

IVGID WATER STORAGE TANKS DRAWDOWN CALCULATIONS DURING A LARGE WILDFIRE

Water storage capacity in IVGID community tanks (max.)	6,540,000 gal.
1 st hour of wildfire; 4 Type 1 Engines (1,500 gpm each)	(360,000)
Water Plant production at capacity (5,900 gpm)	<u>+354,000</u>
Water storage available in tanks	6,534,000 gal.
2 nd hour of wildfire; 8 Type 1 Engines (1,500 gpm each)	(720,000)
Water Plant production at capacity (5,900 gpm)	<u>+354,000</u>
Water storage available in tanks	6,168,000 gal.
3 rd hour of wildfire; 17 Type 1 Engines (1,500 gpm each)	(1,530,000)
Water Plant production at capacity (5,900 gpm)	<u>+354,000</u>
Water storage available in tanks	4,992,000 gal.
4 th hour of wildfire; 34 Type 1 Engines (1,500 gpm each)	(3,060,000)
Water Plant production at capacity (5,900 gpm)	<u>+354,000</u>
Water storage available in tanks	2,286,000 gal.
4 hours & 34 min. of wildfire;	
50 Type 1 Engines (1,500 gpm each)	(2,550,000)
Water Plant production at capacity (5,900 gpm)	<u>+200,600</u>
Water storage available in tanks	<u>(63,400) gal.</u>

ASSUMPTIONS:

- (1) Water tanks storage capacity & maximum water plant production rates provided by Brad Underwood, IVGID Director of Public works.
- (2) Type 1 Fire Engine maximum pumping capacity provided by Jennifer Donohue, NLTFPD Fire Marshall.
- (3) 4 Type 1 Fire Engines in operation at full capacity in the 1st hour, 8 in the 2nd hour, 17 in the 3rd hour, 34 in the 4th hour, and 50 in the 5th hour.
- (4) NO other water consumption takes place by property owners and all water would thus be directed to firefighting efforts (a very high improbability).
- (5) The fire starts somewhere nearby, thus not allowing for the staging of a significant amount of firefighting resources from the very start; doing so would deplete the water from the storage tanks much faster.
- (6) The schedule of fire trucks was staggered to account for the fact that the NLTFPD is a small fire department with limited resources. Additionally, there is not a substantial number of fire equipment resources in the nearby area. The delay in resources implied in the schedule is that additional resources would have to first come mainly from Reno, and then can expand from areas like Carson City, to others possibly as far as Roseville, CA and beyond.

ADDITIONAL NOTES:

- (1) Based on the assumptions and resultant calculations stated herein, the water runs out during the 4th hour and 33rd minutes of pumping operations. At that point in time, the water from the IVGID water plant can only sustain 4 Type 1 Engines at full capacity.
- (2) The number of fire trucks utilized in the calculations herein are probably on the very low-end in a very large wildfire. The Caldor Fire statistics validate that. Cal Fire reported in the Caldor Fire incident report on 09/01/2021 that there were **490 Engines** assigned to the fire. That was the same day that news outlets reported that the local fire district officials stated that area (South Lake Tahoe) was experiencing a huge drawdown on the water supply due to people leaving hoses on their roofs or running their sprinklers, and was actually hampering firefighting efforts. The caption below the video stated "FIRST ALERT FIRE - FIREFIGHTERS DEALING WITH LOSS OF WATER PRESSURE AS HOMEOWNERS LEAVE SPRINKLERS ON". Based on Cal Fire incident reports, the number of fire engines seemed to peak around 523 engines on 09/02/2021 - 09/03/2021.
- (3) It is important to acknowledge that the Cal Fire incident reports for the Caldor Fire did not indicate how many of the fire engines are Type 1 Engines with a pumping capacity of 1,500 gpm, versus, for example, Type 3 Brush Engines with a pumping capacity of 500 gpm. Irrespectively, the inclusion of 50 Type 1 Engines in the calculations should be on the low-end of the range in a large sustained wildfire.