

**PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT  
TECHNICAL POLICY**

**POLICY NAME:** Acceptable Methods for Determining Peak Discharges

**POLICY NUMBER:** Technical Policy, TECH-015

**EFFECTIVE DATE:** October 1, 2007

**PURPOSE**

To standardize the selection of hydrologic models and other methods to be used to determine peak discharges.

**BACKGROUND**

When peak discharges need to be established or revised, a computer-based hydrologic model or previously-accepted discharge value may be used. Different hydrologic models may be appropriate for different applications. This policy describes when different hydrologic models may or shall be used for submittals to the Pima County Regional Flood Control District (District), and what other methods of determining peak discharges are acceptable. Modeling protocols and accepted parameters are not discussed in the policy.

**POLICY**

A. Peak discharges may be computed as follows:

1. ***For watersheds < 1 square mile with negligible detention or retention structures:*** The Pima County Hydrology Procedures (e.g., PC-Hydro) shall be used.
2. ***For watersheds < 1 square mile with detention or retention structures:*** HEC-1 or HEC-HMS may be used.
3. ***For Watersheds > 1 square mile and < 10 square miles:*** HEC-1, HEC-HMS (including Geo-HMS) or the Pima County Hydrology Procedures may be used. If the Pima County Hydrology Procedures are used, the Time of Concentration must be < 180 minutes and detention and retention must be negligible. HEC-1 or HMS (including Geo-HMS) is preferred.
4. ***For watersheds > 10 square miles:*** HEC-1 or HEC-HMS (including Geo-HMS) shall be used.
5. ***For outlying watersheds:*** Where watershed information is sparse or unknown, and the development impact on the floodplain is minimal (e.g., not subject to subdivision requirements, or to determine erosion hazard concerns), the USGS Regression

Equation 13 (Thomas et al, 1997) or Eychaner equations (Eychaner, 1984) may be used.

B. The use of other methods for determining peak discharge shall be as follows:

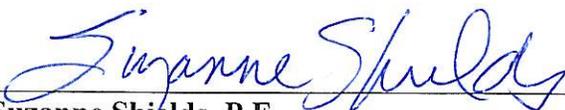
1. ***For watersheds where the District has conducted studies:*** The use of peak discharges from previously-approved Basin Management Studies (or other studies conducted for or by the District) is acceptable in lieu of hydrologic modeling. The District will review these discharges to make sure that methods do not conflict with any current regulations and parameters, and methods are in conformance with sound and contemporary engineering practice.
2. ***For watersheds where previous studies have been accepted by the District:*** Peak discharges may be used from studies that have been previously accepted by the District (i.e., Drainage Reports). Peak discharges incorporated into new Drainage Reports submitted in support of development plans or plats shall be verified and certified as valid by the engineer of record. The District will review these discharges to ensure that methods do not conflict with any current regulations and parameters and methods are in conformance with sound and contemporary engineering practice.
3. ***Other Models:*** Approval of the use of other models, such as FLO-2D, shall be obtained in writing from the District prior to the submittal of the peak discharge analysis. A copy of the written permission must be included with the submittal.

#### REFERENCES

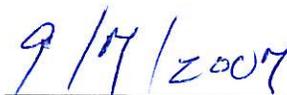
Eychaner, James H. 1984. *Estimation of Magnitude and Frequency of Floods in Pima County with Comparisons of Alternative Methods*. USGS Water-Resources Investigations Report 84-4142, 69pp.

Thomas, B.E., Hjalmarson, H.W. and Waltemeyer, S.D. 1997. *Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States*. USGS Water Supply Paper 2433. 195pp

APPROVED BY:



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Date