

## WaterTenderApp.com - Shuttle Calculator

### Severely Over Estimated

World's **FIRST-EVER** Water Tender Shuttle **Operations** Calculator App

Never again **OVER** or **UNDER** estimate your remote **HIGH** 'Fire-Flow' needs.

Finally, we can quickly and accurately **estimate** and verify **ACTUAL** GPM/LPM delivered and minimum **Portable Storage Tank** capacities to meet immediate and forecasted **Water Tender** needs critical to effectively support our incidents without **RISK** of **inadequate** or **excess** resources.

Only **seven (7)** entries verify **five (5)** Water Tenders will deliver approximately **653 GPM** to exceed the **600 GPM** minimum for **SAFETY**

- 1) SAE/Metric - Enter "**S**" or "**M**"
- 2) Estimated "**Fire-Flow**" (**400 GPM**) at **150%** (**600 GPM**) to ensure **FIREFIGHTER SAFETY!**
- 3) **Tank Size (TS)** capacity (**2,500 Gals.**)
- 4) **'Fill'** rate and **'Dump'** rate (**1,000 GPM**)
- 5) **Travel Distance** to Water Source (**4.0 mi.**)
- 6) Avg. **'Make'** and **'Break'** and **'maneuver'** time (**1.5 min.**) at each end of roundtrip (**3.0**)

The **estimated GPM** delivered in **22.25 min.** 'CYCLE' at 90% of 2,500 (TS) yields **101 GPM** requires **six (6)** identical tenders for **SAFETY**

7) Enter **'ACTUAL'** roundtrip **'CYCLE'** time [**24 min** at 90% of 2,500 (TS) yields **94 GPM**].

### Manually Enter 'Flow-Chart' Data

Enter **EACH** Water Tender by **Identifier, Tank Size (TS), GPM or LPM**, and **minutes** for each **estimated** or **ACTUAL** roundtrip 'CYCLE' to verify **653 GPM** exceeds **600 GPM** minimum.

### Portable Storage Tank Capacity

(at **8,000 gallons**) is **auto-calculated** upon:

- 1) The **Number** of Water Tenders (**5**) assigned shuttling water... **times (X)**...
- 2) **Average** Water Tender Delivery rate in **GPM or LPM** (**129 GPM**)... **times (X)**...
- 3) **Number** of Deliveries per hour (**12.4**)...
- 4) **Round UP** to the nearest **500 Gallons** or **2000 Liters** for **PERSONNEL SAFETY**.

### Water Tender Shuttle Calculator App

<http://WaterTenderApp.com> Min. Req? **YES!**

SAE or "M" **S** Port. Tank: **8,000**

Identical Water Tenders Needed: **6**

Fire Flow: **400** +50% @ **600**

Capacity: **2,500** delivers **101**

Fill Rate: **1,000** Fill Time: **4.0**

Dump Rate: **1,000** Dump Time: **4.0**

Dist. Mi: **4.0** Travel: **14.25**

Make/Break: **1.5** Handling: **3.0**

Estimated TRAVEL Time: **22.25** minutes

The calculation process estimates

**2,500** delivers **101** GPM

Trav. time **24** Delivers: **94**

ACTUAL: **24** Delivers: **94**

Complete the following chart to determine:

Req. Flow: **600** Min. Met? **YES!**

ACTUAL Flow: **653** Δ Flow **53.0**

Totals: **16,500** Deliveries per hour: **12.4**

Veh. Ident. Capacity: **2,500** **101** **23**

BU-57 **2,500** **101** **23**

TCU-44 **5,000** **188** **24**

MRFD-11 **2,500** **101** **23**

BU-39 **4,000** **162** **29**

BFD-69 **2,500** **94** **24**

Tender #6

**5** Tenders Avg. **129** GPM

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**'Fight the Fire... NOT the Hose!'**  
...with 'The **Technology** to Take the **HEAT**'™

## HoseRoller.net - HoseRoller.info

'The **SAFEST** Hose Load **EVER!**' - Texas A & M Fire School



## HENway.org - HydraulicsPoster.com



**FREE** up your district's resources with...



## FireBusterPro.com to OutThinkWildfire.net



230 GPM @ 115 PSI



130 GPM @ 108 PSI

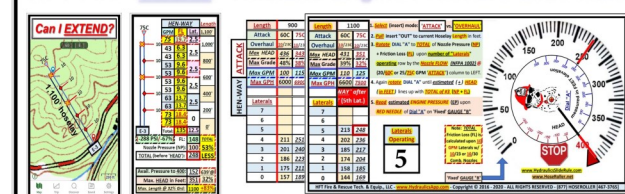


## HydraulicsApp.com



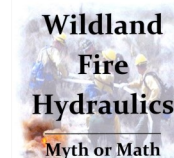
## HydraulicsSlideRule.com

### HFT Fire "TOTAL" Wildland Engine Pressure Slide-Rule



The world's first-ever to estimate accurately in mere seconds!

## HydraulicsBook.com - HydraulicsBook.org



For the first time in Fire Service history, any fire apparatus driver/operator assigned to the pump-panel on any wildland fire hoselay can finally **meet**:

The **OSHA general duty clause**, Section 5(a) (1) of the Occupational Safety and Health Act, **requires** that each employer furnish to each of its employees a **workplace that is free from recognized hazards** that are causing or likely to cause death or serious physical harm.

Ensure **ACTUAL** delivery rates are neither **OVER** nor **UNDER** estimated per **IFSTA 'Pumping Fire Apparatus Driver/Operator Handbook'**, 3rd Edition, Copyright © 2015



**Be OSHA and NFPA compliant with these FIRST-EVER Firefighter Life and SAFETY Technologies and Equipment never before introduced in Fire Service history!**



**FREE Trial** (as available) of **BOTH** 'TestFlight' Apple (iOS) versions of the **Wildland Hydraulics** and **Water Tender Shuttle Calculator Apps** at: **HFTFireApp.com**

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# HFT Fire **'TOTAL'** Engine Pressure Slide-Rule Calculator



## The Scenario

Length	HEN-WAY			Length
	GPM	FL	Lat.	
1,100'	75	19.7	2.5	
1,000'	43	6.3	2.5	
800'	43	6.3	2.5	
600'	53	9.6	2.5	
400'	53	9.6	2.5	
200'	63	13.7	2.5	
0'	73	18.4	0	
	73	18.4	0	
	Total: 135 12.5			
	-288 PSI/-67% FL: 148			TOTAL
	Nozzle Pressure (NP): 100			53%
	TOTAL (before 'HEAD'):			248 LESS
	Avail. Pressure to 400: 152			63% @
	Max. HEAD in Feet: 351			32%
	Max. Length @ 32% Grd: 1100			+83%

**'HENWAY' at 248 PSI**

