**Error Analysis for Application of High Flow Suspension Using the 0.5" Rainfall Trigger
In Engineered/Modified Flood Control Channels that are Concrete-Lined**

Relying on the same data used to create Figures 5.9, 5.10 and 5.11 in the January, 2012 Staff Report, we computed the decision error rate for application of the high flow suspension when using the 0.5" rainfall trigger as a surrogate for actual streamflow.

A <u>false positive</u> occurs when high flow suspension is wrongly triggered (e.g. rainfall exceeded 0.5" but the actual depth-velocity product remained below 10 ft^2/sec). A <u>false negative</u> occurs if the high flow suspension is mistakenly not triggered when a hazardous condition truly exists (e.g. rainfall was less than 0.5" but the actual depth-velocity product was greater than 10 ft^2/sec).

Results from combined analysis of 370 storm events, in three different channels*, are summarized in the following table:

High Flow Suspension	Depth-Velocity Product		Total
	<10 ft^2/sec	>10 ft^2/sec	
Triggered	19	155	174
Not Triggered	119	77	196

Of the 174 cases where the high flow suspension was triggered, stream flows were less than 10 ft^2/sec in only 19 of these instances. Thus, the false positive error rate was 10.9%. However, even in these cases, the average depth-velocity product was still 7.4 ft^2/sec.

Of the 196 cases where rainfall did not trigger the high flow suspension, actual stream flows were greater than 10 ft^2/sec in 77 instances. Thus, the false negative error rate was 39.3% and the average depth-velocity product was 20.8 ft^2/sec for these 77 cases.

In sum, the rainfall trigger is <u>3.6 times</u> more likely to error on the side of failing to trigger the high flow suspension when unsafe flow conditions are actually present than to activate it unnecessarily. As such, the 0.5" threshold may serve as a (regulatorily) conservative surrogate when actual stream gauge data is not available to compute the more useful depth-velocity product.

Santa Ana Delhi Channel, Mill-Cucamonga Channel, Temescal Creek Channel

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