DMR Summary Report

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Ground Water Station GW001 (Well ST-2, off NE side of Tailings Basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Dissolved (as B)	600 ug/L	InstantMax				262			263			266			**263.667**
Chloride, Total	*250* mg/L	InstMaxInt				26.5			27.7			27.2			**27.133**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1485			1484.9			1484.9			**1,484.933**
Fluoride, Total (as F)	4.0 mg/L	InstantMax				.15			.16			<.1			**0.155**
Manganese, Dissolved (as Mn)	1000 ug/L	InstantMax				3670			3580			3280			**3,510.0**
Molybdenum, Dissolved (as Mo)	30 ug/L	InstantMax				8.8			9.1			9			**8.967**
pH, Field	SU	SingleVal				7			6.8			6.8			**6.867**
Solids, Total Dissolved (TDS)	*500* mg/L	InstMaxInt				523			494			495			**504.0**
Specific Conductance, Field	umh/cm	SingleVal				869			874			881			**874.667**
Sulfate, Total (as SO4)	*250* mg/L	InstMaxInt				29.7			31.9			30.1			**30.567**
Temperature, Water (C)	Deg C	SingleVal				7.3			10.2			8.1			**8.533**

Ground Water Station GW002 (Well MW-6S, N of Private Landfill)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Dissolved (as B)	ug/L	SingleVal				<50			<50			<50			
Chloride, Total	mg/L	SingleVal				1.4			.5			.64			**0.847**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1782.6			1785			1784.5			**1,784.033**
Fluoride, Total (as F)	mg/L	SingleVal				<.1			<.1			<.1			
Manganese, Dissolved (as Mn)	ug/L	SingleVal				2			1.3			1.4			**1.567**
Molybdenum, Dissolved (as Mo)	ug/L	SingleVal				<.2			.41			<.2			**0.41**
pH, Field	SU	SingleVal				7.5			6.1			6.7			**6.767**
Solids, Total Dissolved (TDS)	mg/L	SingleVal				90			81			103			**91.333**
Specific Conductance, Field	umh/cm	SingleVal				58.6			69			0			**42.533**
Sulfate, Total (as SO4)	mg/L	SingleVal				7.6			6.4			6.7			**6.9**
Temperature, Water (C)	Deg C	SingleVal				13.1			16.2			16.1			**15.133**

Ground Water Station GW003 (Tailings Basin West Cell Well H-1)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Copper, Dissolved (as Cu)	ug/L	SingleVal				NoDis			NoDis			NoDis			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				NoDis			NoDis			NoDis			
Nickel, Dissolved (as Ni)	ug/L	SingleVal				NoDis			NoDis			NoDis			
pH, Field	SU	SingleVal				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.

DMR Summary Report

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Ground Water Station GW003 (Tailings Basin West Cell Well H-1)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Specific Conductance, Field	umh/cm	SingleVal				NoDis			NoDis			NoDis			
Sulfate, Total (as SO4)	mg/L	SingleVal				NoDis			NoDis			NoDis			
Temperature, Water (C)	Deg C	SingleVal				NoDis			NoDis			NoDis			

Ground Water Station GW004 (Tailings Basin West Cell Well H-2)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Copper, Dissolved (as Cu)	ug/L	SingleVal				NoDis			NoDis			NoDis			
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				NoDis			NoDis			NoDis			
Nickel, Dissolved (as Ni)	ug/L	SingleVal				NoDis			NoDis			NoDis			
pH, Field	SU	SingleVal				NoDis			NoDis			NoDis			
Specific Conductance, Field	umh/cm	SingleVal				NoDis			NoDis			NoDis			
Sulfate, Total (as SO4)	mg/L	SingleVal				NoDis			NoDis			NoDis			
Temperature, Water (C)	Deg C	SingleVal				NoDis			NoDis			NoDis			

Ground Water Station GW005 (Tailings Basin West Cell Well H-3)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Copper, Dissolved (as Cu)	ug/L	SingleVal				4.7			1.6			1.3			**2.533**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1600.5			1609.2			1601			**1,603.567**
Nickel, Dissolved (as Ni)	ug/L	SingleVal				8.6			6			7.2			**7.267**
pH, Field	SU	SingleVal				8			7.6			7.6			**7.733**
Specific Conductance, Field	umh/cm	SingleVal				1359			1266			1270			**1,298.333**
Sulfate, Total (as SO4)	mg/L	SingleVal				333			323			325			**327.0**
Temperature, Water (C)	Deg C	SingleVal				7.3			18.4			11.4			**12.367**

Ground Water Station GW006 (New well NNW of tailings basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Dissolved (as B)	600 ug/L	InstantMax				463			406			519			**462.667**
Chloride, Total	*250* mg/L	InstMaxInt				15.3			14.7			13.7			**14.567**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1487.3			1486.6			1486.3			**1,486.733**
Fluoride, Total (as F)	4.0 mg/L	InstantMax				1.8			2			1.9			**1.9**
Manganese, Dissolved (as Mn)	1000 ug/L	InstantMax				1140			1050			970			**1,053.333**

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Ground Water Station GW006 (New well NNW of tailings basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Molybdenum, Dissolved (as Mo)	30 ug/L	InstantMax				24.2			24.3			27.9			**25.467**
pH, Field	SU	SingleVal				7.2			7.1			7.1			**7.133**
Solids, Total Dissolved (TDS)	*500* mg/L	InstMaxInt				1550			1330			1380			**1,420.0**
Specific Conductance, Field	umh/cm	SingleVal				2097			1971			2120			**2,062.667**
Sulfate, Total (as SO4)	*250* mg/L	InstMaxInt				529			485			561			**525.0**
Temperature, Water (C)	Deg C	SingleVal				7			15.9			12.9			**11.933**

Ground Water Station GW007 (New well WNW of tailings basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Dissolved (as B)	600 ug/L	InstantMax				392			401			421			**404.667**
Chloride, Total	*250* mg/L	InstMaxInt				28.6			29.4			29.9			**29.3**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1505.8			1505.7			1505.9			**1,505.8**
Fluoride, Total (as F)	4.0 mg/L	InstantMax				2			2			1.9			**1.967**
Manganese, Dissolved (as Mn)	1000 ug/L	InstantMax				1240			1260			1030			**1,176.667**
Molybdenum, Dissolved (as Mo)	30 ug/L	InstantMax				26.6			29.9			29.4			**28.633**
pH, Field	SU	SingleVal				7.6			7.4			7.5			**7.5**
Solids, Total Dissolved (TDS)	*500* mg/L	InstMaxInt				563			555			547			**555.0**
Specific Conductance, Field	umh/cm	SingleVal				902			947			929			**926.0**
Sulfate, Total (as SO4)	*250* mg/L	InstMaxInt				162			176			162			**166.667**
Temperature, Water (C)	Deg C	SingleVal				7.1			13.2			11.9			**10.733**

Ground Water Station GW008 (New well SW of tailings basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Dissolved (as B)	600 ug/L	InstantMax				<50			<50			<.5			
Chloride, Total	*250* mg/L	InstMaxInt				.56			.71			.75			**0.673**
Elevation of GW Relative to Mean Sea Level	feet	SingleVal				1558.6			1557.6			1557			**1,557.733**
Fluoride, Total (as F)	4.0 mg/L	InstantMax				<.1			<.1			<.1			
Manganese, Dissolved (as Mn)	1000 ug/L	InstantMax				8.6			25.1			19.8			**17.833**
Molybdenum, Dissolved (as Mo)	30 ug/L	InstantMax				<.2			.59			.22			**0.405**
pH, Field	SU	SingleVal				6.7			6.3			6.5			**6.5**
Solids, Total Dissolved (TDS)	*500* mg/L	InstMaxInt				226			194			196			**205.333**
Specific Conductance, Field	umh/cm	SingleVal				272			276.3			308			**285.433**

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

DMR Summary Report

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Ground Water Station GW008 (New well SW of tailings basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Sulfate, Total (as SO4)	*250* mg/L	InstMaxInt				15			15.8			16.3			**15.7**
Temperature, Water (C)	Deg C	SingleVal				5.5			13.4			11.5			**10.133**

Surface Discharge Station SD001 (NW Seepage Collection Ditch)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	305 mg/L	CalMoAvg			233			288			470			397	**347.0**
Bicarbonates (HCO3)	mg/L	CalMoMax			233			288			470			397	**347.0**
Boron, Total (as B)	500 ug/L	CalMoAvg			248			362			361			215	**296.5**
Boron, Total (as B)	ug/L	CalMoMax			288			362			361			215	**306.5**
Calcium, Total (as Ca)	mg/L	CalMoMax									56.4				**56.4**
Cations, Total	meq/L	CalMoMax									11.4				**11.4**
Cobalt, Total (as Co)	ug/L	CalMoMax			.25			<.2			<2			.33	**0.29**
Fluoride, Total (as F)	mg/L	CalMoMax			.78			1.1			1.3			.88	**1.015**
Hardness, Carbonate (as CaCo3)	250 mg/L	CalMoAvg			233			288			470			397	**347.0**
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax			233			288			470			397	**347.0**
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg			.4			.1			.1			1.19	**0.448**
Iron, Dissolved (as Fe)	2.0 mg/L	CalMoMax			.4			.1			.1			1.66	**0.565**
Magnesium, Total (as Mg)	mg/L	CalMoMax									81.6				**81.6**
Manganese, Total (as Mn)	ug/L	CalMoMax			339			89.1			312			1760	**625.025**
Mercury, Total (as Hg)	ug/L	CalMoMax				.0006		.0015		.0012		.0006			**0.001**
pH, Field	8.5 SU	InstantMax			7.5			7.7			7.8			7	**7.5**
pH, Field	6.5 SU	InstantMin			7.5			7.7			7.8			7	**7.5**
Potassium, Total (as K)	mg/L	CalMoMax									3.8				**3.8**
Salinity, Total	mg/L	CalMoMax			400			400			400			500	**425.0**
Sodium, % Total Cations in meq/L	%	CalMoMax									22.2				**22.2**
Sodium, Total (as Na)	mg/L	CalMoMax									40.5				**40.5**
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg			3			3			2			7	**3.75**
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax			3			3			2			7	**3.75**
Specific Conductance, Field	1000 umh/cm	CalMoAvg			684			783			912			1223	**900.5**
Specific Conductance, Field	umh/cm	CalMoMax			684			783			912			1223	**900.5**
Turbidity	25 NTU	CalMoAvg			3			1.3			1.2			9.6	**3.775**
Turbidity	NTU	CalMoMax			3			1.3			1.2			9.6	**3.775**

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Surface Discharge Station SD002 (NE Seepage Collection Ditch)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	305 mg/L	CalMoAvg			375			459			464			496	**448.5**
Bicarbonates (HCO3)	mg/L	CalMoMax			375			459			464			496	**448.5**
Boron, Total (as B)	500 ug/L	CalMoAvg			267			318			362			284	**307.75**
Boron, Total (as B)	ug/L	CalMoMax			281			318			362			284	**311.25**
Calcium, Total (as Ca)	mg/L	CalMoMax									86.7				**86.7**
Cations, Total	meq/L	CalMoMax									15.8				**15.8**
Cobalt, Total (as Co)	ug/L	CalMoMax			.35			.46			<4			.3	**0.37**
Fluoride, Total (as F)	mg/L	CalMoMax			1.2			1.5			1.5			1.5	**1.425**
Hardness, Carbonate (as CaCo3)	250 mg/L	CalMoAvg			375			459			464			496	**448.5**
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax			375			459			464			496	**448.5**
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg			.1			<.1			<.1			.177	**0.139**
Iron, Dissolved (as Fe)	2.0 mg/L	CalMoMax			.1			<.1			<.1			.177	**0.139**
Magnesium, Total (as Mg)	mg/L	CalMoMax									99.5				**99.5**
Manganese, Total (as Mn)	ug/L	CalMoMax			3560			3080			3160			2180	**2,995.0**
Mercury, Total (as Hg)	ug/L	CalMoMax				.0006		.00093		.0012		.00078			**0.001**
pH, Field	8.5 SU	InstantMax			7.4			7.6			7.6			7.4	**7.5**
pH, Field	6.5 SU	InstantMin			7.4			7.6			7.6			7.4	**7.5**
Potassium, Total (as K)	mg/L	CalMoMax									6				**6.0**
Salinity, Total	mg/L	CalMoMax			600			600			700			700	**650.0**
Sodium, % Total Cations in meq/L	%	CalMoMax									27.1				**27.1**
Sodium, Total (as Na)	mg/L	CalMoMax									71.5				**71.5**
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg			1			2			3			10	**4.0**
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax			1			2			3			10	**4.0**
Specific Conductance, Field	1000 umh/cm	CalMoAvg			899			1220			1254			2275	**1,412.0**
Specific Conductance, Field	umh/cm	CalMoMax			899			1220			1254			2275	**1,412.0**
Turbidity	25 NTU	CalMoAvg			1			1.9			2.8			7.3	**3.25**
Turbidity	NTU	CalMoMax			1			1.9			2.8			7.3	**3.25**

Surface Discharge Station SD004 (Tailings Basin Cell 2W Seep A)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	305 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Bicarbonates (HCO3)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Boron, Total (as B)	500 ug/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Boron, Total (as B)	ug/L	CalMoMax			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.

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Surface Discharge Station SD004 (Tailings Basin Cell 2W Seep A)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Calcium, Total (as Ca)	mg/L	CalMoMax									NoDis				
Cations, Total	meq/L	CalMoMax									NoDis				
Cobalt, Total (as Co)	ug/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Flow	MG	CalMoTot			NoDis			NoDis			NoDis			NoDis	
Flow	mgd	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Fluoride, Total (as F)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Hardness, Carbonate (as CaCo3)	250 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Iron, Dissolved (as Fe)	2.0 mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Magnesium, Total (as Mg)	mg/L	CalMoMax									NoDis				
Manganese, Total (as Mn)	ug/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Mercury, Total (as Hg)	ug/L	CalMoMax				NoDis		NoDis		NoDis		NoDis			
pH, Field	8.5 SU	InstantMax			NoDis			NoDis			NoDis			NoDis	
pH, Field	6.5 SU	InstantMin			NoDis			NoDis			NoDis			NoDis	
Potassium, Total (as K)	mg/L	CalMoMax									NoDis				
Salinity, Total	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Sodium, % Total Cations in meq/L	%	CalMoMax									NoDis				
Sodium, Total (as Na)	mg/L	CalMoMax									NoDis				
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Specific Conductance, Field	1000 umh/cm	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Specific Conductance, Field	umh/cm	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Turbidity	25 NTU	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Turbidity	NTU	CalMoMax			NoDis			NoDis			NoDis			NoDis	

Surface Discharge Station SD005 (Tailings Basin Cell 2W Seep B)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	305 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Bicarbonates (HCO3)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Boron, Total (as B)	500 ug/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Boron, Total (as B)	ug/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Calcium, Total (as Ca)	mg/L	CalMoMax									NoDis				
Cations, Total	meq/L	CalMoMax									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.

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Surface Discharge Station SD005 (Tailings Basin Cell 2W Seep B)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Cobalt, Total (as Co)	ug/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Flow	MG	CalMoTot			NoDis			NoDis			NoDis			NoDis	
Flow	mgd	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Fluoride, Total (as F)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Hardness, Carbonate (as CaCo3)	250 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Iron, Dissolved (as Fe)	2.0 mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Magnesium, Total (as Mg)	mg/L	CalMoMax									NoDis				
Manganese, Total (as Mn)	ug/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Mercury, Total (as Hg)	ug/L	CalMoMax				NoDis		NoDis		NoDis		NoDis			
pH, Field	8.5 SU	InstantMax			NoDis			NoDis			NoDis			NoDis	
pH, Field	6.5 SU	InstantMin			NoDis			NoDis			NoDis			NoDis	
Potassium, Total (as K)	mg/L	CalMoMax									NoDis				
Salinity, Total	mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Sodium, % Total Cations in meq/L	%	CalMoMax									NoDis				
Sodium, Total (as Na)	mg/L	CalMoMax									NoDis				
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Specific Conductance, Field	1000 umh/cm	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Specific Conductance, Field	umh/cm	CalMoMax			NoDis			NoDis			NoDis			NoDis	
Turbidity	25 NTU	CalMoAvg			NoDis			NoDis			NoDis			NoDis	
Turbidity	NTU	CalMoMax			NoDis			NoDis			NoDis			NoDis	

Surface Discharge Station SD006 (Power Line Access Road Culvert)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	305 mg/L	CalMoAvg			NoDis			260			NoDis			NoDis	**260.0**
Bicarbonates (HCO3)	mg/L	CalMoMax			NoDis			260			NoDis			NoDis	**260.0**
Boron, Total (as B)	500 ug/L	CalMoAvg			NoDis			161			NoDis			NoDis	**161.0**
Boron, Total (as B)	ug/L	CalMoMax			NoDis			190			NoDis			NoDis	**190.0**
Calcium, Total (as Ca)	mg/L	CalMoMax									NoDis				
Cations, Total	meq/L	CalMoMax									NoDis				
Cobalt, Total (as Co)	ug/L	CalMoMax			NoDis			.21			NoDis			NoDis	**0.21**
Flow	MG	CalMoTot			NoDis			10.38			NoDis			NoDis	**10.38**

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Surface Discharge Station SD006 (Power Line Access Road Culvert)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Flow	mgd	CalMoMax			NoDis			5.07			NoDis			NoDis	**5.07**
Fluoride, Total (as F)	mg/L	CalMoMax			NoDis			1.1			NoDis			NoDis	**1.1**
Hardness, Carbonate (as CaCo3)	250 mg/L	CalMoAvg			NoDis			240			NoDis			NoDis	**240.0**
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax			NoDis			260			NoDis			NoDis	**260.0**
Iron, Dissolved (as Fe)	1.0 mg/L	CalMoAvg			NoDis			.22			NoDis			NoDis	**0.22**
Iron, Dissolved (as Fe)	2.0 mg/L	CalMoMax			NoDis			.22			NoDis			NoDis	**0.22**
Magnesium, Total (as Mg)	mg/L	CalMoMax									NoDis				
Manganese, Total (as Mn)	ug/L	CalMoMax			NoDis			118			NoDis			NoDis	**118.0**
Mercury, Total (as Hg)	ug/L	CalMoMax				NoDis		.0024		NoDis		NoDis			**0.002**
pH, Field	8.5 SU	InstantMax			NoDis			7.6			NoDis			NoDis	**7.6**
pH, Field	6.5 SU	InstantMin			NoDis			7.6			NoDis			NoDis	**7.6**
Potassium, Total (as K)	mg/L	CalMoMax									NoDis				
Salinity, Total	mg/L	CalMoMax			NoDis			300			NoDis			NoDis	**300.0**
Sodium, % Total Cations in meq/L	%	CalMoMax									NoDis				
Sodium, Total (as Na)	mg/L	CalMoMax									NoDis				
Solids, Total Suspended (TSS)	20 mg/L	CalMoAvg			NoDis			2			NoDis			NoDis	**2.0**
Solids, Total Suspended (TSS)	30 mg/L	CalMoMax			NoDis			2			NoDis			NoDis	**2.0**
Specific Conductance, Field	1000 umh/cm	CalMoAvg			NoDis			688			NoDis			NoDis	**688.0**
Specific Conductance, Field	umh/cm	CalMoMax			NoDis			688			NoDis			NoDis	**688.0**
Toxicity, Whole Effluent (Chronic)	1.0 TUc	InstantMax									NoDis				
Turbidity	25 NTU	CalMoAvg			NoDis			3.1			NoDis			NoDis	**3.1**
Turbidity	NTU	CalMoMax			NoDis			3.1			NoDis			NoDis	**3.1**

Surface Water Station SW003 (Site 3, unnamed crk trib to Embarrass R)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Chloride, Total	mg/L	SingleVal			13.2			4.9			15.4			26.1	**14.9**
Flow, Stream, Instantaneous	cfs	SingleVal			1.4			.3			.06			1.74	**0.875**
pH, Field	SU	SingleVal			7.7			7.6			7.7			7.2	**7.55**
Solids, Total Dissolved (TDS)	mg/L	SingleVal			312			227			477			677	**423.25**
Specific Conductance, Field	umh/cm	SingleVal			475			381			762			983	**650.25**
Sulfate, Total (as SO4)	mg/L	SingleVal			95.4			32.7			42.9			191	**90.5**
Temperature, Water (C)	Deg C	SingleVal			3.8			17.6			16.5			1.3	**9.8**

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Surface Water Station SW004 (Embarrass R at CR 620 [Salo Rd] bridge)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Chloride, Total	mg/L	CalMoMax			7.24			2.4			4			5.8	**4.86**
Flow, Stream, Instantaneous	cfs	CalMoMax			4.85			6.5			.95			2.06	**3.59**
Manganese, Total (as Mn)	ug/L	CalMoMax			33.2			597			1400			125	**538.8**
pH, Field	SU	InstantMax			7.9			7.3			7.4			7.1	**7.425**
pH, Field	SU	InstantMin			7.9			7.3			7.4			7.1	**7.425**
Specific Conductance, Field	umh/cm	CalMoMax			96			42			148			45	**82.75**
Sulfate, Total (as SO4)	mg/L	CalMoMax			9.88			<1			14.5			4.6	**9.66**
Temperature, Water (C)	Deg C	CalMoMax			3			17.4			16.7			.4	**9.375**

Surface Water Station SW005 (Embarrass R at Hwy 135 Bridge, White Twp)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Chloride, Total	mg/L	CalMoMax			7.26			3.3			4			7.6	**5.54**
Flow, Stream, Instantaneous	cfs	CalMoMax			56.4			67.2			8.7			14.2	**36.625**
pH, Field	SU	InstantMax			7.7			7.3			7.9			7.1	**7.5**
pH, Field	SU	InstantMin			7.7			7.3			7.9			7.1	**7.5**
Specific Conductance, Field	umh/cm	CalMoMax			235			137			292			219	**220.75**
Sulfate, Total (as SO4)	mg/L	CalMoMax			45.6			14.1			24.5			62.1	**36.575**
Temperature, Water (C)	Deg C	CalMoMax			4.1			18.8			18.1			.3	**10.325**

Waste Stream Station WS001 (NW side of Emergency Basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Elevation of Water Level Relative to Ref Point	feet	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Elevation of Water Level Relative to Ref Point	feet	CalMoMax	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	

Waste Stream Station WS002 (NW Seepage Coll Return Pumping to TB)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Flow	MG	CalMoTot	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Waste Stream Station WS003 (NE Seepage Coll Return Pumping to TB)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Flow	MG	CalMoTot	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	

Waste Stream Station WS007 (Treated sewage to Emergency Basin)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
BOD, Carbonaceous 05 Day (20 Deg C)	9.9 kg/day	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
BOD, Carbonaceous 05 Day (20 Deg C)	16 kg/day	MxCalWkAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
BOD, Carbonaceous 05 Day (20 Deg C)	25 mg/L	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
BOD, Carbonaceous 05 Day (20 Deg C)	40 mg/L	MxCalWkAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Chlorine, Total Residual	mg/L	DailyMax	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Fecal Coliform, MPN or Membrane Filter 44.5C	200 #100ml	CalMoGeoMn					NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo			
Fecal Coliform, MPN or Membrane Filter 44.5C	#100ml	MxCalWkAvg					NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo			
Flow	MG	CalMoTot	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Flow	mgd	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Flow	mgd	CalMoMax	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
pH, Field	9.0 SU	InstantMax	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
pH, Field	6.0 SU	InstantMin	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Solids, Total Suspended (TSS)	12 kg/day	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Solids, Total Suspended (TSS)	18 kg/day	MxCalWkAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Solids, Total Suspended (TSS)	30 mg/L	CalMoAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	
Solids, Total Suspended (TSS)	45 mg/L	MxCalWkAvg	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	NoFlo	

Waste Stream Station WS008 (Ligninsulfonate applied for dust control)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
2,3,7,8,-Tetrachlorodibenzofuran	ug/L	SingleVal												NoFlo	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	SingleVal												NoFlo	
Bicarbonates (HCO3)	mg/L	SingleVal												NoFlo	
BOD, Carbonaceous 05 Day (20 Deg C)	mg/L	SingleVal												NoFlo	
Calcium, Total (as Ca)	mg/L	SingleVal												NoFlo	
Chloride, Total	mg/L	SingleVal												NoFlo	
COD (Chemical Oxygen Demand)	mg/L	SingleVal												NoFlo	
Flow	0.1 MG	CalYrMax												NoFlo	

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

DMR Summary Report

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Waste Stream Station WS008 (Ligninsulfonate applied for dust control)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Magnesium, Total (as Mg)	mg/L	SingleVal												NoFlo	
Mercury, Total (as Hg)	ug/L	SingleVal												NoFlo	
Nitrogen, Ammonia, Total (as N)	mg/L	SingleVal												NoFlo	
pH, Field	SU	SingleVal												NoFlo	
Phenols, Total	ug/L	SingleVal												NoFlo	
Phosphorus, Total (as P)	mg/L	SingleVal												NoFlo	
Sodium, Total (as Na)	mg/L	SingleVal												NoFlo	
Solids, Total Dissolved (TDS)	mg/L	SingleVal												NoFlo	
Specific Conductance, Field	umh/cm	SingleVal												NoFlo	
Sulfate, Total (as SO4)	mg/L	SingleVal												NoFlo	
Zinc, Total (as Zn)	mg/L	SingleVal												NoFlo	

Waste Stream Station WS009 (Culvert under RR grade, NE side Cell 1E)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Boron, Total (as B)	ug/L	CalMoMax				NoFlo			43.9			NoFlo			**43.9**
Flow	MG	CalMoTot				NoFlo			16.67			NoFlo			**16.67**
Flow	mgd	CalMoMax				NoFlo			.54			NoFlo			**0.54**
Molybdenum, Total (as Mo)	ug/L	CalMoMax				NoFlo			2.8			NoFlo			**2.8**
Specific Conductance, Field	umh/cm	CalMoMax				NoFlo			267			NoFlo			**267.0**
Sulfate, Total (as SO4)	mg/L	CalMoMax				NoFlo			15.1			NoFlo			**15.1**

Waste Stream Station WS011 (Tailings Basin Seep 1)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Flow	MG	CalMoTot				NoFlo			NoFlo			NoFlo			
Flow	mgd	CalMoMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMin				NoFlo			NoFlo			NoFlo			
Specific Conductance, Field	umh/cm	CalMoMax				NoFlo			NoFlo			NoFlo			

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Waste Stream Station WS012 (Tailings Basin Seep 2)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Flow	MG	CalMoTot				NoFlo			NoFlo			NoFlo			
Flow	mgd	CalMoMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMin				NoFlo			NoFlo			NoFlo			
Specific Conductance, Field	umh/cm	CalMoMax				NoFlo			NoFlo			NoFlo			

Waste Stream Station WS013 (Tailings Basin Seep 3)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Bicarbonates (HCO3)	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Boron, Total (as B)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Calcium, Total (as Ca)	mg/L	CalMoMax							NoFlo						
Cations, Total	meq/L	CalMoMax							NoFlo						
Cobalt, Total (as Co)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Copper, Total (as Cu)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Flow	MG	CalMoTot				NoFlo			NoFlo			NoFlo			
Flow	mgd	CalMoMax				NoFlo			NoFlo			NoFlo			
Fluoride, Total (as F)	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Hardness, Carbonate (as CaCo3)	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Magnesium, Total (as Mg)	mg/L	CalMoMax							NoFlo						
Manganese, Total (as Mn)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Mercury, Total (as Hg)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Molybdenum, Total (as Mo)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Nickel, Total (as Ni)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Nickel, Total (as Ni)	ug/L	CalMoMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMax				NoFlo			NoFlo			NoFlo			
pH, Field	SU	InstantMin				NoFlo			NoFlo			NoFlo			
Potassium, Total (as K)	mg/L	CalMoMax							NoFlo						
Salinity, Total	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Sodium, % Total Cations in meq/L	%	CalMoMax							NoFlo						
Sodium, Total (as Na)	mg/L	CalMoMax							NoFlo						
Solids, Total Suspended (TSS)	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			
Specific Conductance, Field	umh/cm	CalMoMax				NoFlo			NoFlo			NoFlo			

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

First DMR in Delta: 7/1999

Waste Stream Station WS013 (Tailings Basin Seep 3)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
Sulfate, Total (as SO4)	mg/L	CalMoMax				NoFlo			NoFlo			NoFlo			

Waste Stream Station WS014 (Coherex applied for dust control)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
BOD, Carbonaceous 05 Day (20 Deg C)	mg/L	SingleVal												NoFlo	
Chloride, Total	mg/L	SingleVal												NoFlo	
COD (Chemical Oxygen Demand)	mg/L	SingleVal												NoFlo	
Flow	0.1 MG	CalYrMax												NoFlo	
Mercury, Total (as Hg)	ug/L	SingleVal												NoFlo	
Methylene Blue Active Substances (Surfactants)	mg/L	SingleVal												NoFlo	
Naphthalene	ug/L	SingleVal												NoFlo	
Organics, Diesel Range as diesel, Total	ug/L	SingleVal												NoFlo	
Phosphorus, Total (as P)	mg/L	SingleVal												NoFlo	
Pyrene	ug/L	SingleVal												NoFlo	
Solids, Total Dissolved (TDS)	mg/L	SingleVal												NoFlo	
Specific Conductance, Field	umh/cm	SingleVal												NoFlo	
Sulfate, Total (as SO4)	mg/L	SingleVal												NoFlo	

Waste Stream Station WS015 (Nalco Dust-Ban 8803 for dust control)

Parameter Name	Limit and Units	Limit Type	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	Ave
BOD, Carbonaceous 05 Day (20 Deg C)	mg/L	SingleVal												NoFlo	
Chloride, Total	mg/L	SingleVal												NoFlo	
COD (Chemical Oxygen Demand)	mg/L	SingleVal												NoFlo	
Flow	0.1 MG	CalYrMax												NoFlo	
Mercury, Total (as Hg)	ug/L	SingleVal												NoFlo	
Methylene Blue Active Substances (Surfactants)	mg/L	SingleVal												NoFlo	
Naphthalene	ug/L	SingleVal												NoFlo	
Organics, Diesel Range as diesel, Total	ug/L	SingleVal												NoFlo	
Phosphorus, Total (as P)	mg/L	SingleVal												NoFlo	
Pyrene	ug/L	SingleVal												NoFlo	
Solids, Total Dissolved (TDS)	mg/L	SingleVal												NoFlo	

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

Cliffs Erie - HL Tailings Basin Area (MN0054089)

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Waste Stream Station WS015 (Nalco Dust-Ban 8803 for dust control)

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

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