

DMR Summary Report

ArcelorMittal Minorca Mine Inc - Laurentian (MN0059633)

First DMR in Delta: 4/1999

Surface Discharge Station SD001 (Alt. Laurentian Mine Discharge (010))

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Flow	MG	CalMoTot	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			NoDis			NoDis			NoDis			NoDis	
pH	8.5 SU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
pH	6.5 SU	CalMoMin	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Sulfate, Total (as SO4)	mg/L	SingleVal	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Turbidity	25 NTU	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Turbidity	NTU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	

Surface Discharge Station SD002 (Alt. Laurentian Mine Discharge (011))

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Flow	MG	CalMoTot	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			NoDis			NoDis			NoDis			NoDis	
pH	8.5 SU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
pH	6.5 SU	CalMoMin	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Sulfate, Total (as SO4)	mg/L	SingleVal	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Turbidity	25 NTU	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	

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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Surface Discharge Station SD002 (Alt. Laurentian Mine Discharge (011))

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Turbidity	NTU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	

Surface Discharge Station SD003 (Primary Laurentian Mine Discharge (012))

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Flow	MG	CalMoTot	81.955	71.33	90.84	98.98	111.25	136.2	147.0	76.85	98.88	100.03	100.7	95.91	100.827
Flow	mgd	CalMoAvg	2.64	2.46	2.93	3.30	3.58	4.54	4.74	2.48	3.296	3.23	3.36	3.09	3.304
Flow	mgd	CalMoMax	2.64	2.46	2.93	3.30	3.58	4.54	4.74	2.48	3.296	3.23	3.36	3.09	3.304
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05	<0.05	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	<0.1	<0.1	<0.05	<0.05	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	0.8715	0.8845	1.49	1.225	1.107	0.9935	0.972	0.7355	0.8235	0.648	0.717	1.345	0.984
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	0.899	0.910	1.95	1.27	1.28	1.01	.980	0.766	0.829	.795	0.762	2.05	1.125
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			0.22			0.73			2.7			0.35	1.0
pH	8.5 SU	CalMoMax	7.8	7.7	8.2	8.2	8.0	8.5	8.4	8.3	8.1	8.0	8.0	7.8	8.083
pH	6.5 SU	CalMoMin	7.6	7.6	7.8	7.8	7.8	8.3	8.2	8.2	8.0	8.0	7.9	7.7	7.908
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	<1	1.4	4.4	3	1.25	2.2	1.75	<1	<1	1.05	1.4	10.65	3.011
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	<1	2	13.6	6.0	3	5.6	2.4	<1	<1	1.2	2.0	39	8.311
Sulfate, Total (as SO4)	mg/L	SingleVal	106	106	102	110	126	162	160	168	146	144	138	141	134.083
Turbidity	25 NTU	CalMoAvg	0.225	0.9	7.05	5.6	0.3	4.95	2.6	1.1	0.25	0.6	0.52	1.65	2.145
Turbidity	NTU	CalMoMax	0.25	1.3	14.0	9.1	0.3	9.5	4.2	1.7	0.40	0.70	0.90	2.7	3.754

Surface Discharge Station SD005 (East Pit #1 Discharge)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Flow	MG	CalMoTot	NoDis	NoDis	1.58	7.48	11.06	41.02	5.24	4.6	NoDis	NoDis	2.89	1.2	9.384
Flow	mgd	CalMoAvg	NoDis	NoDis	1.72	2.16	2.16	2.16	2.16	2.13	NoDis	NoDis	2.15	2.13	2.096
Flow	mgd	CalMoMax	NoDis	NoDis	1.72	2.16	2.16	2.16	2.16	2.13	NoDis	NoDis	2.15	2.13	2.096
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	NoDis	NoDis	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	NoDis	NoDis	<0.05	<1	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	NoDis	NoDis	<0.05	<0.05	<0.05	<0.1	<0.1	<0.05	NoDis	NoDis	<0.05	<1	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	NoDis	NoDis	1.06	2.56	2.71	2.055	1.725	1.142	NoDis	NoDis	.624	.649	1.566
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	NoDis	NoDis	1.06	2.56	2.71	2.31	1.74	1.31	NoDis	NoDis	.624	.649	1.62
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			7.32			29.1			27.9			7.1	17.855
pH	8.5 SU	CalMoMax	NoDis	NoDis	8.3	8.2	8.0	8.2	8.1	8.3	NoDis	NoDis	8.4	8.2	8.213
pH	6.5 SU	CalMoMin	NoDis	NoDis	8.3	8.2	8.0	7.9	8.0	8.1	NoDis	NoDis	8.4	8.2	8.137

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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Surface Discharge Station SD005 (East Pit #1 Discharge)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	NoDis	NoDis	5.9	1.5	2.6	2.2	3.55	1.3	NoDis	NoDis	3.6	7.1	3.469
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	NoDis	NoDis	9	2	3.2	3.6	4.8	1.6	NoDis	NoDis	4	13.2	5.175
Sulfate, Total (as SO4)	mg/L	SingleVal	NoDis	NoDis	87.1	150	142	262	229	333	NoDis	NoDis	248	218	208.638
Turbidity	25 NTU	CalMoAvg	NoDis	NoDis	3.8	1.7	5.7	3.45	4.85	1.9	NoDis	NoDis	2.0	7.2	3.825
Turbidity	NTU	CalMoMax	NoDis	NoDis	3.8	1.7	5.7	3.6	6.5	2.1	NoDis	NoDis	2.0	7.2	4.075

Surface Discharge Station SD006 (East Pit #2 Discharge)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Flow	MG	CalMoTot	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Flow	mgd	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			NoDis			NoDis			NoDis			NoDis	
pH	8.5 SU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
pH	6.5 SU	CalMoMin	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Sulfate, Total (as SO4)	mg/L	SingleVal	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Turbidity	25 NTU	CalMoAvg	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	
Turbidity	NTU	CalMoMax	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	NoDis	

Surface Water Station SW001 (McKinley Mine Pit Lake overflow/discharg)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				NoFlo			171			209			190.0
Chloride, Total	mg/L	SingleVal				NoFlo			5.0			4.9			4.95
Flow, Stream, Instantaneous	cfs	SingleVal				NoFlo			6.90			2.73			4.815
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				NoFlo			279			331			305.0
pH, Field	SU	SingleVal				NoFlo			8.31			7.8			8.055
Solids, Total Dissolved (TDS)	mg/L	SingleVal				NoFlo			378			406			392.0

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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ArcelorMittal Minorca Mine Inc - Laurentian (MN0059633)

First DMR in Delta: 4/1999

Surface Water Station SW001 (McKinley Mine Pit Lake overflow/discharg)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Specific Conductance, Field	umh/cm	SingleVal				NoFlo			586			620			603.0
Sulfate, Total (as SO4)	mg/L	SingleVal				NoFlo			113			115			114.0

Surface Water Station SW002 (Unnamed Stream at Heritage Rd. crossing)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				306			113			421			280.0
Chloride, Total	mg/L	SingleVal				18.0			9.8			18.8			15.533
Flow, Stream, Instantaneous	cfs	SingleVal				1.03			46.59			4.58			17.4
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				322			135			435			297.333
pH, Field	SU	SingleVal				8.4			7.24			8.5			8.047
Solids, Total Dissolved (TDS)	mg/L	SingleVal				469			238			599			435.333
Specific Conductance, Field	umh/cm	SingleVal				749.1			361.8			1061			723.967
Sulfate, Total (as SO4)	mg/L	SingleVal				100			47.0			151			99.333

Surface Water Station SW003 (Unnamed Stream at Judd Rd. crossing)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/12</u>	<u>2/12</u>	<u>3/12</u>	<u>4/12</u>	<u>5/12</u>	<u>6/12</u>	<u>7/12</u>	<u>8/12</u>	<u>9/12</u>	<u>10/12</u>	<u>11/12</u>	<u>12/12</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				189			93.6			309			197.2
Chloride, Total	mg/L	SingleVal				10.1			9.3			11.7			10.367
Flow, Stream, Instantaneous	cfs	SingleVal				6.32			58.67			6.71			23.9
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				220			120			337			225.667
pH, Field	SU	SingleVal				8.22			7.34			8.31			7.957
Solids, Total Dissolved (TDS)	mg/L	SingleVal				294			216			460			323.333
Specific Conductance, Field	umh/cm	SingleVal				486			301.1			763			516.7
Sulfate, Total (as SO4)	mg/L	SingleVal				59.3			34.4			90.3			61.333

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