

Department of the Navy SBIR/STTR Transition Program

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ONR Approval #43-8689-21

Topic # N201-X01

3D Printed Manufacturing Robots for disaster response

Hydronalix, Inc

WHO

SYSCOM: ONR

Sponsoring Program: ONR Code 33 Marine Expeditionary Warfare

Transition Target: USMC AFRICOM and EUROCOM, USMC 1st Marine Logistics Group, LEON/EOD, USMC Combat Logistics Battalion 6 (CLB6), Naval Expeditionary Combat Command (NECC), Mobile Diving Salvage Unit 2.

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Other transition opportunities: Los Angeles County Fire Department
Houston Fire Department
Denver Fire Department
Fire Department New York City
Austin County Fire Department Red Team
Arizona Fire and Aviation Program
Hellenic Red Cross
US Red Cross
NOAA Disaster Relief Program
FEMA
Texas Task Force 2 (TX-TF2)



WHAT

Operational Need and Improvement: There is a need for low-cost, disposable, small UAV Drone platforms to support humanitarian field operations. This need requires the development and demonstration of rapid, on-demand, small-scaled, domestic manufacturing of unmanned systems capable of supporting multiple payloads dependent on the situation. The Hydronalix ADAPT drone solution is a low-cost, disposable, highly manufacturable platform able to deliver essential supplies quickly and accurately.

Specifications Required: The platform is required to perform a 2 km flight path with a 1 L payload of bottled water (2 x 500 ml bottles). The vehicle must be programmable to multiple delivery targets. UAVs were demonstrated in a test event with 100 systems performing missions.

Technology Developed: The Hydronalix ADAPT drone is a waterproof platform with 2lb modular payload capacity and 4 km range. The UAV includes a next-generation body for rapid manufacturing, user-friendly smartphone control with TAK compatibility, and fully autonomous "Fire and Forget" operation. One hundred prototype platforms were manufactured with over 95% American-made components and successfully demonstrated at a test event.

Warfighter Value: The ADAPT UAS is a low-cost, easily mass-produced system with domestically sourced components. Modular payload capacity makes it highly adaptable for a variety of uses. Autonomous "Fire and Forget" operation is easy to learn and user friendly.

WHEN

Contract Number: N68335-21-C-0193 **Ending on:** November 5, 2021

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Design UAV	N/A	Verification of full system	3	2nd QTR FY21
Procure Supplies and Equipment	N/A	Acquisition of components	4	2nd QTR FY21
Establish Manufacturing Process	N/A	Manufactured 120 drones	5	2nd QTR FY21
Manufacture UAVs	N/A	Timely completion	6	2nd QTR FY21
Flight Demonstration	N/A	Mission success rate and target accuracy	7	3rd QTR FY21

HOW

Projected Business Model: It is anticipated there will be large value in a low-cost, easily mass-produced UAS system with domestically sourced components. Hydronalix would manufacture these systems directly out of their facilities in Green Valley. Our estimate of the current market would be at least \$4 million/year, assuming a selling price of approximately \$1000 per drone and 4000 units per year.

Company Objectives: Successful transition of this technology will introduce Hydronalix to the drone market, both as a competitor and a supplier for US manufactured UAV components. Establishing an in-house manufacturing and production line positions Hydronalix as a competitive choice for domestically sourced drones and will add to the company's growing product line of high-tech unmanned systems.

Potential Commercial Applications: Hydronalix has established relationships with fire departments, search and rescue personnel, first responders as well as disaster relief organizations throughout the US and the world, all of whom are potential commercial customers for this new product.

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