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We first need a detailed description from you how your hauled water is set-up and operated. Are there any variations between commercial properties and residential properties, between alarms in the north and alarms in the south, etc. We will then set up the timing evolutions to replicate your procedures as closely as possible.

The computer model works in the following manner. A tender arrives at the fire site and off-loads its water. It will then travel to a fill site, fill, and return to the fire site to off-load, and begin the cycle again. Assuming some times, it might look like this:

Off-load time	2 minutes
Travel to fill site	10 minutes
Fill time	2 minutes
Travel to fire site	10 minutes
Total cycle time	24 minutes

If this is a 2400 gallon tender, then $2400/24 = 100$ gpm delivery. By definition, creditable water is 250 gpm for 2 hours. Therefore, at least 3 – 2400 gallon tenders are needed under this scenario to deliver the minimum 250 gpm. The model then tracks the position of each apparatus and the volume of water available to the fire site engine on a time line for 120 minutes. If, at any point in time, the water available is insufficient to continue pumping 250 gpm, then the test failed. However, if 250 gpm can be delivered for 120 minutes, the model re-runs the scenario and at the 15 minute mark will increase the flow to 300 gpm for the balance of the 120 minutes. It will continue to re-run, increasing the flow by 50 gpm, until failure. At some point, you will either pump faster than the water can be delivered or reach the rated capacity of the pump. The flow prior to failure is the creditable flow. We run test scenarios throughout the district to determine an average delivery/credit.

In order to run the model we need input data. We need fill time and dump time for each tender, a set-up time for the fire site pumper, and a set-up time for the fill site which may or may not include a pumper. Travel time = distance x 1.7 + 0.65. (35 mph). We need sufficient personnel to run the exercises but not more than your average response. We need all tenders that would respond, first alarm, second alarm, auto aid and mutual aid. We will consider all tender in a scenario, but travel distance becomes a practical consideration. Any tenders more than 15 miles out will not arrive in time to contribute to an increased flow. Tenders between 10 and 15 miles have minimum contribution. The fill and dump exercises can be run anywhere there is sufficient room to set-up and maneuver apparatus.

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