

DMR Summary Report

Mesabi Nugget Delaware LLC (MN0067687)

First DMR in Delta: 8/2005

Surface Discharge Station SD001 (Area 1 Pit to Second Creek)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Aluminum, Total (as Al)	ug/L	CalMoMax										<2.3			
Arsenic, Total (as As)	ug/L	CalMoMax										0.67			0.67
Bicarbonates (HCO ₃)	362 mg/L	CalMoAvg	353.5	360	346	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	301.5	316	330.5	334.583
Bicarbonates (HCO ₃)	378 mg/L	CalMoMax	359	366	350	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	305	334	339	342.167
Boron, Total (as B)	ug/L	CalMoMax										145			145.0
Cadmium, Total (as Cd)	ug/L	CalMoMax										<0.018			
Chloride, Total	mg/L	CalMoMax	17.0	16.6	18.8	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	5.7	19.3	19.4	16.133
Chromium, Total (as Cr)	ug/L	CalMoMax										<0.16			
Cobalt, Total (as Co)	ug/L	CalMoMax										<0.10			
Copper, Total (as Cu)	ug/L	CalMoMax										2.2			2.2
Flow	MG	CalMoTot	74.091	89.199	146.891	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	65.226	92.9290	96.75	94.181
Flow	mgd	DailyAve	2.35	3.23	4.33	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	4.659	3.0976	3.12	3.464
Flow	mgd	DailyMax	4.08	5.58	5.7	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	4.659	4.5800	4.1	4.783
Fluoride, Total (as F)	mg/L	CalMoMax										0.30			0.3
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	831 mg/L	CalMoAvg	797	814	803	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	742	719.5	753	771.417
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	863 mg/L	CalMoMax	811	822	818	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	748	730	761	781.667
Lead, Total (as Pb)	ug/L	CalMoMax										<0.25			
Manganese, Total (as Mn)	mg/L	CalMoMax										13.8			13.8
Mercury, Total (as Hg)	0.000070 kg/day	CalMoMax	0.000008	.000005	.000011	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	0.0000140	0.000010	0.000006	0.0
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	<0.5	<0.51	.59	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	0.77	0.56	0.59	0.628
Mercury, Total (as Hg)	3.2 ng/L	CalMoMax	1.1	0.52	.61	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	0.82	0.60	0.61	0.71
Nickel, Total (as Ni)	ug/L	CalMoMax										<0.031			
Nickel, Total (as Ni)	ug/L	CalMoMax										<0.031			
pH	8.5 SU	CalMoMax	8.24	7.95	8.14	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	8.36	8.26	8.42	8.228
pH	6.5 SU	CalMoMin	7.89	7.48	8.04	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	8.21	8.18	8.22	8.003
Selenium, Total (as Se)	ug/L	CalMoMax										<0.11			
Sodium, Total (as Na)	mg/L	CalMoMax	35.5	36.1	38.9	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	39.6	44.9	44.2	39.867
Solids, Total Dissolved (TDS)	1160 mg/L	CalMoAvg	970	970	991	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	946.5	945.5	954	962.833
Solids, Total Dissolved (TDS)	1228 mg/L	CalMoMax	988	989	1010	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	951	953	998	981.5
Solids, Total Suspended (TSS)	1.4 mg/L	CalMoAvg	<1.5	0.95	0.8	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	<1.0	1.26	1.4	1.103
Solids, Total Suspended (TSS)	2.9 mg/L	CalMoMax	2.0	1.6	1.6	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	<1.0	2.4	1.6	1.84
Specific Conductance	1889 umh/cm	CalMoAvg	1365	1365	1190	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	1206.5	1367	1382	1,312.583
Specific Conductance	1965 umh/cm	CalMoMax	1386	1378	1301	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	1278	1398	1390	1,355.167
Specific Conductance	1889 umh/cm	CalMoAvg	1365	1365	1190	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	1206.5	1367	1382	1,312.583

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

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Specific Conductance	1965 umh/cm	CalMoMax	1386	1378	1301	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	1278	1398	1390	1,355.167
Sulfate, Total (as SO4)	mg/L	CalMoMax	505	488	476	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	461	474	490	482.333
Thallium, Total (as Tl)	ug/L	CalMoMax										0.22			0.22
Zinc, Total (as Zn)	ug/L	CalMoMax										<0.38			
Zinc, Total (as Zn)	ug/L	CalMoMax										<0.38			

Surface Water Station SW001 (Second Cr. - Upstream)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	CalMoMax		340			176			309			258		270.75
Flow, Stream, Instantaneous	cfs	CalMoMax	8.08	9.34	5.52	7.31	25.17	13.70	10.42	1.21	0.61	0.56	0.81	12.13	7.905
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	CalMoMax		426			239			441			390		374.0
Solids, Total Dissolved (TDS)	mg/L	CalMoMax		518			296			501			501		454.0
Specific Conductance	umh/cm	CalMoMax		857.6			518.1			792			757.2		731.225
Specific Conductance	umh/cm	CalMoMax		857.6			518.1			792			757.2		731.225
Sulfate, Total (as SO4)	mg/L	CalMoMax		131			76.7			115			161		120.925

Surface Water Station SW002 (Second Cr. - Downstream)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	CalMoMax		340			102			266			296		251.0
Flow, Stream, Instantaneous	cfs	CalMoMax	1.36	13.4	6.77	8.07	72.81	16.59	12.18	2.14	1.37	0.54	7.05	8.35	12.553
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	CalMoMax		580			200			492			664		484.0
Solids, Total Dissolved (TDS)	mg/L	CalMoMax		709			227			544			864		586.0
Specific Conductance	umh/cm	CalMoMax		1112			408.8			835.2			1251		901.75
Specific Conductance	umh/cm	CalMoMax		1112			408.8			835.2			1251		901.75
Sulfate, Total (as SO4)	mg/L	CalMoMax		270			96.8			202			439		251.95

Waste Stream Station WS001 (Influent to Wastewater Treatment System)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Flow	mgd	DailyAve	1.57	1.36	1.26	0.75	1.3	1.49	1.47	1.44	1.519	1.567	1.61	1.611	1.412

Note: a limit in the Limit and Units column which is demarcated by asterisks is an Intervention limit, not a hard, violation-causing limit.

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Waste Stream Station WS001 (Influent to Wastewater Treatment System)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Mercury, Total (as Hg)	ng/L	CalMoMax	601	1290	426	52.8	65.0	206	146	24.8	63.8	52.5	40.7	194	263.55

Waste Stream Station WS002 (Influent to Tailings Filter #1)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Flow	mgd	DailyAve	0.74	0.78	0.70	0.75	0.9	0.86	0.61	0.88	0.895	0.911	0.93	0.89	0.821
Mercury, Total (as Hg)	ng/L	CalMoMax	75.8	68.7	81.7	57.2	32.8	37.3	20.2	71.3	10.7	99.0	36.9	36.2	52.317

Waste Stream Station WS003 (Dschrgr fr Tailings Filter #1 to Pit 1)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Bicarbonates (HCO ₃)	mg/L	CalMoMax	145	24.9	53.4	24.5	29.5	57.9	20.0	22.0	14.6	26.6	49.0	42.6	42.5
Chloride, Total	mg/L	CalMoMax	222	319	251	54.6	33.0	200	229	209	190	14.6	123	263	175.683
Flow	mgd	DailyAve	0.76	0.76	0.68	0.288	0.9	0.80	0.62	0.81	0.890	0.837	1.01	0.78	0.761
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	mg/L	CalMoMax	452	524	518	1000	720	1090	1320	1920	1630	2220	983	1880	1,188.083
Mercury, Total (as Hg)	ng/L	CalMoMax	22.5	4.5	1.6	4.3	3.0	1.5	0.61	<0.5	<.5	11.2	1.4	0.99	5.16
Sodium, Total (as Na)	mg/L	CalMoMax	802	831	946	127	82.4	563	557	292	237	194	178	320	427.45
Solids, Total Dissolved (TDS)	mg/L	CalMoMax	2880	3330	3500	1790	1120	3130	3470	3420	2850	3320	1860	3640	2,859.167
Specific Conductance	umh/cm	CalMoMax	4906	4648	5144	2270	1626	4235	4662	4137	3672	3835	2547	4731	3,867.75
Specific Conductance	umh/cm	CalMoMax	4906	4648	5144	2270	1626	4235	4662	4137	3672	3835	2547	4731	3,867.75
Sulfate, Total (as SO ₄)	mg/L	CalMoMax	1810	1900	2270	1250	805	2070	2260	2180	1970	214	1210	2260	1,683.25

Waste Stream Station WS004 (Influent fr Pit 1 to Tailings Filter #2)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Flow	mgd	DailyAve	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo
Mercury, Total (as Hg)	ng/L	CalMoMax	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo

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First DMR in Delta: 8/2005

Waste Stream Station WS005 (Spent Tailings Disposal)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Mass Transported From Facility	ton/mo	CalMoTot	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	

Waste Stream Station WS006 (Slag Disposal)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Mass Transported From Facility	ton/mo	CalMoTot	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	NoMat	

Waste Stream Station WS007 (Area 1 Pit)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/13</u>	<u>2/13</u>	<u>3/13</u>	<u>4/13</u>	<u>5/13</u>	<u>6/13</u>	<u>7/13</u>	<u>8/13</u>	<u>9/13</u>	<u>10/13</u>	<u>11/13</u>	<u>12/13</u>	<u>Ave</u>
Bicarbonates (HCO ₃)	mg/L	CalMoMax		356			354			283			299		323.0
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	mg/L	CalMoMax		807			787			668			698		740.0
Mercury, Total (as Hg)	ng/L	CalMoMax		.59			<0.18			0.70			0.58		0.623
pH	SU	CalMoMax		7.9			8.16			8.08			8.3		8.11
Solids, Total Dissolved (TDS)	mg/L	CalMoMax		987			991			940			951		967.25
Specific Conductance	umh/cm	CalMoMax		1318			1346			1311			1344		1,329.75
Specific Conductance	umh/cm	CalMoMax		1318			1346			1311			1344		1,329.75
Sulfate, Total (as SO ₄)	mg/L	CalMoMax		492			454			433			465		461.0

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