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US ARMY MEDICAL RESEARCH AND DEVELOPMENT REPORT.(U)
OCT 79 J N ALBERTSON

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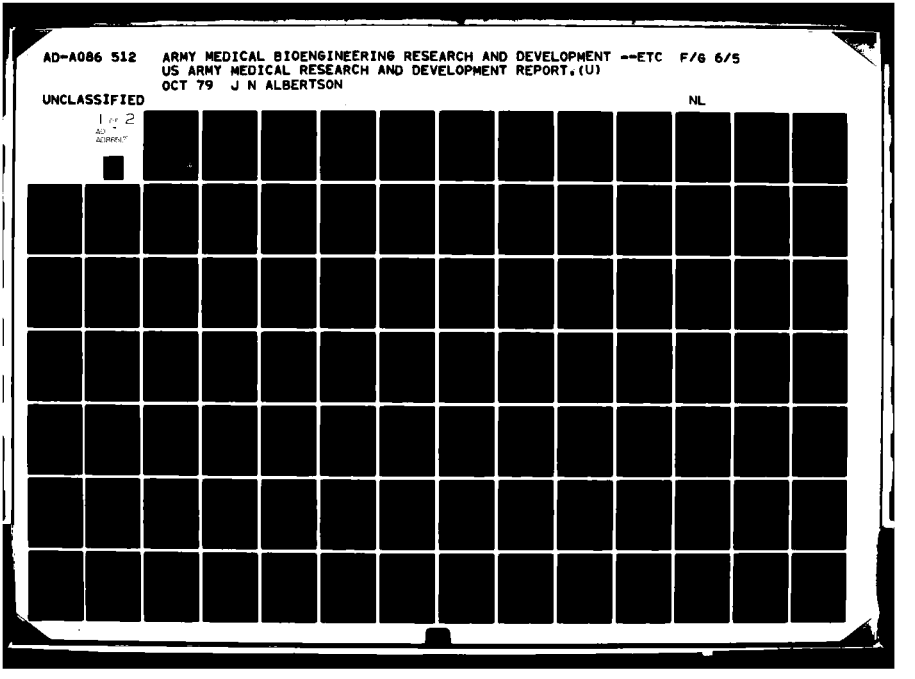

REPORT MEDDH-288 (R1)

US ARMY MEDICAL RESEARCH AND DEVELOPMENT REPORT.

Colonel John N. Albertson, Jr.

US ARMY MEDICAL BIOENGINEERING RESEARCH AND DEVELOPMENT LABORATORY
Fort Detrick
Frederick, MD 21701

1 Oct[redacted]79

Annual Progress Report, [redacted] 1 Oct[redacted]978—30 Sep[redacted]79,

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US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
FORT DETRICK
FREDERICK, MD 21701

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Health Standards for Military Pollutants
Combat Medical Materiel
Pest Management

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The Annual Progress Report, Fiscal Year 1979, summarizes research performed by the US Army Medical Bioengineering Research and Development Laboratory in projects authorized by The Surgeon General, US Army, and the Commander, US Army Medical Research and Development Command, and supported by RDTE funds from the US Army Medical Research and Development Command.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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PREFACE

The United States Army Medical Bioengineering Research and Development Laboratory (USAMBRDL), a subordinate unit of the United States Army Medical Research and Development Command (USAMRDC), is located at Fort Detrick, Maryland, at the apex of a triangle between Baltimore and Washington on the outskirts of the City of Frederick.

The unit was established on 1 September 1972 by the merger of the US Army Medical Equipment Research and Development Laboratory (USAMERDL) and the US Army Medical Biomechanical Research Laboratory (USAMBRL). On 1 July 1973, USAMBRDL was directed to absorb the resources and mission of the US Army Medical Environmental Engineering Research Unit (USAMEERU), located at Aberdeen Proving Ground (Edgewood Arsenal), Maryland. This action was completed on 30 October 1973, with the simultaneous discontinuation of USAMEERU and the formation of the Environmental Protection Research Division within USAMBRDL. By September 1974, all of the division's personnel and materiel resources had been relocated to Fort Detrick.

Organized in September 1921 at Carlisle Barracks, Pennsylvania, the former USAMERDL was established to provide engineering development of medical items required for field use of the Army. During the years 1946–1957 the laboratory was under the command of the former Army–Navy Medical Procurement Office, and in 1948 was moved to Fort Totten, New York. Subsequently, under the technical supervision of the Armed Services Medical Materiel Coordination Committee, it came under complete control of the Army in June 1962 as a subordinate element of The Surgeon General's Research and Development Command. USAMERDL through the years continued to develop and improve upon medical materiel peculiar to the needs of the Armed Forces.

Established in 1946 by the Army Medical Service, the former USAMBRL was originally known as the Army Hand Laboratory, and later changed to Army Prosthetics Research Laboratory (APRL). During the early years, APRL research involved the development of new prosthetic devices. Around 1955, the research effort became more diversified and included the development of new surgical repair materials. With the expansion of the mission to include internal body prosthetics, the name of the laboratory was changed in 1963 to US Army Biomechanical Research Laboratory.

The former USAMEERU was activated on 1 July 1972. USAMEERU represented a major Army "first" in that its mission was to conduct continuing environmental health engineering research in support of The Surgeon General's responsibilities in air and water pollution control and abatement.

Today, USAMBRDL's facilities are housed in five separate buildings on Fort Detrick with total floor space exceeding 100,000 square feet. In addition, the laboratory maintains a small technical coordinating office at Aberdeen Proving Ground, Maryland (Edgewood area). Although geographic separation tends to isolate functions and stretch communication lines, laboratory personnel have proved resourceful in minimizing these problems.

With the exceptions that USAMBRDL no longer performs research in the area of prosthetic devices or surgical materials and there is much greater emphasis on pest management research, current missions can be traced back to the original three laboratories. Not surprisingly, these missions reflect a highly interdisciplinary staff and the need for a responsive and flexible management structure. Current missions are as follows:

Conducts in-house and extramural research, development and acquisition of medical, dental and pest management materiel on a continuing basis for the Army and on an as required basis for the Navy and Air Force. This includes managing the developer's portion of the AMEDD materiel life cycle and product improvement program, coordinating an integrated pest management program, and constructing initial pilot prototypes, test models, and producing limited quantities of medical materiel to support urgent military requirements.

Conducts comprehensive basic and applied research and management of research contracts in support of all The Surgeon General's responsibilities in environmental protection to include air, land and water pollution control and solid, hazardous/toxic wastes and pesticide disposal; and occupational health associated with exposure to chemicals.

To accomplish these missions, the laboratory is authorized 136 positions consisting of 21 officers, one warrant officer, 13 enlisted personnel, 93 general schedule civilians and nine wage grade civilians. In addition, the personnel complement is enhanced through various cooperative training programs with universities, colleges and other government agencies. Professional disciplines represented in the organization include:

Aquatic Biology
Biochemistry
Biomedical Engineering
Chemical Engineering
Computer Sciences
Dentistry
Electronic Engineering
Engineering Crafts & Drafting
Entomology
Environmental Science
Environmental Engineering
General Engineering
Graphic and Photographic Arts
Microbiology/Virology
Mechanical Engineering
Nursing
Operations Research
Physiology
Sanitary Engineering
Statistics
Toxicology/Pharmacology
Veterinary Pathology

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HEALTH STANDARDS FOR MILITARY POLLUTANTS

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RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6187	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8B. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	122 APC F692
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Procode with Security Classification Code)*

(U) Hazard Ranking and Allocation Methodology Management

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

011700 Operations Research; 005900 Environmental Biology; 01680 Toxicology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.0	09
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Small, M.J.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Pearson, J.G.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code)

(U) Systems Analysis; (U) Toxicology; (U) Environmental Models; (U) Munitions; (U) Installation Restoration; (U) Occupational Health; (U) Hazards

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

23. (U) Stanford Research Institute, under Contract DAMD 17-75-C-5071, has devised a systems analysis approach to rank environmental hazards from Army-unique or relevant pollutants and recommend resource allocations to most efficiently formulate standards criteria. This project will provide the means to operate the software, to update the data inputs necessary for its most credible execution and update the analysis algorithms to keep pace with changing philosophies and hazard areas that can be addressed.

24. (U) During FY79, the methodology will be used to handle case studies requested by Research Area Managers in Munitions and Occupational Health. In the latter case, a standardized approach to data input and uncertainty assignment procedures will be developed. By liaison and monitoring of activities in environmental models, toxicology result assessment and regulatory agency policy attitudes, the methodology will be updated.

25. (U) 7810 - 7909. The system was transferred to WYLBUR Data Base storage for ease of file changes and faster turn-around time. A User's Manual was prepared for WYLBUR operation of the system. State-of-the-art concepts of carcinogenic risk assessment were reviewed. Due to lack of demand for applications of the system, active work in its development will not be scheduled.

*Available to contractors upon originator's approval

DD, FORM 1498, MAR 68 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Hazard Ranking and Allocation Methodology

FUNDING: PY None, CY $9K and PY None

PROBLEM DEFINITION: To maintain and improve a systems analysis that provides a quantitative measure of the cost-effectiveness of proposed research in the Munitions and Occupational Research Areas.

IMPORTANCE: This effort provides a basis for decisions on how to best use limited RTD&E funds.

APPROACH: The systems analysis is a series of executable programs and data files. The files are maintained with the most recent information that is available on the subject matter at hand. The programs require information in certain ways that differ from that available. In many cases, interpretation of data based on scientific judgment and philosophies is required. These judgments and philosophies are often updated. The programs require environmental models; and these are reviewed, and when appropriate, improved models selected and incorporated into the system.

ACHIEVEMENTS: The systems analysis was converted from pure batch execution via card submission to the WYLBUR source text editor/job scheduler. This allows for speedier data file updates, job submissions and turn-around time. A user's manual for WYLBUR operations was prepared. Current "risk" evaluations made by the EPA to provide hazardous pollutant criteria (40 CFR 129) have been reviewed and found easily incorporated in the system. A paper was presented on the methodology at the 1979 Hazardous Material, Risk Assessment Disposal and Management Conference in Miami Beach, FL in April 1979.

RELATIONSHIP TO CORE PROGRAM: Since the Munitions and Occupational Research Areas are major spenders of limited RDT&E funds on contract, it is important to have some means of reasonably assuring that the research supported is more cost-effective than other competing projects.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6188	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	123 APC F691
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Procede with Security Classification Code)*

(U) Screening of Munitions-Related Chemicals for Toxicity to Aquatic Organisms

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

C05900 Environmental Biology; 016800 Toxicology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	CONT	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	1.1	71
	CURRENT 80	1.1	50

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

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TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* van der Schalie, W.H.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Broich, S.G.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code)

(U) Munitions; (U) Pesticides; (U) Aquatic Toxicology; (U) Hazardous Wastes

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

23. (U) To provide aquatic toxicity data required in conjunction with in-house and extramural research related to munitions production.

24. (U) To conduct aquatic toxicity testing through comparative screening tests and through generation of acute toxicity data; to evaluate state-of-the-art toxicity testing methods to determine applicability to research requirements; to advance the state-of-the-art in toxicity testing methods where research requirements cannot be met with existing methods.

25. (U) 7810 - 7909. The toxicity testing laboratory was moved to a new location during this time period. Construction of new culturing, holding, and testing facilities has nearly been completed.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Screening of Munitions-Related Chemicals for Acute Toxicity to Aquatic Organisms.

FUNDING: PY $52K, CY $71K and BY $50K

PROBLEM DEFINITION: This project is designed to provide data on the toxicity of munitions-related materials to aquatic organisms. Short-and longer-term tests with several species of fish and an invertebrate will be conducted under static and dynamic water flow conditions. Effects on mortality and, in certain tests, growth and reproduction will be recorded.

IMPORTANCE: Pollution control facilities at Army ammunition plants are currently being upgraded. The type and extent of treatment required for aqueous effluents will depend greatly on the toxicity of the effluent components to aquatic life. Generation of this toxicity information will aid in assessing the environmental hazard posed by the munitions-related materials found in these effluents.

APPROACH: Preliminary screening tests include static, acute tests with fish and an invertebrate. These are followed by dynamic (flow-through) acute tests. Effects on the sensitive life stages of fish will be evaluated using a 35 day embryo-larval test. Survival, growth, and reproduction of an invertebrate will be determined in a full life cycle test.

ACHIEVEMENTS: New facilities were under construction during most of the year. A new source of water was obtained for holding and testing of the animals. Toxicant diluters and other necessary testing equipment were installed.

RELATIONSHIP TO CORE PROGRAM: This work is based on a request by the US Army Materiel Command for information relating to the design of waste treatment facilities. Measurements of the toxicity to aquatic organisms of various components of a waste effluent are an important part of the data base required for the design of proper waste treatment techniques.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6230	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS [X] YES [ ] NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	127 APC F696
b. CONTRIBUTING				
XXXXXXXXXX	CARDS 114f			

11. TITLE (Procede with Security Classification Code)* (U) Evaluation of Filtration Techniques for Disposal of Operational Wastes from Army Pest Management Programs

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 007800 Hygiene and Sanitation; 003300 Chemical Engineering; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7710	8009	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	1.0	29
	CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Dennis, W.H.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Kobylinski, E.A.
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Hazardous Wastes; (U) Filtration; (U) Pesticide Wastes; (U) Waste Treatment; (U) Water Treatment

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

23. (U) To evaluate the use of filtration/adsorption techniques for treatment of wastes generated by Army installation pest control facilities.

24. (U) The filtration/adsorption system will be taken to Fort Eustis, VA and set up within the new Fort Eustis Pest Control Facility for on-site testing. Wastewater from the Fort Eustis Facility will be collected, stored and treated by the carbon adsorption system. Effluent samples from each carbon column will be collected on-site and analyzed at Fort Detrick's Environmental Protection Research Division Laboratory. From this data we will evaluate the performance of the absorption system.

25. (U) 7809 - 7909. Laboratory tests of the carbon filtration system are complete. A recipe wastewater containing diazinon, dursban, malathion, baygon and chlordane at a level of 1200 mg/l total pesticide has been tested. Five-hundred gallons of such a wastewater may be treated and the effluent will show no diazinon, dursban, malathion or baygon (below 1 ppm). Chlordane was found in the effluent at concentration near that of the input concentration. Aeration of the wastewater to remove volatile chlorinated solvents from wastewater did not improve performance of the adsorption system. Preliminary leaching tests of spent carbon indicate a very slow rate of pesticide leaching at pH 4.0.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Evaluation of Filtration Techniques for Disposal of Operational Wastes from Army Pest Management Programs

FUNDING: PY $27K, CY $29K and BY $64K

PROBLEM DEFINITION: To evaluate the use of carbon adsorption techniques for treatment of wastes generated by Army installation pest control facilities.

IMPORTANCE: The US Army operates pest control facilities at its installations throughout the country. Federal law places the responsibility for safe disposal of pesticides and pesticide wastes on the user - DA. As a result, the Army is responsible for the safe disposal of the pesticide waste it generates.

APPROACH: The filtration/adsorption system will be taken to Ft Eustis, VA and set up within the new Ft Eustis Pest Control Facility for on-site testing. Wastewater from the Ft Eustis Facility will be collected, stored and treated by the carbon adsorption system. Effluent samples from each carbon column will be collected on-site and analyzed at Ft Detrick's Environmental Protection Research Division Laboratory. From these data we will evaluate the performance of the absorption system.

ACHIEVEMENTS: Laboratory tests of the carbon filtration system are complete. A recipe wastewater containing diazinon, dursban, malathion, baygon and chlordane at a level of 1200 mg/l total pesticide has been tested. Five-hundred gallons of such wastewater may be treated and the effluent will show no diazinon, dursban, malathion or baygon (below 1 ppm). Chlordane was found in the effluent at concentration near that of the input concentration. Aeration of the wastewater to remove volatile chlorinated solvents from wastewater did not improve performance of the adsorption system. Preliminary leaching tests of spent carbon indicate a very slow rate of pesticide leaching at pH 4.0.

RELATIONSHIP TO CORE PROGRAM: This research is a part of the Army's evaluation of health and environmental consequences of the disposal of hazardous wastes and pesticides generated by military activities.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6182	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	128 APC F688
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Procode with Security Classification Code)*

(U) Evaluation of Unit Processes for Development of Army Reuse Standards and Criteria

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 003300 Chemical Engineering; 003400 Civil Engineering; 004200 Computers; 007800 Hygiene and Sanitation

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7404	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.1	76
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Peterman, B.W.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME:

21. GENERAL USE

Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Drinking Water; (U) Wastewater Treatment; (U) Wastewater Reuse; (U) Water Quality; (U) Water Analysis; (U) Ozonation; (U) Reverse Osmosis

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

23. (U) Define and characterize unit processes for a treatment system to provide (a) treatment for discharge or (b) non-consumptive reuse of certain wastewaters generated in a field environment.

24. (U) Various unit processes to include microfiltration, ultrafiltration, reverse osmosis, carbon adsorption and ozone oxidation will be evaluated to determine the level of treatment that must be provided for direct reuse of selected wastewaters. Currently shower and laundry wastes are scheduled for evaluation; however, as other wastewaters are identified as having reuse potential, they will be included in the unit process evaluations.

25. (U) 7810 - 7909. Beginning in FY 79, the pilot-scale research facility supporting unit process evaluations is being maintained as a functional research area with individual research efforts reported as separate work units.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Evaluation of Unit Processes for Development of Army Reuse Standards and Criteria

FUNDING: PY $90K, CY $76K and BY None

PROBLEM DEFINITION: To investigate the application of physical-chemical processes to treat non-sanitary wastewaters for non-potable reuse in a field environment.

IMPORTANCE: Wastewater reuse has been suggested as a possible alternative for supplying water for field operations in areas where potable water production cannot meet demand or where long distances separate the water production point and the point of use. The need for a certain degree of mobility of units used in field operations is one that could be met by new ultrafiltration and reverse osmosis membranes or by other physical-chemical processes. If an acceptable wastewater reuse system could be developed, potable water requirements and water transportation problems could be reduced.

APPROACH: Synthetic hospital wastes were treated with ultrafiltration, reverse osmosis, microfiltration or ozone to assess the degree of treatment afforded by each of the processes. Total Organic Carbon, Chemical Oxygen Demand, Solids data, and specific organic concentrations were used to differentiate between the process treatments.

ACHIEVEMENTS: Numerous processes were evaluated in the pilot plant prior to termination of the laboratory's pilot reuse efforts. The project resulted in the establishment of the pilot plant, as a unique capability within the Army for studing wastewater reuse with state of the art processes.

RELATIONSHIP TO CORE PROGRAM: Evaluation of medical aspects of wastewater reuse is a part of this laboratory's research under the Toxic Hazards of Military Environments program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA OB 6937	2. DATE OF SUMMARY* 79 09 30	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	9a. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E762720A835	00	130 APC F630
b. CONTRIBUTING				
XXXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)* (U) Chemical Characterization of Waters and Wastewaters for Development of Army Standards and Criteria

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 007800 Hygiene and Sanitation; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7311	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	2.0	146
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Hoke, S.H.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Cooper, W.J.
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Sanitary Engineering; (U) Recycle; (U) Wastewater Treatment; (U) Water Quality; (U) Water Analysis

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

23. (U) To provide water analyses in support of contracts and in-house research on the development of standards and criteria for water treatment, wastewater reuse and treatment by field Army units.

24. (U) Use automated colorimetric methods for analysis of common water quality parameters. Develop in-house capability for measuring trace concentrations of organics in waters by fluorimetric and gas chromatographic methods.

25. (U) 7810 - 7909. This function has been transferred to a Water Chemistry Laboratory for support of in-house and contract research requiring water analyses. Specific research efforts and methods developments will be reported under other on-going or new work units.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Chemical Characterization of Waters and Wastewaters for Development of Army Standards and Criteria

FUNDING: PY $79K, CY $146K and BY None

PROBLEM DEFINITION: To provide methods for water analysis in support of in-house or extramural research dealing with the development of standards and criteria for water treatment, wastewater reuse, or treatment of wastewater for discharge.

IMPORTANCE: Research being conducted in the area of water and wastewater assessment and treatment requires the application of existing, or development of new, analytical methods.

APPROACH: Utilize automated colorimetric methods for measurement of common water quality parameters. Develop in-house methods for measuring trace concentrations of organics in water by fluorimetric and gas chromatographic means.

ACHIEVEMENTS: This research effort has provided analytical methods for studies of the aquatic toxicity of munitions compounds, phosphorus and nitrogen removal using rotating biological contactors, and the effect of low-level lime addition in the anaerobic digestion of sludges. Specific analytical methods and research results have been reported under those work units.

RELATIONSHIP TO CORE PROGRAM: This function has been transferred to a Water Chemistry Laboratory for support of in-house and contract research requiring water analyses. Specific research efforts and methods developments will be reported under other on-going or new work units.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0A 6943	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	133 APC F633
b. CONTRIBUTING				
c. CONTRIBUTING	CARDS 114f			

11. TITLE (Precede with Security Classification Code)* (U) Development of Improved Field Test Procedures for Determining Chemical Disinfection Residuals in Aqueous Solutions

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
007800 Hygiene and Sanitation; 008700 Laboratories, Test Facilities and Test Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7205	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.8	53
	CURRENT 80	0.0	00

19a. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Cooper, W.J.
TELEPHONE: (301) 663-7207; AUTOVON 343-7207
SOCIAL SECURITY ACCOUNT NUMBER:

21. GENERAL USE
Foreign Intelligence Not Applicable

ASSOCIATE INVESTIGATORS
NAME: Wade, C.W.R. POC:DA
NAME:

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Analysis; (U) Syringaldazine; (U) Chlorine Dioxide; (U) Bromine; (U) Chlorine; (U) Iodine; (U) Combined Chlorine; (U) Test Kit

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

23. (U) To modify the FACTS procedures for use in determination of combined available chlorine, ozone, bromine and chlorine dioxide; and to assist USAMERADCOM in the product improvement program for the Army FACTS field test kit for free available chlorine (FAC). The need for an improved test for FAC is uniquely military since military water supplies vary much more widely than civilian water supplies, resulting in a wider spectrum of interferences and a wider range of required chlorine dosages; military equipment must be capable of operating over a wider range of conditions than civilian equipment; and military tests must be simple enough to require a minimum of operator training. Ozone, bromine and chlorine dioxide are potential alternatives to chlorine for use in disinfection of military water supplies. Ozone oxidation is being considered as a unit process for the treatment of medically unique wastes from Army Field Hospitals.

24. (U) The FACTS Procedure will be tested for its ability to determine ozone, combined chlorine, bromine, and chlorine dioxide in water. The stoichiometry of the color reactions will be determined and FACTS procedures will be developed for these compounds.

25. (U) 7809 - 7909. A method has been developed for improving the quality of 2-propanol for use as the solvent in the FACTS procedure. The technique used carbon adsorption, either in a column or batch. A final report is in preparation. Hach Chemical will be manufacturing FACTS test procedures for commerical purchase.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Development of Improved Field Test Procedures for Determining Chemical Disinfection Residuals in Aqueous Solutions

FUNDING: PY $35K, CY $53K and BY None

PROBLEM DEFINITION: To develop a new test procedure for determining chlorine (disinfectant) residuals in aqueous solutions and to extend the procedure to alternative disinfectants used by the Army.

IMPORTANCE: The current Army approved test for chlorine residuals, the DPD procedure, has been shown to be inadequate for determinations of free chlorine residuals in the presence of combined residuals. Combined residuals are considerably less effective than a free residual as disinfectants and therefore a substantial health risk is associated with using DPD.

APPROACH: The free available chlorine test with syringaldazine (FACTS) has been developed. This procedure is specific for free residuals in the presence of combined residuals. This test is presently not commercially available and therefore the acceptance of this procedure is limited. Commercial availability is projected by 2nd quarter FY80. After testing, the test procedure will be submitted for Army acceptance.

ACHIEVEMENTS: An updated survey of methodology was presented, "Measuring Disinfectant Residuals" by K.E. Longley, J.D. Johnson, E.P. Meier and W.J. Cooper before the Water Quality Technology Conference VI at Louisville, KY, December 3-6, 1978. In addition commerical test kits are being manufactured by Ames Chemical, Elkart,IN and Hach Chemical, Loveland, CO.

RELATIONSHIP TO CORE PROGRAM: The Army has unique requirements for measuring disinfectant residuals in field sanitation and has lead in the field of disinfection for many years.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OA 6945	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	135 APC F635
b. CONTRIBUTING				
XXcXXXXXXg	CARDS 114f			

11. TITLE (Precede with Security Classification Code): (U) Development and Evaluation of Methods for the Chemical Disposal of Military Standard Pesticides

12. SCIENTIFIC AND TECHNOLOGICAL AREAS: 007800 Hygiene and Sanitation; 012100 Organic Chemistry; 003300 Chemical Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7205	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	3.5	67
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME: US Army Medical Bioengineering Research & Development Laboratory
ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
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TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME: US Army Medical Bioengineering Research & Development Laboratory
ADDRESS: Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME: Dennis, W.H.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code): (U) Pesticides; (U) Solid Waste; (U) Ultimate Disposal; (U) Pesticide Wastes; (U) Pesticide Chemistry

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

23. (U) To develop chemical methods for the detoxification of military standard organophosphorus and carbamate pesticide formulations and to evaluate the practicality and health and environmental effects of disposal of the detoxified material. The magnitude of the pest management program conducted annually by DA and the large stock of pesticide wastes generated by this program make the requirement for this effort in pesticide disposal unique to DA. Federal Law places responsibility for safe disposal on the User -- DA.

24. (U) Laboratory studies will be conducted to develop chemical methods for complete degradation of the pesticide in each formulation. Health and environmental effects of disposal of the resulting reaction mixtures will be evaluated using data from the literature for known or suspected toxicity of the reaction products to mammals and aquatic biota and by conducting aquatic bioassays on the reaction mixtures and isolated reaction products.

25. (U) 7810 - 7909. Research on this work unit has been documented in an in-house technical report: USAMBRDL TR 7611, November 1976, "Chemical Degradation of Military Standard Formulations of Organophosphate and Carbamate Pesticides. I. Chemical Hydrolysis of Diazinon." AD A036051. A second in-house technical report on the degradation of diazinon by NaOCl is in preparation. Two manuscripts have been published and a third is in press.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Development and Evaluation of Methods for the Chemical Disposal of Military Standard Pesticides

FUNDING: PY $119K, CY $67K and BY None

PROBLEM DEFINITION: To develop chemical methods for the detoxification of military standard organophosphorus and carbamate pesticide formulations and to evaluate the practicality and health and environmental effects of disposal of the detoxified material. The magnitude of the pest management program conducted annually by DA and the large stock of pesticide wastes generated by this program make the requirement for this effort in pesticide disposal unique to DA.

IMPORTANCE: DA operates pest control facilities at its installations throughout the country. Federal law places the responsibility for safe disposal of pesticides and pesticide wastes on the user - DA. As a result, the Army is responsible for the safe disposal of the pesticide waste it generates.

APPROACH: Laboratory studies will be conducted to develop chemical methods for complete degradation of the pesticide in each formulation. Health and environmental effects of disposal of the resulting reaction mixtures will be evaluated using data from the literature for known or suspected toxicity of the reaction products to mammals and aquatic biota and by conducting aquatic bioassays on the reaction mixtures and isolated reaction products.

ACHIEVEMENTS: This research has been documented by the following journal publications: (1) Dennis, W.H., E.P. Meier, W.F. Randall, A.B. Rosencrance and D.H. Rosenblatt, Degradation of Diazinon by Sodium Hypochlorite. Chemistry and Aquatic Toxicity, Environ. Sci. & Technol., 13, 594-598 (1979); (2) Meier, E.P., W.H. Dennis, A.B. Rosencrance, W.F. Randall, W.J. Cooper and M.C. Warner, Sulfotepp, A Toxic Impurity in Formulations of Diazinon, Bull. Environ. Contam. Toxicol., 23, 158-164 (1979); (3) Acute Toxicity of Dechlorinated DDT, Chlordane and Lindane to Bluegill (Lepomis macrochirus) and Daphnia magna, Bull. Environ. Contam. Toxicol.,21, 849-854 (1979); (4) Dennis, W.H., A.B. Rosencrance, W.F. Randall and E.P. Meier, Acid Hydrolysis of Military Standard Formulations of Diazinon, J. Environ. Sci. Health - Part B, in press; (5) "Chemical Degradation of Pesticides" by W.H. Dennis, to be published in the Proceedings of 23rd Meeting of Collaborative International Pesticides Analytical Council; (6) Dennis, W.H., E.P. Meier, A.B. Rosencrance, W.F. Randall, M.T. Reagan and D.H. Rosenblatt, Chemical Degradation of Military Standard Formulations of Organophosphorus and Carbamate Pesticides. II. Degradation of Diazinon by Sodium Hypochlorite, US Army Medical Bioengineering Research and Development Laboratory, Ft Detrick, MD., TR 7904, Dec. 1979.

RELATIONSHIP TO CORE PROGRAM: This research is part of the Army's evaluation of health and environmental consequences of the disposal of hazardous wastes and pesticides generated by military activities.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6947	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	137 APC F637
b. CONTRIBUTING				
XXXXXXXXXX	CARDS 114f			

11. TITLE (Procode with Security Classification Code)* (U) Development and Evaluation of Criteria for Advanced Wastewater Treatment Processes at Military Installations

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
003300 Chemical Engineering; 003400 Civil Engineering; 010100 Microbiology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7205	CONT	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	3.5	186
	CURRENT 80	1.3	71

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Noss, C.I.
TELEPHONE: (301) 663-7207; AUTOVON 343-7207
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Bartgis, K.A.
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Sanitary Engineering; (U) Nutrient Removal; (U) Wastewater Treatment; (U) Pollution Abatement

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

23. (U) Provide Advanced Wastewater Treatment (AWT) technology applicable to US Army wastewater treatment plants so that NPDES permit limitations under PL 92-500 can be met. Design criteria will be established for selected processes with initial emphasis on organic loading rates and nitrogen removal procedures. Evaluation of phosphorus removal techniques and the processing of the resultant chemically treated effluent are considered in relation to upgrading existing waste treatment facilities. The applicability of combining carbon and nitrogen oxidation processes will be evaluated to determine its impact on upgrading US Army wastewater facilities.

24. Pilot-scale studies will be conducted on selected advanced wastewater treatment processes and problems. Emphasis will be placed on upgrading existing facilities, rather than attempting to develop processes and procedures for totally new treatment plants. The goal will be to satisfy NPDES permit limitations for designated pollutants, as opposed to attempting to obtain design criteria for extremely low pollutant levels. Laboratory and bench-scale studies will be conducted in support of pilot scale operations.

25. (U) 7810 - 7909. The final report on "RBC Process for Secondary Treatment and Nitrification Following a Trickling Filter" is being completed. The draft final report on recarbonation of high pH wastewaters by the RBC process is in preparation.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Development and Evaluation of Criteria for Advanced Wastewater Treatment Processes at Military Installations

FUNDING: PY $150K, CY $186K and BY $71K

PROBLEM DEFINITION: To evaluate phosphorus removal techniques and processing of the resultant chemically treated effluent and chemical sludges produced. The applicability of combining carbon and nitrogen oxidation processes will be evaluated to determine its impact on upgrading US Army wastewater facilities.

IMPORTANCE: The importance of this work lies in the realization of optimizing wastewater treatment processes through combining chemical/physical treatment technologies with biological processes. The goal is to improve the overall plant efficiency with minimal construction. Combining low-level lime treatment processes for phosphorus removal followed by biological recarbonation not only allows for phosphorus concentrations to meet effluent limitations, but also enhances nitrification.

APPROACH: Pilot-scale studies will be conducted on selected advanced wastewater treatment processes and problems. Emphasis will be placed on upgrading existing facilities, rather than attempting to develop processes and procedures for totally new treatment plants. The goal will be to satisfy NPDES permit limitations for designated pollutants, as opposed to attempting to obtain design criteria for extremely low pollutant levels. Laboratory and bench-scale studies will be conducted in support of pilot scale operations.

ACHIEVEMENTS: Two technical reports have been published: (1) "Phosphorus Removal in a Pilot Scale Trickling Filter System by Low Level Lime Addition to Raw Wastewater", R.D. Miller, R.S. Ryczak, and A. Ostrofsky. Tech Report 7901, AD A065041. (2) "Rotating Biological Contactor Process for Secondary Treatment and Nitrification Following a Trickling Filter", R.D. Miller, C.I. Noss, A. Ostrofsky, and R.S. Ryczak. Tech Report 7905, AD A074172.

A third technical report is being written entitled "Rotating Biological Contactor Process for Secondary Treatment and Recarbonation Following Low-Level Lime Addition for Phosphorus Removal". This research is being presented in a paper entitled "Recarbonation of Wastewater Using the Rotating Biological Contactor", C.I. Noss, R.D. Miller and E.D. Smith.

RELATIONSHIP TO CORE PROGRAM: An agreement between USAMBRDL and USACERL has been established such that existing equipment and expertise can be used effectively in solving Army waste treatment problems.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6949	2. DATE OF SUMMARY* 79 09 30		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT
10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER		TASK AREA NUMBER	WORK UNIT NUMBER		
a. PRIMARY	62720A	3E162720A835		00	139 APC F639		
b. CONTRIBUTING							
c. CONTRIBUTING XXXXXXXXX	CARDS 114f						

11. TITLE (Precede with Security Classification Code)* (U) Methods Development for the Characterization and Analysis of Low Level Military Pollutants

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 007800 Hygiene and Sanitation; 008000 Industrial Processes; 012100 Organic Chemistry

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY		16. PERFORMANCE METHOD
7307	7909	DA		C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.8	03
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
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TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Barkley, J.J.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Military Unique Pollutants; (U) Analysis of Pollutants; (U) Identification of Pollutants; (U) Pesticides; (U) Carbamates

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

23. (U) To develop methods for the analysis of recognized militarily relevant low-level pollutants and pesticides and to characterize and analyze previously undefined pollutants arising from military munitions manufacture and pesticide operations. These methods would be used by USAEHA and other OTSG operational elements and munitions plant operators to survey or monitor specific pollutant discharges.

24. (U) Methods will be developed for the routine determination of selected low-level pollutants in water or soil. Pollutant by-products and breakdown products in water, air or soil will be isolated, characterized, and quantified. Where necessary, sensitive methods will be devised to detect them at significant concentrations.

25. (U) 7810 - 7909. A draft final report has been completed on a sensitive automated method for the analysis of nitrocellulose in water. An extraction procedure and a high pressure liquid chromatographic (hplc) method for the carbamate pesticides carbaryl and propoxur and their major degradation products, 1-naphthol and isopropoxyphenol, was developed. The extraction procedure was only 60 percent efficient but was specific for the compounds of interest. The reverse phase hplc method was capable of detecting the four compounds in the sub-part per million range, with relative sensitivities decreasing from 1-naphthol to propoxur. A draft report is being prepared.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Methods Development for the Characterization and Analysis of Low-Level Military Pollutants

FUNDING: PY $36K, CY $3K and BY None

PROBLEM DEFINITION: To develop methods for the analysis of recognized militarily relevant low-level pollutants and pesticides and to characterize and analyze previously undefined pollutants arising from military munitions manufacture and pesticide operations. These methods would be used by USAEHA and other OTSG operational elements and munitions plant operators to survey or monitor specific pollutant discharges.

IMPORTANCE: Ennvironmental or Occupational Health research depends heavily on the availability of highly sensitive analytical methods for identification of low-level pollutants.

APPROACH: Methods will be developed or adapted for the determination of selected low-level pollutants in soil and water. Degradation products and secondary pollutants arising from munitions manufacture or pest control operations will be isolated, identified, and quantified. Where necessary, sensitive methods will be devised to detest these substances at significant levels.

ACHIEVEMENTS: A draft final report has been completed on a sensitive automated method for the analysis of nitrocellulose in water. An extraction procedure and a high pressure liquid chromatographic (hplc) method for the carbamate pesticides carbaryl and propoxur and their major degradation products, 1-napthol and isopropoxyphenol, was developed. The extraction procedure was only 60 percent efficient but was specific for the compounds of interest. The reverse phase hplc method was capable of detecting the four compounds in the sub-part per million range, with relative sensitivities decreasing from 1-naphthol to propoxur. A draft report is being prepared.

RELATIONSHIP TO CORE PROGRAM: Sensitive analytical methods are required to satisfy various research needs in this laboratory's Environmental Quality Technology program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA OB 6936	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	140 APC F640
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Procede with Security Classification Code)* (U) Evaluation of Disinfection Criteria for Worldwide Army Fixed Installation and Field Water Supplies

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

007800 Hygiene and Sanitation; 005900 Environmental Biology; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7307	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In Thousands)
FISCAL YEAR	PRECEDING 79	2.7	136
	CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Kenyon, K.F.

TELEPHONE: (301) 663-2036; AUTOVON 343-2036

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Schaub, S.A.

NAME: Taylor, G.W. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Bacteriology; (U) Virology; (U) Infectious Disease; (U) Chlorination; (U) Water, drinking

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

23. (U) To evaluate US Army free available chlorine (FAC), disinfection criteria for fixed installation and field water supplies. The requirement for safe water supplies worldwide, under extreme chemical, microbiological and physical conditions makes this problem military unique. Pathogenic organisms must be eliminated from the treated waters to provide assurance that the waters will not cause infectious disease.

24. (U) Literature on chlorine disinfection will be reviewed to determine if previous inability to distinguish FAC from other forms of available chlorine may have overestimated current military requirements. Species of FAC at various temperatures and pH will be examined for their capability to disinfect typical fecal-borne bacteria, viruses and protozoa in various waters over a standard 30 minute contact period. Actual field and fixed installation treated potable waters from various raw water sources will be evaluated to determine if any interference in rates of disinfection occur.

25. (U) 7810 - 7909. Disinfection studies of E. coli, f2 coliphage, poliovirus I, and R. rubra (yeast) in synthetic "worst case" water containing 5 color units, 5 JTU bentonite and 250 mg/l Ca^{+2} at pH 9 and 6°C are complete. Results indicate no change from baseline values for E. coli and R. rubra as long as FAC were maintained by the addition of extra chlorine. However, an 80% rate increase for f2 virus and an approximately 20% one for polio was seen over the baseline rate, even when the chlorine demand of the water was not accounted for. This was undoubtedly due to the presence of Ca^{+2}, which, at pH 9, increases the disinfection rate of f2 by >90% and of polio by >80% over baseline values. This work will be continued under the field sanitation and water program for FY 80 and beyond.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Evaluation of disinfection criteria

FUNDING: PY $82K, CY $136K and BY None

PROBLEM DEFINITION: To evaluate the adequacy of current free available chlorine disinfection criteria for fixed installation and field water supplies. To examine and compare the disinfection rates of indicator organisms and pathogens of concern in various natural waters. To investigate and expand knowledge of the mechanisms of chlorine disinfection on the more resistant microbiological species.

IMPORTANCE: The US Army must provide "safe" drinking water for personnel both in the field and at Army-operated installations. Present Army criteria of chlorine disinfection have been found contradictory between several documents. The criteria were chosen without much regard for specific water and environmental conditions. If conditions are not specified, water may be either over or under-chlorinated, resulting in the production of possibly carcinogenic organohalides in the first case or the survival of pathogenic viruses in the second. Development of specific criteria for various types of natural water is therefore of prime importance to the Army.

APPROACH: Disinfection rates of standard indicator organisms have been determined in hyperpure water and synthetic hard, organically-polluted and turbid waters under varying conditions of pH and temperature. Studies were done in "worst case" water containing all the above interferences. Rates were determined for standard organisms at pH 9 and 6°C. Ultimately, field pathogens and natural waters will be tested.

ACHIEVEMENTS: Work with disinfection of synthetic hard water containing cations were completed. Results indicated no change in disinfection kinetics from normal for bacteria and R. rubra at any pH. However, at pH9, both f_2 and polio viruses were inactivated faster when a divalent cation (Mg^{+2},Ca^{+2}) were present. Monovalent cations (Na, K) did not induce this effect. For poliovirus the rate increase was approximately 30%, for f_2 coliphage it was >90%. Disinfection in turbid water was completed as was disinfection of "worst case" water. Results indicated no change in disinfection rates for bacteria, viruses and yeast as long as the specified chlorine residual was maintained. The exception to this was with the viruses at pH 9, where the presence of the divalent cation induced increased rates. Disinfection of Coxsackievirus A9 at pH 5 and 6°C revealed the occurrence of the same 2-stage rate anomaly found for poliovirus I.

RELATIONSHIP TO CORE PROGRAM: Research in disinfection provides a possible means of reducing the effects of chlorination on the environment as well as providing the soldier with safe water to drink. By doing so, this research is an integral part of the environmental program and the health effects research of the Army.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6199	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUMRY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62720A	3E162720A835	00	141 APC F699
b. CONTRIBUTING				
XXXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Development of Criteria for Wastewater Reuse Standards

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 007800 Hygiene and Sanitation; 009800 Medical and Hospital Equipment; 016800 Toxicology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7701	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In Thousands)
FISCAL YEAR PRECEDING 79	0.5	24
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

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

NAME:* Eaton, J.C.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Cooper, W.J.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Wastewater; (U) Water Quality Standards; (U) Toxicity; (U) Wastewater Reuse

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

23. (U) To study health effects associated with renovation and reuse of wastewater in both potable and non-potable military applications, and to develop criteria upon which standards of quality for such renovated waters can be based.

24. (U) Identify the known or predictable components of wastewaters generated at military installations and field facilities where water reuse may be required. Review the literature concerning acute and long-term health effects of ingestion of the identified components in potable water and the ocular and dermal effects in the case of nonpotable body contact applications such as laundry, bathing and recreational uses. Document the available knowledge, identify areas in which the necessary information is lacking, and recommend specific studies to obtain that information. Maximum use will be made of existing standards, rationales and health effects data, and the recommended criteria will be based upon the uses of the renovated wastewaters, the duration of exposure, the population exposed, and the military mission involved. Advice and recommendations will be sought from the National Academy of Sciences, and coordination will be maintained with interested government agencies and professional organizations.

25. (U) 7810 - 7909. Two efforts were completed in this period, one for development of a management plan for water quality criteria, and one for identification of components and review and evaluation of treatability and health effects data related to reuse of field shower and laundry waters. Although this work unit is being terminated, the effort of management and coordination of the criteria development program will be included in the field sanitation and water program for FY 80 and beyond.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Development of Criteria for Wastewater Reuse Standards

FUNDING: PY $20K, CY $24K and BY None

PROBLEM DEFINITION: The Army and the other US military services will need water quality criteria for any planned reuse of wastewaters that involves human contact and thus may have an adverse effect upon humans. Many of the anticipated uses of reclaimed wastewater are unique to the military; therefore the military cannot depend upon other agencies to develop water quality criteria for military reuse.

IMPORTANCE: Adequate water supplies may be difficult to obtain in many areas of the world where US forces may be deployed, and resort may be made to direct international reuse of wastewaters in order to conserve valuable water supplies and relieve demands upon transportation assets. The surgeon is responsible for sanitary supervision of water supplies. In order for him to perform that mission, a data base and methodology must be developed which will provide a means of deriving water quality criteria to preserve the health and effectiveness of the soldier when wastewater reuse becomes necessary.

APPROACH: This work unit consists of coordinating with the US Air Force and Navy in establishing needs and priorities for reuse water quality criteria, technical management of extramural research efforts to meet the established goals, and coordination with other government agencies, consultants, professional organizations and the National Academy of Sciences to assure the scientific validity and acceptability of the criteria development program.

ACHIEVEMENTS: Coordination has been established and maintained with the US Air Force Engineering and Service Center, Tyndall AFB, FL and the US Navy Civil Engineering Laboratory, Port Hueneme, CA. Two extramural efforts have been completed: Culp, R.L. "Water Quality Criteria for Specific Military Reuse Applications" Culp, Wesner, Culp, Sacramento, CA, June 1979, and Cogley, D.R., W. Foy, W.G. Light, M. Mason and J.C. Eaton, "Evaluation of Health Effects Data on the Reuse of Shower and Laundry Waters by Field Army Units" Walden Div., Abcor, Inc. Wilmington, MA, April 1979. A third effort was initiated: "Development of Data Base Requirements for Human Health Based Water Quality Criteria for Military Recycle/Reuse Applications" A.D. Little, Inc., Cambridge, MA. Papers were presented at the Water Reuse Symposium, 25-30 March 1979: T.E. Cody, V.J. Elia, C.S. Clark, R.T. Christian, "Integrated Use of Bioassays and Chemical Analyses to Evaluate the Quality of Reuse Water"; D.R. Cogley, J.C. Eaton, "Evaluation of Health Effects Data on the Reuse of Shower and Laundry Waters by Field Army Units"; W.J.Cooper, J.C. Eaton, B.W. Peterman, "Wastewater Reuse Program at the US Army Medical Bioengineering Research and Development Laboratory."

RELATIONSHIP TO CORE PROGRAM: Evaluation of medical aspects of wastewater reclamation and direct reuse within fixed and field military facilities is a recognized requirement in the Toxic Hazards of Military Environments research program of this Laboratory.

COMBAT MEDICAL MATERIEL

(Military Medical Materiel, Exploratory Development)

3S162778A838

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6206	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUMRY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3ST62778A838	00	001 APC F780
b. CONTRIBUTING				
XXXXXXXXX	CARDS 1141			

11. TITLE (Precede with Security Classification Code)*

(U) Sink Unit, Surgical, Field (NSN 6545-00-935-4056), Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7612	8006	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.2	15
FISCAL YEAR CURRENT 80	1.6	72

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

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RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Prensky, W.C.

TELEPHONE (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Crampton, K.

NAME: Conway, W.H. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Surgical Sink; (U) Scrub; (U) Field Equipment; (U) Surgical Scrub

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

23. (U) To conduct an engineering evaluation of the field surgical sink to determine feasibility of conducting a product improvement program or a need for a new product design to eliminate field complaints.

24. (U) Prepare a testing protocol based on accrued field complaints, conduct an in-house evaluation and prepare an engineering evaluation report so that a proper course of future action can be determined.

25. (U) 7810 - 7909. Engineering evaluation of the subject equipment has uncovered several previously unknown flaws which seriously impact reliability. A plan for corrective action has been developed which involves a "quick-fix" for units now in the field and a more comprehensive design adjustment that may be applied to depot-stored units and will also apply to new procurements.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Sink, Surgical Field

FUNDING: PY - $2K, CY - 15.1K, BY - 10K

PROBLEM DEFINITION: Numerous complaints from field medical units have been received citing problems with the Surgical Field Sink (NSN 6545-00-935-4056). The complaints deal with heater burn-out and other problems. This task was undertaken to conduct an engineering evaluation of the item and determine whether a modification of a new development is necessary to correct the deficiencies.

IMPORTANCE: These sinks are used for surgical scrubbing in forward area medical units. Their high failure rate makes logistical support difficult and jeopardizes the mission of these medical units.

APPROACH: To identify the root causes of the high failure rate through extensive testing and analysis and to determine appropriate corrective action.

ACHIEVEMENTS: The principal cause of heater burn-out has been identified along with a number of other less catastrophic design and manufacturing defects. Due to the large number of these devices still in the inventory, a depot level modification has been developed which will improve the reliability of existing units. A concurrent program is looking at the application of new technology to a new generation of surgical sinks and is developing a base for future procurement.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the Laboratory's mission of providing development engineering on field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6237	2. DATE OF SUMMARY* 79 09 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS [X] YES [ ] NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	006 APC F702
b. [illegible]	62110A	3A162110A816	00	006
c. [illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*
(U) Dental Plastic Insert Module

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
6910	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
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TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Malek, J.W.
TELEPHONE: (301) 663-7277; AUTOVON 343-7277
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Dental Portable Equipment; (U) Dental Field Units; (U) Dental Field Sets; (U) Plastic; (U) Module; (U) Field Insert; (U) Field Cabinet

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

23. (U) To develop a plastic insert module which will provide field dental personnel with a modern, mobile piece of equipment.

24. (U) Fabricate universal plastic instrument and equipment modules compatible with Chest, Medical Instrument and Supply Set (MISS) (NSN 6545-00-118-6248) complete with three sizes of interchangeable drawers and a mobile base platform.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Dental Plastic Insert Module

FUNDING: PY $0, CY $0 and BY $0

PROBLEM DEFINITION: To design, fabricate and evaluate a plastic insert module to hold dental instruments and supplies which will provide field dental personnel with a modern, mobile piece of equipment.

IMPORTANCE: Current field equipment is ancient and obsolete. Redesign of the insert with modern materials will be in consonance with the new field equipment (chair, stool, lights, trays) being added to the armamentarium.

APPROACH: Universal plastic instrument and equipment modules capable of being placed into a standard field chest will be designed and fabricated. The modules will have three sizes of interchangeable drawers and a mobile base platform.

ACHIEVEMENTS: Prototype modules, drawers and mobile platforms were designed and fabricated. Development Testing (DT I) was accomplished satisfactorily. Utilization was continued in conjunction with trial packing of dental field sets.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6238	2. DATE OF SUMMARY* 79 09 01		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	007 APC F703
~~X.XXXXXXXXX~~	62110A	3A162110A816	00	007
~~X.XXXXXXXXX~~	CARDS 114f			

11. TITLE (Procede with Security Classification Code)*

(U) Dental Operating Set

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
6910	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

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20. PERFORMING ORGANIZATION

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NAME:* Malek, J.W.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Dental Portable Equipment; (U) Dental Field Sets; (U) Dental Sets; (U) Dental Operating Set

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

23. (U) To update and modernize the current Dental Equipment Set, Operating, Field NSN 6545-00-918-0050.

24. (U) Evaluate contents and recommend deletions and/or additions after acceptable review; evaluate packing of components into plastic insert modules being developed under Task 838.00.006, then clinically evaluate the modular concept with reference to revised TOE.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Dental Operating Set

FUNDING: PY $0, CY $0 and BY $0

PROBLEM DEFINITION: To update and modernize the current Dental Equipment Set, Operating, Field (NSN 6545-00-918-0050).

IMPORTANCE: Current field dental equipment must be able to support the required treatment of patients at the echelon where the need for treatment exists. The level of treatment provided at each echelon is based upon a compromise between the needs of the patient and the demands for the individual to perform his basic duty assignment. As forces become more mobile, the equipment capability must be advanced to provide the required treatment to the patient in the decreased time period available for treatment.

APPROACH: Evaluate current contents and recommend deletions and/or additions after acceptable review. Pack final components into plastic insert modules being developed under a companion task, then clinically evaluate the concept with referenced TOE element.

ACHIEVEMENTS: Several Ad Hoc Committees reviewed the current component listing for current up-to-date requirements. Work could not be initiated due to lack of requirements document.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6239	2. DATE OF SUMMARY* 79 09 01		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	008 APC F704
b. CONTRIBUTING XXXXXXXX	62110A	3A162110A816	00	008
c. CONTRIBUTING XXXXXXXX	CARDS 114f			

11. TITLE (Procode with Security Classification Code)*
(U) Dental Prosthodontic Set

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
6910	8009	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Malek, J.W.
TELEPHONE: (301) 663-7277; AUTOVON 343-7277
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Dental Portable Equipment; (U) Dental Field Sets; (U) Prosthetic; (U) Dental Prosthodontic Set

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

23. (U) To update and modernize the current Dental Equipment Set, Prosthetic, Field (FSN 6545-918-4750). To package components for fixed and removable assemblages.

24. (U) Prepare component listings and pack proposed components into the Plastic Insert Modules being developed under Task 838.00.006. Evaluate clinically the modular concept.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Dental Prosthodontic Set

FUNDING: PY $0, CY $0 and BY $0

PROBLEM DEFINITION: To update and modernize the current Dental Equipment Set, Prosthetic, Field (NSN 6545-00-918-4750).

IMPORTANCE: Current field equipment must be able to support the required treatment of patients at the echelon where the need for treatment exists. The level of the treatment provided at each echelon is based upon a compromise between the needs of the patient and the demands for the individual to perform his basic duty assignment. As forces become more mobile, the equipment capability must be advanced to provide the required treatment to the patient in the decreased time period available for treatment.

APPROACH: Evaluate current contents and recommend deletions, and/or additions after acceptable review. Pack final components into the plastic insert modules being developed under a companion task, then clinically evaluate the concept with referenced TOE element.

ACHIEVEMENTS: None.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6219	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA - CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	009 APC F793
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Tactical Ambulance Adaptation, Feasibility Study of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7705	8209	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.4	19
FISCAL YEAR CURRENT 80	2.8	122

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Conway, W.H.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Ambulance; (U) Tactical Ambulance; (U) Emergency Medical Vehicle; (U) Medical Transport

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

23. (U) To conduct a study of the Army's needs in tactical ambulances and their capabilities in preparation for the next major procurement.

24. (U) Initiate a study program to identify the number and type of vehicles needed, the required medical capabilities of each and the logistical implications. The results of this study will be a comprehensive requirements document.

25. (U) 7810 - 7909. Original concept of a general ambulance study failed to gain support; especially in light of "Division 86" study. Preliminary information coming from "Division 86" has led to a redirection of this task. The task now involves an effort to upgrade treatment capabilities in ambulance versions of existing armored vehicles. Toward this end, an armored personnel carrier (M113) hull has been ordered. This will be equipped with a hard-mounted litter rack and as much medical treatment equipment as space will permit. This mock-up will then be evaluated by the combat developer and others to provide feed-back into the "Division 86" study.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Tactical Ambulance Study

FUNDING: PY - $1.8K, CY - $18.6K, BY - $122K

PROBLEM DEFINITION: To assist the combat developer in determining the level of medical treatment that can practically be provided in tactical ambulances by studying items of equipment and layout of tactical vehicles for compatability.

IMPORTANCE: The "Division 86" study, currently going on, is leaning toward expansion of the level of medical treatment in the forward area including ambulance vehicles. In view of the decision that tactical ambulances will be adaptations of combat vehicles, it becomes important to know what equipment can logically be placed in those vehicles and how well the medical personnel function with it.

APPROACH: To procure specimen tactical vehicles and equip them as medical treatment/evacuation vehicles based on guidance from the combat developer and medical consultants. These trial configurations will then be evaluated for functional practicability and the results transmitted for use in "Division 86" or other studies.

ACHIEVEMENTS: It has been determined that the M113A1 will be the principal front line ambulance for the foreseeable future. A specimen M113A1 hull is now being procured and preparations are underway to provide it with stabilized litter racks and some basic life-support medical equipment for evaluation. When a satisfactory configuration is obtained with the M113A1, it is envisioned that the study will then turn to development of the M577 vehicle as a mobile battalion aid station.

RELATIONSHIP TO CORE PROGRAM: Development of ambulance internal configuration comes under the mission of this research area to develop field medical treatment and evacuation equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6242	2. DATE OF SUMMARY* 79 09 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	011 APC F707
[illegible]	62110A	3A162110A816	00	011
[illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*
(U) Dental Hygienist Set

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
009800 Medical and Hospital Equipment; 007800 Hygiene and Sanitation

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
6910	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Malek, J.W.
TELEPHONE: (301) 663-7277; AUTOVON 343-7277
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC-DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Dental Field Systems; (U) Dental Field Equipment; (U) Hygienist; (U) Dental Hygienist Set

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

23. (U) To modernize the current Dental Hygienist Set (NSN 6545-00-142-8896).

24. (U) Review components and pack components into the Plastic Insert Modules being developed under Task 838.00.006, then clinically evaluate the modular concept.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Dental Hygienist Set

FUNDING: PY $0, CY $0 and BY $0

PROBLEM DEFINITION: To modernize the current Dental Hygienist Set (NSN 6545-00-142-8896).

IMPORTANCE: Current field equipment must be able to support the required treatment of patients at the echelon where the need for treatment exists. The level of the treatment provided at each echelon is based upon a compromise between the needs of the patient and the demands for the individual to perform his basic duty assignment. As forces become more mobile, the equipment capability must be advanced to provide the required treatment to the patient in the decreased time period available for treatment.

APPROACH: Evaluate current contents and recommend deletions and/or additions after acceptable review. Pack final components into the plastic insert modules being developed under a companion task, then clinically evaluate the concept with referenced TOE elements.

ACHIEVEMENTS: None.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0A 6244	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	013 APC F709
[redacted]	62110A	3A162110A816	00	013
[redacted]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Dental Supplemental Operating Set

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
6910	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Malek, J.W.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Dental Field Set; (U) Resupply; (U) Dental Portable Equipment; (U) Dental Resupply Set

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

23. (U) To develop a resupply set for use in field dental treatment systems.

24. (U) Prepare a component listing and pack components in the Plastic Insert Module being developed under Task 838.00.006, then clinically evaluate the concept.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Dental Supplemental Operating Set

FUNDING: PY $0, CY $0 and BY $0

PROBLEM DEFINITION: To develop a resupply set to supplement standard field dental treatment systems while logistical support is being established.

IMPORTANCE: Current field treatment sets carry only a few days supply or at best, one weeks supply of expendable goods. This set when operable would support field personnel until logistical supplies lines are established and functioning.

APPROACH: Prepare a component listing, obtain and pack components into the plastic insert module being developed under a companion task, then clinically evaluate the concept.

ACHIEVEMENTS: None.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6172	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8B. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	016 APC F762
b. [illegible]	62110A	3A162110A816	00	016
c. [illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Whole Body Diagnostic X-Ray Scanner

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

003500 Clinical Medicine; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7602	8309	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.2	09
	CURRENT 80	0.2	11

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Salisbury, L.L.

TELEPHONE (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Whole Body; (U) Diagnostic; (U) X-Ray; (U) Scanner; (U) Flying Spot; (U) Field Medicine; (U) Field Equipment

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

23. (U) To provide engineering assistance in evaluating new diagnostic X-ray scanners being evolved for military field use.

24. (U) Professionally evaluate and assess new equipment as required.

25. (U) 7810 - 7909. The evaluation of the low-dose X-ray unit at the Maryland Shock Trauma Unit has been completed. The results indicate that this technique with electronic imaging has potential for field applications. The flying spot and several other techniques for producing low-dose radiographs with electronic imaging are being investigated for potential field applications.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Whole Body Diagnostic X-ray Scanner

FUNDING: PY - $19K, CY - $9K, BY - $11K

PROBLEM DEFINITION: Currently available radiographic equipment requires high radiation exposure to obtain diagnostic quality radiographs. In addition, these systems require a large amount of support, (chemicals, film, water, processors, etc) as well as operator and patient shielding.

The technology exists which would permit diagnostic quality radiographs to be made with a reduction of the radiation exposure by a factor of 100.

IMPORTANCE: The importance of reducing patient and operator exposure to ionizing radiation is well documented. The elimination of the requirements for the ancillary support items (water, film, film processors, etc.) have a direct impact on support of field medicine.

APPROACH: Evaluation of a low dose x-ray unit in a clinical environment to determine the adequacy of the image and its applicability to a mass casualty situation.

ACHIEVEMENTS: A low dose unit was installed and evaluated at the Maryland Shock/Trauma Unit in Baltimore. The results indicate that the low dose technique with electronic imaging would have application in a field situation. Other methods are being investigated to develop a system which could be fielded.

RELATIONSHIP TO CORE PROGRAM: The program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6218	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62770A	3E762780A843	00	081 APC F351
b. CONTRIBUTING	62778A	3S162778A838		018
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Personnel Decontamination Sets, Design of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7704	8509	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (in thousands)
FISCAL YEAR	PRECEDING 79	0.0	00
	CURRENT 80	1.8	85

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Cranford, H.B.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Salisbury, L.L.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Chemical Decontamination; (U) Field Equipment; (U) Personnel Decontamination; (U) Decontamination

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

23. (U) To develop personnel decontamination sets for use by the US Army Biomedical Laboratory, Edgewood Arsenal, MD; one set for use in a fixed installation with the other unit developed for field use.

24. (U) Investigate and evaluate current decontamination practices and materials. Design, fabricate and test sets based on the data accrued from the evaluation.

25. (U) 7810 - 7909. No progress due to lack of information.

*Available to contractors upon originator's approval

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Personnel Decontamination Sets, Design Of.

FUNDING: PY $10K, CY $Ø, and BY $85K

PROBLEM DEFINITION: Personnel of the Biomedical Laboratory, Aberdeen Proving Ground, MD frequently exposed to chemicals are required chemical decontamination both in the field and in a fixed facility, the Toxic Exposure Aid Station (TEAS).

IMPORTANCE: Current methods of personnel decontamination are time consuming, labor and resource intensive; rendering existing materials and procedures unacceptable for use by the field Army.

APPROACH: Investigate and evaluate current decontamination practices and materials. Design, fabricate and test sets based on the data accrued from evaluation.

ACHIEVEMENTS: No progress due to lack of funding.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6213	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISB'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	025 APC F786
b. CONTRIBUTING				
c. [illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Evaluation of Rapid Non-Destructive Insect Detector

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7703	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.9	35
FISCAL YEAR CURRENT 80	0.6	24

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Anderson, L.M.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Nelson, J.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Pest Control; (U) Insect Detector; (U) Stored Products; (U) Commodities; (U) Insect Surveillance

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

23. (U) To conduct evaluation of the Rapid Non-Destructive Insect Detector System developed at the U.S. Department of Agriculture, Agricultural Research Service, Stored Products Laboratory, Savannah, Georgia. This detector was developed under a research contract awarded by the Headquarters, US Army Medical Research and Development Command, Washington, DC.

24. (U) Test protocols will be developed and actual field evaluations will be conducted in US Army commodity storage warehouses to ensure that the Rapid Non-Destructive Insect Detector will effectively detect stored-products insect infestations in stored commodities.

25. (U) 7810 - 7909. The second prototype is currently being tested. Preliminary results indicate the detector could not distinguish the difference in no insects and one insect present in a packaged commodity. However, within certain limits, repeatable results could be obtained when the commodities contained three or more insects/lb. This is the limit of insect infestation that justifies condemnation of the food product in military wholesale food facilities.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Development of a Stored Product Insect Detector

FUNDING: PY - $26K, CY - $35K, BY - $24K

PROBLEM DEFINITION: To develop an instrument for detection of stored product insect infestations in DoD procured food products.

IMPORTANCE: Infestation of food by insects represents a health hazard to the soldier and results in a major economic loss to DoD. Foods lose both palatability and nutritional quality when infested by insects. An instrument which can rapidly detect insect infestations will insure an increased nutritional quality of food while reducing economic loss. This instrument can be a survey instrument for an IPM program for stored product insects.

APPROACH: Development of a stored product insect detector will involve exploration into the use of analytical, electronic, thermal, and sonic methods for detecting the presence of insect infestations in any food product.

ACHIEVEMENTS: Two prototypes produced by the Department of Agriculture Laboratory at Savannah, Georgia have been evaluated. While technically feasible for detecting the presence of insects by measuring the carbon dioxide produced by these insects, the instruments were found to be unsuitable for operational use in analysis of processed food products. Both prototypes are basically for detection in whole grains under laboratory conditions. Commercial contacts have been made which indicate a good potential for rapid development of an operational instrument for use by typical user troops.

RELATIONSHIP TO CORE PROGRAM: This project was tasked from US Army Medical Research and Development Command. Relationship to core program is evaluation of a pest management surveillance item.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6296	2. DATE OF SUMMARY* 79 10 01		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	027 APC F742
b. CONTRIBUTING	62110A	3A162110A816	00	027
XXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

Technical Feasibility Testing (TFT) of Pesticide Dispersal Equipment

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7503	CONT	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.7	53
FISCAL YEAR CURRENT 80	0.6	29

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Kardatzke, J.T.

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SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Anderson, L.M.

NAME: Nelson, J.H. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Leco HD; (U) Micro Gen MS2-15; (U) Micro Gen LS2-15; (U) Micro Gen RS1W-5E; (U) Engineer Tests; (U) Ultra Low Volume (ULV)

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

23. (U) To determine the durability of commercially available Ultra Low Volume (ULV) pesticide dispersal equipment by comparative type engineering tests. Units will be used by military medical and engineer personnel for controlling mosquito and other flying insects. Results will provide the user agencies with comparative durability data for purchase through military channels.

24. (U) To determine the operational capabilities of skid mounted and special purpose ULV pesticide dispersal equipment by quantitative and qualitative methods. Measurable quantitative parameters include: particle size determination and maintenance of desired pressure and flow rate. General engineering design observations will include: corrosive effect of pesticide used during tests, verification of manufacturers' claim of performance specifications, general durability definitions as applied to mean time between breakdown, maintenance time, gas and oil consumption and definition of high mortality repair parts.

25. (U) 7810 - 7909. Reevaluations for revision of MIL-S-14102 completed. Evaluation for compliance of London Aire XKA with MIL-A-52940 in progress.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Technical Feasibility Testing (TFT) of Pesticide Dispersal Equipment

FUNDING: FY - $43K, CY - $53K, BY - $29K

PROBLEM DEFINITION: Continuous evaluation of the basic engineering design and durability and operational effectiveness of commercial pest control equipment.

IMPORTANCE: Yearly, new and improved commercial items are presented to DoD as potential standard items. Most of these are suitable for DoD use. Others are unfit and should not be procured. Centralized, uniform testing of these items, on a request basis, is essential to maintain state-of-the-art technology in pest control and to keep from wasting tax dollars on unacceptable equipment.

APPROACH: At the request of other DoD agencies, such as MERADCOM or the Armed Forces Pest Control Board, conduct extensive engineering and operational evaluations of designated items. These evaluations will include items such as specification design, quality assurance testings as required by specification and procurement, and individual item evaluation.

ACHIEVEMENTS: During FY79 the following items were completed: Validation of spray analysis requirements of MIL-A-52940; Partial Initial Production Testing of the Londonaire Model XKA (London Fog Co., Long Lake, MN) as required by MIL-A-52940; feasibility testing for specification revision of MIL-S-14102 to include preliminary validation for a qualified products list; and completion of the evaluation of the Micro-Gen ED 2-20A. Scheduled at this time for FY80 is engineering and operational evaluation of the Micro-Gen (San Antonio, TX) CCG-1 and S-4, the Londonaire Model A, and the Bolt (Johnson Wax Co) E-10.

RELATIONSHIP TO CORE PROGRAM: Project involves continuous evaluation of commercially available pesticide dispersal equipment. Project provides a technology base for pest control equipment evaluation and development.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6231	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8A. DISP'N INSTR'N	8B. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	030 APC F795
b. CONTRIBUTING				
c. [illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Power Supply, Surgical Light, Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7806	7905	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.1	02
	CURRENT 79	0.1	11

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

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RESPONSIBLE INDIVIDUAL

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20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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NAME: Salisbury, L.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Stup, J.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Field Light; (U) Surgical Light; (U) Power Supply; (U) Field Surgery; (U) Field Medical Equipment

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

23. (U) To conduct an engineering evaluation of the current standard power supply unit (NSN 6530-00-131-6974) to determine feasibility of modifying the item or need for a new product design to eliminate field complaints.

24. (U) Conduct a survey of field complaints, prepare a test protocol to verify complaints, conduct in-house evaluation and prepare a final engineering evaluation report so that a decision as to whether a requirements document or a product improvement document would be in order.

25. (U) 7810 - 7909. All technical feasibility testing has been completed. A technical report dated 15 May 79 concluded that the absence of a voltage regulator in the charging circuit caused undesirable production of heat and dissipation of electrolyte. Two options are presented: modify existing units by the addition of a voltage regulator or replace with a commercially available item.

*Available to contractors upon originator's approval

DD FORM 1 MAR 88 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 88 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Power Supply, Surgical Light, Engineering Evaluation of

FUNDING: PY - $.02K, CY - $11K, BY - 0

PROBLEM DEFINITION: A number of complaints have been received from the field on the unreliability of the power supply for surgical lights. An engineering evaluation was undertaken to determine the feasibility of modifying the unit to improve its operation.

IMPORTANCE: The surgical light power supply converts the 400 Hz 110 volt MUST power to a 28 volt DC source for operation of the surgical lights and the changing of an emergency battery supply. The emergency battery supply automatically operates the lights if the 400 Hz source is interrupted.

APPROACH: A survey of the complaints was made and it was determined the excessive changing of batteries was causing the boil out of electrolyte.

ACHIEVEMENTS: The excessive changing rate was caused by a lack of a voltage regulator circuit in the original design. A technical report was written and two options presented.

RELATIONSHIP TO CORE PROGRAM: This program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6232	2. DATE OF SUMMARY* 79 03 15		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETIO	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS [X] YES [ ] NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	031 APC 794
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code)*

(U) Splint, Pneumatic, Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

002400 Bioengineering; 009300 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7805	7901	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.1	01
FISCAL YEAR CURRENT 79	0.1	02

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Field; (U) Pneumatic Splint; (U) Inflatable Splint; (U) Limb Immobilization; (U) Medical Equipment

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

23. (U) To evaluate field complaints concerning pneumatic splints to determine future course of action.

24. (U) Splints will be obtained and subjected to engineering tests to determine operational deficiencies or component failures.

25. (U) 7810 - 7903. All technical feasibility testing has been completed. A final report dated 12 March 1979 concluded that the breaking strength of the zippers on currently stocked pneumatic splints meets or exceeds specifications. It is recommended that the shelf life of pneumatic splints be investigated as a separate study.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Splint, Pneumatic, Engineering Evaluation of

FUNDING: PY - $1K, CY - $2K, BY - 0

PROBLEM DEFINITION: To evaluate field complaints against the subject item and recommend a future course of action.

IMPORTANCE: Morale considerations dictate that complaints from field personnel against equipment be addressed and either corrected or rationalized away.

APPROACH: To obtain representative samples of the subject item and subject these to engineering testing for evaluation of complaints of zipper failure.

ACHIEVEMENTS: Available samples of splints were subjected to testing of the zipper closures. No failures of zippers was produced and the closures were found to satisfy breaking strength criteria of the orginal procurement specification. A report has been generated which concludes that the design is not at fault. It does, however, recommend that shelf life studies of the material be performed by a qualified facility to determine whether age of the items may be a factor in the reported failures.

RELATIONSHIP TO CORE PROGRAM: This task is directly related to the laboratory's mission to develop field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6233	2. DATE OF SUMMARY* 79 04 01		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	033 APC E796
b. CONTRIBUTING				
c. CONTRIBUTING	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Light, Surgical, Battalion Aid Station; Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7806	7902	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.0	00
FISCAL YEAR CURRENT 79	0.1	02

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

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RESPONSIBLE INDIVIDUAL

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

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

NAME:* Prensky, W.C.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Crampton, K.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Field Equipment; (U) Lighting; (U) Surgical Light; (U) Field Light

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

23. (U) To conduct an engineering evaluation of the surgical light to determine feasibility of modifying the item or need for a new product design to eliminate complaints.

24. (U) Conduct tests and evaluations to assess improvements to the surgical light to enhance its effective lighting of work area, to provide an extension cable, to modify the clamp to attach to a greater variety of supports, to develop a transport case and to add a converter to allow operation from 110V AC sources.

25. (U) 7806 - 7903. Technical feasibility tests on the light, surgical NSN 6530-00-299-8595 have been completed and the results documented in a report dated March 1979. Five options were considered. Recommendations were made to improve the clamp design and provide a transport case. Other options were discarded because of this adverse impact on size, weight and cost.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Light, Surgical, Battalion Aid Station; Engineering Evaluation of

FUNDING: PY - 0, CY - $2K, BY - 0

PROBLEM DEFINITION: To evaluate field complaints against the subject item and make recommendations regarding possible product improvement action.

IMPORTANCE: Morale considerations dictate that complaints from field personnel against equipment be addressed and either corrected or rationalized away.

APPROACH: To obtain a specimen of the subject item, conduct engineering tests to verify field complaints and provide engineering recommendations for corrective action.

ACHIEVEMENTS: Testing has validated the complaints. A report was submitted which recommended several alternative design modifications to correct deficiencies. This task is complete with any further action resting with a Product Improvement Configuration Control Board.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the laboratory's mission to develop medical field equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA OB 6156	2. DATE OF SUMMARY* 79 09 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	9. SPECIFIC DATA-CONTRACTOR ACCESS ☑ YES ☐ NO; LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	039 APC F757
XXXXXXXXX	62110A	3A162110A816	00	039
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*
(U) Utility Unit, Dental Operating, Field

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7507	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.3	17
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
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20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic institution)
NAME:* Malek, J.W.
TELEPHONE: (301) 663-7277; AUTOVON 343-7277
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Dental Portable Equipment; (U) Dental Field Equipment; (U) Dental Field Systems; (U) Dental Operating Unit

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

23. (U) To develop a dental utility unit which will provide field dental personnel with a self-contained, pressurized water supply and evacuation system for use in support of air driven dental operating and prophylaxis handpiece systems.

24. (U) Design and fabricate a utility unit and clinically evaluate it in conjunction with the air driven handpiece systems.

25. (U) 7810 - 7909. None. Task terminated because of absence of a defined requirement.

*Available to contractors upon originator's approval

DD, FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Utility Unit, Dental Operating, Field

FUNDING: PY $18K, CY $0 and BY $0

PROBLEM DEFINITION: To develop a dental utility unit which will provide field dental personnel with equipment which is compact, rugged and lightweight to replace current standard field equipment.

IMPORTANCE: Current field equipment must be able to support the required treatment of patients at the echelon where the need for treatment exists. The level of the treatment provided at each echelon is based upon a compromise between the needs of the patient and to demands for the individual to perform his basic duty assignment. As forces become more mobile, the equipment capability must be advanced to provide the required treatment to the patient in the decreased time period available for treatment.

APPROACH: Review commercial sources for small lightweight devices and then obtain possible candidates and fabricate a prototype unit. Clinically evaluate.

ACHIEVEMENTS: Several prototypes were fabricated. Efforts to reduce components, air/water lines were being accomplished when task was terminated due to lack of a defined requirement.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6185	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8. DISP'N INSTR'N	8A. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	63732A	3S163732A836	00	006 APC F304
b. CONTRIBUTING	72778A	3S162778A838	00	040
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Field Clinical Analysis System

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 010100 Microbiology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8109	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	2.4	05
FISCAL YEAR CURRENT 80	1.0	51

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Salisbury, L.L.

TELEPHONE (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Pace, R.R.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Laboratory Equipment; (U) Medical Field Devices; (U) Test Kits

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

23. (U) To develop through exploratory studies field medical devices and laboratory equipment for clinical analysis of body fluids within Army field medical units.

24. (U) A problem definition study will be conducted to determine functional requirements of a field system. Lightweight self-contained, ruggedized and modular components will be developed to satisfy the identified requirements.

25. (U) 7810 - 7909. Preliminary efforts on developing and evaluating a blood cell counter and microprocessor controlled body-fluid analyzer indicated that it is essential that the whole system requirements be identified before further effort be devoted to hardware development.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Field Clinical Analysis System

FUNDING: PY - $17K, CY - $5K, BY - $51K

PROBLEM DEFINITION: To develop a modular, portable and integrated clinical analysis sytem for the determination of clinically important body fluid parameters in a field environment.

IMPORTANCE: Currently used equipment is a mixture of various commercial equipment which has not been designed to operate in the field. Additionally, the use of different manufacturer's equipment for the same determination increases the logistic, training and maintenance problems.

APPROACH: A determination of the various tests and location in the medical care chain will be determined. A survey of the procedures available to make the desired test will be made. Then a system will be developed which will use common procedures for as many tests as possible and which will provide a modular and integrated system.

ACHIEVEMENTS: A meeting was held in Sep 79 at the Academy of Health Sciences and a list of required tests and the level of the health care chain was developed. The system requirements are being developed and commercial sources are being sought.

RELATIONSHIP TO CORE PROGRAM: The program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6193	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISB'N INSTR'N	8B. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES *	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	046 APC F576
b. CONTRIBUTING	62778A	3S162778A838	00	044
XXXXXXXXX	CARDS 1404A			

11. TITLE (Precede with Security Classification Code)*

(U) Portable Pesticide Dispersal Equipment (Backpack)

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8109	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.3	44
FISCAL YEAR CURRENT 80	0.4	16

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Kardatzke, J.T.

TELEPHONE (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER

ASSOCIATE INVESTIGATORS

NAME: Anderson, L.M.

NAME: Nelson, J.H. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Backpack; (U) Solid/Liquid Dispersal; (U) Arthropod Control; (U) Lightweight; (U) Durable; (U) Disease Vectors; (U) Portable

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

23. (U) To identify a commercially available, lightweight, durable, backpack unit capable of dispersing solid or liquid pesticide formulations. This unit would be used by preventive medicine personnel in combat zones and CONUS for controlling disease vectors and pest arthropods.

24. (U) A review of commercially available backpack units will be made. Suitable units will be field evaluated. After entomological feasibility has been established, modifications, if necessary, will bemade and formal testing coordinated with responsible agencies.

25. (U) 7810 - 7909. Developmental testing has been completed with seven units meeting or exceeding standards. Three units have been selected for operational testing at Fort Sam Houston, TX in October 1979.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Pesticide Dispersal Unit, Portable, Backpack

FUNDING: PY - $50K, CY - $44K, BY - $16K

PROBLEM DEFINITION: To evaluate and recommend adoption of a commercial motorized backpack unit which is capable of dispensing both liquid and solid pesticide formulations.

IMPORTANCE: An operational need exists for a motorized backpack unit which can dispense both liquid and solid pesticide formulations. The unit is needed to provide control during field operations in localized and remote areas where vehicular or aerial dispersal equipment cannot be used or is not readily available.

APPROACH: Available commercial backpack units will be evaluated from an engineering aspect to determine the best candidate units for operational evaluation. Selected units will be evaluated by an operational user to determine any unforeseen problems in deployment.

ACHIEVEMENTS: Several candidate units have successfully completed DT. Three different units will be sent for OT during October 1979. Since the Navy currently holds the military specification for this item, results of DT will be transmitted to the action agency to bring the specification into line with the needs of the military.

RELATIONSHIP TO CORE PROGRAM: Project involves evaluation of commercial items for adoption as military standard items in medical TOE. Project is part of core program for pest control equipment development.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6195	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636	
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	047 APC E577
b. CONTRIBUTING	62778A	3S162778A838	00	045
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Pesticide Dispersal Unit, Liquid, Helicopter Slung

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8209	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.5	64
FISCAL YEAR CURRENT 80	1.0	36

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Nelson, J.H.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Helicopter Rig; (U) Liquid Dispersal; (U) Aerial Application; (U) Mosquito Control; (U) Liquid Insecticide

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

23. (U) To identify a suitable commercial, helicopter slung, dispersal unit for applying liquid formulations of insecticides, which would: (a) be capable of dispensing liquid insecticides when slung beneath a helicopter; (b) require no modification of the aircraft; (c) be capable of applying adequate swath widths and deposition rates for controlling disease vectors in combat situations or CONUS.

24. (U) A survey of commercially available, helicopter slung rigs will be made. Suitable units will be field evaluated. After entomological feasibility has been established, necessary modifications will be made and flight qualification tests coordinated with USAAVSCOM.

25. (U) 7810 - 7909. The Transland Unit successfully completed field testing. Modifications for mounting an ultra-low volume (ULV) nozzle on the unit has been completed. The unit will undergo feasibility flight testing in the new configuration during 1st QTR FY 80. Developmental testing will be scheduled for June 1980.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Pesticide Dispersal Unit, Liquid, Helicopter Slung

FUNDING: PY - $50K, CY - $64K, BY - $36K

PROBLEM DEFINITION: To adapt a commercial aerial sprayer to meet the needs of the military for a slung unit which is capable of liquid dispersal in both high volume and ultra-low volume modes.

IMPORTANCE: Medical personnel engaged in field operations need the capacity for aerial dispersal of liquid pesticide formulations. The unit is needed to insure rapid treatment of large areas inaccessible by ground equipment but too small for efficient use of larger aerial dispersal equipment. Current standard item represents a health and safety hazard to the helicopter crew since unit is internally mounted instead of slung.

APPROACH: To adapt a readily available commercial sprayer for military use. The commercial sprayer will be modified to include a ULV Beecomist nozzle system and a means for effective control of unit functions from the interior of the helicopter. Unit will be completely independent of the helicopter and easily jettisonable in an emergency.

ACHIEVEMENTS: A Transland (Harbor City, CA) sprayer has been procured and is currently under going modification and testing. This slung unit has several favorable features such as an inclosed pesticide tank and easy modification to accept the ULV nozzle. DT will be completed during FY80 with OT scheduled for June 1980.

RELATIONSHIP TO CORE PROGRAM: Project involves evaluation and modification of a commercial unit. Item will replace a current obsolete standard item which is a part of the TOE of the Preventive Medicine Detachment, Team LA. Project is part of the pest control equipment program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6196	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62772A	3S162772A838	00	046 APC F777
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Development of a Water Purification Unit and Field Test for Pyrogen-Free Water

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002300 Biochemistry; 012100 Organic Chemistry; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7607	7910	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.3	25
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Barkley, J.J.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Endotoxins; (U) Production of; (U) Assay for; (U) Pyrogen-Free Water; (U) Pharmacy

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

23. (U) To develop a water purification unit to be used within a field hospital pharmacy capable of producing waters for injection that meet United States Pharmacopeia (USP) Standards. To develop or adapt existing test procedures that are capable of verifying the quality of the water produced.

24. (U) A simple, low maintenance water purification unit capable of producing pyrogen-free water will be tested for reliability. A short term storage system will be developed. A method for packaging individual 1-liter containers will be devised.

25. (U) 7810 - 7909. None. Task terminated because of absence of defined requirement.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Development of a Water Purification Unit and Field Test for Pyrogen-Free Water

FUNDING: PY - $25K, CY - 0, BY - 0

PROBLEM: To develop a method for the purification of water for use by field pharmacies in the preparation of injectables. In addition, a method for verification of the water purity must be developed.

IMPORTANCE: The supply of pyrogen-free water to a field unit is dependent on the acquisition of the water from commercial sources. Development of such a unit would greatly reduce the logistic problems.

APPROACH: A survey of the techniques for production and testing of pyrogen-free water will be made. The most promising will be selected for further development.

ACHIEVEMENTS: This task has been terminated because of a lack of a defined requirement.

RELATIONSHIP TO CORE PROGRAM: This program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6215	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8A. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	049 APC F578
b. CONTRIBUTING	62778A	3S162778A838	00	047
c. [illegible]	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Bag, Aidman's, Redesign of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical & Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7705	8002	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.8	23
	CURRENT 80	0.9	43

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME:

21. GENERAL USE

Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Air Bag; (U) Aidman; (U) Emergency Medical Treatment; (U) Field Medical Equipment; (U) Case, Medical Instrument and Supply

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

23. (U) To develop an improved aid bag for use by the platoon aidman.

24. (U) Functional criteria for aid bags will be established. Several potential replacements will be designed, fabricated and evaluated. The best features of each model will be incorporated into a final design.

25. (U) 7810 - 7909. Original two-kit concept (aid and sick call) dropped in favor of a single combat aid bag with limited sick call capability. A three section, six compartment design has been developed. Six prototype units have been fabricated and will shortly be sent to field units in CONUS and Europe for informal user evaluation. This approach is being taken at the suggestion of the combat developer. Actual contents list for the bag is still undergoing refinement by the combat developer and, in the final analysis, will be determined by individual users.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Bag, Aidman's, Redesign of

FUNDING: PY - $7.1K, CY - $23.1K, BY - $43K

PROBLEM DEFINITION: The current case, Medical Instrument and Supply Set (NSN 6545-00-912-9870) has been found inadequate. Because of the small size and configuration of the bag, the aidman is severely limited in his treatment capability in combat. The need exists for a larger bag, which provides easier access to its contents.

IMPORTANCE: The ability of the combat medical corpsman to provide prompt and effective treatment to soldiers in the field will be greatly enhanced by providing him with an aid bag containing a wider variety of medications, dressings, and instruments, which are easily accessible.

APPROACH: Various bags and cases which are already in the supply system were investigated. The bags most suitable for the projected need of the platoon aidman were either too small (M-3), overly compartmented (M-16), or without organizing compartments (M-5).

The goal was the design and development of a bag with the approximate capacity of the M-5 and M-16, and similar in style to the M-3.

A compartmented aid bag has been designed and fabricated. The bag has six zippered compartments and is built in three sections which fold together for transport. The bag has an approximate volume of one cubic foot, D rings for the attachment of a shoulder sling, loops for use with shoulder straps or a pack frame, and a carrying handle. Prototype bags have been fabricated and are awaiting shipment for test at Fort Bragg and in Europe.

RELATIONSHIP TO CORE PROGRAM: The design and development of a more efficient aid bag for use by the platoon aidman is consonant with the mission of The Surgeon General to provide the best in medical treatment for the soldier in the field.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6235	2. DATE OF SUMMARY* 79 06 15		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT
10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER		TASK AREA NUMBER	WORK UNIT NUMBER		
a. PRIMARY	62778A	3S162778A838		00	049 APC F798		
b. CONTRIBUTING							
XXXXXXXXXX	CARDS 114(f)						

11. TITLE (Precede with Security Classification Code)*

(U) Sink Service Unit (NSN 6545-00-019-9330), Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7806	7902	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.1	01
	CURRENT 79	0.1	05

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Crampton, K.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Sink; (U) Service Sink; (U) MUST Service Sink; (U) Field Service Sink

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

23. (U) To conduct an engineering evaluation of the sink service unit to determine feasibility of conducting a product improvement program or a maintenance work order action.

24. (U) Prepare a test protocol to verify field complaints, conduct an in-house evaluation and prepare an engineering evaluation report so that a proper course of action can be determined.

25. (U) 7810 - 7906. All technical feasibility testing has been completed. A final report dated 30 May 1979 concluded that the complaint was of an isolated nature associated with the first procurement of 11 items. Examination of current depot stock and current drawings show the problem of leaking has been resolved.

*Available to contractors upon originator's approval

DD FORM 1 MAR 80 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 85 AND 1498-1, 1 MAR 88 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Sink Service Unit, Engineering Evaluation of

FUNDING: PY -$1K, CY - $5K, BY - 0

PROBLEM DEFINITION: To evaluate field complaints against the Sink Service Unit (NSN 6545-00-019-9330) and make recommendations regarding possible product improvement action.

IMPORTANCE: Morale considerations dictate that complaints from field personnel be addressed and either corrected or rationalized away.

APPROACH: To procure a specimen of the subject equipment, conduct engineering tests and develop recommendations for corrective action where warranted.

ACHIEVEMENTS: Investigation revealed that the complaints received were directed against a particular version of the sink. Only eleven of these were manufactured and the problem with them is easily corrected by field expedient means. The report, therefore, recommended that no further action be taken. This task is complete.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the laboratory's mission to develop medical field equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6236	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	050 APC F797
b. CONTRIBUTING				
XXXXXXXXX	CARDS 1141			

11. TITLE (Precede with Security Classification Code)

(U) Sterilizer, Field (NSN 6530-00-926-2151), Engineering Evaluation of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7806	7902	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.1	01
	CURRENT 79	0.1	06

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Patzer, N.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Field Sterilizer; (U) Sterilizer; (U) Field Autoclave; (U) Field Equipment; (U) Portable Sterilizer; (U) Field

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

23. (U) To conduct an engineering evaluation of the field sterilizer to investigate field complaints so that a determination can be made whether modifications should be conducted under a product improvement program or that a new product design is to be initiated.

24. (U) Review and investigate problems and complaints, conduct an in-house evaluation of the sterilizer and technical manuals and issue a technical feasibility test report.

25. (U) 7809 - 7909. The technical feasibility test was completed on 1 March 1979. A report was written outlining recommendations for a product improvement proposal.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Sterilizer, Field; Engineering Evaluation of

FUNDING: FY - $1K, CY - $6K, BY - 0

PROBLEM DEFINITION: To evaluate the validity of field complaints against the sterilizer (NSN 6530-00-926-2151) and make recommendations regarding possible product improvement action.

IMPORTANCE: Morale considerations dictate that complaints from field personnel be addressed and either corrected or rationalized away.

APPROACH: To procure a specimen of the subject equipment, conduct engineering tests and develop recommendations for corrective action.

ACHIEVEMENTS: Testing has validated the field complaints. A report has been submitted recommending specific actions of redesign to correct the deficiencies. This task is complete with any further action resting with a Product Improvement Configuration Control Board.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the laboratory's mission to develop medical field equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6244	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3ST62778A838	00	051 APC F710
b. CONTRIBUTING				
XXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Integrated Pest Management - Black Flies

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

005900 Environmental Biology; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	8209	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	2.2	97
FISCAL YEAR CURRENT 80	2.0	52

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Frommer, R.L.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Nelson, J.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Integrated Pest Management; (U) IPM; (U) Biological Control

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

23. (U) To develop a method of long-term suppression of immature stages of black flies without adverse effect on the environment.

24. (U) Growth regulator hormones or synthetic chemical analogues will be applied in the aquatic habitat in laboratory and field evaluations in such a manner to attach to specific substrates and with slow release action provide long lasting control. Attention will also be directed to the use of biological control agents including pathogenic protozoa, bacteria, and microsporidia. Insect pathogens on hand will be evaluated against black flies. Further, naturally occurring black fly pathogens will be collected and evaluated. Laboratory and field testing is required to develop methods for manipulation, storage, and application of these agents.

25. (U) 7810 - 7909. Coordination was effected with a major Canadian laboratory conducting research on the biological control of black flies. Their methods for laboratory maintenance of black fly larvae were adapted to our needs. A highly prospective biological control agent rearing commercial availability for mosquito control was acquired for testing against black fly larvae. Bioassay apparatuses were designed and constructed and used to demonstrate the high potential of the agent for black fly control. Field studies have been initiated and one field trial with the agent has been completed in an effort to demonstrate the actual usefulness of the agent for incorporation in an integrated pest management system for black flies.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Integrated Pest Management (IPM) Program Against Black Flies

FUNDING: PY - $0K, CY - $97K, BY - $52K

PROBLEM DEFINITION: To develop a program of long-term suppression of black fly populations without adverse effects on the environment.

IMPORTANCE: Black flies are major vectors of onchoceriasis and rank high as nuisance pests. In areas where onchoceriasis occurs, blindness due to this filarial infection is epidemic. In areas where large populations of black flies occur, training and recreational areas cannot be used in presence of these pests. There currently is no effective means for control of these insects.

APPROACH: Growth regulator hormones or synthetic chemical analogues and chemical pesticides will be applied in the aquatic habitat in laboratory and field evaluations in such a manner to attach to specific substrates and with slow release action provide long lasting control. Attention will also be directed to the use of biological control agents including pathogenic protozoa, bacteria, and microsporidia. Insect pathogens on hand will be evaluated against black flies. Further, naturally occurring black fly pathogens will be collected and evaluated. Laboratory and field testing is required to develop methods for manipulation, storage, and application of these agents.

ACHIEVEMENTS: Coordination was effected with a major Canadian laboratory conducting research on the biological control of black flies. Their methods for laboratory maintenance of black fly larvae were adapted to our needs. A highly prospective biological control agent nearing commercial availability for mosquito control was acquired for testing against black fly larvae. Bioassay apparatuses were designed and constructed and used to demonstrate the high potential of the agent for black fly control. Field studies have been initiated and one field trial with the agent has been completed in an effort to demonstrate the actual usefulness of the agent for incorporation in an integrated pest management system for black flies.

RELATIONSHIP TO CORE PROGRAM: This project is the first systematic approach to providing an integrated pest management program for control of a medically important insect. Project is in keeping with mission for research in integrated pest management.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6246	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8A. DISS'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 15	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	050 APC F579
b. CONTRIBUTING	62778A	3S162778A838	00	052
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)

(U) Sanitizer, Portable, Field, Special Forces

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

010100 Microbiology; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7901	8109	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (in thousands)
FISCAL YEAR	PRECEDING 79	1.5	05
	CURRENT 80	0.4	20

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Prensky, W.C.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Sterilizing; (U) Field Equipment; (U) Medical; (U) Field Sterilizers

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

23. (U) To secure a replacement for FSN 6530-00-926-4857 which is no longer procurable.

24. (U) Search existing industrial sources for a functional substitute. If none is available, design or contract for the design of a new device.

25. (U) Considerable research of commercially available equipment has been done. It has been determined that it is possible to provide a compact sterilizer (as opposed to a sanitizer) if the user desires. Also, the rationale regarding the use of fuels has been developed to the point where it appears that gasoline or kerosene (in addition to the always available wood fire option) are the only reasonable choices. The requirements document, which is being developed concurrently with this preliminary investigation, is being drafted to reflect the above results.

* Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Sanitizer, Portable, Field, Special Forces

FUNDING: PY - None, CY - $4.8K, BY - $20K

PROBLEM DEFINITION: A requirement exists for a compact, lightweight sanitizer for Special Forces medical personnel. The item currently authorized is no longer procurable.

IMPORTANCE: Medical specialists assigned to Special Forces Operational Detachments "A" are responsible for providing medical support of a guerrilla force. This elevates the importance of lightness, compactness, ruggedness and the ability to operate with a variety of available fuels.

APPROACH: To seek commercially available or easily fabricated components that may be combined to satisfy this requirement.

ACHIEVEMENTS: A pressure vessel has been located which can provide steam sterilization rather than sanitization. This vessel was designed and fabricated by a well-known manufacturer of sterilizers some years ago, but it was never produced commercially. A small camping stove has been selected from numerous candidates; it uses either gasoline or kerosene. The total equipment weight is less than 10 pounds.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the mission of this laboratory to develop field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY	1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
	DA OB 6247	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISB'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 01 15	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	048 APC F580
b. CONTRIBUTING	62778A	3S162778A838	00	053
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)

(U) X-Ray Film Processor, Dental, Portable, Field

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

003500 Clinical Medicine; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7812	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: | EXPIRATION:

b. NUMBER:

c. TYPE: | d. AMOUNT:

e. KIND OF AWARD: | f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.3	42
	CURRENT 80	1.6	73

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Malek, J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) X-Ray; (U) Field Medicine; (U) Field Equipment; (U) Dental Processor; (U) Processor

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

23. (U) To identify a suitable X-ray film processing portable field unit to support a low capacity X-ray unit.

24. (U) Search existing industrial sources for a functional device that can be adopted. If none is available, modify, design or contract for the design of a new device.

25. (U) 7901 - 7909. Using a commercial dental X-ray film processor "Peri-Pro" (manufactured by the Air Techniques Incorporated, New Hyde Park, NY) as a prototype, a carrying case was designed and fabricated. The system (processor and case) has successfully completed Development Testing (DT I) and Maintenance Evaluation. Operational Testing (OT I) was completed on 14 Sep 79. Awaiting results of that testing.

DETAIL SHEET

TITLE: X-ray Film Processor, Dental, Portable, Field

FUNDING: PY N/A, CY $42K and BY $73K

PROBLEM DEFINITION: To identify a suitable X-ray Film Processing Portable Field unit to support a low capacity X-ray unit.

IMPORTANCE: Portable wet X-ray film processors and accessories are not suitable for use by small dental units outside of field type hospitals based on excessive weight, complexity and requirements for electrical power, water and processing chemicals. The need is acute and critical for dental units/sections to complement the low capacity X-ray apparatus recently approved for limited procurement.

APPROACH: Search and obtain an industrially developed functional device that can be adapted to meet the established characteristics.

ACHIEVEMENTS: A commercial dental X-ray film processor unit developed and marketed by the Air Techniques Inc. Company of New Hyde Park, NY, was obtained. A shipping/carrying container to protect the processor was designed and fabricated. Developmental Testing I (DT I) and Maintenance/Logistic Evaluation were successfully accomplished. Prototype was forwarded to the 307th Medical Battalion, Fort Bragg, NC to conduct Operational Test I (OT I). Awaiting results of this evaluation.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6243	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 12 15	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES.	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	054 APC F713
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)

(U) Protective Containers, Field, Medical Devices

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

C02400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7812	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR — PRECEDING 79	2.9	13
FISCAL YEAR — CURRENT 80	2.6	117

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Arnold, M.F.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Salisbury, L.L.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Provide EACH with Security Classification Code)

(U) Container; (U) Protective Container

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

23. (U) To design a family of strong, lightweight containers for fragile medical equipment that is presently authorized to field medical units.

24. (U) Identify physical characteristics of existing items to be protected. Determine similarities and then design a container or containers with various inserts to protect during handling, shipping and storage.

25. (U) 7812 - 7909. Ten items have been identified as needing immediate packaging. They have been ordered for determination of weight, size and configuration. An extension section has been designed which will increase the usefulness of the standard numbered containers. Prototypes will be procured during 2nd Quarter FY80.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Protective Containers, Field, Medical Devices

FUNDING: PY - $14K, CY - $13K, BY - $117K

PROBLEM DEFINITION: A requirement exists for a family of strong, lightweight shipping containers for fragile medical equipment issued to field medical units.

IMPORTANCE: The protection of the sensitive medical equipment is essential during loading, transportation and unloading when being deployed in field locations. This equipment, properly protected, must be available for immediate use in patient care. Unprotected, the equipment may be damaged or misaligned requiring extensive repair or recalibration.

APPROACH: Obtain medical equipment which requires packaging. These items will be tested to determine the degree of protection required.Using this information, a family of containers will be designed to protect these and other pieces of equipment. A study will also be made to increase the capacity of the existing medical equipment field chests.

ACHIEVEMENTS: The non-containerized commercial field medical equipment is being obtained for evaluation. Extensions have been designed to increase the capacity of the existing containers. Information on packaging materials and containers is being gathered.

RELATIONSHIP TO CORE PROGRAM: In order to provide adequate patient care it is essential to provide equipment in working order to units in the field. This containerization program will also reduce the time spent packaging equipment developed by this laboratory.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6251	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8. DISP'N INSTR'N	9. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 03 15	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62770A	3E762780A843	00	082 APC F352
b. CONTRIBUTING	62778A	3S162778A838		055
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)

(U) Technical Feasibility Testing (TFT) of Medical Equipment

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7903	8309	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.7	05
	CURRENT 80	1.8	85

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Conway, W.H.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME:

21. GENERAL USE

Foreign Intelligence Considered

POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Medical Equipment; (U) Field Medicine; (U) Testing

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

23. (U) To technically evaluate medical items and systems developed by another service, a foreign nation, or a commercial firm. Results provide input for requirement documents, development plans, or product improvement proposals.

24. (U) Specific items are evaluated for military relevancy after initiation by letter request from major commands, Military Intelligence Information Agency, or Department of Defense activities. Test protocols are written for each item evaluated and a final report written outlining specific recommendations.

25. (U) 7903 - 7909. One subtask, involving the evaluation of a commercial aspirator/resuscitator kit, has been completed with the recommendation that the equipment be regarded as unsuitable for field use.

*Available to contractors upon originator's approval.

DD, FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Technical Feasibility Testing of Medical Equipment

FUNDING: PY - None, CY - $4.5K, BY - $85K

PROBLEM DEFINITION: To conduct an ongoing program of evaluating promising items of foreign or commercial medical equipment and instrumentation for possible application in the field. This effort also serves to maintain a technology base for the laboratory.

IMPORTANCE: From time to time new and interesting developments come to light in medical equipment having potential importance to the Army. These developments may come from the commercial market or may surface from intelligence sources. A mechanism must exist for conducting preliminary evaluations of such equipment without being driven by specific requirements.

APPROACH: To maintain an open work unit, funded at a modest level, which will permit periodic market surveys, evaluation of intelligence reports on foreign equipment, and the occasional procurement and evaluation of items of interest. The task also allows for the investigation of complaints against existing field equipment to provide a comparison base for evaluating new ideas and equipment.

ACHIEVEMENTS: This task is relatively new, having been established during the latter part of the prior fiscal year. Activity to date has consisted of looking into reported deficiencies in field aspirator/resuscitator equipment.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the laboratory's mission to develop medical field equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6058	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISS'N INSTR'N	8B. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	62778A	3S162778A838	00	105 APC F752
b. CONTRIBUTING	62110A	3A162110A816	00	105
XXXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Pesticide Dispersal Evaluation Set

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7504	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.0	30
FISCAL YEAR CURRENT 80	1.0	46

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Nelson, J.H.

NAME: Gula, P.R. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Pesticide Dispersal; (U) Droplet Size; (U) Insect Control; (U) EPA Requirements

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

23. (U) To develop a pesticide field evaluation set capable of measuring ULV droplet size and total pesticide amounts applied by military dispersal equipment utilized in insect control operations at military installations in CONUS and overseas.

24. (U) Review commercial or military sources and if search is unsuccessful, fabricate new equipment and field-evaluate for efficacy of design.

25. (U) 7810 - 7909. Problems with the calibration of the optical imaging spectrometer have been resolved by the vendor. A ground aspirator has been acquired so that the configuration of various clouds presented to the spectrometer for measurement will be identical. Some collaborative experiments to correlate droplet measuring techniques have been initiated with NBS. Recent measurements appear to have resolved the discrepancies between the slide wave method and the spectrometer for nonvolatile droplet aerosols.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Pesticide Dispersal Evaluation Set

FUNDING: PY - $17K, CY - $30K, BY - $46K

PROBLEM DEFINITION: The development of instrumentation which can accurately measure droplet size distribution in pesticide aerosols thus providing precise calibration for pesticide dispersal units.

IMPORTANCE: Accurate calibration of dispersal equipment is essential for the effective and economical usage of ULV pesticide formulations to provide protection for the soldier from disease vectors and pest arthropods. The dissemination of droplets which are too large for effective control are capable of adverse environmental effects.

APPROACH: An optical imaging aerosol droplet sizing spectrometer has been secured and has been calibrated. A ground aspirator which produces a constant speed air flow past the sampling region of the spectrometer has been secured. The aspirator will provide isokinetic conditions at the sampling region and will also enable the data processing system of the spectrometer to provide aerosol concentration information. Various non-volatile droplet aerosols will be dispersed and information on their size distribution and propagation will be gathered.

Additional experiments are planned in which the results of the aerosol spectrometer are compared with other droplet sizing techniques (e.g. slide wave, settling, hot wire sampler).

ACHIEVEMENTS: The optical imaging droplet spectrometer has been used to measure various droplet size distributions. Correlation between the slide wave technique and the spectrometer has been observed using non-volatile aerosols. Preliminary experiments using the particle sizing instrumentation (Doppler Shift Spectroscopy) at the National Bureau of Standards and one of the pesticide sprayers from the laboratory have been performed with indeterminate results.

RELATIONSHIP TO CORE PROGRAM: An item of medical surveillance equipment which will enable the TOE entomology service units to insure proper calibration of their ULV dispersal equipment. Program is related to the core program in the areas of medical equipment development and integrated pest management systems.

COMBAT MEDICAL MATERIEL

(Military Medical Materiel, Advanced Development)

3S163732A836

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6171	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISB'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H. TERMINATION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	63732A	3S163732A836	00	004 APC F304
XXXXXXXXXX	64717A	3S164717D832	00	005
XXXXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)*

(U) Selective Blood Screening Device

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

003500 Clinical Medicine; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7602	7912	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.1	01
FISCAL YEAR CURRENT 79	0.0	01

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Salisbury, L.L.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Stup, J.L.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Counter; (U) Blood Cell; (U) Field; (U) Medical; (U) Blood Screening

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

23. (U) To develop a Field Blood Cell Counter for future field military laboratory use.

24. (U) Provide engineering assistance in the technical specification, source selection, and subsequent evaluation of a Field Blood Cell Counter.

25. (U) 7810 - 7909. None. Task combined with Field Clinical Analysis System.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Selective Blood Screening Device

FUNDING: PY - $1K; CY - 0; BY - 0

PROBLEM DEFINITION: There is a lack of a reliable automatic blood cell counter for field applications.

IMPORTANCE: For the diagnosis and treatment of many disorders it is essential for the physician to have access to blood cell information.

APPROACH: The initial approach was to survey the commercial market for suitable candidates.

ACHIEVEMENTS: This work was terminated. The requirements have been incorporated into the larger need for a field clinical analysis system.

RELATIONSHIP TO CORE PROGRAM: This program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6223	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES.*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	63732A	3S163732A836	00	005 APC F305
b. CONTRIBUTING				
XXXXXXXXXG	CARDS 1400A			

11. TITLE (Procode with Security Classification Code)*

(U) Pesticide Formulations, Controlled Release, Environmentally Compatible

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

005900 Environmental Biology; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7710	8209	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	2.2	99
FISCAL YEAR CURRENT 80	1.0	51

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Nelson, J.H.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Anderson, L.M.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Pesticide Formulations; (U) Controlled-Release; (U) Pest Management; (U) Environmental Compatibility; (U) Vector Control

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

23. (U) To identify and evaluate environmentally compatible controlled-release pesticide formulations of military relevance for use in support of tactical operations and fixed military installation pest management/vector control programs.

24. (U) Utilizing commercially prepared controlled-release pesticide formulations and carriers potentially suitable for military use, quantify release rates and degradation rates in the laboratory. Those formulations found to be best in laboratory tests will be evaluated in field tests to verify laboratory results under natural environmental conditions. Determinations both in the laboratory and in the field will be biological effectiveness, environmental compatibility, cost effectiveness, and compatibility with current standard pesticide dispersal equipment.

25. (U) 7810 -7909. A candidate formulation of 2.04% Abate was field tested at the University of Arkansas Rice Branch Experiment Station and in the Panama Canal Zone. Results of the Arkansas tests indicated that the formulation was effective for only 4 weeks. Panama results are not in yet. The formulation will be analyzed to determine the source of disparity between laboratory results and field results. Laboratory evaluations will continue until 2nd or 3rd QTR FY 80 at which time additional field tests will be conducted.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Development of Controlled-Release Environmentally Compatible Pesticide Formulations

FUNDING: PY - $47K, CY - $99K, BY - $51K

PROBLEM DEFINITION: To develop and register long lasting and environmentally compatible pesticide formulations.

IMPORTANCE: Controlled-release environmentally degradable pesticide formulations systems are needed to replace the long-lasting, broad-spectrum pesticides like DDT which have been cancelled or suspended. The current formulations of new compounds are short-lived and have relatively short shelf life, thus are overall militarily less acceptable. These shortcomings can be overcome through application of a controlled-release formulation. This should result in reduced pesticide use, an important aspect of IPM.

APPROACH: The controlled-release pesticide formulation system envisions the formulation of pesticides into carriers having chemical or physical characteristics which release the pesticide at a predetermined rate into the environment so that, after a given time, the pesticide and carrier are completely degraded.

ACHIEVEMENTS: Development Testing I has been completed after both laboratory and field testing of several potential formulations. Operational testing I has been waived. In the laboratory duration of effectiveness was up to 280 days against third and fourth stage Aedes aegypti. Attempts in the field during FY79 to duplicate laboratory results have not been successful. During FY80 laboratory tests are being run to simulate problems from the field and determine the cause. Field tests will be repeated.

RELATIONSHIP TO CORE PROGRAM: This project is involved in evaluation and field testing of several new pesticide formulations. Outcome will provide the military with a new series of effective pesticides which are registered for medically important arthropods.

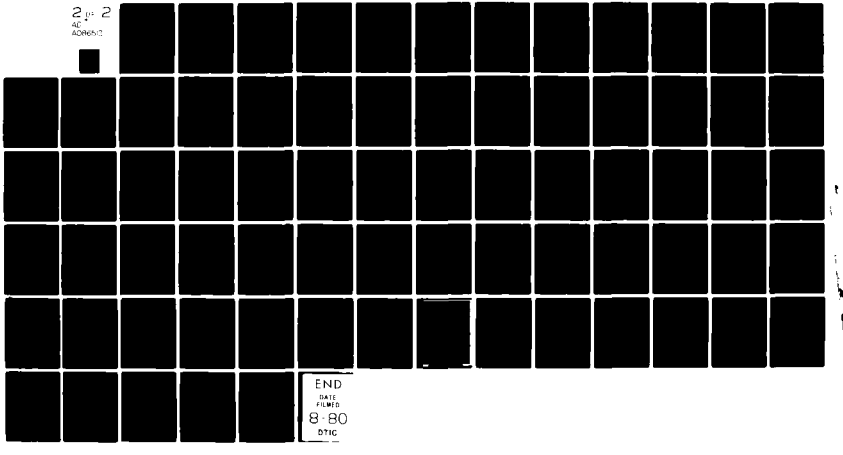
COMBAT MEDICAL MATERIEL

(General Combat Support, Engineering Development)

3S164717D832

AD-A086 512 ARMY MEDICAL BIOENGINEERING RESEARCH AND DEVELOPMENT --ETC F/G 6/5
US ARMY MEDICAL RESEARCH AND DEVELOPMENT REPORT.(U)
OCT 79 J N ALBERTSON

UNCLASSIFIED NL



RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6245	2. DATE OF SUMMARY* 79 08 06		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 12 15	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3ST64717D832	00	001 APC F569
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)*

(U) Optometry Set, Field, Combat, Augmentation

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

C09800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7812	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
PRECEDING FISCAL YEAR 78	0.0	00
CURRENT FISCAL YEAR 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Cranford, H.B.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Field Set; (U) Field Optometry; (U) Combat Set; (U) Optometry Set

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

23. (U) To augment optometry set to provide for a more complete examination of the eye, to take maximum advantage of the skills provided by optometrists, minimize patient evacuation requirements and improve the quality of optometric care available to the troops supported.

24. (U) Design and fabrication of engineering development prototypes for tests.

25. (U) Task combined with Field Combat Optometry Set 832.00.012 by addendum to Letter Requirement dated 26 Jul 79.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Optometry Set, Field, Combat, Augmentation

FUNDING: PY - 0, CY - 0, BY - 0

PROBLEM DEFINITION: There is a need to increase the capability of the Standard Optometry Set to permit more complex examination to be performed.

IMPORTANCE: Augmentation of the Standard Optometry Set will permit greater utilization of the skill of the Optometrists, reduce the need for patient evacuation and, in general, improve the quality of eye care provided the field troops.

APPROACH: A determination of the additional equipment needed and a survey of commercial equipment available will be made.

ACHIEVEMENTS: The equipment needed and available has been determined. This requirement has been combined with the Field Combat Optometry Set.

RELATIONSHIP TO CORE PROGRAM: This program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0A 6283	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUMRY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 02 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES.*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	002 APC F521
b. CONTRIBUTING				
XXXXXXXXX	CARDS 0149D	(26)		

11. TITLE (Precede with Security Classification Code)*

(U) Cold Injury Rapid Rewarm and Treatment System, Prototype Design and Fabrication

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7303	8010	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.2	03
FISCAL YEAR CURRENT 80	0.7	33

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Conway, W.H.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Considered

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Cold Injury; (U) Frostbite; (U) Arctic Medicine; (U) Tissue Rewarmer

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

23. (U) To locate from commercial sources, or alternatively develop and evaluate, a device for the rapid rewarming of frozen human extremities. The device must operate on the principle of immersion or spray with an aqueous solution at a controlled temperature and must have the capability of producing its own water supply from melting snow or ice by internal or supplementary heating. The item must be suitable for use in the forward areas of arctic field operations.

24. (U) Search the commercial market for a suitable design, contract for the development and fabrication of prototype units and conduct development testing on the items thus obtained. Major technical barriers are to achieve the required capabilities in a unit light enough and small enough for field use and utilize a safe and supportable power source for its operation.

25. (U) 7901 - 7909. Two prototype units were delivered by the vendor. In the meantime, the question was raised by the combat developer as to whether the requirement for this equipment is still valid in view of current medical doctrine. Indications are that the task will be terminated and testing is being deferred pending the outcome of this movement.

*Available to contractors upon originator's approval

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Cold Injury Rapid Rewarmer

FUNDING: PY - $4.3K, CY - $3.0K, BY - $33K

PROBLEM DEFINITION: To provide a means of quick-thawing of frozen human tissue in forward areas of arctic and sub-arctic operations. The effort is directed primarily to the treatment of cold injuries to the extremities of field personnel.

IMPORTANCE: Cold region field medical units at the battalion aid and clearing station level are not currently equipped to provide the controlled temperature fluid bath required in the treatment of cold injuries. Thus, treatment cannot be provided below the level of the combat support hospital.

APPROACH: To develop a small controlled temperature bath device that either utilizes available electric power or has a self contained heat source.

ACHIEVEMENTS: The original requirement called for a device that would accommodate an entire human limb. A prototype was built but was rejected due to the high electric power consumption of such a large bath and the safety consideration whereby an adequate electrical ground is difficult to obtain in the arctic. Requirements were revised to cover treatment of a hand or foot and a propane gas fired unit was developed with fuel supply and regulation circuits self-contained. Two prototype units were built and engineering tests indicated the design was viable. However, medical doctrine has recently been revised to prohibit treatment of cold injuries forward of the combat support hospital and the requirement for these devices is in the process of being officially deleted.

RELATIONSHIP TO CORE PROGRAM: This device comes under the mission of this laboratory and research area to develop medical treatment equipment for field use.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6165	79 09 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	003 APC F557
b. CONTRIBUTING				
c. CONTRIBUTING	CARDS 1670			

11. TITLE (Precede with Security Classification Code)

(U) Hypodermic Injection Set, Jet, Automatic, Veterinary Medicine, Field

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

008800 Life Support; 009800 Medical and Hospital Equipment; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7510	7812	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.9	49
	CURRENT 79	0.2	12

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Ismach, A.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Malek, J.W.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Considered

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Immunization; (U) Vaccination; (U) Animal; (U) Disease Control

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

23. (U) To develop a family of hypodermic injection apparatuses for use in Army veterinary medicine (in mass immunization programs) for controlling animal-borne-diseases transmissible to man either directly or through other susceptible animals, thereby directly affecting the health of the soldier or reducing the supply of animal-provided food products.

24. (U) Provide accessories to the standard items (FSN 6515-00-656-1021 and 6515-00-919-0097) to adopt apparatuses designed for human use making them suitable for veterinary use on animals. In addition, provide a backpack, hand-operated pump for use on large animals in pens. Complete the RDT&E initiated in completed Task 3A162110A816.00.037.

25. (U) 7810-7909. Item type classified.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Hypodermic Injection Set, Jet, Automatic Veterinary Medicine, Field

FUNDING: PY - $49K, CY - $12K, BY OK

PROBLEM DEFINITION: There is a need to provide a method of mass immunization of domestic animals for controlling animal borne diseases which could affect the health of the soldier or reduce the available food supply.

IMPORTANCE: The health of the soldier or his food supply can be adversely affected by the transmission of animal borne disease either directly or through other animals.

APPROACH: A standard unit for the jet injection of humans which is already in the federal supply system will be modified for veterinarian use.

ACHIEVEMENTS: This task has been completed and the item type classified.

RELATIONSHIP TO CORE PROGRAM: This device comes under the mission of this lab to develop medical items for field use.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA OA 6282	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	004 APC F511
b. CONTRIBUTING				
XXXXXXXX	CARDS 114f			

11. TITLE (Procode with Security Classification Code)*

(U) Bag, Patient Holding and Evacuation, Prototype Design and Fabrication

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7304	8106	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In Thousands)
FISCAL YEAR	PRECEDING 79	0.5	19
	CURRENT 80	0.2	10

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHON (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Prensky, W.C.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Considered

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Evacuation Bag; (U) Arctic Medicine; (U) Cold Climate Medical Material; (U) Patients, Transportation of

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

23. (U) To develop a patient holding and evacuation system capable of maintaining casualties of desired, controlled temperatures in extreme cold climates for prolonged periods. Currently available evacuation bags cannot adequately maintain cold climate patients at required temperatures.

24. (U) Design and fabricate developmental prototypes based upon previous engineering effort. Existing state-of-the-art materiel will be used. Major technical barrier is to achieve required temperature duration capability with required lightweight characteristics.

25. (U) 7810 - 7909. Prototypes were readied and submitted for OT during winter of CY 79-80. Safety evaluation by combat developer raised some issues which now must be addressed prior to testing. Additional development testing may be required to resolve issues by providing supporting data. Engineering feels that issues can be resolved away but operational testing will probably be delayed due to lead time required for rescheduling.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Bag, Patient Holding and Evacuation, Prototype Design and Fabrication

FUNDING: PY - $18K, CY - $18.3K, BY - $10K

PROBLEM DEFINITION: The present means of protecting sick and injured personnel in cold environments from additional complications resulting from exposure to the cold is inadequate from the point of infliction through the evacuation system.

IMPORTANCE: Protection against exposure to cold must be provided through the evacuation organization until the patient can be moved by a temperature-controlled transportation medium or definitive treatment begins.

APPROACH: After problem definition, a number of proposals were evaluated before awarding a contract for prototype propane or propylene-fired heated liners to be placed inside medical evacuation bag. A second contract was awarded for prototypes of smaller, belt-mount versions of this system.

ACHIEVEMENTS: Operational testing had been scheduled for January, 1979, but objections on "human-use" grounds forced cancellation. These objections have not yet been resolved.

RELATIONSHIP TO CORE PROGRAM: This task is consistent with the laboratory's mission to develop medical field treatment and evacuation equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6178	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 10 01	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	005 APC F565
b. XXXXXXXXX	63732A	3S163732A836	00	001
c. XXXXXXXXX	CARDS 114F			

11. TITLE (Precede with Security Classification Code)*

(U) U.S. Army Hi-Speed Mini Sterilizer

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

010100 Microbiology; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7607	8003	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.3	18
	CURRENT 80	0.1	05

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Prensky, W.C.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Sterilizing; (U) Field Equipment; (U) Medical; (U) Engineering Evaluation; (U) Field Sterilizers; (U) Emergency Sterilizer

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

23. (U) To conduct an engineering evaluation of an improved emergency sterilizer.

24. (U) Conduct DT II and OT II testing on the second generation Mini Sterilizers.

25. (U) 7810 - 7909. Minor problems which surfaced during DT and OT have been corrected or rationalized to the PI's satisfaction. Preliminary technical data package is being prepared to support an acceptance IPR to be scheduled by the Project Officer. Target date for the IPR is 7910.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: US Army Hi-Speed Mini-Sterilizer

FUNDING: PY - $13.8K, CY - $18.4K, BY - $5K

PROBLEM DEFINITION: A requirement exists for a rapid sterilization capability not existent in US Army field medical treatment facilities.

IMPORTANCE: AMEDD must be prepared to provide material of guaranteed sterility when urgently required at the operating room level of field medical treatment facilities. This requirement applies to items contaminated during a procedure, items having unique value, items in limited supply or items whose need could not be foreseen.

APPROACH: A series of contracts starting with a problem definition study, then first prototype design and finally 12 prototypes intended for ultimate type classification.

ACHIEVEMENTS: Unit has passed OTII/DTII and documentation is being prepared for an IPR during January 1980 leading to type classification.

RELATIONSHIP TO CORE PROGRAM: This task relates to the mission of the laboratory to develop field medical equipment and apparatus.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6289	2. DATE OF SUMMARY* 79 07 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	008 APC F560
b. CONTRIBUTING				
XXXXXXXXX	CARDS 1406R			

11. TITLE (Precede with Security Classification Code)*

(U) US Army Splint Set Case

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7409	7906	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.2	15
	CURRENT 79	0.1	02

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Cranford, H.B.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Field Equipment; (U) Splint Case; (U) Splint Set; (U) Leg Injury

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

23. (U) To redesign and improve reported deficiencies of the Roll Splint Set (NSN 6545-00-913-5675).

24. (U) To design and fabricate a new case to eliminate deficiencies reported during earlier development and resubmit for evaluation.

25. (U) 7710 - 7809. Testing (OT II) was conducted during the 1st Quarter of FY77 and a test report prepared. IPR convened in April 1977 and voted to submit the case to further operational testing. Further OT II testing was completed during 4th Quarter FY77. IPR convened in March 1978 voted to submit the case for type classification. Technical data package consisting of engineering drawings, proposed specification, and photographs were completed during 4th Quarter FY78. National Stock Number (6545-01-071-6745) has been assigned to this item. Work unit complete.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: US Army Splint Set Case

FUNDING: PY - $15K, CY - $2K, BY - 0

PROBLEM DEFINITION: To redesign the carrying case for the Roll Splint Set (NSN 6545-00-913-5675) to eliminate a number of reported deficiencies in the current model.

IMPORTANCE: The current Splint Set Case does not fit the contents, is difficult to manipulate in conditions of darkness and has other deficiencies which render it almost useless. It is imperative that these defects be overcome if the Splint Set is to remain in the field as a viable item.

APPROACH: To completely redesign the case, addressing all of the items on which complaints have been received.

ACHIEVEMENTS: The new item has been type classified and the task is complete.

RELATIONSHIP TO CORE PROGRAM: This task related directly to the laboratory's program for development of medical field equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0A 6286	79 07 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	009 APC F561
b. CONTRIBUTING				
XXXXXXXXX	CARDS 1403R			

11. TITLE (Precede with Security Classification Code)

(U) US Army Leg Splint

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7409	7906	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.2	10
FISCAL YEAR CURRENT 79	0.1	02

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Cranford, H.B.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Field Equipment; (U) Splint; (U) Leg Injury; (U) Medical

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

23. (U) To redesign the Military Standard Splint, Leg, Thomas, Half-Ring, Aluminum (NSN 6515-00-372-5100) so that it may be used on individuals of all sizes and provide improved patient comfort.

24. (U) Redesign the item IAW test and evaluation reports previously conducted, fabricate new prototypes and submit for evaluation.

25. (U) 7710 - 7809. OT II was conducted during 1st Quarter FY77 and a report prepared. IPR convened in April 1977 recommended that the splints undergo additional operational testing. Additional OT II testing was completed during 4th Quarter FY77. The splint was recommended for type classification at the IPR convened in March 1978. Engineering drawings, proposed specifications and photographs were prepared. Technical data package was completed during 4th Quarter FY78. National Stock Number (6515-01-071-6645) has been assigned to this item. Work unit complete.

*Available to contractors upon originator's approval

DD, FORM 1498, MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: US Army Leg Splint

FUNDING: PY - $10K, CY - $2K, BY - 0

PROBLEM DEFINITION: To redesign the standard military Thomas Leg Splint so that it may be used on individuals of all sizes and provide improved patient comfort.

IMPORTANCE: The current splint design does not accomodate all patients between the 5th and 95th percentile. This is an intolerable situation since it leaves a substantial part of the military population without access to a standard splint in case of leg fracture.

APPROACH: To make the Thomas splint expandable over a range and to improve the design of the leg straps in the interest of patient comfort.

ACHIEVEMENTS: An improved splint has been type classified.

RELATIONSHIP TO CORE PROGRAM: This task related directly to the laboratory's program of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0A 6230	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DMIP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	012 APC E564
b. CONTRIBUTING				
c. CONTRIBUTING	CARDS 1402R			

11. TITLE (Procode with Security Classification Code)*

(U) Optometry Set, Field, Combat

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7405	8109	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.6	69
FISCAL YEAR CURRENT 80	1.1	51

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Cranford, M.B.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Salisbury, L.L.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code)

(U) Field Set; (U) Field Optometry; (U) Combat Set; (U) Optometry Set

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

23. (U) To modernize and update the field optometry set and to replace components which are no longer available from commercial sources with new designs.

24. (U) Design and fabrication of engineering development prototypes for Developing Test (DT II) and Operational Testing (OT II).

25. (U) 7910 - 7909. Contents of Augmentation Set established. The Augmentation Set was combined with the Optometry Set. The components have been ordered.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Optometry Set, Field, Combat

FUNDING: PY - $75K, CY - $69K, BY - $51K

PROBLEM DEFINITION: To modernize and update the Field Optometry Set and to replace components which are no longer available from commercial sources with new designs.

IMPORTANCE: A functional optometry set is required for the use of optometry personnel assigned to the medical battalion providing division level medical support and other teams providing optometry services.

APPROACH: To design and fabricate engineering prototypes for test, technical data packages and type classification.

ACHIEVEMENTS: The basic chair included with the optometry equipment has successfully completed DT II and OT II. The chair is being redesigned to pass OT II. An augmentation set has been combined with the optometry set. The design of the augmentation set has started.

RELATIONSHIP TO CORE PROGRAM: The Optometry Set is an integral part of the medical materiel program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6190	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636	
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S162778A832	00	014 APC F566
b. CONTRIBUTING	62778A	3S162778A838	00	041
XXXXXXXXXG	CARDS T213R			

11. TITLE (Procede with Security Classification Code)*

(U) Pesticide Dispersal Unit, Solid, Helicopter Slung

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8106	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	1.4	41
	CURRENT 80	0.8	33

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Nelson, J.H.

TELEPHONE (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Cranford, H.B.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Helicopter Rig; (U) Solid Dispersal; (U) Aerial Applications; (U) Mosquito Control; (U) Solid Insecticide

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

23. (U) To identify a suitable commercial, helicopter slung, dispersal unit for applying solid formulations of insecticides, which would: (a) be capable of dispersing insecticides when slung beneath a helicopter; (b) require no modification of the aircraft; (c) be capable of applying adequate swath widths and deposition rates for controlling disease vectors in combat situations or CONUS.

24. (U) A Simplex spreader was evaluated with various pesticide formulations under a variety of conditions and was found to be unsatisfactory due largely to the vertically actuated gate system. A Chadwick, Inc. applicator, with horizontally actuated gate system, was procured and modified for remote control operation. Feasibility and military adaptability will be established under field conditions.

25. (U) 7810 - 7909. The Chadwick unit completed DTI with minor problems which would not disqualify unit from operational testing. Operational testing was completed and formal results have not been received from Mete. Attempts will be made to clear up, by efforts in-house, problems surfaced in OT.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 68 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Pesticide Dispersal Unit, Solid, Helicopter Slung

FUNDING: PY - $49K, CY - $41K, BY - $33K

PROBLEM DEFINITION: To adapt a commercial item capable of dispensing solid pesticide formulations for use in the military operation environment.

IMPORTANCE: Medical personnel engaged in field operations need the capacity for aerial dispersal of solid pesticide formulations to insure rapid treatment of large areas inaccessible by ground equipment but too small for efficient use of larger aerial dispersal equipment. Currently, field units have no item of equipment with the capability although their mission and TOE require it.

APPROACH: A commercially available spreader which is slung beneath a helicopter on the helicopter's cargo hook is being adapted for military use.

ACHIEVEMENTS: A Chadwick (Beaverton, OR) fertilizer spreader has been successfully adapted to meet the needs of the military. DT I was successfully completed in FY79. OT I conducted at Fort Bragg in June 1979 exposed several minor problems which are currently being addressed. Resolution of these problems by DT/OT II during FY80 should result in type classification of the item during FY81.

RELATIONSHIP TO CORE PROGRAM: Project involves evaluation and modification of commercial unit as a military standard item. Item will replace current obsolete standard TOE item. Project is in concert with pest control equipment program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0A 6290	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8A. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☐ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	015 APC F568
XXXXXXXX	63732A	3S163732A836	00	003
XXXXXXXX	CARDS 114f			

11. TITLE (Precede with Security Classification Code)

(U) Environmental Protection Containers for Medical Supplies

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7409	8001	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.7	43
	CURRENT 80	0.4	20

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Patzer, N.H.

TELEPHONE (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME:

21. GENERAL USE

Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Environmental Container; (U) Field Container; (U) Arctic Field Container; (U) Medical Supply Container; (U) Arctic Supplies; (U) Arctic Protection

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

23. (U) To develop a container to protect freezable military medical items in an Arctic environment.

24. (U) Design, fabricate and evaluate a container to meet the requirements of Arctic use.

25. (U) 7810 - 7909. Two new prototype containers are being fabricated with additional insulation and revised electronics to upgrade performance. Additional development testing will be performed during the Sep-Oct 79 time frame. Further operational testing will be waived if development tests show expected improvement in performance.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Environmental Protection Containers for Medical Supplies

FUNDING: PY - $12K, CY - $43.2K, BY - $20K

PROBLEM DEFINITION: To provide a means of storing biologicals which are subject to damage by freezing during field operations in arctic or sub-arctic regions.

IMPORTANCE: The present lack of a dedicated piece of equipment to cope with this problem has led to spoilage of large quantities of biological materials in Alaska. Present methods of preserving freezables are make-shift and totally inadequate.

APPROACH: To develop a light-weight, insulated chest that includes electrical strip heaters and a temperature control circuit. This chest, issued to appropriate field units, would be dedicated to the storage and preservation of freezable medical materials. The chest is also to be designed to protect freezables during several hours of unpowered transport.

ACHIEVEMENTS: Two prototype units have been constructed and have been subjected to DT I and II and OT I and II. Since the previous test sequence, an additional inch of insulation has been added to the design to extend the unpowered survival time. The effectiveness of this will be measured by additional development testing. Further operational testing has been waived by agreement with the combat developer.

RELATATIONSHIP TO CORE PROGRAM: This equipment performs an ancillary function related to medical treatment in a field environment. The development of field treatment is a primary function of this research area.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA OB 6183	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8B. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3ST64717D832	00	016 APC F570
XXXXXXXXX	62778A	3ST62778A838	00	014
XXXXXXXXX	CARDS 1141			

11. TITLE (Procede with Security Classification Code)*

(U) Cabinets, MUST, Redesign of

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 004400 Containers and Packaging

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7608	7911	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.7	102
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Patzer, N.H.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code)

(U) Cabinets; (U) Tables; (U) MUST; (U) Field Containers; (U) Combat Support Hospital

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

23. (U) To redesign and develop new cabinets for the MUST Combat Support Hospital to reduce: weight, procurement costs, and number of different sizes.

24. (U) Design and fabricate new cabinets and evaluate for acceptance.

25. (U) 7810 - 7909. All design completed. Drawings are completed for all cabinetry except the pharmacy/narcotics cabinet which is in the works. Some drawings previously submitted to DPSC are being revised, at their request, for the convenience of small vendors not accustomed to the latest drawing format. Task is essentially complete.

*Available to contractors upon originator's approval.

DD, FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: MUST Cabinet Redesign

FUNDING: PY - $50K, CY - $102.2K, BY - $0

PROBLEM DEFINITION: The orginal design of MUST hospital cabinetry was deemed too expensive to procure due to the fabrication methods called for. The problem then, is to redesign the cabinets in such a way as to reduce manufacturing costs while retaining the basic function of the units.

IMPORTANCE: DPSC, confronted with the need to procure additional MUST cabinetry has found bidders reluctant to respond due to the complexities of manufacture and the feeling that their bids would not be competitive.

APPROACH: Redesign the cabinets to eliminate exotic materials, such as graphite composites, and make parts self-aligning where possible, thereby reducing tolerances.

ACHIEVEMENTS: All cabinetry with the exception of the x-ray cassette and pharmacy storage cabinets have undergone redesign and testing. Drawings and specifications have been forwarded to DPSC. The remaining two cabinets are in the final stages of redesign and will be completed shortly.

RELATIONSHIP TO CORE PROGRAM: The cabinets in question are part of the medical treatment system which is the MUST hospital. Development of treatment equipment for the field environment is a primary function of this research area.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA OB 6184	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISS'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☐ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3ST64717D832	00	017 APC F567
b. CONTRIBUTING	62778A	3ST62778A838	00	015
~~X XXXXXXXXX~~	CARDS 1423R			

11. TITLE (Precede with Security Classification Code)

(U) Chair, Dental Operating, Portable

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

008800 Life Support; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	8004	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.0	85
FISCAL YEAR CURRENT 80	0.5	75

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.H., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Malek, J.W.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Dental Chair; (U) Dental Operating; (U) Portable Chair; (U) Field Dental Chair

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

23. (U) To design and fabricate a new portable dental operating chair for Army field use, incorporating light weight materials.

24. (U) Design, fabricate and evaluate a suitable chair.

25. (U) 7810 - 7909. Development testing (DT II) and maintenance evaluation (by USAMMA) have been successfully concluded. Operational testing (OT II) was completed on 25 May 79. Test (OT II) report revealed several shortcomings. Redesign to eliminate deficiencies has been initiated.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Chair, Dental Operating, Portable

FUNDING: PY $68K, CY $85K and BY $75K

PROBLEM DEFINITION: A need exists to replace the current Chair and Stool Unit, Dental Operating, Portable (NSN 6520-00-181-7349) with an item which will provide essentially the same professional/operational capabilities but which will be less costly, require less maintenance/repair support, be lighter in weight and require less storage/transportation space.

IMPORTANCE: The current standard chair and stool unit has become extremely costly to procure. The current estimated cost (from one response only) has tripled since the standard item was placed into the supply system. In addition, the combat readiness and reliability of the chair is low, primarily due to the high repair rate to correct malfunctions of the hydraulic control systems. Non-portability is difficult because the weight and bulk exceed the transportability for the normal two-person user team.

APPROACH: Review of possible commercial sources revealed that none met the characteristics established by the Letter Requirement (LR). A design and fabrication was accomplished by an in-house effort.

ACHIEVEMENTS: The in-house design and fabrication of a suitable prototype was accomplished and subjected to Developmental Testing II (DT II) and Maintenance/Logistic Evaluation. Prototypes were forwarded to the 257th Medical Detachment (DS) for accomplishment of the Operational Testing II (OT II). Redesign and fabrication has been completed which will eliminate previous design shortcomings.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6062	79 05 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8B. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	018 APC F555
b. CONTRIBUTING				
XXXXXXXXX	CARDS 1664			

11. TITLE (Precede with Security Classification Code)*

(U) Military Dog Shipping Multipurpose Container

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7505	7906	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR — PRECEDING 78	0.5	27
FISCAL YEAR — CURRENT 79	0.2	14

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Cranford, H.B.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: O'Connor, R.J.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Veterinary; (U) Dogs; (U) Shipping Container; (U) Transportation; (U) Rabies; (U) Cage

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

23. (U) To develop a lightweight, portable, rugged, collapsible, lock-in-place, nesting, easily sanitized and maintainable, multipurpose container. The item will serve for shipping military dogs worldwide; temporary housing; secure confinement for quarantining rabies suspect animals and a cage for other animals of military dog size.

24. (U) Design, fabricate, test, and evaluate items to meet the military requirements for a suitable container.

25. (U) 7810 - 7905. Technical data package completed and forwarded to support necessary procurement action.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Military Dog Shipping Multipurpose Container

FUNDING: PY - $27K, CY - $14K, BY - 0

PROBLEM DEFINITION: There is a need for a lightweight portable, reusable multipurpose container for the shipment of military dogs.

IMPORTANCE: At present there exists no standard container for the shipment of military dogs which can be used for the temporary housing or quarantining of military dogs. The currently used shipping container is not collapsible and the return for reuse is not cost effective.

APPROACH: Design and fabricate a portable rugged, collapsible, nesting and easily sanitized container for multipurposes.

ACHIEVEMENTS: The container has been designed, fabricated, tested and recommended for type classification. The technical data package has been completed and forwarded to DPSC. The task has been completed.

RELATIONSHIP TO CORE PROGRAM: This device comes under the mission of this lab to develop items for the support of the field.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6061	2. DATE OF SUMMARY* 79 02 06	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8A. DISP'N INSTR'N NL	8B. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES.*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	019 APC F553
b. CONTRIBUTING				
XXXXXXXXX	CARDS T1439D	(03)		

11. TITLE (Precede with Security Classification Code)*

(U) Accessory Kit MUST Service Ward Container

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 008800 Life Support

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7506	7904	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	1.0	52
	CURRENT 79	0.1	07

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Patzer, N.H.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Crampton, K.T.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Accessory; (U) Utilities; (U) Ward Container; (U) MUST

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

23. (U) To develop an accessory kit for the MUST service ward container which will provide for control and distribution of the basic utilities; air, water, light and electrical power; when used as a general shelter.

24. (U) Analysis of the functional requirements of the kit and the components needed provided data to design and fabricate prototype kits. Prototype kits will be evaluated in the field.

25. (U) 7810 - 7903. Prototype kits were fabricated and sent to 10th Combat Support Hospital for tests where they were found acceptable. Final technical report to be issued by USAMBRDL during 2nd Quarter of FY79. IPR of March 1978 recommended that this task be terminated at USAMBRDL and referred to US Army NATICK Laboratories or other appropriate agency for possible type classification. DASG-HCL is coordinating this transfer of responsibility.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Accessory Kit, MUST Service Ward Container

FUNDING: PY - $52K, CY - $7K, BY - 0

PROBLEM DEFINITION: To develop an electrical installation kit containing electrical accessories deemed necessary to support all of the functions ascribed to the MUST multi-purpose shelters.

IMPORTANCE: Electrical equipment for each multi-purpose shelter is currently provided on the basis of a particular function for that shelter. A kit of electrical accessories that satisfies the needs of a shelter in any of its projected roles is needed to make the shelter truly multi-purpose.

APPROACH: To analyze the electrical requirements for these shelters in their various functional configurations and develop a kit that covers all eventualities.

ACHIEVEMENTS: An accessory kit has been developed and tested. The results of this effort have been turned over to NATICK Laboratories for eventual type classification as part of the shelter package.

RELATIONSHIP TO CORE PROGRAM: This task, dealing as it does with accessories to shelters, does not directly relate to the core program of medical equipment development. However, since the electrical requirements placed on these shelters are driven by the use of medical equipment within the shelters, it is proper for this laboratory to make the basic determination of electrical requirements.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6057	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	9. SPECIFIC DATA - CONTRACTOR ACCESS ☒ YES ☐ NO

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	020 APC F571
b. CONTRIBUTING	62778A	3S162778A838	00	104
XXXXXXXXXX	CARDS 1403A			

11. TITLE (Procede with Security Classification Code)*

(U) Light Trap, Portable, Mosquito

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 009800 Medical and Hospital Equipment; 002400 Bioengineering; 005900 Environmental Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7504	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.2	34
FISCAL YEAR CURRENT 80	0.3	11

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Kardatzke, J.T.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

21. GENERAL USE

Foreign Intelligence Not Applicable

ASSOCIATE INVESTIGATORS

NAME: O'Connor, R.J.

NAME:

POC:DA

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Mosquito Light Trap; (U) Disease Vectors; (U) Pest Mosquitoes; (U) Mosquito Surveys; (U) Population Studies

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

23. (U) To develop a portable battery-operated mosquito light trap for use in disease vector and pest mosquito surveys. This will replace the standard light trap set (NSN: 6545-00-089-3766) which has proven unsatisfactory for field use.

24. (U) Design and fabricate a suitable portable mosquito light trap and conduct field evaluation in various habitats.

25. (U) 7810 - 7909. Operational testing of miniature light trap system was successfully completed in May 1979. A new military specification is under preparation for the trap. The trap set is being processed for assignment of a line item number.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Light Trap, Portable, DC Powered, Mosquito

FUNDING: PY - $21K, CY - $34K, BY - $11K

PROBLEM DEFINITION: To develop a new DC powered, portable mosquito light trap with associated accessories to replace the current miniature light trap and standard trap set.

IMPORTANCE: Portable, DC powered light traps are used in remote areas to assess mosquito populations, determine control effectiveness, and collect live specimens for arbovirus surveillance. In a fluid, combat situation where locations are both remote and frequently changing, a self contained trap set using DC power is essential for surveillance. All IPM programs have their fundamental basis in surveillance to determine when and if control is needed and effectiveness of control.

APPROACH: A portable DC powered light trap using solid state circuitry to control operations is the core of this system. Because of the electronic system, the trap need only be visited once a day to operate, unlike current traps which require visits twice a day. By using more efficient motors, fans, and lamps, the total collection of the individual trap will be increased. The traps will be grouped in sets of six with sufficient accessories provided to maintain the system in the field indefinitely assuming availability of either standard D-cell batteries or an AC source for operation of the gel-cell battery charger.

ACHIEVEMENTS: This project has successfully completed both DT and OT. Some minor problems were reported during OT but these have been corrected during additional DT. A military specification is being prepared for procurement of the trap. The trap set is being proposed as a total replacement of standard trap set (NSN 3740-00-089-3766). This recommendation will be forwarded to the Academy of Health Sciences for action.

RELATIONSHIP TO CORE PROGRAM: The light trap is a medical item used for vector surveillance. Equipment support of this surveillance relates two-fold with the core program. Primarily the trap is intended for TOE Preventive Medicine Units. Secondarily, the trap will become an important item for the surveillance requirements of an integrated pest management program.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6249	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8B. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
79 01 16	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	041 APC F573
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code)*

Low Capacity Radiographic System, Field

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

003500 Clinical Medicine; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7901	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.8	06
	CURRENT 80	0.4	18

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Salisbury, L.L.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME:

21. GENERAL USE

Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Procode EACH with Security Classification Code)

(U) X-Ray; (U) Field Medicine; (U) Field Equipment

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

23. (U) To identify suitable film processor(s) and compatible film(s), cassettes and other operating accessories for AMEDD usage (except dental) for interfacing with the low capacity X-ray apparatus NSN 6525-01-063-6874.

24. (U) Search existing industrial sources for functional devices that can be adopted. If none are available, modify, design or contract for the design of new devices.

25. (U) 7901 - 7909. A survey of commercial units was made. None would satisfy the letter requirement. A wet processor assembled by a commercial manufacturer and a dry processor using Polaroid type film were evaluated and submitted for operational testing. Test results will be available during 1st Quarter FY80.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498

DETAIL SHEET

TITLE: Low Capacity Radiographic System

FUNDING: PY - $7K, CY - $ 6K, BY - $ 18K

PROBLEM DEFINITION: To identify suitable automatic film processors, compatible film, cassettes and accessories for interfacing with a low capacity radiographic apparatus.

IMPORTANCE: Currently available wet x-ray film processors and accessories are not suitable for use by small medical units outside of field type hospitals based on weight, complexity and utility requirements. The need is acute and critical for a film processor to complement the low capacity x-ray apparatus recently approved.

APPROACH: A survey of commercially available film processors will be made to determine their ability to satisfy the letter requirement.

ACHIEVEMENTS: A market survey uncovered no commercial units which would meet the letter requirement. A wet processor assembled by a commercial manufacturer and a dry processor were evaluated and submitted for operational testing.

RELATIONSHIP TO CORE PROGRAM: The program is directly related to the lab mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6250	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 02 01	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	042 APC F574
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)*

(U) High Capacity Radiographic System, Field

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

003500 Clinical Medicine; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7902	8109	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.8	31
	CURRENT 80	3.1	146

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Salisbury, L.L.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) X-Ray; (U) Field Medicine; (U) Field Equipment

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

23. (U) To identify and evaluate a replacement field X-ray system for the current standard (100 mA and 200 mA) system which is inadequate in reliability, availability and maintainability.

24. (U) Search existing commercial sources for functional components (X-ray source, table, power supplies, film processors) that can be adopted. If none are available, modify, design or contract for design of new devices.

25. (U) 7902 - 7909. A survey of the commercial market was made. No commercial unit would satisfy the letter requirements. A commercial X-ray source, controller and power supply is being modified to fit the Army field table. This combination will undergo development testing during 1st Quarter FY80.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: High Capacity Radiographic System

FUNDING: PY - $12K, CY - $31K, BY - $146K

PROBLEM DEFINITION: The current field radiographic system is inadequate in reliability, availability, maintainability and does not conform to the radiation requirements of 21CFR.

IMPORTANCE: The lack of a working, reliable, certifiable, high capacity x-ray system to meet the radiological requirements of field medical treatment facilities has a significant impact on the ability of these activities to provide basic health care. The need is acute and critical.

APPROACH: A search of commercial sources will be made for a functional system or components that can be combined into a system which will meet the field requirements.

ACHIEVEMENTS: A survey was made of the commercial market. No commercial system was found which will meet the letter requirement. Commercially available components have been obtained and are being adapted and modified to develop a radiological system compatible with field requirements.

RELATIONSHIP TO CORE PROGRAM: The program is directly related to the laboratory mission of developing field medical equipment.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6252	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISB'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 02 06	D. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	64717A	3S164717D832	00	043 APC 575
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procede with Security Classification Code)*

(U) Litterboard

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7901	8009	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.2	02
	CURRENT 80	0.5	25

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Litter; (U) Patients, Transportation of; (U) Injuries of Spine, Back, Cervical

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

23. (U) A need exists for a rigid device on which to transport patients with spine and/or cervical spine damage from injury site to a medical facility.

24. (U) Commercially available spineboards (litterboards) will be evaluated for adoption and/or modification to fit military requirements.

25. (U) 7902 - 7909. Two commercial boards have been procured for evaluation. A "sources sought" announcement in Commerce Business Daily has so far failed to identify additional interested vendors. A test protocol for evaluation of the commercial units received is being developed.

*Available to contractors upon originator's approval

DD, FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Litterboard

FUNDING: FY - None, CY - $1.5K, and BY - $25K

PROBLEM DEFINITION: Litters available for use in a field environment are not sufficiently rigid for the proper management of back or cervical spine injuries. There is a need for a rigid litterboard/spineboard in the supply system for proper casualty management. The advice to fabricate locally, given in FM 8-35, has proven inadequate.

IMPORTANCE: The use of spineboards/litterboards in the proper management of back and cervical spine injuries is essential to sound medical treatment to minimize the chance of further injury during transport.

APPROACH: The commercial market for these devices and accessories is being searched both by advertisement in Commerce Business Daily and by letter to potential vendors. Characteristics of commercial items as well as in-house development will be evaluated against field requirements. It is hoped that a commercial device will adequately meet this need.

ACHIEVEMENTS: This is a new task. Advertisements have been published in Commerce Business Daily and letters have been sent to various vendors. A test protocol is being prepared and commercial items as well as an in-house development item will be evaluated against the stated characteristics of the letter requirement.

RELATIONSHIP TO CORE PROGRAM: The effective management of back and cervical spine injuries using litterboards/spineboards is consistent with the laboratory mission for field medical equipment development, as well as the overall mission of The Surgeon General to provide the best medical treatment consistent with field experiences.

IN-HOUSE LABORATORY INDEPENDENT RESEARCH

3A161101A91C

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6225	79 01 15	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H.TERMINATION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	010 APC F157
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code)

(U) Electronic Wet Bulb Globe Temperature Instrument

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7710	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 78	0.1	01
FISCAL YEAR CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: O'Connor, R.J.

TELEPHONE: (301) 663-7277; AUTOVON 343-7277

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Stup, J.L.

NAME: Crampton, K.T. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code)

(U) Fatigue; (U) Comfort; (U) Humidity; (U) Heat Exhaustion

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

23. (U) Design, fabricate and evaluate an electronic instrument; independent of external power sources and which will measure the three temperatures used to compute the Wet Bulb Globe Temperature (WBGT) index and in addition display the index.

24. (U) Investigate electronic methods to produce accurate analogs of the temperatures used to compute the WBGT index.

25. (U) 7810 - 7901. No work accomplished. Task terminated due to non-availability of funds.

*Available to contractors upon originator's approval

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 66 (FOR ARMY USE) ARE OBSOLETE

DETAIL SHEET

TITLE: Electronic Wet Bulb Globe Temperature Instrument.

FUNDING: PY $1K, CY $Ø, and BY $Ø

ACHIEVEMENTS: None, task was never activated.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6226	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8A. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	011 APC F156
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code): (U) Testing On-Line Total Organic Carbon (TOC) Monitors Designed for Army Wastewater Reuse Treatment Facilities

12. SCIENTIFIC AND TECHNOLOGICAL AREAS: 007800 Hygiene and Sanitation; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.1	13
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Peterman, B.W.
TELEPHONE: (301) 663-7207; AUTOVON 343-7207
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code): (U) Electrochemical Organic Content Analyzer; (U) Total Organic Carbon; (U) On-Line Analyzers; (U) Water Reuse

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

23. (U) To prepare a protocol for evaluation of on-line TOC monitors and to use this protocol for testing candidate monitors.

24. (U) Define the sensitivity of the monitor to compounds expected in Field Army wastewaters treated for reuse. Test the long-term stability of response and sensitivity of the monitor. Evaluate the reproducibility of response to dilute and concentrated wastewaters. Investigate response interactions between two compounds. Correlate the monitor response to total organic carbon over a range of wastewater treatment processes.

25. (U) 7810 - 7909. A PR-1 (low-level TOC) sample input module for off-line TOC measurements was set up and tested, as was a breadboard electrochemical organic content (EOC) on-line analyzer. Tests were completed using sodium myristate, Hyamine 3500, and N,N-diethyl-m-toluamide (DEET). A final report is in preparation.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

SUMMARY SHEET

TITLE: Testing On-Line Total Organic Carbon (TOC) Monitors Designed for Army Wastewater Reuse Treatment Facilities.

FUNDING: PY None, CY $13K and BY None

PROBLEM DEFINITION: The organic content of water designated for reuse must be monitored closely to insure that the water does not contain potentially hazardous materials. The electrochemical organic content analyzer is a rapid indicator of organic contamination that can be used for continuous monitoring of treatment plant product waters.

IMPORTANCE: Before reuse of wastewater by humans can be considered an on-line monitoring capability, such as an electrochemical organic content analyzer, must be developed and tested.

APPROACH: The electrochemical organic content analyzer is a contractor-developed item. The testing was conducted in-house with treated wastewater generated as a result of other in-house research projects.

ACHIEVEMENTS: The testing of the electrochemical organic content analyzer has been completed. Results showed an excellent correlation of Total Organic Carbon (TOC) a traditional measure of organic contamination.

RELATIONSHIP TO CORE PROGRAM: The in-house testing completed the first phase of the development effort on the electrochemical organic content analyzer. The electrochemical organic content analyzer project is a part of the program for water reuse and is an essential element in the development of water reuse technology.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6227	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUMRY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8A. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	012 APC F154
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procede with Security Classification Code)* (U) Development of Techniques for the Concentration and Detection of Enteric Viruses in Water and Wastewater

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 008700 Laboratories, Test Facilities and Test Equipment; 007800 Hygiene and Sanitation; 005900 Environmental Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7710	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	1.0	35
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic institution)
NAME:* Schaub, S.A.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Taylor, G.W.
NAME: Rose, W.E. POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code)
(U) Virus; (U) Detection; (U) Water; (U) Wastewater

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

23. (U) To evaluate commercial filtration techniques for compatibility with the bentonite virus adsorption methodology for rapid, easy concentration of viruses from water and wastewater. To evaluate various means of eluting viruses from the clay entrapped on the filters for subsequent virus assay or ultimate concentration techniques.

24. (U) Filtration of bentonite adsorbed virus will be evaluated on "best" candidate cartridge filters in various environmental waters. Elution and reconcentration techniques will be optimized for maximum virus recovery and reduced toxicity from waterborne chemicals. The virus concentration technology will be published in technical journals and a tentative virus concentration manual will be prepared for distribution to USAEHA and other potential users.

25. (U) 7810 - 7909. Studies indicated that when diatomaceous earth and antifoam were added together in the concentration technique no improvements were noted. On the other hand antifoam B at 2% concentration provided modest improvements to virus recovery especially in wastewater. Experiments on sensitivity of virus recovery at low levels revealed that recovery efficiency did not decline appreciably from that observed at high seed virus levels.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 68 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Development of Techniques for the Concentration and Detection of Enteric Viruses in Water and Wastewater

FUNDING: PY $43K, CY $35K and BY None

PROBLEM DEFINITION: Currently there is no universal virus concentration methodology which can be effectively used for recovery of virus from finished waters and wastewaters (or waters high in suspended solids). Additionally, most techniques do not recover virus adsorbed or embedded within waterborne particulate materials. The Bentonite adsorption-filtration technology being developed in this study is designed for collecting and processing a wide range of waters and is capable of examining virus associated with suspended materials. It is also compatible with a variety of eluents and may allow even further reconcentration or volume reduction for virus plaque assay on tissue culture.

IMPORTANCE: A sensitive, high volume virus concentration/reconcentration technique is needed to conduct necessary evaluation of existing and developmental hardware or processes for Army water and wastewater treatment. Because such environmental waters may contain very low numbers of virus it is necessary to concentrate the virus to levels where they can be quantitated on various tissue cell cultures. Knowledge of actual virus removals by the various unit process treatment methods will help to provide information on optimization of the processes for virus removal.

APPROACH: During FY79 major emphasis was placed upon the optimization of virus concentration and recovery in the Bentonite adsorption concentration technique and subsequent reconcentration. Diatomaceous earth (a filter life extender) and antifoams were evaluated for their capability to enhance virus recovery during elution using matrix and randomized linear addition experiments. Experiments also were conducted to determine the low level sensitivity of the large volume concentration technique.

ACHIEVEMENTS: Studies indicated that when diatomaceous earth and antifoam were added together in the concentration technique no improvements were noted. On the other hand, antifoam B at 2% concentration provided modest improvements to virus recovery especially in wastewater. Experiments on sensitivity of virus recovery at low levels revealed that recovery efficiency did not decline appreciably from that observed at high seed virus levels.

RELATIONSHIP TO CORE PROGRAM: The development of enteric virus recovery technology (Bentonite adsorption) has provided a worthwhile tool to assess virus in natural waters and wastewaters. This technology can be used to examine Army unit treatment processes and is currently being used to support research efforts for the Corps of Engineers.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6238	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	D. CHANGE	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	014 APC F158
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)

(U) Foreign Body Locator, Ultrasonic, Non-Invasive

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

002400 Bioengineering; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	8012	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.1	02
	CURRENT 80	0.2	10

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Salisbury, L.L.

TELEPHONE: (301) 663-7237; AUTOVON 343-7237

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Stup, J.L.

NAME: Crampton, K.T. POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Ultrasonic; (U) Non-Invasive; (U) Foreign Body; (U) Locator

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

23. (U) A need exists for a non-invasive, portable device for locating metallic and non-metallic foreign bodies in combat patients for use at field military hospitals.

24. (U) An existing technique utilized for range and altitude information employed in the radio frequency part of the spectrum will be modified to operate in the ultrasonic range. By suitable selection at the fixed and variable parameters, the information will be shifted from the frequency domain to the spacial domain and this will eliminate the need for sophisticated spectral analysis equipment.

25. (U) 7810 - 7909. Using existing laboratory equipment, an ultrasonic transmitter was fabricated. The receiver portion consisted of a pre-amplifier, mixer and a 10 KC filter. Using a water media, discontinuities of approximately 1.25 mm could be detected. The approach appears feasible but increased receiver's gain is required as well as an automatic gain control to allow for the 60 db variation in signal strength.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 68 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

SUMMARY REPORT

TITLE: Foreign Body Locator, Ultrasonic, Non-Invasive

FUNDING: PY - 0; CY - 2; BY - 10

PROBLEM DEFINITION: To develop a system for the non-invasive location of foreign bodies within the wounded soldier.

IMPORTANCE: A need exists for a non-invasive, portable device for locating metalic and non-metallic foreign bodies in combat patients for use at field military hospitals. This would be used when x-ray would be unavailable.

APPROACH: An existing technique utilized for range and altitude information employed in the radio frequency part of the spectrum will be modified to operate in the ultrasonic range. By suitable selection at the fixed and variable parameters, the information will be shifted from the frequency domain to the spacial domain and this will eliminate the need for sophisticated spectral analysis equipment.

ACHIEVEMENTS: Using existing laboratory equipment for the transmitter portion (10 MHZ voltage controllable oscillator and a low frequency function generator) a system was implemented. The receiver portion consisted of a 10 MHZ preamplifier, a broad band mixer and a 10 KHZ narrow band pass filter.

Using an oscilloscope as the detector and commercial crystals from an ultrasonic blood flow meter, discontinuities of approximately 1.25 mm in a water media could be detected. Using fixed parameter, it would be possible to calibrate modulations amplitude in mm and thus provide a calibrated output.

RELATIONSHIP TO CORE PROGRAMS: This ILIR project is in accord with the laboratory mission of providing simple, reliable diagnostic equipment for field use.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6239	2. DATE OF SUMMARY* 79 10 01	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	015 APC F159
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code)* (U) Development of System for Laboratory Evaluation of Integrated Pest Management Potential for Black Flies (Simuliidae)

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
005900 Environmental Biology; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	8209	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.3	16
	CURRENT 80	1.0	50

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic institution)
NAME:* Frommer, R.L.
TELEPHONE: (301) 663-7237; AUTOVON 343-7237
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Kardatzke, J.T.
NAME: Hembree, S.C. POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code) (U) Disease Vectors; (U) Arthropod Control; (U) Integrated Control; (U) Black Flies

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

23. (U) To develop a system for laboratory evaluation of integrated pest management potential for black flies (Simuliidae).

24. (U) Using experimental methods previously used for other species of black flies, colonization of Simulium vittatum, the pest at Holston, was initiated. This method involved development of field collection and transportation methods and creation of an in-laboratory artificial rearing system. In addition, several systems for rapid screening of various control strategies have been and are to be constructed and tested. Each system will be tested in view of obtaining a rapid operational assessment of a control method using an artificial system which simulated the natural environment.

25. (U) 7810 - 7909. A basic system for in-laboratory rearing has been created and preliminary testing conducted. Field collected eggs can be hatched in a consistent and predictable manner. Larval survival is steadily increasing as expertise and techniques are refined. One apparatus for rapid screening of various control strategies was built. Preliminary testing of the apparatus has been successfully conducted using a microbial agent. These tests with insecticides and pathogens are essential prior to field testing to determine what effective rates of field application produce control in an environmentally acceptable manner.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Development of System for Laboratory Evaluation of Integrated Pest Management Potential for Black Flies (Simulidae).

FUNDING: PY - None, CY - $16K, BY - $50K

PROBLEM DEFINITION: To develop a system for laboratory evaluation of integrated pest management potential for black flies.

IMPORTANCE: Black flies represent both a nuisance and medical problem to the military. In tropical areas they are significant vectors of onchoceriasis. At several military installations, such as Fort Drum, NY and Holston Army Ammunition Plant, Kingsport, TN, large concentrations of black flies have caused reduced productivity and restricted area availability for training. There currently exists no established operational system for evaluating control strategies for black flies.

APPROACH: Using experimental methods previously used for other species of black flies, colonization of Similium vittatum, the test at Holston, was initiated. This method involved development of field collection and transportation methods and creation of an in-laboratory artificial rearing system. In addition, several systems for rapid screening of various control strategies have been and are to be constructed and tested. Each system will be tested in view of obtaining a rapid operational assessment of a control method using an artificial system which simulated the natural environment.

ACHIEVEMENTS: A basic system for in-laboratory rearing has been created and preliminary testing conducted. Field collected eggs can be hatched in a consistent and predictable manner. Larval survival is steadily increasing as expertise and techniques are refined. One apparatus for rapid screening of various control strategies was built. Preliminary testing of the apparatus has been successfully conducted using a microbial agent. These tests with insecticides and pathogens are essential prior to field testing to determine what effective rates of field application produce control in an environmentally acceptable manner.

RELATIONSHIP TO CORE PROGRAM: In order to evaluate any integrated pest management program, a system must be developed where the black flies can be reared and maintained in a stable laboratory environment. This project provides a technology base for our integrated pest management program against black flies.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6240	79 01 15	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8. DISP'N INSTR'N	8A. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	H.TERMINATIO	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	016 APC F160
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)*

(U) Miniature Device for Monitoring Patients

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

009800 Medical and Hospital Equipment; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.0	00
	CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Altman, R.G.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Salisbury, L.L., Jr.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Biofeedback; (U) Heart Rate; (U) Respiration; (U) Temperature

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

23. (U) To show feasibility for a miniature device for monitoring patients capable of triggering an audible alarm if respiration, heart rate or temperature deviates from preset limits.

24. (U) To identify suitable sensors for respiration and temperature which could be used in connection with a commercial device for heart rate biofeedback. To develop the necessary signal conditioning and output circuitry for an integrated system for all three parameters.

25. (U) 7810 - 7901. No work accomplished. Task terminated due to non-availability of funds.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Miniature Device for Monitoring Patients.

FUNDING: PY $Ø, CY $Ø, and BY $Ø

ACHIEVEMENTS: None, task was never activated.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA OB 6241	2. DATE OF SUMMARY* 79 01 15	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY H. TERMINATION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA - CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	066 APC F161
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procede with Security Classification Code)* (U) Evaluation of the Buffering Capacity of Microorganisms in Wastewater Treatment Biological Processes

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 003300 Chemical Engineering; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 78	0.0	00
	CURRENT 79	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Miller, R.D.
TELEPHONE: (301) 663-7237; AUTOVON 343-7237
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Procede EACH with Security Classification Code) (U) Sanitary Engineering; (U) Wastewater Treatment; (U) Buffering Capacity; (U) Biological Process

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

23. (U) To establish the relative buffering capacity of the three biological wastewater treatment processes: activated sludge, rotating biological contactor, and trickling filter. The relative effects of high pH to the microorganisms in the three systems will be evaluated. pH and carbon dioxide gradients near the microorganisms will be quantified.

24. (U) Laboratory scale studies will be conducted to evaluate changes on the pH and buffering capacity of wastewaters after being subjected to treatment by the biological processes. Analyses of the microorganisms during and after exposure to high pH wastewaters will be conducted to quantify effects.

25. (U) 7810 - 7901. No work accomplished. Task terminated due to non-availability of funds.

*Available to contractors upon originator's approval

DD FORM 1 MAR 66 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 66 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Evaluation of the Buffering Capacity of Microorganisms in Wastewater Treatment Biological Processes.

FUNDING: PY $Ø, CY $Ø, and BY $Ø

ACHIEVEMENTS: None, task was never initiated.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6242	2. DATE OF SUMMARY* 79 09 30	REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY K. COMPLETION	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8a. DISP'N INSTR'N NL	8b. SPECIFIC DATA-CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	067 F162
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)* (U) Analytical Methods for Pesticides in Aqueous Wastes from Army Pest Control Operations

12. SCIENTIFIC AND TECHNOLOGICAL AREAS* 007300 Hygiene and Sanitation; 002400 Bioengineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.5	09
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Dennis, W.H., Jr.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

21. GENERAL USE
Foreign Intelligence Not Applicable

ASSOCIATE INVESTIGATORS
NAME:
NAME: POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code)
(U) Carbaryl; (U) Sevin; (U) Pesticide Analysis; (U) Analytical Methods; (U) Pesticides

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

23. (U) To develop acceptable analytical methods for the routine analysis of pesticides in aqueous wastes from Army pest control operations. There is a requirement for analytical methods for carbaryl and chlordane in wastewater resulting from the pesticide filtration system being developed by the Army for use at Ft. Eustis, VA.

24. (U) Analytical methods are available for analysis of carbaryl and chlordane in water. However, these methods are time consuming and are not easily adapted to routine analysis of large numbers of aqueous samples. Laboratory studies will be performed to modify and improve current gas and liquid chromatographic methods. The improved procedures should provide reproducible and accurate analysis of 30 to 40 samples per day.

25. (U) 7810 - 7909. A liquid chromatographic method was developed for simultaneous determination of carbaryl, baygon and their hydrolysis products in water. A gas chromatographic method was developed for the simultaneous determination of baygon, diazinon, dursban and malathion in effluents from US Army pest control operations. The solvent systems of emulsifiable concentrates of diazinon, dursban, malathion, baygon and chlordane were characterized.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Analytical Methods for Pesticides in Aqueous Wastes from Army Pest Control Operations

FUNDING: PY None, CY $9K and BY None

PROBLEM DEFINITION: To develop acceptable analytical methods for the routine analysis of pesticides in aqueous wastes from Army pest control operations. There is a requirement for analytical methods for carbaryl and chlordane in wastewater resulting from the pesticide filtration system being developed by the Army for use at Ft Eustis, VA.

IMPORTANCE: In order to support the development of a carbon filtration system we must find new analytical procedures to determine several pesticides in water simultaneously and rapidly.

APPROACH: Analytical methods are available for analysis of individual pesticides in water. However, these methods are time consuming and are not easily adapted to routine analysis of large numbers of aqueous samples. Laboratory studies will be performed to modify and improve current gas and liquid chromatographic methods. The improved procedures should provide reproducible and accurate analysis of 30 to 40 samples per day.

ACHIEVEMENTS: A liquid chromatographic method was developed for simultaneous determination of carbaryl, baygon and their hydrolysis products in water. A gas chromatographic method was developed for the simultaneous determination of baygon, diazinon, dursban and malathion in effluents from US Army pest control operations. The solvent systems of emulsifiable concentrates of diazinon, dursban, malathion, baygon and chlordane were characterized.

RELATIONSHIP TO CORE PROGRAM: This research is a part of the Army's evaluation of health and environmental consequences of the disposal of hazardous wastes and pesticides generated by military activities.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
				DA 0B 6243	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	X ☐ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	068 APC F163
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)*

(U) Data Acquisition and Monitoring Control System Computational Capability Development

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

007800 Hygiene and Sanitation; 004200 Computers; 009700 Mathematics and Statistics

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7810	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.2	08
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME:* US Army Medical Bioengineering Research & Development Laboratory

ADDRESS:* Fort Detrick, Frederick, MD 21701

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

NAME:* Small, M.J.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME:

NAME:

21. GENERAL USE

Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Data Acquisition; (U) Data Recall; (U) Minicomputer Systems; (U) Sensors; (U) Programming

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

23. (U) The Data Acquisition Monitoring and Control System (DAMCS) was developed to support a direct wastewater reuse pilot plant effort. The program objective is to use the DAMCS System capabilities to support several other projects of this laboratory by means of sensor data acquisition, storage and recall, computer program development, and ancilliary data processing assistance.

24. (U) The Advanced Wastewater Treatment Pilot Plant facilities will be evaluated for the installation of analog or digital sensors for DAMCS processing. Programs will be written for interactive use by Analytical Chemistry personnel at the analytical facilities with direct link to the DAMCS. Analytical chemistry requirements needing computer assistance will be studied with recommended method of approach (type system to support), the necessary programs and user instructions.

25. (U) 7810 - 7909. A Functional Specification was prepared which provides a plan, schedule and cost data for providing data acquisition, monitoring and control services to Pilot Plant equipment in Building 1054. Two groups of computer programs were transferred to the interactive WYLBUR word processing/program execution system installed at Fort Detrick in December 1978. The Division Library of over 350 volumes sign-out, sign-in and inventory control was also transferred to WYLBUR. Several other researchers were contacted and approaches formulated to meet their needs.

*Available to contractors upon originator's approval

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

DETAIL SHEET

TITLE: Data Acquisition and Monitoring Control System Computational Capability Development

FUNDING: PY None, CY $8K and BY None

PROBLEM DEFINITION: A contractor-supplied Data Acquisition Monitoring and Control System (DAMCS) was delivered to USAMBRDL in 1977 to support a MUST wastewater reuse pilot plant effort. The software was not fully debugged before a decision was made to discontinue the MUST system development. This left the laboratory with a potentially powerful computer system with few applications.

IMPORTANCE: The DAMCS represents a large investment. The laboratory has research programs which can benefit from use of DAMCS. A research effort is merited to attempt to solicit, interface, and implement use of the DAMCS to support these programs.

APPROACH: The Advanced Wastewater Treatment Pilot Plant facilities will be evaluated for the installation of analog or digital sensors for DAMCS processing. Programs will be written for interactive use by Analytical Chemistry personnel at the analytical facilities with direct link to the DAMCS. Analytical chemistry requirements needing computer assistance will be studied with recommended method of approach (type system to support), the necessary programs and user instructions.

ACHIEVEMENTS: A Functional Specification was prepared which provides a plan, schedule and cost data for providing data acquisition, monitoring and control services to Pilot Plant equipment in Building 1054. Two groups of computer programs were transferred to the interactive WYLBUR work processing/program execution system installed at Fort Detrick in December 1978. The Division Library of over 350 volumes sign-out, sign-in and inventory control was also transferred to WYLBUR. Several other researchers were contacted and approaches formulated to meet their needs.

RELATIONSHIP TO CORE PROGRAM: Research efforts at this laboratory can benefit from use of data processing equipment. The equipment can be used to store and recall large amounts of data, perform computations which are laborious by manual (including hand calculator) methods, or to control experiments. Quite often, researchers are unaware, cannot (or think they cannot) afford the time and effort investment to use such equipment, or are overawed by its complexity. Without such a development program, the capabilities of equipment remained untapped and the advantages of these capabilities to potential users remains unexploited.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION	2. DATE OF SUMMARY	REPORT CONTROL SYMBOL
DA 0B 6197	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY	6. WORK SECURITY	7. REGRADING	8a. DISP'N INSTR'N	8b. SPECIFIC DATA - CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO /CODES:	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	306 APC F140
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Procode with Security Classification Code)

(U) Short-Term Screening Test Using Photobacteria

12. SCIENTIFIC AND TECHNOLOGICAL AREAS

010100 Microbiology; 012600 Pharmacology; 016800 Toxicology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7610	7909	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING 79	0.1	03
FISCAL YEAR CURRENT 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

NAME: Albertson, J.N., Jr., COL

TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

NAME: US Army Medical Bioengineering Research & Development Laboratory

ADDRESS: Fort Detrick, Frederick, MD 21701

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

NAME: Shiotsuka, R.N.

TELEPHONE: (301) 663-7207; AUTOVON 343-7207

SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Rowlett, C.D.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Procode EACH with Security Classification Code)

(U) Bioassay; (U) Photobacteria

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

23. (U) To study the feasibility of using photobacteria as a short-term screening system for toxicity.

24. (U) A colony of the test organism shall be grown in an aqueous medium. Baseline bioluminescent activity shall be measured. Chemicals for which mammalian or aquatic toxicity are available will be tested. Dose-response curve will be used to estimate the ED50 (effective dose 50). All species studied will be examined by the scanning electron microscope.

25. (U) 7810 - 7909. A strain of photobacterium which grows in liquid medium and displays the appropriate bioluminescent kinetics was selected. Dose-response studies using nitrotoluenes have been conducted. Data analysis and report preparation are in progress.

*Available to contractors upon originator's approval

DETAIL SHEET

TITLE: Short-term Screening Test for Toxicity Using Photobacteria

FUNDING: PY $5K, CY $3K and BY None

PROBLEM DEFINITION: Current methods of assessing the toxic properties of environmental and occupational contaminants are time consuming and costly. Thus, not all of the potentially hazardous compounds are properly evaluated in mammalian or aquatic test systems. The number of new chemicals used by the Army in the field (troop exposures) and at Army industrial activities (industrial worker exposures) continues to increase. Short-term tests are required to screen for the most toxic compounds. Such short-term tests also make chemical interaction testing economically feasible.

IMPORTANCE: The development of a battery for short-term tests will permit the Army to screen a greater number of compounds for toxicity.

APPROACH: Photobacteria will be grown in a liquid medium and the spontaneous bioluminescent activity measured under control conditions and in the presence of varying concentrations of toxic chemicals. Such dose-response studies will be conducted using the nitrotoluenes which occur as pollutants of munition production processes. The photobacterial response will be compared to aquatic and mammalian toxicologic data on the same chemicals.

ACHIEVEMENTS: 1. A strain of photobacterium which grows in a liquid medium and displays the appropriate bioluminescent kinetics was selected. 2. Dose-response studies using nitrotoluenes have been conducted. 3. Statistical data analysis is underway. 4. A final report is in preparation.

RELATIONSHIP TO CORE PROGRAM: This study is designed to assess the feasibility of developing the photobacterial test system as a part of a battery of toxicity screening tests. The development of such a battery of short-term tests will enable this laboratory to screen a larger number of compounds at a reduced cost to the Army.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA OB 6200	79 09 30	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
78 10 01	K. COMPLETION	U	U	NA	NL	☒ YES ☐ NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	308 APC F142
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)* (U) Mechanism of Disinfection and Action of Free and Combined Chlorine on Biological Materials

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
007800 Hygiene and Sanitation; 003400 Civil Engineering

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7710	7909	DA	C. In-House

17. CONTRACT/GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE	a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR PRECEDING: 79	0.3	08
FISCAL YEAR CURRENT: 80	0.0	00

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL
NAME: Albertson, J.N., Jr., COL
TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
ADDRESS:* Fort Detrick, Frederick, MD 21701

PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)
NAME:* Dennis, W.H., Jr.
TELEPHONE: (301) 663-2036; AUTOVON 343-2036
SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME:
NAME:

21. GENERAL USE
Foreign Intelligence Not Applicable

POC:DA

22. KEYWORDS (Precede EACH with Security Classification Code)
(U) Disinfection; (U) Virology; (U) Mechanism; (U) Chlorination; (U) Water

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

23. (U) To investigate the chemical reactions occurring in a virus undergoing disinfection by free or combined chlorine. To determine the loci of chlorine interaction with nucleic acids. To study the reactions of chlorine with biological materials and determine products of such reactions under the conditions of water disinfection.

24. (U) Aqueous solutions of f2 virus will be disinfected with HO36Cl or NH236Cl between pH 5 and 10. The RNA of inactive f2 will then be isolated, hydrolyzed and subjected to electrophoresis to determine which nucleotides chemically bind chlorine. The interaction of chlorine with biological materials will be studied; reactions of purine and pyrimidine analogs will be emphasized.

25. (U) 7810 - 7909. The mode of action of free chlorine on f2 virus during disinfection appears to be reaction with the viral RNA. The details of all experiments have been put forth in four publications during the period FY78 - FY79. During this period this work was also presented at five scientific meetings.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Mechanism of Disinfection and Action of Free and Combined Chlorine on Biological Materials

FUNDING: PY $11K, CY $8K and BY None

PROBLEM DEFINITION: To investigate the chemical reactions occurring in a virus undergoing disinfection by free or combined chlorine. To determine the loci of chlorine interaction with nucleic acids. To study the reactions of chlorine with biological materials and determine products of such reactions under the conditions of water disinfection.

IMPORTANCE: The importance of chlorination of water supplies for prevention of waterborne diseases impels us to understand the manner in which chlorine acts upon viruses and bacteria. Presently, improvements in the disinfection are sought empirically. However, if the mechanism by which chlorine species interact with virus could be understood, then such knowledge could lead to optimization of chlorine use or better define conditions under which disinfection may be improved.

APPROACH: Aqueous solutions of f2 virus will be disinfected with HO36Cl or NH236Cl between pH 5 and 10. The RNA of inactive f2 will then be isolated, hydrolyzed and subjected to electrophoresis to determine which nucleotides chemically bind chlorine. The interaction of chlorine with biological materials will be studied; reactions of purine and pyrimidine analogs will be emphasized.

ACHIEVEMENTS: The findings of this study have been published in the following articles: (1) Dennis, W.H., V.P. Olivieri and C.W. Kruse, Reaction of Uracil with Hypochlorous Acid, Biochem. and Biophys. Res. Commun., 83, 168-171 (1978); (2) Dennis, W.H., V.P. Olivieri and C.W. Kruse, The Reaction of Aqueous Hypochlorous Acid with Nucleotides, Water Research, 13, 357-362 (1979); (3) Dennis, W.H., V.P. Olivieri and C.W. Kruse, Mechanism of Disinfection: Incorporation of ^{36}Cl into f2 Virus, Water Research, 13, 363-369 (1979). A chapter in a book to be published in 1980 has been prepared; "Inactivation of Virus with Chlorine and Related Species", by Olivieri, V.P., W.H. Dennis, M.C. Snead, D.T. Richfield and C.W. Kruse. Another chapter to be published in the 1979 Conference Proceedings, "Water Chlorination: Environmental Impact and Health Effects" is entitled, "Reactions of Chlorine and Chloramines with Nucleic Acids under Disinfection Conditions", by Olivieri, V.P., W.H. Dennis, M.C. Snead, D. T. Richfield and C.W. Kruse.

RELATIONSHIP TO CORE PROGRAM: The Army has been a leader in developing new concepts in water treatment. The pursuit of such basic studies helps to retain the proficiency of professional staff and in the long run will enhance the status of Army-sponsored research.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

1. AGENCY ACCESSION*	2. DATE OF SUMMARY*	REPORT CONTROL SYMBOL
DA 0B 6203	79 10 01	DD-DR&E(AR)636

3. DATE PREV SUM'RY	4. KIND OF SUMMARY	5. SUMMARY SCTY*	6. WORK SECURITY*	7. REGRADING*	8a. DISP'N INSTR'N	8b. SPECIFIC DATA-CONTRACTOR ACCESS	9. LEVEL OF SUM
79 01 15	C. CHANGE	U	U	NA	NL	[X] YES [ ] NO	A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	311 APC F131
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)*

(U) Sterilization Techniques Using High Boiling Point Fluids

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*

010100 Microbiology; 009800 Medical and Hospital Equipment

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7609	8006	DA	C. In-House

17. CONTRACT/GRANT

a. DATES/EFFECTIVE: EXPIRATION:

b. NUMBER:*

c. TYPE: d. AMOUNT:

e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	0.0	00
	CURRENT 80	0.1	06

19. RESPONSIBLE DOD ORGANIZATION

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ADDRESS:* Fort Detrick, Frederick, MD 21701

RESPONSIBLE INDIVIDUAL

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TELEPHONE: (301) 663-2434; AUTOVON 343-2434

20. PERFORMING ORGANIZATION

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

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SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS

NAME: Conway, W.H.

NAME: POC:DA

21. GENERAL USE

Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code)

(U) Sterilizers; (U) Field Sterilizers; (U) Fluids; (U) High Boiling Point

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

23. (U) To search for high boiling-point fluids effective as sterilization media at much lower positive pressures than in current steam sterilization practice.

24. (U) Complete a literature search for non-toxic, non-corrosive candidate fluids. Modify a standard steam sterilizer to operate at lower positive pressures corresponding to 250-270 F saturation temperatures of these fluids. Measure killing ability with spore strips.

25. (U) 7609 - 7901. Butanol was selected as the candidate fluid. It has a boiling point at atmospheric pressure of nearly 244°F and a computed pressure as a saturated vapor of less than 8 psig at 270°F. It is reasonably inexpensive, non-toxic and believed to be non-corrosive. Two table-top sterilizers were instrumented and operated with butanol using integrating steam sterilization indicators in the chamber with successful results. Further modification and better equipment is considered to be necessary before spore strip testing can commence.

*Available to contractors upon originator's approval.

DD FORM 1 MAR 68 1498 PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. DD FORMS 1498A, 1 NOV 65 AND 1498-1, 1 MAR 68 (FOR ARMY USE) ARE OBSOLETE.

SUMMARY SHEET

TITLE: Sterilization Techniques Using High Boiling-Point Fluids

FUNDING HISTORY: PY - 0.8K; CY - 0; BY - 6K

PROBLEM DEFINITION: Modern steam sterilizers utilize saturated steam at 270°F or more which is equivalent to pressures of 27 psig or greater. This results in disadvantages especially important in field sterilizer design which are the requirements for thick and heavy pressure vessels and doors and difficult pressure seals at the doors. If a suitable fluid with a higher boiling point than water was used as a sterilant, the chamber pressure at 270°F could be much lower than 27 psig resulting in a lighter and safer sterilizer. If the resulting pressure was less than 15 psig, its' design and construction would not fall under the jurisdiction of the ASME Boiler and Pressure Vessel Code which would be likely to reduce costs.

IMPORTANCE: Reduces weight and cost of field sterilizers with increased safety.

APPROACH: Select a sterilant fluid which has desired thermodynamic characteristics and is non-toxic, non-corrosive and reasonably inexpensive. Select a simple gravity displacement sterilizer, modify and instrument it as necessary and make runs establishing operating parameters and spore killing capability. Pass ILIR into next phase which would be design, construction and evaluation of a lightweight sterilizer using this principle and comparison with a similar, conventional machine.

ACHIEVEMENTS: Earlier work in this study (F131) established butanol as a candidate fluid. It has a boiling point at atmospheric pressure of about 244°F and a calculated pressure as a saturated vapor at 270°F of less than 8 psig. Tests with integrating steam sterilization indicators were successful, but no actual spore tests had been run at the time that the program was suspended. At that time, it was also recognized that unlike steam, butanol vapor is more dense than air. This requires modification of the air displacement system of a test sterilizer.

RELATIONSHIP TO CORE PROGRAM: At least four programs are underway at this laboratory involving field steam sterilizers.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY				1. AGENCY ACCESSION* DA 0B 6224	2. DATE OF SUMMARY* 79 10 01		REPORT CONTROL SYMBOL DD-DR&E(AR)636
3. DATE PREV SUM'RY 78 10 01	4. KIND OF SUMMARY D. CHANGE	5. SUMMARY SCTY* U	6. WORK SECURITY* U	7. REGRADING* NA	8. DISP'N INSTR'N NL	8A. SPECIFIC DATA - CONTRACTOR ACCESS ☒ YES ☐ NO	9. LEVEL OF SUM A. WORK UNIT

10. NO./CODES:*	PROGRAM ELEMENT	PROJECT NUMBER	TASK AREA NUMBER	WORK UNIT NUMBER
a. PRIMARY	61101A	3A161101A91C	00	315 APC F152
b. CONTRIBUTING				
c. CONTRIBUTING				

11. TITLE (Precede with Security Classification Code)* (U) Development of System for Laboratory Evaluation of Biological Control Potential of Arthropod Pathogens for Medically Important Arthropods

12. SCIENTIFIC AND TECHNOLOGICAL AREAS*
005900 Environmental Biology; 002600 Biology

13. START DATE	14. ESTIMATED COMPLETION DATE	15. FUNDING AGENCY	16. PERFORMANCE METHOD
7708	8009	DA	C. In-House

17. CONTRACT GRANT
a. DATES/EFFECTIVE: EXPIRATION:
b. NUMBER:*
c. TYPE: d. AMOUNT:
e. KIND OF AWARD: f. CUM. AMT.

18. RESOURCES ESTIMATE		a. PROFESSIONAL MAN YRS	b. FUNDS (In thousands)
FISCAL YEAR	PRECEDING 79	1.8	69
	CURRENT 80	0.25	50

19. RESPONSIBLE DOD ORGANIZATION
NAME:* US Army Medical Bioengineering Research & Development Laboratory
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RESPONSIBLE INDIVIDUAL
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20. PERFORMING ORGANIZATION
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SOCIAL SECURITY ACCOUNT NUMBER:

ASSOCIATE INVESTIGATORS
NAME: Nelson, J.H.
NAME: Van Essen, F. POC:DA

21. GENERAL USE
Foreign Intelligence Not Applicable

22. KEYWORDS (Precede EACH with Security Classification Code) (U) Pathobiology; (U) Insect Pathology; (U) Disease Vectors; (U) Arthropod Control; (U) Biological Control; (U) Integrated Control

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

23. (U) To develop a system for laboratory evaluation of biological control potential of arthropod pathogens for arthropods of medical importance.

24. (U) Two protozoan mosquito pathogens of Thai Aedes aegypti will be used as models to develop and test protocols for the preliminary evaluation of the efficiency, safety, mass production potential, storage characteristics, and resistance to denaturation in the environment, of candidate biological control agents for mosquitoes.

25. (U) 7810 - 7909. Efficiency studies to determine the relationship among dose, age at exposure, percent infection, percent mortality, time of mortality and reduction in reproductive potential have been completed for one pathogen and are half finished for the other. Storage experiments indicate that neither pathogen will survive drying. Both can be held for several months by refrigeration at 4°C. One will survive freezing; the other will not. Spores of both pathogens can be produced in mass-producible lepidopteran larvae, and studies in tissue culture are underway. Resistance to heat studies are completed.

*Available to contractors upon originator's approval.

DETAIL SHEET

TITLE: Development of System for Laboratory Evaluation of Biological Control Potential of Arthropod Pathogens for Medically Important Arthropods

FUNDING: PY - $41K, CY - $69K, BY - $50K

PROBLEM DEFINITION: Pathogens are being used in agriculture and forestry for the biological control of insect pests. Several hundred mosquito pathogens have been reported but none have yet been successfully produced commercially as control agents for mosquitoes. Few have even been studied to assess their potential as biological control agents. A screening system is needed to permit the selection of mosquito pathogens worthy of further study and development as biological control agents.

IMPORTANCE: Public concern for environmental pollution by conventional chemical pesticides and spreading resistance to insecticides in pest populations signal the need to develop new pest control technology for integration with presently available technology to provide economical, efficient pest management with minimal environmental insult.

APPROACH: Two protozoan mosquito pathogens from Thailand are being used as models to develop and test protocols for the preliminary evaluation of safety, efficiency, mass production potential, storability, and resistance to denaturation by environmental factors.

ACHIEVEMENTS: Host/pathogen systems have been established in the lab. Pertinent scientific literature has been accumulated and is being reviewed. Spore production in natural hosts has been optimized. Spore purification procedures have been developed. Potential for spore production in mass producible Lepidoptera larvae has been demonstrated. Efficiency evaluation experiments with one pathogen are completed and nearing completion with the other pathogen. Storage experiments have defined the storage characteristics of the pathogens. Effects of environmental factors on spore infectivity have been defined. Description of pathogen life cycles are underway. Safety testing will be done by contract.

Several hundred mosquito pathogens have been described, but the biological control potential of only a few have been investigated. A screening system is needed to quickly and economically select those worthy of further investigation and development as biological control agents.

RELATIONSHIP TO CORE PROGRAM: Biological control methods are one of the triad of control methods available to an integrated pest management program. Project is providing technical base for this part of the integrated pest management system against mosquitoes.

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