

# Department of the Navy SBIR/STTR Transition Program

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MCSC-PRR-4048

Topic # N153-127

Low Power Water Purification System

TRITON SYSTEMS, INC.

## WHO

**SYSCOM:** MARCOR

**Sponsoring Program:** PM Engineer Systems

**Transition Target:** PM Combat Support Systems (CSS), Family of Water Purification Systems

**TPOC:**

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**Other transition opportunities:** • Army

- NAVSEA
- NAVAIR
- Special Operations (JSOC)
- Air Force
- Disaster Relief (FEMA)
- Anti-fouling coatings
- Life raft survival system

**Notes:** • Image of Squad Water Purification System alpha prototype. (An improved photo will be provided.)  
• Triton Systems is a Global Business Venture company that successfully launches innovative products and solutions in emerging markets worldwide. We invest in new technologies through in-house incubation and external partnerships – creating thriving businesses from novel ideas.



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## WHAT

**Operational Need and Improvement:** • USMC Warfighters operate in austere environments where local water must be purified before drinking.  
• Resupply of water is difficult and expensive via air-drop or convoy.  
• Freshwater purification systems cannot purify brackish water.  
• Current small-scale seawater purifiers do not produce enough water.  
• A water purifier is needed for both fresh and brackish to support USMC Warfighters.

**Specifications Required:** • System scalable to allow user to configure it for their environment.  
• Purify 220,000 oz (T) or 300,000 oz (O) of potable water without filter change from freshwater consisting of up to 1,000 mg/L TDS, removing cysts, protozoa, bacteria, and viruses without chemical treatment and reducing turbidity up to 50 NTU.  
• Produce 1,400 oz (T) or 2,800 oz (O) of potable water without filter change from brackish sources consisting of 1,000 to 5,000 mg/L of TDS, removing cysts, protozoa, bacteria, and viruses and reducing turbidity up to 50 NTU.  
• Produce 60 oz/min (T) or 120 oz/min (O) of potable water from freshwater sources.  
• Produce 36 oz/min (T) or 72 oz/min (O) of potable water from brackish water sources.  
• Remove/reduce Toxic Industrial Chemicals / Toxic Industrial Materials (TICs/TIMs)....“Marine-powered”.

**Technology Developed:** • Marine-powered water filtration system meets contractual requirements.  
• Carbon block eliminates Toxic Industrial Chemicals / Toxic Industrial Materials (TICs/TIMs).  
• Low-power input enabled by energy recovery pump.  
• Anti-fouling coating increases filter permeability for increased water production.

**Warfighter Value:** • Enables purification of saline surface water, removes microorganisms, and Toxic Industrial Chemicals / Toxic Industrial Materials (TICs/TIMs).  
• Configurable so that only needed components are carried on mission.  
• Reduces amount of water carried on mission.  
• Improves field self-sufficiency of USMC Warfighter.  
• Reduces or eliminates logistics and cost of water resupply.  
• Enables missions not otherwise possible due to resupply constraints.

## WHEN

**Contract Number:** M67854-20-C-6514 **Ending on:** November 19, 2021

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Deliver 20 Beta Prototype Units for Testing	Low	On-time delivery of 20 systems.	TRL-7	1st QTR FY22
Preliminary Performance Testing at NAVFAC Desalination Test Facility	Med	Meeting all requirements at Threshold level or better.	TRL-7	3rd QTR FY22
LRIP Production of 140 Units for Test & Evaluation	Med	On-Time delivery of 140 systems.	TRL-7	1st QTR FY23
Completion of Performance & Environmental Testing	Med	Meeting all requirements at Threshold level or better.	TRL-8	2nd QTR FY23
Completion of User Evaluation (LUT & FUE)	Med	Meeting all requirements at Threshold level or better.	TRL-8	2nd QTR FY23
Delivery of First Production Units	Med	On-Time delivery of 270-432 systems.	TRL-9	4th QTR FY23

## HOW

**Projected Business Model:** • Triton Systems is teamed with a leading manufacturer of desalination equipment to produce the Squad Water Purification System (SWPS) for the Marine Corps.  
• Will apply for patent protection on any resulting IP.

**Company Objectives:** • Triton intends to supply the SWPS through an experienced military product distributor to the Marine Corps and wider DoD.  
• We will seek other military and non-military applications for this technology.

**Potential Commercial Applications:** • Potential non-military uses for disaster relief in coastal regions where ground and surface water sources are contaminated with seawater.  
• Anti-fouling coating can be used to improve the performance of sea water RO systems.  
• Improved hand-operated survival system for life rafts and downed air crews.

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