404184

6/15/59

R [redacted]

This document consists of 11 pages
No. 2 of 7 Copies, Series A

1. Problem: To determine the feasibility of establishing and maintaining a capability to support and conduct overseas high altitude nuclear weapons tests on a "when ready" basis.

2. Definition: "Testing when ready" is defined as a method of operation in conducting nuclear tests as a requirement developes, limited only by the time period necessary to prepare the scientific and technical requirements of the experiment and/or related group of experiments.

3. Assumptions:

a. Nuclear weapons development requires full-scale testing.

b. Both the AEC and DOD have and will have devices and effects experiments that require full-scale testing.

c. High altitude testing is the most likely overseas nuclear testing method to be permitted in the event the US test moratorium is discontinued.

d. Techniques will have been developed and perfected whereby diagnostic and effects data can be obtained from nuclear detonations in space.

4. Facts Bearing on the Problem:

a. The U. S. Army will use Johnston Island for the next several years as a launching site for targets to be employed in tests of the NIKE-ZEUS anti-missile missile weapons system.

b. Weather is not (in general) a limiting factor for high altitude nuclear tests.

c. Limited high altitude tests from ships on the high seas are presently feasible.

From NMB-S

[redacted]

d. Technical lead times for full-scale high altitude tests will vary from a minimum of six months to about 18 months (from a decision to test) dependent upon funds available for advance procurement of long lead time items.

5. Discussion:

a. General. Atomic weapons tests conducted since World War II by the United States, the Soviet Union, and Great Britian have resulted in continued and ever increasing world-wide opposition to nuclear weapons testing. This opposition has been principally because of the fallout (local and world-wide) associated with weapons testing and the lack of definitive knowledge as to its immediate and ultimate effects on the public health. The President has established as national policy, a United States moratorium on atomic testing. The present international negotiations at Geneva, with regard to nuclear weapons testing, seek a mutually satisfactory means of test detection and control.

It has become increasingly apparent, because of negative world opinion, that we will most likely never again be permitted to conduct nuclear weapons testing of the magnitudes and by the methods of the past. If national policy should be amended to allow atomic testing it most certainly will limit testing concepts to those which will provide positive assurance of no adverse health effects either local or world-wide and either short range or long range time-wise. Thus, atomic testing out of the atmosphere (extremely high altitude) and limited yield underground testing are the most likely future means of obtaining required diagnostics and effects data within the above parameters.

b. "When Ready" Concept. As testing is conducted farther out into space, the means for obtaining diagnostic and effects data will be increasingly limited to instrumentation contained within the device carrier and/or to measurements from satellites. This is because the problems of achieving reliable and acceptable limits, with regard to time-space, become more and more difficult as greater testing altitudes are attempted. As we move outward in space to conduct testing it will be, in most instances, less feasible and suitable to take measurements from or near the earths surface. From an operational and organizational view-point, this means greatly reduced requirements for ships, aircraft and people which in turn means a smaller testing organization. Because of the large dollar costs and the magnitude of technical preparations associated with high altitude testing it will become increasingly important to obtain the maximum amount of information from each shot. It seems reasonable to conclude that we will not test numberswise as in past surface test series, but rather on a more limited scale for specialized purposes.

Reduced requirements for major items of military support i.e., aircraft, ships, etc., and the need for less military personnel (other than scientific) indicates that a small planning organization can be augmented by TDY forces of the Army, Navy and Air Force to an operational level well within the technical and logistical lead times of possible future high altitude tests. This is particularly applicable if full advantage is taken of the inherent Army test support capability at Johnston Island. On the basis of the foregoing considerations, a small permanent test

planning staff will provide a maximum of economy during the testing moratorium and a suitable and feasible means of providing an operational test organization to conduct overseas high altitude tests "when ready" if national policy should be amended to permit testing.

The indefinite testing moratorium and the limited methods of testing which are most likely, in the event the moratorium is discontinued, make prudent a reorganization and consolidation of our present overseas testing capability. National interests dictate the establishment of the smallest feasible interim atomic test organization. This organization must be capable of formulating and maintaining plans and of rapid expansion to operational status, as may be appropriate, by augmentation of specialized TDY forces of the Army, Navy and Air Force. The objective should be to provide the maximum interim economy of men, money and material, suitable planning continuity and an early operational capability at times and places that may be directed in consonance with the national policy.

There are actually two aspects to a "test when ready" concept:

(1) As opposed to the traditional past method of operation whereby a test series operation has been scheduled alternately at NTS and EPG for execution at a specific time and date, a test when ready concept would provide not having any specified date of execution, nor necessarily any "series operation" as in the past. This concept would provide for nuclear testing at any time, place, and in varying scope or size from a single shot by either AEC or DOD for a special purpose to a series of shots on a joint experiment or operation. To re-phrase

this aspect in another way -- future "testing when ready" would provide a flexible method of operation, independent of time, scope, or place, in which the AEC or DOD would test separately or jointly as the requirement would dictate.

(2) The second aspect or characteristic of this concept would be the establishment of a test site and a test support organization that would be available for use on a continuous and immediate basis. This means that the test organization must be capable of enough flexibility to receive and support test projects at the ready site, in addition to other test locations, such as open seas or shipboard. This aspect also dictates that a site be chosen as a year around, continuously available site, so that the timing of any operation from this site is restricted only by the lead times of the technical programs themselves and the required logistics build-up.

In discussing this concept of "testing when ready" as opposed to the old traditional "series operation" yearly tests, the committee suggests the latter method of operation has become obsolete and uneconomical if surface or "atmosphere" shots are outlawed. Since weather conditions will not limit high altitude testing to a specific time of year, the method of "all going" on one big operation at a given time whether ready or not is hardly justified or necessary.

c. Site Location. The TEAK and ORANGE shots of the HARDTACK operation proved not only that high altitude nuclear testing is feasible but additionally that Johnston Island is a satisfactory location from which to operate. For the next several years the U. S. Army is planning to use this island as a launching site for targets to be used in developing

and testing the NIKE-ZEUS anti-missile missile weapons system. By placing responsibility on the Army to provide certain future high altitude testing support at Johnston Island, the U. S. will have a capability for early testing on relatively short notice and at considerable savings to the DOD in forces and dollar commitments. As an example, the Army could provide certain housekeeping and missile launching facilities which they would already have in place. Point to point communication requirements can be included as a part of the Pacific Missile Range (Johnston Island) system. The end result would be a need for relatively small Test Support Organization during an operation, thus cutting organizational lead time.

d. Open Sea High Altitude Tests. The ARGUS series demonstrated the feasibility of limited high altitude testing from afloat. This concept is limited in the sense that the carrier must have a high initial acceleration to reduce stability problems during launching. At present, this type testing is limited to low yield devices because solid fuel rockets with relatively small lifting capability must be used as carriers. It has the additional disadvantage of requiring relatively large naval forces. Its advantages are mobility (Scientifically and operationally desirable) and security. In any case the lead times required to prepare organizationally are within technical and logistical lead times and therefore this type of operation presents no difficulties to our "test when ready" concept. Although this study is limited primarily to high altitude testing because of the moratorium situation, it is significant to point out that a "test when ready" concept which includes a test

support organization and a ready site in being, such as Johnston Island or the EPG, still has the inherent capability to support an open seas, surface or underwater test on a "when ready" concept -- and is not a method of operation limited to high altitude testing. Johnston Island could, for example, not only provide a site for high altitude testing, but could also be used as a base of operation for our open seas test, should the situation warrant.

e. Underground Tests. The committee has assumed that underground tests are not within the scope of this study, since no known suitable overseas underground test site exists.

f. Eniwetok Proving Grounds. Use of the EPG for high altitude testing is not desirable because of political reasons. Functions which remain a responsibility of the DOD, as a result of the Study Group recommendations regarding the moratorium status of the EPG, can be administered by small Army and Air Force Task Units under the operational control of a joint testing organization. Appropriate functions to be performed and personnel strengths to be committed are being investigated by Subcommittee #1.

g. Test Support Organization. The exact size, organization, mission, and responsibilities of the test organization that would be permanently established under the test when ready concept can not be resolved in this paper since this problem is one of the primary decisions to be made by the Joint Committee. Sub-committee #2 has therefore assumed a small cadre force, established on a permanent basis, to have the relative same mission, functions, and responsibilities as does JTF-7 at the present

time. This committee is of the opinion that this basic organization can be adjusted to any functions, missions, responsibilities, and command relationships that will be agreed upon in the final recommendations of the Joint Committee. The manning for the test organization will be dependent upon and will vary directly with the status of testing readiness, however, it should be reduced to a minimal planning staff during the testing moratorium but should retain test planning continuity and the necessary liaison channels to subordinate and appropriate levels within the DOD and the AEC.

A suggested organizational chart is attached as Inclosure A (Organization). An appropriate manning level table is attached as Inclosure B (Manning).

Consideration of where the Test Support Organization should be physically located can be reduced to two factors. The first, those problems associated with policy, decisions, concepts and general requirements. The second, those problems of technical requirements and the details of communication and logistical support. Experience has clearly demonstrated the important and key role played by the Joint Task Force SEVEN in the past, with regard to the first factor. Therefore, location of the Test Support Organization in the Washington D. C. area, in close proximity to the AEC and DOD, would seem appropriate and desirable. However, it is almost equally important that the Test Support Organization be cognizant and capable of administering the second factor. The establishment of a small field office in the Albuquerque, New Mexico area staffed by appropriate military technical, logistic, and communication personnel working in concert with the scientific programs personnel of

the AEC and DASA (FC) should provide a satisfactory solution.

Also, it would appear highly desirable to establish and maintain a small "operational readiness" office at Johnston Island to coordinate construction requirements, provide liaison functions between the Army activities and nuclear test plans, and generally protect the interests of the AEC and DOD nuclear test programs.

H. Costs. The funds required for implementing the test when ready concept are in two areas: (1) initial preparation of Johnston Island or the selected site, and (2) costs of maintaining the test support organization. The funds required for initial preparation of the site is dependent upon site location, minimum initial facilities deemed necessary by technical laboratories, and scope desired in the initial tests. This committee is not capable of establishing this cost estimate. We suggest, however, that if the labs are agreeable to accepting only minimum facilities for small scope tests at the beginning, and expansion of facilities concurrent with a step-up of the number and size of tests after a resumption of testing -- and taking maximum advantage of Army support in place at Johnston -- then the initial costs of establishing the site would be limited to modification or construction of one or two technical or assembly buildings, and a stand-by power supply. The funds required to maintain a test support organization of appropriate size are estimated in Inclosure C.

6. Conclusions:

a. That there is a national requirement to maintain, in being, an organization with the capability to:

(1) Plan overseas high altitude nuclear weapons tests and;

(2) Prepare for and conduct such tests on a technical "when ready" basis in the event national policy permits.

b. That under the present circumstances of the indefinite nuclear testing "moratorium," the "test when ready" concept is an efficient and effective plan of action to maintain a capability to resume testing.

c. That the plan of operation under a "test when ready" concept includes the following:

(1) The nucleus of a test support organization to be established on a permanent basis -- capable of rapid expansion to support requirements of any nuclear tests regardless of time, location, or scope and size.

(2) Selection of Johnston Island as a ready site for high altitude testing and a possible base of operations for other types of tests as required.

(3) Construction or modification of existing buildings and facilities on Johnston Island to provide the minimum requirements for a ready test site.

(4) Utilize Army support on Johnston Island to the maximum practicable, keeping in mind the peculiar requirements of the user agencies.

d. That the location of the test support organization be in the Washington area with liaison offices at Albuquerque, Hawaii, and San Francisco, and with a small on-site "readiness" office at Johnston Island.

e. That the cost of establishing this concept will be the cost of the initial minimum construction on Johnston Island, plus a negligible

annual maintenance cost, and approximately $2,440,000 per year (Inclosure C) -- the cost of maintaining the test support organization cadre.

f. That the investment in funds required to maintain this concept is well justified, from the point of national security, by retaining a capability to resume testing on short notice and with a minimum loss of proficiency.

g. That the lead time to establish the test support organization and test site will be 3-6 months.

h. That the test support organization will be capable of receiving test projects at Johnston Island and supporting other types of test operation within the lead times of the technical projects provided 90 days warning time is given.

7. Recommendations:

The committee recommends that:

(1) The "test when ready" concept be accepted as the best solution of maintaining a capability to resume testing in the light of current estimates of the probabilities associated with nuclear testing.

(2) The nucleus of a test support organization be established on a permanent basis, with the organization as shown in Inclosure A.

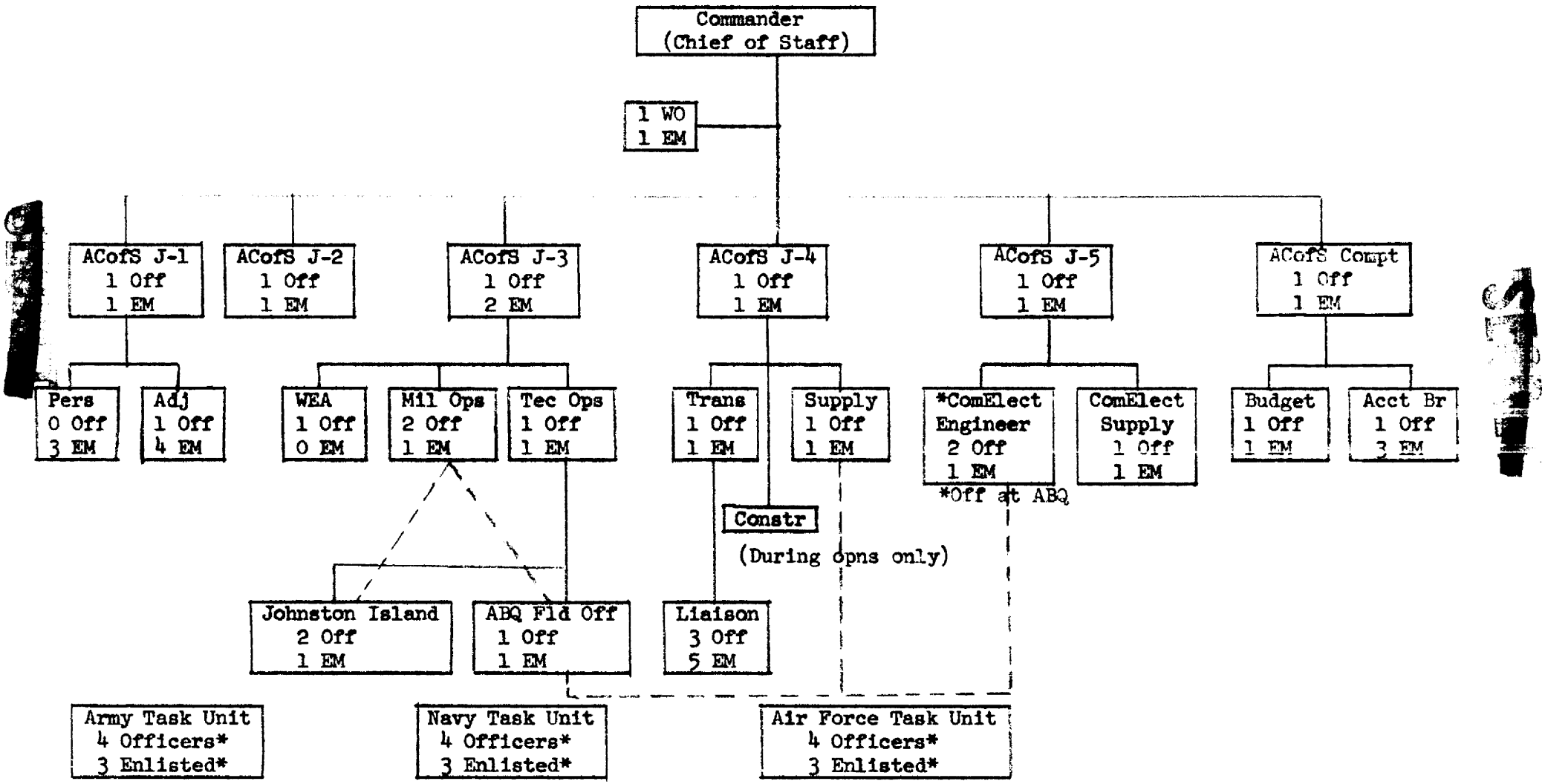
(3) Johnston Island be specifically designated and prepared as a ready test site.

(4) The first mission of the test support organization be to determine, in coordination with the DMA for the AEC and DASA for the DOD, the minimum requirements for the preparation of Johnston Island as a ready site.

[redacted]

Inclosure A

TEST SUPPORT ORGANIZATION



(*Planning staff only) plus personnel for residual responsibilities at EPG

*(Planning Staff only no Boat Pool)

*(Planning Staff only) plus personnel for residual responsibilities at EPG.

~~SECRET~~

INCLOSURE B (MANNING - HEADQUARTERS)

JOB DESCRIPTION	NJC MOS. AFSC	SERVICE	TOTAL	DISTRIBUTION BY GRADE											
				FLAG/GEN	CAPT/COL	CDR/LTCOL	LCDR/MAJ	LT/CAPT	LTJG/LT	WO	E-7	E-6	E-5	E-4	E-3	E-2
COMMAND SECTION																
Commander		N A AF			X											
(Chief of Staff)		N A AF														
Administrative Assistant	70200	AF	1							X						
Stenographer	YN1	N	1									X				
J-1																
Assistant Chief of Staff	0016F	AF	1		X											
Stenographer	70470	AF	1									X				
PERSONNEL BRANCH																
Personnel Technician	73270	AF	1								X					
Personnel Supervisor	716.60	A	1								X					
Personnelman	2602	N	1								X					
ADJUTANT GENERAL BRANCH																
Administrative Staff Officer	7016	AF	1				X									
Administrative Supervisor (AGMR)	717.60	A	1									X				
Yeoman (TSRD)	2502	N	1									X				
Administrative Clerk (TSRD)	70270	AF	1										X			
Yeoman (AGMR)	2522	N	1											X		

~~SECRET~~

INCLOSURE B (MANNING - HEADQUARTERS)

JOB DESCRIPTION	NJC MOS AFSC	SERVICE	TOTAL	DISTRIBUTION BY GRADE												
				FLAG/GEN	CAPT/COL	CDR/LTCOL	LCDR/MAJ	LT/CAPT	LTJG/LT	WO	E-7	E-6	E-5	E-4	E-3	E-2
J-2																
Deputy ACofS	9301 1100 2054	A N AF	1				X									
Administrative Clerk	962.60 70250 2502	A AF N	1										X			
J-3																
Deputy Comdr/ACofS, J-3	5/2162 1300 0036F	A N AF	1		X											
Chief Clerk	717.70	A	1								X					
Clerk Typist	YN-0000	N	1										X			
MIL OPS BRANCH																
Military Operations Officer	1300 1416	N AF	2			X X										
Clerk Typist	70250	AF	1										X			
WEATHER BRANCH																
Branch Chief	8219 1530 2516	A N AF	1			X										
TECH OPNS BRANCH																
Branch Chief	7312 7330 2075 8516	A N AF	1			X										

SECRET

INCLOSURE B (MANNING - HEADQUARTERS)

JOB DESCRIPTION	NJC MOS AFSC	SERVICE	TOTAL	DISTRIBUTION BY GRADE												
				FLAG/GEN	CAPT/COL	CDR/LTCOL	LCDR/MAJ	LT/CAPT	LTJG/LT	WO	E-7	E-6	E-5	E-4	E-3	E-2
Clerk Typist	711.10	A	1										X			
Nuclear Physics*	7312 2075 8516	A N AF	1				X									
Clerk Typist or Steno Spec.*	711.10 712.10	A A	1										X			
LNO JOHNSTON ISLAND																
Guided Missile Liaison Officer	1181	A	1			X										
Construction Engineer	5534	AF	1				X									
Administrative Supervisor	717.60	A	1									X				
J-4																
ACofS	3100	N	1		X											
Clerk Typist - Steno	YN1	N	1									X				
SUPPLY & SERVICE BRANCH																
Supply Officer	4010	A	1				X									
Clerk Typist	70250	AF	1											X		
TRANSPORTATION BRANCH																
Transportation Officer	0692	A	1			X										
Movement Control Supervisor	719.60	A	1								X					
LNO TRAVIS AFB, CALIF																
Liaison Officer	6016	AF	1				X									
Air Transportation Supervisor	60170	AF	1								X					
Air Passenger Specialist	60150	AF	1										X			

SECRET

INCLOSURE B (MANNING - HEADQUARTERS)

JOB DESCRIPTION	NJC MOS AFSC	SERVICE	TOTAL	DISTRIBUTION BY GRADE												
				FLAG/GEN	CAPT/COL	CDR/LTCOL	LCDR/MAJ	LT/CAPT	LTJG/LT	WO	E-7	E-6	E-5	E-4	E-3	E-2
Acctg Officer	6101	A	1					X								
Chief Accountant	733.60	A	1								X					
Disbursing Clerk	DK1	N	1									X				
Acctg & Fin Specialist	67150	AF	1										X			

TOTALS:

0-6 - 4
0-5 - 9
0-4 - 10
0-3 - 1
WO - 1
E-7 - 12
E-6 - 9
E-5 - 9
E-4 - 2

57

*Denotes Personnel at Albuq Opns Office

~~SECRET~~

INCLOSURE B (MANNING - HEADQUARTERS)

JOB DESCRIPTION	NJC MOS. AFSC	SERVICE	TOTAL	DISTRIBUTION BY GRADE												
				FLAG/GEN	CAPT/COL	CDR/LTCOL	LCDR/MAJ	LT/CAPT	LTJG/LT	WO	E-7	E-6	E-5	E-4	E-3	E-2
TASK UNIT ARMY																
Military Operations Officer	2162	A	1			X										
Military Supply & Trans Officer	0692	A	1				X									
Military Personnel Officer	2200	A	1					X								
Military Communications Officer	0210	A	1					X								
Chief Clerk	717.70	A	1									X				
Clerk Typist	711.10	A	1												X	
Clerk Typist	711.10	A	1												X	
*Plus personnel required for residual DOD Army functions EPG.																
TASK UNIT NAVY																
Military Operations Officer	1300	N	1			X										
Military Supply and Trans.		N	1				X									
Military Personnel Officer		N	1					X								
Military Communications Officer		N	1					X								
Chief Clerk	YN1	N	1									X				
Clerk Typist	YN	N	1												X	
Clerk Typist	YN	N	1												X	
TASK UNIT AIR FORCE																
Military Operations Officer	1416	AF	1			X										
Military Supply & Trans Officer	6016	AF	1				X									
Military Personnel Officer		AF	1					X								
Military Communications Officer		AF	1					X								
*Plus Personnel required for residual DOD AF functions EPG.																
TOTALS: O-5 - 3 O-4 - 3 O-3 - 6 E-7 - 0 E-6 - 3 E-3 - 6																
			21													
GRAND TOTAL - 78																

~~SECRET~~

INCLOSURE C

COST

1. The following is the Estimated Annual Funding requirements of the proposed test organization based on present funding guidelines:

Travel and Per Diem	$ 100,000
Commercial Transportation	50,000 *
Military Transportation, MSTS	660,000 *
Military Transportation, MATS	1,120,000 *
Communications	180,000 *
Task Force Administration	100,000
Weather	30,000
Operations and Logistic Support	200,000
TOTAL:	$2,440,000

*In event the Atomic Energy Commission agrees to assume all costs and responsibilities in connection with the Eniwetok Proving Ground most of these expenses would be budgeted and funded by the Atomic Energy Commission. Based on normal budget cycle it is assumed that Atomic Energy Commission could not budget and fund for these items prior to Fiscal Year 1961.