

WATER QUALITY DATA
GRAND PORTAGE HYDROLOGY WATER QUALITY

MISCELLANEOUS STATION ANALYSES

| Date | Time | Sample type | Baro- metric pres- sure, mm Hg (00025) | 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 25 degC (90095) | Specif. conduc- tance, wat unfl lab, uS/cm 25 degC (00095) | Temper- ature, air, deg C (00020) | Temper- ature, water, deg C (00010) | Calcium water, fltrd, mg/L (00915) |
|--|--------------|----------------------------|---|--|---|---|---|---|---|---|---|--|
| 475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W) | | | | | | | | | | | | |
| MAY 2004 18... | 1130 | Environmental | 730 | 7.0 | 66 | 6.9 | 6.7 | 94 | 86 | 15.0 | 11.8 | 14.8 |
| 475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W) | | | | | | | | | | | | |
| MAY 2004 19... | 1300 | Environmental | 730 | .3 | 2 | 5.8 | 6.7 | 150 | 162 | 24.0 | 9.9 | 24.6 |
| 475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W) | | | | | | | | | | | | |
| MAY 2004 19... | 1200 | Environmental | 730 | .2 | 2 | 5.4 | 6.0 | 137 | 147 | 24.5 | 10.6 | 24.9 |
| 475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W) | | | | | | | | | | | | |
| MAY 2004 18... | 1600 | Environmental | 730 | 5.4 | 52 | 5.7 | 6.5 | 114 | 132 | 16.5 | 13.1 | 19.5 |
| 475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W) | | | | | | | | | | | | |
| MAY 2004 18... | 1230 | Environmental | 730 | .2 | 2 | 5.5 | 6.3 | 139 | 136 | 17.0 | 8.0 | 17.2 |
| 475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W) | | | | | | | | | | | | |
| MAY 2004 19... | 1430 | Environmental | 728 | .2 | 1 | 5.8 | 6.7 | 80 | 79 | 20.5 | 9.6 | 12.3 |
| 475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W) | | | | | | | | | | | | |
| AUG 2004 31... | 1130 | Environmental | 722 | 8.8 | 95 | 7.0 | 7.8 | 48 | 47 | 17.5 | 17.2 | 6.55 |
| 475605089494701 TaylorLkW 063N05E17DC (LAT 47 56 05N LONG 089 49 47W) | | | | | | | | | | | | |
| AUG 2004 31... | 1230 | Environmental | 722 | 8.6 | 91 | 7.3 | 7.8 | 49 | 47 | 17.5 | 17.1 | 6.58 |
| 475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W) | | | | | | | | | | | | |
| SEP 2004 01... | 1130 | Environmental | 728 | .8 | 8 | 6.0 | 6.3 | 62 | 61 | 13.5 | 14.7 | 8.80 |
| 475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W) | | | | | | | | | | | | |
| SEP 2004 01... | 1030 | Environmental | 727 | 2.9 | 29 | 6.4 | 6.6 | 49 | 46 | 13.0 | 15.1 | 7.07 |
| 475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W) | | | | | | | | | | | | |
| SEP 2004 01... | 1330 | Environmental | 728 | 1.8 | 17 | 5.8 | -- | -- | 211 | 14.0 | 13.6 | -- |
| 475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W) | | | | | | | | | | | | |
| SEP 2004 01... | 1200 | Environmental | 728 | .9 | 9 | 5.9 | 6.3 | 270 | 285 | 15.5 | 16.2 | 30.1 |
| 475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W) | | | | | | | | | | | | |
| SEP 2004 01... | 1500 | Environmental | 728 | .3 | 2 | 5.7 | -- | -- | 245 | 14.0 | 14.2 | -- |
| 475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W) | | | | | | | | | | | | |
| SEP 2004 02... 02... | 1230 1235 | Environmental Replicate | 721 -- | 1.3 -- | 13 -- | 6.2 -- | 6.3 6.2 | 63 63 | 74 -- | 16.5 -- | 14.1 -- | 11.0 10.6 |

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

| Date | Magnesium, water, fltrd, mg/L (00925) | Potassium, water, fltrd, mg/L (00935) | Sodium, water, fltrd, mg/L (00930) | Alkalinity, water, field, mg/L as CaCO ₃ (39086) | Bicarbonate, water, titr., field, mg/L (00453) | Bromide, water, fltrd, mg/L (71870) | 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) | Ammonia + org-N, water, fltrd, mg/L as N (00623) | Ammonia + org-N, water, unfltrd, mg/L as N (00625) |
|--|---------------------------------------|---------------------------------------|------------------------------------|---|--|-------------------------------------|--------------------------------------|--------------------------------------|------------------------------------|-------------------------------------|---|--|--|
| 475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W) | | | | | | | | | | | | | |
| MAY 2004 18... | 2.42 | <.16 | 1.17 | 44 | 54 | -- | .25 | <.2 | 6.16 | 2.5 | 64 | .30 | .41 |
| 475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W) | | | | | | | | | | | | | |
| MAY 2004 19... | 4.89 | .22 | 1.42 | 76 | 93 | .03 | .48 | <.2 | 13.9 | 1.4 | 126 | -- | -- |
| 475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W) | | | | | | | | | | | | | |
| MAY 2004 19... | 2.49 | <.16 | 1.34 | 73 | 90 | .05 | E.12 | <.2 | 19.4 | <.2 | 130 | -- | -- |
| 475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W) | | | | | | | | | | | | | |
| MAY 2004 18... | 3.62 | <.16 | 1.45 | 64 | 78 | .37 | .65 | <.2 | 16.3 | <.2 | 147 | -- | -- |
| 475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W) | | | | | | | | | | | | | |
| MAY 2004 18... | 5.19 | .19 | 1.75 | 71 | 86 | .02 | .22 | <.2 | 31.3 | <.2 | 112 | -- | -- |
| 475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W) | | | | | | | | | | | | | |
| MAY 2004 19... | 2.24 | E.10 | 1.04 | 40 | 49 | <.02 | E.12 | <.2 | 10.4 | 1.2 | 70 | -- | -- |
| 475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W) | | | | | | | | | | | | | |
| AUG 2004 31... | 1.46 | E.12 | .71 | 22 | 27 | -- | <.20 | <.2 | .93 | .7 | 34 | .33 | .46 |
| 475605089494701 TaylorLkW 063N05E17DC (LAT 47 56 05N LONG 089 49 47W) | | | | | | | | | | | | | |
| AUG 2004 31... | 1.47 | .17 | .65 | 22 | 27 | -- | E.10 | <.2 | .91 | .7 | 34 | .33 | .44 |
| 475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W) | | | | | | | | | | | | | |
| SEP 2004 01... | 2.20 | .20 | .80 | 28 | 34 | .08 | <.20 | <.2 | 2.80 | .2 | 36 | -- | -- |
| 475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W) | | | | | | | | | | | | | |
| SEP 2004 01... | 1.65 | E.12 | .68 | 22 | 27 | <.02 | <.20 | <.2 | 1.89 | .5 | 34 | -- | -- |
| 475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W) | | | | | | | | | | | | | |
| SEP 2004 01... | -- | -- | -- | 93 | 114 | -- | -- | -- | -- | -- | -- | -- | -- |
| 475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W) | | | | | | | | | | | | | |
| SEP 2004 01... | 13.4 | 1.73 | 1.75 | 154 | 188 | <.80 | .35 | <.2 | 29.2 | .2 | 216 | -- | -- |
| 475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W) | | | | | | | | | | | | | |
| SEP 2004 01... | -- | -- | -- | 111 | 136 | -- | -- | -- | -- | -- | -- | -- | -- |
| 475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W) | | | | | | | | | | | | | |
| SEP 2004 02... | 1.83 | .33 | .77 | 31 | 37 | .08 | .26 | <.2 | 3.30 | .3 | 44 | -- | -- |
| SEP 2004 02... | 1.80 | .25 | .75 | -- | -- | .08 | E.17 | <.2 | 3.33 | .3 | 47 | -- | -- |

WATER QUALITY DATA

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

| Date | Ammonia water, fltrd, mg/L (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) | Total nitro- gen, wat flt by anal ysis, mg/L (62854) | Boron, water, fltrd, ug/L (01020) | Iron, water, fltrd, ug/L (01046) | Mangan- ese, water, fltrd, ug/L (01056) | Deu- terium/ Protium ratio, water, unfltrd per mil (82082) | O-18 / O-16 ratio, water, unfltrd per mil (82085) |
|--|--|---|--|--|---|--|---|---|--|--|---|---|
| 475658089492701 NORTH LAKE NEAR MINERAL CENTER, MN (LAT 47 56 58N LONG 089 49 27W) | | | | | | | | | | | | |
| MAY 2004 18... | E.02 | <.06 | <.008 | <.02 | E.003 | .007 | -- | E6.3 | 32 | E.7 | -80.80 | -11.12 |
| 475656089493301 North SW063N05E08DDDB (LAT 47 56 56N LONG 089 49 33W) | | | | | | | | | | | | |
| MAY 2004 19... | .24 | <.06 | <.008 | .015 | .021 | -- | .52 | E5.2 | 581 | 30.6 | -73.10 | -9.58 |
| 475655089492801 North S063N05E08DDDA (LAT 47 56 55N LONG 089 49 28W) | | | | | | | | | | | | |
| MAY 2004 19... | .76 | <.06 | <.008 | .021 | .027 | -- | 1.15 | 7.5 | 1,040 | 65.1 | -67.40 | -8.79 |
| 475702089493602 North NNW063N05E08DDBA (LAT 47 57 02N LONG 089 49 36W) | | | | | | | | | | | | |
| MAY 2004 18... | .12 | <.06 | E.004 | .012 | .027 | -- | 1.04 | <7.0 | 11,800 | 638 | -67.90 | -8.16 |
| 475701089492401 North NEE063N05E09CCBB (LAT 47 57 01N LONG 089 49 24W) | | | | | | | | | | | | |
| MAY 2004 18... | 2.19 | <.06 | <.008 | .108 | .123 | -- | 2.42 | 14 | 636 | 20.9 | -77.60 | -10.75 |
| 475657089492201 North SE063N05E09CCCB (LAT 47 56 57N LONG 089 49 22W) | | | | | | | | | | | | |
| MAY 2004 19... | .12 | <.06 | <.008 | E.003 | .004 | -- | .32 | E5.7 | 329 | 5.4 | -84.80 | -12.14 |
| 475604089492901 TaylorLkE063N05E17DDD (LAT 47 56 04N LONG 089 49 29W) | | | | | | | | | | | | |
| AUG 2004 31... | <.04 | <.06 | <.008 | <.02 | .005 | .011 | -- | E5.6 | 46 | <.8 | -57.80 | -5.82 |
| 475605089494701 TaylorLk W 063N05E17DC (LAT 47 56 05N LONG 089 49 47W) | | | | | | | | | | | | |
| AUG 2004 31... | <.04 | <.06 | <.008 | <.02 | E.003 | .010 | -- | E5.8 | 38 | <.8 | -57.40 | -5.92 |
| 475609089493201 TaylorNNE063N05E17DD (LAT 47 56 09N LONG 089 49 32W) | | | | | | | | | | | | |
| SEP 2004 01... | .06 | <.06 | <.008 | .008 | .015 | -- | .50 | E4.0 | 1,930 | 94.2 | -58.00 | -6.01 |
| 475609089493001 Taylor NE063N05E17DD (LAT 47 56 09N LONG 089 49 30W) | | | | | | | | | | | | |
| SEP 2004 01... | E.02 | <.06 | <.008 | E.003 | .010 | -- | .43 | E4.8 | 303 | 41.4 | -58.40 | -6.02 |
| 475601089494801 Taylor S063N05E17DC (LAT 47 56 01N LONG 089 49 48W) | | | | | | | | | | | | |
| SEP 2004 01... | 3.97 | <.06 | .012 | .397 | .32 | -- | 4.42 | -- | -- | -- | -67.00 | -8.12 |
| 475608089493701 Taylor N063N05E17DD (LAT 47 56 08N LONG 089 49 37W) | | | | | | | | | | | | |
| SEP 2004 01... | 2.35 | <.06 | <.008 | .015 | .52 | -- | 2.97 | <35 | 31,200 | 541 | -61.70 | -7.10 |
| 475609089500001 Taylor W063N05E17DC (LAT 47 56 09N LONG 089 50 00W) | | | | | | | | | | | | |
| SEP 2004 01... | <.04 | <.06 | E.004 | .038 | .045 | -- | .82 | -- | -- | -- | -62.30 | -6.84 |
| 475602089493801 Taylor SE063N05E17DD (LAT 47 56 02N LONG 089 49 38W) | | | | | | | | | | | | |
| SEP 2004 02... | .22 | <.06 | <.008 | .042 | .053 | -- | .70 | E5.7 | 1,240 | 95.3 | -59.10 | -6.30 |
| SEP 2004 02... | .23 | <.06 | <.008 | .044 | .055 | -- | .69 | <7.0 | 1,190 | 94.8 | -59.90 | -6.30 |

GRAND PORTAGE HYDROLOGY WATER QUALITY—Continued

MISCELLANEOUS STATION ANALYSES—CONTINUED

| Date | Time | Sample type | Baro- metric pres- sure, mm Hg (00025) | 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 25 degC (90095) | Specif. conduc- tance, wat unfl- lab, uS/cm 25 degC (00095) | Temper- ature, air, deg C (00020) | Temper- ature, water, deg C (00010) | Calcium water, fltrd, mg/L (00915) | | |
|---|--|--|---|--|---|---|---|--|--|---|---|--|---|------|
| 475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W) | | | | | | | | | | | | | | |
| SEP 2004 | 02... | 1030 | Environmental | 722 | .2 | 2 | 5.6 | 5.9 | 80 | 123 | 15.0 | 15.1 | 12.0 | |
| 475814089412801 Grand Portage Precip Station At Grand Portage, MN (LAT 47 58 14N LONG 089 41 28W) | | | | | | | | | | | | | | |
| MAY 2004 | 20... | 0800 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | 31... | 1015 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| JUL | 05... | 1000 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | 29... | 0830 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| AUG | 24... | 1300 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 475702089493601 North Lake Precip Station nr Mineral Center, MN (LAT 47 57 02N LONG 089 49 36W) | | | | | | | | | | | | | | |
| MAY 2004 | 20... | 0830 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | 31... | 1230 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| JUL | 05... | 0905 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | 29... | 1010 | Environmental | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Date | Magnesium, water, fltrd, mg/L (00925) | Potassium, water, fltrd, mg/L (00935) | Sodium, water, fltrd, mg/L (00930) | Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086) | Bicarbon- ate, wat flt incrm. titr., field, mg/L (00453) | Bromide water, fltrd, mg/L (71870) | 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 (70300) | Ammonia water, fltrd, mg/L as N (00608) | Nitrite + nitrate water fltrd, mg/L as N (00631) | |
| 475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W) | | | | | | | | | | | | | | |
| SEP 2004 | 02... | 2.69 | <.16 | 1.14 | 44 | 54 | .35 | E.16 | <.2 | 5.82 | E.1 | 96 | .24 | <.06 |
| Date | 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) | Total nitro- gen, wat flt by anal ysis, mg/L (62854) | Total nitro- gen, wat unfl- by anal ysis, mg/L (62855) | Boron, water, fltrd, ug/L (01020) | Iron, water, fltrd, ug/L (01046) | Mangan- ese, water, fltrd, ug/L (01056) | Deu- terium/ Protium ratio, water, unfltrd per mil (82082) | O-18 / O-16 ratio, water, unfltrd per mil (82085) | | | | |
| 475604089492201 Taylor E063N05E17CC (LAT 47 56 04N LONG 089 49 22W) | | | | | | | | | | | | | | |
| SEP 2004 | 02... | .010 | .081 | .099 | 1.20 | -- | E4.5 | 9,430 | 130 | -60.10 | -6.50 | | | |
| 475814089412801 Grand Portage Precip Station At Grand Portage, MN (LAT 47 58 14N LONG 089 41 28W) | | | | | | | | | | | | | | |
| MAY 2004 | 20... | -- | -- | -- | -- | .67 | -- | -- | -- | -54.60 | -5.39 | | | |
| | 31... | -- | -- | -- | -- | .59 | -- | -- | -- | -44.80 | -6.91 | | | |
| JUL | 05... | -- | -- | -- | -- | .42 | -- | -- | -- | -56.10 | -8.10 | | | |
| | 29... | -- | -- | -- | -- | 2.29 | -- | -- | -- | -28.80 | -5.02 | | | |
| AUG | 24... | -- | -- | -- | -- | 1.53 | -- | -- | -- | -44.40 | -7.39 | | | |
| 475702089493601 North Lake Precip Station nr Mineral Center, MN (LAT 47 57 02N LONG 089 49 36W) | | | | | | | | | | | | | | |
| MAY 2004 | 20... | -- | -- | -- | -- | 3.15 | -- | -- | -- | -56.40 | -6.07 | | | |
| | 31... | -- | -- | -- | -- | .51 | -- | -- | -- | -48.50 | -7.93 | | | |
| JUL | 05... | -- | -- | -- | -- | 2.77 | -- | -- | -- | -53.50 | -7.80 | | | |
| | 29... | -- | -- | -- | -- | 8.36 | -- | -- | -- | -31.50 | -5.62 | | | |

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