Water-Data Report 2008

# 07040450 ST. FRANCIS RIVER AT LAKE CITY, AR

St. Francis Basin
Lower St. Francis Subbasin

LOCATION.--Lat 35°49'14", long 90°26'00" referenced to North American Datum of 1983, in SE ¼ SE ¼ sec.22, T.14 N., R.6 E., Craighead County, AR, Hydrologic Unit 08020203, at bridge on State Hwy 18 at Lake City, and at mile 173.6.

DRAINAGE AREA.--2,380 $mi^2$.

## SURFACE-WATER RECORDS

PERIOD OF RECORD.--Jan 1931 to Sep 1977, Oct 1997, Oct 1999 to current year. Jan 1931 to Dec 1945 in files of Corps of Engineers. Jan 1946 to Dec 1963 in reports of Mississippi River Commission. Jan 1964 to Nov 1997 and Sep 1999 to date in reports of the U.S. Army Corps of Engineers. Gage height records 1916 to Nov 1997, and Sep 1999 to date in files of the U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 217.69 ft above NGVD of 1929. Prior to Sep 1, 1948, nonrecording gage at railroad bridge 0.1 mi downstream at present datum.

REMARKS.--Water-discharge records fair except estimated daily discharges, which are poor. Some regulation by Wappapello Lake (Missouri) 135 mi upstream since Apr 1, 1941, capacity, 625,000 acre-feet. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1916, 14.4 ft Apr 3, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,000 $ft^3/s$, Apr 5, gage height, 12.41 ft; minimum discharge, 163 $ft^3/s$, Oct 14, 15, gage height, 0.45 ft.

**07040450 ST. FRANCIS RIVER AT LAKE CITY, AR—Continued**

**DISCHARGE, CUBIC FEET PER SECOND**
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**
**DAILY MEAN VALUES**
[e, estimated]

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 207 | 1,090 | 772 | 3,280 | 1,190 | 4,660 | 18,900 | 9,000 | 4,970 | 566 | 837 | 332 |
| 2 | 202 | 883 | 628 | 3,140 | 1,110 | 4,580 | 20,100 | 8,870 | 4,900 | 551 | 639 | 287 |
| 3 | 237 | 694 | 561 | 3,030 | 1,040 | 5,610 | 20,100 | 10,700 | 4,670 | 544 | 506 | 299 |
| 4 | 278 | 560 | 558 | 2,910 | 948 | 12,400 | 29,000 | 10,400 | 4,340 | 535 | 425 | 650 |
| 5 | 306 | 474 | 593 | 2,820 | 849 | 15,400 | 34,300 | 8,880 | 4,020 | 524 | 381 | 845 |
| 6 | 319 | 422 | 664 | 2,730 | 967 | 12,400 | 29,800 | 7,660 | 3,680 | 462 | 350 | 649 |
| 7 | 324 | 392 | 760 | 2,620 | 1,190 | 9,340 | 25,900 | 7,120 | 3,320 | 412 | 486 | 571 |
| 8 | 320 | 373 | 821 | 2,710 | 1,310 | 7,730 | 24,500 | 7,040 | 2,970 | 367 | 885 | 571 |
| 9 | 312 | 357 | 815 | 3,450 | 1,270 | 7,840 | 22,700 | 6,520 | 2,710 | 334 | 768 | 580 |
| 10 | 284 | 344 | 1,110 | 3,180 | 1,300 | 7,920 | 19,900 | 5,820 | 2,560 | 327 | 593 | 565 |
| 11 | 243 | 328 | 1,070 | 2,870 | 1,430 | 7,250 | 21,100 | 5,360 | 2,270 | 349 | 457 | 540 |
| 12 | 206 | 311 | 1,180 | 2,700 | 2,910 | 6,290 | 18,900 | 4,890 | 1,830 | 372 | 376 | 520 |
| 13 | 183 | 334 | 1,320 | 2,980 | 5,290 | 5,530 | 15,800 | 4,660 | 1,570 | 379 | 321 | 503 |
| 14 | 168 | 413 | 1,450 | 3,560 | 6,040 | 5,220 | 14,200 | 4,830 | 1,420 | 655 | 291 | 468 |
| 15 | 175 | 424 | 3,310 | 3,820 | 5,790 | 5,780 | 14,200 | 4,760 | 1,310 | 1,030 | 301 | 436 |
| 16 | 241 | 370 | 6,140 | 3,640 | 5,010 | 5,810 | 13,800 | 4,650 | 1,240 | 1,080 | 408 | 431 |
| 17 | 322 | 309 | 6,140 | 3,220 | 4,920 | 5,050 | 12,700 | 4,600 | 1,150 | 887 | 477 | 425 |
| 18 | 1,660 | 290 | 5,400 | 2,760 | 5,350 | 4,560 | 11,700 | 4,550 | 1,030 | 682 | 424 | 423 |
| 19 | 1,800 | 312 | 4,550 | 2,400 | 5,360 | 10,100 | 11,400 | 4,440 | 927 | 573 | 356 | 422 |
| 20 | 1,570 | 369 | 4,930 | 2,090 | 4,890 | 18,300 | 10,900 | 4,370 | 841 | 554 | 326 | 492 |
| 21 | 1,340 | 646 | 6,170 | 1,830 | 4,310 | 16,500 | 10,500 | 4,350 | 805 | 558 | 353 | 687 |
| 22 | 1,250 | 1,300 | 6,350 | 1,730 | 4,460 | 13,200 | 10,200 | 4,360 | 752 | 556 | 789 | 1,410 |
| 23 | 1,390 | 1,150 | 6,400 | 1,660 | 4,490 | 14,800 | 10,200 | 4,400 | 712 | 591 | 873 | 1,390 |
| 24 | 1,540 | 951 | 5,820 | 1,590 | 4,250 | 17,800 | 10,200 | 4,420 | 698 | 689 | 1,040 | 1,230 |
| 25 | 1,590 | 948 | 5,240 | 1,530 | 4,100 | 18,200 | 10,100 | 4,470 | 679 | 658 | 986 | 1,190 |
| 26 | e1,580 | e1,530 | 4,720 | 1,480 | 4,140 | 16,800 | 10,400 | 4,540 | 651 | 565 | 852 | 1,240 |
| 27 | e1,390 | e1,670 | 4,520 | 1,430 | 4,300 | 15,000 | 10,400 | 4,560 | 637 | 505 | 769 | 1,260 |
| 28 | 1,320 | 1,540 | 4,540 | 1,390 | 4,500 | 13,500 | 10,100 | 4,540 | 633 | 493 | 698 | 1,180 |
| 29 | 1,310 | 1,270 | 4,400 | 1,380 | 4,630 | 12,400 | 9,730 | 4,670 | 619 | 586 | 599 | 1,030 |
| 30 | 1,310 | 991 | 4,000 | 1,330 | --- | 12,200 | 9,320 | 4,990 | 579 | 763 | 489 | 889 |
| 31 | 1,250 | --- | 3,550 | 1,250 | --- | 13,700 | --- | 5,040 | --- | 892 | 398 | --- |
| Total | 24,627 | 21,045 | 98,482 | 76,510 | 97,344 | 325,870 | 491,050 | 179,460 | 58,493 | 18,039 | 17,453 | 21,515 |
| Mean | 794 | 702 | 3,177 | 2,468 | 3,357 | 10,510 | 16,370 | 5,789 | 1,950 | 582 | 563 | 717 |
| Max | 1,800 | 1,670 | 6,400 | 3,820 | 6,040 | 18,300 | 34,300 | 10,700 | 4,970 | 1,080 | 1,040 | 1,410 |
| Min | 168 | 290 | 558 | 1,250 | 849 | 4,560 | 9,320 | 4,350 | 579 | 327 | 291 | 287 |
| Ac-ft | 48,850 | 41,740 | 195,300 | 151,800 | 193,100 | 646,400 | 974,000 | 356,000 | 116,000 | 35,780 | 34,620 | 42,680 |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2008, BY WATER YEAR (WY)**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 739 | 1,504 | 2,686 | 4,295 | 4,501 | 5,199 | 5,504 | 4,604 | 2,712 | 1,535 | 866 | 743 |
| Max | 5,125 | 9,582 | 11,100 | 18,200 | 17,270 | 10,710 | 18,160 | 14,440 | 13,370 | 7,720 | 5,303 | 2,494 |
| (WY) | (1950) | (1958) | (2002) | (1950) | (1950) | (1975) | (1945) | (1973) | (1945) | (1957) | (1945) | (1965) |
| Min | 111 | 114 | 227 | 496 | 553 | 836 | 831 | 634 | 202 | 187 | 109 | 126 |
| (WY) | (1954) | (1954) | (1954) | (1944) | (1977) | (1941) | (1941) | (2001) | (1932) | (1934) | (1936) | (1941) |

**07040450 ST. FRANCIS RIVER AT LAKE CITY, AR—Continued**

**SUMMARY STATISTICS**

| | Calendar Year 2007 | | Water Year 2008 | | Water Years 1931 - 2008 | |
|---|---|---|---|---|---|---|
| **Annual total** | 846,947 | | 1,429,888 | | | |
| **Annual mean** | 2,320 | | 3,907 | | 2,926 | |
| **Highest annual mean** | | | | | 6,937 | 1973 |
| **Lowest annual mean** | | | | | 782 | 1941 |
| **Highest daily mean** | 17,700 | Jan 16 | 34,300 | Apr 5 | 36,700 | Jan 22, 1937 |
| **Lowest daily mean** | 47 | Sep 7 | 168 | Oct 14 | 39 | Oct 7, 1999 |
| **Annual seven-day minimum** | 53 | Sep 2 | 214 | Oct 10 | 41 | Oct 2, 1999 |
| **Maximum peak flow** | | | 35,000 | Apr 5 | [a,e]36,700 | Jan 22, 1937[b] |
| **Maximum peak stage** | | | 12.41 | Apr 5 | [c,e]13.30 | Jan 22, 1937[b] |
| **Instantaneous low flow** | | | 163 | Oct 14[d] | 37 | Oct 8, 1999 |
| **Annual runoff (ac-ft)** | 1,680,000 | | 2,836,000 | | 2,120,000 | |
| **10 percent exceeds** | 5,190 | | 10,600 | | 7,500 | |
| **50 percent exceeds** | 1,440 | | 1,390 | | 1,450 | |
| **90 percent exceeds** | 187 | | 355 | | 288 | |

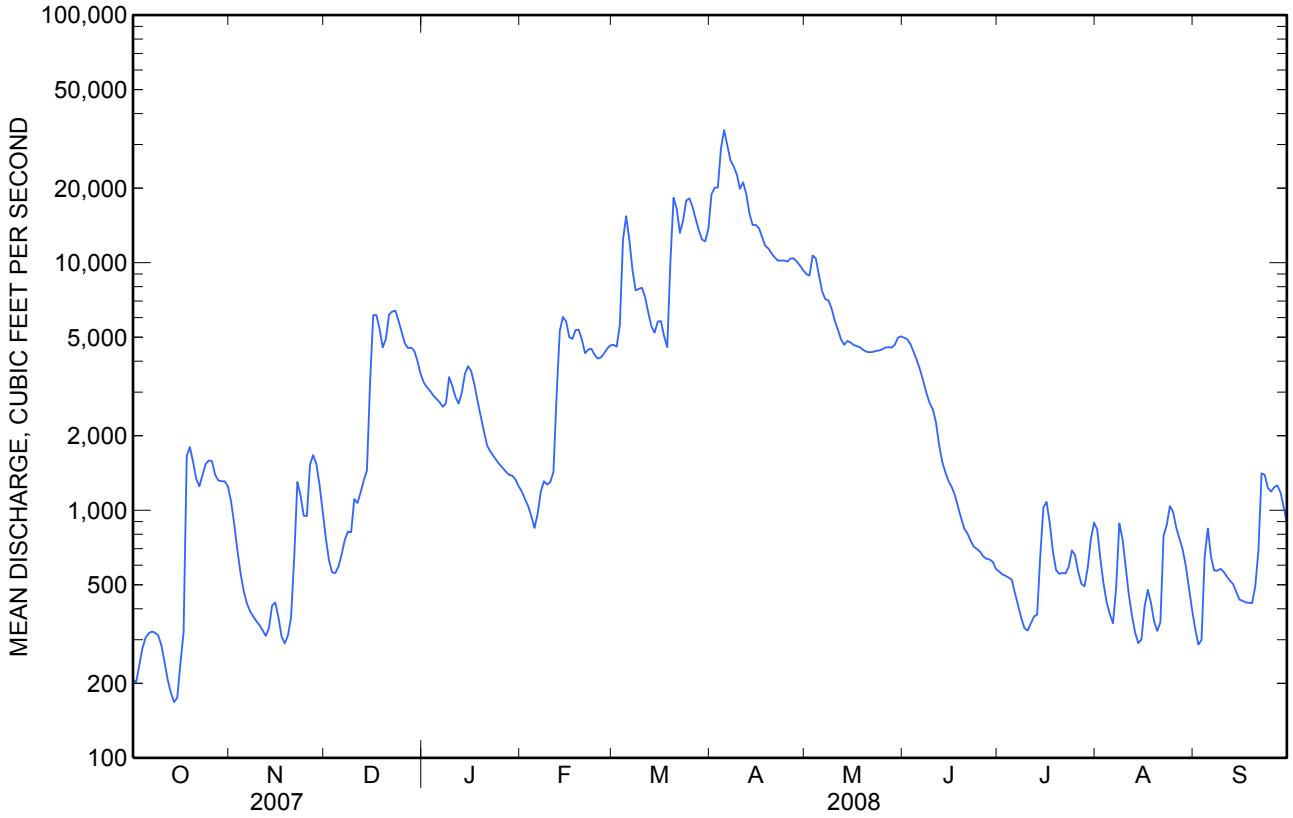
[a] Maximum discharge outside period of record, 42,700 $ft^3/s$ Apr 3, 1979

[b] Also Jan 23, 24, 1937

[c] Maximum gage height outside period of record, 14.37 ft Apr 3, 1979

[d] Also occurred on Oct 15

[e] Prior to regulation



**07040450 ST. FRANCIS RIVER AT LAKE CITY, AR—Continued**

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Apr 1974 to current year.

### WATER-QUALITY DATA
### WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 1 of 3

| Date | Time | Instantaneous discharge, cfs (00061) | Transparency Secchi disc, meters (00078) | Barometric pressure, mm Hg (00025) | Dissolved oxygen, mg/L (00300) | Dissolved oxygen, percent of saturation (00301) | pH, water, unfltrd field, std units (00400) | Specific conductance, wat unf µS/cm 25 degC (00095) | Temperature, water, deg C (00010) | Suspnd. sediment, falldia dst wat percent <.063mm (70342) | Suspnd. sediment, falldia dst wat percent <.125mm (70343) | Suspnd. sediment, falldia dst wat percent <.25mm (70344) | Suspnd. sediment, falldia dst wat percent <.5 mm (70345) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oct** | | | | | | | | | | | | | |
| **16...** | 1535 | 282 | .27 | 765 | 7.2 | 79 | 7.2 | 240 | 20.2 | 99 | 99 | 100 | -- |
| **Nov** | | | | | | | | | | | | | |
| **15...** | 0750 | 404 | .18 | 771 | 8.3 | 80 | 7.2 | 281 | 14.0 | 100 | -- | -- | -- |
| **Dec** | | | | | | | | | | | | | |
| **11...** | 1525 | 1,060 | .12 | 768 | 8.9 | 71 | 7.4 | 256 | 6.2 | 100 | -- | -- | -- |
| **Jan** | | | | | | | | | | | | | |
| **09...** | 0825 | 1,860 | .18 | 771 | 9.1 | 81 | 7.8 | 167 | 10.5 | 96 | 99 | 99 | 100 |
| **09...** | 0935 | 1,670 | .24 | 771 | 8.0 | 70 | 7.7 | 164 | 10.0 | 99 | 99 | 100 | -- |
| **Feb** | | | | | | | | | | | | | |
| **13...** | 0835 | 2,140 | .15 | 770 | 8.7 | 71 | 8.2 | 130 | 6.9 | 98 | 98 | 100 | -- |
| **13...** | 0950 | 3,180 | .21 | 770 | 7.9 | 64 | 8.1 | 132 | 6.9 | 99 | 99 | 99 | 99 |
| **Mar** | | | | | | | | | | | | | |
| **13...** | 0855 | 3,990 | .18 | 763 | 10.4 | 92 | 7.3 | 201 | 10.1 | 93 | 93 | 95 | 100 |
| **13...** | 1110 | 12,300 | .24 | 763 | 8.1 | 73 | 7.3 | 200 | 10.5 | 88 | 88 | 91 | 100 |
| **Apr** | | | | | | | | | | | | | |
| **16...** | 0750 | 3,420 | .24 | 769 | 8.5 | 79 | 7.3 | 96 | 12.5 | 96 | 96 | 98 | 100 |
| **16...** | 0850 | 10,200 | .27 | 769 | 8.2 | 76 | 7.2 | 96 | 12.5 | 97 | 97 | 97 | 100 |
| **May** | | | | | | | | | | | | | |
| **14...** | 0810 | 2,220 | .21 | 764 | 7.3 | 72 | 7.2 | 145 | 15.0 | 94 | 94 | 98 | 100 |
| **14...** | 0925 | 2,810 | .27 | 764 | 7.2 | 72 | 7.1 | 138 | 15.5 | 90 | 90 | 91 | 100 |
| **Jun** | | | | | | | | | | | | | |
| **11...** | 0810 | 1,700 | .21 | 764 | 6.1 | 73 | 7.2 | 185 | 24.9 | 99 | 99 | 100 | -- |
| **11...** | 0925 | 844 | .27 | 764 | 5.8 | 70 | 7.3 | 172 | 25.6 | 98 | 99 | 100 | -- |
| **Jul** | | | | | | | | | | | | | |
| **16...** | 0835 | 1,080 | .21 | 760 | 5.8 | 72 | 7.0 | 213 | 25.9 | 97 | 97 | 100 | -- |
| **Aug** | | | | | | | | | | | | | |
| **13...** | 0810 | 343 | .27 | 760 | 6.5 | 80 | 7.8 | 259 | 25.4 | 98 | 98 | 100 | -- |
| **Sep** | | | | | | | | | | | | | |
| **11...** | 1315 | 542 | .18 | 765 | 7.4 | 91 | 7.8 | 189 | 25.9 | 97 | 97 | 97 | 100 |

**07040450 ST. FRANCIS RIVER AT LAKE CITY, AR—Continued**

**WATER-QUALITY DATA**
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 2 of 3

| Date | Suspnd. sedi-ment, falldia dst wat percent <1 mm (70346) | Sus-pended sedi-ment concen-tration mg/L (80154) | Sus-pended sedi-ment dis-charge, tons/d (80155) | Bed sedi-ment, dry svd sve dia percent <2 mm (80169) | Bed sedi-ment, dry svd sve dia percent <4 mm (80170) | Bed sedi-ment, dry svd sve dia percent <8 mm (80171) | Bed sedi-ment, dry svd sve dia percent <16 mm (80172) | Bed sedi-ment, dry svd sve dia percent <32 mm (80173) | Bed sedi-ment, falldia dst wat percent <.063mm (80158) | Bed sedi-ment, falldia dst wat percent <.125mm (80159) | Bed sedi-ment, falldia dst wat percent <.25mm (80160) | Bed sedi-ment, falldia dst wat percent <.5 mm (80161) | Bed sedi-ment, falldia dst wat percent <1 mm (80162) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oct** | | | | | | | | | | | | | |
| **16...** | -- | 80 | 61 | -- | -- | -- | -- | -- | 4 | 11 | 81 | 99 | 100 |
| **Nov** | | | | | | | | | | | | | |
| **15...** | -- | 102 | 111 | -- | -- | -- | -- | -- | .0 | .0 | 11 | 92 | 98 |
| **Dec** | | | | | | | | | | | | | |
| **11...** | -- | 111 | 318 | -- | -- | -- | -- | -- | 10 | 25 | 72 | 93 | 100 |
| **Jan** | | | | | | | | | | | | | |
| **09...** | -- | 135 | 679 | -- | -- | -- | -- | -- | 12 | 24 | 86 | 100 | -- |
| **09...** | -- | 25 | 113 | -- | -- | -- | -- | -- | 8 | 20 | 85 | 95 | 99 |
| **Feb** | | | | | | | | | | | | | |
| **13...** | -- | 235 | 1,360 | -- | -- | -- | -- | -- | 7 | 41 | 98 | 99 | 100 |
| **13...** | 100 | 174 | 1,490 | 32 | 34 | 45 | 73 | 100 | 3 | 10 | 23 | 28 | 31 |
| **Mar** | | | | | | | | | | | | | |
| **13...** | -- | 56 | 603 | -- | -- | -- | -- | -- | 4 | 6 | 98 | 100 | -- |
| **13...** | -- | 48 | 1,600 | 59 | 62 | 70 | 100 | -- | 8 | 13 | 38 | 55 | 58 |
| **Apr** | | | | | | | | | | | | | |
| **16...** | -- | 72 | 665 | 94 | 100 | -- | -- | -- | 2 | 2 | 8 | 60 | 94 |
| **16...** | -- | 70 | 1,930 | -- | -- | -- | -- | -- | 36 | 52 | 80 | 96 | 100 |
| **May** | | | | | | | | | | | | | |
| **14...** | -- | 88 | 527 | -- | -- | -- | -- | -- | 6 | 7 | 91 | 100 | -- |
| **14...** | -- | 54 | 410 | 85 | 100 | -- | -- | -- | 6 | 26 | 44 | 56 | 77 |
| **Jun** | | | | | | | | | | | | | |
| **11...** | -- | 76 | 349 | -- | -- | -- | -- | -- | 3 | 7 | 92 | 100 | -- |
| **11...** | -- | 74 | 169 | 64 | 85 | 100 | -- | -- | 2 | 3 | 8 | 32 | 64 |
| **Jul** | | | | | | | | | | | | | |
| **16...** | -- | 99 | 289 | -- | -- | -- | -- | -- | 59 | 67 | 84 | 95 | 100 |
| **Aug** | | | | | | | | | | | | | |
| **13...** | -- | 87 | 81 | -- | -- | -- | -- | -- | 2 | 8 | 90 | 99 | 100 |
| **Sep** | | | | | | | | | | | | | |
| **11...** | -- | 90 | 132 | -- | -- | -- | -- | -- | 20 | 27 | 70 | 100 | -- |

**07040450 ST. FRANCIS RIVER AT LAKE CITY, AR—Continued**

**WATER-QUALITY DATA**
**WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008**

Part 3 of 3

| Date | Bed sediment, falldia dst wat percent <2 mm (80163) | Sample source, code (72005) | Sampler type, code (84164) | Sampling method, code (82398) |
|---|---|---|---|---|
| **Oct** | | | | |
| **16...** | -- | -- | 3002 | 10 |
| **Nov** | | | | |
| **15...** | 100 | -- | 3002 | 10 |
| **Dec** | | | | |
| **11...** | -- | -- | 3002 | 10 |
| **Jan** | | | | |
| **09...** | -- | 67.00 | 3002 | 10 |
| **09...** | 100 | 68.00 | 3002 | 10 |
| **Feb** | | | | |
| **13...** | -- | 67.00 | 3002 | 10 |
| **13...** | 32 | 68.00 | 3002 | 10 |
| **Mar** | | | | |
| **13...** | -- | 67.00 | 3002 | 10 |
| **13...** | 59 | 68.00 | 3002 | 10 |
| **Apr** | | | | |
| **16...** | -- | 67.00 | 3002 | 10 |
| **16...** | -- | 68.00 | 3002 | 10 |
| **May** | | | | |
| **14...** | -- | 67.00 | 3002 | 10 |
| **14...** | -- | 68.00 | 3002 | 10 |
| **Jun** | | | | |
| **11...** | -- | 67.00 | 3002 | 10 |
| **11...** | -- | 68.00 | 3002 | 10 |
| **Jul** | | | | |
| **16...** | -- | -- | 8010 | 10 |
| **Aug** | | | | |
| **13...** | -- | -- | 3002 | 10 |
| **Sep** | | | | |
| **11...** | -- | -- | 8010 | 10 |