


**CONTRA COSTA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
255 GLACIER DRIVE, MARTINEZ, CALIFORNIA**

DATE: January 31, 2006

TO: Greg Connaughton, Assistant Public Works Director, Flood Control

FROM: Mark Boucher, Sr. Hydrologist, Flood Control 

COPY: Mitch Avalon, Deputy Public Works Director, Administration

SUBJECT: Report on the December 31, 2005 Storm Update

This is an update to my January 5, 2006 storm report. We have had an opportunity to review the other gauges and found they did not appear to be working properly for various reasons. The previous report has been edited for minor formatting and content adjustments, but the underlying data was not revised.

The storm ending on December 31, 2005 around 1:00 PM was a 10- to 50-year storm, depending on the location in the County. Many of our gauges recorded 12-hour intensities greater than the 25-year rainstorm with the most intense rainfall occurring at St. Mary's College where 4.97 inches fell in the 12-hours amounting to approximately a 48-year rainstorm at that gauge. Paul Wu's gauge recorded a very high 12-hour intensity amounting to at least a 50-year rainstorm. Mt. Diablo peak recorded 24-hour intensity near the 25-year rainstorm. The table below summarizes the return periods we calculated for our gauges using the attached spreadsheets.

The recurrence intervals we calculate is for rainfall and not stream flow. The runoff from a rainstorm is dependant on how saturated the watershed is prior to the rainstorm (antecedent condition). The antecedent condition also affects how full detention basins and reservoirs are prior to a rainstorm and therefore how well they perform. Please note that some gauges may underestimate the rainfall due to high winds and therefore a low recorded rainfall (Station ORF 11 for example) may not always show the exact return period. Therefore, the flow rates experienced on the ground could be higher or lower in return period. With all this in mind, please use this report and attachments as a general guide to the severity of the storm.

The attached map has been corrected. Rainfall amounts on certain gauges were inadvertently switched. The return periods on the previous map were correct, however. The map shows the locations of the gauges used in this analysis. Gages with suspected errors not included. Also included are plots of rainfall patterns for each station.

The "Approximate Maximum Return Period" is approximated by linear interpolation between values on the "Total Storm Rainfall Depths and Return Period" tables. Again, the recurrence intervals should be taken as a guide to the general size of the storm.