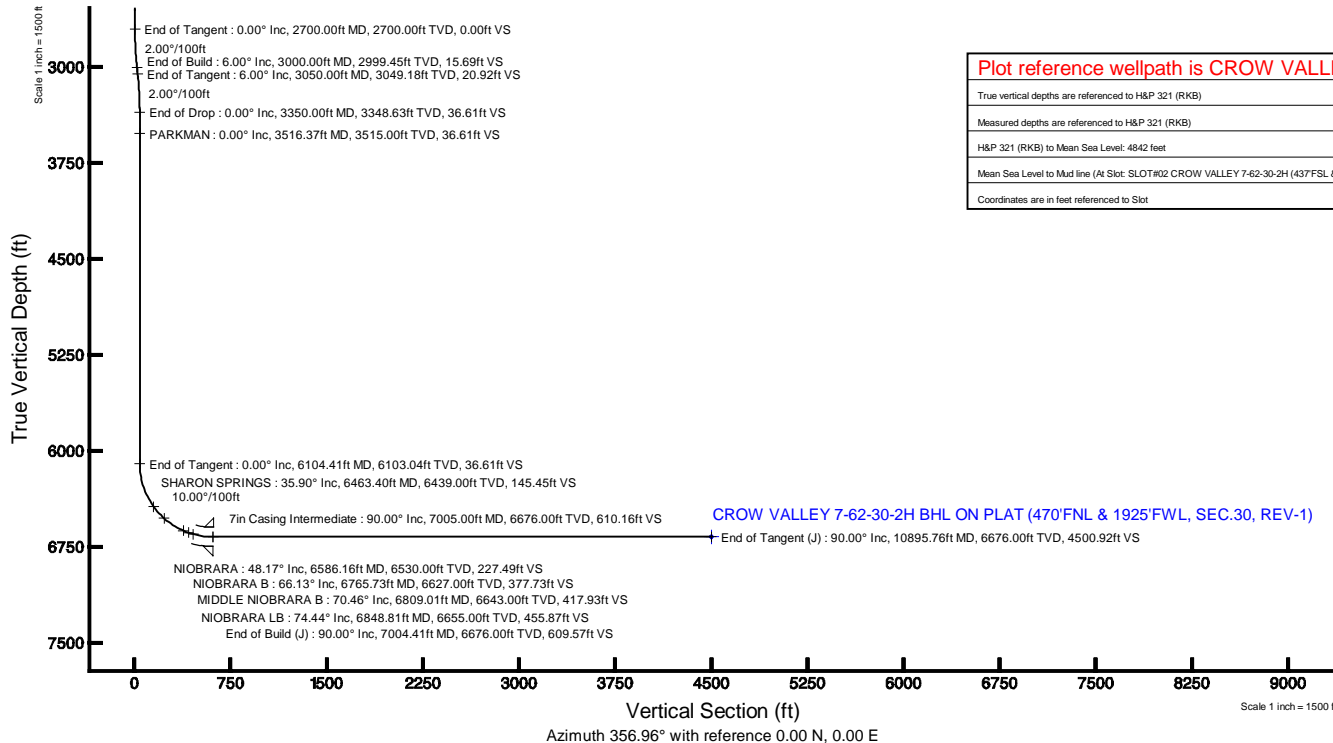
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	31.00	0.000	356.961	31.00	0.00	0.00	0.00	0.00
End of Tangent	2700.00	0.000	356.961	2700.00	0.00	0.00	0.00	0.00
End of Build	3000.00	6.000	356.961	2999.45	15.67	-0.83	2.00	15.69
End of Tangent	3050.00	6.000	356.961	3049.18	20.89	-1.11	0.00	20.92
End of Drop	3350.00	0.000	356.961	3348.63	36.56	-1.94	2.00	36.61
End of Tangent	6104.41	0.000	356.961	6103.04	36.56	-1.94	0.00	36.61
End of Build (J)	7004.41	90.000	356.961	6676.00	608.71	-32.32	10.00	609.57
End of Tangent (J)	10895.76	90.000	356.961	6676.00	4494.59	-238.62	0.00	4500.92

Location Information

Facility Name				Grid East (US Rt)	Grid North (US Rt)	Latitude	Longitude
SEC.30-T7N-R62W				3314856.910	1441100.960	40°32'19.325"N	104°22'01.733"W
Slot	Local N (ft)	Local E (ft)	Grid East (US Rt)	Grid North (US Rt)	Latitude	Longitude	
SLOT#02 CROW VALLEY 7-62-30-2H (437FSL & 2137FWL, SEC. 30)	29.52	-5.34	3314851.570	1441130.480	40°32'19.618"N	104°22'01.797"W	
H&P 321 (RKB) to Mud line (At Slot: SLOT#02 CROW VALLEY 7-62-30-2H (437FSL & 2137FWL, SEC. 30))						4842ft	
Mean Sea Level to Mud line (At Slot: SLOT#02 CROW VALLEY 7-62-30-2H (437FSL & 2137FWL, SEC. 30))						0ft	
H&P 321 (RKB) to Mean Sea Level						4842ft	

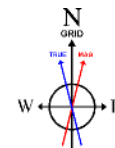
Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US Rt)	Grid North (US Rt)	Latitude	Longitude
CROW VALLEY 31-2H30-2H SECTION LINES		0.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W
CROW VALLEY 7-62-30-2H HARDLINES (460' SETBACKS)		6620.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W
CROW VALLEY 7-62-31-2H HARDLINES (460' SETBACKS)		6620.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W
CROW VALLEY 7-62-30-2H BHL ON PLAT (470'FNL & 1925'FWL, SEC.30, REV-1)	10895.76	6676.00	4494.59	-238.62	3314612.96	1445624.92	40°33'04.057"N	104°22'04.144"W



Plot reference wellpath is CROW VALLEY 7-62-30-2H (REV-A.0) PWP

True vertical depths are referenced to H&P 321 (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to H&P 321 (RKB)	North Reference: Grid north
H&P 321 (RKB) to Mean Sea Level: 4842 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#02 CROW VALLEY 7-62-30-2H (437FSL & 2137FWL, SEC. 30)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: cookdamm on 2/6/2012



BGGM (1945.0 to 2013.0) Dip: 67.19° Field: 53173.2 nT
Magnetic North is 8.56 degrees East of True North (at 2/6/2012)
Grid North is 0.73 degrees East of True North
To correct azimuth from True to Grid subtract 0.73 degrees
To correct azimuth from Magnetic to Grid add 7.82 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.82 = 97.82



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-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	2/6/2012 at 5:23:18 PM
Convergence at slot	0.73° East	Database/Source file	WA_Denver/CROW_VALLEY_7-62-30-2H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	29.52	-5.34	3314851.57	1441130.48	40°32'19.618"N	104°22'01.797"W
Facility Reference Pt			3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"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	4842.00ft
Horizontal Reference Pt	Slot	H&P 321 (RKB) to Mean Sea Level	4842.00ft
Vertical Reference Pt	H&P 321 (RKB)	H&P 321 (RKB) to Mud Line at Slot (SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30))	4842.00ft
MD Reference Pt	H&P 321 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	356.96°



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-T7N-R62W		

WELLPATH DATA (124 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	356.961	0.00	0.00	0.00	0.00	0.00	
31.00	0.000	356.961	31.00	0.00	0.00	0.00	0.00	Tie On
131.00†	0.000	356.961	131.00	0.00	0.00	0.00	0.00	
231.00†	0.000	356.961	231.00	0.00	0.00	0.00	0.00	
331.00†	0.000	356.961	331.00	0.00	0.00	0.00	0.00	
431.00†	0.000	356.961	431.00	0.00	0.00	0.00	0.00	
454.00†	0.000	356.961	454.00	0.00	0.00	0.00	0.00	PIERRE
531.00†	0.000	356.961	531.00	0.00	0.00	0.00	0.00	
631.00†	0.000	356.961	631.00	0.00	0.00	0.00	0.00	
731.00†	0.000	356.961	731.00	0.00	0.00	0.00	0.00	
831.00†	0.000	356.961	831.00	0.00	0.00	0.00	0.00	
931.00†	0.000	356.961	931.00	0.00	0.00	0.00	0.00	
1031.00†	0.000	356.961	1031.00	0.00	0.00	0.00	0.00	
1131.00†	0.000	356.961	1131.00	0.00	0.00	0.00	0.00	
1231.00†	0.000	356.961	1231.00	0.00	0.00	0.00	0.00	
1331.00†	0.000	356.961	1331.00	0.00	0.00	0.00	0.00	
1431.00†	0.000	356.961	1431.00	0.00	0.00	0.00	0.00	
1531.00†	0.000	356.961	1531.00	0.00	0.00	0.00	0.00	
1631.00†	0.000	356.961	1631.00	0.00	0.00	0.00	0.00	
1731.00†	0.000	356.961	1731.00	0.00	0.00	0.00	0.00	
1831.00†	0.000	356.961	1831.00	0.00	0.00	0.00	0.00	
1931.00†	0.000	356.961	1931.00	0.00	0.00	0.00	0.00	
2031.00†	0.000	356.961	2031.00	0.00	0.00	0.00	0.00	
2131.00†	0.000	356.961	2131.00	0.00	0.00	0.00	0.00	
2231.00†	0.000	356.961	2231.00	0.00	0.00	0.00	0.00	
2331.00†	0.000	356.961	2331.00	0.00	0.00	0.00	0.00	
2431.00†	0.000	356.961	2431.00	0.00	0.00	0.00	0.00	
2531.00†	0.000	356.961	2531.00	0.00	0.00	0.00	0.00	
2631.00†	0.000	356.961	2631.00	0.00	0.00	0.00	0.00	
2700.00	0.000	356.961	2700.00	0.00	0.00	0.00	0.00	End of Tangent
2731.00†	0.620	356.961	2731.00	0.17	0.17	-0.01	2.00	
2831.00†	2.620	356.961	2830.95	2.99	2.99	-0.16	2.00	
2931.00†	4.620	356.961	2930.75	9.31	9.30	-0.49	2.00	
3000.00	6.000	356.961	2999.45	15.69	15.67	-0.83	2.00	End of Build
3031.00†	6.000	356.961	3030.28	18.93	18.91	-1.00	0.00	
3050.00	6.000	356.961	3049.18	20.92	20.89	-1.11	0.00	End of Tangent
3131.00†	4.380	356.961	3129.84	28.25	28.21	-1.50	2.00	
3231.00†	2.380	356.961	3229.66	34.14	34.09	-1.81	2.00	
3331.00†	0.380	356.961	3329.63	36.55	36.50	-1.94	2.00	
3350.00	0.000	356.961	3348.63	36.61	36.56	-1.94	2.00	End of Drop
3431.00†	0.000	356.961	3429.63	36.61	36.56	-1.94	0.00	
3516.37†	0.000	356.961	3515.00	36.61	36.56	-1.94	0.00	PARKMAN
3531.00†	0.000	356.961	3529.63	36.61	36.56	-1.94	0.00	
3631.00†	0.000	356.961	3629.63	36.61	36.56	-1.94	0.00	
3731.00†	0.000	356.961	3729.63	36.61	36.56	-1.94	0.00	



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 3 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-T7N-R62W		

WELLPATH DATA (124 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
3831.00†	0.000	356.961	3829.63	36.61	36.56	-1.94	0.00	
3931.00†	0.000	356.961	3929.63	36.61	36.56	-1.94	0.00	
4031.00†	0.000	356.961	4029.63	36.61	36.56	-1.94	0.00	
4131.00†	0.000	356.961	4129.63	36.61	36.56	-1.94	0.00	
4231.00†	0.000	356.961	4229.63	36.61	36.56	-1.94	0.00	
4331.00†	0.000	356.961	4329.63	36.61	36.56	-1.94	0.00	
4431.00†	0.000	356.961	4429.63	36.61	36.56	-1.94	0.00	
4531.00†	0.000	356.961	4529.63	36.61	36.56	-1.94	0.00	
4631.00†	0.000	356.961	4629.63	36.61	36.56	-1.94	0.00	
4731.00†	0.000	356.961	4729.63	36.61	36.56	-1.94	0.00	
4831.00†	0.000	356.961	4829.63	36.61	36.56	-1.94	0.00	
4931.00†	0.000	356.961	4929.63	36.61	36.56	-1.94	0.00	
5031.00†	0.000	356.961	5029.63	36.61	36.56	-1.94	0.00	
5131.00†	0.000	356.961	5129.63	36.61	36.56	-1.94	0.00	
5231.00†	0.000	356.961	5229.63	36.61	36.56	-1.94	0.00	
5331.00†	0.000	356.961	5329.63	36.61	36.56	-1.94	0.00	
5431.00†	0.000	356.961	5429.63	36.61	36.56	-1.94	0.00	
5531.00†	0.000	356.961	5529.63	36.61	36.56	-1.94	0.00	
5631.00†	0.000	356.961	5629.63	36.61	36.56	-1.94	0.00	
5731.00†	0.000	356.961	5729.63	36.61	36.56	-1.94	0.00	
5831.00†	0.000	356.961	5829.63	36.61	36.56	-1.94	0.00	
5931.00†	0.000	356.961	5929.63	36.61	36.56	-1.94	0.00	
6031.00†	0.000	356.961	6029.63	36.61	36.56	-1.94	0.00	
6104.41	0.000	356.961	6103.04	36.61	36.56	-1.94	0.00	End of Tangent
6131.00†	2.659	356.961	6129.62	37.23	37.18	-1.97	10.00	
6231.00†	12.659	356.961	6228.60	50.54	50.47	-2.68	10.00	
6331.00†	22.659	356.961	6323.77	80.84	80.72	-4.29	10.00	
6431.00†	32.659	356.961	6412.23	127.20	127.02	-6.74	10.00	
6463.40†	35.899	356.961	6439.00	145.45	145.24	-7.71	10.00	SHARON SPRINGS
6531.00†	42.659	356.961	6491.30	188.22	187.95	-9.98	10.00	
6586.16†	48.175	356.961	6530.00	227.49	227.17	-12.06	10.00	NIOBRARA
6631.00†	52.659	356.961	6558.57	262.04	261.67	-13.89	10.00	
6731.00†	62.659	356.961	6611.99	346.42	345.93	-18.37	10.00	
6765.73†	66.132	356.961	6627.00	377.73	377.20	-20.03	10.00	NIOBRARA B
6809.01†	70.459	356.961	6643.00	417.93	417.34	-22.16	10.00	MIDDLE NIOBRARA B
6831.00†	72.659	356.961	6649.96	438.79	438.18	-23.26	10.00	
6848.81†	74.440	356.961	6655.00	455.87	455.23	-24.17	10.00	NIOBRARA LB
6931.00†	82.659	356.961	6671.30	536.36	535.61	-28.44	10.00	
7004.41	90.000	356.961	6676.00	609.57	608.71	-32.32	10.00	End of Build (J)
7031.00†	90.000	356.961	6676.00	636.16	635.26	-33.73	0.00	
7131.00†	90.000	356.961	6676.00	736.16	735.12	-39.03	0.00	
7231.00†	90.000	356.961	6676.00	836.16	834.98	-44.33	0.00	
7331.00†	90.000	356.961	6676.00	936.16	934.84	-49.63	0.00	
7431.00†	90.000	356.961	6676.00	1036.16	1034.70	-54.93	0.00	
7531.00†	90.000	356.961	6676.00	1136.16	1134.56	-60.23	0.00	



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 4 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-T7N-R62W		

WELLPATH DATA (124 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
7631.00†	90.000	356.961	6676.00	1236.16	1234.42	-65.54	0.00	
7731.00†	90.000	356.961	6676.00	1336.16	1334.28	-70.84	0.00	
7831.00†	90.000	356.961	6676.00	1436.16	1434.14	-76.14	0.00	
7931.00†	90.000	356.961	6676.00	1536.16	1534.00	-81.44	0.00	
8031.00†	90.000	356.961	6676.00	1636.16	1633.86	-86.74	0.00	
8131.00†	90.000	356.961	6676.00	1736.16	1733.72	-92.04	0.00	
8231.00†	90.000	356.961	6676.00	1836.16	1833.58	-97.34	0.00	
8331.00†	90.000	356.961	6676.00	1936.16	1933.44	-102.65	0.00	
8431.00†	90.000	356.961	6676.00	2036.16	2033.30	-107.95	0.00	
8531.00†	90.000	356.961	6676.00	2136.16	2133.16	-113.25	0.00	
8631.00†	90.000	356.961	6676.00	2236.16	2233.01	-118.55	0.00	
8731.00†	90.000	356.961	6676.00	2336.16	2332.87	-123.85	0.00	
8831.00†	90.000	356.961	6676.00	2436.16	2432.73	-129.15	0.00	
8931.00†	90.000	356.961	6676.00	2536.16	2532.59	-134.46	0.00	
9031.00†	90.000	356.961	6676.00	2636.16	2632.45	-139.76	0.00	
9131.00†	90.000	356.961	6676.00	2736.16	2732.31	-145.06	0.00	
9231.00†	90.000	356.961	6676.00	2836.16	2832.17	-150.36	0.00	
9331.00†	90.000	356.961	6676.00	2936.16	2932.03	-155.66	0.00	
9431.00†	90.000	356.961	6676.00	3036.16	3031.89	-160.96	0.00	
9531.00†	90.000	356.961	6676.00	3136.16	3131.75	-166.26	0.00	
9631.00†	90.000	356.961	6676.00	3236.16	3231.61	-171.57	0.00	
9731.00†	90.000	356.961	6676.00	3336.16	3331.47	-176.87	0.00	
9831.00†	90.000	356.961	6676.00	3436.16	3431.33	-182.17	0.00	
9931.00†	90.000	356.961	6676.00	3536.16	3531.19	-187.47	0.00	
10031.00†	90.000	356.961	6676.00	3636.16	3631.05	-192.77	0.00	
10131.00†	90.000	356.961	6676.00	3736.16	3730.91	-198.07	0.00	
10231.00†	90.000	356.961	6676.00	3836.16	3830.76	-203.38	0.00	
10331.00†	90.000	356.961	6676.00	3936.16	3930.62	-208.68	0.00	
10431.00†	90.000	356.961	6676.00	4036.16	4030.48	-213.98	0.00	
10531.00†	90.000	356.961	6676.00	4136.16	4130.34	-219.28	0.00	
10631.00†	90.000	356.961	6676.00	4236.16	4230.20	-224.58	0.00	
10731.00†	90.000	356.961	6676.00	4336.16	4330.06	-229.88	0.00	
10831.00†	90.000	356.961	6676.00	4436.16	4429.92	-235.18	0.00	
10895.76	90.000	356.961	6676.00 [†]	4500.92	4494.59	-238.62	0.00	End of Tangent (J)

HOLE & CASING SECTIONS - Ref Wellbore: CROW VALLEY 7-62-30-2H PWB Ref Wellpath: CROW VALLEY 7-62-30-2H (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	7005.00	6974.00	31.00	6676.00	0.00	0.00	609.30	-32.35



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 5 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-T7N-R62W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
CROW VALLEY 31-2H/30-2H SECTION LINES		0.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W	polygon
CROW VALLEY 7-62-30-2H HARDLINES (460' SETBACKS)		6620.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W	polygon
CROW VALLEY 7-62-31-2H HARDLINES (460'SETBACKS)		6620.00	-29.52	5.34	3314856.91	1441100.96	40°32'19.325"N	104°22'01.733"W	polygon
1) CROW VALLEY 7-62-30-2H BHL ON PLAT (470'FNL & 1925'FWL, SEC.30, REV-1)	10895.76	6676.00	4494.59	-238.62	3314612.96	1445624.92	40°33'04.057"N	104°22'04.144"W	point

SURVEY PROGRAM - Ref Wellbore: CROW VALLEY 7-62-30-2H PWB					Ref Wellpath: CROW VALLEY 7-62-30-2H (REV-A.0) PWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
31.00	10895.76	NaviTrak (Standard)				CROW VALLEY 7-62-30-2H PWB



Planned Wellpath Report

CROW VALLEY 7-62-30-2H (REV-A.0) PWP

Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	MARATHON OIL COMPANY	Slot	SLOT#02 CROW VALLEY 7-62-30-2H (437'FSL & 2137'FWL, SEC. 30)
Area	COLORADO	Well	CROW VALLEY 7-62-30-2H
Field	WELD COUNTY (NAD 83, GRID NORTH)	Wellbore	CROW VALLEY 7-62-30-2H PWB
Facility	SEC.30-T7N-R62W		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
454.00	0.000	356.961	454.00	PIERRE
3516.37	0.000	356.961	3515.00	PARKMAN
6463.40	35.899	356.961	6439.00	SHARON SPRINGS
6586.16	48.175	356.961	6530.00	NIOBRARA
6765.73	66.132	356.961	6627.00	NIOBRARA B
6809.01	70.459	356.961	6643.00	MIDDLE NIOBRARA B
6848.81	74.440	356.961	6655.00	NIOBRARA LB