

Topic: N153-127

Triton Systems, Inc.

Low Power Water Purification System

Triton Systems, Inc. develops advanced technologies for commercial, industrial, and Government use and is currently designing and building a low-power, hand-operated reverse osmosis (RO) system to desalinate brackish water which will allow Warfighters to sustain themselves until resupply operations can be conducted. For use by USMC Warfighters, this capability is smaller in size than current hand-operated sea water RO systems and includes an energy recovery pump to minimize operator fatigue and special membrane coatings that will increase water production and minimize fouling. This will permit continued operation in austere environments for several weeks when resupply of potable water cannot be regularly made. Our goal is to transition this technology to the Marine Corps so that it becomes a part of their Modified Table of Organization (MTO&E) at the squad level.

Technology Category Alignment:

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**SYSCOM:** MARCOR

**Contract:** M67854-17-C-6540

 Corporate Brochure: [https://navystp.com/vtm/open\\_file?type=brochure&id=M67854-17-C-6540](https://navystp.com/vtm/open_file?type=brochure&id=M67854-17-C-6540)

# Department of the Navy SBIR/STTR Transition Program

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MCSC-PRR-2474

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Low Power Water Purification System

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## WHO

**SYSCOM:** MARCOR

**Sponsoring Program:** PM Engineer Systems

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

**TPOC:**

[sbir.admin@usmc.mil](mailto:sbir.admin@usmc.mil)

**Other transition opportunities:**

- NAVSEA
- NAVAIR
- Special Operations (JSOC)
- Army
- Air Force
- Disaster Relief (FEMA)

**Notes:**

• Image of Low Power Water Purifier and typical estuarine operating environment.

• 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 brackish water purifier is needed to support USMC Warfighters.

**Specifications Required:**

- Meet purification standards in TB MED 577.
- Support Squad-level need to purify 6-10 gallons of water in 1 hour.
- Weigh < 10 lbs.
- Purify brackish water with salt content up to 5000 ppm.
- "Marine-powered".

**Technology Developed:**

- Marine-powered reverse osmosis system that meets TB MED 577 water quality.
- Low-power input enabled by energy recovery pump.
- Anti-fouling coating increases filter permeability for increased water production.
- Provides drinkable water for 30 days from brackish source.

**Warfighter Value:**

- Enables purification of saline surface water.
- 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:** M67854-17-C-6540 **Ending on:** March 4, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Gen 1 Prototype Demonstration (End of Phase II Base)	Med	Purification of challenge water to meet TB MED 577.	TRL-5	2nd QTR FY19
Gen 2 Prototype Demonstration (End of Phase II Option)	Med	Successful water purification while meeting weight and size requirements.	TRL-6	1st QTR FY20
Gen 3 Prototype Demonstration (During Field Test)	Med	Successful water purification field test in an operational environment	TRL-7	4th QTR FY20

## HOW

**Projected Business Model:**

- Triton Systems will manufacture Low Power Water Purifier for Marine Corps.
- Plan direct manufacture at low-rate with transition to contract manufacturing.
- Will apply for patent protection on any resulting IP.

**Company Objectives:**

- Triton may elect to license or sell the technology to a third party as the business opportunity develops.
- 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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