

Next Gen Austere Basecamp Desiresments:

Sanitation and Water Management

Desiresments:

Advanced sanitation and water management technologies and systems are needed in order to optimize small unit base camps or life support facilities for 12-400 personnel. Product solutions should either generate water from local sources or non-traditional sources, reduce water demand or wastewater generation, and/or treat wastewater for reuse or safe discharge. These capabilities should be scalable across as much of the desired range (12-400 personnel) as possible, preferably be closed loop, reusable and energy neutral or capturing. Specific capabilities of interest include, but are not limited to, water purification systems, water generation systems, gray water reuse systems, black water treatment systems, low flow or waterless toilets that minimize waste, food waste minimization, water quality monitoring, potable water and wastewater collection, and cold weather protection capabilities, brine treatment or recycling, and dewatering. Product solutions must be immediately available and ready to be deployed to overseas locations.

Capability:

Solutions should be modular and scalable, minimize power requirements, be capable of running from military standard generators, JP8, capable of being augmented by hybrid or renewable power, be compatible with military air, sea, and ground transportation capabilities, and military material handling equipment not to exceed 10,000 pound forklift. Potable water consumed for troop support (showers, kitchens, laundries and latrines) is approximately 72 to 1,600 gallons per day (GPD) for 12-50 personnel and 5,000 to 15,000 gpd for 150 – 400 personnel. Gray water generated is approximately 1,500 gpd for 50 personnel and 4,500 gpd for 150 personnel. Blackwater generated is approximately 200 gpd for 50 personnel and 750 gpd for 150 personnel.

Judging Criteria: Blackwater/Graywater

Requirement	Threshold	Objective
Water Quality	Meets EPA Discharge Standards	Meets EPA Discharge Standards
Energy Usage	< 20 Watt-Hr/Gal	< 20 Watt-Hr/Gal
Maintenance Period	2 hours/24 hour period	30 minutes/24 hour period
Operator Attendance	3 visits, totaling no more than 2 hours/24 hours	Unattended for 24-72 hours
Waste Generation	10% of total mass inflow (blackwater)	<10% of total mass inflow (blackwater)
Recovery	75% of influent (graywater)	80% of influent or more (graywater)
Set up Time	Fully operational in 4 hours	Fully operational in 4 hours or less
Operational Temperature	-25 F to 140 F	-60 F to 140 F
Minimization of discharge/by-products and consumables needed	50% reduction compared to commercial technology	Complete elimination of discharge, by-products and consumables
Capacity	1,500 to 4,500 gpd (graywater); 1,500 to 3,000 gpd (blackwater)	1,500 to 4,500 gpd (graywater); 1,500 to 3,000 gpd (blackwater)
Power Source	Compatible with a military standard generator	Added ability to use variable power sources, including alternative energy sources

Potable Water

Requirement	Threshold	Objective
Water Quality	Meets TB Med 577	Meets TB Med 577
Energy Usage	< 20 Watt-Hr/Gal	< 20 Watt-Hr/Gal
Maintenance Period	2 hours/24 hour period	30 minutes/24 hour period
Operator Attendance	3 visits, totaling no more than 2 hours/24 hours	Unattended for 24-72 hours
Set up Time	Fully operational in 4 hours	Fully operational in 4 hours or less
Operational Temperature	-25 F to 140 F	-60 F to 140 F
Minimization of discharge/by-products and consumables needed	50% reduction compared to commercial technology	Complete elimination of discharge, by-products and consumables
Capacity	72 to 1,600 gpd (12-50) ; 5,000 to 15,000 gpd (150-400)	72 to 1,600 gpd (12-50) ; 5,000 to 15,000 gpd (150-400)
Power Source	Compatible with a military standard generator	Added ability to use variable power sources, including alternative energy sources