The treated water moves from the filters to food grade storage and distribution containers.

The distribution containers are food grade barrels with spigots at the bottom.

This system was designed by Terry Barnett and Jim Buck with the support of JEPP and Crescent Water Association.

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Joyce Emergency Planning and Prep

Emergency Water Treatment System

Joyce Emergency Planning and Preparation Group (JEPP) is a small group of volunteers who are working to prepare the rural town of Joyce, Washington for a major disaster such as a wildfire or earthquake. We are stocking a cache with emergency supplies to provide food, water, shelter and sanitation for 300 people for three weeks.

One important item we must consider is the potable water needs for the shelter. The RED CROSS estimates that each person will need 1.1 gallons of potable water per day or 350 gallons. JEPP spent months investigating numerous systems. All were either too small to produce that much water or too expensive to meet our needs.

After looking into how water filtration systems both large and small work, two men in our group decided they could build one for a fraction of the cost. Here is how they did it.

Design considerations

- System must be portable
- System must work perfectly every time it is used –2 stage treatment
- Parts must be readily available and in-expensive
- System must be easy to build and maintain
- System must produce a minimum of 350 gallons of treated water/day
- Fire district will provide untreated water from a water tender
- System must be manually operated

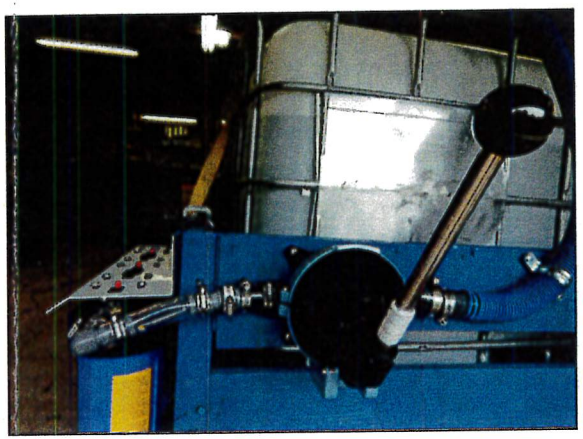
Here's how the system works.

- Untreated water is pumped into a 270 gallon food grade tote. Source water needs to be as clear as possible to keep sediment from clogging the filters.
- Water in tote is treated with 1/4 ounces of Poolife TURBOSHOCK 78% calcium hypochlorite and allowed to sit for 60 minutes. This allows the chlorine to disinfect the water and silt to settle to the bottom (This is drawn off later to protect the filters).
- The operator uses a hand powered bilge pump to pump treated water from the tote through a 10 micron filter, a 1 micron filter, and an activated charcoal filter to food containers for storage and distribution.

Materials Needed

• 270 gallon food grade tote	$270.00
• Food grade storage barrels (2)	$100.00
• Bilge pump, Titan Gusher 16 GPM	$118.50
• Filter Housing, Triple Big Blue 4.5"x20"	$145.00
• 10 Micron filter	$ 16.00
• 1 Micron filter	$ 12.00
• Activated Charcoal filter	$ 24.00
• Intake strainer with check valve	$ 27.50
• Hoses (10' for 1" clear vinyl & 9' 1.5" skimmer)	$ 70.00
• MISC Fittings, clamps, drain cocks, nuts, bolts	$ 187.47
Trailer—Donated	
Total	**$970.47**

The 270 gallon tote is mounted on the trailer so it can be moved where needed.



Here is the Titan Gusher 16 GPM hand operated bilge pump with hoses running from the tote to the filters. The pump is capable of 6 to 8 GPM with comfortable operator effort.

After leaving the bilge pump, the water is pumped through three filters:

- 10 micron,
- 1 micron and
- activated charcoal