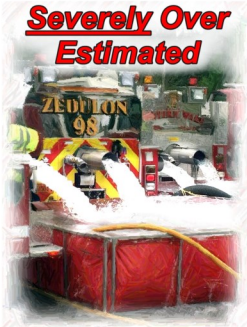
WaterTenderApp.com - Shuttle Calculator



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 '*manuever*' 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

	Travel time		GPM
ACTUAL:	24	Delivers:	94

Complete the following chart to determine:

Req. Flow:	600	Min. Met?	
ACTUAL Flow:	653	△ Flow 53.0	YES!
Totals:	16,500	Deliveries per hour:	12.4

Veh. Ident.	Capacity: GALLONS	GPM	Travel minutes
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

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

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HFT-FIRE

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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 of '*TestFlight*' (iOS) version *(as available)*, '*Help File*,' and functional *Spreadheet* of the *Water Tender Shuttle Calculator* at: *WaterTenderApp.com*

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HENway.org - HydraulicsPoster.com

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FireBusterPro.com to OutThinkWildfire.net

230 GPM @ 115 PSI

130 GPM @ 108 PSI

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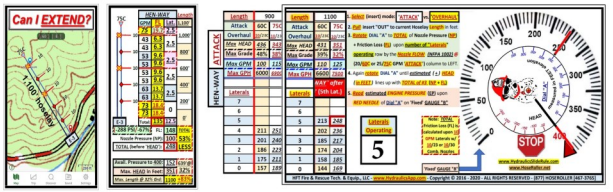
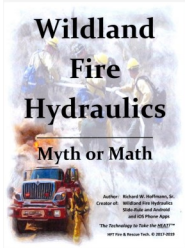
HFT Fire "TOTAL" Wildland Engine Pressure Slide-Rule



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.

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

The Scenario

	HEN-WAY			Length
75C	GPM	FL	Lat.	1,100'
10	75	19.7	2.5	
	43	6.3		
10	43	6.3	2.5	800'
	53	9.6		
10	53	9.6	2.5	600'
	53	9.6		
10	53	9.6	2.5	400'
	63	13.7		
10	63	13.7	2.5	200'
	73	18.4		
	73	18.4	0	0'
E-3	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		639'@
	Max. HEAD in Feet:	351		32%
	Max. Length @ 32% Grd:	1100		+83%

'HENWAY' at 248 PSI

1. **Select** '**HENWAY**' or '***Standard***' method.
2. **Extend** insert to current hoselay Length **(i.e. 1,100' at 75 GPM)**
3. **Determine NP + FL** per number of laterals operating. **(i.e. "5" Lat.)**
4. **Rotate Dial "A"** **(i.e. 248 PSI on flat ground)**
5. **Count** the 40' contour lines on a USGS map to estimate elevation. **(i.e. 8.75 X 40' ~ 350')**
6. **Rotate Dial "A"** until **HEAD** in feet lines up with **FL + NP** of **Step 4.** **(i.e. EP = MAX 400 PSI)**