RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY | 74 07 01 | DD DR&E (AR) 636 (3900)

1. DATE PREV SUMRY	2. KIND OF SUMMARY	3. SUMMARY SCTY*	4. WORK SECURITY*	5. REGRADING*	6a. DISB'N INSTR'N	6b. SPECIFIC DATA CONTRACTOR ACCESS	6c. LEVEL OF SUM
73 07 01	D. Change	U	U	N/A	NL	(X) YES ( ) NO	A. WORK UNIT

8. PRIMARY	63713N	M4306	.01	8013B
9. CONTRIBUTING			
10. CONTRIBUTING			

11. TITLE (Precede with Security Classification Code)* (U) Simulated saturation diving employing nitrogen-oxygen mixtures as the principal breathing medium.

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

005900 Environmental Biology; 012900 Physiology; 002400 Biochemistry

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
74 01	Cont.	DN	C. In-house

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: N/A d. AMOUNT:

e. KIND OF AWARD:

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YEARS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 74	[illegible]	95
	CURRENT 75	[illegible]	125.0

19. RESPONSIBLE DOD ORGANIZATION

NAME:* Naval Submarine Medical Research Lab

ADDRESS:* Box 900, Naval Submarine Base New London Groton, Connecticut 06340

RESPONSIBLE INDIVIDUAL

NAME: SPHAR, R. L., CDR MC USN

TELEPHONE (203) 449-3263; (Autovón 241-3263)

20. PERFORMING ORGANIZATION

NAME:* Military Applications Division Naval Submarine Medical Research

ADDRESS:* Laboratory (Box 900), Naval Submarine Base, NLondon, Groton, Ct 06340

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)

NAME:* HARVEY, C. A., CDR, MC, USN

TELEPHONE (203) 449-3896; (Autovon 241-3896)

SOCIAL SECURITY ACCOUNT NUMBER: 579-48-1336

ASSOCIATE INVESTIGATORS

NAME: ADAMS, G. M., LCDR, MSC USN

NAME: WILSON, J.M., LT, MC USNR

NAME: MURRAY, R.D., LT, MSC, USNR

21. GENERAL USE

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Saturation Diving; (U) Nitrogen; (U) Air; (U) Helium; (U) Oxygen toxicity; (U) Isobaric gas eschange; (U) Inert gas narcosis

23. TECHNICAL OBJECTIVE,* 24. APPROACH, 25. PROGRESS (Furnish individual paragraphs identified by number. Precede text of each with Security Classification Code.)

23. (U) TECHNICAL OBJECTIVE: To investigate and develop methods for shallow and intermediate depth saturation diving using nitrogen-oxygen mixtures including air. The program is designed; (1) to explore the adaptability and physiological responses of man during long exposures to partial pressures of nitrogen at shallow and intermediate depths; (2) to determine the range of partial pressures of oxygen suitable for use in a nitrogen-oxygen breathing gas mixture during saturation diving; and (3) to explore the use of various breathing gas mixtures in excursion dives from a saturated nitrogen-oxygen base.

24. (U)APPROACH: A series of experimental human exposures are programmed; (1) Simulated saturation dives employing nitrogen and a normal concentration of oxygen (normoxic) as a breathing mix will be conducted starting at 100 feet of sea water pressure. Such exposures will be repeated at each of several progressively deeper intermediate depths. (2) When acceptable physiological parameters have been established for saturation at such depths breathing normoxic mixtures, mixed nitrogen-oxygen and helium-oxygen breathing mixes will be employed for excursion dives. (3) Based on animal model studies, human saturation dives employing compressed air as a breathing gas will be carried out and excursion dives conducted. Extensive biomedical monitoring will be employed during each dive to ensure the safety of the subjects.

25. (U) PROGRESS: Experimental protocols and decompression programs have been developed. Chamber modifications are in progress.

*Available to contractors upon originator's approval.

ENCLOSURE (3)

DD FORM 1 MAR 68 1498 STOCK NO. 0102-014-9300 PREVIOUS EDITION OF THIS FORM IS OBSOLETE. D-11321

☆ U.S. GOVERNMENT PRINTING OFFICE 1970-434

NAV1.960104.003D