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SC-5000/399	A	3		FEB 21 1968	16

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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW

1st Review Date: 5-14-97
 Authority: AOC ADD W. Layne
 Name: W. Layne

2nd Review Date: 6/11/97
 Authority: AOC ADD
 Name: R.B. Cranes

Information (Circle Number):
 1. Classification Reasoned: U
 2. Classification Changed to:
 3. Contains No DOR Classified Information
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- Enc: CDI Scope of Work dtd 2/19/68
- 1 S. A. Upton, ALO, thru Area Mgr., SAO, M 1091
w/Enc.
- 2 J. D. Yates, ALO, thru Area Mgr., SAO, M 1091
w/Enc.
- 3 Brig. Gen. Edward B. Giller, DMA, thru SAO, M 1091
w/Enc.
- 4 L. W. Otoski, Area Mgr., SAO, w/Enc. M 1091
- 5 J. A. Hornbeck, w/Enc. 1
- 6 W. J. Howard, w/Enc. 1000
- 7 D. M. Olson, w/Enc. 1510
- 8 C. W. Campbell, w/Enc. 4000
- 9 R. G. Luckey, w/Enc. 4100
- 10 J. W. Hook, Attn: D. J. Hillard, 4136, 4130
w/Enc.
- 11 D. B. Shuster, w/Enc. 5600
- 12 W. C. Myre, w/Enc. 5610
- 13 M. M. Newsom, w/Enc. 5611
- 14 C. T. Ross, Jr., w/Enc. 6000
- 15 Central Technical Files, w/Enc. 3428-1
- 16 T. B. Cook, Jr. 5000

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CLASSIFICATION CHANGED TO: U AUTHORITY: R.B. Cranes
Malinda Seaph 6/11/97
 PERSON CHANGING MARKING & DATE RECORD ID: 97SN1852
Carmela Bell 6/18/97
 PERSON VERIFYING MARKING & DATE DATED: 6/11/97

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SANDIA CORPORATION
SANDIA BASE, ALBUQUERQUE, N. M.

T. B. COOK, JR.
VICE PRESIDENT, RESEARCH

FEB 21 1968
RS 5000/399

United States Atomic Energy Commission
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87115

Attn: S. A. Upson, Director
Non-Weapons Activities Division

Thru: L. W. Otoski, Area Manager, AEC/SAO

Re: Feasibility Studies of Special Purpose Conventional
Munitions

- Ref: 1. Uncl Memo, Mr. Richard S. Cesaro, ARPA, to
S. A. Upson, AEC/ALO, same subject, dtd
2/5/68
2. Uncl Memo, L. W. Otoski, AEC/SAO, to
C. W. Campbell, SC 4000, same subject,
dtd 2/15/68
3. SDI Memo, T. E. Cook, Jr., SC 5000, to
Brig. Gen. Edward B. Giller, AEC/DMA,
RS 5000/394, dtd 12/13/67, w/Enc. RS 5611/429

Dear Si,

Reference 1 requested Sandia Laboratory assistance in conducting studies of the feasibility of certain special purpose conventional munitions for possible use in Southeast Asia. Two specific programs have been discussed with ARPA: the Rundle and Rebit. Rundle is a concept for attacking cable suspension bridges now in use in North Vietnam. The basic concept is described in Reference 3. The Rebit program is based on Sandia's work in REB and will develop an earth penetrating clustered bomblet.

The Rundle project will be conducted in two tasks. Task 1 will consist of a paper feasibility study to isolate the most promising approach to this problem, identify major problem

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S. A. Upson, AEC/ALO

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areas, and predict the success probability of a hardware feasibility program. This portion of the investigation will require approximately one month. Funds required for the initial investigation would be \$15,000. At the completion of Task 1, a technical review would be held with ARPA and a decision made at that time on continuation into Task 2. If pursued, Task 2 would entail a feasibility demonstration of the Rundle system. It is estimated that this task would be performed in six months at a cost of \$349,000. Only the Task 1 funds would be provided pending the outcome of the initial investigation. A proposed Scope of Work for Task 1 is attached.

The Rebit program would develop a small canister-carried earth penetrating munition that would be fuzed to detonate in a void in the earth such as a bunker, tunnel, or cave. This development program can be completed in approximately a seven-month period at a cost of \$538,000. Funds for this program are not requested at this time pending a target analysis by the services.

If Sandia Corporation undertakes these projects, they will not interfere with scheduled (Phase III) weapons programs. It is expected that there may be a slowdown in the advanced development area; however, this should be offset by the information acquired in a REB application and the unique fuzing required in the Rundle. Both programs should yield information that is applicable to future nuclear weapon programs. In view of the problem presently posed in Southeast Asia, our participation in these programs should be in the national interest.

Sincerely,

Original Signed By
THOMAS B. COOK, JR.
VICE PRESIDENT, RESEARCH

MMN:ar

Enclosure:
CDI Scope of Work

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SCOPE OF WORK
FOR SANDIA CORPORATION'S PARTICIPATION
TO STUDY THE RUNDLE CONCEPT

I. PROJECT DEFINITION

This project is for a conceptual feasibility study of an air-delivered cable suspension bridge destruction system. This project is generated as a result of requests from DDRE to Sandia Corporation to consider possible solutions to this problem. If justified by a preliminary analysis to identify the most promising attack system, a study will be undertaken to demonstrate the feasibility of a cable bridge destruction system.

II. REFERENCES

1. Letter, T. B. Cook, SC, to E. B. Giller, AEC-DMA, dtd 12/13/67, Outlining Project Rundle in Response to Informal Request from D. R. Cotter, SE Asia Office, DDRE
2. Uncl Memo, Mr. Richard S. Cesaro, ARPA, to S. A. Upson, AEC/ALO, subj: Feasibility Studies of Special Purpose Conventional Munitions, dtd 2/5/68
3. Uncl Memo, L. W. Otoski, AEC/SAO, to C. W. Campbell, SC 4000, subj: Feasibility Studies of Special Purpose Conventional Munitions, dtd 2/15/68

III. DESCRIPTION OF ACTIVITIES

Following is a brief summary of activities necessary to determine the feasibility of the Rundle concept. This program is divided into two tasks--a Preliminary Study and a Prototype Study.

A. Task 1 - Preliminary Study

1. An analytical study of the more promising techniques for attacking cable suspension bridges will be conducted.
2. A limited number of explosive tests will be conducted to determine the gross size of linear charges required to sever a 1½-inch wire rope.
3. A technical review of 1 and 2 will be conducted with ARPA before proceeding to the Prototype Study-

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B. Task 2 - Prototype Study

1. Tests will be made to determine the optimum parameters for reliably severing a 1½-inch diameter wire rope.
2. An arming, fuzing, and firing system will be designed, fabricated, and tested to establish feasibility.
3. Analytical studies, verified by full-scale field tests, will be conducted to investigate deployment of the Rundle from an externally carried canister vehicle, in-flight stability, ballistic trajectory, allowable deployment velocity, parachute size (if required), and estimated C.E.P.

IV. PROJECT REPORTING

Sandia Corporation will continue to apprise ARPA of its activities and progress through informal communications or conferences and will provide a monthly status report in letter form.

V. FINAL REPORT

Assuming successful completion of this feasibility study, sufficient data should be available to allow development of this concept. The program results, along with recommendations for further development, will be provided to ARPA at the completion of the program in a final feasibility report.

VI. SCHEDULE AND COSTS

The preliminary study program will be completed in one month and the prototype study program will be completed in approximately six months. Study costs are expected to be, in thousands of dollars:

(a) Preliminary Study Program	
Loaded Labor	12.0
(4 man months)	
Purchases & Travel	3.0
(b) Prototype Study Program	151.0
(61 man months)	
Purchases & Travel,	198.0
Field Tests	
	<hr/>
TOTAL	364.0