
Subject: Hg values for POTW discharges
Attachments: sulfate WWTP NE MN.xls

From: Clark, Richard (MPCA) [<mailto:richard.clark@state.mn.us>]
Sent: Monday, April 29, 2013 3:48 PM
To: David Blaha
Cc: Timerson, Brian (MPCA)
Subject: Hg values for POTW discharges

Dave,

I looked up some Hg Values from the DMRs of several POTW discharges in NE Minn. (These could be used to replace the "0" values in the tables in Ch 6.2.3.3)

Babbitt POTW (2x annual monitoring); 4 values available since 2011:

0.8 ng/L
6 ng/L
1.7 ng/L
3.6 ng/L

Ave. = 3.0 ng/L

Hoyt Lakes POTW (2x annual mon); 7 values since 2010:

2.0 ng/L
9.8 ng/L
10.7 ng/L
14.8 ng/L
4.3 ng/L
9.4 ng/L
2.4 ng/L

Ave. = 7.6 ng/L

Virginia POTW (monthly mon):

Ave. 1.7 ng/L in 2010
Ave. 2.3 ng/L in 2011
Ave. 5.1 ng/L in 2012

Ave. = 3.0 ng/L

Hibbing POTW (monthly mon):

Ave. 4.3 ng/L in 2010
Ave. 2.7 ng/L in 2011
Ave. 3.2 ng/L in 2012

Ave. = 3.4 ng/L

From: Clark, Richard (MPCA)
Sent: Monday, April 29, 2013 2:25 PM

To: David Blaha (David.Blaha@erm.com)
Cc: Timerson, Brian (MPCA)
Subject: FW: Question on Waste Water Treatment Plants

Dave,

Ann made me aware of some recent effluent sulfate concentrations for municipal and industrial discharges in NE Minnesota.

Look at lines 17-31 of the "MUN" tab in the attached spreadsheet. The average for the Babbitt POTW is 37.4 mg/L SO₄. This could be inserted into Table 6.2.3-8 on line approx. 380 of Ch 6.2.3.3 (per Ed's comment).

There is no corresponding SO₄ data for the City of Hoyt Lakes discharge for use in Table 6.2.3-6 (line ~315), but it is not zero. The spreadsheet does include SO₄ data for the City of Aurora but this value is probably unduly influenced by GW with very high sulfate from the Mesabi Mining area and thus would not be representative of the Hoyt Lakes discharge. Perhaps the SO₄ value from Colby Lake (the source of water for the city) could be used for the table?? (Or perhaps use the Babbitt value above??).

I am not aware of similar recent mercury concentrations for the Hoyt Lakes and Babbitt effluents for Tables 6.2.3-7 and 6.2.3-9 respectively, but Ed is probably correct that some non-zero concentration should be used there. If you don't have a value immediately accessible, let me know and I will try to find something somewhat representative from our DMRs etc.

Feel free to call with any questions.

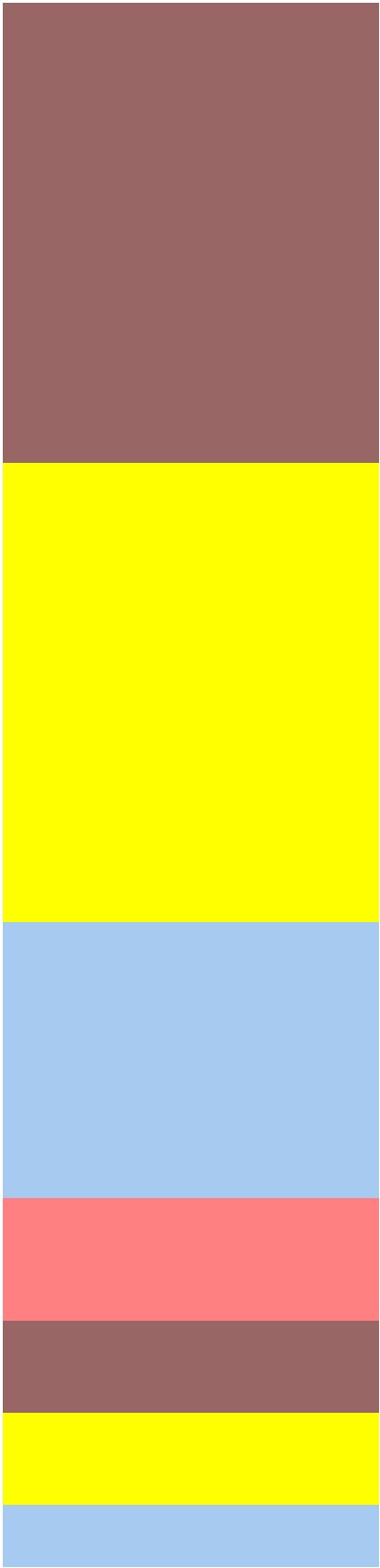
Richard
651-757-2280

preferred_i name	station	local_name	report_star	pcs_param	limit
MN002049 Aurora WWTP	SD004	Total Facility Discharge	01/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	02/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	03/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	04/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	05/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	06/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	07/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	08/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	09/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	10/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	11/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	12/12	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	01/13	Sulfate, Total (as SO4	
MN002049 Aurora WWTP	SD004	Total Facility Discharge	02/13	Sulfate, Total (as SO4	
Aurora WWTP					
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	01/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	02/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	03/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	04/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	05/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	06/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	07/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	08/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	09/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	10/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	11/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	12/12	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	01/13	Sulfate, Total (as SO4	
MN002065 Babbitt WWTP	SD002	Surface Water Discharge	02/13	Sulfate, Total (as SO4	
Babbitt WWTP					
MN006637 Crane Lake WWTP	SD001	Effluent	07/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	08/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	09/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	10/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	11/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	12/12	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	01/13	Sulfate, Total (as SO4	
MN006637 Crane Lake WWTP	SD001	Effluent	02/13	Sulfate, Total (as SO4	
Crane Lake WWTP					
MN005110 Cromwell WWTP	SD001	Stabilization Pond Monthly Effluent	05/12	Sulfate, Total (as SO4	
MN005110 Cromwell WWTP	SD001	Stabilization Pond Monthly Effluent	06/12	Sulfate, Total (as SO4	
MN005110 Cromwell WWTP	SD001	Stabilization Pond Monthly Effluent	11/12	Sulfate, Total (as SO4	
Cromwell WWTP					
MN002333 Eveleth WWTP	SD005	Surface Water Discharge	01/13	Sulfate, Total (as SO4	
MN002333 Eveleth WWTP	SD005	Surface Water Discharge	02/13	Sulfate, Total (as SO4	
Eveleth WWTP					
MNG5800 Littlefork WWTP	SD001	Total Facility Discharge	06/12	Sulfate, Total (as SO4	
MNG5800 Littlefork WWTP	SD001	Total Facility Discharge	12/12	Sulfate, Total (as SO4	
Littlefork WWTP					
MN002402 McGregor WWTP	SD002	Surface Water Discharge	04/12	Sulfate, Total (as SO4	
MN002402 McGregor WWTP	SD002	Surface Water Discharge	05/12	Sulfate, Total (as SO4	

MN002402 McGregor WWTP	SD002	Surface Water Discharge	06/12	Sulfate, Total (as SO4
MN002402 McGregor WWTP	SD002	Surface Water Discharge	09/12	Sulfate, Total (as SO4
MN002402 McGregor WWTP	SD002	Surface Water Discharge	10/12	Sulfate, Total (as SO4
MN002402 McGregor WWTP	SD002	Surface Water Discharge	11/12	Sulfate, Total (as SO4
McGregor WWTP				
MN003016 Virginia WWTP	SD002	Main Discharge	01/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	02/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	03/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	04/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	05/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	06/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	07/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	08/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	09/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	10/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	11/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	12/12	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	01/13	Sulfate, Total (as SO4
MN003016 Virginia WWTP	SD002	Main Discharge	02/13	Sulfate, Total (as SO4
Virginia WWTP				
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	09/12	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	10/12	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	11/12	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	12/12	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	01/13	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sout	SD001	001 Main Discharge	02/13	Sulfate, Total (as SO4)
MN003064 Hibbing WWTP Sou	SD001	001 Main Discharge		

rptd_value	units	limit_type	subdistrict	county_nar	basin_nam	major_watershed_name
388	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
368	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
430	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
250	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
244	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
185	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
250	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
281	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
355	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
362	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
341	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
332	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
372	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
374	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
323.7143						
30.9	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
31.7	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
33.4	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
45.2	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
43.5	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
38	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
37.3	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
37.5	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
39.8	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
43.5	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
43.4	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
37.3	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
34.3	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
27.8	mg/L	CalMoAvg	Duluth	St. Louis	Lake Supe	St. Louis River
37.4						
)	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
)	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
)	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
)	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
)	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
375	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
438	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
407	mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion River
406.6667						
4	mg/L	CalMoAvg	Duluth	Carlton	Upper Miss	Mississippi River - Grand Rapids
3	mg/L	CalMoAvg	Duluth	Carlton	Upper Miss	Mississippi River - Grand Rapids
15.9	mg/L	CalMoAvg	Duluth	Carlton	Upper Miss	Mississippi River - Grand Rapids
7.633333						
)	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
48.1	mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
48.1						
66	mg/L	CalMoMax	Duluth	Koochichin	Rainy Rive	Little Fork River
85	mg/L	CalMoMax	Duluth	Koochichin	Rainy Rive	Little Fork River
75.5						
8.1	mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids
10	mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids

2.9 mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids
2.5 mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids
23.6 mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids
27.8 mg/L	CalMoAvg	Duluth	Aitkin	Upper Miss	Mississippi River - Grand Rapids
12.48333					
84.9 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
84.8 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
79.8 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
78.2 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
82.4 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
75.8 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
72.4 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
88.1 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
87.7 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
82.7 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
102 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
93.7 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
84.3 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
83.8 mg/L	CalMoMax	Duluth	St. Louis	Lake Supe	St. Louis River
84.32857					
) 90.2 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
) 117 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
) 92.1 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
) 88.7 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
) 94.5 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
) 101 mg/L	CalMoMax	Duluth	St. Louis	Lake Superior	
97.25					



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN005594 Keewatin Taconite Operations - Tailings	SD005
MN000441 MDNR French River Hatchery	SD001
MN006768 Mesabi Nugget Delaware LLC	SD001
MN006768 Mesabi Nugget Delaware LLC	SD001
MN006768 Mesabi Nugget Delaware LLC	SD001
MN006768 Mesabi Nugget Delaware LLC	SD001
MN006768 Mesabi Nugget Delaware LLC	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
MN000100 Minnesota Power - Boswell Energy Center	SD001
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MN000100 Minnesota Power - Boswell Energy Center	SD004
MN000100 Minnesota Power - Boswell Energy Center	SD004
MN000100 Minnesota Power - Boswell Energy Center	SD004
MN000100 Minnesota Power - Boswell Energy Center	SD004
MN000100 Minnesota Power - Boswell Energy Center	SD004
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN000220 Minnesota Power - Taconite Harbor Energy	SD002
MN004698 Northshore Mining Co - Peter Mitchell	SD002

[illegible]

MN005530 Northshore Mining Co - Silver Bay	SD005
MN005530 Northshore Mining Co - Silver Bay	SD005
MN005180 U of M - Research Lab	SD001
MN005180 U of M - Research Lab	SD001
MN005180 U of M - Research Lab	SD001
MN005180 U of M - Research Lab	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN005211 United Taconite Fairlane/Tailings Basin	SD001
MN007010 UofM NOvA Far Detector Bldg Water Treatment System	SD001
MN005249 US Steel - Minntac Mining Area	SD003
MN005249 US Steel - Minntac Mining Area	SD003
MN005249 US Steel - Minntac Mining Area	SD003
MN005249 US Steel - Minntac Mining Area	SD003
MN005249 US Steel - Minntac Mining Area	SD003
MN005249 US Steel - Minntac Mining Area	SD004
MN005249 US Steel - Minntac Mining Area	SD004
MN005249 US Steel - Minntac Mining Area	SD004
MN005249 US Steel - Minntac Mining Area	SD004
MN005249 US Steel - Minntac Mining Area	SD004
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
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MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD002
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003

[illegible]

MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD003
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN003187 US Steel Corp - Keetac	SD012
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
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MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001
MN005720 US Steel Corp - Minntac Tailings Basin Area	SD001

local_name	report_star	pcs_param	limit	qual	rptd_value
Primary Laurentian Mine Discharge (012)	01/12	Sulfate, Total (as SO4)			106
Primary Laurentian Mine Discharge (012)	02/12	Sulfate, Total (as SO4)			106
Primary Laurentian Mine Discharge (012)	03/12	Sulfate, Total (as SO4)			102
Primary Laurentian Mine Discharge (012)	04/12	Sulfate, Total (as SO4)			110
Primary Laurentian Mine Discharge (012)	05/12	Sulfate, Total (as SO4)			126
Primary Laurentian Mine Discharge (012)	06/12	Sulfate, Total (as SO4)			162
Primary Laurentian Mine Discharge (012)	07/12	Sulfate, Total (as SO4)			160
Primary Laurentian Mine Discharge (012)	08/12	Sulfate, Total (as SO4)			168
Primary Laurentian Mine Discharge (012)	09/12	Sulfate, Total (as SO4)			146
Primary Laurentian Mine Discharge (012)	10/12	Sulfate, Total (as SO4)			144
Primary Laurentian Mine Discharge (012)	11/12	Sulfate, Total (as SO4)			138
Primary Laurentian Mine Discharge (012)	12/12	Sulfate, Total (as SO4)			141
Primary Laurentian Mine Discharge (012)	01/13	Sulfate, Total (as SO4)			133
Primary Laurentian Mine Discharge (012)	02/13	Sulfate, Total (as SO4)			119
Primary Laurentian Mine Discharge (012)				132.9286	
East Pit #1 Discharge	03/12	Sulfate, Total (as SO4)			87.1
East Pit #1 Discharge	04/12	Sulfate, Total (as SO4)			150
East Pit #1 Discharge	05/12	Sulfate, Total (as SO4)			142
East Pit #1 Discharge	06/12	Sulfate, Total (as SO4)			262
East Pit #1 Discharge	07/12	Sulfate, Total (as SO4)			229
East Pit #1 Discharge	08/12	Sulfate, Total (as SO4)			333
East Pit #1 Discharge	11/12	Sulfate, Total (as SO4)			248
East Pit #1 Discharge	12/12	Sulfate, Total (as SO4)			218
East Pit #1 Discharge	01/13	Sulfate, Total (as SO4)			214
East Pit #1 Discharge	02/13	Sulfate, Total (as SO4)			174
East Pit #1 Discharge					205.71
20100 Tailings Basin Discharge	07/12	Sulfate, Total (as SO4)			56.8
Seep dschrg fr plant site settling basin	01/12	Sulfate, Total (as SO4)			62.4
Seep dschrg fr plant site settling basin	03/12	Sulfate, Total (as SO4)			53.3
Seep dschrg fr plant site settling basin	04/12	Sulfate, Total (as SO4)			55.1
Seep dschrg fr plant site settling basin	05/12	Sulfate, Total (as SO4)			60.5
Seep dschrg fr plant site settling basin	06/12	Sulfate, Total (as SO4)			55.1
Seep dschrg fr plant site settling basin	07/12	Sulfate, Total (as SO4)			50
Seep dschrg fr plant site settling basin	08/12	Sulfate, Total (as SO4)			49
Seep dschrg fr plant site settling basin	09/12	Sulfate, Total (as SO4)			47.6
Seep dschrg fr plant site settling basin	11/12	Sulfate, Total (as SO4)			46.1
Seep dschrg fr plant site settling basin					53.59
Emerg dschrg fr plant site settling basn	01/12	Sulfate, Total (as SO4)			83.9
Emerg dschrg fr plant site settling basn	03/12	Sulfate, Total (as SO4)			71.9
Emerg dschrg fr plant site settling basn	04/12	Sulfate, Total (as SO4)			70.8
Emerg dschrg fr plant site settling basn	05/12	Sulfate, Total (as SO4)			63.6
Emerg dschrg fr plant site settling basn	06/12	Sulfate, Total (as SO4)			58.3
Emerg dschrg fr plant site settling basn	07/12	Sulfate, Total (as SO4)			52.4
Emerg dschrg fr plant site settling basn	08/12	Sulfate, Total (as SO4)			57.5
Emerg dschrg fr plant site settling basn	11/12	Sulfate, Total (as SO4)			75
Emerg dschrg fr plant site settling basn	12/12	Sulfate, Total (as SO4)			79.5
Emerg dschrg fr plant site settling basn					68.1
Seep W-1d (051) Wetland Trmt Dschrg	01/12	Sulfate, Total (as SO4)			1460
Seep W-1d (051) Wetland Trmt Dschrg	01/12	Sulfate, Total (as SO4)			1460
Seep W-1d (051) Wetland Trmt Dschrg	02/12	Sulfate, Total (as SO4)			1500
Seep W-1d (051) Wetland Trmt Dschrg	02/12	Sulfate, Total (as SO4)			1500

[illegible]

Seep X (044) wetland trmt dschrg	08/12	Sulfate, Total (as SO4)	1730
Seep X (044) wetland trmt dschrg	08/12	Sulfate, Total (as SO4)	1730
Seep X (044) wetland trmt dschrg	09/12	Sulfate, Total (as SO4)	1860
Seep X (044) wetland trmt dschrg	09/12	Sulfate, Total (as SO4)	1860
Seep X (044) wetland trmt dschrg	10/12	Sulfate, Total (as SO4)	1880
Seep X (044) wetland trmt dschrg	10/12	Sulfate, Total (as SO4)	1880
Seep X (044) wetland trmt dschrg	11/12	Sulfate, Total (as SO4)	1790
Seep X (044) wetland trmt dschrg	11/12	Sulfate, Total (as SO4)	1790
Seep X (044) wetland trmt dschrg	12/12	Sulfate, Total (as SO4)	1880
Seep X (044) wetland trmt dschrg	12/12	Sulfate, Total (as SO4)	1880
Seep X (044) wetland trmt dschrg	01/13	Sulfate, Total (as SO4)	2450
Seep X (044) wetland trmt dschrg	01/13	Sulfate, Total (as SO4)	2450
Seep X (044) wetland trmt dschrg	02/13	Sulfate, Total (as SO4)	2050
Seep X (044) wetland trmt dschrg	02/13	Sulfate, Total (as SO4)	2050
Seep X (044) wetland trmt dschrg			1815
Pit 2W dewatering pipe outfall 070	10/12	Sulfate, Total (as SO4)	121
Pit 2W dewatering pipe outfall 070	11/12	Sulfate, Total (as SO4)	127
Pit 2W dewatering pipe outfall 070	12/12	Sulfate, Total (as SO4)	128
Pit 2W dewatering pipe outfall 070	01/13	Sulfate, Total (as SO4)	127
Pit 2W dewatering pipe outfall 070	02/13	Sulfate, Total (as SO4)	127
Pit 2W dewatering pipe outfall 070			126
Pit 3 overflow channel outfall 110	01/12	Sulfate, Total (as SO4)	84.6
Pit 3 overflow channel outfall 110	02/12	Sulfate, Total (as SO4)	82
Pit 3 overflow channel outfall 110	03/12	Sulfate, Total (as SO4)	78.5
Pit 3 overflow channel outfall 110	04/12	Sulfate, Total (as SO4)	79.4
Pit 3 overflow channel outfall 110	05/12	Sulfate, Total (as SO4)	75.9
Pit 3 overflow channel outfall 110	06/12	Sulfate, Total (as SO4)	74.9
Pit 3 overflow channel outfall 110	07/12	Sulfate, Total (as SO4)	72.6
Pit 3 overflow channel outfall 110	08/12	Sulfate, Total (as SO4)	77.3
Pit 3 overflow channel outfall 110	09/12	Sulfate, Total (as SO4)	77.9
Pit 3 overflow channel outfall 110	10/12	Sulfate, Total (as SO4)	81.3
Pit 3 overflow channel outfall 110	11/12	Sulfate, Total (as SO4)	78.7
Pit 3 overflow channel outfall 110	12/12	Sulfate, Total (as SO4)	80.2
Pit 3 overflow channel outfall 110	01/13	Sulfate, Total (as SO4)	80.8
Pit 3 overflow channel outfall 110	02/13	Sulfate, Total (as SO4)	81.5
Pit 3 overflow channel outfall 110			78.97143
2nd Creek headwaters culvert outfall 251	01/12	Sulfate, Total (as SO4)	218
2nd Creek headwaters culvert outfall 251	02/12	Sulfate, Total (as SO4)	226
2nd Creek headwaters culvert outfall 251	03/12	Sulfate, Total (as SO4)	216
2nd Creek headwaters culvert outfall 251	04/12	Sulfate, Total (as SO4)	226
2nd Creek headwaters culvert outfall 251	05/12	Sulfate, Total (as SO4)	181
2nd Creek headwaters culvert outfall 251	06/12	Sulfate, Total (as SO4)	145
2nd Creek headwaters culvert outfall 251	07/12	Sulfate, Total (as SO4)	163
2nd Creek headwaters culvert outfall 251	08/12	Sulfate, Total (as SO4)	141
2nd Creek headwaters culvert outfall 251	09/12	Sulfate, Total (as SO4)	184
2nd Creek headwaters culvert outfall 251	10/12	Sulfate, Total (as SO4)	236
2nd Creek headwaters culvert outfall 251	11/12	Sulfate, Total (as SO4)	246
2nd Creek headwaters culvert outfall 251	12/12	Sulfate, Total (as SO4)	242
2nd Creek headwaters culvert outfall 251	01/13	Sulfate, Total (as SO4)	251
2nd Creek headwaters culvert outfall 251	02/13	Sulfate, Total (as SO4)	243
2nd Creek headwaters culvert outfall 251			208.4286
Pit 5S overflow channel [unauthorized]	01/12	Sulfate, Total (as SO4)	102

Pit 5S overflow channel [unauthorized]	02/12	Sulfate, Total (as SO4)	98.3
Pit 5S overflow channel [unauthorized]	03/12	Sulfate, Total (as SO4)	94.9
Pit 5S overflow channel [unauthorized]	04/12	Sulfate, Total (as SO4)	92.1
Pit 5S overflow channel [unauthorized]	06/12	Sulfate, Total (as SO4)	90.6
Pit 5S overflow channel [unauthorized]	07/12	Sulfate, Total (as SO4)	88.7
Pit 5S overflow channel [unauthorized]	08/12	Sulfate, Total (as SO4)	90
Pit 5S overflow channel [unauthorized]	09/12	Sulfate, Total (as SO4)	86.3
Pit 5S overflow channel [unauthorized]	10/12	Sulfate, Total (as SO4)	90.5
Pit 5S overflow channel [unauthorized]	11/12	Sulfate, Total (as SO4)	91.1
Pit 5S overflow channel [unauthorized]	12/12	Sulfate, Total (as SO4)	90
Pit 5S overflow channel [unauthorized]	01/13	Sulfate, Total (as SO4)	96.5
Pit 5S overflow channel [unauthorized]	02/13	Sulfate, Total (as SO4)	98.2
Pit 5S overflow channel [unauthorized]			93.01538
Rail Culvert NE of Pit 5N Loadout Pocket	01/12	Sulfate, Total (as SO4)	1120
Rail Culvert NE of Pit 5N Loadout Pocket	02/12	Sulfate, Total (as SO4)	1170
Rail Culvert NE of Pit 5N Loadout Pocket	03/12	Sulfate, Total (as SO4)	1120
Rail Culvert NE of Pit 5N Loadout Pocket	04/12	Sulfate, Total (as SO4)	992
Rail Culvert NE of Pit 5N Loadout Pocket	05/12	Sulfate, Total (as SO4)	909
Rail Culvert NE of Pit 5N Loadout Pocket	06/12	Sulfate, Total (as SO4)	985
Rail Culvert NE of Pit 5N Loadout Pocket	07/12	Sulfate, Total (as SO4)	1100
Rail Culvert NE of Pit 5N Loadout Pocket	08/12	Sulfate, Total (as SO4)	1180
Rail Culvert NE of Pit 5N Loadout Pocket	09/12	Sulfate, Total (as SO4)	1180
Rail Culvert NE of Pit 5N Loadout Pocket	10/12	Sulfate, Total (as SO4)	1190
Rail Culvert NE of Pit 5N Loadout Pocket	11/12	Sulfate, Total (as SO4)	1180
Rail Culvert NE of Pit 5N Loadout Pocket	12/12	Sulfate, Total (as SO4)	1240
Rail Culvert NE of Pit 5N Loadout Pocket	01/13	Sulfate, Total (as SO4)	1200
Rail Culvert NE of Pit 5N Loadout Pocket	02/13	Sulfate, Total (as SO4)	1230
Rail Culvert NE of Pit 5N Loadout Pocket			1128.286
72" culvert to Lake Superior	01/12	Sulfate, Total (as SO4)	61.2
72" culvert to Lake Superior	04/12	Sulfate, Total (as SO4)	77.2
72" culvert to Lake Superior	07/12	Sulfate, Total (as SO4)	60.4
72" culvert to Lake Superior	10/12	Sulfate, Total (as SO4)	71.4
72" culvert to Lake Superior			67.55
Culvert Outfall 100	03/12	Sulfate, Total (as SO4)	109
Culvert Outfall 100	06/12	Sulfate, Total (as SO4)	76.4
Culvert Outfall 100	09/12	Sulfate, Total (as SO4)	15.8
Culvert Outfall 100	12/12	Sulfate, Total (as SO4)	71.1
Culvert Outfall 100			68.075
Culvert Outfall 220	06/12	Sulfate, Total (as SO4)	25.1
Culvert Outfall 220	09/12	Sulfate, Total (as SO4)	81.1
Culvert Outfall 230	06/12	Sulfate, Total (as SO4)	9
Culvert Outfall 230	09/12	Sulfate, Total (as SO4 <	1
Culvert Outfall 230			29.05
Culvert Outfall 240	03/12	Sulfate, Total (as SO4)	25.5
Culvert Outfall 240	06/12	Sulfate, Total (as SO4)	32
Culvert Outfall 240	09/12	Sulfate, Total (as SO4)	37.6
Culvert Outfall 240	12/12	Sulfate, Total (as SO4)	34.3
Culvert Outfall 240			32.35
Culvert Outfall from Reservoir 6	03/12	Sulfate, Total (as SO4)	96.9
Culvert Outfall from Reservoir 6	03/12	Sulfate, Total (as SO4)	
Culvert Outfall from Reservoir 6	04/12	Sulfate, Total (as SO4)	121
Culvert Outfall from Reservoir 6	04/12	Sulfate, Total (as SO4)	

Culvert Outfall from Reservoir 6	06/12	Sulfate, Total (as SO4)	110.5
Culvert Outfall from Reservoir 6	06/12	Sulfate, Total (as SO4)	112
Culvert Outfall from Reservoir 6	07/12	Sulfate, Total (as SO4)	101
Culvert Outfall from Reservoir 6	07/12	Sulfate, Total (as SO4)	102
Culvert Outfall from Reservoir 6	02/13	Sulfate, Total (as SO4)	129.5
Culvert Outfall from Reservoir 6	02/13	Sulfate, Total (as SO4)	130
Culvert Outfall from Reservoir 6			112.8625
Discharge 020	12/12	Sulfate, Total (as SO4)	3.53
	10/12	Sulfate, Total (as SO4)	462
	12/12	Sulfate, Total (as SO4)	458
Area 1 Pit to Second Creek	01/13	Sulfate, Total (as SO4)	505
Area 1 Pit to Second Creek	02/13	Sulfate, Total (as SO4)	488
Area 1 Pit to Second Creek			478.25
Sum Of Outfalls SD004 And SD006	01/12	Sulfate, To 41515.0	6067.2
Sum Of Outfalls SD004 And SD006	02/12	Sulfate, To 41515.0	8157
Sum Of Outfalls SD004 And SD006	03/12	Sulfate, To 41515.0	7855.25
Sum Of Outfalls SD004 And SD006	04/12	Sulfate, To 41515.0	6034.4
Sum Of Outfalls SD004 And SD006	05/12	Sulfate, To 41515.0	4325.1
Sum Of Outfalls SD004 And SD006	06/12	Sulfate, To 41515.0	6572.29
Sum Of Outfalls SD004 And SD006	07/12	Sulfate, To 41515.0	8062.5
Sum Of Outfalls SD004 And SD006	08/12	Sulfate, To 41515.0	6698.1
Sum Of Outfalls SD004 And SD006	09/12	Sulfate, To 41515.0	7121.2
Sum Of Outfalls SD004 And SD006	10/12	Sulfate, To 41515.0	5240.18
Sum Of Outfalls SD004 And SD006	11/12	Sulfate, To 41515.0	6531.2
Sum Of Outfalls SD004 And SD006	12/12	Sulfate, To 41515.0	5793.8
Sum Of Outfalls SD004 And SD006	01/13	Sulfate, To 41515.0	6115.45
Sum Of Outfalls SD004 And SD006	02/13	Sulfate, To 41515.0	7482.9
CWWTF Discharge	01/12	Sulfate, Total (as SO4)	6067.2
CWWTF Discharge	02/12	Sulfate, Total (as SO4)	8157
CWWTF Discharge	03/12	Sulfate, Total (as SO4)	7855.25
CWWTF Discharge	04/12	Sulfate, Total (as SO4)	6034.4
CWWTF Discharge	05/12	Sulfate, Total (as SO4)	4325.1
CWWTF Discharge	06/12	Sulfate, Total (as SO4)	6572.29
CWWTF Discharge	07/12	Sulfate, Total (as SO4)	8062.5
CWWTF Discharge	08/12	Sulfate, Total (as SO4)	6698.1
CWWTF Discharge	09/12	Sulfate, Total (as SO4)	7121.2
CWWTF Discharge	10/12	Sulfate, Total (as SO4)	5240.18
CWWTF Discharge	11/12	Sulfate, Total (as SO4)	6531.2
CWWTF Discharge	12/12	Sulfate, Total (as SO4)	5793.8
CWWTF Discharge	01/13	Sulfate, Total (as SO4)	6115.45
CWWTF Discharge	02/13	Sulfate, Total (as SO4)	7482.9
coal pile runoff sedimentation pond	03/12	Sulfate, Total (as SO4)	136
coal pile runoff sedimentation pond	04/12	Sulfate, Total (as SO4)	969
coal pile runoff sedimentation pond	05/12	Sulfate, Total (as SO4)	621
coal pile runoff sedimentation pond	06/12	Sulfate, Total (as SO4)	628
coal pile runoff sedimentation pond	07/12	Sulfate, Total (as SO4)	532
coal pile runoff sedimentation pond	11/12	Sulfate, Total (as SO4)	965
coal pile runoff sedimentation pond			641.8333
OS pit dewatering outfall B101	05/12	Sulfate, Total (as SO4)	85.5

150S pit dewatering outfall B105	01/12	Sulfate, Total (as SO4)	72.6
150S pit dewatering outfall B105	02/12	Sulfate, Total (as SO4)	93.2
150S pit dewatering outfall B105	03/12	Sulfate, Total (as SO4)	97.4
150S pit dewatering outfall B105	04/12	Sulfate, Total (as SO4)	102
150S pit dewatering outfall B105	05/12	Sulfate, Total (as SO4)	131
280/292S pit dewatering outfall B109	01/12	Sulfate, Total (as SO4)	26.5
280/292S pit dewatering outfall B109	05/12	Sulfate, Total (as SO4)	27.3
0S pit dewatering outfall B101	06/12	Sulfate, Total (as SO4)	90.5
150S pit dewatering outfall B105	06/12	Sulfate, Total (as SO4)	102
280/292S pit dewatering outfall B109	06/12	Sulfate, Total (as SO4)	24.35
0S pit dewatering outfall B101	07/12	Sulfate, Total (as SO4)	93
0S pit dewatering outfall B101	08/12	Sulfate, Total (as SO4)	112
0S pit dewatering outfall B101	09/12	Sulfate, Total (as SO4)	118
0S pit dewatering outfall B101	10/12	Sulfate, Total (as SO4)	163
0S pit dewatering outfall B101	11/12	Sulfate, Total (as SO4)	152
0S pit dewatering outfall B101	01/13	Sulfate, Total (as SO4)	134
0S pit dewatering outfall B101	02/13	Sulfate, Total (as SO4)	183
150S pit dewatering outfall B105	07/12	Sulfate, Total (as SO4)	102
150S pit dewatering outfall B105	08/12	Sulfate, Total (as SO4)	126
150S pit dewatering outfall B105	09/12	Sulfate, Total (as SO4)	175
150S pit dewatering outfall B105	10/12	Sulfate, Total (as SO4)	166
150S pit dewatering outfall B105	11/12	Sulfate, Total (as SO4)	126
150S pit dewatering outfall B105	12/12	Sulfate, Total (as SO4)	131
150S pit dewatering outfall B105	01/13	Sulfate, Total (as SO4)	150
150S pit dewatering outfall B105	02/13	Sulfate, Total (as SO4)	96.4
280/292S pit dewatering outfall B109	07/12	Sulfate, Total (as SO4)	27.1
280/292S pit dewatering outfall B109	08/12	Sulfate, Total (as SO4)	25.3
280/292S pit dewatering outfall B109	09/12	Sulfate, Total (as SO4)	25
280/292S pit dewatering outfall B109	10/12	Sulfate, Total (as SO4)	26.05
280/292S pit dewatering outfall B109	11/12	Sulfate, Total (as SO4)	32.6
280/292S pit dewatering outfall B109	12/12	Sulfate, Total (as SO4)	35.2
280/292S pit dewatering outfall B109	01/13	Sulfate, Total (as SO4)	35.1
280/292S pit dewatering outfall B109	02/13	Sulfate, Total (as SO4)	31.7
360S pit dewatering outfall B110	09/12	Sulfate, Total (as SO4)	10
Mile Post 7 Pipe Outfall 010	01/12	Sulfate, Total (as SO4)	62.2
Mile Post 7 Pipe Outfall 010	02/12	Sulfate, Total (as SO4)	62.7
Mile Post 7 Pipe Outfall 010	03/12	Sulfate, Total (as SO4)	63.2
Mile Post 7 Pipe Outfall 010	04/12	Sulfate, Total (as SO4)	56.2
Mile Post 7 Pipe Outfall 010	05/12	Sulfate, Total (as SO4)	56.6
Mile Post 7 Pipe Outfall 010	06/12	Sulfate, Total (as SO4)	58
Mile Post 7 Pipe Outfall 010	07/12	Sulfate, Total (as SO4)	56.4
Mile Post 7 Pipe Outfall 010	08/12	Sulfate, Total (as SO4)	63.4
Mile Post 7 Pipe Outfall 010	09/12	Sulfate, Total (as SO4)	62
Mile Post 7 Pipe Outfall 010	10/12	Sulfate, Total (as SO4)	62.7
Mile Post 7 Pipe Outfall 010	11/12	Sulfate, Total (as SO4)	65.2
Mile Post 7 Pipe Outfall 010			60.78182
SRD-2 Relief Well R-12, -13, seep flows	03/12	Sulfate, Total (as SO4)	4.02
SRD-2 Relief Well R-12, -13, seep flows	06/12	Sulfate, Total (as SO4)	4.5
SRD-2 Relief Well R-12, -13, seep flows	09/12	Sulfate, Total (as SO4)	5.6

SRD-2 Relief Well R-12, -13, seep flows	12/12	Sulfate, Total (as SO4)	4.7
SRD-2 Relief Well R-12, -13, seep flows			4.705
Drainage/seepage outfall 010	04/12	Sulfate, Total (as SO4)	39.6
Drainage/seepage outfall 010	06/12	Sulfate, Total (as SO4)	12
Drainage/seepage outfall 010	12/12	Sulfate, Total (as SO4)	12
Drainage/seepage outfall 010			21.2
TB 1 seep outfall 010 (Sec. 9800, F-10)	01/12	Sulfate, Total (as SO4)	370
TB 1 seep outfall 010 (Sec. 9800, F-10)	02/12	Sulfate, Total (as SO4)	330
TB 1 seep outfall 010 (Sec. 9800, F-10)	03/12	Sulfate, Total (as SO4)	260
TB 1 seep outfall 010 (Sec. 9800, F-10)	06/12	Sulfate, Total (as SO4)	430
TB 1 seep outfall 010 (Sec. 9800, F-10)	07/12	Sulfate, Total (as SO4)	450
TB 1 seep outfall 010 (Sec. 9800, F-10)	08/12	Sulfate, Total (as SO4)	430
			378.3333
Main Facility Discharge	04/12	Sulfate, Total (as SO4)	389
Pipe Outfall 030, Sump #6	03/12	Sulfate, Total (as SO4)	104
Pipe Outfall 030, Sump #6	06/12	Sulfate, Total (as SO4)	170
Pipe Outfall 030, Sump #6	09/12	Sulfate, Total (as SO4)	166
Pipe Outfall 030, Sump #6	12/12	Sulfate, Total (as SO4)	169
Pipe Outfall 030, Sump #6			152.25
Pipe Outfall 040, Prindle	03/12	Sulfate, Total (as SO4)	349
Pipe Outfall 040, Prindle	06/12	Sulfate, Total (as SO4)	471
Pipe Outfall 040, Prindle	09/12	Sulfate, Total (as SO4)	526
Pipe Outfall 040, Prindle	12/12	Sulfate, Total (as SO4)	458
Pipe Outfall 040, Prindle			451
Weir Outfall 050	01/12	Sulfate, Total (as SO4)	119
Weir Outfall 050	01/12	Sulfate, Total (as SO4)	121
Weir Outfall 050	02/12	Sulfate, Total (as SO4)	121
Weir Outfall 050	02/12	Sulfate, Total (as SO4)	123
Weir Outfall 050	03/12	Sulfate, Total (as SO4)	98.8
Weir Outfall 050	03/12	Sulfate, Total (as SO4)	119
Weir Outfall 050	04/12	Sulfate, Total (as SO4)	108.5
Weir Outfall 050	04/12	Sulfate, Total (as SO4)	109
Weir Outfall 050	05/12	Sulfate, Total (as SO4)	110
Weir Outfall 050	05/12	Sulfate, Total (as SO4)	118
Weir Outfall 050	06/12	Sulfate, Total (as SO4)	113
Weir Outfall 050	06/12	Sulfate, Total (as SO4)	115
Weir Outfall 050	07/12	Sulfate, Total (as SO4)	113
Weir Outfall 050	07/12	Sulfate, Total (as SO4)	115
Weir Outfall 050	08/12	Sulfate, Total (as SO4)	104
Weir Outfall 050	08/12	Sulfate, Total (as SO4)	104
Weir Outfall 050	09/12	Sulfate, Total (as SO4)	120
Weir Outfall 050	09/12	Sulfate, Total (as SO4)	123
Weir Outfall 050	10/12	Sulfate, Total (as SO4)	113
Weir Outfall 050	10/12	Sulfate, Total (as SO4)	118
Weir Outfall 050	11/12	Sulfate, Total (as SO4)	116
Weir Outfall 050	11/12	Sulfate, Total (as SO4)	122
Weir Outfall 050			114.6955
Pipe Outfall 080	01/12	Sulfate, Total (as SO4)	40.1
Pipe Outfall 080	01/12	Sulfate, Total (as SO4)	40.2
Pipe Outfall 080	02/12	Sulfate, Total (as SO4)	37.19
Pipe Outfall 080	02/12	Sulfate, Total (as SO4)	37.9
Pipe Outfall 080	03/12	Sulfate, Total (as SO4)	35.6

Pipe Outfall 080	03/12	Sulfate, Total (as SO4)	35.7
Pipe Outfall 080	04/12	Sulfate, Total (as SO4)	39.5
Pipe Outfall 080	04/12	Sulfate, Total (as SO4)	41.2
Pipe Outfall 080	05/12	Sulfate, Total (as SO4)	42.6
Pipe Outfall 080	05/12	Sulfate, Total (as SO4)	43.5
Pipe Outfall 080	06/12	Sulfate, Total (as SO4)	44.55
Pipe Outfall 080	06/12	Sulfate, Total (as SO4)	45.1
Pipe Outfall 080	07/12	Sulfate, Total (as SO4)	74.05
Pipe Outfall 080	07/12	Sulfate, Total (as SO4)	74.8
Pipe Outfall 080	08/12	Sulfate, Total (as SO4)	55.85
Pipe Outfall 080	08/12	Sulfate, Total (as SO4)	68.7
Pipe Outfall 080	09/12	Sulfate, Total (as SO4)	69.5
Pipe Outfall 080	09/12	Sulfate, Total (as SO4)	70.3
Pipe Outfall 080	10/12	Sulfate, Total (as SO4)	45.2
Pipe Outfall 080	10/12	Sulfate, Total (as SO4)	45.7
Pipe Outfall 080	11/12	Sulfate, Total (as SO4)	64.8
Pipe Outfall 080	11/12	Sulfate, Total (as SO4)	84.1
Pipe Outfall 080			51.64273
Perry Pit Dewatering	01/12	Sulfate, Total (as SO4)	22.6
Perry Pit Dewatering	01/12	Sulfate, Total (as SO4)	23
Perry Pit Dewatering	02/12	Sulfate, Total (as SO4)	22.3
Perry Pit Dewatering	02/12	Sulfate, Total (as SO4)	22.4
Perry Pit Dewatering	03/12	Sulfate, Total (as SO4)	20.7
Perry Pit Dewatering	03/12	Sulfate, Total (as SO4)	21.1
Perry Pit Dewatering	04/12	Sulfate, Total (as SO4)	21.7
Perry Pit Dewatering	04/12	Sulfate, Total (as SO4)	22
Perry Pit Dewatering	05/12	Sulfate, Total (as SO4)	22.5
Perry Pit Dewatering	05/12	Sulfate, Total (as SO4)	23
Perry Pit Dewatering	06/12	Sulfate, Total (as SO4)	23.15
Perry Pit Dewatering	06/12	Sulfate, Total (as SO4)	23.7
Perry Pit Dewatering	07/12	Sulfate, Total (as SO4)	23.2
Perry Pit Dewatering	07/12	Sulfate, Total (as SO4)	23.3
Perry Pit Dewatering	08/12	Sulfate, Total (as SO4)	23.1
Perry Pit Dewatering	08/12	Sulfate, Total (as SO4)	23.1
Perry Pit Dewatering	09/12	Sulfate, Total (as SO4)	21.5
Perry Pit Dewatering	09/12	Sulfate, Total (as SO4)	21.9
Perry Pit Dewatering	10/12	Sulfate, Total (as SO4)	20.8
Perry Pit Dewatering	10/12	Sulfate, Total (as SO4)	21.2
Perry Pit Dewatering	11/12	Sulfate, Total (as SO4)	23.4
Perry Pit Dewatering	11/12	Sulfate, Total (as SO4)	23.4
Perry Pit Dewatering			22.41136
Weir Outfall 050	12/12	Sulfate, Total (as SO4)	122
Weir Outfall 050	12/12	Sulfate, Total (as SO4)	132
Weir Outfall 050	01/13	Sulfate, Total (as SO4)	115
Weir Outfall 050	01/13	Sulfate, Total (as SO4)	132
Weir Outfall 050	02/13	Sulfate, Total (as SO4)	126
Weir Outfall 050	02/13	Sulfate, Total (as SO4)	127
Weir Outfall 050			125.6667
Pipe Outfall 080	12/12	Sulfate, Total (as SO4)	57.9
Pipe Outfall 080	12/12	Sulfate, Total (as SO4)	67.5
Pipe Outfall 080	01/13	Sulfate, Total (as SO4)	43.2
Pipe Outfall 080	01/13	Sulfate, Total (as SO4)	45

Pipe Outfall 080	02/13	Sulfate, Total (as SO4)	41.1
Pipe Outfall 080	02/13	Sulfate, Total (as SO4)	41.5
Pipe Outfall 080			49.36667
Perry Pit Dewatering	12/12	Sulfate, Total (as SO4)	24.3
Perry Pit Dewatering	12/12	Sulfate, Total (as SO4)	24.5
Perry Pit Dewatering	01/13	Sulfate, Total (as SO4)	23.3
Perry Pit Dewatering	01/13	Sulfate, Total (as SO4)	23.6
Perry Pit Dewatering	02/13	Sulfate, Total (as SO4)	22.7
Perry Pit Dewatering	02/13	Sulfate, Total (as SO4)	23
Perry Pit Dewatering			23.42
Seepage outfall 020	01/12	Sulfate, Total (as SO4)	938
Seepage outfall 020	02/12	Sulfate, Total (as SO4)	956
Seepage outfall 020	03/12	Sulfate, Total (as SO4)	935
Seepage outfall 020	04/12	Sulfate, Total (as SO4)	1020
Seepage outfall 020	05/12	Sulfate, Total (as SO4)	988
Seepage outfall 020	06/12	Sulfate, Total (as SO4)	1020
Seepage outfall 020	07/12	Sulfate, Total (as SO4)	981
Seepage outfall 020	08/12	Sulfate, Total (as SO4)	1050
Seepage outfall 020	09/12	Sulfate, Total (as SO4)	998
Seepage outfall 020	10/12	Sulfate, Total (as SO4)	1000
Seepage outfall 020	11/12	Sulfate, Total (as SO4)	991
Seepage outfall 020	12/12	Sulfate, Total (as SO4)	997
Seepage outfall 020	01/13	Sulfate, Total (as SO4)	1030
Seepage outfall 020	02/13	Sulfate, Total (as SO4)	953
Seepage outfall 020			989.7857

units	limit_type	subdistrict	county_nar	basin_nam	major_wate	major_wate	publicly_owned_flag
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	SingleVal	Duluth	St. Louis	Lake Supe	St. Louis R	3	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoAvg	Duluth	St. Louis	Rainy Rive	Vermilion F	73	Private
mg/L	CalMoMax	Duluth	St. Louis	Rainy Rive	Rainy Rive	72	Private
mg/L	CalMoMax	Duluth	St. Louis	Rainy Rive	Rainy Rive	72	Private
mg/L	CalMoMax	Duluth	St. Louis	Rainy Rive	Rainy Rive	72	Private
mg/L	CalMoMax	Duluth	St. Louis	Rainy Rive	Rainy Rive	72	Private

[illegible]

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Municipal WWTP Effluent Sulfate Data
Average Concentration Jan 2012 - February 2013

Facility	Concentration (mg/L)
Aurora WWTP	323.7
Babbitt WWTP	37.4
Crane Lake WWTP	406.7
Cromwell WWTP	7.6
Eveleth WWTP	48.1
Littlefork WWTP	75.5
McGregor WWTP	12.5
Virginia WWTP	84.3
Hibbing WWTP South Plant	97.3

Industrial WWTP Effluent Sulfate Data
Average Concentration Jan 2012 - February 2013

Facility	Discharge Station
ArcelorMittal Minorca Mine Inc - Laurentian	SD003
ArcelorMittal Minorca Mine Inc - Laurentian	SD005
ArcelorMittal Minorca Mine Inc - Minorca	SD002
ArcelorMittal Minorca Mine Inc - Minorca	SD003
Cliffs Erie - Dunka Mining Area	SD005
Cliffs Erie - Dunka Mining Area	SD006
Cliffs Erie - Dunka Mining Area	SD007
Cliffs Erie - Dunka Mining Area	SD008
Cliffs Erie - Dunka Mining Area	SD009
Cliffs Erie - Hoyt Lakes Mining Area	SD008
Cliffs Erie - Hoyt Lakes Mining Area	SD012
Cliffs Erie - Hoyt Lakes Mining Area	SD026
Cliffs Erie - Hoyt Lakes Mining Area	SD030
Cliffs Erie - Hoyt Lakes Mining Area	SD033
Cliffs Erie-Taconite Harbor Dock	SD001
Hibbing Taconite Co - Tails Basin Area	SD001
Hibbing Taconite Co - Tails Basin Area	SD003
Hibbing Taconite Co - Tails Basin Area	SD004
Keewatin Taconite Operations - Tailings	SD005
MDNR French River Hatchery	SD001
Mesabi Nugget Delaware LLC	SD001
Minnesota Power - Taconite Harbor Energy	SD002
Northshore Mining Co - Silver Bay	SD001
Northshore Mining Co - Silver Bay	SD005
U of M - Research Lab	SD001
United Taconite Fairlane/Tailings Basin	SD001
UofM NOvA Far Detector Bldg Water Treatment System	SD001
US Steel - Minntac Mining Area	SD003
US Steel - Minntac Mining Area	SD004
US Steel Corp - Keetac	SD002
US Steel Corp - Keetac	SD003
US Steel Corp - Keetac	SD012
US Steel Corp - Keetac	SD002
US Steel Corp - Keetac	SD003
US Steel Corp - Keetac	SD012
US Steel Corp - Minntac Tailings Basin Area	SD001
Northshore Mining Co - Peter Mitchell	SD002
Northshore Mining Co - Peter Mitchell	SD005
Northshore Mining Co - Peter Mitchell	SD009
Northshore Mining Co - Peter Mitchell	SD010

Local Name	Concentration (mg/L)
Primary Laurentian Mine Discharge (012)	132.9
East Pit #1 Discharge	205.7
Seep dschrg fr plant site settling basin	53.6
Emerg dschrg fr plant site settling basn	68.1
Seep W-1d (051) Wetland Trmt Dschrg	1099.5
Seep W-2/3d (061) Wetland Trmt Dschrg	1509.3
Seep EM-8 (041) Wetland Trmt Dschrg	1284.8
Seep 1 (043) wetland trmt dschrg	717.0
Seep X (044) wetland trmt dschrg	1815.0
Pit 2W dewatering pipe outfall 070	126.0
Pit 3 overflow channel outfall 110	79.0
2nd Creek headwaters culvert outfall 251	208.4
Pit 5S overflow channel [unauthorized]	93.0
Rail Culvert NE of Pit 5N Loadout Pocket	1128.3
72" culvert to Lake Superior	67.6
Culvert Outfall 100	68.1
Culvert Outfall 230	29.1
Culvert Outfall 240	32.4
Culvert Outfall from Reservoir 6	112.9
Discharge 020	3.5
Area 1 Pit to Second Creek	478.3
coal pile runoff sedimentation pond	641.8
Mile Post 7 Pipe Outfall 010	60.8
SRD-2 Relief Well R-12, -13, seep flows	4.7
Drainage/seepage outfall 010	21.2
TB 1 seep outfall 010 (Sec. 9800, F-10)	378.3
Main Facility Discharge	389.0
Pipe Outfall 030, Sump #6	152.3
Pipe Outfall 040, Prindle	451.0
Weir Outfall 050	114.7
Pipe Outfall 080	51.6
Perry Pit Dewatering	22.4
Weir Outfall 050	125.7
Pipe Outfall 080	49.4
Perry Pit Dewatering	23.4
Seepage outfall 020	989.8
0S pit dewatering outfall B101	125.7
150S pit dewatering outfall B105	119.3
280/292S pit dewatering outfall B109	28.7
360S pit dewatering outfall B110	10.0