

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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Flow	MG	CalMoTot	96.275	86.1	103.71	103.71	102.672	108.9	97.008	99.88	100.76	96.80	91.842	89.9	98.13
Flow	mgd	CalMoAvg	3.1	3.075	3.34	3.457	3.312	3.63	3.129	3.22	3.35	3.12	3.06	2.9	3.224
Flow	mgd	CalMoMax	3.1	3.075	3.34	3.457	3.312	3.63	3.129	3.22	3.35	3.12	3.06	2.9	3.224
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	1.033	1.019	1.2	1.055	1.215	1.023	0.9035	1.01	1.2	0.8865	1.00	0.903	1.037
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	1.25	1.26	1.46	1.06	1.25	1.08	.917	1.12	1.53	0.912	1.2	1.0	1.17
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal			0.34			0.72			1.29			0.51	0.715
pH	8.5 SU	CalMoMax	8.2	8.1	8.1	8.1	8.1	8.1	8.0	8.0	7.9	7.9	8.0	7.8	8.025
pH	6.5 SU	CalMoMin	7.7	7.9	7.9	8.0	8.0	7.8	8.0	8.0	7.8	7.8	7.7	7.7	7.858
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	1.4	2.4	3.3	1.25	3.175	1.4	1.15	2.85	7.95	1.24	1.5	<1	2.51
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	1.6	6	10	2	9.5	1.6	1.6	3.6	15.2	2	2	<1	5.009
Sulfate, Total (as SO4)	mg/L	SingleVal	105	100	101	120	120	120	139	178	128	123	120	115	122.417
Turbidity	25 NTU	CalMoAvg	1.675	1.7	0.775	1.05	7.175	0.6	1.9	1.7	7.7	0.56	0.525	0.7	2.172
Turbidity	NTU	CalMoMax	2.7	2.4	1.2	1.3	14	0.75	2.7	2.1	15	0.80	0.85	0.9	3.725

Surface Discharge Station SD005 (East Pit #1 Discharge)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Flow	MG	CalMoTot	NoDis	0.146	4.1	3.14	3.0	1.99	1.992	6.48	1.691	2.6	NoDis	.677	2.582
Flow	mgd	CalMoAvg	NoDis	2.085	1.58	0.785	1.149	1.15	1.15	2.88	2.91	3.19	NoDis	2.9	1.978
Flow	mgd	CalMoMax	NoDis	2.085	1.58	0.785	1.149	1.15	1.15	2.88	2.91	3.19	NoDis	2.9	1.978
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg	NoDis	0.0665	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NoDis	<0.05	0.067
Iron, Dissolved (as Fe)	2.0 mg/L	DailyMax	NoDis	0.0665	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NoDis	<0.05	0.067
Mercury, Total (as Hg)	1.8 ng/L	CalMoAvg	NoDis	4.26	6.11	1.71	1.925	1.65	1.53	0.864	.734	0.620	NoDis	0.638	2.004
Mercury, Total (as Hg)	3.2 ng/L	DailyMax	NoDis	4.26	6.11	2.16	1.99	1.80	1.92	0.864	.734	0.620	NoDis	0.7	2.116
Nitrogen, Nitrate, Total (as N)	mg/L	SingleVal						11.2			32			17.8	20.333
pH	8.5 SU	CalMoMax	NoDis	8.3	8.3	8.3	8.5	8.4	8.5	8.4	8.2	8.4	NoDis	8.2	8.35
pH	6.5 SU	CalMoMin	NoDis	8.3	8.3	8.3	8.4	8.2	8.4	8.4	8.2	8.4	NoDis	8.2	8.31

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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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg	NoDis	28.7	46.15	6.6	14.675	8.5	1.3	1.7	61.4	1.3	NoDis	8.8	17.913
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax	NoDis	31	49	8	22.7	9.5	1.6	2.4	120	1.6	NoDis	8.8	25.46
Sulfate, Total (as SO4)	mg/L	SingleVal	NoDis	110	84.4	101	149	176	234	172	174	145	NoDis	142	148.74
Turbidity	25 NTU	CalMoAvg	NoDis	35.9	47.0	10.85	20	15	1.55	1.1	NoDis	1.2	NoDis	6.2	15.422
Turbidity	NTU	CalMoMax	NoDis	35.9	47.0	11	24	19	1.8	1.1	1.5	1.2	NoDis	6.2	14.87

Surface Discharge Station SD006 (East Pit #2 Discharge)

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				NoFlo			186			199			192.5
Chloride, Total	mg/L	SingleVal				NoFlo			4.89			4.87			4.88
Flow, Stream, Instantaneous	cfs	SingleVal				NoFlo			7.44			1.28			4.36
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				NoFlo			325			324			324.5
pH, Field	SU	SingleVal				NoFlo			8.04			8.01			8.025
Solids, Total Dissolved (TDS)	mg/L	SingleVal				NoFlo			360			411			385.5

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>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Specific Conductance, Field	umh/cm	SingleVal				NoFlo			599			621			610.0
Sulfate, Total (as SO4)	mg/L	SingleVal				NoFlo			110			114			112.0

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

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				179			241			279			233.0
Chloride, Total	mg/L	SingleVal				17.9			11.5			15.2			14.867
Flow, Stream, Instantaneous	cfs	SingleVal				11.19			10.44			3.41			8.347
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				213			297			318			276.0
pH, Field	SU	SingleVal				8.07			7.73			8.35			8.05
Solids, Total Dissolved (TDS)	mg/L	SingleVal				332			398			467			399.0
Specific Conductance, Field	umh/cm	SingleVal				459			677			784			640.0
Sulfate, Total (as SO4)	mg/L	SingleVal				60.7			89.3			110			86.667

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

<u>Parameter Name</u>	<u>Limit and Units</u>	<u>Limit Type</u>	<u>1/11</u>	<u>2/11</u>	<u>3/11</u>	<u>4/11</u>	<u>5/11</u>	<u>6/11</u>	<u>7/11</u>	<u>8/11</u>	<u>9/11</u>	<u>10/11</u>	<u>11/11</u>	<u>12/11</u>	<u>Ave</u>
Bicarbonates (HCO3)	mg/L	SingleVal				136			200			214			183.333
Chloride, Total	mg/L	SingleVal				14			8.58			8			10.193
Flow, Stream, Instantaneous	cfs	SingleVal				27.26			22.39			5.65			18.433
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	mg/L	SingleVal				170			246			245			220.333
pH, Field	SU	SingleVal				7.91			7.63			8.27			7.937
Solids, Total Dissolved (TDS)	mg/L	SingleVal				268			310			333			303.667
Specific Conductance, Field	umh/cm	SingleVal				336			540			543			473.0
Sulfate, Total (as SO4)	mg/L	SingleVal				38.8			58.7			57.8			51.767

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