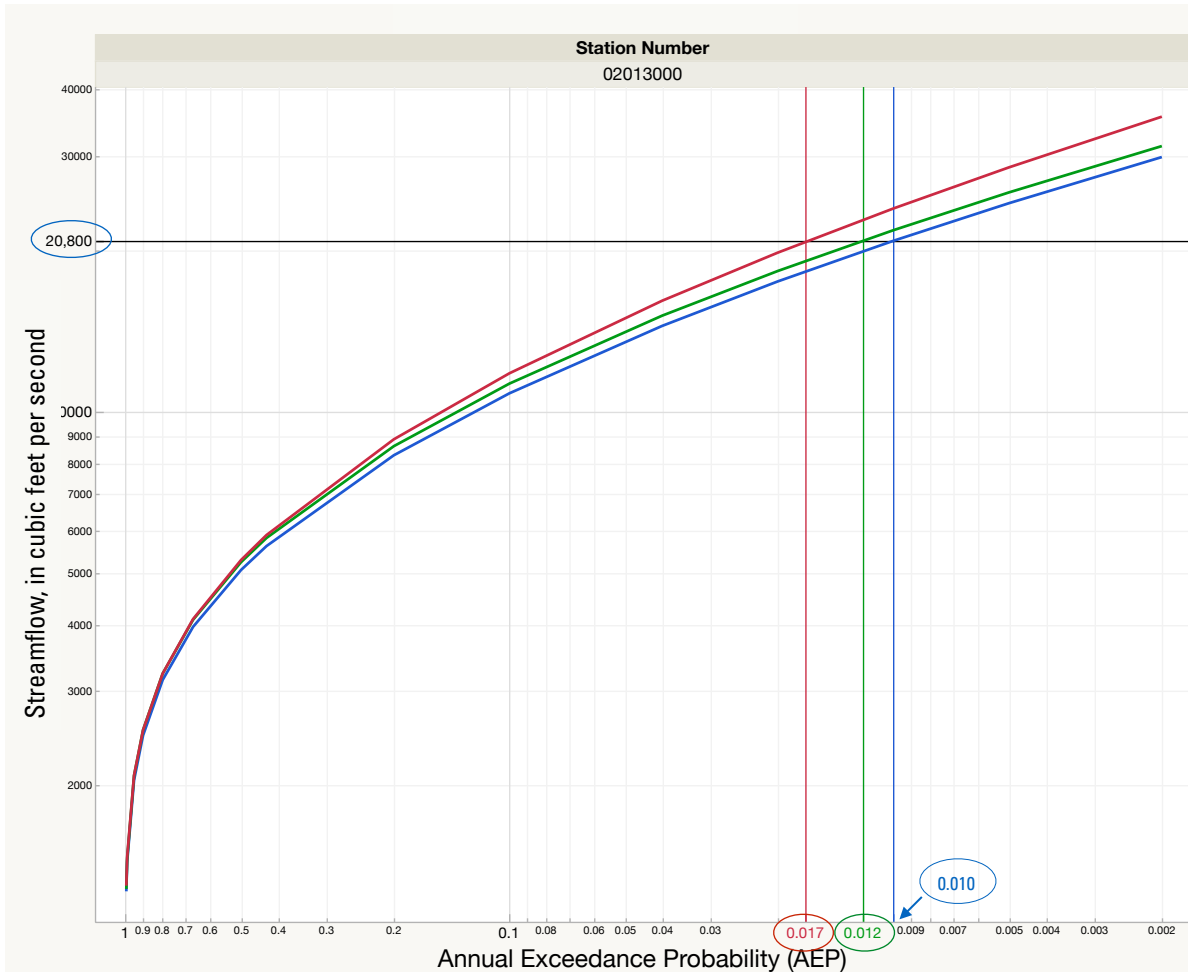


Appendix 1:

Graphs Showing Selected Annual Exceedance Probabilities in Relation to Streamflow Using the Expected Moments Algorithm Method for Selected Streamflow-Gaging Stations in West Virginia for the Period of Record Through 1990, 2015, and 2016

Three annual exceedance probability (AEP) curves calculated using the Expected Moments Algorithm (EMA) method are used to compare 100-year (AEP 0.0100) annual peak streamflows at 12 streamflow-gaging stations, measured from initiation of the period of record (POR) at each streamflow-gaging station through 1990, 2015, and 2016. Annual peak streamflows (Q) are expressed in cubic feet per second (ft³/s).

02013000 Dunlap Creek Near Covington, Virginia.



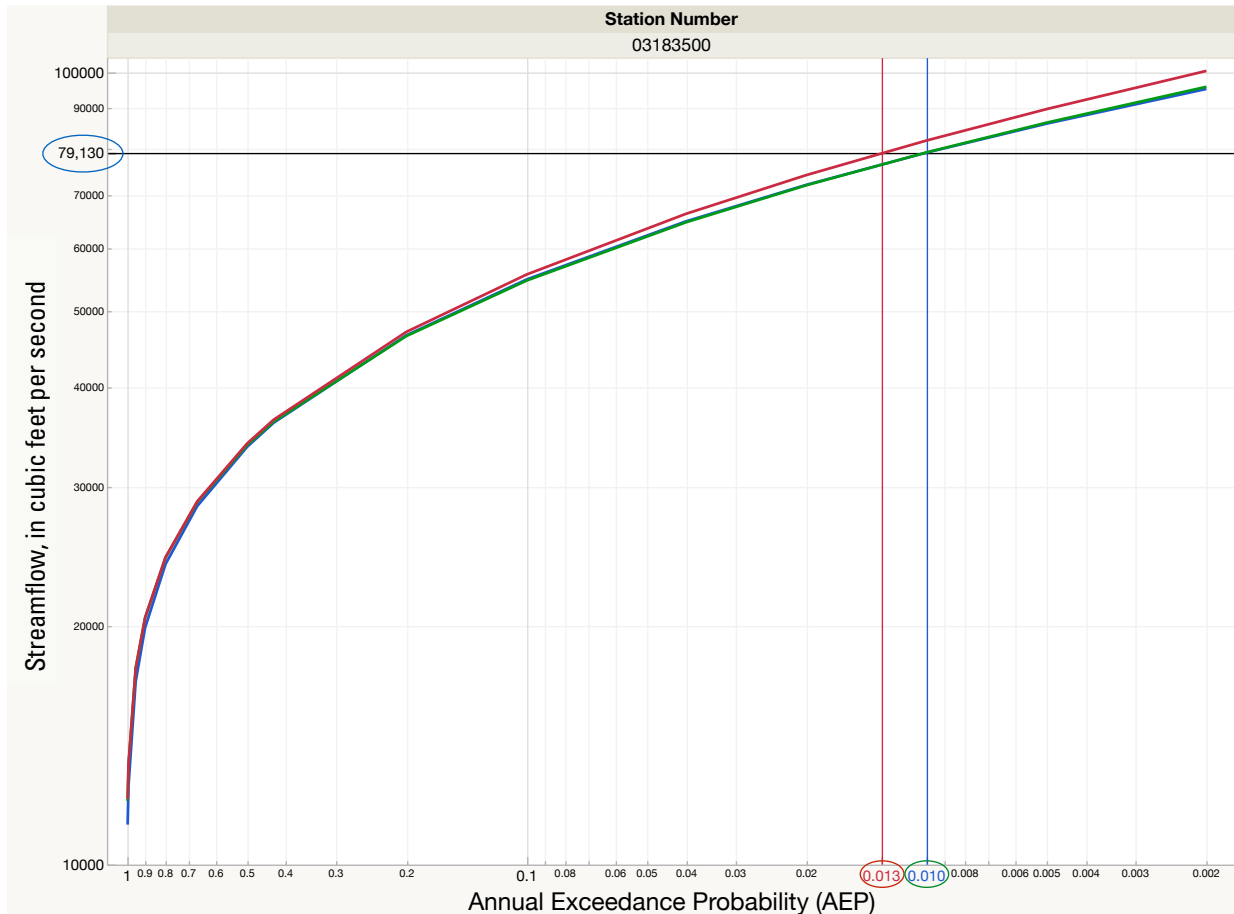
EXPLANATION
Expected Moments
Algorithm (EMA) Method

2016 — Red
2015 — Green
1990 — Blue

A 100-year streamflow (AEP 0.010) of 20,800 ft³/s in 1990 (blue curve), is equivalent to an 83-year streamflow (AEP 0.012) in 2015 (green curve), and to a 59-year streamflow (AEP 0.017) in 2016 (red curve).

Figure 1-1. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 02013000, Dunlap Creek Near Covington, Virginia, for the period of record through 1990, 2015, and 2016.

03183500 Greenbrier River at Alderson, West Virginia



EXPLANATION

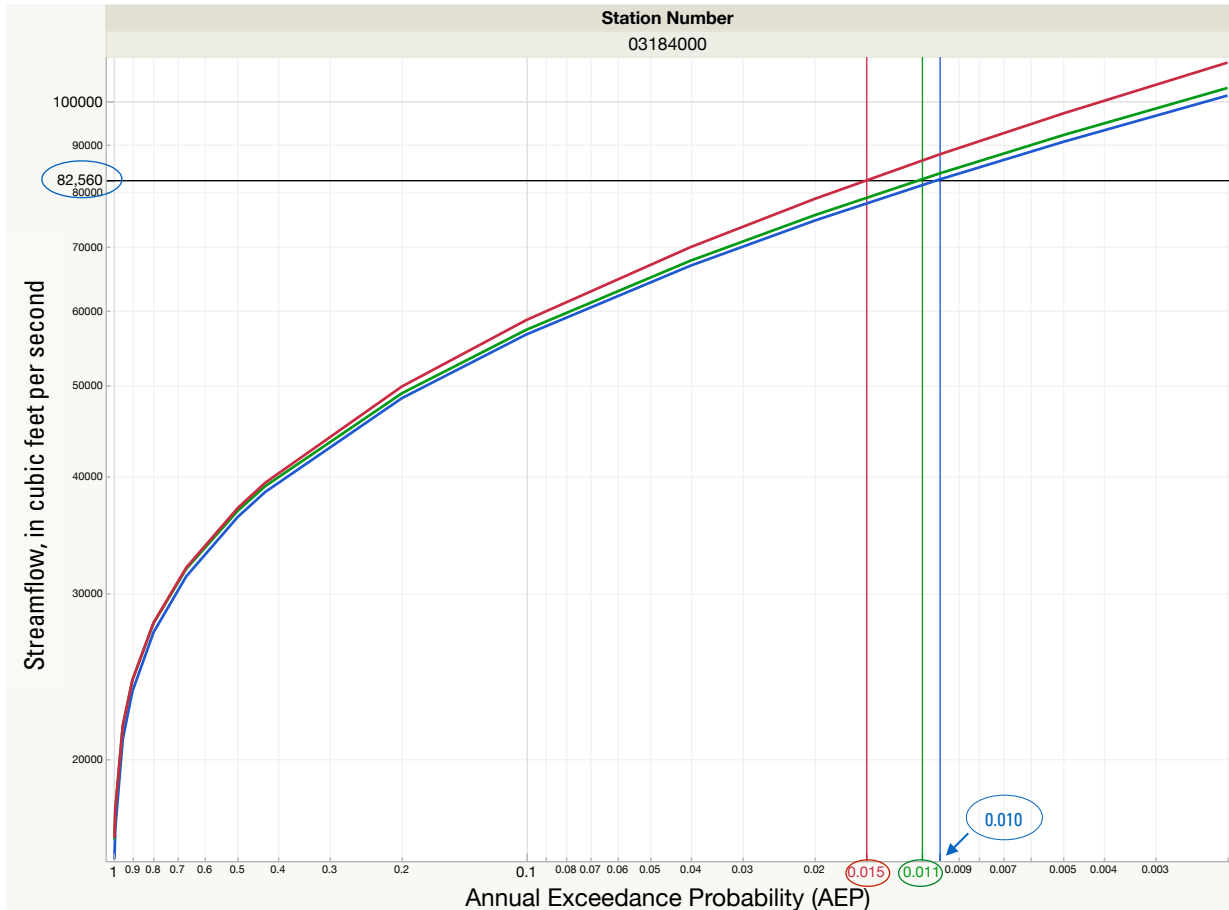
Expected Moments
Algorithm (EMA) Method

- 2016 —
- 2015 —
- 1990 —

A 100-year streamflow (AEP 0.010) of 79,130 ft³/s in 1990 (blue curve), is equivalent to an 100-year streamflow (AEP 0.010) in 2015 (green curve), and to a 77-year streamflow (AEP 0.013) in 2016 (red curve).

Figure 1-2. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03183500 ,Greenbrier River at Alderson, West Virginia, for the period of record through 1990, 2015, and 2016.

03184000 Greenbrier River at Hildale, West Virginia



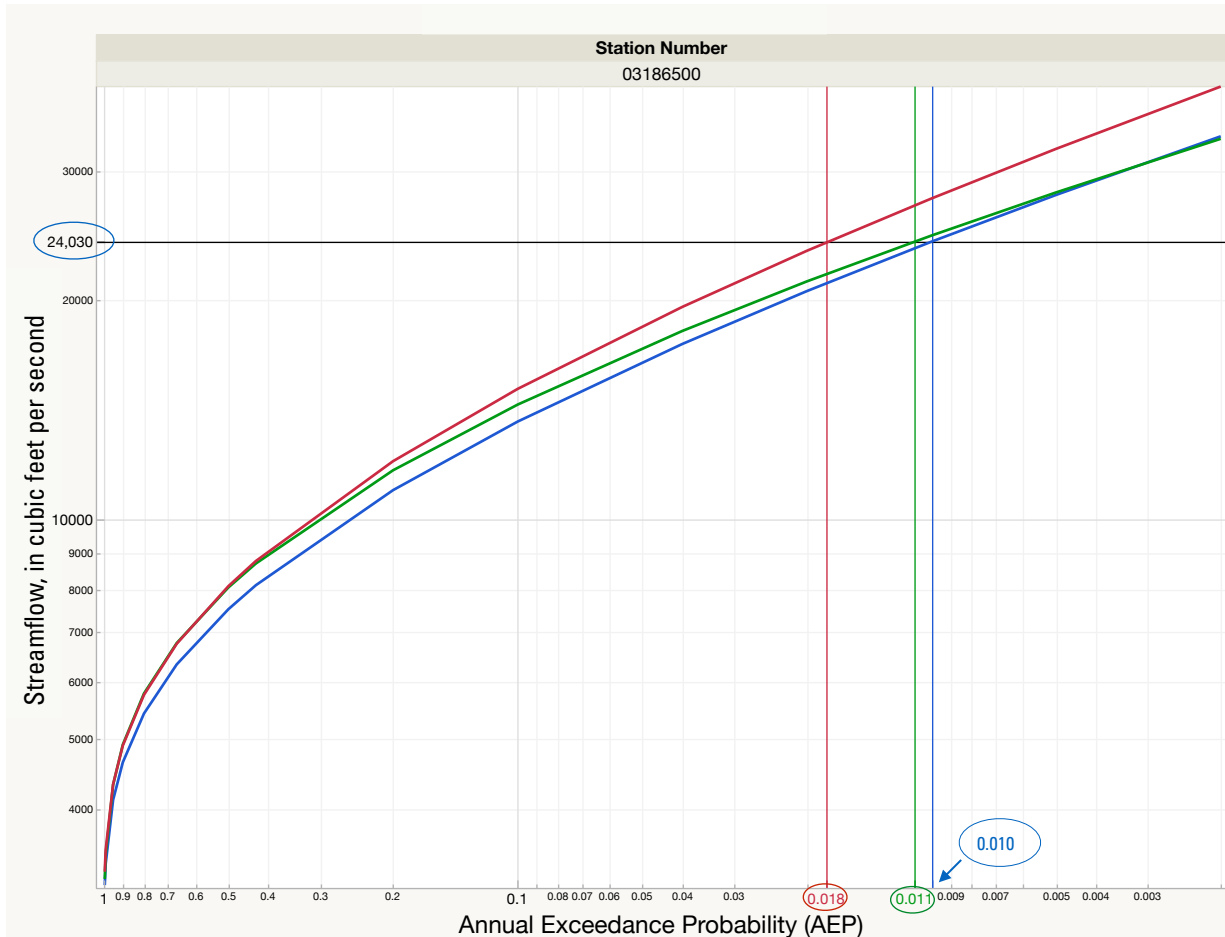
EXPLANATION
 Expected Moments
 Algorithm (EMA) Method

- 2016 —
- 2015 —
- 1990 —

A 100-year streamflow (AEP 0.010) of 81,560 ft³/s in 1990 (blue curve), is equivalent to an 91-year streamflow (AEP 0.011) in 2015 (green curve), and to a 67-year streamflow (AEP 0.015) in 2016 (red curve).

Figure 1-3. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03184000, Greenbrier River at Hildale, West Virginia, for the period of record through 1990, 2015, and 2016.

03186500 Williams River at Dyer, West Virginia



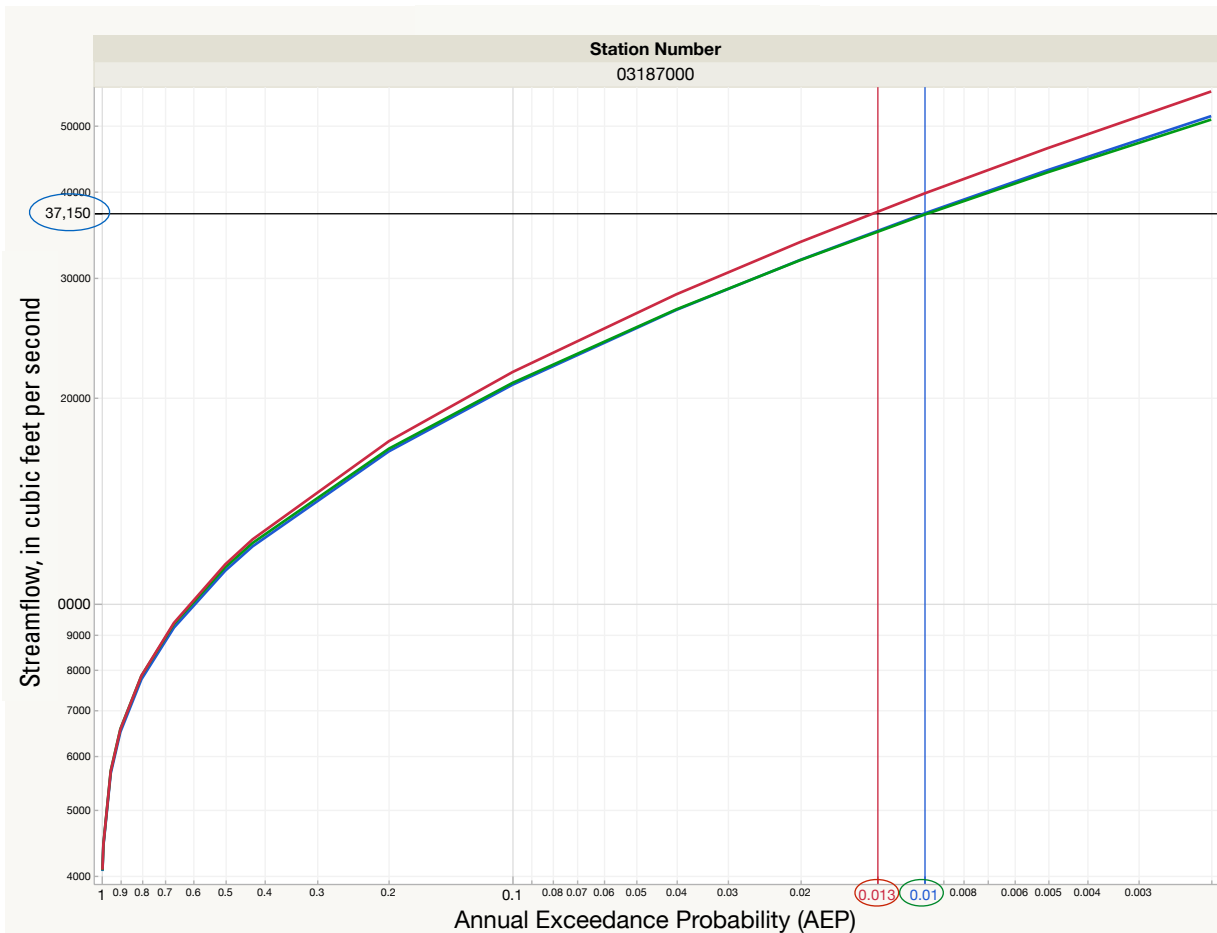
EXPLANATION
Expected Moments
Algorithm (EMA) Method

2016 —
2015 —
1990 —

A 100-year streamflow (AEP 0.010) of 24,030 ft³/s in 1990 (blue curve), is equivalent to an 91-year streamflow (AEP 0.011) in 2015 (green curve), and to a 56-year streamflow (AEP 0.018) in 2016 (red curve).

Figure 1-4. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03186500, Williams River at Dyer, West Virginia, for the period of record through 1990, 2015, and 2016.

03187000 Gauley River at Camden-on-Gauley, West Virginia



EXPLANATION

Expected Moments

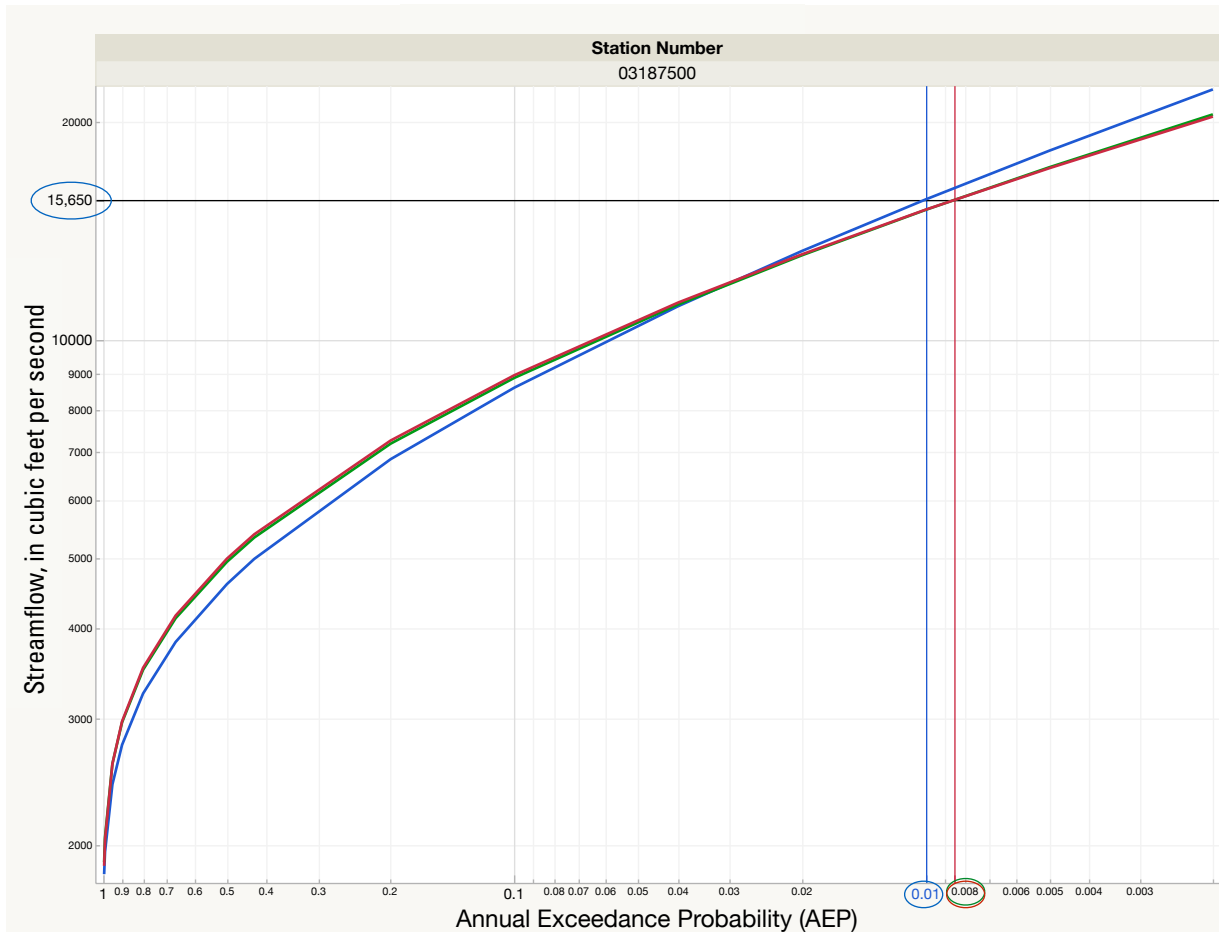
Algorithm (EMA) Method

- 2016
- 2015
- 1990

A 100-year streamflow (AEP 0.010) of 37,150 ft³/s in 1990 (blue curve), is equivalent to an 100-year streamflow (AEP 0.010) in 2015 (green curve), and to a 77-year streamflow (AEP 0.013) in 2016 (red curve).

Figure 1-5. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03187000, Gauley River at Camden-on-Gauley, West Virginia, for the period of record through 1990, 2015, and 2016.

03187500 Cranberry River near Richwood, West Virginia



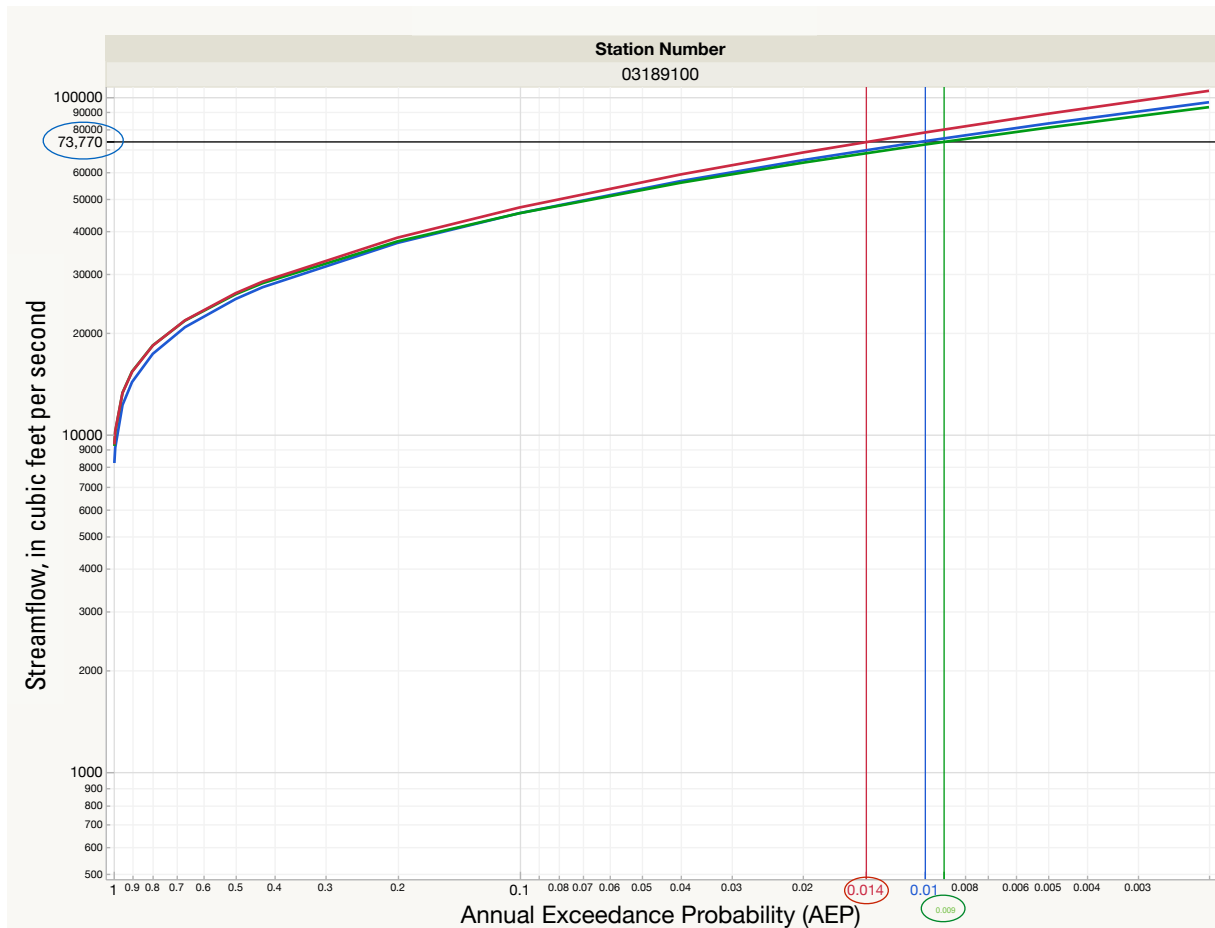
EXPLANATION
Expected Moments
Algorithm (EMA) Method

- 2016 —
- 2015 —
- 1990 —

A 100-year streamflow (AEP 0.010) of 15,650 ft³/s in 1990 (blue curve), is equivalent to an 125-year streamflow (AEP 0.008) in 2015 (green curve), and to a 125-year streamflow (AEP 0.008) in 2016 (red curve).

Figure 1-6. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03187500, Cranberry River near Richwood, West Virginia, for the period of record through 1990, 2015, and 2016.

03189100 Gauley River near Craigsville, West Virginia



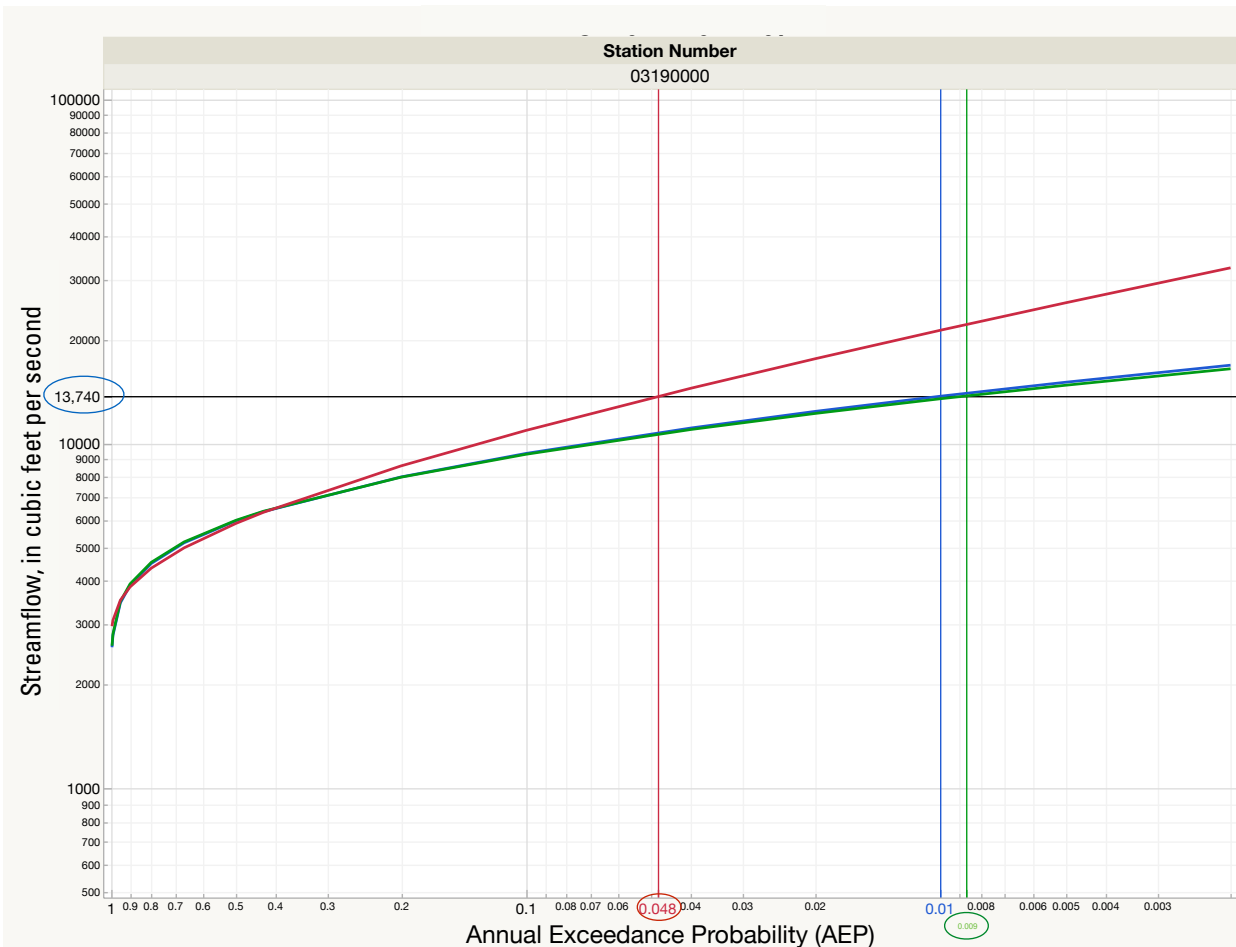
EXPLANATION
 Expected Moments
 Algorithm (EMA) Method

- 2016 —
- 2015 —
- 1990 —

A 100-year streamflow (AEP 0.010) of 73,770 ft³/s in 1990 (blue curve), is equivalent to an 111-year streamflow (AEP 0.009) in 2015 (green curve), and to a 71-year streamflow (AEP 0.014) in 2016 (red curve).

Figure 1-7. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 3189100, Gauley River near Craigsville, West Virginia, for the period of record through 1990, 2015, and 2016.

03190000 Meadow River at Nallen, West Virginia



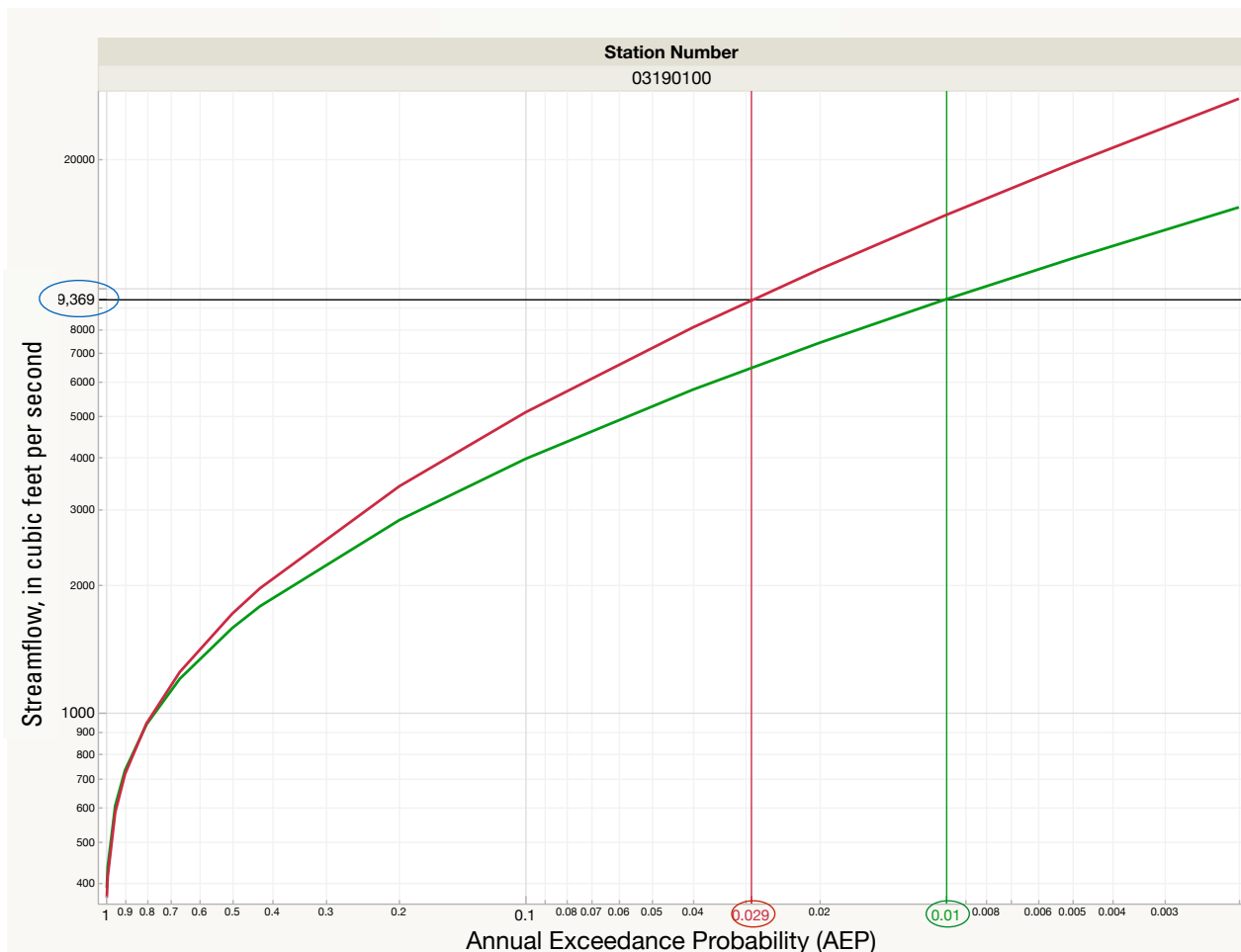
EXPLANATION
Expected Moments
Algorithm (EMA) Method

- 2016 —
- 2015 —
- 1990 —

A 100-year streamflow (AEP 0.010) of 13,740 ft³/s in 1990 (blue curve), is equivalent to an 111-year streamflow (AEP 0.009) in 2015 (green curve), and to a 21-year streamflow (AEP 0.048) in 2016 (red curve).

Figure 1-8. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03190000, Meadow River at Nallen, West Virginia, for the period of record through 1990, 2015, and 2016.

03190100 Anglins Creek near Nallen, West Virginia

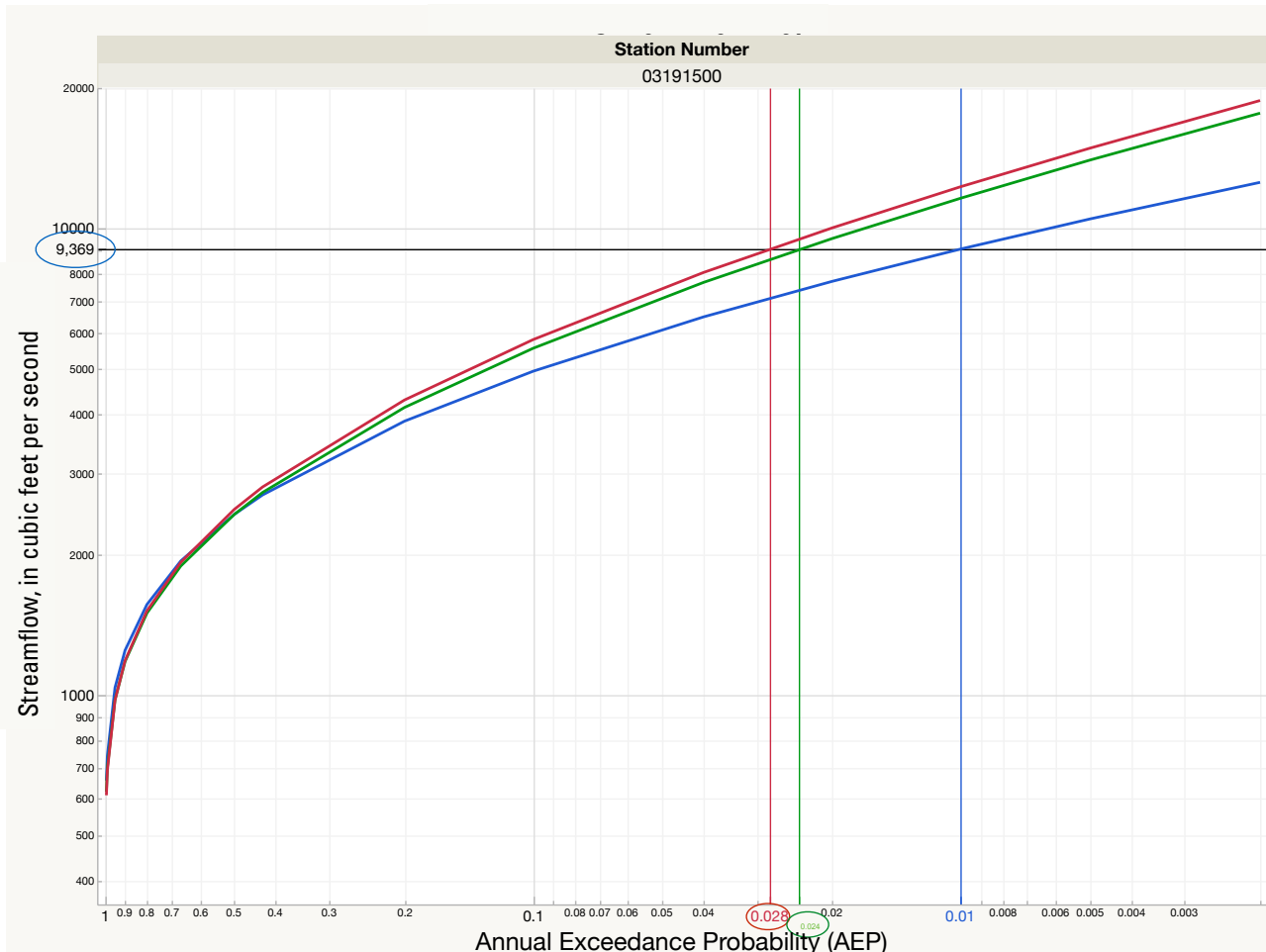


EXPLANATION
Expected Moments
Algorithm (EMA) Method
2016 —
2015 —
1990 —

A 100-year streamflow (AEP 0.010) of 9,369 ft³/s in 2015 (green curve), is equivalent to an 34-year streamflow (AEP 0.029) in 2016 (red curve).

Figure 1-9. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03190100, Anglins Creek near Nallen, West Virginia, for the period of record through 1990, 2015, and 2016.

03191500 Peters Creek near Lockwood, West Virginia



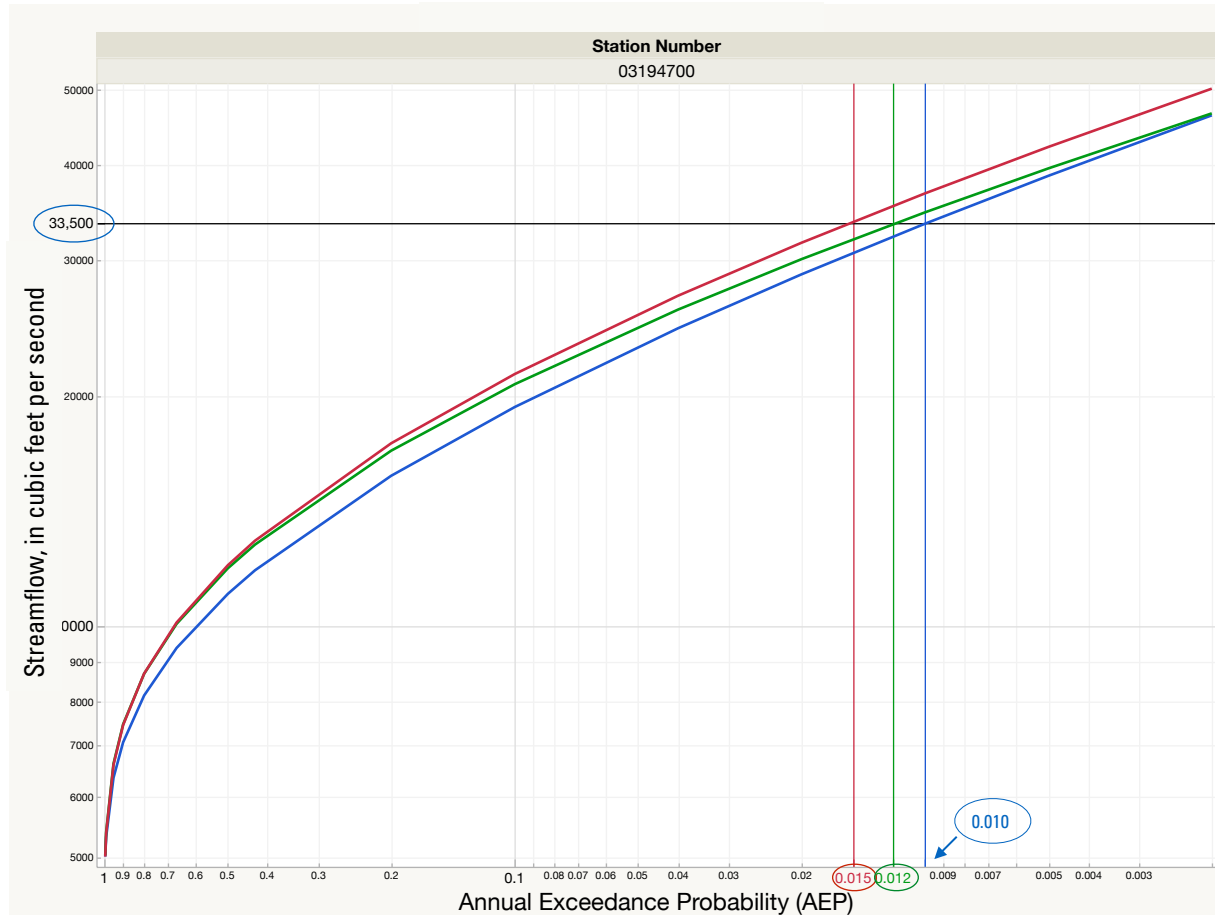
EXPLANATION
Expected Moments
Algorithm (EMA) Method

- 2016
- 2015
- 1990

A 100-year streamflow (AEP 0.010) of 9,369 ft³/s in 1990 (blue curve), is equivalent to an 42-year streamflow (AEP 0.024) in 2015 (green curve), and to a 36-year streamflow (AEP 0.028) in 2016 (red curve).

Figure 1-10. Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03191500, Peters Creek near Lockwood, West Virginia, for the period of record through 1990, 2015, and 2016.

03194700 Elk River below Webster Springs, West Virginia



EXPLANATION
Expected Moments
Algorithm (EMA) Method

- 2016 — Red line
- 2015 — Green line
- 1990 — Blue line

A 100-year streamflow (AEP 0.010) of 33,500 ft³/s in 1990 (blue curve), is equivalent to an 83-year streamflow (AEP 0.012) in 2015 (green curve), and to a 67-year streamflow (AEP 0.017) in 2016 (red curve).

Figure 1-11 Annual exceedance probabilities in relation to streamflow for U.S. Geological Survey streamflow-gaging station 03194700, Elk River below Webster Springs, West Virginia, for the period of record through 1990, 2015, and 2016.