

Station Fire Hydrologists, please review... and consider Barry's recommendation to include his analysis with yours in the BAER documentation....

Lisa or Meredith, please file this e-mail in the BAER documentation in the Hydrology section. Thanks,  
Brent

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----- Forwarded by Brent Roath/R5/USDAFS on 09/29/2009 09:47 AM -----

**Barry Hill/R5/USDAFS**

09/29/2009 09:09 AM

To Brent Roath/R5/USDAFS@FSNOTES  
cc Jeff D TenPas/R5/USDAFS@FSNOTES, Rob Griffith/R5/USDAFS@FSNOTES, Barnie Gyant/R5/USDAFS@FSNOTES, Debra Whitman/R5/USDAFS@FSNOTES, Tom Lisle/PSW/USDAFS@FSNOTES, Lisa A Northrop/R5/USDAFS@FSNOTES  
Subject Station Fire BAER report estimates of peak flows and sediment yields

Brent--

Peak flows estimated for unburned conditions for the Station Fire BAER report based on Rowe, Countryman, and Storey (RCS, 1949) are substantially lower than USGS STREAMSTATS estimates based on Waananen and Crippen (1977). The differences are particularly large for peaks with recurrence intervals ranging from 5 to 50 years. For these recurrence intervals, USGS estimates exceed RCS estimates by factors of roughly 2 to 3 for the 2 stations I compared. Peak flow estimates for unburned conditions directly affect the estimates for postfire conditions using RCS, which are determined by multiplying peaks for unburned conditions by a multiplier that represents postfire conditions. Therefore, although the USGS data do not allow for an independent estimate of postfire conditions, the discrepancy between the RCS and USGS estimates can be expected to be similar for postfire peak flows.

Sediment yields estimated using RCS are also lower than sediment yields computed from long-term records of reservoir sedimentation available from the USGS RESSED web site. The RESSED data gave averages that were 1.3 and 3.6 times higher than the RCS averages for the 2 stations I compared.

The STREAMSTATS and RESSED analyses are based on roughly 30 more years of hydrologic data than RCS, and are therefore more likely to accurately estimate peak flows and sediment yields, particularly for larger recurrence intervals. Because the STREAMSTATS and RESSED estimates are much higher than the RCS estimates, I strongly recommend in the interest of public safety that the BAER report include the STREAMSTATS and RESSED estimates instead of or in addition to the RCS estimates. Possibly the best approach would be to present a range of estimates. I would also like to offer my help in working with you, PSW, and others to develop improved methods of estimating postfire peak flows and sediment yields for our Region.

Let me know if you would like more detailed information concerning my comparison of RCS estimates with STREAMSTATS and RESSED data.

Barry

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