

<b>Job Number:</b>	<b>State/Country:</b>
<b>Company:</b>	<b>Declination:</b>
<b>Lease/Well:</b>	<b>Grid:</b>
<b>Location:</b>	<b>File name: C:\WINSERVE\MFM20-10.SVY</b>
<b>Rig Name:</b>	<b>Date/Time: 26-Dec-18 / 02:18</b>
<b>RKB:</b>	<b>Curve Name: MT FED MAPLEWOOD 8W-20-10</b>
<b>G.L. or M.S.L.:</b>	

## Scientific Drilling

WINSERVE SURVEY CALCULATIONS  
*Minimum Curvature Method*  
*Vertical Section Plane 267.76*  
*Vertical Section Referenced to Wellhead*  
*Rectangular Coordinates Referenced to Wellhead*

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>C L O S U R E Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
104.00	.83	188.28	104.00	-.75	-.11	.14	.75	188.28	.80
198.00	1.18	153.48	197.98	-2.29	.23	-.14	2.30	174.36	.73
293.00	.53	179.50	292.97	-3.60	.67	-.53	3.66	169.51	.78
388.00	1.80	22.17	387.96	-2.66	1.23	-1.13	2.93	155.11	2.42
483.00	1.05	328.65	482.93	-.53	1.34	-1.32	1.44	111.61	1.52
578.00	.97	118.67	577.93	-.17	1.60	-1.59	1.61	96.24	2.05
673.00	.44	271.78	672.92	-.55	1.94	-1.91	2.01	105.83	1.45
768.00	1.01	270.02	767.92	-.54	.74	-.71	.91	126.17	.60
863.00	.40	68.14	862.91	-.41	.21	-.19	.46	153.57	1.46
958.00	.97	74.29	957.90	-.07	1.29	-1.28	1.29	93.22	.60
1054.00	.88	167.01	1053.90	-.57	2.24	-2.21	2.31	104.32	1.40
1149.00	.44	252.80	1148.89	-1.39	2.05	-2.00	2.48	124.12	1.00
1244.00	1.49	314.85	1243.88	-.63	.83	-.80	1.04	127.14	1.41
1339.00	1.14	25.51	1338.86	1.10	.36	-.40	1.15	18.07	1.63
1434.00	.44	192.33	1433.85	1.59	.69	-.75	1.74	23.32	1.65
1503.00	.83	175.10	1502.85	.84	.67	-.71	1.07	38.80	.62
<b>PROJECTION TO BIT</b>									
1553.00	.00	175.10	1552.85	.48	.70	-.72	.85	55.91	1.66