INDIAN RUN - PSU-IV


Indian Run Watershed at the confluence of North Branch has a drainage area of 4.39 mi² as delineated with WMS 6.0.

Based on Plate 1, the project is located in Region 1.

The equation for Region 1 is as follows:

\[ y = 2.55 + 0.71 \log(A) - 0.00039 \text{ DEL} \]

Region 2
\[ y = 1.90 + 0.81 \log(A) - 0.0021 \text{ FOR} \]

Region 3
\[ y = 2.04 + 0.83 \log(A) - 0.0025 \text{ FOR} \]

Region 4
\[ y = 2.60 + 0.85 \log(A) - 0.44 \log(\text{FOR}) \]

Where:
- \( A = 4.39 \text{ mi}^2 \) = Drainage area
- \( \text{DEL} = 760 \text{ ft} \) = Divide elevation. If \( \text{DEL} > 1000 \), use \( \text{DEL} = 1000 \)
- \( \text{FOR} = \text{n/a} \% \) = Percentage of forested drainage area.
  
  If \( \text{FOR}<10 \) in Region 4, use \( \text{FOR}=10 \)

\( \hat{y} = 2.71 \)

Based on Plate 2, the standard deviation of the logarithms of annual maximum streamflow is:
\( S_y = 0.255 \)

Based on Plate 3, the skew coefficient of the logarithms of annual maximum streamflow is:
\( G = 0.45 \)
Solution for Log Pearson Type III Flood Frequency Distribution 
using PSU-IV Computer Program (or graphically with Figure 1.2):

<table>
<thead>
<tr>
<th>Event</th>
<th>10-Year Event (cfs)</th>
<th>25-Year Event (cfs)</th>
<th>100-Year Event (cfs)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1,112</td>
<td>1,559</td>
<td>2,429</td>
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</tbody>
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Flood Peak Adjustments

Watershed Urbanization (UFR)
Percent Impervious = 0%
Manning’s n Ratio (urbanized/natural) = 1
Therefore, Urban Flood Ratio (UFR) = 1.0

Reservoir, Lake, or Swamp Storage Effects
Percent Controlled Area = 0%
Therefore, Flood Reduction Factor = 1.0

Carbonate Rocks
Percent Underlain by Carbonate Rock = 0% (see Plate 1)
Therefore, Flood Reduction Factor = 1.0

Small Basin Adjustment (< 1000 acres)
For a basin area < 1000 acres, use Figure 5.1 to determine the flood peak correction factor.
Flood Peak Adjustment Factor = 1.0

Total Flood Peak Adjustment Factor = 1.0

PSU-IV Flows for Indian Run at Confluence with N. Branch Indian Run

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