Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603713N *I Ocean Engineering Tech Dev*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	78.999	6.137	8.774	6.193	-	6.193	6.442	7.401	5.638	5.696	Continuing	Continuing
0099: *Deep Submergence Bio Med Dev*	47.599	4.314	4.463	3.082	-	3.082	3.131	3.186	3.314	3.348	Continuing	Continuing
0394: *Shallow Depth Diving EQ*	31.400	1.823	4.311	3.111	-	3.111	3.311	4.215	2.324	2.348	Continuing	Continuing

A. Mission Description and Budget Item Justification

Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain manned diving operations in several critical areas such as submarine rescue, recovery, salvage, underwater ship husbandry, underwater construction and naval special operations. This program develops biomedical technology, diver life support equipment, and the systems, tools, and procedures to permit manned underwater operations and enhance diver performance and safety.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	6.318	8.774	0.000	-	0.000
Current President's Budget	6.137	8.774	6.193	-	6.193
Total Adjustments	-0.181	0.000	6.193	-	6.193
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.181	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	6.193	-	6.193

Change Summary Explanation

The FY 2023 funding request was reduced by $0.600 million to account for the availability of prior year execution balances.

FY 2023 funding increase reflects the fact that the FY 2022 President’s Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*	Project (Number/Name) 0099 / *Deep Submergence Bio Med Dev*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0099: *Deep Submergence Bio Med Dev*	47.599	4.314	4.463	3.082	-	3.082	3.131	3.186	3.314	3.348	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project:
1) Develops advanced biomedical and bioengineering technology for medical and life support enhancement to decrease submariner deaths and permanent injury in a disabled submarine (DISSUB) and during submarine escape and rescue;
2) Conducts research for diver health, safety, and effectiveness to increase understanding of human performance and enhanced diver stress management and survivability in high stress environments such as in cold/warm water and at altitude. This project also validates and improves the accuracy of assumptions associated with equipment testing and certification, diving procedures, and diver biomedical physiology.

Deliverables for DISSUB include: medical guidance/procedures increasing submariner survivability for submarine escape and rescue (including new Submarine Rescue Diving and Recompression System (SRDRS)), life support parameters, medical procedures for life support; exposure and mitigation guidance for atmospheric contaminants, high levels of oxygen and/or carbon dioxide; prevention and treatment of decompression sickness and pulmonary oxygen toxicity; and senior survivor expert decision system.

Deliverables for diver health and safety include: decompression guidance in extreme environment diving with various breathing mixtures, temperatures, durations, and altitudes; exposure guidance for oxygen breathing; diver performance guidance based on physiological effects of diving; enhanced underwater swimming efficiency; enhanced diver thermal protection; collection of operational diving depth/time profiles to predict decompression risk, and exposure and mitigation guidance for divers experiencing underwater continuous noise, impulse noise, or underwater blast.

Requirements:
OPNAVINST 3150.27C, Navy Diving Policy and Joint Military Diving Technology and Training Program, 24 Jun 2016
Navy Salvage and Navy Diving Capabilities-Based Assessment (CBA) Report, 19 Dec 2013
NAPDD #587-873, Deep Submergence Biomedical Development, 23 Nov 1999
NAVSEA Instruction 3900.10A, Management of the Deep Submergence Biomedical Research and Development Program, 6 Nov 2018
Navy Diving Initial Capabilities Document (ICD)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Deep Submergence Bio Med Dev - Diver Health and Safety	2.410	3.013	1.744	0.000	1.744
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Description: Diver Health and Safety Research: Novel methods for decompression safety and treatment of decompression sickness/arterial gas embolism. Advanced decompression models for extreme environments, including thermally challenging, long duration, multi-gas, and/or diving at altitude. Diving physiology advances in exercise, thermal exposure, oxygen/carbon dioxide alterations, other gas mixture alternations, hydration, and sustained operations. Develop pulmonary oxygen toxicity exposure limits. Provide pulmonary and Central Nervous System (CNS) oxygen toxicity mitigation strategies. Develop an advanced diver thermal model. Develop advanced insulation garments for diver thermal protection. Develop guidance for optimizing thermal control during decompression. Develop guidelines for conduct of diving operations at altitude. Develop guidance for infra- and ultra-sound diver exposure. Continue collection of operational and research dive data for inclusion in advanced probabilistic decompression models. Investigate diver in-water maladies. Develop/improve real-time decompression guidance and dive planning. Research procedures for assessing and mitigating risk for diving in contaminated water. ***FY 2022 Plans:*** * Multi-Year Project Support: Completion of projects initiated in prior fiscal years will be supported where progress is deemed acceptable and project goals remain valid and attainable. * Surface-supplied helium-oxygen decompression table modernization: Continue to validate, via manned diving, a new probabilistic surface-supplied helium-oxygen decompression table derived from new modeling techniques that addresses critical gaps in current tables to improve diver safety and operational efficiency. * Central Nervous System (CNS) O2 Toxicity Mitigation: Evaluate ketone ester supplement in prevention of CNS O2 Toxicity. * Swimming Induced Pulmonary Edema (SIPE): Evaluate SIPE in NSW candidates to characterize the disease, mitigation strategies and screening tools for at risk personnel. * Diver Hearing Conservation: Continue work to quantify acoustic exposures to divers and thus support hearing loss risk mitigation. Develop an underwater noise dosimeter for determining real-time diver noise/blast exposure.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
* Improve Contaminated Water Diving Risk Assessment: Develop real-time water sampling and analysis methods to determine risk and inform diver protection levels. * Optimize Understanding of Hydration Status Impact on Divers: Develop validated models and guidance related to optimizing hydration and re-hydration in divers. * Longitudinal, population-based health study of U.S. Navy divers: Continue to analyze data to assess the long-term health impacts of diving compared to the general Navy population to identify mitigation strategies and increase the safety and effectiveness divers. * DCS models to allow for real-time optimization of dive profiles: Continue to use new computer technology and techniques to accelerate, optimize and evaluate DCS models to support this effort. * Continue evaluation of a new approach to decompression in an animal model by breathing a different gas (perfluoromethane, CF4) from the one used during the dive to reduce decompression time and enhance safety.					
FY 2023 Base Plans: *Multi-Year Project Support: Completion of projects initiated in prior fiscal years will be supported where progress is deemed acceptable and project goals remain valid and attainable. *Diver Hearing Conservation: Continue work to quantify acoustic exposures to divers and thus support hearing loss risk mitigation. Develop an underwater noise dosimeter for determining real-time diver noise/blast exposure. *Central Nervous System (CNS) O2 Toxicity Mitigation: Continue to evaluate ketone ester supplement in prevention of CNS O2 Toxicity. *Swimming Induced Pulmonary Edema (SIPE): Continue to evaluate SIPE in NSW candidates to characterize the disease, mitigation strategies and screening tools for at risk personnel. *Longitudinal, population-based health study of U.S. Navy divers: Continue to analyze data to assess the long-term health impacts of diving compared to the general Navy population to identify mitigation strategies and increase the safety and effectiveness divers.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease of -$1.269M from FY 2022 to FY 2023: This decrease is primarily due to the N97 cut previously described. Overall, taken together, the funding differences between the two elements of the program will be greatly impacted and have a yet unknown impact on sustainability.					
Title: Deep Submergence Bio Med Dev - Submarine Escape & Rescue	1.904	1.450	1.338	0.000	1.338
Articles:	-	-	-	-	-
Description: Submarine Rescue/Escape Research: Provide decompression procedures for pressurized Submarine Rescue Diving and Recompression System (SRDRS) operators. Investigate adjunctive therapies for treating Disabled Submarine (DISSUB) survivors. Provide updated guidance for food, water, clothing, medical supplies, to enhance survival of submarine crews awaiting rescue. Develop/provide flexible computer-generated decompression schedules for wide range of conditions in a DISSUB. Develop DISSUB medical triage procedures and support DISSUB survival trials. Develop mitigation strategies to reduce hyperbaric oxygen exposures in closed vehicles/compartments. Develop treatment guidance for decompression sickness and arterial gas embolism in submarine escape and rescue. Investigate the use of novel pharmacologic agents to reduce decompression risk and/or oxygen toxicity in submarine rescues. Develop/deploy toxic gas analyzer for use in pressurized DISSUB rescue. Investigate interventions for toxicological problems in DISSUB survivors. Develop strategies to minimize decompression sickness and arterial gas embolism with Submarine Escape and Surface Survival Personnel Equipment (SESSPE) training.					
FY 2022 Plans: * Multi-Year Project Support: Completion of projects initiated in prior fiscal years will be supported where progress is deemed acceptable and project goals remain valid and attainable. * Assess Impact of CO2 on Pressurized DISSUB survival: Continue animal research to answer the question regarding whether elevated CO2 levels will accelerate onset of Pulmonary O2 Toxicity and increase mortality during high internal pressure DISSUB scenarios. * Manned Testing of Specialized Surface Decompression procedures for DISSUB rescue without transfer under pressure: Continue manned testing to validate these procedures.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
* Down selection and transition of a device to detect Submarine Escape Action Limits (SEAL) levels for the seven contaminants of interest in real time and down to pressures as high as 5 ATA to replace the maligned, difficult to operate frequently inaccurate Draeger tubes currently onboard USN submarines. * IV&V of the USN Submarine Rescue System (SRS) Decompression App to validate tool as rapid, real-time tracker and reference guide for use in a DISSUB rescue to compliment the SRS Planner manual. * Evaluation of Guard Book Calculation Methods: Builds on prior funded research that demonstrated >50% error in Guard Book calculations while under simulated DISSUB scenario. It will characterize the types of errors committed under each condition, and will make recommendations for how those errors can be eliminated through procedural changes or edits to the existing format(s). ***FY 2023 Base Plans:*** *Multi-Year Project Support: Completion of projects initiated in prior fiscal years will be supported where progress is deemed acceptable and project goals remain valid and attainable. *Assess Impact of CO2 on Pressurized DISSUB survival: Continue animal research to answer the question regarding whether elevated CO2 levels will accelerate onset of Pulmonary O2 Toxicity and increase mortality during high internal pressure DISSUB scenarios. *Continue IV&V of the USN Submarine Rescue System (SRS) Decompression App to validate tool as rapid, real-time tracker and reference guide for use in a DISSUB rescue compliment the SRS Planner manual. * Evaluation of Guard Book Calculation Methods: Continue recommendations for how those errors can be eliminated through procedural changes or edits to the existing format(s). ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease of -$0.112M from FY 2022 to FY 2023: This decrease is primarily due to the N97 cut previously described. Overall, taken together, the funding differences between the two elements of the program are will be greatly impacted and have a yet unknown impact on sustainability.					
Accomplishments/Planned Programs Subtotals	4.314	4.463	3.082	0.000	3.082

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Integrated thrust area teams (e.g., decompression research) are established with university, commercial, and in-house Navy labs to jointly execute biomedical Research and Development (R&D). Peer review of research proposals accomplished by independent Technical Advisory Board. Annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED). Program management by 0-6 Undersea Medical Officer. Contracting by competitive process using Business Area Analysis (BAA) and leveraging Office of Naval Research (ONR) capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NEDU : Panama City, FL	25.307	0.829	Nov 2020	0.801	Oct 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NMRC : Silver Spring, MD	11.790	1.109	Oct 2020	1.294	Oct 2021	1.087	Oct 2022	-		1.087	Continuing	Continuing	Continuing
Development Test & Evaluation	Various	DUKE UNIV : Durham, NC	4.234	0.676	Mar 2021	1.026	Nov 2021	0.716	Oct 2022	-		0.716	Continuing	Continuing	Continuing
Development Test & Evaluation	C/FFP	WISCONSIN : Madison, WI	2.061	0.385	Feb 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Development Test & Evaluation	C/FFP	SUNY : Buffalo, NY	2.481	0.314	Apr 2021	0.325	Apr 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Development Test & Evaluation	C/CPFF	JHU APL : Laurel, MD	0.668	0.296	Mar 2021	0.296	Mar 2022	0.000		-		0.000	0.000	1.260	-
Development Test & Evaluation	WR	NAVWAR : San Diego, CA	0.403	0.050	Mar 2021	0.205	Oct 2021	0.000		-		0.000	0.000	0.658	-
Development Test & Evaluation	Various	Various : Various	0.000	0.000		0.068	Oct 2021	0.923	Oct 2022	-		0.923	0.000	0.991	-
Development Test & Evaluation	C/FFP	ASHWIN-USHAS CORP: : Marlboro, NJ	0.000	0.345	Jan 2021	0.000		0.000		-		0.000	0.000	0.345	-
Development Test & Evaluation	C/CPAF	Phoenix Marine : Largo, MD	0.000	0.240	Apr 2021	0.000		0.000		-		0.000	0.000	0.240	-
Development Test & Evaluation	WR	NMCSC : San Diego,CA	0.000	0.000		0.209	Nov 2021	0.175	Oct 2022	-		0.175	0.000	0.384	-
		Subtotal	46.944	4.244		4.224		2.901		-		2.901	Continuing	Continuing	N/A

Remarks

1. There is a notable decrease in the program funding allocation to NEDU, SUNY Buffalo, JHU APL and NAVWAR in FY23. This relates to the planned funding and completion of projects at the end of FY22 for these institutions. Proposal submissions were either not submitted or not selected for funding for FY22 and subsequent out-years. The BAA-21-G-01 selection process for FY23 begins later this calendar year.
2. Costs shown as 'various' reflect the funds that will be used to sponsor future research. Just as the funding control for FY-23 is a projection of funds to be allocated for continuing the work performed by the Deep Submergence Biomedical Development Program, these 'various' funds are yet-to-be assigned funds, based on the established PBIS controls, for work that will start in that future year (in this case FY-23). The exact details of the studies initiated with these funds will be determined as part of the established annual project selection process, as defined in NAVSEAINST 3900.10A and under BAA-21-G-01. These are not discretionary funds, but rather funds allocated for future, to-be-determined research, according to established guidelines.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.655	0.070	Nov 2020	0.060	Aug 2022	0.060	Aug 2023	-		0.060	Continuing	Continuing	Continuing
SBIR Assessment	Various	Various : Various	0.000	0.000		0.179	Oct 2021	0.121	Oct 2022	-		0.121	0.000	0.300	-
		Subtotal	0.655	0.070		0.239		0.181		-		0.181	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.599	4.314		4.463		3.082		-		3.082	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

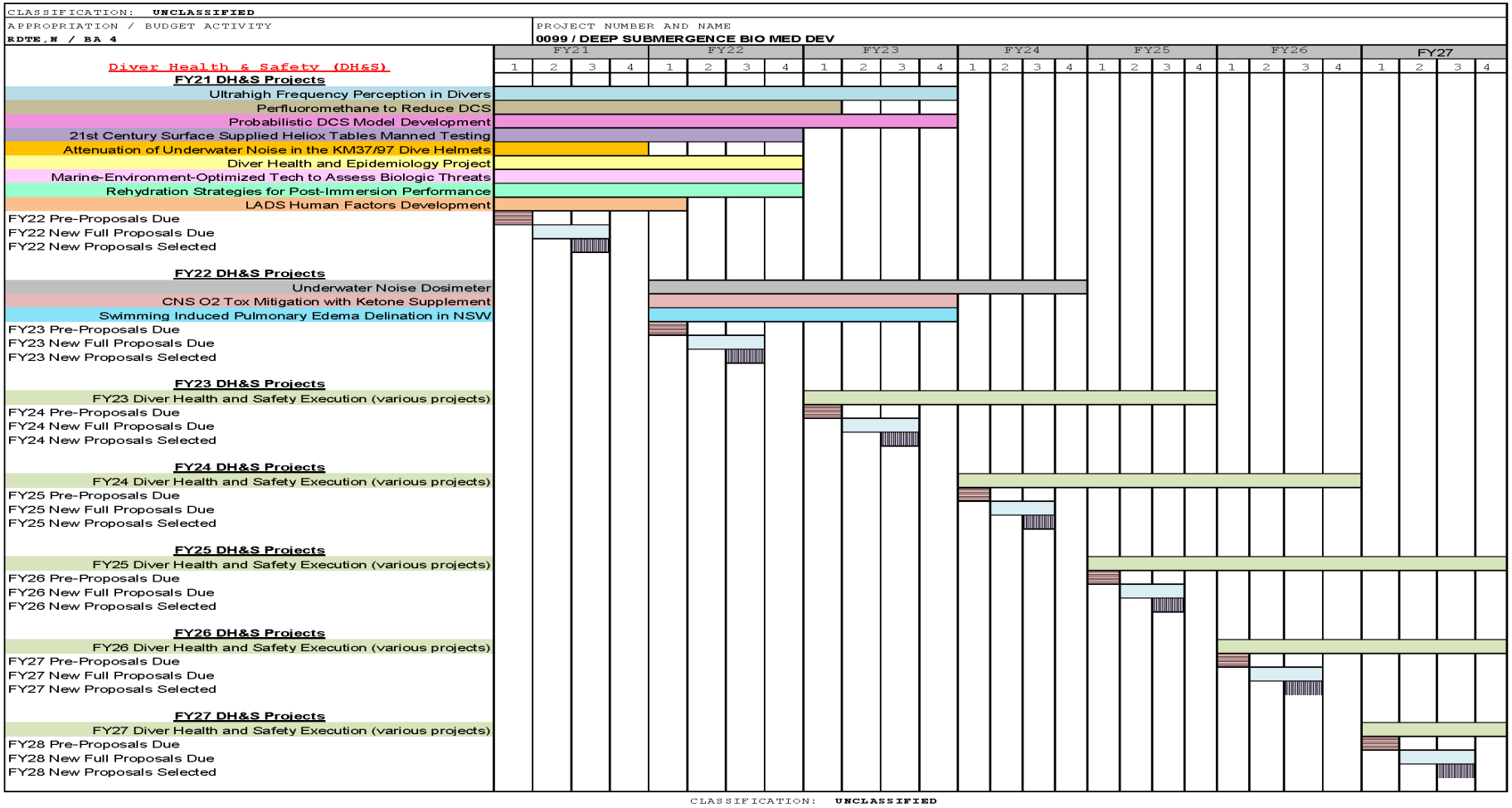

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

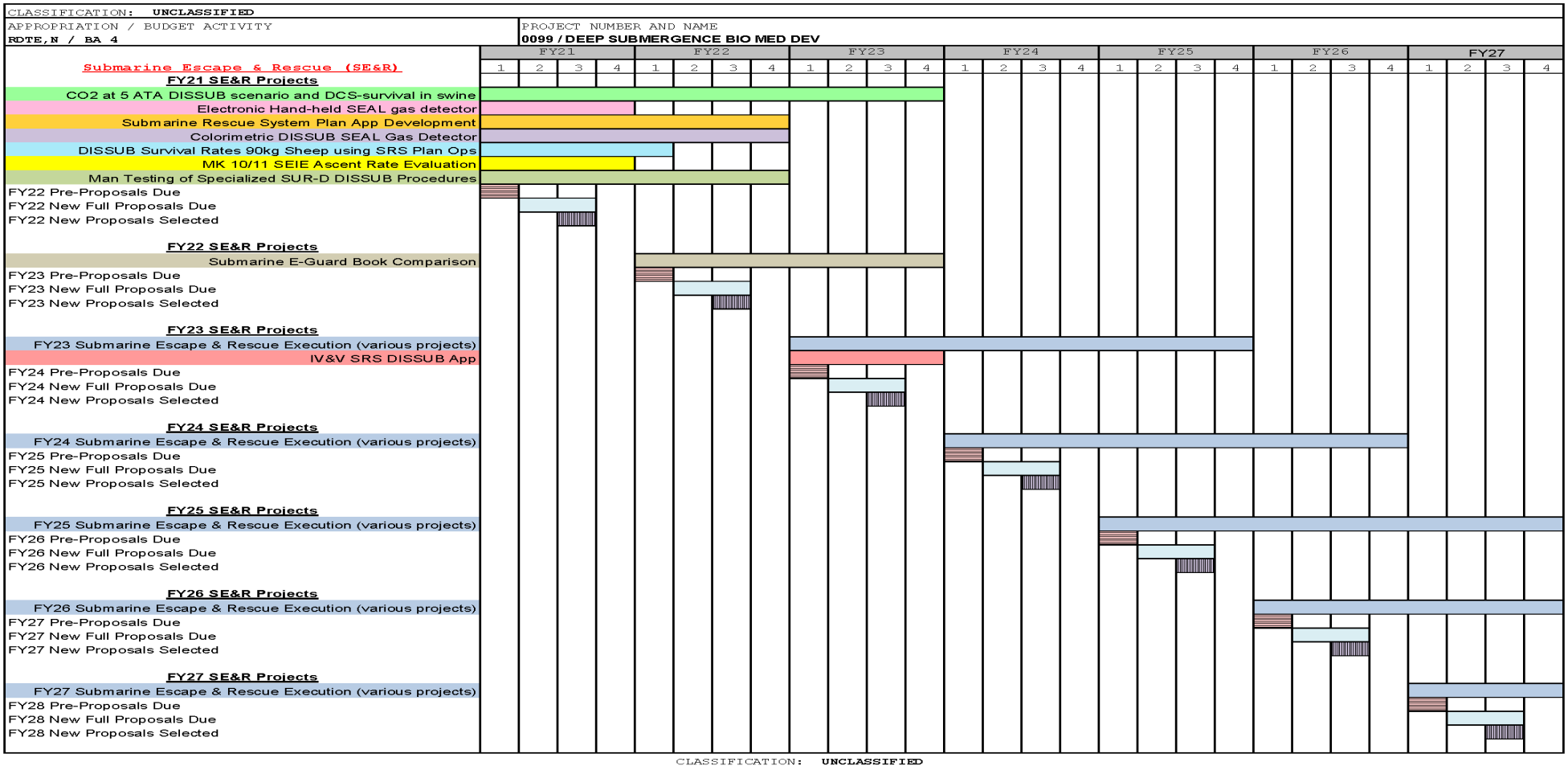

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0099				
Diver Health & Safety (DH&S): FY21 DH&S Projects: Ultrahigh Frequency Perception in Divers	1	2021	4	2023
Diver Health & Safety (DH&S): FY21 DH&S Projects: Perfluoromethane to Reduce DCS	1	2021	1	2023
Diver Health & Safety (DH&S): FY21 DH&S Projects: Probabilistic DCS Model Development	1	2021	4	2023
Diver Health & Safety (DH&S): FY21 DH&S Projects: 21st Century Surface Supplied Heliox Tables Manned Testing	1	2021	4	2022
Diver Health & Safety (DH&S): FY21 DH&S Projects: Attenuation of Underwater Noise in the KM37/97 Dive Helmets	1	2021	4	2021
Diver Health & Safety (DH&S): FY21 DH&S Projects: Diver Health and Epidemiology Project	1	2021	4	2022
Diver Health & Safety (DH&S): FY21 DH&S Projects: Marine-Environment-Optimized Tech to Assess Biologic Threats	1	2021	4	2022
Diver Health & Safety (DH&S): FY21 DH&S Projects: Rehydration Strategies for Post-Immersion Performance	1	2021	4	2022
Diver Health & Safety (DH&S): FY21 DH&S Projects: LADS Human Factors Development	1	2021	1	2022
Diver Health & Safety (DH&S): FY22 Pre-Proposals Due	1	2021	1	2021
Diver Health & Safety (DH&S): FY22 New Full Proposals Due	2	2021	3	2021
Diver Health & Safety (DH&S): FY22 New Proposals Selected	3	2021	3	2021
Diver Health & Safety (DH&S): FY22 DH&S Projects: Underwater Noise Dosimeter	1	2022	4	2024
Diver Health & Safety (DH&S): FY22 DH&S Projects: CNS O2 Tox Mitigation with Ketone Supplement	1	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Diver Health & Safety (DH&S): FY22 DH&S Projects: Swimming Induced Pulmonary Edema Delination in NSW	1	2022	4	2023
Diver Health & Safety (DH&S): FY23 Pre-Proposals Due	1	2022	1	2022
Diver Health & Safety (DH&S): FY23 New Full Proposals Due	2	2022	3	2022
Diver Health & Safety (DH&S): FY23 New Proposals Selected	3	2022	3	2022
Diver Health & Safety (DH&S): FY23 DH&S Projects: FY23 Diver Health and Safety Execution (various projects)	1	2023	4	2025
Diver Health & Safety (DH&S): FY24 Pre-Proposals Due	1	2023	1	2023
Diver Health & Safety (DH&S): FY24 New Full Proposals Due	2	2023	3	2023
Diver Health & Safety (DH&S): FY24 New Proposals Selected	3	2023	3	2023
Diver Health & Safety (DH&S): FY24 DH&S Projects: FY24 Diver Health and Safety Execution (various projects)	1	2024	4	2026
Diver Health & Safety (DH&S): FY25 Pre-Proposals Due	1	2024	1	2024
Diver Health & Safety (DH&S): FY25 New Full Proposals Due	2	2024	3	2024
Diver Health & Safety (DH&S): FY25 New Proposals Selected	3	2024	3	2024
Diver Health & Safety (DH&S): FY25 DH&S Projects: FY25 Diver Health and Safety Execution (various projects)	1	2025	4	2027
Diver Health & Safety (DH&S): FY26 Pre-Proposals Due	1	2025	1	2025
Diver Health & Safety (DH&S): FY26 New Full Proposals Due	2	2025	3	2025
Diver Health & Safety (DH&S): FY26 New Proposals Selected	3	2025	3	2025
Diver Health & Safety (DH&S): FY26 DH&S Projects: FY26 Diver Health and Safety Execution (various projects)	1	2026	4	2027
Diver Health & Safety (DH&S): FY27 Pre-Proposals Due	1	2026	1	2026
Diver Health & Safety (DH&S): FY27 New Full Proposals Due	2	2026	3	2026
Diver Health & Safety (DH&S): FY27 New Proposals Selected	3	2026	3	2026
Diver Health & Safety (DH&S): FY27 DH&S Projects: FY27 Diver Health and Safety Execution (various projects)	1	2027	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Diver Health & Safety (DH&S): FY28 Pre-Proposals Due	1	2027	1	2027
Diver Health & Safety (DH&S): FY28 New Full Proposals Due	2	2027	3	2027
Diver Health & Safety (DH&S): FY28 New Proposals Selected	3	2027	3	2027
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: CO2 at 5 ATA DISSUB scenario and DCS-survival in swine	1	2021	4	2023
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: Electronic Hand-held SEAL gas detector	1	2021	4	2021
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: Submarine Rescue System Plan App Development	1	2021	4	2022
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: Colorimetric DISSUB SEAL Gas Detector	1	2021	4	2022
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: DISSUB Survival Rates 90kg Sheep using SRS Plan Ops	1	2021	1	2022
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: MK 10/11 SEIE Ascent Rate Evaluation	1	2021	4	2021
Submarine Escape & Rescue (SE&R): FY21 SE&R Projects: Man Testing of Specialized SUR-D DISSUB Procedures	1	2021	4	2022
Submarine Escape & Rescue (SE&R): FY22 Pre-Proposals Due	1	2021	1	2021
Submarine Escape & Rescue (SE&R): FY22 New Full Proposals Due	2	2021	3	2021
Submarine Escape & Rescue (SE&R): FY22 New Proposals Selected	3	2021	3	2021
Submarine Escape & Rescue (SE&R): FY22 SE&R Projects: Submarine E-Guard Book Comparison	1	2022	4	2023
Submarine Escape & Rescue (SE&R): FY23 Pre-Proposals Due	1	2022	1	2022
Submarine Escape & Rescue (SE&R): FY23 New Full Proposals Due	2	2022	3	2022
Submarine Escape & Rescue (SE&R): FY23 New Proposals Selected	3	2022	3	2022
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: FY23 Submarine Escape & Rescue Execution (various projects)	1	2023	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: IV&V SRS DISSUB App	1	2023	4	2023
Submarine Escape & Rescue (SE&R): FY24 Pre-Proposals Due	1	2023	1	2023
Submarine Escape & Rescue (SE&R): FY24 New Full Proposals Due	2	2023	3	2023
Submarine Escape & Rescue (SE&R): FY24 New Proposals Selected	3	2023	3	2023
Submarine Escape & Rescue (SE&R): FY24 SE&R Projects: FY24 Submarine Escape & Rescue Execution (various projects)	1	2024	4	2026
Submarine Escape & Rescue (SE&R): FY25 Pre-Proposals Due	1	2024	1	2024
Submarine Escape & Rescue (SE&R): FY25 New Full Proposals Due	2	2024	3	2024
Submarine Escape & Rescue (SE&R): FY25 New Proposals Selected	3	2024	3	2024
Submarine Escape & Rescue (SE&R): FY25 SE&R Projects: FY25 Submarine Escape & Rescue Execution (various projects)	1	2025	4	2027
Submarine Escape & Rescue (SE&R): FY26 Pre-Proposals Due	1	2025	1	2025
Submarine Escape & Rescue (SE&R): FY26 New Full Proposals Due	2	2025	3	2025
Submarine Escape & Rescue (SE&R): FY26 New Proposals Selected	3	2025	3	2025
Submarine Escape & Rescue (SE&R): FY26 SE&R Projects: FY26 Submarine Escape & Rescue Execution (various projects)	1	2026	4	2027
Submarine Escape & Rescue (SE&R): FY27 Pre-Proposals Due	1	2026	1	2026
Submarine Escape & Rescue (SE&R): FY27 New Full Proposals Due	2	2026	3	2026
Submarine Escape & Rescue (SE&R): FY27 New Proposals Selected	3	2026	3	2026
Submarine Escape & Rescue (SE&R): FY27 SE&R Projects: FY27 Submarine Escape & Rescue Execution (various projects)	1	2027	4	2027
Submarine Escape & Rescue (SE&R): FY28 Pre-Proposals Due	1	2027	1	2027
Submarine Escape & Rescue (SE&R): FY28 New Full Proposals Due	2	2027	3	2027
Submarine Escape & Rescue (SE&R): FY28 New Proposals Selected	3	2027	3	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*	Project (Number/Name) 0394 / *Shallow Depth Diving EQ*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0394: *Shallow Depth Diving EQ*	31.400	1.823	4.311	3.111	-	3.111	3.311	4.215	2.324	2.348	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/ recovery, and submarine rescue operations to support national, as well as Navy, needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. R&D will be performed in the areas of diver tools to improve work efficiency, tracking and navigation, visual enhancement, contaminated water diving, diver environmental protection, and recompression chamber technology.

Requirements:
Operational Requirements Document, Revision 2 for Submarine Rescue Diving and Recompression System (SRDRS) Serial 694-87-06 dtd 6 June 2006
COMSUBLANT/COMSUBPAC OPORD 2137 (Submarine Rescue) dtd 5 Aug 2014
Mission Needs Statement, M016402-92
Survivability, OPNAV N87 ltr Serial N87/5U659719 dtd 30 Jan 1995

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Shallow Depth Diving EQ - Diving	1.008	1.670	1.077	0.000	1.077
Articles:	-	-	-	-	-
Description: Continued research into all engineering and equipment design aspects of manned diving, to include: life support, contaminated water, SCUBA, gas analysis, thermal protection, saturation diving, and divers tools.					
FY 2022 Plans: * DAVD System Improvement: Continue work on developing a self contained DAVD that does not rely on surface umbilicals or fixed sonar installations. This will allow HUD systems and onboard spatial awareness without the requirement to be tethered to the surface. * ANU Item Testing / Retesting: Testing of life support and other underwater systems for inclusion on the ANU list. This will include both testing of existing ANU items to ensure continued compliance with configuration management and quality or the testing of new items that are desired by fleet divers.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
* Lightweight 1ATA Dive Suit (LADS) Development and Testing: Continue build and test of the zero thrust joints and Prehensor and initiate integration into lightweight version of 1ATA EXOSUIT. This will allow US Navy divers to work at significant depth in a self-propelled, flexible suit without the risk of decompression sickness or performing lengthy decompression. * Contaminated Environment Equipment Testing: Conduct testing on diver protective equipment for limited contaminated water environments. This equipment will allow divers to safely enter contaminated environments to conduct necessary salvage operations. ***FY 2023 Base Plans:*** * Lightweight 1ATA Dive Suit (LADS) Development and Testing: Continue build and test of the zero thrust joints and Prehensor and initiate integration into lightweight version of 1ATA EXOSUIT. This will allow US Navy divers to work at significant depth in a self-propelled, flexible suit without the risk of decompression sickness or performing lengthy decompression. * DAVD System Improvement: Continue work on developing a self contained DAVD that does not rely on surface umbilicals or fixed sonar installations. This will allow HUD systems and onboard spatial awareness without the requirement to be tethered to the surface. * ANU Item Testing / Retesting: Testing of life support and other underwater systems for inclusion on the ANU list. This will include both testing of existing ANU items to ensure continued compliance with configuration management and quality or the testing of new items that are desired by fleet divers. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The reduction of -$0.593M in FY23 will have three profound effects for the Navy diving community, including NSW and EOD components.. First, needed life cycle analysis of decades-old capital items to include recompression chambers and shore-based diver life support systems to inform decision making for overhaul/ replacement. Second, development and testing for improved air purity sensors to support recompression chambers and UBAs will be delayed. Third, testing to ensure diver safety and compliance with technical					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
standards will be lengthened into succeeding years causing delays to equipment certification or ANU authorization.					
Title: Shallow Depth Diving EQ - Submarine Escape and Rescue	0.815	2.641	2.034	0.000	2.034
Articles:	-	-	-	-	-
Description: Research, development, testing, and design of technologies to support improvements, increase resiliency, and increase capabilities of equipment, processes and procedures required to ensure successful escape and rescue of Distressed Submarine (DISSUB) survivors. The ability to ensure successful escape and rescue is a core function of the Undersea Warfare enterprise.					
FY 2022 Plans: *Complete the design and development of equipment that improves the pressurized shallow water mating capability of the SRDRS. Pressurized shallow water mating is a critical capability gap. Current capability only covers 60 percent of the world's rescuable waters. The US submarine recue system currently mates to US and Foreign submarine through an articulating transfer skirt. Funding provides for testing and engineering needed to develop a new Transfer Skirt mating seal and assistive equipment to allow for shallower submarine mating capability and improve the ability to rescue submariners from a Distressed Submarine (DISSUB). *Design and implementation of mobilization improvement initiatives to address current inability to meet requirements for mobilization time of 18 hours and improve system capability in meeting Time To First Rescue (TTFR) of 96 hours. This effort optimizes the mobilization of rescue equipment by (1) reducing the amount of time required to weld the Ship Interface Template System (SITS); (2) reducing the time required to assemble the A-frame; and (3) reduce the time required to install the overboarding cylinders. *Provide Independent Verification and Validation (IV&V) software testing, development, integration, and certification of the oxygen decompression monitoring capability for the Submarine Decompression System (SDS) which provides the Transfer Under Pressure (TUP) capability. Delivery of this closes the capability gap for oxygen decompression as required by the ORD to ensure submarine rescue and decompression timelines meet onboard submarine life support onboard stores requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
*Develop and evaluate material for a service life extension plan of the submarine rescue system. Failure to develop this life extension plan will prevent necessary analysis to be conducted prior to existing SRDRS end of life. ***FY 2023 Base Plans:*** *Complete analysis of material solution to achieve service life extension for the submarine rescue system as needed prior to end of existing Submarine Rescue Diving and Recompression System (SRDRS) end of life. Submarine rescue next phase system. Conduct engineering and alternatives investigation for materiel solution that addresses the documented capability gaps for the SRDRS to support next generation development. This effort will develop and outline system level design needs for the next phase submarine rescue system and will support a submarine rescue system working with the SSN(X) platform, while maintaining the ability to work with existing and planned fleet submarines available in the timeline. Includes engineering evaluation of system capability increases to include, but not limited to: Micro-electronics System Upgrades, Electro-Optics for Launch and Recovery System (LARS) to address current Sea State Limitations and provide real-time diagnostics for LARS loads and accelerations, Atmospheric Sensing and Scrubbing to reduce current operational and maintenance requirements by replacing obsolete Analox Units and hand-pumps used, Through-hull communications to provide end-to-end DISSUB communications system that provides increased capabilities by allowing rescue from an unresponsive submarine. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The reduction of -$0.607M in FY23 from FY22 is in accordance with planned program profile.					
Accomplishments/Planned Programs Subtotals	1.823	4.311	3.111	0.000	3.111

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN/0955: *Deep Subm Sys Proj (DSSP) Equip*	2.918	10.682	3.660	-	3.660	3.718	3.789	3.876	3.948	Continuing	Continuing
• OPN/1130: *Diving and Salvage Equipment*	11.143	10.772	11.773	-	11.773	13.166	12.199	12.477	12.716	0.000	158.115

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Diving Program acquisitions are executed and managed by SEA00C. Acquisitions are made for both COTS and developmental items as required to ensure adequate operational availability and safety of the diver. R&D projects are selected in March for a November award using a Broad Area Announcement.
Submarine Rescue Systems - SBIR contract is in place to support development and design.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*	Project (Number/Name) 0394 / *Shallow Depth Diving EQ*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - Design, Integration (PMS-390 TUP)	C/CPFF	Oceaneering : Hanover, MD	26.981	0.000		0.658	Jan 2022	0.000		-		0.000	0.000	27.639	-
Systems Engineering - Design, Integration (PMS-390)	WR	NUWC : Newport, RI	0.048	0.351	Nov 2020	0.052	Nov 2021	0.000		-		0.000	0.000	0.451	-
Systems Engineering - Design, Integration (PMS-390)	WR	PNSY : Portsmouth, NH	0.000	0.250	Apr 2021	0.300	Oct 2021	0.454	Oct 2022	-		0.454	0.000	1.004	-
Diving Equipment Product Development (00C)	C/CPFF	Phoenix : Largo, MD	0.430	0.455	Nov 2020	0.517	Oct 2021	0.400	Oct 2022	-		0.400	0.000	1.802	-
Diving Equipment Product Development (00C)	C/FFP	Coda Octopus : Orlando, FL	0.000	0.000		0.460	Oct 2021	0.350	Oct 2022	-		0.350	Continuing	Continuing	Continuing
Diving Equipment Product Development (00C)	C/CPFF	PCCI : Alexandria, VA	2.251	0.000		0.000		0.000		-		0.000	0.000	2.251	-
Diving Equipment Product Development (00C)	WR	NSWC-PC : Panama City, FL	0.657	0.150	Mar 2021	0.000		0.054	Oct 2022	-		0.054	Continuing	Continuing	Continuing
Diving Equipment Product Development (00C)	C/CPFF	GPC : Irvine, CA	0.316	0.121	Jun 2021	0.000		0.000		-		0.000	0.000	0.437	-
Diving Equipment Product Development (00C)	TBD	Polestar : Needham Heights, MA	0.000	0.000		0.190	Oct 2021	0.000		-		0.000	0.000	0.190	-
Systems Engineering - Design, Integration (PMS-390)	C/CPFF	Penn state UARC : Penn State, PA	0.000	0.214	Jul 2021	1.231	Nov 2021	0.000		-		0.000	0.000	1.445	-
Systems Engineering - Design, Integration (PMS-390)	C/CPFF	JHU : Baltimore, MD	0.000	0.000		0.400	Dec 2021	1.580	Jan 2023	-		1.580	0.000	1.980	-
Diving Equipment Product Development (00C)	WR	NEDU : Panama City, FL	0.000	0.139	Nov 2020	0.384	Oct 2021	0.184	Oct 2022	-		0.184	0.000	0.707	-
Systems Engineering - Design, Integration (00C for PMS-390)	C/CPFF	ACI Technologies, Inc : Philadelphia, PA	0.000	0.115	Mar 2021	0.000		0.000		-		0.000	0.000	0.115	-
		Subtotal	30.683	1.795		4.192		3.022		-		3.022	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*	Project (Number/Name) 0394 / *Shallow Depth Diving EQ*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel (00C)	Various	NAVSEA : Washington, DC	0.159	0.000	Oct 2020	0.017	Oct 2021	0.017	Oct 2022	-		0.017	Continuing	Continuing	Continuing
SBIR Assessment	Various	Various : Various	0.513	0.000	Oct 2020	0.072	Oct 2021	0.042	Oct 2022	-		0.042	0.000	0.627	-
Program Management Support (00C)	C/CPFF	Unknown : Not Specified	0.045	0.028	Mar 2021	0.030	Oct 2021	0.030	Oct 2022	-		0.030	Continuing	Continuing	Continuing
		Subtotal	0.717	0.028		0.119		0.089		-		0.089	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.400	1.823		4.311		3.111		-		3.111	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

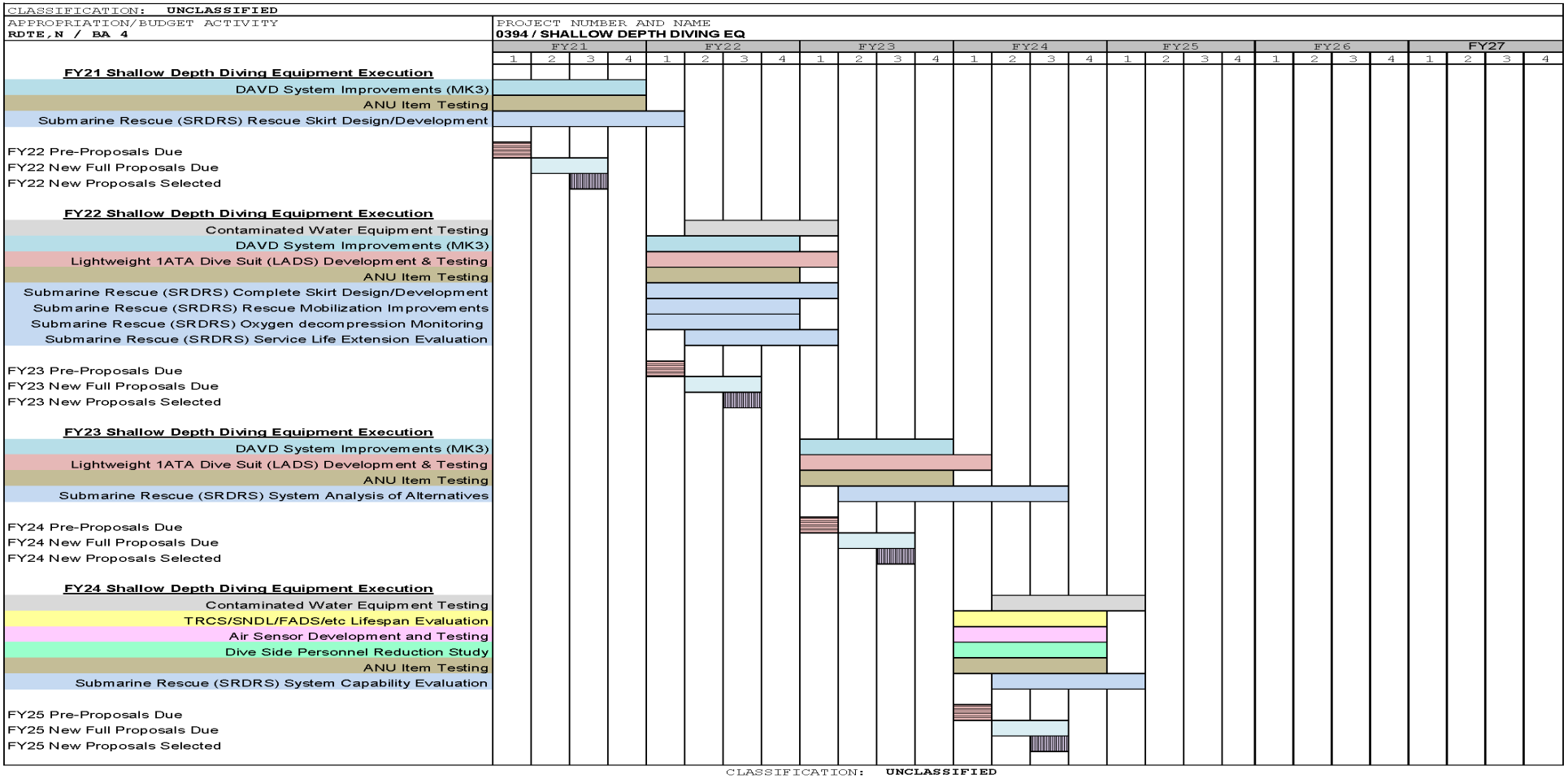

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

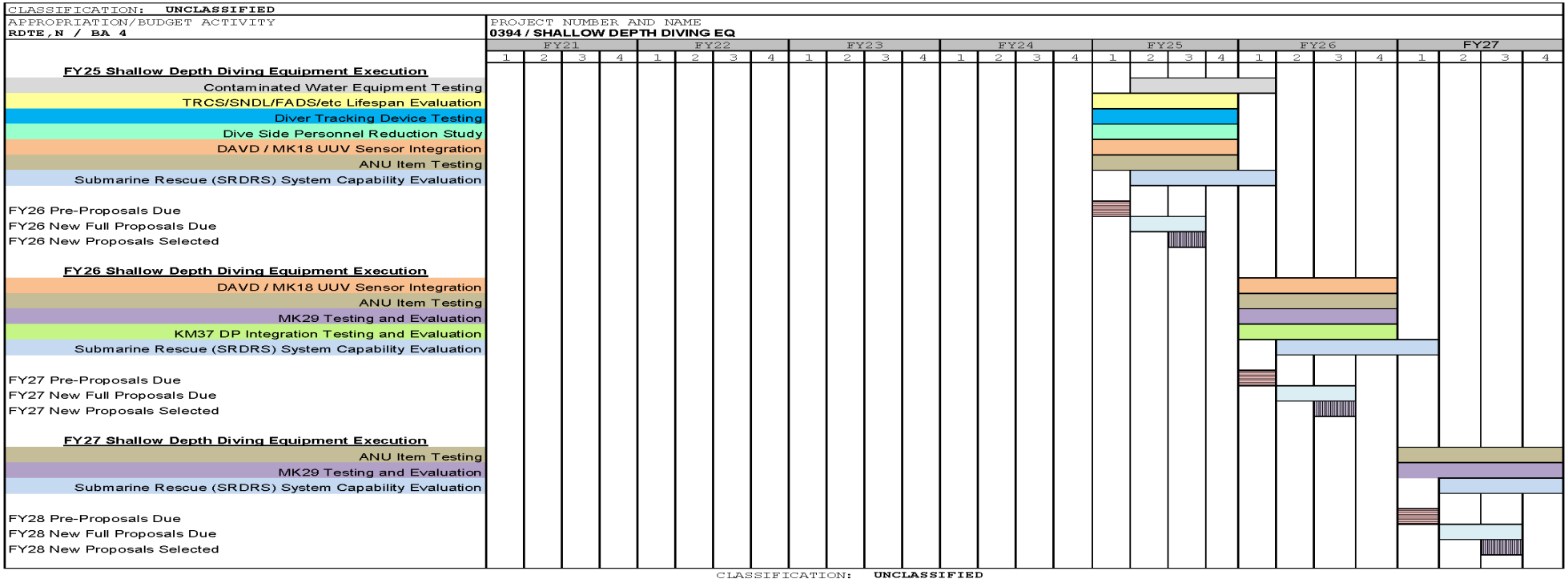

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0394				
FY21 Shallow Depth Diving Equipment Execution: DAVD System Improvements (MK3)	1	2021	4	2021
FY21 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2021	4	2021
FY21 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) Rescue Skirt Design/Development	1	2021	1	2022
FY21 Shallow Depth Diving Equipment Execution: FY22 Pre-Proposals Due	1	2021	1	2021
FY21 Shallow Depth Diving Equipment Execution: FY22 New Full Proposals Due	2	2021	3	2021
FY21 Shallow Depth Diving Equipment Execution: FY22 New Proposals Selected	3	2021	3	2021
FY22 Shallow Depth Diving Equipment Execution: Contaminated Water Equipment Testing	2	2022	1	2023
FY22 Shallow Depth Diving Equipment Execution: DAVD System Improvements (MK3)	1	2022	4	2022
FY22 Shallow Depth Diving Equipment Execution: Lightweight 1ATA Dive Suit (LADS) Development & Testing	1	2022	1	2023
FY22 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2022	4	2022
FY22 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) Complete Skirt Design/Development	1	2022	1	2023
FY22 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) Rescue Mobilization Improvements	1	2022	4	2022
FY22 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) Oxygen decompression Monitoring	1	2022	4	2022
FY22 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) Service Life Extension Evaluation	2	2022	1	2023
FY23 Pre-Proposals Due	1	2022	1	2022
FY23 New Full Proposals Due	2	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY23 New Proposals Selected	3	2022	3	2022
'FY23 Shallow Depth Diving Equipment Execution: DAVD System Improvements (MK3)	1	2023	4	2023
'FY23 Shallow Depth Diving Equipment Execution: Lightweight 1ATA Dive Suit (LADS) Development & Testing	1	2023	1	2024
'FY23 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2023	4	2023
'FY23 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) System Analysis of Alternatives	2	2023	3	2024
FY24 Pre-Proposals Due	1	2023	1	2023
FY24 New Full Proposals Due	2	2023	3	2023
FY24 New Proposals Selected	3	2023	3	2023
'FY24 Shallow Depth Diving Equipment Execution: Contaminated Water Equipment Testing	2	2024	1	2025
'FY24 Shallow Depth Diving Equipment Execution: TRCS/SNDL/FADS/etc Lifespan Evaluation	1	2024	4	2024
'FY24 Shallow Depth Diving Equipment Execution: Air Sensor Development and Testing	1	2024	4	2024
'FY24 Shallow Depth Diving Equipment Execution: Dive Side Personnel Reduction Study	1	2024	4	2024
'FY24 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2024	4	2024
'FY24 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) System Capability Evaluation	2	2024	1	2025
FY25 Pre-Proposals Due	1	2024	1	2024
FY25 New Full Proposals Due	2	2024	3	2024
FY25 New Proposals Selected	3	2024	3	2024
'FY25 Shallow Depth Diving Equipment Execution: Contaminated Water Equipment Testing	2	2025	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
'FY25 Shallow Depth Diving Equipment Execution: TRCS/SNDL/FADS/etc Lifespan Evaluation	1	2025	4	2025
'FY25 Shallow Depth Diving Equipment Execution: Diver Tracking Device Testing	1	2025	4	2025
'FY25 Shallow Depth Diving Equipment Execution: Dive Side Personnel Reduction Study	1	2025	4	2025
'FY25 Shallow Depth Diving Equipment Execution: DAVD / MK18 UUV Sensor Integration	1	2025	4	2025
'FY25 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2025	4	2025
'FY25 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) System Capability Evauation	2	2025	1	2026
FY26 Pre-Proposals Due	1	2025	1	2025
FY26 New Full Proposals Due	2	2025	3	2025
FY26 New Proposals Selected	3	2025	3	2025
'FY26 Shallow Depth Diving Equipment Execution: DAVD / MK18 UUV Sensor Integration	1	2026	4	2026
'FY26 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2026	4	2026
'FY26 Shallow Depth Diving Equipment Execution: MK29 Testing and Evaluation	1	2026	4	2026
'FY26 Shallow Depth Diving Equipment Execution: KM37 DP Integration Testing and Evaluation	1	2026	4	2026
'FY26 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) System Capability Evauation	2	2026	1	2027
FY27 Pre-Proposals Due	1	2026	1	2026
FY27 New Full Proposals Due	2	2026	3	2026
FY27 New Proposals Selected	3	2026	3	2026
FY27 Shallow Depth Diving Equipment Execution: ANU Item Testing	1	2027	4	2027
FY27 Shallow Depth Diving Equipment Execution: MK29 Testing and Evaluation	1	2027	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY27 Shallow Depth Diving Equipment Execution: Submarine Rescue (SRDRS) System Capability Evaluation	2	2027	4	2027
FY28 Pre-Proposals Due	1	2027	1	2027
FY28 New Full Proposals Due	2	2027	3	2027
FY28 New Proposals Selected	3	2027	3	2027