

MERCURY CYCLING IN VOYAGEURS NATIONAL PARK

MISCELLANEOUS STATION ANALYSES

Date	Time	Sample type	Sam- pling depth, meters (00098)	Trans- parency Secchi disc, meters (00078)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unfl lab, uS/cm (90095)	Specif. conduc- tance, wat unfl lab, uS/cm (00095)	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)	
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)													
AUG 2004	25...	1130	Environmental	.05	--	--	--	--	--	--	--	--	
SEP	22...	1420	Environmental	.05	1.50	8.6	88	6.4	E7.1	35	29	13.5	16.8
	22...	1450	Environmental	1.0	--	8.5	88	6.4	--	--	29	--	16.8
	22...	1452	Environmental	2.0	--	8.5	87	6.4	--	--	29	--	16.8
	22...	1453	Environmental	3.0	--	8.4	87	6.3	--	--	29	--	16.7
	22...	1455	Environmental	4.0	--	8.0	82	6.3	--	--	29	--	16.5
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)													
MAY 2004	19...	1200	Environmental	.05	3.00	11.4	112	6.9	7.0	26	22	--	12.9
AUG	05...	1545	Environmental	.05	3.00	8.3	100	7.4	6.6	26	26	22.5	24.2
	05...	1616	Environmental	1.0	--	8.3	100	7.4	--	--	26	--	24.2
	05...	1618	Environmental	2.0	--	8.4	97	7.4	--	--	26	--	22.5
	05...	1620	Environmental	3.0	--	8.2	94	7.2	--	--	26	--	21.7
	05...	1622	Environmental	4.0	--	6.1	64	6.5	--	--	26	--	17.4
	05...	1624	Environmental	5.0	--	2.2	20	6.1	--	--	27	--	14.3
	05...	1626	Environmental	6.0	--	.3	3	6.0	--	--	29	--	11.0
	05...	1628	Environmental	7.0	--	.2	2	6.3	--	--	43	--	9.7
SEP	23...	1315	Environmental	.05	2.50	9.2	96	7.0	7.0	27	23	21.5	17.2
	23...	1348	Environmental	1.0	--	9.2	95	6.9	--	--	23	--	17.1
	23...	1350	Environmental	2.0	--	9.1	94	6.9	--	--	23	--	16.8
	23...	1352	Environmental	3.0	--	9.0	92	6.9	--	--	23	--	16.7
	23...	1354	Environmental	4.0	--	8.8	90	6.8	--	--	23	--	16.6
	23...	1356	Environmental	5.0	--	7.8	79	6.7	--	--	24	--	16.2
	23...	1358	Environmental	6.0	--	6.6	67	6.5	--	--	24	--	15.8
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)													
MAY 2004	19...	0955	Blank	--	--	--	--	--	--	--	--	--	--
	19...	1010	Environmental	.05	3.50	11.1	110	6.8	7.2	31	27	16.5	13.4
AUG	05...	1145	Environmental	.05	2.50	8.4	100	7.0	6.5	29	30	--	22.8
	05...	1215	Environmental	.50	--	8.3	97	7.0	--	--	30	--	22.7
	05...	1216	Environmental	1.0	--	8.3	96	7.0	--	--	30	--	22.4
	05...	1217	Environmental	1.5	--	8.3	95	7.0	--	--	29	--	22.0
	05...	1218	Environmental	2.0	--	8.2	93	7.0	--	--	29	--	22.0
	05...	1230	Environmental	2.5	--	8.2	93	7.0	--	--	29	--	21.9
	05...	1232	Environmental	3.0	--	7.9	90	6.9	--	--	30	--	21.7
	05...	1234	Environmental	3.5	--	5.1	56	6.3	--	--	31	--	20.3
SEP	23...	0915	Environmental	.05	2.00	8.8	90	6.8	7.0	32	27	15.0	16.8
	23...	0942	Environmental	.05	--	8.8	91	6.8	--	--	27	--	16.8
	23...	0944	Environmental	1.0	--	8.8	90	6.8	--	--	27	--	16.8
	23...	0945	Environmental	2.0	--	8.8	90	6.8	--	--	27	--	16.8
	23...	0947	Environmental	3.0	--	8.7	90	6.8	--	--	27	--	16.7
	23...	0948	Environmental	4.0	--	8.7	90	6.8	--	--	27	--	16.7

WATER QUALITY DATA

MERCURY CYCLING IN VOYAGEURS NATIONAL PARK—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat tit inc field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)													
AUG 2004 25...	1130	--	--	--	--	--	--	--	--	--	--	--	--
SEP 22...	1420	2.68	1.15	.85	1.23	4	5	.0	.28	<.2	1.35	2.9	41
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)													
MAY 2004 19...	1200	2.10	.852	.60	1.08	6	8	.0	.24	<.2	2.41	1.5	22
AUG 05...	1545	2.10	.884	.65	1.10	--	--	--	.23	<.2	1.06	1.9	24
SEP 23...	1315	2.08	.853	.62	1.06	6	8	.0	E.20	<.2	1.06	1.3	24
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)													
MAY 2004 19...	0955	--	--	--	--	--	--	--	--	--	--	--	--
19...	1010	2.65	.953	.56	1.10	6	7	.0	.26	<.2	2.61	3.3	27
AUG 05...	1145	2.49	.995	.53	1.12	6	7	.0	.24	<.2	1.69	3.5	32
SEP 23...	0915	2.48	.954	.55	1.12	6	7	.0	.23	<.2	1.71	2.7	29
Date	Time	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Mercury water unfltrd ng/L (50286)	Methyl- mercury water unfltrd ng/L (50284)
482951092531601 SHOEPACK LAKE NR INTERNATIONAL FALLS,MN (LAT 48 29 51N LONG 092 53 16W)													
AUG 2004 25...	1130	--	--	--	--	--	--	--	--	--	--	2.46	.20
SEP 22...	1420	.59	.71	<.04	<.06	<.008	<.02	.008	.026	291	10.9	2.78	.11
483059092474501 BROWN LAKE NR INTERNATIONAL FALLS MN (LAT 48 30 59N LONG 092 47 45W)													
MAY 2004 19...	1200	.35	.43	E.02	.09	<.008	<.02	E.004	<.004	141	3.4	1.97	<.04
AUG 05...	1545	.38	.46	<.04	<.06	<.008	<.02	<.004	.005	27	E.4	1.21	<.04
SEP 23...	1315	.36	.46	<.04	<.06	<.008	<.02	E.002	.010	47	1.5	1.59	.06
483109092422601 RYAN LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 09N LONG 092 42 26W)													
MAY 2004 19...	0955	--	--	--	--	--	--	--	--	--	--	.31	<.04
19...	1010	.50	.50	.10	.06	<.008	<.02	.005	.005	190	29.5	3.43	.16
AUG 05...	1145	.40	.48	<.04	<.06	<.008	<.02	E.003	.007	35	E.6	2.40	.11
SEP 23...	0915	.42	.53	<.04	<.06	<.008	<.02	E.003	.012	26	1.7	2.49	.08

MERCURY CYCLING IN VOYAGEURS NATIONAL PARK—CONTINUED

MISCELLANEOUS STATION ANALYSES—CONTINUED

Date	Time	Sample type	Sam- pling depth, meters (00098)	Trans- parency Secchi disc, meters (00078)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf lab, uS/cm (90095)	Specif. conduc- tance, wat unf uS/cm (00095)	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)
483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)												
MAY 2004												
19...	1410	Environmental	.05	2.25	11.8	117	--	7.1	30	26	18.5	13.1
AUG												
05...	1355	Environmental	.05	2.50	8.5	100	7.3	6.4	31	32	24.0	26.7
05...	1425	Environmental	1.0	--	8.4	98	7.4	--	--	32	--	23.0
05...	1427	Environmental	2.0	--	8.4	97	7.3	--	--	32	--	22.2
05...	1429	Environmental	3.0	--	8.2	94	7.2	--	--	32	--	21.9
05...	1431	Environmental	4.0	--	4.3	47	6.5	--	--	32	--	19.9
05...	1433	Environmental	4.5	--	2.3	25	6.3	--	--	33	--	18.9
SEP												
23...	1110	Environmental	.05	2.70	8.9	92	6.9	6.9	32	28	18.0	16.9
23...	1142	Environmental	1.0	--	8.8	91	--	--	--	28	--	16.8
23...	1144	Environmental	3.0	--	8.6	88	--	--	--	28	--	16.7
23...	1146	Environmental	3.0	--	8.6	88	6.9	--	--	28	--	16.6
23...	1148	Environmental	4.0	--	8.3	86	6.9	--	--	28	--	16.6
23...	1150	Environmental	4.5	--	7.7	78	6.8	--	--	28	--	16.6

Date	Time	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Carbon- ate, wat flt incrm. titr., field, mg/L (00452)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)
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483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)

MAY 2004													
19...	1410	2.48	1.06	.71	1.14	10	8	.0	.28	<.2	1.56	1.9	29
AUG													
05...	1355	2.65	1.16	.61	1.17	10	12	.0	.25	<.2	.55	1.9	26
SEP													
23...	1110	2.56	1.15	.57	1.17	10	12	.0	.22	<.2	.75	1.2	29
Date	Time	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Mercury water unfltrd ng/L (50286)	Methyl- mercury water unfltrd ng/L (50284)

483129092462001 PEARY LAKE NR INTERNATIONAL FALLS MN (LAT 48 31 29N LONG 092 46 20W)

MAY 2004													
19...	1410	.37	.44	<.04	<.06	<.008	<.02	.006	E.004	81	.9	1.72	<.04
AUG													
05...	1355	.41	.55	<.04	<.06	<.008	<.02	E.004	.015	42	.9	1.11	.07
SEP													
23...	1110	.44	.53	<.04	<.06	<.008	<.02	.005	.017	47	2.5	1.33	<.04

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