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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603542N / <i>Radiological Control</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	7.254	0.758	0.772	0.811	-	0.811	0.818	0.834	0.851	0.869	Continuing	Continuing
1830: <i>RADIAC Development</i>	7.254	0.758	0.772	0.811	-	0.811	0.818	0.834	0.851	0.869	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Mission Description: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure ionizing radiation. These instruments are used on all Navy, Coast Guard and Military Sealift Command vessels, and at every Navy shore installation, in order to ensure the safety of personnel, continuity of operations in radiological contingencies, and protection of the environment.

Justification: Title 10 of the Code of Federal Regulations, Part 20 (10 CFR 20) requires RADIAC instruments be used to ensure the safety of personnel who work with or who are exposed to radioactive materials in their jobs. Additionally, the Navy's mission requires personnel and ships to have the ability to operate in radiological environments and the ability to identify and interdict radiological Weapons of Mass Destruction (WMD). Navy programs that require RADIAC instruments for Occupational Safety & Health (OSH) under the provisions of 10 CFR 20 include Naval Nuclear Propulsion, Nuclear Weapons, Medical, and Radiological Affairs Support. Non-OSH programs include Radiological Defense, Consequence Management, Training, Technical (RADIAC calibration, shielding evaluation, research) and Radiological Search (maritime interdiction and radiological search missions to locate or intercept WMD).

This budget item develops, tests and evaluates new, highly reliable, more easily calibrated, easy to care and maintain, light weight and modern RADIAC instruments in order to improve the effectiveness of radiation safety, to make instruments simpler to use, and to reduce life cycle costs. The ultimate goal is to replace old, bulky, costly to maintain and repair, unreliable and obsolete instrumentation with multifunction equipment that can be automatically calibrated at greatly reduced cost.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	0.761	0.772	0.794	-	0.794
Current President's Budget	0.758	0.772	0.811	-	0.811
Total Adjustments	-0.003	0.000	0.017	-	0.017
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.003	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.017	-	0.017

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603542N / <i>Radiological Control</i>				<b>Project (Number/Name)</b> 1830 / <i>RADIAC Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1830: <i>RADIAC Development</i>	7.254	0.758	0.772	0.811	-	0.811	0.818	0.834	0.851	0.869	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Mission: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure radiation in accordance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR 20). These instruments are used on all vessels afloat and at every shore installation in order to ensure the safety of personnel and the environment. RADIACs are also required after an act of terrorism or war that involves nuclear material in order to enable continuation of warfighting ability.

Justification: Many RADIAC instruments and dosimetry systems are decades old and approaching the end of their useful lives. In some cases the equipment and replacement parts are no longer manufactured, making the equipment logistically unsupportable. In other cases increasing failure rates due to age make replacements an economic efficiency improvement. In all cases a technology refresh will make both economic sense in terms of lowering the total ownership costs, and will also provide increased operational capabilities.

Naval Nuclear Propulsion Program (NNPP): Instruments are developed to support the safe operation and maintenance of nuclear powered vessels and at nuclear maintenance facilities.

Non-NNPP: Instruments are developed to support other than NNPP end users, such as Explosive Ordnance Disposal, Nuclear Weapons, Medical, Industrial Radiography, Radiological Defense and Training.

Visit, Board, Search & Seizure (VBSS): The Navy has been tasked to intercept and board vessels at sea to search for nuclear or radiological materials that could be used for terrorist attacks. These instruments would have different characteristics than those used for NNPP and non-NNPP purposes and prototypes must be developed and/or tested and evaluated.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> Primary Dosimetry	0.157	0.245	0.215	0.000	0.215
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> The need for primary dosimetry is inherent due to the Navy's operation of nuclear reactors and their emission of ionizing radiation. Title 10 CFR 20.1502 states "Each licensee shall monitor exposures to radiation and radioactive material at levels sufficient to demonstrate compliance with the occupational dose limits." A primary dosimeter must pass accreditation proficiency testing, allowing the reading obtained					

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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

to become a part of an individual's permanent health record. This permanent record is used to protect the individual radiation worker's health, and also the Navy from future liability. The Navy's current primary device is the DT-702/PD, a passive Thermo Luminescence Dosimeter (TLD). Existing TLDs and newer technologies, such as Optically Stimulated Luminescence (OSL), must be continually researched to determine on-going performance parameters, cost to field and cost to maintain, since the current system is approaching the end of its useful life and must be replaced by 2030.

A passive device does not provide a display of the dose being received, which can be important in certain circumstances. The dosimeter instead must be sent to a facility with a special reader to recover the dose, which is then entered in the individual's medical records. An active device displays the dose digitally in real time, providing immediate feedback in high risk scenarios. Newer passive-active systems can do both.

**FY 2023 Plans:**

Cooperative Research and Development Agreement (CRADA) testing of the ThermoFisher Scientific, Inc. (TFS) and Landauer, Inc. dosimetry systems will be completed and a final report for each of the CRADAs will be submitted to NAVSEA 09RD and to the contractors. NSWCCD continued the CRADA testing of the Mirion Technologies, Inc. dosimetry system.

CRADAs for TFS and Landauer, Inc. were extended for an additional three years to test the Radiological Affairs Support Program (RASP), Bureau of Medicine (BUMED) and the Naval Nuclear Propulsion Program (NNPP) applications of the software and hardware. This includes but is not limited to the following: dosimeter connectivity, dosimetry reports and the dosimeter's ruggedness for use by NNPP, BUMED, and RASP.

**FY 2024 Base Plans:**

Mirion Technologies, Inc. CRADA testing will be finalized and a final report will be submitted to NAVSEA 09RD and the contractor.

NSWCCD will extend the CRADA for Mirion Technologies, Inc. for an additional three years to test the RASP, BUMED and NNPP applications of the software and hardware. This includes but is not limited to the following: dosimeter connectivity, dosimetry reports, and the dosimeter's ruggedness for use by NNPP, BUMED, and RASP.

NSWCCD will continue the CRADA testing the of TFS and Landauer, Inc. dosimetry systems.

**FY 2024 OCO Plans:**

FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy	<b>Date:</b> March 2023
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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603542N / <i>Radiological Control</i>	<b>Project (Number/Name)</b> 1830 / <i>RADIAC Development</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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N/A					
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<p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Decrease is due to slightly less testing being conducted in FY24.</p>					
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<p><b>Title:</b> Secondary Dosimetry</p>	0.157	0.212	0.085	0.000	0.085
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<b>Articles:</b>	3	-	-	-	-
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**Description:** Secondary dosimetry includes the monitoring of doses to the hands, feet and eyes. In some medical and industrial applications, there is a high risk of such local high exposures due to the handling of sources, working close to a high radiation field, or using/cleaning high-energy beta emitters. Because of this, the need to accurately measure extremity dose is of significant importance to the Navy. The legacy system currently used for hands and feet dose measurements is RadStar. This is an active system (see the Primary Dosimetry Overall Description task for a discussion of passive and active dosimeters), but it is no longer supported by the vendor and must be replaced.

To that end the ED3 system was procured in FY18 and has been tested and a report rendered on its suitability as a replacement. This is another active system, but shortfalls noted were that it currently measures only exposure to the hands, and it is too fragile for industrial-type use. Another active system being considered is the iMUX, which has the advantage of being wireless (the other two require wires that extend from the extremities to a pager-sized device clipped to the belt or worn on the wrist), and is capable of measuring dose at both the hands and feet.

Measurement of dose at the eyes is currently extrapolated from the Navy's passive primary dosimeter, the DT-702/PD. Because eyes are subject to development of cataracts with prolonged or high dose exposure to radiation, a more precise and real time measuring device is being sought in the systems being evaluated.

**FY 2023 Plans:**  
NSWCCD will complete testing and begin drafting the final report.

**FY 2024 Base Plans:**  
NSWCCD will submit a final report to NAVSEA 09RD.

**FY 2024 OCO Plans:**  
N/A

**FY 2023 to FY 2024 Increase/Decrease Statement:**

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Decrease from FY23 to FY24 is because RDTE project will be completed and transitioned into OPN.					
<p><b>Title:</b> Visit, Board, Search &amp; Seizure</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Visit, Board, Search &amp; Seizure (VBSS) mission of the Navy is the requirement to board ships and be able to detect and identify potential radiological or nuclear Weapons of Mass Destruction (WMD). Such a sensitive mission requires leading edge technology and capabilities to ensure success. The AN/PDX-1 RADIAC Set was fielded in response to a Joint Urgent Operational Needs Statement to meet this requirement. It contains three instruments that serve different purposes: (1) a Handheld Radiation Monitor (HRM) that searches for radiological materials; (2) a Radioisotope Identifier (RID) that identifies the type of radiological material located; and (3) a Personal Radiation Detector (PRD) that displays the radiological dose the VBSS team members may be receiving so that they can be aware if they are being exposed to dangerous levels of radioactivity during the mission. Current technology dictates that the sensitivity of the detectors is directly proportional to the size of the detector element; i.e., the larger the detector, the more sensitive and capable it is. However, in VBSS there must be a tradeoff between size/weight and capability, since it is difficult and hazardous for boarding parties to carry a backpack-sized detector, along with their weapons and other gear, up a rope ladder to board a vessel on the high seas. This will be a continuing effort to find smaller, lighter instruments with enhanced sensitivity, reach-back capability, and other enhancements to provide the Navy the best and most cost effective equipment possible for this mission.</p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2024 Base Plans:</b> N/A</p> <p><b>FY 2024 OCO Plans:</b> N/A</p>	0.080	0.000	0.000	0.000	0.000
	-	-	-	-	-
<p><b>Title:</b> Laboratory Test Equipment</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Laboratory Test Equipment are used in laboratories to test and evaluate radiation detectors and dosimetry devices. The primary end users will be NSWCCD and NDC. The beta irradiators will be used throughout the development and procurement of the Navy's new primary dosimetry system to evaluate system performance. Handheld radiation detection equipment from the Radiological Detection System (RDS) can also</p>	0.069	0.080	0.020	0.000	0.020
	1	-	-	-	-

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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>be evaluated using the beta irradiators. The upgraded Ortec equipment will be used to analyze the new accident dosimeter after exposure to a criticality event.</p> <p><b>FY 2023 Plans:</b> The GC-60 source procured in FY22 will be installed. The Site Acceptance Tests (SAT) to ensure optimal performance of the irradiators located in the radiation range is maintained will be performed.</p> <p><b>FY 2024 Base Plans:</b> A neutron shielding study will be performed to determine if the NSWCCD range room will be able to hold a neutron irradiator.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Decrease from FY23 to FY24 is due to changes to tasks for FY24.</p>					
<p><b>Title:</b> AN/PDR-70 Electronics Upgrade</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The AN/PDR-70 provides accurate dose rate measurements during neutron radiation surveys. The AN/PDR-70 is over 25 years old and as identified by the 2020 life cycle audit (LCA), has multiple obsolescence issues. Based on the LCA, a replacement for the AN/PDR-70 needs to be identified within the next six years. A possible solution is replacing the electronics package on the detector. This has been done with other legacy RADIACs and is an effective method of extending the life of the device for an additional 15-20 years. In addition to the electronics upgrade, NSWCCD will also research and test the effects of modifying the amount of moderator material used on the instrument. This will have a positive impact on the weight of the device, which has been a long-standing complaint by the end user community.</p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2024 Base Plans:</b> N/A</p> <p><b>FY 2024 OCO Plans:</b> N/A</p>	0.054 -	0.000 3	0.000 -	0.000 -	0.000 -
<p><b>Title:</b> Radiological Detection System Training Device</p>	0.148	0.055	0.212	0.000	0.212

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603542N / Radiological Control	<b>Project (Number/Name)</b> 1830 / RADIAC Development
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Radiological Detection System (RDS) is a survey meter with ancillary probes that is being procured by all the Services and some North Atlantic Treaty Organization (NATO) allies to replace the legacy equipment in all the respective procuring activities, and to allow joint interoperability. The Training Device will be an instrument designed to simulate the detection and measurement of alpha, beta, gamma, neutron and low energy X-rays for trainees on the RDS equipment without having to use actual radioactive sources. This makes the training safer and more cost effective to manage by avoiding the significant legal and safety issues involved when using radioactive sources.</p> <p><b>FY 2023 Plans:</b> The prototypes procured in FY22 will be delivered and tested at NSWCCD. NSWCCD will reach out to Users to obtain operational feedback and recommendations for the prototypes.</p> <p><b>FY 2024 Base Plans:</b> NSWCCD will complete prototype testing and provide a report with a recommendation to NAVSEA 04ND for procurement.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Increase from FY23 to FY24 is due to additional labor will be needed to conduct testing and complete analysis.</p>	3	-	-	-	-
<p><b>Title:</b> Surface Contamination Monitor</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> A Surface Contamination Monitor (SCM) will allow the end user to quickly survey large areas for alpha-beta contamination. These types of surveys are required by federal, state and Navy regulations prior to releasing an area for unlimited use. SCM technology configurations include proportional detectors or scintillation type detectors. In addition, the SCM automated mapping and report generating features will accelerate these types of radiological surveys. These devices would be used at shipyard facilities by the Naval Nuclear Propulsion Program.</p> <p><b>FY 2023 Plans:</b></p>	0.093 -	0.126 -	0.115 -	0.000 -	0.115 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>NSWCCD will continue participating on the CRADA status calls with PNSY. NSWCCD personnel will observe the operational portion of the SCM testing at PNSY.</p> <p><b>FY 2024 Base Plans:</b> NSWCCD will continue participating in the CRADA status calls with PNSY and will observe the operational portion of the SCM testing. The SCM prototype testing is expected to be completed.</p> <p>NSWCCD will begin testing the Ludlum SCM.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Decrease is due to less testing being conducted in FY24.</p>					
<p><b>Title:</b> Battery Powered Air Particle Sampler</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The HD1151() are battery powered portable air samplers that have been fielded for over 15 years. The weight of the device at 38 pounds, has been a long-standing complaint by the end user community. These systems will be used by the NNPP for radioiodine sampling.</p> <p><b>FY 2023 Plans:</b> NSWCCD will perform market research on available battery powered portable samplers.</p> <p><b>FY 2024 Base Plans:</b> NSWCCD will procure systems and conduct testing.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Increase from FY23 to FY24 is initiation of project. FY24 includes procurement of systems and testing.</p>	0.000 -	0.054 -	0.164 -	0.000 -	0.164 -
<b>Accomplishments/Planned Programs Subtotals</b>	0.758	0.772	0.811	0.000	0.811

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy	<b>Date:</b> March 2023
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN 2920: <i>RADIAC</i>	7.828	7.647	16.475	-	16.475	32.162	32.418	31.807	33.591	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

Development efforts are focused on evaluation, modification (as required to meet operational requirements) and adaptation of commercial-off-the-shelf (COTS) technology in order to minimize total ownership costs. To the maximum extent possible new contracts are targeted for fixed price efforts to control development cost.



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**Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603542N / Radiological Control	<b>Project (Number/Name)</b> 1830 / RADIAC Development
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	FY22				FY23				FY24				FY25				FY26				FY27				FY28			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Primary Dosimetry</i>																												
Test & Evaluation: TFS and Landauer Original CRADA Testing & Report																												
Test & Evaluation: Mirion CRADA Test & Report																												
Test & Evaluation: TFS & Landauer Extension CRADA Testing & Report																												
Test & Evaluation: Mirion Extension CRADA Testing & Report																												
<i>Secondary Dosimetry</i>																												
Test & Evaluation: Sample Electronic Dosimeters Testing & Report																												
Test & Evaluation: COTS Electronic Dosimeters Testing & Report																												
Contract Events: Procure Electronic Dosimeters for Extremity Applications																												
<i>Visit, Board, Search &amp; Seizure</i>																												
Test & Evaluation: Test & Report on RID Batch 2																												
Test & Evaluation: Test & Report on PRD Batch 2																												
Test & Evaluation: Test & Report on HRM Batch 2																												
<i>Laboratory Test Equipment</i>																												
Contract Events: Procure GC60 and X80 Irradiator Computer Upgrades																												
Contract Events: Procure GC-60 Cobalt-60 Source																												
Contract Events: Procure Safety Interlock Upgrade																												
<i>Radiological Detection System Training Device</i>																												
Contract Events: Kits Contract Award																												
Test & Evaluation: Test & Report																												
<i>Surface Contamination Monitor</i>																												
Test & Evaluation: CRADA Test & Report																												
<i>AN/PDR-70 Upgrade</i>																												
Contract Events: Electronics Upgrade																												
Test & Evaluation: Test & Report																												
<i>Battery Powered Air Particle Sampler</i>																												
Contract Events: Procure Air Monitors																												
Test & Evaluation: Test & Report																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Primary Dosimetry</b>				
Test & Evaluation: TFS and Landauer Original CRADA Testing & Report	1	2022	4	2022
Test & Evaluation: Mirion CRADA Test & Report	1	2022	4	2023
Test & Evaluation: TFS & Landauer Extension CRADA Testing & Report	1	2023	4	2025
Test & Evaluation: Mirion Extension CRADA Testing & Report	1	2024	4	2026
<b>Secondary Dosimetry</b>				
Test & Evaluation: iMUX Testing & Report	1	2021	4	2021
Test & Evaluation: Sample Electronic Dosimeters Testing & Report	1	2022	3	2022
Test & Evaluation: COTS Electronic Dosimeters Testing & Report	3	2022	3	2024
Contract Events: Procure Electronic Dosimeters for Extremity Applications	2	2022	2	2022
<b>Visit, Board, Search &amp; Seizure</b>				
Test & Evaluation: Test & Report on RID Batch 2	1	2021	4	2021
Test & Evaluation: Test & Report on PRD Batch 2	1	2022	2	2022
Test & Evaluation: Test & Report on HRM Batch 2	1	2022	3	2022
<b>Laboratory Test Equipment</b>				
Contract Events: Procure GC60 and X80 Irradiator Computer Upgrades	4	2021	4	2021
Contract Events: Procure GC-60 Cobalt-60 Source	4	2022	4	2022
Contract Events: Procure Safety Interlock Upgrade	4	2023	4	2023
<b>Radiological Detection System Training Device</b>				
Contract Events: Kits Contract Award	4	2022	4	2022
Test & Evaluation: Test & Report	3	2023	4	2024
<b>Surface Contamination Monitor</b>				
Test & Evaluation: CRADA Test & Report	1	2022	4	2025

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**Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy** **Date:** March 2023

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>AN/PDR-70 Upgrade</i></b>				
Contract Events: Electronics Upgrade	3	2025	3	2025
Test & Evaluation: Test & Report	1	2027	4	2027
Battery Powered Air Particle Sampler: Contract Events: Electronics Upgrade	2	2024	2	2024
Battery Powered Air Particle Sampler: Test & Evaluation: Test & Report	4	2024	4	2025