

**8114000 Brazos River at Richmond**  
**Pulse Accounting from First Day of Pulse**

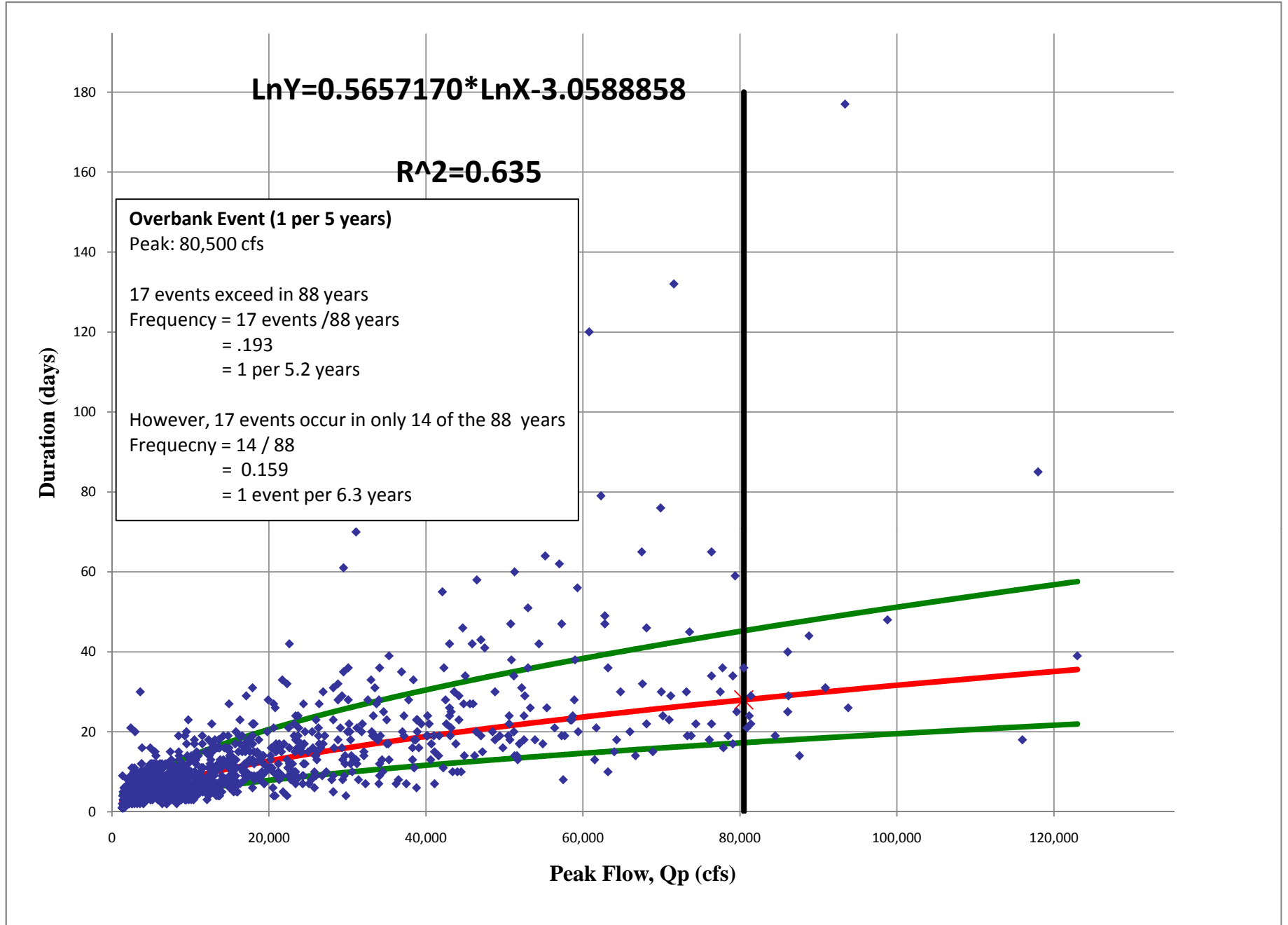
|  |  |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|--|--|-----|-----|--------|---|-----|-----|--------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|--|--|--|--------|--|--|--|--------|--|--|--|
| <b>Overbank Events</b>   | Qp: 80,500 cfs with Average Frequency 1 per 5 years<br>Regressed Volume is 1,209,671 to 2,881,416 (1,866,967)<br>Regressed Duration is 17 to 45 (28) |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | Qp: 68,100 cfs with Average Frequency 1 per 2 years<br>Regressed Volume is 963,548 to 2,294,701 (1,486,962)<br>Regressed Duration is 16 to 41 (25)   |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
| <b>High Flow Pulses</b>  | Qp: 51,600 cfs with Average Frequency 1 per year<br>Regressed Volume is 660,699 to 1,573,000 (1,019,450)<br>Regressed Duration is 13 to 35 (22)      |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | Qp: 34,400 cfs with Average Frequency 2 per year<br>Regressed Volume is 380,638 to 905,909 (587,217)<br>Regressed Duration is 11 to 28 (17)          |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | Qp: 24,600 cfs with Average Frequency 1 per season<br>Regressed Volume is 255,288 to 573,448 (382,616)<br>Regressed Duration is 9 to 23 (15)         |     |     |        | Qp: 35,000 cfs with Average Frequency 1 per season<br>Regressed Volume is 388,054 to 982,099 (617,339)<br>Regressed Duration is 11 to 29 (18) |     |     |        | Qp: 12,900 cfs with Average Frequency 1 per season<br>Regressed Volume is 94,038 to 221,144 (144,208)<br>Regressed Duration is 6 to 15 (10) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | Qp: 12,400 cfs with Average Frequency 2 per season<br>Regressed Volume is 99,887 to 224,222 (149,656)<br>Regressed Duration is 6 to 16 (10)          |     |     |        | Qp: 16,300 cfs with Average Frequency 2 per season<br>Regressed Volume is 135,465 to 342,527 (215,407)<br>Regressed Duration is 7 to 19 (11)  |     |     |        | Qp: 5,430 cfs with Average Frequency 2 per season<br>Regressed Volume is 30,234 to 71,054 (46,349)<br>Regressed Duration is 4 to 10 (6)     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | 3310 (49.4%)   |     |     |        | 3980 (58.3%)  |     |     |        | 2190 (39.8%)  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
| <b>Base Flows (cfs)</b>  | 1650 (67.6%)   |     |     |        | 2140 (73.6%)  |     |     |        | 1330 (61.0%)  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | 991 (82.1%)  |     |     |        | 1190 (86.6%)  |     |     |        | 932 (76.4%)   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | 570 (95.0%)  |     |     |        | 700 (95.1%)   |     |     |        | 550 (92.7%)   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
| <b>Subsistence Flows (cfs)</b>   | 570 (95.0%)  |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
|  | 700 (95.1%)  |     |     |        |   |     |     |        |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
| <table border="1"> <tr> <td>Nov</td><td>Dec</td><td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td><td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td> </tr> <tr> <td colspan="4">Winter</td><td colspan="4">Spring</td><td colspan="4">Summer</td> </tr> </table> |  |     |     |        |   |     |     |        |   |     |     | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Winter |  |  |  | Spring |  |  |  | Summer |  |  |  |
| Nov  | Dec  | Jan | Feb | Mar    | Apr   | May | Jun | Jul    | Aug   | Sep | Oct |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |
| Winter   |  |     |     | Spring |   |     |     | Summer |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |  |  |  |        |  |  |  |        |  |  |  |

|                    |                    |
|--------------------|--------------------|
| <b>Flow Levels</b> | High (75th %ile)   |
|                    | Medium (50th %ile) |
|                    | Low (25th %ile)    |
|                    | Subsistence        |

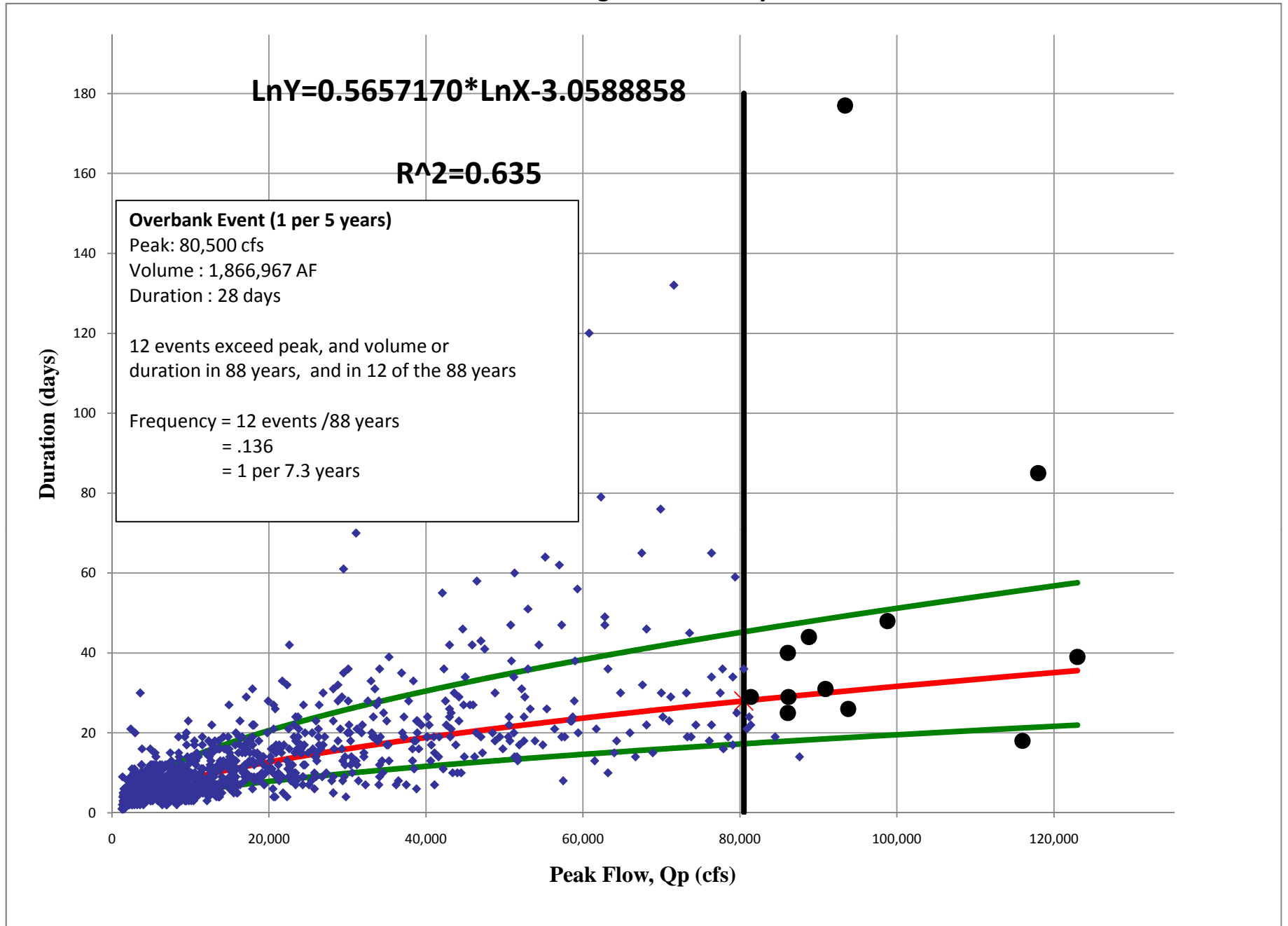
Notes:

1. Period of Record used : 1/1/1923 to 12/31/2010.
2. Q95 calculation used for subsistence flows. Annual Q95 value is 550 cfs. Water Quality Protection Flow entered by user is 550 cfs

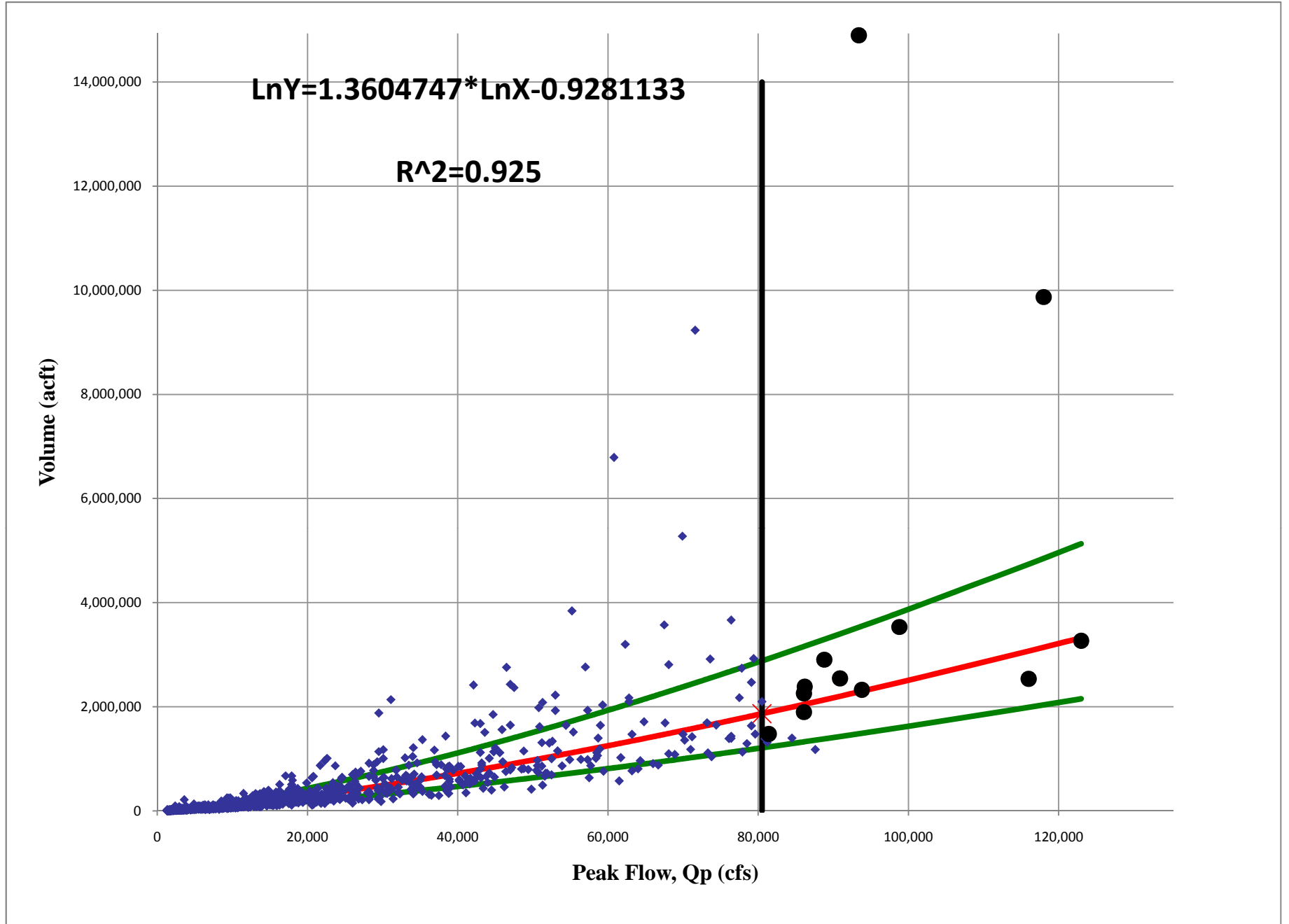
811400 Brazos River at Richmond  
Pulse Accounting from First Day of Pulse



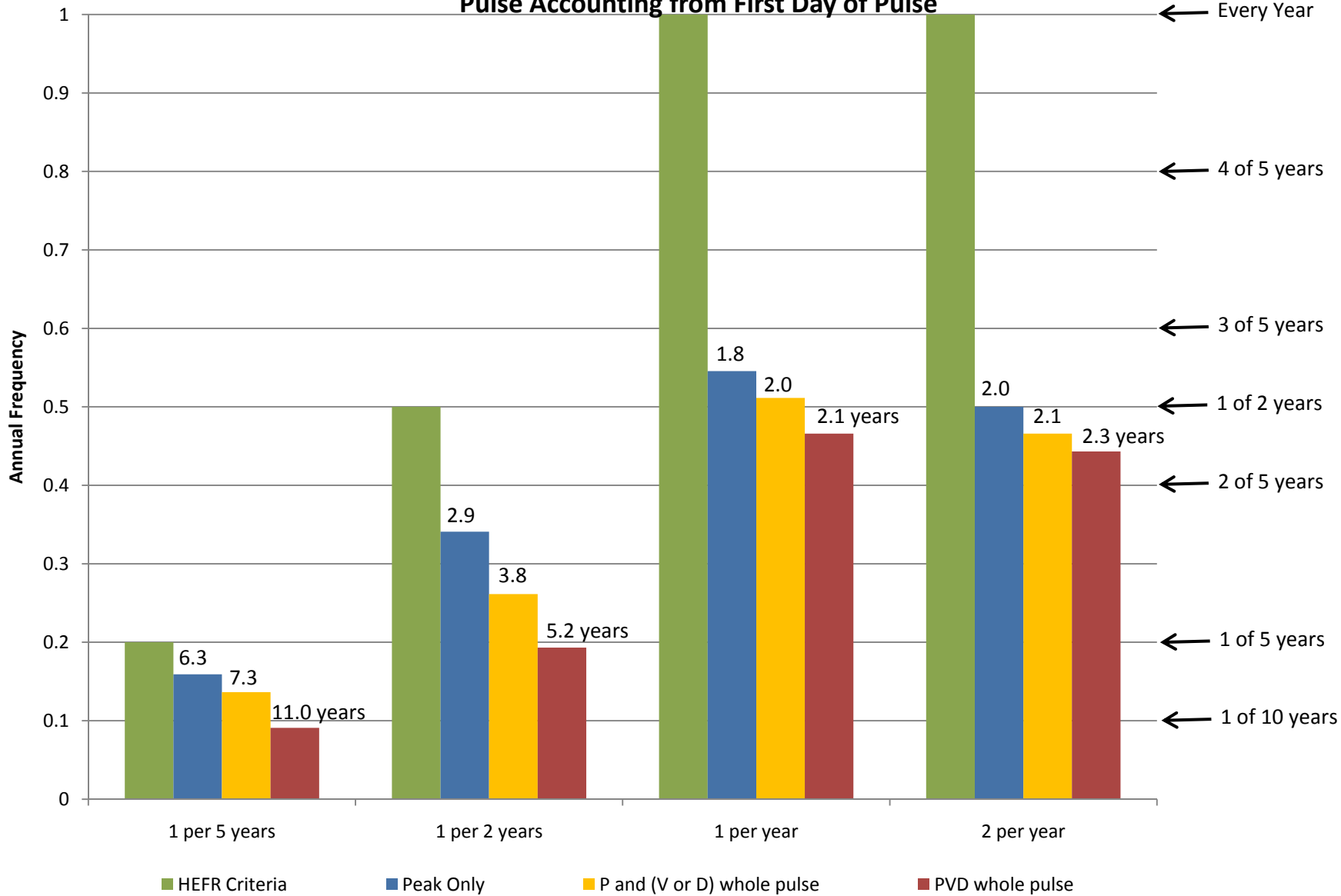
811400 Brazos River at Richmond  
Pulse Accounting from First Day of Pulse



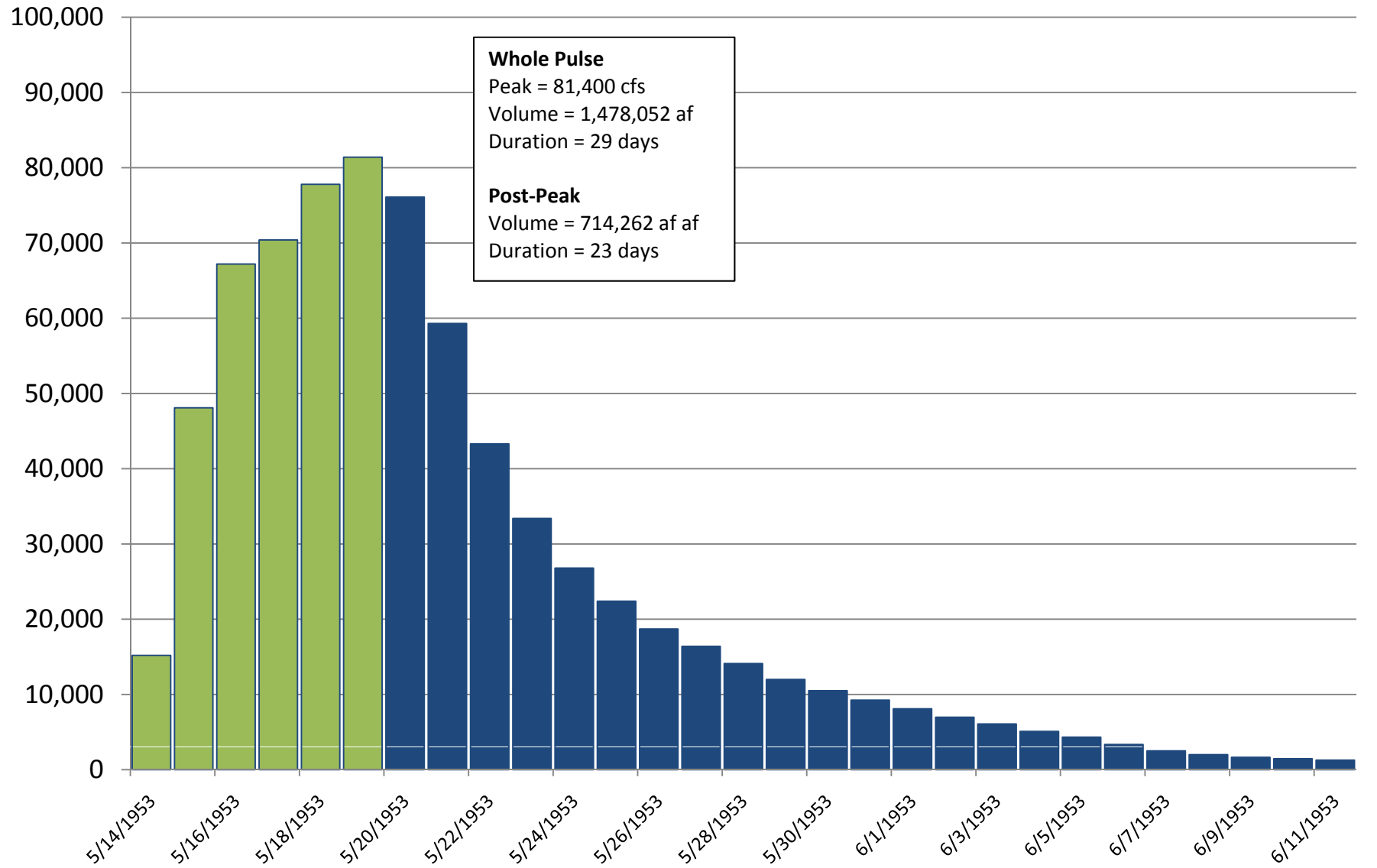
8114000 Brazos River at Richmond  
Pulse Accounting from First Day of Pulse



### Historic Occurrence of Meeting HEFR Target Pulse Criteria 8114000 Brazos River at Richmond Pulse Accounting from First Day of Pulse



## 8114000 Brazos River at Richmond Pulse Accounting



## 8114000 Brazos River at Richmond

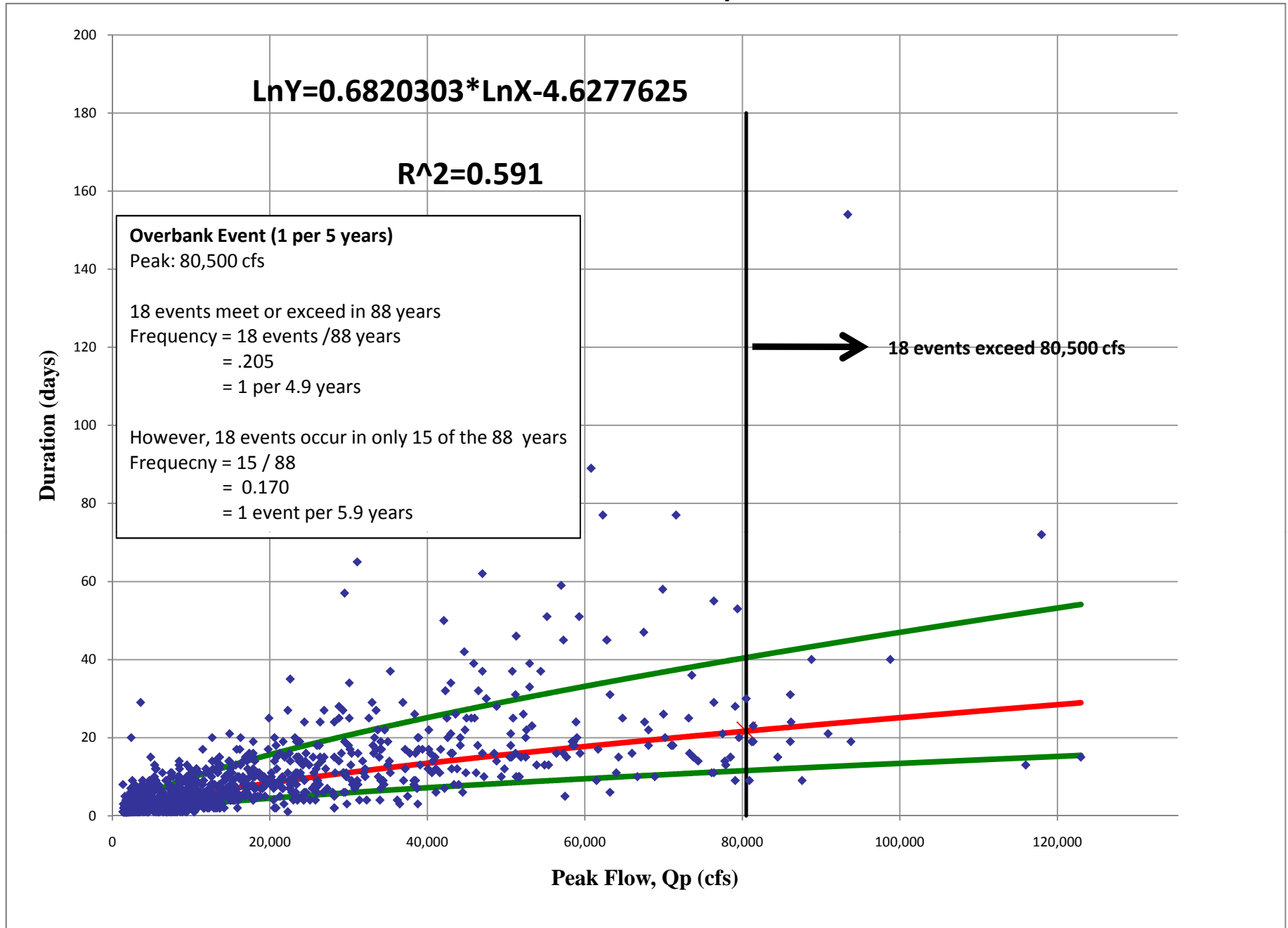
|                                |  |              |     |              |  |     |              |              |   |     |     |     |
|--------------------------------|--|--------------|-----|--------------|--|-----|--------------|--------------|---|-----|-----|-----|
| <b>Overbank Flows</b>          | Qp: 80,500 cfs with Average Frequency 1 per 5 years<br>Regressed Volume is 706,568 to 2,185,778 (1,242,740)<br>Regressed Duration is 12 to 41 (22) |              |     |              |  |     |              |              |   |     |     |     |
| <b>High Flow Pulses</b>        | Qp: 68,100 cfs with Average Frequency 1 per 2 years<br>Regressed Volume is 554,804 to 1,715,835 (975,680)<br>Regressed Duration is 10 to 36 (19)   |              |     |              |  |     |              |              |   |     |     |     |
|                                | Qp: 51,600 cfs with Average Frequency 1 per year<br>Regressed Volume is 371,492 to 1,148,453 (653,178)<br>Regressed Duration is 9 to 30 (16)       |              |     |              |  |     |              |              |   |     |     |     |
|                                | Qp: 34,400 cfs with Average Frequency 2 per year<br>Regressed Volume is 206,714 to 638,746 (363,370)<br>Regressed Duration is 6 to 23 (12)         |              |     |              |  |     |              |              |   |     |     |     |
|                                | Qp: 24,600 cfs with Average Frequency 1 per season<br>Regressed Volume is 135,624 to 394,150 (231,205)<br>Regressed Duration is 5 to 18 (10)       |              |     |              | Qp: 35,000 cfs with Average Frequency 1 per season<br>Regressed Volume is 213,377 to 705,019 (387,859)<br>Regressed Duration is 7 to 24 (13) |     |              |              | Qp: 12,900 cfs with Average Frequency 1 per season<br>Regressed Volume is 46,237 to 140,520 (80,606)<br>Regressed Duration is 3 to 11 (6) |     |     |     |
|                                | Qp: 12,400 cfs with Average Frequency 2 per season<br>Regressed Volume is 49,604 to 144,032 (84,526)<br>Regressed Duration is 3 to 11 (6)          |              |     |              | Qp: 16,300 cfs with Average Frequency 2 per season<br>Regressed Volume is 69,261 to 228,577 (125,824)<br>Regressed Duration is 4 to 14 (7)   |     |              |              | Qp: 5,430 cfs with Average Frequency 2 per season<br>Regressed Volume is 14,151 to 42,974 (24,660)<br>Regressed Duration is 2 to 6 (4)    |     |     |     |
|                                | <b>Base Flows (cfs)</b>  | 3310 (49.4%) |     |              | 3980 (58.3%)   |     |              | 2190 (39.8%) |   |     |     |     |
|                                | 1650 (67.6%)   |              |     | 2140 (73.6%) |  |     | 1330 (61.0%) |              |   |     |     |     |
|                                | 991 (82.1%)  |              |     | 1190 (86.6%) |  |     | 932 (76.4%)  |              |   |     |     |     |
| <b>Subsistence Flows (cfs)</b> | 570 (95.0%)  |              |     | 700 (95.1%)  |  |     | 550 (92.7%)  |              |   |     |     |     |
|                                | Nov  | Dec          | Jan | Feb          | Mar  | Apr | May          | Jun          | Jul   | Aug | Sep | Oct |
|                                | Winter   |              |     |              | Spring   |     |              |              | Summer  |     |     |     |

|                    |                    |
|--------------------|--------------------|
| <b>Flow Levels</b> | High (75th %ile)   |
|                    | Medium (50th %ile) |
|                    | Low (25th %ile)    |
|                    | Subsistence        |

**Notes:**

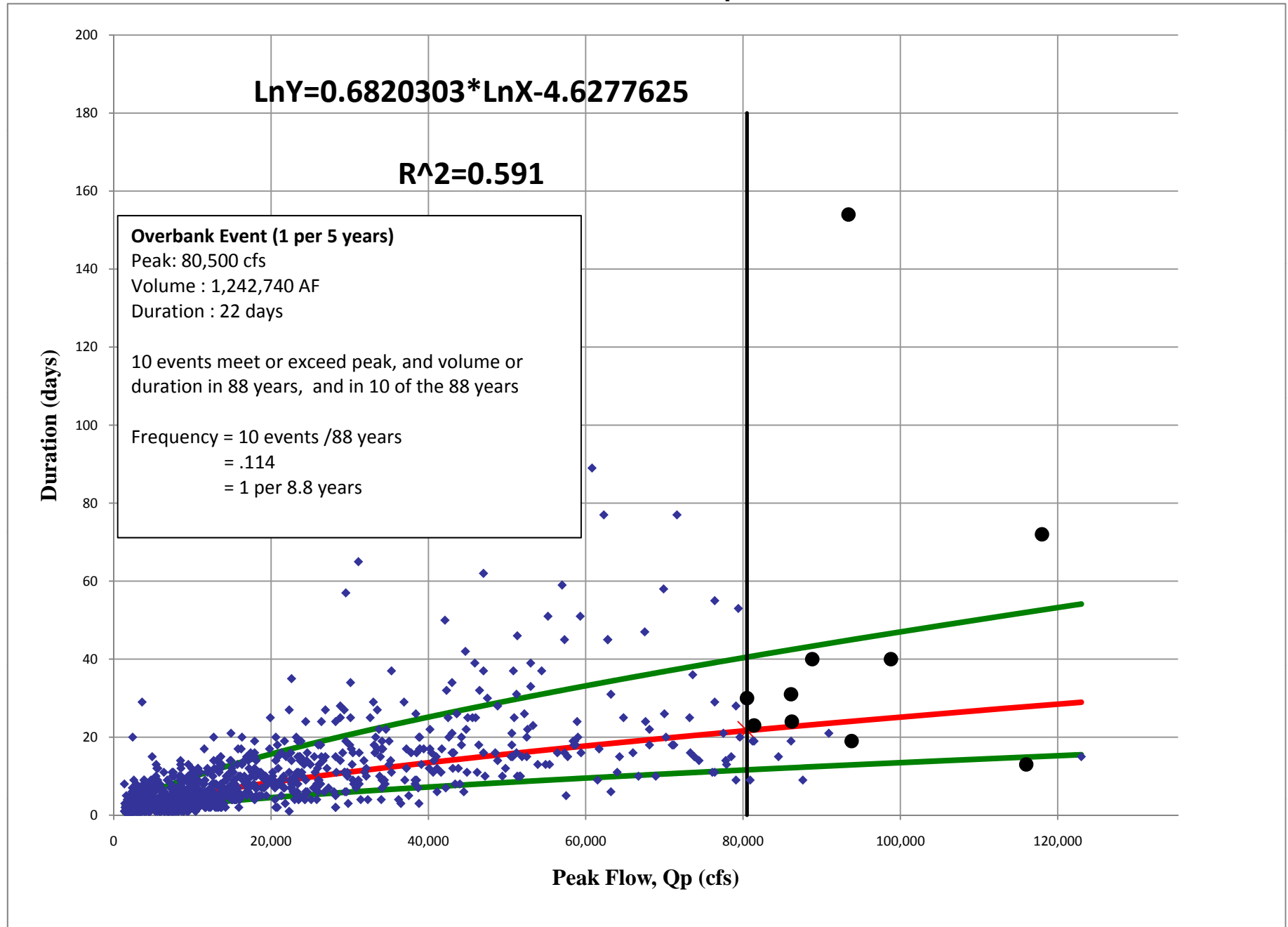
1. Period of Record used : 1/1/1923 to 12/31/2010.
2. Q95 calculation used for subsistence flows. Annual Q95 value is 550 cfs. Water Quality Protection Flow entered by user is 550 cfs.

# 8114000 Brazos River at Richmond Post-Peak Pulse Frequencies

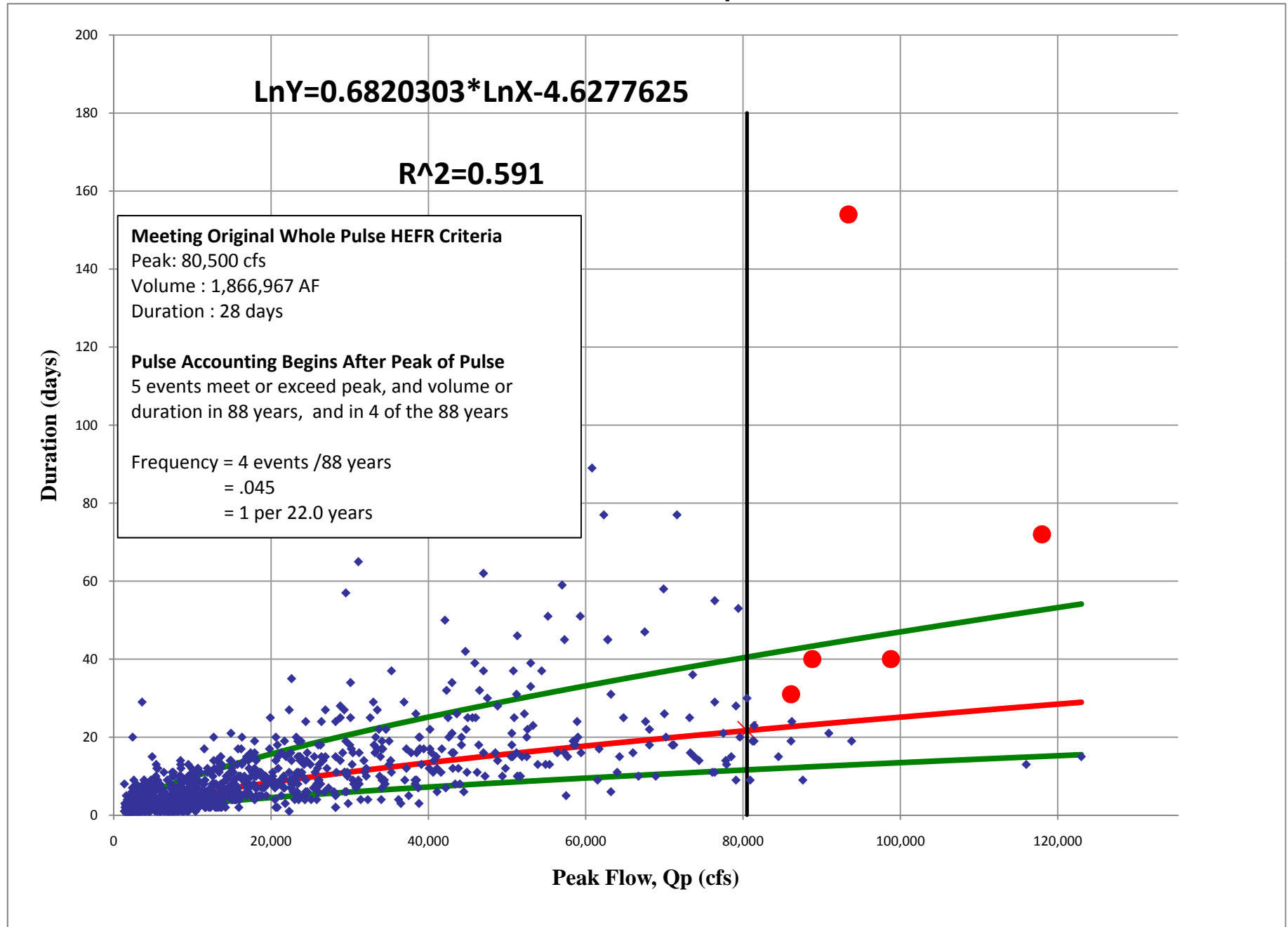




# 8114000 Brazos River at Richmond Post-Peak Pulse Frequencies



# 8114000 Brazos River at Richmond Post-Peak Pulse Frequencies



### Historic Occurrence of Meeting HEFR Target Pulse Criteria 8114000 Brazos River at Richmond Post-Peak Pulse Frequencies

