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AOS-24-0240

15 February 2024

Subject: Final Report for Task S72CB

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This task was a follow-on to task S72CA at the Johns Hopkins Applied Physics Laboratory (APL). The government technical representative was Mr. Joseph Wauters at the Pentagon Force Protection Agency (PFPA).

A primary objective of the S72CA task was to work with PFPA to ensure constant readiness of chemical detection systems through monthly inspections and bump tests at a variety of sensor locations. Inspections began in November 2022 and carried on through January 2024 when funding was exhausted. Monthly inspection reports were delivered to Mr. Wauters. A thorough evaluation was performed on an updated Shimadzu GC-MS system (QP2030NX). A complete TD-GCMS system was received at APL in March 2023 with vendor set-up and training provided. The system evaluation was performed to demonstrate equivalency to the incumbent Shimadzu GCMS-QP2020/GC-2010 Plus. Results of the evaluation indicated no significant difference in performance between the two models, although some changes were made to hardware connections and software.

A second objective of the task was to launch the chemical reachback support system for active immediate responses to alerts. Design of this system was started on the S72CA task and continued on this task. In August 2023, an end-to-end test was performed with successful automatic transfer of a complete reachback data package from the sensors to the secure cloud server. APL subject matter expert responded within minutes, followed the established reachback protocols and adjudicated the test event. This test validated the chemical reachback infrastructure and response protocols to stand-up the live reachback support. Reachback will continue to support the Pentagon Operations Center during normal work hours (weekdays, 0630-1730).

Note that funding was near exhausted in February 2024 and work was limited to reachback support after that date due to timing issues with follow-on funding.

A final report on the Shimadzu QP2030NX evaluation was delivered to Mr. Wauters in January 2024 (AOS-23-1565).