Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy	Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	87.515	6.018	10.751	15.587	-	15.587	10.480	9.401	8.768	8.951	Continuing	Continuing
0099: *Deep Submergence Bio Med Dev*	53.581	2.992	2.433	3.425	-	3.425	3.454	3.348	3.415	3.487	Continuing	Continuing
0394: *Shallow Depth Diving EQ*	33.934	3.026	8.318	12.162	-	12.162	7.026	6.053	5.353	5.464	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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	6.193	10.751	16.961	-	16.961
Current President's Budget	6.018	10.751	15.587	-	15.587
Total Adjustments	-0.175	0.000	-1.374	-	-1.374
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.175	0.000			
• Program Adjustments	0.000	0.000	-1.352	-	-1.352
• Rate/Misc Adjustments	0.000	0.000	-0.022	-	-0.022

Change Summary Explanation

The FY23 reduction of (-$0.175M) is the final SBIR assessment. The FY25 reduction of (-$1.374M) is split between Project 0099 (-$0.321M) and Project 0394 (-$1.053M) and is due to miscellaneous program adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
0099: *Deep Submergence Bio Med Dev*	53.581	2.992	2.433	3.425	-	3.425	3.454	3.348	3.415	3.487	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 3150.27D, Navy Diving Policy and Joint Military Diving Technology and Training Program, 01 Mar 2021
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Deep Submergence Bio Med Dev - Diver Health and Safety	2.227	1.826	1.785	0.000	1.785
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 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 2024 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 underwater noise dosimeter development 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. *Diver rebreather safety: Continue evaluation of the effects of respiratory muscle training on carbon dioxide retention. *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.					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
*Thermal protection in contaminated water diving: Examine mitigation strategies for thermal strain for Divers conducting dives in warm or contaminated water. *Define oxygen content of diver emergency gas supply (EGS): Examine requirements for oxygen EGS in shallow water for next generation equipment development. *Real-time DCS prediction: Examine the feasibility of a wearable device and that could detect venous gas embolism and predict decompression time. ***FY 2025 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. *Thermal protection in contaminated water diving: Continue to examine mitigation strategies for thermal strain for Divers conducting dives in warm or contaminated water. *Real-time DCS prediction: Continue to examine the feasibility of a wearable device and that could detect venous gas embolism and predict decompression time. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The decrease of (-$0.041M) from FY24 to FY25 is due to minor program adjustments.					
Title: Deep Submergence Bio Med Dev - Submarine Escape and Rescue	0.765	0.607	1.640	0.000	1.640
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					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
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 2024 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. *Complete prototype development 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. *Manned Testing of Specialized Surface Decompression procedures for DISSUB rescue without transfer under pressure: Continue manned testing to validate these procedures. *Submarine Escape Action Limits (SEAL) detection: Complete prototype development and transition of an electronic device to detect 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. Device has potential for dual purpose use in gas-free engineering scenarios. *Submarine Escape Action Limits (SEAL) detection: Complete prototype development and transition of a colorimetric card to detect SEAL levels. Evaluate against electronic device for either down-selection or complimentary implementation. ***FY 2025 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: Complete 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. ***FY 2025 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase of +$1.033M from FY 2024 to FY 2025: This represents a more sustainable funding level to maintain the unique skills and infrastructure needed for submarine escape and rescue research. This will allow for additional new projects to meet goals of survivability, and improved rescue equipment and protocols.					
Accomplishments/Planned Programs Subtotals	2.992	2.433	3.425	0.000	3.425

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 2025 Navy			Date: March 2024
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 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NEDU : Panama City, FL	27.035	0.583	Nov 2022	0.804	Oct 2023	0.268	Oct 2024	-		0.268	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NMRC : Silver Spring, MD	12.899	0.082	Mar 2023	0.101	Oct 2023	0.244	Oct 2024	-		0.244	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/FFP	DUKE UNIV : Durham, NC	5.966	0.453	Feb 2023	0.263	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/FFP	SUNY : Buffalo, NY	3.120	0.000		0.276	Oct 2023	0.253	Oct 2024	-		0.253	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	JHU APL : Laurel, MD	1.260	0.460	Feb 2023	0.400	Oct 2023	0.000		-		0.000	0.000	2.120	-
Developmental Test & Evaluation (DT&E)	WR	NAVWAR : San Diego, CA	0.658	0.000		0.000		0.000		-		0.000	0.000	0.658	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	0.000		0.000		2.450	Oct 2024	-		2.450	0.000	2.450	-
Developmental Test & Evaluation (DT&E)	C/FFP	ASHWIN-USHAS CORP: : Marlboro, NJ	0.731	0.000		0.000		0.000		-		0.000	0.000	0.731	-
Developmental Test & Evaluation (DT&E)	C/CPAF	GPC : Irvine, CA	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Developmental Test & Evaluation (DT&E)	WR	NSMRL : Groton, CT	0.869	0.799	Oct 2022	0.317	Oct 2023	0.000		-		0.000	0.000	1.985	-
Developmental Test & Evaluation (DT&E)	C/BA	UCSD : San Diego, CA	0.000	0.161	Feb 2023	0.166	Nov 2023	0.000		-		0.000	0.000	0.327	-
Developmental Test & Evaluation (DT&E)	WR	NUWC : Keyport, WA	0.000	0.080	Mar 2023	0.000		0.000		-		0.000	0.000	0.080	-
Developmental Test & Evaluation (DT&E)	C/BA	NUWC : Newport, RI	0.000	0.080	Mar 2023	0.000		0.000		-		0.000	0.000	0.080	-
Developmental Test & Evaluation (DT&E)	C/BA	PHOENIX INTERNATIONAL HOLDINGS, INC : Largo, MD	0.000	0.150	Jun 2023	0.000		0.000		-		0.000	0.000	0.150	-
Developmental Test & Evaluation (DT&E)	C/BA	NSWC : Panama City, FL	0.000	0.069	Mar 2023	0.000		0.000		-		0.000	0.000	0.069	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
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 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	52.788	2.917		2.327		3.215		-		3.215	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.
2. Costs shown as 'various' reflect the funds that will be used to sponsor future research. Just as the funding control for FY-24 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-24). 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.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.793	0.075	Aug 2023	0.009	Aug 2024	0.060	Aug 2025	-		0.060	Continuing	Continuing	Continuing
SBIR Assessment	Various	Various : Various	0.000	0.000		0.097	Oct 2023	0.150	Oct 2024	-		0.150	0.000	0.247	-
		Subtotal	0.793	0.075		0.106		0.210		-		0.210	Continuing	Continuing	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.581	2.992		2.433		3.425		-		3.425	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
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*

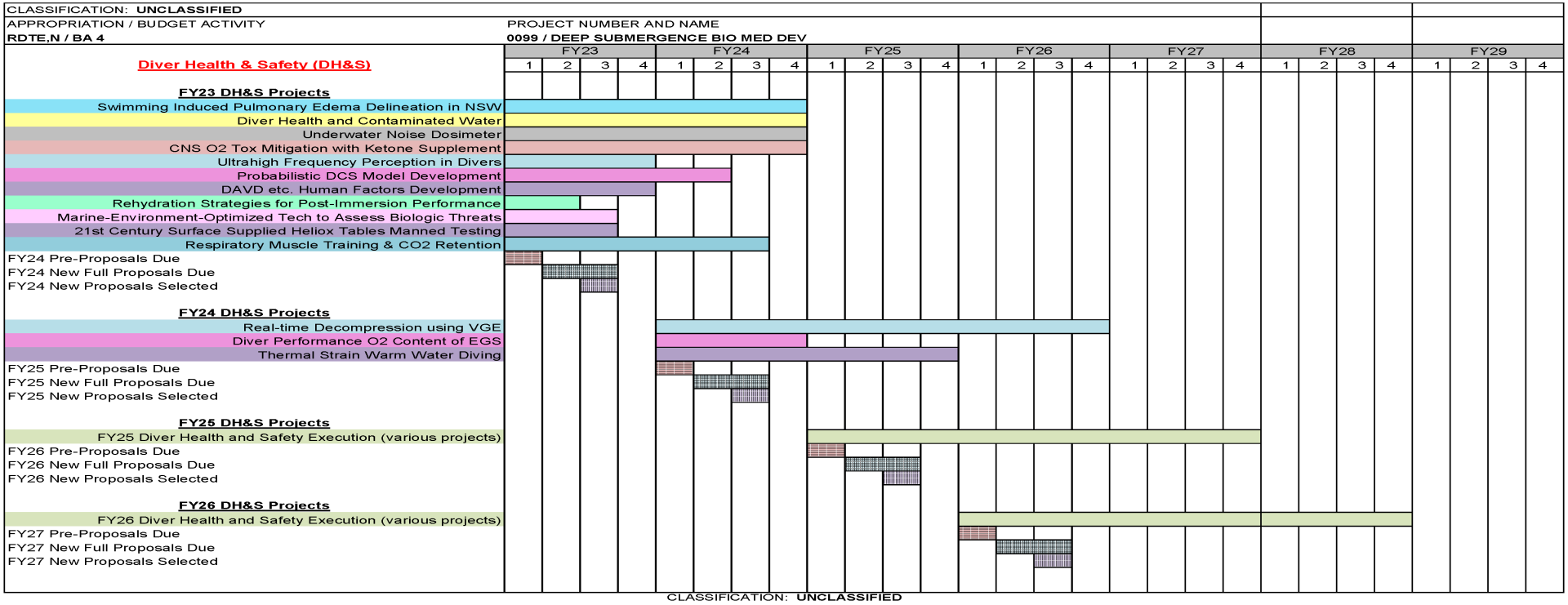

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

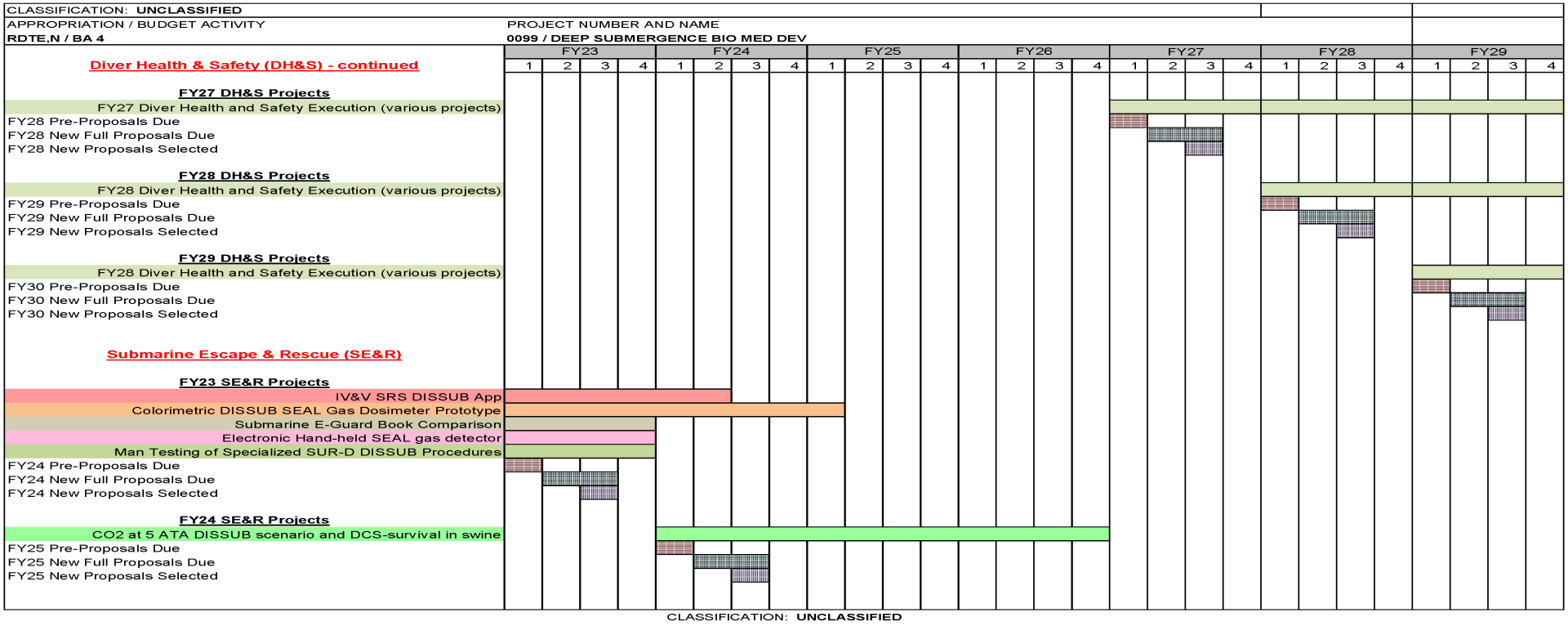

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

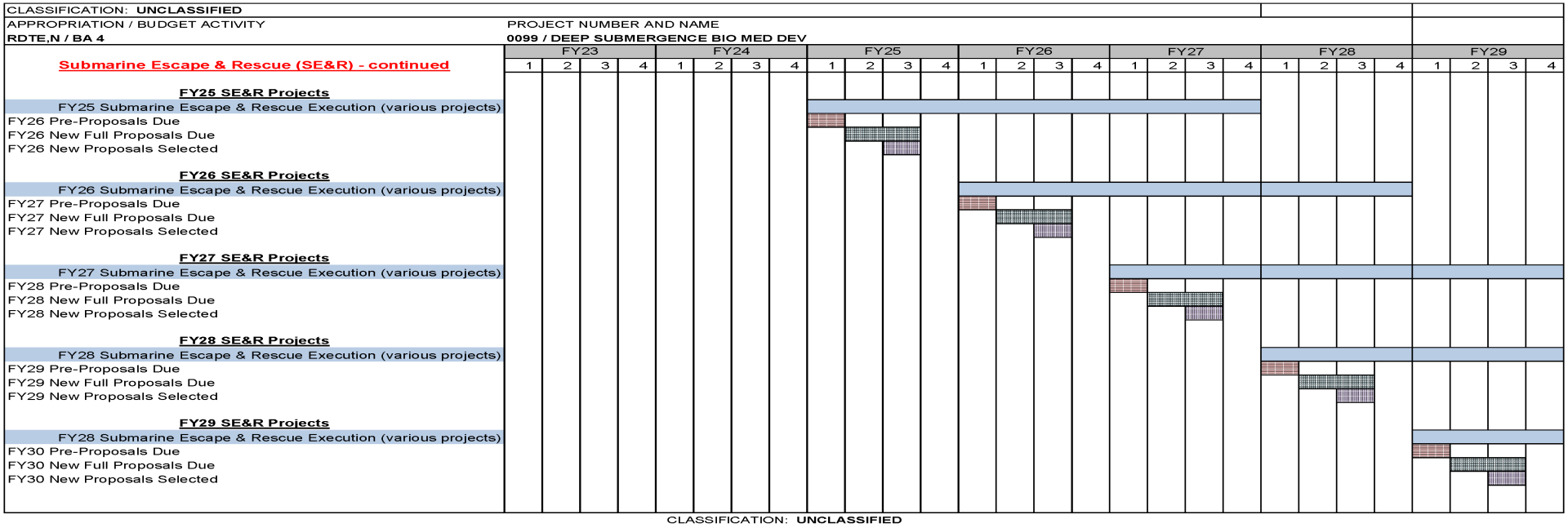

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0099				
Diver Health & Safety (DH&S): FY23 DH&S Projects: Swimming Induced Pulmonary Edema Delineation in NSW	1	2023	4	2024
Diver Health & Safety (DH&S): FY23 DH&S Projects: Diver Health and Contaminated Water	1	2023	4	2024
Diver Health & Safety (DH&S): FY23 DH&S Projects: Underwater Noise Dosimeter	1	2023	4	2024
Diver Health & Safety (DH&S): FY23 DH&S Projects: CNS O2 Tox Mitigation with Ketone Supplement	1	2023	4	2024
Diver Health & Safety (DH&S): FY23 DH&S Projects: Ultrahigh Frequency Perception in Divers	1	2023	4	2023
Diver Health & Safety (DH&S): FY23 DH&S Projects: Probabilistic DCS Model Development	1	2023	2	2024
Diver Health & Safety (DH&S): FY23 DH&S Projects: DAVD etc. Human Factors Development	1	2023	4	2023
Diver Health & Safety (DH&S): FY23 DH&S Projects: Rehydration Strategies for Post-Immersion Performance	1	2023	2	2023
Diver Health & Safety (DH&S): FY23 DH&S Projects: Marine-Environment-Optimized Tech to Assess Biologic Threats	1	2023	3	2023
Diver Health & Safety (DH&S): FY23 DH&S Projects: 21st Century Surface Supplied Heliox Tables Manned Testing	1	2023	3	2023
Diver Health & Safety (DH&S): FY23 DH&S Projects: Respiratory Muscle Training & CO2 Retention	1	2023	3	2024
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

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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): FY24 DH&S Projects: Real-time Decompression using VGE	1	2024	4	2026
Diver Health & Safety (DH&S): FY24 DH&S Projects: Diver Performance O2 Content of EGS	1	2024	4	2024
Diver Health & Safety (DH&S): FY24 DH&S Projects: Thermal Strain Warm Water Diving	1	2024	4	2025
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	2028
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	2029
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
Diver Health & Safety (DH&S): FY28 DH&S Projects: FY28 Diver Health and Safety Execution (various projects)	1	2028	4	2029
Diver Health & Safety (DH&S): FY29 Pre-Proposals Due	1	2028	1	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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): FY29 New Full Proposals Due	2	2028	3	2028
Diver Health & Safety (DH&S): FY29 New Proposals Selected	3	2028	3	2028
Diver Health & Safety (DH&S): FY29 DH&S Projects: FY29 Diver Health and Safety Execution (various projects)	1	2029	4	2029
Diver Health & Safety (DH&S): FY30 Pre-Proposals Due	1	2029	1	2029
Diver Health & Safety (DH&S): FY30 New Full Proposals Due	2	2029	3	2029
Diver Health & Safety (DH&S): FY30 New Proposals Selected	3	2029	3	2029
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: IV&V SRS DISSUB App	1	2023	2	2024
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: Colorimetric DISSUB SEAL Gas Dosimeter Prototype	1	2023	1	2025
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: Submarine E-Guard Book Comparison	1	2023	4	2023
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: Electronic Hand-held SEAL gas detector	1	2023	4	2023
Submarine Escape & Rescue (SE&R): FY23 SE&R Projects: Man Testing of Specialized SUR-D DISSUB Procedures	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: CO2 at 5 ATA DISSUB scenario and DCS-survival in swine	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

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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): 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	2028
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	2029
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
Submarine Escape & Rescue (SE&R): FY28 SE&R Projects: FY28 Submarine Escape & Rescue Execution (various projects)	1	2028	4	2029
Submarine Escape & Rescue (SE&R): FY29 Pre-Proposals Due	1	2028	1	2028
Submarine Escape & Rescue (SE&R): FY29 New Full Proposals Due	2	2028	3	2028
Submarine Escape & Rescue (SE&R): FY29 New Proposals Selected	3	2028	3	2028
Submarine Escape & Rescue (SE&R): FY29 SE&R Projects: FY29 Submarine Escape & Rescue Execution (various projects)	1	2029	4	2029
Submarine Escape & Rescue (SE&R): FY30 Pre-Proposals Due	1	2029	1	2029
Submarine Escape & Rescue (SE&R): FY30 New Full Proposals Due	2	2029	3	2029
Submarine Escape & Rescue (SE&R): FY30 New Proposals Selected	3	2029	3	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy											Date: March 2024	
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 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
0394: *Shallow Depth Diving EQ*	33.934	3.026	8.318	12.162	-	12.162	7.026	6.053	5.353	5.464	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(N97) 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. Funding increase for this system from FY2024 to FY2025 is needed to continue efforts (started in PB24) to properly modernize the system and FY25 budget increase continues to support this. The modernization of Submarine Rescue System (SRS) is required to address known reliability and obsolescence issues and support the planned minimum 15 year system service life extension prior to SRS's end of life and inoperability.

(N95) This project develops systems to support Naval Expeditionary Combat Command Diving. Operations include salvage/recovery and underwater construction 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 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**
Title: Shallow Depth Diving EQ - Diving (N97)	1.047	1.975	1.738	0.000	1.738
Articles:	-	-	-	-	-
Description: Continued research into all engineering and equipment design aspects of manned diving, to include: life support, contaminated water, self contained underwater breathing apparatus (SCUBA), gas analysis, thermal protection, saturation diving, mixed gas diving, and divers tools.					
FY 2024 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
* Deep Sea Expeditionary No "D" (DSEND) Suit: Develop and test a 30 fsw form-fitting 1ATA suit prototype and commence development of a 300 fsw suit based on successful demonstration of the 30 fsw prototype. This will allow Navy divers to work at significant depths in a self-propelled, flexible suit without the need to perform lengthy decompression or be at risk for decompression sickness. * Air Sensor Development and Testing: Start development of sensors to analyze for CO2, oil and particulates in chambers and diver life support systems. These sensors will allow divers to maintain and monitor air purity in breathing gases. * Digital Communications: Start development of a digital communications technology to enable clear tethered communications between topside and deployed divers. Digital communications will markedly increase diver safety by providing a significant upgrade to current analog devices by improving clarity and reducing background noise. Additional development will include development for use in a mixed gas environment. * Authorized for Navy Use (ANU) Item Testing / Retesting: Continue 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 2025 Base Plans: * Deep Sea Expeditionary No "D" (DSEND) Suit: Commence development of a 300 fsw suit based on successful demonstration of the 30 fsw prototype. This will allow Navy divers to work at significant depths in a self-propelled, flexible suit without the need to perform lengthy decompression or be at risk for decompression sickness. * Digital Communications: Continue development of a digital communications technology to enable clear tethered communications between topside and deployed divers. Digital communications will markedly increase diver safety by providing a significant upgrade to current analog devices by improving clarity and reducing background noise. Additional development will include development for use in a mixed gas environment. * Diver Tracking Device Testing: Research/design and test selected technologies which have the capability to provide accurate diver position to topside personnel. Diver tracking will provide enhanced topside situational awareness of divers and pinpoint divers in environments with poor visibility or large debris fields.					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
* Authorized for Navy Use (ANU) Item Testing / Retesting: Continue 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 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Decrease of (-$0.237M) from FY 2024 to FY 2025: This decrease will delay the start or draw out the in-process testing and development of current R&D efforts. ANU and Certification testing to ensure diver safety and compliance with technical standards will be hampered and will affect both the Navy and SOCOM diving communities. Developmental items such as pre-hensors, communications/tracking equipment and environmental sensors will incur schedule delays, increasing time to get the upgraded technologies to the fleet.					
Title: Shallow Depth Diving EQ - Submarine Escape and Rescue (N97)	1.979	5.073	8.011	0.000	8.011
Articles:	-	-	-	-	-
Description: Research, development, testing, design, procurement and installation 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 and to allow for a minimum 15 year system service life extension. The ability to ensure successful escape and rescue is a core function of the Undersea Warfare enterprise. ***FY 2024 Plans:*** Continue development, test, design and procurement of critical technologies necessary to support a planned minimum 15 year system service life extension as part of the Submarine Rescue System (SRS) Modernization program. Many SRS subsystems and components necessary to meet mission requirements have known capability gaps, are obsolete, result in higher than sustainable maintenance costs and higher than acceptable risks. Program is intended to proactively address system deficiencies and upgrade many					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
system subcomponents to a System of System's approach to ensure adequate technology margins are, and will remain, available. Planned upgrades include, but are 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 2025 Base Plans:*** Continue execution of critical technologies necessary to support a planned minimum 15 year system service life extension prior to the Navy's only submarine rescue capability's end of life and inoperability. The Submarine Rescue System (SRS) Modernization program is necessary to meet mission requirements. It includes addressing many subsystems and components necessary that have known capability gaps, are obsolete, result in higher than sustainable maintenance costs and higher than acceptable risks. Program proactively addresses system deficiencies and upgrades many system subcomponents to a System of System's approach to ensure adequate technology margins are, and will remain, available. Planned upgrades include, but are not limited to, Micro-electronics System Upgrades, Condition Based Maintenance, 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 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase of $2.938M from FY 2024 to FY 2025: The increase is required by the Navy in order to provide a credible U.S. Submarine Rescue System (SRS) for our sailors and ally partner nations. As part of detailed review, Navy determined the system had not been funded sufficiently to properly modernize the system and FY25 budget increase continues to support this. The modernization of SRS is required to address known reliability and obsolescence issues and support the planned minimum 15-year system service life extension prior to SRS's end of life and inoperability.					
Title: Shallow Depth Diving EQ - Diving (N95)	0.000	1.270	2.413	0.000	2.413

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Articles:	-	-	-	-	-
Description: Research into all engineering and equipment design aspects of manned diving, to include: life support, contaminated water, self contained underwater breathing apparatus (SCUBA), gas analysis, thermal protection, saturation diving, mixed gas diving, and divers tools. ***FY 2024 Plans:*** Fly Away Mixed Gas (FMGS) System Refresh: At NECC request, develop and test an improved FMGS to reduce the size of the console and add an in-line semi-closed rebreather system. The changes will improve transportability, significantly reduce gas (HeO2) usage, and increase the time available when switching to the emergency gas supply (EGS) and are designed to significantly reduce safety hazards to the divers. ***FY 2025 Base Plans:*** Continue with Fly Away Mixed Gas (FMGS) System Refresh: At NECC request, develop and test an improved FMGS to reduce the size of the console and add an in-line semi-closed rebreather system. The changes will improve transportability, significantly reduce gas (HeO2) usage, and increase the time available when switching to the emergency gas supply (EGS) and are designed to significantly reduce safety hazards to the divers. FY25 will include initial build of prototype unit. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase of $1.143M from FY 2024 to FY 2025: This increase enables the continued FMGS refresh design, development and testing and initial prototype build requested by the combatant commander, NECC. While increasing the U.S. Navy undersea search and salvage capability between 150-300 FSW, this RDT&E is required to fund equipment design and provide a prototype set of equipment for follow-on testing and evaluation. In addition to increasing mission capability, this system will increase the EGS gas availability by approximately 30 minutes and reduce HeO2 usage by up to 80%. Both of these improvements will reduce the operational risks to the divers and provide a financial return on investment.					
Accomplishments/Planned Programs Subtotals	3.026	8.318	12.162	0.000	12.162

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• OPN/0955: *Deep Subm Sys Proj (DSSP) Equip*	3.660	4.623	4.586	-	4.586	5.876	7.198	5.944	6.069	Continuing	Continuing
• OPN/1130: *Diving and Salvage Equipment*	11.773	18.086	17.499	-	17.499	17.877	14.716	13.043	13.316	0.000	179.123
• PE/LI: *Enter Other Funding Description.*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 2025 Navy		Date: March 2024
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 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - Design, Test, Integration (PMS-390)	C/CPFF	Oceaneering : Hanover, MD	27.639	0.000		0.300	Oct 2023	0.000		-		0.000	0.000	27.939	-
Systems Engineering - Design, Integration (PMS-390)	WR	NUWC : Newport, RI	0.451	0.000		0.000		0.250	Oct 2024	-		0.250	0.000	0.701	-
Systems Engineering - Design, Test, Integration (PMS-390)	WR	PNSY : Portsmouth, NH	0.550	0.454	Oct 2022	0.373	Oct 2023	0.950	Oct 2024	-		0.950	0.000	2.327	-
Diving Equipment Product Development (00C)	C/FFP	Coda Octopus : Orlando, FL	0.250	0.250	May 2023	0.100	Oct 2023	0.360	Oct 2024	-		0.360	Continuing	Continuing	Continuing
Diving Equipment Product Development (00C)	WR	NSWC-PC : Panama City, FL	1.047	0.180	Oct 2022	0.000		0.150	Oct 2024	-		0.150	Continuing	Continuing	Continuing
Diving Equipment Product Development (00C)	C/CPFF	GPC : Irvine, CA	0.607	0.020	Oct 2022	0.000		0.000		-		0.000	0.000	0.627	-
Diving Equipment Product Development (00C)	TBD	Polestar : Needham Heights, MA	0.000	0.116	Aug 2023	0.000		0.150	Oct 2024	-		0.150	0.000	0.266	-
Systems Engineering - Design, Test, Integration (PMS-390)	C/CPFF	Penn state UARC : Penn State, PA	1.445	1.525	Jan 2023	3.000	Nov 2023	2.300	Nov 2024	-		2.300	0.000	8.270	-
Systems Engineering - Design, Integration (PMS-390)	C/CPFF	JHU : Baltimore, MD	0.328	0.000		0.000		0.000		-		0.000	0.000	0.328	-
Diving Equipment Product Development (00C)	WR	NEDU : Panama City, FL	0.507	0.222	Dec 2023	0.400	Oct 2023	0.249	Oct 2024	-		0.249	0.000	1.378	-
Systems Engineering - Design, Integration (00C for PMS-390)	C/CPFF	ACI Technologies, Inc : Philadelphia, PA	0.115	0.000		0.000		0.000		-		0.000	0.000	0.115	-
Diving Equipment Product Development (00C)	WR	NAVFAC EXWC : Port Hueneme, CA	0.250	0.060	Mar 2023	0.000		0.000		-		0.000	0.000	0.310	-
Diving Equipment Product Development (00C N95)	TBD	James Fischer Defence : Aberdeen : Aberdeen, Scotland	0.000	0.000		1.270	Oct 2023	2.413	Oct 2024	-		2.413	0.000	3.683	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
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 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Diving Equipment Product Development (00C)	C/CPFF	JHU APL : Baltimore, MD	0.000	0.150	Jan 2023	1.133	Oct 2023	0.598	Oct 2024	-		0.598	0.000	1.881	-
Systems Engineering - Design, Test, Integration (PMS-390)	C/CPFF	TBD : TBD	0.000	0.000		1.400	Jan 2024	4.262	Mar 2025	-		4.262	0.000	5.662	-
		Subtotal	33.189	2.977		7.976		11.682		-		11.682	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel (00C)	Various	NAVSEA : Washington, DC	0.159	0.049	Oct 2022	0.060	Oct 2023	0.058	Oct 2024	-		0.058	Continuing	Continuing	Continuing
SBIR Assessment (00C)	Various	Various : Various	0.513	0.000		0.083	Oct 2023	0.073	Oct 2024	-		0.073	0.000	0.669	-
Program Management Support (00C)	C/CPFF	Various : Not Specified	0.073	0.000	Oct 2022	0.199	Oct 2023	0.100	Oct 2024	-		0.100	Continuing	Continuing	Continuing
Program Management Support (390)	C/CPFF	KMS Solutions : Washington, DC	0.000	0.000		0.000		0.249	Nov 2024	-		0.249	0.000	0.249	-
		Subtotal	0.745	0.049		0.342		0.480		-		0.480	Continuing	Continuing	N/A

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.934	3.026		8.318		12.162		-		12.162	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
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*

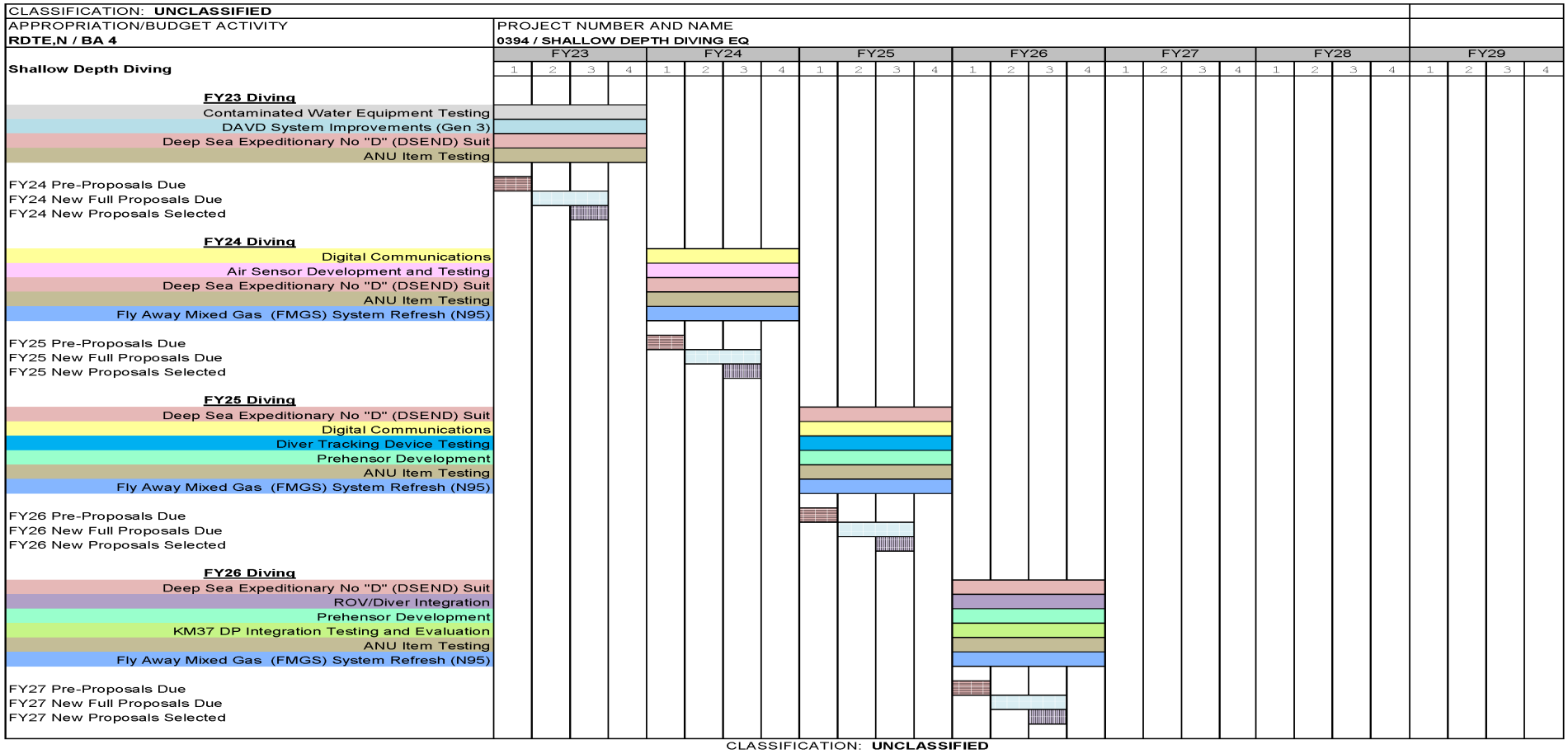

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

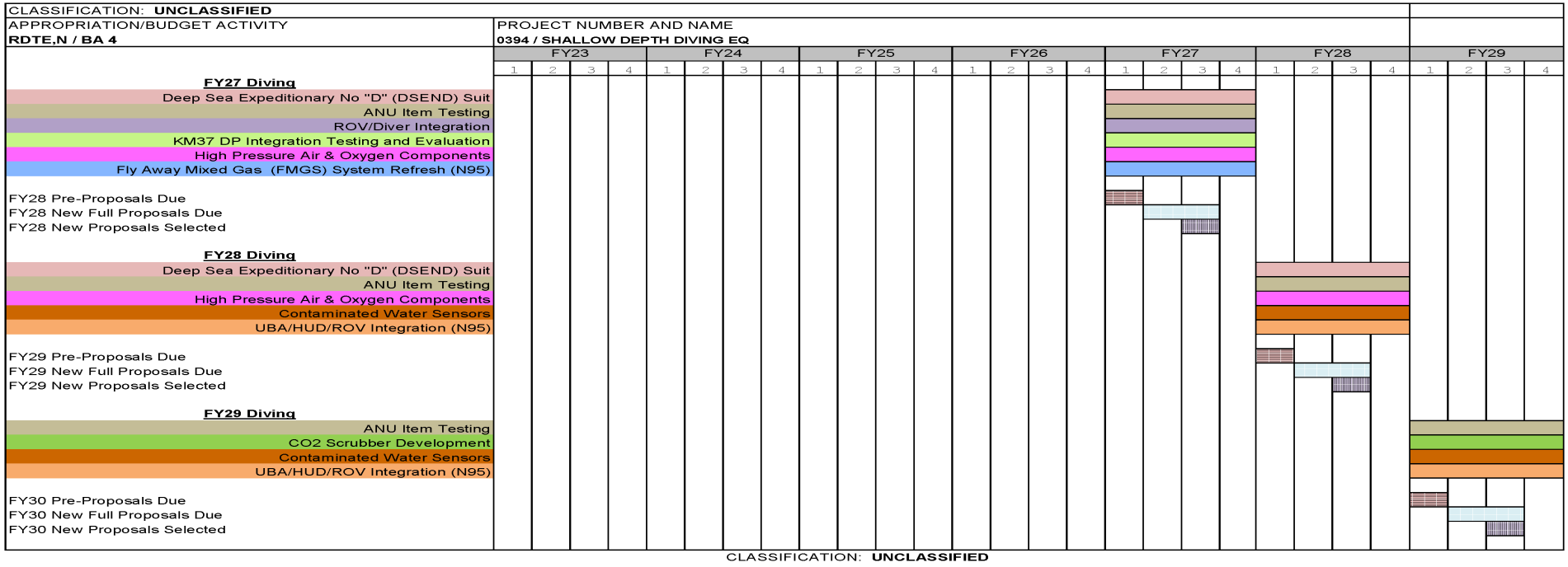

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

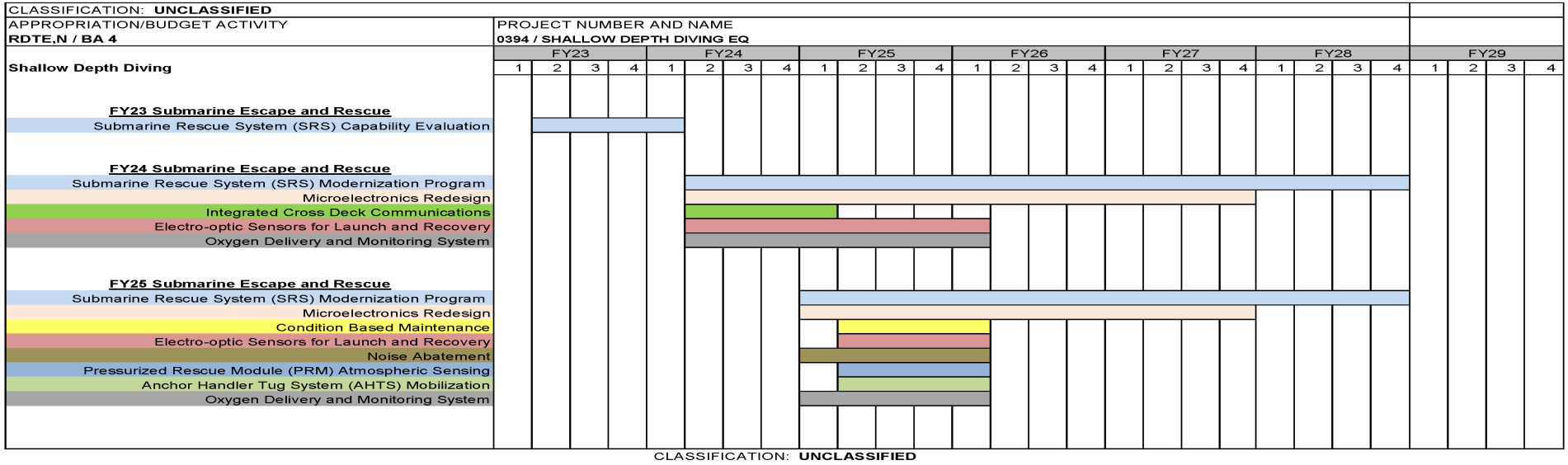

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

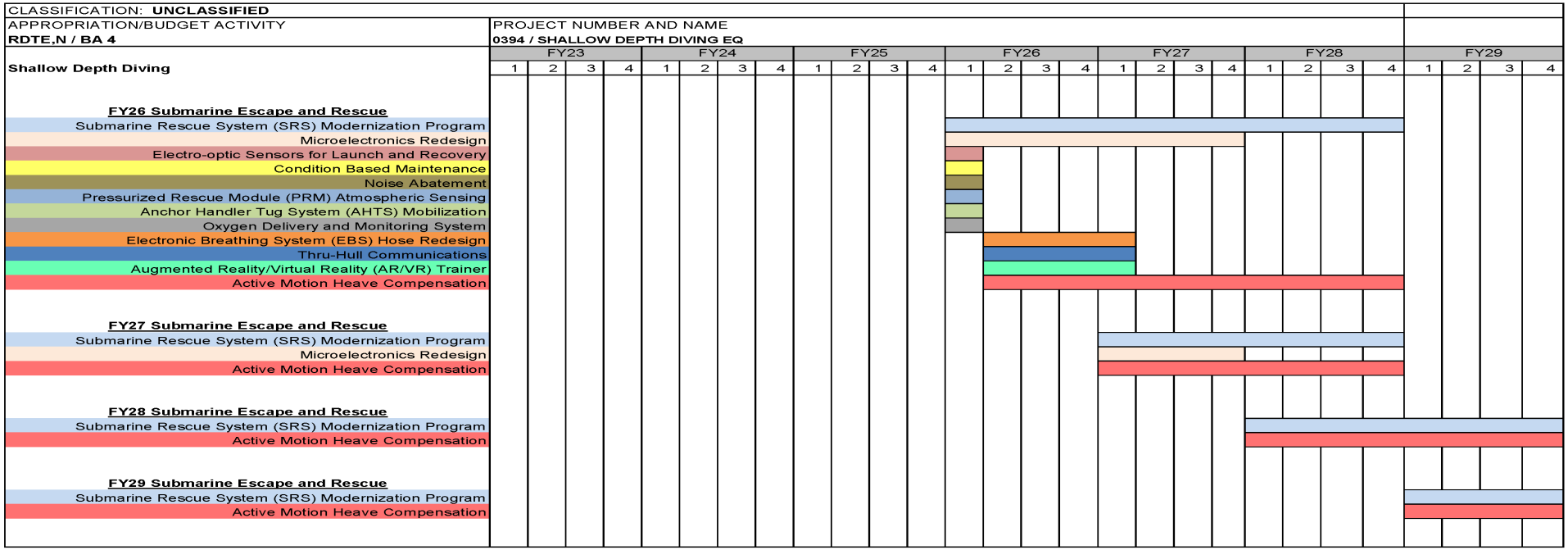

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0394				
'FY23 Diving: Contaminated Water Equipment TestingDetail	1	2023	4	2023
'FY23 Diving: DAVD System Improvements (Gen 3)	1	2023	4	2023
'FY23 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2023	4	2023
'FY23 Diving: ANU Item Testing	1	2023	4	2023
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 Diving: Digital Communications	1	2024	4	2024
'FY24 Diving: Air Sensor Development and Testing	1	2024	4	2024
'FY24 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2024	4	2024
'FY24 Diving: ANU Item Testing	1	2024	4	2024
'FY24 Diving: Fly Away Mixed Gase (FMGS) System Refresh (N95)	1	2024	4	2024
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 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2025	4	2025
'FY25 Diving: Digital Communications	1	2025	4	2025
'FY25 Diving: Diver Tracking Device Testing	1	2025	4	2025
'FY25 Diving: Prehensor Development	1	2025	4	2025
'FY25 Diving: ANU Item Testing	1	2025	4	2025
'FY25 Diving: Fly Away Mixed Gase (FMGS) System Refresh (N95)	1	2025	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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**
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 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2026	4	2026
'FY26 Diving: ROV/Diver Integration	1	2026	4	2026
'FY26 Diving: Prehensor Development	1	2026	4	2026
'FY26 Diving: KM37 DP Integration Testing and Evaluation	1	2026	4	2026
'FY26 Diving: ANU Item Testing	1	2026	4	2026
'FY26 Diving: Fly Away Mixed Gase (FMGS) System Refresh (N95)	1	2026	4	2026
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 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2027	4	2027
FY27 Diving: ANU Item Testing	1	2027	4	2027
FY27 Diving: ROV/Diver Integration	1	2027	4	2027
FY27 Diving: KM37 DP Integration Testing and Evaluation	1	2027	4	2027
FY27 Diving: High Pressure Air & Oxygen Components	1	2027	4	2027
FY27 Diving: Fly Away Mixed Gase (FMGS) System Refresh (N95)	1	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
FY28 Diving: Deep Sea Expeditionary No "D" (DSEND) Suit	1	2028	4	2028
FY28 Diving: ANU Item Testing	1	2028	4	2028
FY28 Diving: High Pressure Air & Oxygen Components	1	2028	4	2028
FY28 Diving: Contaminated Water Sensors	1	2028	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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**
FY28 Diving: UBA/HUD/ROV Integration (N95)	1	2028	4	2028
FY29 Pre-Proposals Due	1	2028	1	2028
FY29 New Full Proposals Due	2	2028	3	2028
FY29 New Proposals Selected	3	2028	3	2028
FY29 Diving: ANU Item Testing	1	2029	4	2029
FY29 Diving: CO2 Scrubber Development	1	2029	4	2029
FY29 Diving: Contaminated Water Sensors	1	2029	4	2029
FY29 Diving: UBA/HUD/ROV Integration (N95)	1	2029	4	2029
FY30 Pre-Proposals Due	1	2029	1	2029
FY30 New Full Proposals Due	2	2029	3	2029
FY30 New Proposals Selected	3	2029	3	2029
FY23 Submarine Escape and Rescue: Submarine Rescue System (SRS) Capability Evaluation	2	2023	1	2024
FY24 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	2	2024	4	2028
FY24 Submarine Escape and Rescue: Microelectronics Redesign	2	2024	4	2027
FY24 Submarine Escape and Rescue: Integrated Cross Deck Communications	2	2024	1	2025
FY24 Submarine Escape and Rescue: Electro-optic Sensors for Launch and Recovery	2	2024	1	2026
FY24 Submarine Escape and Rescue: Oxygen Delivery and Monitoring System	2	2024	1	2026
FY25 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	1	2025	4	2028
FY25 Submarine Escape and Rescue: Microelectronics Redesign	1	2025	4	2027
FY25 Submarine Escape and Rescue: Condition Based Maintenance	2	2025	1	2026
FY25 Submarine Escape and Rescue: Electro-optic Sensors for Launch and Recovery	2	2025	1	2026
FY25 Submarine Escape and Rescue: Noise Abatement	1	2025	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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 Submarine Escape and Rescue: Pressurized Rescue Module (PRM) Atmospheric Sensing	2	2025	1	2026
FY25 Submarine Escape and Rescue: Anchor Handler Tug System (AHTS) Mobilization	2	2025	1	2026
FY25 Submarine Escape and Rescue: Oxygen Delivery and Monitoring System	1	2025	1	2026
FY26 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	1	2026	4	2028
FY26 Submarine Escape and Rescue: Microelectronics Redesign	1	2026	4	2027
FY26 Submarine Escape and Rescue: Electro-optic Sensors for Launch and Recovery	1	2026	1	2026
FY26 Submarine Escape and Rescue: Condition Based Maintenance	1	2026	1	2026
FY26 Submarine Escape and Rescue: Noise Abatement	1	2026	1	2026
FY26 Submarine Escape and Rescue: Pressurized Rescue Module (PRM) Atmospheric Sensing	1	2026	1	2026
FY26 Submarine Escape and Rescue: Anchor Handler Tug System (AHTS) Mobilization	1	2026	1	2026
FY26 Submarine Escape and Rescue: Oxygen Delivery and Monitoring System	1	2026	1	2026
FY26 Submarine Escape and Rescue: Electronic Breathing System (EBS) Hose Redesign	2	2026	1	2027
FY26 Submarine Escape and Rescue: Thru-Hull Communications	2	2026	1	2027
FY26 Submarine Escape and Rescue: Augmented Reality/Virtual Reality (AR/VR) Trainer	2	2026	1	2027
FY26 Submarine Escape and Rescue: Active Motion Heave Compensation	2	2026	4	2028
FY27 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	1	2027	4	2028
FY27 Submarine Escape and Rescue: Microelectronics Redesign	1	2027	4	2027
FY27 Submarine Escape and Rescue: Active Motion Heave Compensation	1	2027	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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**
FY28 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	1	2028	4	2029
FY28 Submarine Escape and Rescue: Active Motion Heave Compensation	1	2028	4	2029
FY29 Submarine Escape and Rescue: Submarine Rescue System (SRS) Modernization Program	1	2029	4	2029
FY29 Submarine Escape and Rescue: Active Motion Heave Compensation	1	2029	4	2029