

WHO

**SYSCOM:** ONR

**Sponsoring Program:** ONR

**Transition Target:** JSEOD (Joint Service Explosive Ordnance Disposal) within PMS 408

**TPOC:** Jean McGovern  
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**Other Transition Opportunities:** Federal, state and local law enforcement agencies for EOD activities.

**Notes:** During the Phase I program, PSI demonstrated the aiming device prototype through lab scale and live fire testing. PSI verified the aiming device can successfully and accurately aim when installed on a PAN disrupter barrel either on a stand or integrated with a FLIR Kobra robot resulting in a TRL 5- testing in a relevant environment. In addition, PSI had their prototypes evaluated by both the US Navy scientists and engineers and the New Hampshire State Police Bomb Squad.

- Activities during the Phase II Base program included:
- Development of a semi-autonomous calibration system to reduce accuracy error and assembly time
  - Design of aiming device for manufacturing
  - System demonstration on various curved and colored targets in daylight to verify visibility

- Planned activities during future work include:
- Ongoing test and evaluation of the aiming device in lab scale and relevant environments
  - MIL-STD-810H testing and certification



Image Courtesy of Physical Sciences Inc. 2023

WHAT

**Operational Need and Improvement:** The JSEOD operators need to increase the standoff distance between an explosive article (e.g. unexploded ordnances, improvised explosive device) and EOD personnel. This enables a significant increase in safety, but requires new tools and techniques to accurately aim at increased distances.

**Specifications Required:** EOD Disrupter and Tool Diameter: 1-6 inches  
Aiming Accuracy: <0.955 inches at 50 feet  
Aiming Distance: Up to 50 feet  
Visibility: Day and night

**Technology Developed:** Physical Sciences Inc. (PSI) is developing a low-cost, precision, scalable aiming device for EOD disrupters and tools. The device is designed to meet the environmental conditions in accordance with MIL-STD-810H for temperature resistance, water submersion, and sand/dust resistance. PSI continues to test the aiming device in both lab scale and live fire testing using a Percussion-Actuated Non-Electric (PAN) barrel, one of the most common EOD disrupters, to verify aiming accuracy and system integration.

**Warfighter Value:** The aiming device will increase personnel safety by increasing EOD standoff distance up to 50 feet without sacrificing accuracy or performance.

WHEN

**Contract Number:** N68335-22-C-0412      **Ending on:** Jun 30, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Demonstrated aiming with the New Hampshire State Police Bomb Squad on a variety of EOD tools	Medium	Received feedback related to performance and user operation	4	1st QTR FY22
Tested aiming device in live fire situations with a PAN disrupter and integrated with a FLIR Kobra robot	Medium	Obtained real-life performance metrics for the aiming device technology	5	1st QTR FY22
Delivered prototypes to the US Navy for evaluation and testing	Medium	Received feedback related to performance and user operation	5	4th QTR FY22
Developed computer vision and control system for semi-autonomous calibration	Low	Decreases accuracy error and time to assemble	5	4th QTR FY23
Future Work: Demonstrate aiming device system by US Navy scientists and engineers	Low	Aiming device meets specifications in various scenarios	6	2nd QTR FY24
Future Work: Aiming device is validated for conformance to MIL-STD-810H	Low	Aiming device system passes MIL-STD-810H testing	6	2nd QTR FY24

HOW

**Projected Business Model:** The commercialization strategy is to develop the low-cost, precision aiming device through partnerships within the EOD community at the state and federal level to ensure the device meets their requirements. PSI will provide in-house manufacturing of the aiming device while engaging EOD technology contractors to ensure the broad commercialization of the technology at both the federal and state/local levels for EOD.

**Company Objectives:** The objective of the technology transition is for PSI to support a low rate initial production (LRIP) to deliver units to the JSEOD for hands-on testing and evaluation. PSI plans to manufacture in-house at our Wilmington facility. PSI has demonstrated our commitment to technology transition through the certification of our Wilmington facility for ISO-9001 production of advanced battery technology. As the technology becomes adopted, PSI will review the commercialization plan to ensure the production targets and cost are able to be achieved.

**Potential Commercial Applications:** Federal, state, and local law enforcement agencies are likely one of the largest non DoD related entities that would benefit from a low-cost precision aiming device. These entities would see significant benefits through increased personnel safety.

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