From: See, Kenneth
To: Mills, Vivian
Subject: FW: Breach Regresion Equations (UNCLASSIFIED)
Date: Friday, July 12, 2013 2:02:19 PM

-----Original Message-----
From: Brunner, Gary W IWR-HEC [mailto:Gary.Brunner@usace.army.mil]
Sent: Wednesday, April 17, 2013 11:16 AM
To: See, Kenneth
Cc: Gee, Michael IWR-HEC
Subject: Breach Regresion Equations (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Ken,

We have added an option into the HEC-RAS 4.2 software that allows users to get breach width and critical development time estimates from 5 regression equations. This includes: MacDonald et el; Froehlich (1995); Froehlich (2008); Von Thun and Gillete; and a new Paper by Xu & Zhang.

A note is attached to the breach Development times that come out of the Xu & Zhang estimates. The note states: "*Note: the breach development time from the Xu Zhang equation includes more of the initial erosion period and post erosion than what is used in the HEC-RAS breach formation time."

I put this note in the software because when reviewing their paper I found that they used much longer breach development times for their base data than what others have listed for these same Dams in their papers. For example, most people list the breach development time for Teton Dam in the Range of 30 minutes to 1 1/2 hours. The Xu Zhang paper used 4.5 hours for Teton Dam in their base data set. This example, as well as others has lead me to the conclusion that their equation includes more time in it than what I would consider the critical breach time, and more importantly it includes more time than what is appropriate for use in HEC-RAS.

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