



# SURVEY CALCULATION PROGRAM

ctrl-shift-I = Insert Survey  
 ctrl-shift-D = Delete Survey  
 103-02565

v08.2

Minimum Curvature

File:

<b>OPERATOR:</b>	Chesapeake	<b>Target Information</b>		<b>VS Referenced to Offset from Surface</b>		
<b>WELL:</b>	Hohman HBP #8H	<b>TARGET KBTVD:</b>	7220.00	<b>NORTH/SOUTH:</b>		
<b>LOCATION:</b>	Wetzel County, WV.	<b>TARGET INCL:</b>	89.40	<b>EAST/WEST:</b>		
<b>RIG:</b>	Nomac #242	<b>TARGET AZM:</b>	135.51	<b>(Enter 0' N and 0' E for Surface)</b>		
<b>JOB NUMBER:</b>	DDPA-100342	<b>TARGET AZM:</b>		136.02	<b>MAG. DEC.</b>	-7.70
<b>SURVEY COMPANY:</b>	<b>DIRECTIONAL COMPANY:</b>	<b>TARGET AZM:</b>		REFERENCED TO GRID NORTH		
MS Guidance	MS Directional					
<b>MWD Operators</b>	<b>Directional Hands</b>					
○ Robert Curtis	○ Bob Hinds					
○ Josh Counahan	○ Mike Lawson					
Chesapeake	Hohman HBP #8H					

SVY	MD	INC	TRUE AZM	TEMP °F	API Gamma	Course Length	TVD	N-S	E-W	Surface Vert Sect	CLOSURE		DLS/100	BUR/100'	Target Calculations		
											DIST	DIR			TVD AT 0' V. SEC.	RIGHT(+) LEFT(-)	ABOVE (+) BELOW (-)
Tie	6625	0.50	285.86	0.0	0.0	0	6620.66	-96.46	-42.46	39.93	105.39	203.76			6620.25	97.89	599.75
1	6645	0.30	297.30	100.7	114	20	6640.66	-96.41	-42.59	39.80	105.40	203.83	1.07	-1.00	6640.25	97.95	579.75
2	6,688	0.40	304.50	101.6	153	43	6683.66	-96.28	-42.81	39.55	105.37	203.97	0.25	0.23	6683.25	98.01	536.75
3	6,734	2.70	154.10	103.4	131	46	6729.64	-97.16	-42.47	40.42	106.04	203.61	6.64	5.00	6729.23	98.39	490.77
4	6,777	6.50	152.90	106.1	144	43	6772.50	-100.24	-40.92	43.71	108.27	202.21	8.84	8.84	6772.05	99.44	447.95
5	6,821	10.20	141.70	107	161	44	6816.03	-105.51	-37.37	49.98	111.94	199.50	9.15	8.41	6815.51	100.60	404.49
6	6,864	14.00	142.10	107.8	119	43	6858.06	-112.61	-31.81	58.94	117.02	195.78	8.84	8.84	6857.46	101.61	362.54
7	6,908	17.70	142.60	108.7	123	44	6900.38	-122.13	-24.48	70.88	124.56	191.33	8.41	8.41	6899.65	103.05	320.35
8	6,951	19.70	144.10	101.6	144	43	6941.11	-133.19	-16.26	84.55	134.18	186.96	4.78	4.65	6940.24	104.94	279.76
9	6,994	22.30	146.10	103.4	144	43	6981.25	-145.84	-7.46	99.76	146.03	182.93	6.27	6.05	6980.22	107.52	239.78
10	7,037	24.10	147.80	104.3	127	43	7020.77	-160.04	1.77	116.39	160.05	179.37	4.47	4.19	7019.56	110.89	200.44
11	7,080	29.10	146.20	107.8	127	43	7059.21	-176.17	12.27	135.29	176.59	176.01	11.75	11.63	7057.80	114.70	162.20
12	7124	36.40	146.90	110.5	89	44	7096.19	-196.02	25.37	158.67	197.66	172.62	16.61	16.59	7094.54	119.27	125.46
13	7,167	45.20	146.10	112.3	110	43	7128.71	-219.42	40.88	186.28	223.19	169.45	20.50	20.47	7126.77	124.60	93.23
14	7,210	53.30	145.10	114.1	127	43	7156.76	-246.26	59.28	218.37	253.30	166.46	18.92	18.84	7154.48	130.29	65.52
15	7,254	62.60	143.60	121.3	242	44	7180.08	-276.52	81.01	255.23	288.14	163.67	21.33	21.14	7177.42	135.99	42.58
16	7,297	70.80	141.90	118.6	140	43	7197.08	-307.92	104.91	294.42	325.30	161.19	19.41	19.07	7194.01	140.94	25.99
17	7,342	79.00	140.00	100.7	242	45	7208.79	-341.62	132.27	337.67	366.33	158.83	18.67	18.22	7205.27	145.04	14.73
18	7,385	87.20	135.80	105.2	352	43	7213.95	-373.25	160.87	380.29	406.44	156.68	21.39	19.07	7209.98	146.81	10.02
19	7,429	89.80	135.10	107.8	301	44	7215.10	-404.59	191.72	424.27	447.72	154.65	6.12	5.91	7210.67	146.76	9.33
20	7,472	92.10	135.20	111.4	254	43	7214.39	-435.07	222.04	467.25	488.45	152.96	5.35	5.35	7209.51	146.49	10.49
21	7,559	91.10	134.20	113.2	220	87	7211.96	-496.24	283.86	554.20	571.69	150.23	1.63	-1.15	7206.17	145.26	13.83
22	7,645	91.70	134.70	116.8	229	86	7209.86	-556.44	345.23	640.14	654.84	148.18	0.91	0.70	7203.17	143.67	16.83
23	7,732	93.10	133.70	118.6	259	87	7206.22	-617.04	407.54	727.01	739.48	146.56	1.98	1.61	7198.62	141.68	21.38
24	7,819	90.10	134.90	120.4	233	87	7203.79	-677.77	469.77	813.93	824.66	145.27	3.71	-3.45	7195.28	139.85	24.72
25	7,906	90.30	134.90	122.2	310	87	7203.49	-739.18	531.40	900.91	910.37	144.29	0.23	0.23	7194.06	138.92	25.94
26	7,993	87.30	131.40	122.2	301	87	7205.31	-798.66	594.84	987.76	995.83	143.32	5.30	-3.45	7194.98	135.34	25.02
27	8,079	87.30	133.20	124.9	216	86	7209.36	-856.47	658.38	1073.48	1080.28	142.45	2.09	0.00	7198.13	130.53	21.87
28	8,166	87.80	133.70	126.7	246	87	7213.08	-916.24	721.48	1160.31	1166.20	141.78	0.81	0.57	7200.94	127.41	19.06
29	8,253	87.80	133.60	127.6	220	87	7216.42	-976.25	784.38	1247.17	1252.33	141.22	0.11	0.00	7203.37	124.59	16.63
30	8,339	89.20	135.50	130.3	178	86	7218.67	-1036.56	845.64	1333.11	1337.75	140.79	2.74	1.63	7204.72	123.15	15.28
31	8,426	90.60	136.40	128.5	208	87	7218.82	-1099.09	906.13	1420.11	1424.45	140.50	1.91	1.61	7203.96	123.81	16.04
32	8,513	89.50	134.50	130.3	216	87	7218.75	-1161.08	967.16	1507.10	1511.13	140.21	2.52	-1.26	7202.97	123.72	17.03
33	8,600	89.10	134.80	132.1	208	87	7219.81	-1222.22	1029.05	1594.07	1597.74	139.90	0.57	-0.46	7203.13	122.42	16.87
34	8,687	88.10	135.20	133	187	87	7221.93	-1283.72	1090.55	1681.02	1684.41	139.65	1.24	-1.15	7204.34	121.64	15.66



# SURVEY CALCULATION PROGRAM

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Minimum Curvature

File:

103-02565

<b>OPERATOR:</b> Chesapeake		<b>Target Information</b>				<b>VS Referenced to Offset from Surface</b>			
<b>WELL:</b> Hohman HBP #8H		<b>TARGET KBTVD:</b> 7220.00		<b>NORTH/SOUTH:</b>					
<b>LOCATION:</b> Wetzel County, WV.		<b>TARGET INCL:</b> 89.40		<b>EAST/WEST:</b>					
<b>RIG:</b> Nomac #242		<b>TARGET AZM:</b> 135.51		<b>(Enter 0' N and 0' E for Surface)</b>					
<b>JOB NUMBER:</b> DDPA-100342		<b>TARGET AZM:</b>		136.02		<b>MAG. DEC.</b>		-7.70	
<b>SURVEY COMPANY:</b> MS Guidance		<b>DIRECTIONAL COMPANY:</b> MS Directional		REFERENCED TO GRID NORTH					
<b>MWD Operators</b>		<b>Directional Hands</b>							
○ Robert Curtis		○ Bob Hinds							
○ Josh Counahan		○ Mike Lawson							
Chesapeake		Hohman HBP #8H							

SVY	MD	INC	TRUE AZM	TEMP °F	API Gamma	Course Length	TVD	N-S	E-W	Surface Vert Sect	CLOSURE		DLS/100	BUR/100'	Target Calculations		
											DIST	DIR			TVD AT 0' V. SEC.	RIGHT(+) LEFT(-)	ABOVE(+) BELOW(-)
35	8,773	87.90	130.10	130.3	174	86	7224.94	-1341.93	1153.74	1766.79	1769.72	139.31	5.93	-0.23	7206.44	117.36	13.56
36	8,860	87.90	130.20	131.2	284	87	7228.13	-1397.99	1220.20	1853.28	1855.60	138.88	0.11	0.00	7208.73	109.24	11.27
37	8,947	88.10	133.10	132.1	246	87	7231.16	-1455.77	1285.16	1939.97	1941.88	138.56	3.34	0.23	7210.85	103.38	9.15
38	9,034	89.00	131.80	130.3	305	87	7233.36	-1514.47	1349.33	2026.77	2028.37	138.30	1.82	1.03	7212.15	98.74	7.85
39	9,120	89.10	133.00	133	276	86	7234.79	-1572.45	1412.83	2112.58	2113.92	138.06	1.40	0.12	7212.67	94.08	7.33
40	9,207	89.30	133.50	134.7	267	87	7236.00	-1632.05	1476.19	2199.47	2200.62	137.87	0.62	0.23	7212.98	90.65	7.02
41	9,294	90.40	132.10	136.5	263	87	7236.23	-1691.16	1540.02	2286.33	2287.29	137.68	2.05	1.26	7212.30	86.53	7.70
42	9,380	89.20	135.10	137.4	310	86	7236.53	-1750.46	1602.29	2372.24	2373.07	137.53	3.76	-1.40	7211.70	83.67	8.30
43	9,467	89.80	133.60	137.4	318	87	7237.29	-1811.27	1664.50	2459.20	2459.93	137.42	1.86	0.69	7211.54	81.90	8.46
44	9,554	88.00	136.90	138.3	318	87	7238.96	-1873.03	1725.72	2546.16	2546.84	137.34	4.32	-2.07	7212.30	81.51	7.70
45	9,641	88.40	136.30	141	254	87	7241.69	-1936.21	1785.47	2633.11	2633.79	137.32	0.83	0.46	7214.13	83.16	5.87
46	9,727	88.30	137.80	141.9	237	86	7244.17	-1999.13	1844.04	2719.06	2719.75	137.31	1.75	-0.12	7215.70	85.47	4.30
47	9,814	88.10	137.70	141	254	87	7246.90	-2063.50	1902.51	2805.98	2806.70	137.32	0.26	-0.23	7217.53	88.87	2.47
48	9,901	89.20	134.50	141	233	87	7248.95	-2126.16	1962.81	2892.94	2893.65	137.29	3.89	1.26	7218.67	89.77	1.33
49	9,988	88.60	135.90	142.8	254	87	7250.62	-2187.88	2024.10	2979.91	2980.57	137.23	1.75	-0.69	7219.42	89.30	0.58
50	10,075	89.40	134.00	142.8	267	87	7252.14	-2249.33	2085.66	3066.88	3067.49	137.16	2.37	0.92	7220.03	88.45	-0.03
51	10,161	89.10	132.90	143.7	356	86	7253.27	-2308.47	2148.09	3152.78	3153.30	137.06	1.33	-0.35	7220.26	85.36	-0.26
52	10,248	89.10	132.10	145.5	382	87	7254.64	-2367.24	2212.22	3239.61	3240.02	136.94	0.92	0.00	7220.72	80.79	-0.72
53	10,335	89.20	132.40	146.4	297	87	7255.93	-2425.73	2276.61	3326.41	3326.73	136.82	0.36	0.11	7221.10	75.84	-1.10
54	10,422	90.00	129.90	147.3	365	87	7256.53	-2482.97	2342.12	3413.09	3413.31	136.67	3.02	0.92	7220.80	69.23	-0.80
55	10,509	88.50	133.20	145.5	301	87	7257.67	-2540.66	2407.21	3499.80	3499.95	136.54	4.17	-1.72	7221.03	63.22	-1.03
56	10,596	89.90	132.00	143.7	233	87	7258.89	-2599.54	2471.24	3586.63	3586.73	136.45	2.12	1.61	7221.33	58.80	-1.33
57	10,683	89.80	132.60	145.5	216	87	7259.11	-2658.09	2535.59	3673.45	3673.51	136.35	0.70	-0.11	7220.65	53.93	-0.65
58	10,769	90.40	131.70	147.3	229	86	7258.96	-2715.81	2599.35	3759.25	3759.28	136.26	1.26	0.70	7219.60	48.89	0.40
59	10,856	90.20	132.70	149.1	250	87	7258.51	-2774.24	2663.79	3846.05	3846.07	136.16	1.17	-0.23	7218.23	43.87	1.77
60	10,943	90.50	132.90	150	237	87	7257.98	-2833.35	2727.63	3932.92	3932.92	136.09	0.41	0.34	7216.79	39.76	3.21
61	11,030	89.50	132.70	149.1	263	87	7257.98	-2892.46	2791.46	4019.78	4019.78	136.02	1.17	-1.15	7215.88	35.64	4.12
62	11,117	89.80	132.90	150.9	204	87	7258.51	-2951.57	2855.29	4106.64	4106.64	135.95	0.41	0.34	7215.50	31.53	4.50
63	11,203	88.50	132.70	156.3	204	86	7259.79	-3010.00	2918.39	4192.49	4192.50	135.89	1.53	-1.51	7215.88	27.46	4.12
64	11,290	88.20	133.40	149.1	204	87	7262.29	-3069.36	2981.94	4279.34	4279.36	135.83	0.88	-0.34	7217.48	23.73	2.52
65	11,377	89.70	133.90	150	216	87	7263.88	-3129.40	3044.87	4366.25	4366.28	135.78	1.82	1.72	7218.16	20.91	1.84
66	11,464	90.10	138.60	150.9	187	87	7264.04	-3192.23	3105.02	4453.22	4453.25	135.79	5.42	0.46	7217.40	22.03	2.60
67	11,550	89.30	140.00	152.7	208	86	7264.49	-3257.43	3161.10	4539.08	4539.09	135.86	1.87	-0.93	7216.95	27.71	3.05
68	11,637	88.00	139.80	152.7	204	87	7266.54	-3323.96	3217.12	4625.85	4625.85	135.94	1.51	-1.49	7218.09	34.37	1.91
69	11,724	87.50	139.40	155.4	225	87	7269.95	-3390.16	3273.46	4712.61	4712.61	136.00	0.74	-0.57	7220.60	40.57	-0.60



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v08.2

Minimum Curvature

File:

103-02565

<b>OPERATOR:</b>	Chesapeake	<b>Target Information</b>		<b>VS Referenced to Offset from Surface</b>		
<b>WELL:</b>	Hohman HBP #8H	<b>TARGET KBTVD:</b>	7220.00	<b>NORTH/SOUTH:</b>		
<b>LOCATION:</b>	Wetzel County, WV.	<b>TARGET INCL:</b>	89.40	<b>EAST/WEST:</b>		
<b>RIG:</b>	Nomac #242	<b>TARGET AZM:</b>	135.51	<b>(Enter 0' N and 0' E for Surface)</b>		
<b>JOB NUMBER:</b>	DDPA-100342	<b>TARGET AZM:</b>		136.02	<b>MAG. DEC.</b>	-7.70
<b>SURVEY COMPANY:</b>		<b>DIRECTIONAL COMPANY:</b>		REFERENCED TO GRID NORTH		
MS Guidance		MS Directional				
<b>MWD Operators</b>		<b>Directional Hands</b>				
<input type="radio"/> Robert Curtis		<input type="radio"/> Bob Hinds				
<input type="radio"/> Josh Counahan		<input type="radio"/> Mike Lawson				
Chesapeake		Hohman HBP #8H				

SVY	MD	INC	TRUE AZM	TEMP °F	API Gamma	Course Length	TVD	N-S	E-W	Surface Vert Sect	CLOSURE		DLS/100	BUR/100'	Target Calculations		
											DIST	DIR			TVD AT 0' V. SEC.	RIGHT(+) LEFT(-)	ABOVE (+) BELOW (-)
70	11,811	87.50	139.40	156.3	229	87	7273.75	-3456.15	3330.02	4799.38	4799.38	136.06	0.00	0.00	7223.49	46.47	-3.49
71	11,898	88.00	139.90	154.5	276	87	7277.16	-3522.40	3386.31	4886.14	4886.15	136.13	0.81	0.57	7226.00	52.75	-6.00
72	11,984	90.00	138.40	153.6	250	86	7278.66	-3587.44	3442.55	4971.99	4972.01	136.18	2.91	2.33	7226.60	58.20	-6.60
73	12,071	90.40	137.80	157.2	216	87	7278.36	-3652.19	3500.65	5058.93	5058.96	136.21	0.83	0.46	7225.38	62.13	-5.38
74	12,158	90.00	137.80	156.3	233	87	7278.06	-3716.64	3559.09	5145.89	5145.93	136.24	0.46	-0.46	7224.17	65.61	-4.17
75	12,245	89.30	137.30	153.6	246	87	7278.59	-3780.84	3617.81	5232.85	5232.90	136.26	0.99	-0.80	7223.79	68.71	-3.79
76	12,331	88.30	134.40	153.6	250	86	7280.39	-3842.52	3677.69	5318.82	5318.87	136.26	3.57	-1.16	7224.69	69.22	-4.69
77	12,418	88.20	135.30	155.4	254	87	7283.05	-3903.85	3739.34	5405.76	5405.80	136.23	1.04	-0.11	7226.44	68.22	-6.44
78	12,505	88.50	134.90	150.9	250	87	7285.55	-3965.45	3800.72	5492.72	5492.75	136.22	0.57	0.34	7228.03	67.59	-8.03
79	12,592	89.80	133.50	156.3	229	87	7286.84	-4026.09	3863.08	5579.66	5579.68	136.18	2.20	1.49	7228.41	65.61	-8.41
80	12,679	90.80	131.60	157.2	237	87	7286.39	-4084.92	3927.17	5666.49	5666.50	136.13	2.47	1.15	7227.05	61.11	-7.05
81	12,765	91.90	131.30	158.9	237	86	7284.36	-4141.83	3991.61	5752.20	5752.20	136.06	1.33	1.28	7224.12	55.03	-4.12
TD	12,825	91.90	131.30			60	7282.37	-4181.41	4036.66	5811.96	5811.96	136.01	0.00	0.00	7221.51	50.62	-1.51

RECEIVED  
 MAR 5 2011  
 WV GEOLOGICAL SURVEY  
 MORRISTOWN, WV