



Water-Data Report 2009

05270500 SAUK RIVER NEAR ST. CLOUD, MN

Upper Mississippi Basin
Sauk Subbasin

LOCATION.--Lat 45°33'35", long 94°14'00" referenced to North American Datum of 1927, in SW ¼ SW ¼ sec.8, T.124 N., R.28 W., Stearns County, MN, Hydrologic Unit 07010202, on right bank 0.5 mi northwest of Waite Park, 3 mi west of St. Cloud, and 5 mi upstream from mouth.

DRAINAGE AREA.--1,030 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1909 to December 1912, April to December 1913, May to November 1929, March 1930 to September 1931, April to November 1932, March to November 1933, March 1934 to September 1981, October 1990 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 895: Drainage area. WSP 1308: 1912(M), 1932 (M). WSP 1508: 1937(m).

GAGE.--Water-stage recorder. Datum of gage is 1,034.63 ft above sea level (NGVD of 1929). Prior to Nov. 22, 1934, non-recording gage on highway bridge 1 mi downstream at datum 6.77 ft lower.

REMARKS.--Records good except those estimated daily discharge, which are fair to poor. Flow may be influenced by regulation from power plant and small lakes upstream from gage.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

[e, estimated]

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|--------------|--------|--------|--------|--------|-------|--------|---------|--------|--------|--------|--------|--------|
| 1 | 126 | 303 | 267 | e185 | e157 | e138 | e3,380 | 877 | 246 | 328 | 172 | 298 |
| 2 | 122 | 311 | e260 | e182 | e157 | e140 | e3,150 | 824 | 225 | 310 | 160 | 274 |
| 3 | 119 | 328 | 244 | e185 | e155 | e142 | e2,960 | 791 | 219 | 296 | 140 | 253 |
| 4 | 110 | 338 | e242 | e181 | e155 | e144 | e2,770 | 761 | 220 | 285 | 147 | 236 |
| 5 | 112 | 351 | e242 | e183 | e155 | e145 | e2,600 | 750 | 222 | 270 | 129 | 222 |
| 6 | 116 | 395 | e241 | e181 | e154 | e145 | 2,520 | 722 | 210 | 261 | 120 | 212 |
| 7 | 187 | 472 | e238 | e180 | e154 | e144 | 2,380 | 699 | 202 | 248 | 125 | 203 |
| 8 | 199 | 486 | e236 | e181 | e153 | e144 | 2,240 | 677 | 225 | 236 | 303 | 194 |
| 9 | 201 | 480 | e232 | e181 | e151 | e144 | 2,110 | 656 | 248 | 229 | 327 | 190 |
| 10 | 203 | 472 | e229 | e179 | e150 | e144 | 1,980 | 633 | 249 | 232 | 257 | 186 |
| 11 | 189 | 455 | e227 | e178 | e149 | e144 | 1,870 | 614 | 246 | 228 | 219 | 192 |
| 12 | 204 | 447 | e223 | e177 | e149 | e145 | 1,780 | 607 | 244 | 212 | 191 | 200 |
| 13 | 226 | 453 | e219 | e176 | e148 | e145 | 1,710 | 608 | 244 | 199 | 175 | 191 |
| 14 | 243 | 436 | e216 | e175 | e147 | e144 | 1,640 | 593 | 240 | 249 | 153 | 183 |
| 15 | 236 | 420 | e216 | e175 | e147 | e151 | 1,560 | 586 | 233 | 318 | 155 | 175 |
| 16 | 234 | 398 | e210 | e175 | e146 | e313 | 1,490 | 683 | 280 | 287 | 580 | 163 |
| 17 | 225 | 387 | e212 | e174 | e145 | e463 | 1,440 | 601 | 289 | 268 | 622 | 158 |
| 18 | 234 | 369 | e209 | e174 | e144 | e618 | 1,390 | 564 | 280 | 242 | 569 | 153 |
| 19 | 237 | 354 | e209 | e173 | e143 | 842 | 1,330 | 518 | 298 | 230 | 620 | 141 |
| 20 | 230 | 327 | e206 | e173 | e141 | 1,010 | 1,290 | 519 | 294 | 226 | 693 | 136 |
| 21 | 218 | e311 | e203 | e172 | e141 | 1,250 | 1,240 | 483 | 304 | 294 | 694 | 126 |
| 22 | 212 | e286 | e202 | e169 | e141 | 1,460 | 1,180 | 434 | 337 | 277 | 652 | 128 |
| 23 | 248 | 262 | e204 | e167 | e140 | 2,050 | 1,130 | 403 | 337 | 258 | 621 | 121 |
| 24 | 262 | 261 | e201 | e166 | e139 | 2,700 | 1,100 | 373 | 344 | 249 | 589 | 113 |
| 25 | 280 | e270 | e205 | e166 | e138 | 3,860 | 1,040 | 342 | 405 | 235 | 554 | 113 |
| 26 | 305 | 273 | e201 | e164 | e136 | 4,400 | 1,010 | 331 | 409 | 218 | 505 | 119 |
| 27 | 303 | 271 | e197 | e162 | e136 | 4,560 | 1,030 | 321 | 435 | 203 | 463 | 116 |
| 28 | 289 | 268 | e196 | e161 | e136 | e4,430 | 961 | 317 | 446 | 189 | 431 | 120 |
| 29 | 295 | 263 | e189 | e160 | --- | e4,160 | 905 | 306 | 405 | 175 | 391 | 102 |
| 30 | 301 | 259 | e187 | e160 | --- | e3,870 | 905 | 287 | 359 | 160 | 346 | 85 |
| 31 | 303 | --- | e182 | e159 | --- | e3,630 | --- | 268 | --- | 159 | 321 | --- |
| Total | 6,769 | 10,706 | 6,745 | 5,374 | 4,107 | 41,775 | 52,091 | 17,148 | 8,695 | 7,571 | 11,424 | 5,103 |
| Mean | 218 | 357 | 218 | 173 | 147 | 1,348 | 1,736 | 553 | 290 | 244 | 369 | 170 |
| Max | 305 | 486 | 267 | 185 | 157 | 4,560 | 3,380 | 877 | 446 | 328 | 694 | 298 |
| Min | 110 | 259 | 182 | 159 | 136 | 138 | 905 | 268 | 202 | 159 | 120 | 85 |
| Ac-ft | 13,430 | 21,240 | 13,380 | 10,660 | 8,150 | 82,860 | 103,300 | 34,010 | 17,250 | 15,020 | 22,660 | 10,120 |
| Cfs/m | 0.21 | 0.35 | 0.21 | 0.17 | 0.14 | 1.31 | 1.69 | 0.54 | 0.28 | 0.24 | 0.36 | 0.17 |
| In. | 0.24 | 0.39 | 0.24 | 0.19 | 0.15 | 1.51 | 1.88 | 0.62 | 0.31 | 0.27 | 0.41 | 0.18 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2009, BY WATER YEAR (WY)

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mean | 188 | 198 | 144 | 108 | 113 | 326 | 850 | 533 | 424 | 331 | 214 | 186 |
| Max | 1,154 | 1,091 | 528 | 403 | 568 | 1,380 | 2,997 | 1,862 | 1,333 | 1,262 | 1,250 | 1,136 |
| (WY) | (1996) | (1972) | (1972) | (2006) | (1966) | (1966) | (1997) | (2001) | (1957) | (1993) | (1972) | (1957) |
| Min | 6.22 | 6.18 | 5.15 | 3.25 | 7.61 | 28.7 | 16.5 | 7.84 | 15.9 | 10.6 | 10.5 | 10.7 |
| (WY) | (1934) | (1934) | (1935) | (1935) | (1935) | (1940) | (1934) | (1934) | (1934) | (1934) | (1933) | (1933) |

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SUMMARY STATISTICS

| | Calendar Year 2008 | | Water Year 2009 | | Water Years 1909 - 2009 | |
|---------------------------------|--------------------|--------|-----------------|--------|-------------------------|--------------|
| Annual total | 118,601 | | 177,508 | | | |
| Annual mean | 324 | | 486 | | ^a 316 | |
| Highest annual mean | | | | | 732 | 1972 |
| Lowest annual mean | | | | | 51.0 | 1931 |
| Highest daily mean | 1,150 | Apr 26 | 4,560 | Mar 27 | 7,940 | Apr 14, 1965 |
| Lowest daily mean | 88 | Sep 10 | 85 | Sep 30 | 1.3 | Jan 6, 1935 |
| Annual seven-day minimum | 105 | Feb 17 | 110 | Sep 24 | 1.5 | Jan 2, 1935 |
| Maximum peak flow | | | 4,600 | Mar 27 | 9,100 | Apr 13, 1965 |
| Maximum peak stage | | | 8.19 | Mar 27 | 10.68 | Apr 13, 1965 |
| Instantaneous low flow | | | ^b 82 | Sep 30 | 0.30 | Nov 25, 1936 |
| Annual runoff (ac-ft) | 235,200 | | 352,100 | | 228,700 | |
| Annual runoff (cfsm) | 0.315 | | 0.472 | | 0.307 | |
| Annual runoff (inches) | 4.28 | | 6.41 | | 4.17 | |
| 10 percent exceeds | 742 | | 1,030 | | 778 | |
| 50 percent exceeds | 230 | | 240 | | 160 | |
| 90 percent exceeds | 112 | | 144 | | 42 | |

^a Median of annual mean discharges is 320 ft³/s.

^b Falling stage.

