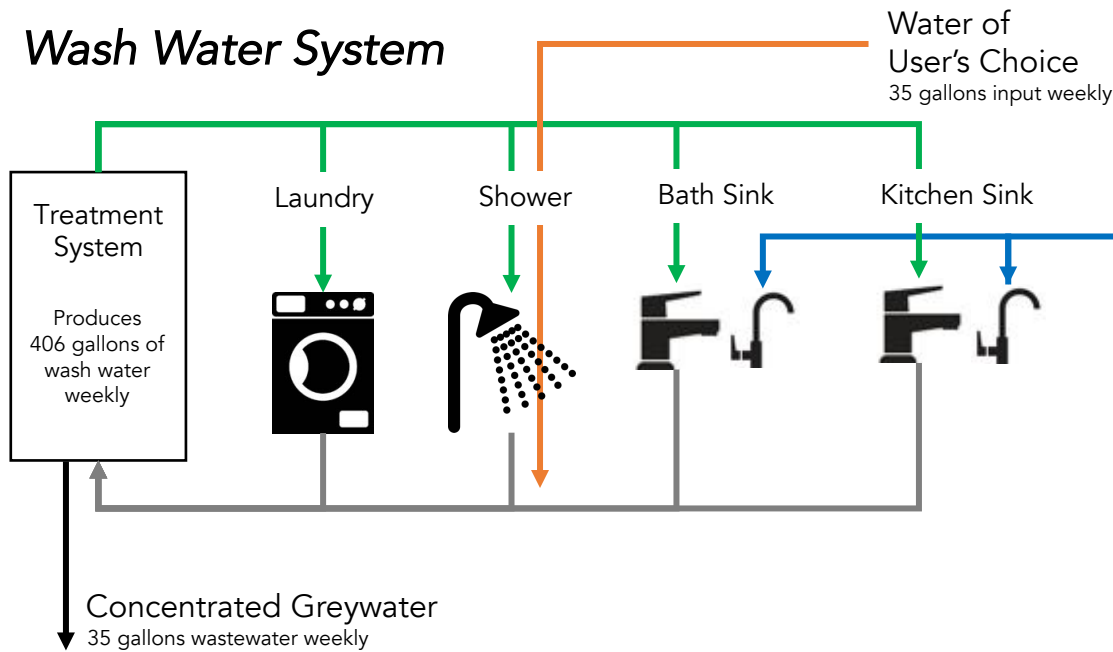
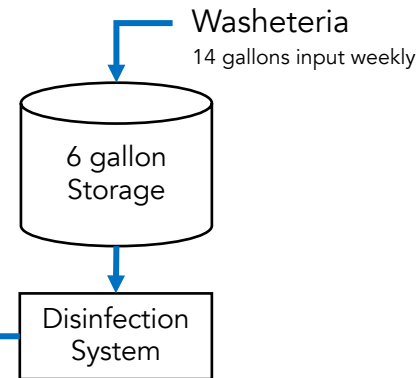


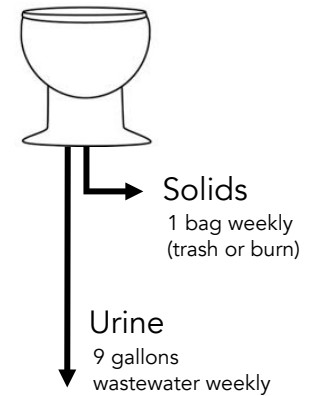
## Wash Water System



## Drinking Water System



## Dry Toilet System



## System Highlights

In order for a household of four people to use 420 gallons of water weekly, a total of 49 gallons of water will need to be brought into the home weekly, 14 gallons of drinking water from the washeteria and 35 gallons from a water source of user's choice (e.g. rain, ice, river, lake) to be used at the fixtures for washing.

Also, 44 gallons of wastewater will need to be removed from the home each week, 35 gallons of concentrated greywater created by the wash water treatment system and about 9 gallons of urine from the toilet.

System components for wash water treatment are located inside a shipping container attached to the house. The drinking water treatment is located under the kitchen counter.

The only source of water recommended for drinking and cooking purposes is washeteria water to ensure that this water meets drinking water standards. Drinking water is provided at the kitchen and bathroom sinks at a separate faucet.

Greywater from the kitchen sink, laundry, shower, and bathroom sink will be recycled and made available at the kitchen sink, laundry, shower and bathroom sink as wash water for uses other than drinking and cooking.

Hot water is made available in the system for showers, sinks and the clothes washer hook-up from small volume electric water heaters.

University of Alaska Anchorage is working with partner communities in the Yukon-Kuskokwim and Interior regions to gather feedback on the system from potential end users.

Questions, Comments or Looking for more information?

Website: [www.ReuseWaterAK.com](http://www.ReuseWaterAK.com)

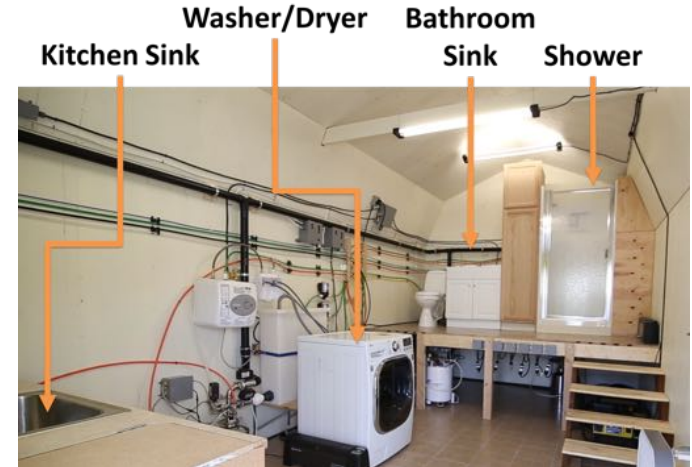
Facebook: [www.facebook.com/ReuseWaterAK](https://www.facebook.com/ReuseWaterAK)

Email: [addotson@alaska.edu](mailto:addotson@alaska.edu)

Phone: 907.786.6041



# Alaska Water Sewer Challenge – Phase 3 Onsite Water Reuse Research Prototype Development



## Greywater Treatment System

- Air assisted soap removal
- UV disinfection
- Four stage filtration
  - strainer
  - cartridge filter
  - nanofilter membrane
  - reverse osmosis membrane
- Ozone tank disinfection

## Research Prototype

- Left – 10-ft shipping container greywater treatment system
- Right – Fixture prototype shed

## Fixture Prototype

- 12 volt Battery Operated/Backup
- Air driven greywater plumbing
- Individual fixture pumps
- Smart Small Tank Water Heaters
- High Efficiency Water/Dryer
- Fixture associated strainers

## Daily Water Availability

Fixture	Operation	gallons
Toilet	24 uses	0
Shower	22 min	22
Bathroom Sink	24, ½ min uses	14
Kitchen Sink	user choice	10
Laundry	1 load per day	12
Drinking Water	0.5 gal/person/day	2
TOTAL		60



Wash Water

## Wash Water Quality

Designed for greater than 99.99999% reduction of bacteria and viruses  
- confirmed with total coliform bacteria

## Typical Wash Water Quality

- Turbidity - 0.1NTU
- Organic Carbon – 0.5 mg-C/L
- pH between 6-8
- 0 MPN/100mL total coliform
- no odor
- soft water

Questions, Comments or Looking for more information?

Website: [www.ReuseWaterAK.com](http://www.ReuseWaterAK.com)

Facebook: [www.facebook.com/ReuseWaterAK](https://www.facebook.com/ReuseWaterAK)

Email: [addotson@alaska.edu](mailto:addotson@alaska.edu)

Phone: 907.786.6041