

Memo

To: Chal Martin, City of Burlington
Lorna Ellestad, Skagit County

From: Karl Eriksen, US Army Corps of Engineers

CC: Amy Gibbons, US Army Corps of Engineers
Project File

Date: 7/10/2009

Re: NHC/PIE investigation Recommendations

During the 17 June 2009 Skagit River GI H&H Workshop, presentations of studies completed by consultants employed by Skagit County and the City of Burlington were made to USACE District, Division, and HQ staff.

Both the PIE and NHC investigations rely a great deal on engineering judgment to support their conclusions. We recognize that judgment is necessary in this type of investigation and that it is also part of the USGS analysis. However, it must be recognized that it is very difficult to develop compelling evidence based on differences in engineering judgment. This is most clearly demonstrated by the fact that PIE and NHC reached different results for the four historic Skagit River flood peaks.

We find that the PIE and NHC investigations into High Water Marks (HWM's), survey results, and HEC-RAS modeling provide less than compelling evidence that the USGS historic flood peaks should be adjusted downward. The following suggestions describe how the investigations could be strengthened. It should be noted that these suggestions, if adopted, may improve the quality of the results, however they may not result in compelling evidence that would justify revising the four historical flood peaks.

High Water Marks (HWM)

To strengthen the evaluations of the historic HWM's, the investigations need to compile, evaluate, and compare all the HWM's along the river that were identified by Stewart. USACE believes the disparagement of the 2003 HWM's is unfair criticism of good procedures by the USGS that reported the full range of observed HWM's. The USGS then exercised judgment in selection and utilization of the HWM's in their analysis.

Historic Surveys

We recommend that PIE continue to work with the USGS to resolve their differences on this issue.

HEC-RAS Modeling

Calibration of any hydraulic model is dependent on the available data. The USGS gage at Concrete is located near the middle of the Dalles, a hydraulically a very complex reach. An investigation of the hydraulic conditions at the Dalles is needed to determine the most appropriate modeling techniques. Additionally, the parameters used to model the channel and overbanks should be reviewed.