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PART III - GENERAL ACTIVITIES OF TG 132.1

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- Appendix A - Organizational Charts
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PART III - GENERAL ACTIVITIES OF TG 132.1

I. MISSION

The mission of TG 132.1 was comprised of the following responsibilities:

1. To prepare for shipment, assemble and place the devices to be tested.
2. To arm and detonate the devices to be tested.
3. To conduct the experimental measurement programs.
4. To conduct the radiological safety program.
5. To provide technical and documentary photographic coverage.
6. To assume responsibility for the successful completion of tasks outlined in Annex E, CJTF Operations Plan No. 2-52.
7. To maintain detailed records of TG 132.1 activities during all phases of Operation IVY, and keep JTF 132 informed as to the TG 132.1 status of operations, providing specific information regarding unforeseen obstacles to the successful completion of this mission.
8. To be responsible for the packaging, loading, transfer, unloading, and supervision (to include radiological safety monitoring) of test samples at all points and in transit as required.

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II. ORGANIZATION AND COMMAND RELATIONSHIPS

J-Division of the Los Alamos Scientific Laboratory, Los Alamos, New Mexico is a permanent test unit within the Laboratory established to supervise experimental tests for the AEC and to assure continuity of plans for atomic testing programs. In preparation for Operation IVY, J-Division became the nucleus of an organization which was expanded by the addition of civilian personnel from the AEC and AEC contractors and military personnel of JTF 132. In addition two military support units, Radiological Safety and Documentary Photography, were appended to the test group which was formally activated as Task Group 132.1 of Joint Task Force 132 on 2 January 1952.

The organization and command relationships of TG 132.1 are depicted on the charts attached as Appendix A to this report.

The relationships between TG 132.1 and JTF 132 were as would normally be expected between a subordinate and a higher command. Task Group 132.1, having the immediate responsibility for conducting the experimental programs which were the heart of Operation IVY, received much support from the Headquarters, JTF 132 and the other Task Groups comprising the Task Force.

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In general the requirements submitted during the planning phase were approved by JTF 132 and during the operations phase this Task Group received excellent cooperation and support from the Army, Navy, and Air Force Task Groups in providing these requirements.

III. PLANNING AND TRAINING

A. Device Planning

One of the major purposes of Operation GREENHOUSE was to answer key questions relating to the possibility of developing thermonuclear explosions. George and Item Shots were important steps in the investigation of basic problems in the development of the thermonuclear device.

By August 1951, the Chairman of the United States Atomic Energy Commission had stated in a letter that a thermonuclear device would probably not be ready for testing prior to the Winter of 1952-53. However, in late October 1951, he reported that progress in research and development activities had been such that a more realistic date for planning purposes appeared to be the Fall of 1952, possibly 1 October. In addition to the thermonuclear device to be tested on Operation IVY, the Director of the Los Alamos Scientific Laboratory instructed J-Division (Test Division) to plan for an air drop of a high-yield (500 KT) fission weapon as a second IVY event.

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Due to the frequent number of flights required by Project 5.3, this project was inconvenienced considerably by the above conditions.

After obtaining permission from CJTF 132 and CINCPAC to use Midway, Guam, Wake, and Hawaii, project personnel were authorized to make direct arrangements for housing and subsistence with the authorities on the islands, and to arrange for MATS or commercial air transportation from Hickam.

VII. SHOT PHASE EVACUATION

A. Mike Shot

Preparation for Mike Shot was made more difficult by the necessity of evacuating all personnel from Eniwetok Atoll, the latter course of action being dictated, in the interests of safety, by the large expected energy release of the Mike device. Although early planning for the evacuation of Eniwetok Atoll dates back prior to the evacuation conferences held at Los Alamos on 10 June 1952, there were many details which of necessity were not completed until just a few days prior to the shot.

On 20 September a preliminary meeting on evacuation was held by Headquarters, JTF 132 with representatives of all Task Groups present. The purpose of this meeting was to establish a working committee to study and prepare evacuation plans for the orderly

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evacuation of personnel and material from Eniwetok Atoll prior to Mike Shot. At this meeting some of the problems involved in the evacuation of personnel and material were discussed. This group recommended that an Evacuation Committee be established with membership composed of one or more members from each Task Group and Task Force Headquarters. Lt Col R. D. Denchfield of JTF 132 was named Chairman of the Evacuation Planning Committee.

The first meeting of this committee was held at 0900 on 25 September. Representatives of J-1, J-3, and J-4 Sections of TG 132.1 attended this meeting. A TG 132.1 Troop Quartermaster was nominated at this meeting. Such problems as mail while afloat, hold baggage, preparation of plans and loading schedules for passengers and cargo were discussed by the committee.

Additional meetings of the Evacuation Planning Committee were held on 30 September, 1 and 3 October, to discuss further evacuation plans. Allocation of personnel by Task Groups to the evacuation vessels was completed, subject to late changes. At the Commanders Staff Conference on 8 October, the Commander, TG 132.3 reported that the Navy Task Group was concerned about the apparent difficulty experienced in establishing evacuation schedules for both material and personnel. Task Group 132.3 had prepared a boat evacuation schedule which was presented to the

Evacuation Planning Committee on 10 October.

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Evacuation Planning Committee for consideration. Captain Knickerbocker explained that during the meetings held during the previous two weeks by the Evacuation Committee, difficulty was experienced in firming up evacuation plans due to the inability of some committee members to obtain detailed data from their respective Task Groups.

The assignment of personnel to the various ships was dependent upon the operational requirements of the individual. The operational functions of the principal evacuation ships of TG 132.3 were as follows:

USS ESTES	- Command and Firing Group
USS CURTISS	- Weapon Assembly and Cryogenics
USS RENDOVA	- Radiological Safety and Recovery Parties
USNS SHANKS	- Majority of personnel not assigned to other vessels
USNS COLLINS	

In addition to the above ships, representing the major evacuation of the Task Group, some personnel were aboard ships of the Scripps Institute expedition, the USS LEO, the USS OAKHILL, and other ships of the evacuation fleet.

Insofar as was feasible, every man was evacuated to assigned space on an appropriate ship as soon as his contribution to Mike Shot preparation was completed. Naturally, however, the bulk of

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the evacuation had to be accomplished during the last few days. A detailed chronological check list which scheduled all intra-atoll transportation of personnel and equipment, was prepared to cover the five-day period prior to shot time. (Reference: Operational Directives M-12, M-12A, and Change No. 1 to M-12A, dated 26 October, 29 October, and 30 October 1952, respectively.) Each task unit and experimental project was consulted prior to the issuance of the list, to insure that it contained appropriate entries to allow: (1) the completion of all experimental readiness work, (2) evacuation of equipment and supplies from the northern islands, and finally (3) availability of a boat or helicopter for evacuation of personnel to the appropriate ship. It was also adjusted to the framework of the Task Force check list, in order to conform with ship movements and general policies established by CJTF 132.

The project personnel of TU 1 posed the greatest problems, both evacuation and intra-atoll transportation-wise, primarily because of the requirement that each piece of experimental equipment be left unattended the shortest feasible time before it is utilized on a shot. As a result a member of the J-3 Section, TG 132.1 was given the mission of assuring that the evacuation of each project individual was adequately provided for,

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by name, after that individual's work was done. Personal liaison with the appropriate project officer was utilized to accomplish this mission, rather than the issuance of directives and lists, because of the changeable nature of experimental duties prior to a detonation.

As space aboard the USS ESTES, CURTISS, and RENDOVA was critical, these ships presented the greatest problem in working out assignments and passenger lists. Up until M-3 days major changes in the assignments to these ships were taking place due to changes in the operational requirements of the technical groups. For this reason it was impractical to work up final passenger lists of TG 132.1 personnel prior to M-3 days. Those lists which were prepared on M-15 days required many corrections and the final and accurate lists on each ship were made as the ship got underway.

Insofar as possible ship and quarters assignments were worked out by the J-1 Section in close liaison with the Chief of Staff and the J-3 Section. Cards stating ship and quarters assignments were issued to all personnel. Last-minute assignments to quarters were handled by the J-1 representative aboard each ship.

In order to assure that all personnel were actually evacuated from the Atoll a muster was conducted of all TG 132.1 personnel. The Task Group was divided into 15 muster groups, each with an

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appointed muster officer and sub-muster officers. Four days prior to the shot, a list of each muster group was distributed to the respective muster officers. Additions and corrections were sent to the Headquarters Commandant by M-2 days. On M-1 day each muster officer turned in a signed copy of the muster list indicating those personnel who were accounted for.

Muster for M-1 day was conducted at 1230 hours. Each muster officer reported to the J-1 representative at his location, whether ashore or afloat, who in turn reported via radio to the Headquarters Commandant aboard the USNS SHANKS. Upon completion of the muster the Headquarters Commandant reported to J-1 aboard the USS ESTES. Persons reported ashore on the 1230 muster were checked by a J-1 representative as they arrived aboard their evacuation vessel. The J-1 representative reported periodically to the Task Group muster officer until all personnel were shown on board. The Firing Party and a few technical personnel were mustered aboard the USS ESTES just prior to that ship's departure from the lagoon, at which time all personnel were accounted for.

B. King Shot

All islands of the Atoll other than Eniwetok and Parry Island were evacuated for King Shot. Compared to the Mike Shot evacuation this posed a simple problem, but the method of solution was somewhat similar. Again a chronological check list was prepared to

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schedule all intra-atoll transportation of personnel and equipment - this time for the three and one-half day period prior to the shot. The list was not issued however, but rather used as a work sheet for the construction of Operational Directive K-3 which was issued in its stead - a combined airlift and boat schedule.

Evacuation of all northern islands other than Runit was completed the after-noon of M-1 day, and a partial safety sweep made by helicopter. Runit was evacuated the evening of K-1 day, except for two Holmes and Narver power house personnel who remained on duty all night. A muster was conducted the evening of K-1 day. On the morning of K-day the power house was "buttoned-up", a final check of selected instrumentation was made, and the final safety sweep was conducted. Evacuation was completed by 0830 hours, at which time the drop aircraft entered the area.

Although the Atoll was not completely evacuated for King Shot, the potential for such an evacuation was maintained - as insurance against the eventuality of hazardous post-shot fall-out on Parry and Eniwetok Islands. No such fall-out occurred, hence the potential was not utilized. The postponment of K-day did not alter the above procedures.

VIII. OPERATIONS AFLOAT

Headquarters, TG 132.1 established a Command Post afloat on

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the USS ESTES at 1700 M-1 Day. On board this ship was installed firing control equipment for detonation of the Mike device by remote control and communication facilities for adequate control of other elements of the Task Group aboard other vessels.

By 2230 M-1 Day evacuation of Eniwetok Atoll was completed except for the Firing Party on the shot island and a small detail on Parry. The Firing Party after completing their instrumentation and Firing Party check-out lists departed the shot island at 0100 via AVR and returned to the USS ESTES, which was moored off Parry Island. The ESTES then proceeded to sea and maneuvered so as to be at a position 30 miles, bearing 135 degrees true from the shot island at zero hour. The firing control room on board the USS ESTES consisted of two television monitor scopes for observing the positions of timing signals, no-go indicators and the monitor dials of various important systems of the device itself, and a control panel located between the two monitor scopes to permit the use of three radio links for control of the timing signals, sequence timer, and the emergency stop. In the appropriate sequence the controls were activated to detonate the device at 0715M, 1 November 1952.

The Gunnery and Landing Force Office was used as the Command Post by CTG 132.1 afloat. This space was equipped with the necessary communication and monitoring facilities to provide for

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the control of other elements of the Task Group.

The Command Post returned to Parry Island at 0800 M / 2 days.

IX. SAMPLE RETURN

The return of radioactive samples to various laboratories within the ZI was accomplished with specifically assigned MATS Aircraft. These aircraft were designated by the word Easy preceded by the flightnumber. Numbers one through four were for Mike Shot, and numbers five through eight were for King Shot. For each pair of such flights an extra plane was assigned for emergency backup purposes. Although no emergencies arose, two of the backup planes were utilized for additional sample return, one for Mike Shot which bore the designation Four Easy Extra and one for King Shot which bore the designation Eight Easy Extra. More complete details of the planning for this phase of the operation are included in JTF 132 SOP No. 76-4 dated 4 September 1952 as amended by SOP No. 76-4A, dated 18 October 1952, and need not be repeated here. The outline below indicates in part the results of that planning, to include modifications made necessary by unforeseen conditions in the field.

<u>Flight Number</u>	<u>Comments</u>
1E	As planned
2E	As planned
3E	

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3E Program 4 samples not on board because of unavoidable delay in sample recovery. Otherwise as planned.

4E Departed Eniwetok, with first available Program 4 samples, at approximately H / 68 hours. Program 5 samples not aboard because of insufficient recovery time having been allowed. AFOAT-1 samples on-loaded at Kwajalein as planned, but off-loaded at Travis and held for 4EE. Flight terminated, and Program 4 samples off-loaded at Kirtland.

4EE Departed Eniwetok, with bulk of Program 5 samples, at approximately H / 115 hours. Carried tritium containers from Kwajalein to Kirtland. Picked up AFOAT-1 samples at Travis as indicated above. Served effectively to clean up the bulk of Mike Shot sample return requirements.

--- Remainder of Mike Shot samples returned to ZI via regular MATS flights as required.

5E As planned

6E As planned

7E Departed Eniwetok at approximately H / 32 hours, with first available samples for Program 4 and AFOAT-1. Picked up additional AFOAT-1 samples at Kwajalein. Program 4 samples off-loaded at Kirtland. AFOAT-1 samples off-loaded, and flight terminated at Logan.

8E Departed Eniwetok at approximately H / 48 hours, with samples for Programs 4 and 5. Picked up AFOAT-1 samples at Kwajalein. Program 4 samples off-loaded at Kirtland, and Program 5 samples off-loaded at Friendship. AFOAT-1 samples off-loaded, and flight terminated at Logan.

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Departed Eniwetok at approximately H / 56 hours, with final group of Program 4 samples. This flight was also utilized to return Program 1 instruments, the high priority of such a return being dictated by ZI test planning. Flight terminated, and load transferred to CARCO for transport to Los Alamos, at Travis.

We thus see that the sample return mission was accomplished. The chain of events first indicated by the lack of Program 4 samples on Flight 3E directed attention to several weaknesses in the plan outlined in the above mentioned SOP's that one hopes to avoid for future operations. A suggested solution to these weaknesses is discussed under the RECOMMENDATIONS section of this report.

X. RECOVERY OPERATIONS

The recovery of experimental data, samples, and equipment after Mike and King Shots of Operation IVY involved extensive coordination between experimentors, the intra-atoll transportation system, and the radiological safety organization (Task Unit 7). Each recovery team was accompanied by a TU 7 representative responsible for monitoring the radiation levels encountered and advising the senior member of the party as to potential hazard. Each recovery team member was supplied with a pocket-size integrating dosimeter, a film badge, and appropriate protective clothing by TU 7. Recovery party size was dictated both by the type of work to be done and

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by the principle of keeping each party as small as possible - in order that personnel would not be subjected to radiation exposures without necessity.

The type of transportation utilized by a particular recovery party was dictated by the location of the material to be recovered, the radiological safety situation at that location, and the priority of the experiment. The major portion of the required airlift was accomplished with TG 132.3 helicopters, operating from the USS RENDOVA flight deck on M, M / 1, and M / 2 days, and from the Parry airstrip thereafter.

The order in which recovery operations were accomplished was fixed by a combination of radiological safety conditions and experiment priorities, the latter being designated by the Scientific Deputy of TG 132.1.

For Mike Shot recovery, the responsibility for scheduling of required intra-atoll transportation was delegated to TU 7. Such an arrangement was seen to be faulty after the re-establishment of this headquarters on Parry Island, however, since continuing recovery requirements and the necessity for King Shot

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preparation implied two separate offices (TU 7 and J-3, this headquarters) scheduling intra-atoll airlift for a single dispatcher. This situation was rectified for King Shot, and Operational Directive K-4 was used as a guide by the air and boat dispatchers.

The detailed recovery plans of the two shots were prepared by TU 7 in coordination with Dr. Ogle's office and the J-3 Section, to include the appropriate priority classification of experimental projects. (Reference: Appendix II to Annex H, Operation Order No. 1-52, TG 132.1, "Mike Recovery Program", dated 30 October 1952 and Appendix III to Annex H, Operation Order 1-52, "King Recovery Program", dated 12 November 1952.)

Generally speaking, recovery operations were successful and were conducted as planned. The extensive contamination and destruction resulting from Mike Shot caused delays; these, however, were unavoidable, and the problem of dual scheduling mentioned above was not posed by recovery itself.

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XI. POST SHOT RE-ENTRY

A. Mike Shot

Shortly after the detonation of the Mike device the Task Force vessels moved to an area south of Eniwetok Atoll and awaited the results of the radiological surveys upon which the re-entry plan was to be based. The radiological safety surveys were accomplished by personnel of TU-7 with the support of the Navy Helicopters from the USS RENDOVA.

At approximately H+10 minutes an aerial survey helicopter took off from the USS RENDOVA to go directly to Parry Island. This helicopter then flew over the center of each island in the chain in the direction of the shot island at an altitude of 25 ft and at a ground speed of about 10 mph. While flying over each island, readings were taken with a TIB Survey Meter. It was planned to make a survey of the entire atoll, but this helicopter became contaminated while going through a rain squall and the survey had to be completed later.

At H+40 minutes the TG 132.4 emergency re-entry party and radiological safety monitors went ashore to re-open the airstrip facilities on Eniwetok Island. At H+45 minutes the Holmes and Narver utilities crew and a radiological monitor were taken to Parry Island.

Commencing at approximately H+2 hours the TG 132.1 Scientific Deputy and a radiological safety monitor accomplished a damage and

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radiological survey of the entire Atoll by means of helicopter.

At H+4 hours water samples were taken at the anchorage off Parry and Eniwetok Islands. Extensive ground surveys of Parry and Eniwetok Islands were accomplished early on M+1 day.

Based on the results of the radiological safety surveys, R-Hour was established as 0900 on 2 November. At R-Hour unrestricted radiological safety clearance was declared for Parry and Eniwetok Islands and all lagoon water traffic south of Japtan Island. Task Unit 7 set up their headquarters in Building 57 on Parry Island by 1200 hours on this date.

Re-entry of the Task Force vessels into the lagoon was accomplished by approximately 0945 on 2 November, and the first personnel were ashore by approximately 1045.

The re-entry of Holmes and Narver personnel was accomplished in the following order:

1. Division heads including the doctor.
2. Personnel to float and operate the M boats.
3. Personnel necessary to restore and operate the power, water and telephone systems.
4. Complete mess hall complement.
5. Maintenance crews as necessary.

The priority of re-entry of TG 132.1 personnel was based upon

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the need for scientific and staff personnel to complete recovery operations and to begin the necessary preparations for King Shot. Certain TG 132.1 personnel remained afloat for a few days until adequate Holmes and Narver support facilities were available. All personnel of TG 132.1 were ashore by M+4 days.

All personnel who went ashore on the morning of M+1 day were provided with lunches for the noon meal. The Holmes and Narver mess hall was open for the evening meal.

On 3 November unrestricted re-entry was declared for the islands of Aniyaanii and Japtan including lagoon traffic to these islands. Small boats were further authorized to travel in the northern half of the lagoon if they were accompanied by a monitor from TU 7. As radiological safety conditions permitted, re-entry into other islands was permitted. Work on Runit was authorized on M+2 days.

B. King Shot

Since a complete personnel evacuation was not required for King Shot, the re-entry problem applied only to the islands north of Parry. Again, the re-entry to these islands was based on radiological safety surveys which were accomplished in much the same manner as those following Mike Shot.

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XIII. RADIOLOGICAL SAFETY

A. Early History

In order to provide for the radiological safety of the Task Force a radiological safety unit was activated as Task Unit 7 of TG 132.1 on 22 January 1952. Commander Russell H. Maynard, USN, in addition to his duties as Chief of the Technical Operations Branch, J-3, JTF 132, was designated as the commander of this unit. During the early growth of this unit Major John D. Servis, USA, was designated as Deputy Commander and Operations Officer of TU-7. Since CDR. Maynard remained at Washington, D. C., with the Task Force Headquarters during the period prior to the overseas movement, Major Servis served as his representative at the Los Alamos Scientific Laboratory. Due to the large number of Los Alamos Scientific Laboratory employees operating with TG 132.1, the services of the necessary medical technical consultants to TU 7 were obtained from the Laboratory in the persons of Dr. Thomas L. Shipman, Director of H-Division, LASL, and Major Payne Harris, MC, USA, also of H-Division.

During the growth of the organization contacts had to be made to secure the necessary personnel for carrying out the mission of this unit. For a short-period operation such as this, personnel support was requested from the Armed Forces and specific civilian

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installations. Of the five civilian personnel operating with TU-7, three were obtained from the staff of the Los Alamos Scientific Laboratory, one from the Evans Signal Corps Laboratory, and one from Oak Ridge National Laboratory. The following job classifications were requested of the various Armed Services for their personnel support:

Radiological Monitors (Officer)	20
Radiological Monitors (Enlisted)	4
Laboratory Director (Officer)	1
Laboratory Technicians (Enlisted)	4
Photographic Assistants, Photo-dosimetry	4
Electronics Officer	1
Radiological Instrument Repairman	3
Clerks	6

The Services furnished all requested personnel with the exception of the Instrument Repairman. When the names of individuals selected were known with certainty, those who were to hold key positions in TU-7 met with DR. Maynard in Washington, D. C., for a preliminary briefing before departing for the Forward Area.

B. Orientation and Training of TU-7 Personnel

An indoctrination course was conducted by key personnel of the Task Group and TU-7 in the Forward Area from 17 - 22 October

1952 in order to present a comprehensive picture of the operation to members of this unit. Material discussed during these seminars included the following subjects:

1. Concept of Operation IVY
2. Radiological Safety Operations and Responsibilities
3. Radiological Instrumentation
4. Photodosimetry, Dosimetry, and Records
5. Weather Relationships
6. Scientific Programs
7. Weapons Effects
8. Mike and King Descriptive Material

Since TU-7 was responsible for the radiological safety of the Task Force during IVY, and there existed the possibility of regularly assigned monitors receiving their prescribed dosage limit before the completion of the operation, the availability of the services of a pool of reserve monitors was evidently necessary, personnel were made available from JTF 132 and its various Task Groups. These personnel to serve as reserve monitors who did not possess credit for the Armed Force "Six Weeks Course" on Radiological Safety attended a series of conferences and practical exercises conducted on 7 - 11 October 1952. The course consisted of the following subject matter:

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Introduction to Atomic Weapons

Instrumentation

Calibration Procedures

Monitoring Procedures

Protective Clothing and Practical Decontamination

Monitoring Responsibilities and Special Instructions Applicable to Operation IVY

C. Organization and Activities of TU-7

Task Unit 7 was organized into the following groups:

1. Control Group (including special missions such as Ujelang evacuation, Kwajalein liaison and control, and Horizon radiological safety)
2. Laboratory Group (Radiochemical Lab, Electronics Section, Photodosimetry and Dosimetry Sections)
3. Decontamination Group
4. Information Center
5. Administration and Supply Group
6. Special Projects Group

The activities of these groups and their various sections are discussed below:

1. Control Group

Upon organization of this group and designation of the various duties of its personnel, immediate contact was made with

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the interested agencies of the various projects to determine the necessary radiological safety support required for the various recovery activities. Complete plans were drawn up for the post-Mike re-entry and the post-Mike and post-King recovery programs. Several drills were held to test the adequacy of communications, time elements, transportation facilities, etc. The group operated from the USS RENDOVA in the post-Mike period until re-entry was accomplished. After re-entry and during the post-King operational phase, they operated from the Radiological Safety Center on Parry Island. Before any survey, recovery, or "work party" trip was initiated, checks were constantly maintained to assure adequate radiological safety. Personnel operating in contaminated areas were advised of their accumulated gamma dosage to date and further advised as to operating times which would permit them to accomplish their mission and still not exceed the permissible dosage limit. Other protective measures included the issue of protective clothing, various dosimeters, etc. Communication facilities consisted of SCR 508 radio nets, SCR 300 radio nets, AM/TRC radio nets, and telephonic nets when available. During each recovery or work phase, the monitor constantly kept track of the accumulating dosage with pocket dosimeters and through calculations using the readings obtained on the AN/PDR - T1B. Some of the results of aerial and ground surveys

are shown below. (Ground values are indicated by an asterisk (*)).
 Unless otherwise stated, aerial values are from an altitude of 25
 feet. All values are in milliroentgens per hour).

SITE	YVONNE	TILDA	JANET	GENE	CLARA	ALICE
M-Day	5 to 5000 1200 (Max)*	None re- corded 8000 over Wilma	50,000 at 500 Ft	None re- corded 10,000 at 500 Ft over Irene	None re- corded	7000 at 1500 Ft
M+3	40 to 120*	2000*	3300 8000*	18,000 10,000 on Lag- oon Reef	9000 26,000 on Lagoon Reef off Daisy	10,000
M+8	12 to 16*	400*	1400 2500*	3400 8000*	1300 2500*	1300 2800*
M+14	0 to 40*	130 270*	600 1400*	1900	800	850
K-Day	0-3800 (3800 over north end. 3 to 5 south of air strip)*	120 200*	480	2400	400	750
K+1	1.0 1.0* south 10* center 100* north end.	70 150*	430 900*	1600	420	440

a. Ujelang Evacuation

This evacuation was accomplished utilizing the LST
 827, commencing on 27 October 1952 and re-entry was accomplished

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on 2 November 1952. Task Unit 7 loaned personnel to CINCPAC to insure that all necessary radiological safety precautions were taken. The evacuation was carried out in a successful manner and no radiological hazards were encountered.

b. HORIZON Radiological Safety

Radex had shown the possibility of the HORIZON being subjected to some fallout. The data this vessel was to collect was essential and the vessel had to be "on station". The radiological safety responsible agency was TG 132.3. TU-7's interest in the operation lay in the furnishing of radiological safety personnel and equipment to accomplish the radiological safety activities. This craft which had been 72 miles north northeast of zero reported contact with the fallout area. Within 20 minutes after the fallout commenced, average readings indicated 15 m μ /hr with localized maximums of 35 m μ /hr. Wash down procedures and other necessary radiological safety measures reduced the hazard to the point where it was no longer a health hazard aboard the craft. The HORIZON was considered as "marking" the edge of the fallout pattern in its direction.

c. Kwajalein Liaison and Control

The officer performing this function acted as radiological safety officer of TU-7 for TG 132.1 personnel at Kwaj-

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alein Atoll. In addition, monitoring was accomplished for Project 1.3. Further monitoring activities included checking of "snap" sample removal from F-84 aircraft for Project 5.4b, and monitoring of sample removals for Project 7.3. This mission also supervised and controlled the use of dosimetry devices for the F-84 pilots. Instructions were passed to the monitors accompanying samples on courier planes to the ZI. Assistance was rendered to the AEC (NYOO) in conducting its "World-Wide Fallout Program". Water samples were obtained from Bikini, Ponape, Kusaie, Majuro, and Kwajalein.

2. Laboratory Group

a. Electronics Section

Maintenance was satisfactorily executed and at no time did the demand for instrumentation exceed the available supply. Component spare parts were obtained by cannibalization of excess instruments. Sufficient quantities of instruments were available and the decision to cannibalize was made in order to facilitate repair and maintenance without excess storage problems of the delicate component parts.

b. Radiochemical Section

This section remained afloat aboard the USS RENDOVA during the entire operation. A Signal Corps Radiochemical Laboratory trailer was the base of operations and was located on the port

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side of the hangar deck. They received, prepared, and assayed all samples delivered. Desired data were reported to all interested personnel. Data obtained included discriminated activities, some beta and gamma energy determinations. The majority of the samples assayed were the water samples from various locations in the lagoon. In general, the primary assays desired were the decay-rates and specific activities per measure of sample submitted. Standard methods and procedures were used in the preparation of the subsequent analysis of samples furnished.

c. Photodosimetry and Records Section

This section operated until M+2 days aboard the USS RENDOVA using a photodosimetry Laboratory Trailer located adjacent to the Field Laboratory. Upon re-entry the section moved ashore and resumed its operations at the Radiological Safety Center, Parry Island. Films were stored, handled, and issued in such a manner as to minimize any undesirable effects such as humidity, loss of control, etc. Films and the self-reading pocket dosimeters were calibrated using standard radium source procedures. Calibration curves were obtained for the film, and the pocket dosimeters were marked with an appropriate correction factor. Film readings were the standard of record while dosimeters were primarily used to indicate a "running" exposure record by the monitor or user. Records

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were maintained to effect as complete a history as possible of the various exposures. Upon completion of the operation, a Master List of all exposures was prepared. The final repository for film records will be the Division of Biology and Medicine of the AEC. Final repository for all films will be the AFSWP. Reports of exposures will be forwarded to the home station of each civilian who was "film-badged". Exposure records of military personnel will be forwarded to the proper Surgeon General.

3. Decontamination Groups.

During the operational phases afloat, it was the responsibility of the Commanding Officer of the USS RENDOVA to decontaminate any contaminated aircraft and/or personnel boarding his ship. The USS RENDOVA was a part of TG 132.3 and during the operational phases afloat, all flights accomplished prior to re-entry originated and terminated at the USS RENDOVA making decontamination procedures a TG 132.3 responsibility. Upon re-entry, TU-7 commenced operations at Parry Island Radiological Safety Center. Check control points were maintained at the air strip and at the personnel pier on Parry Island. Aircraft decontamination was accomplished by the preventative measure of lining interior surfaces with paper with subsequent removal and by the use of commercial-type vacuum cleaners. Vehicular and other type equipment decontamination was accomplished

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in a designated area north of the personnel pier. Methods included lining with paper with subsequent removal, high-pressure fresh-water hosing with soap scrubbing on local "hot-spots" and subsequent removal to the storage area north of the Radiological Safety Building if results showed contamination was still above the permissible limits. Working personnel were equipped with the necessary protective clothing. The source of high-pressure water jets was an Apparatus, Decontaminating, power driven, w/truck, M3A2 (300 gal) with a standby electrically operated centrifugal suction-discharge pump. Personnel decontamination was accomplished using the "change room" facilities in the south end of the Radiological Safety Building. Personnel not completely decontaminated returned to the showers. Localized hot spots which were found were removed by using handbushes and soap. Various chemical and complexing agent solutions were available to facilitate personnel decontamination but their use was not necessary. Contaminated clothing was allowed to lose its activity by "decay" and then cleansed by laundry or brushing procedures as applicable. Before each mission, personnel in the party were briefed in the procedures they were expected to follow. No personnel of TG 132.1 were found to be seriously contaminated.

4. Administration and Supply Group

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This group operated both afloat and ashore upon re-entry. Its functions were standard with the exception of the handling of devices peculiar to radiological safety operations, i.e., instrument issue, etc. The supply group supervised the issuance of protective clothing and equipment, instruments, etc. The administrative portion of this group handled all correspondence and necessary administrative details resulting from TU-7's operational activities.

5. Information Center

This group operated both afloat and ashore and correlated all information obtained by the other groups as required into an over-all picture of the radiological security of the operation. Daily situation maps were maintained showing various radiation levels at all available sites. Records of sample assays were kept and utilized as required.

6. Special Projects Group

This group consisted of one man available for special monitoring in connection with the special radioactivity problems of the Mike device. No problems resulted and this person returned to the ZI with his mission accomplished.

D. General Comments

Throughout the operational activities, assignments were rotated as much as possible to provide experience for personnel in all

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phases of the operation. Over-all efficiency was felt to be excellent. Supplies, equipment, and personnel were adequate to accomplish the assigned mission.

XIV. SECURITY

With the activation of JTF 132 in August 1951 the security section of the Scientific Task Group continued in the same capacity as with Operation GREENHOUSE as the AEC-NME Test Security Branch, SFOO. In November 1951 the Eniwetok Field Office was established by SFOO and was assigned the responsibility for AEC Security for the Pacific Proving Grounds. In January 1952 the AEC-NME Test Security Branch, SFOO was converted into the Security Branch, Eniwetok Field Office. It was established with the Chief and one Security Assistant of the AEC-NME Test Security Branch being transferred to the Eniwetok Field Office Security Branch. In February 1952 two other Assistants were assigned to the Eniwetok Field Office and a Military Deputy, J-2, was assigned to TG 132.1, Los Alamos.

The security program associated with the construction phase of Operation IVY at the Pacific Proving Grounds was under the direction of the Security Branch, Eniwetok Field Office. In this connection it was necessary from December 1951 through November 1952 to secure 1482 "Q" Clearances for employees of Holmes and Narver. The Los Angeles Security Branch was responsible for the

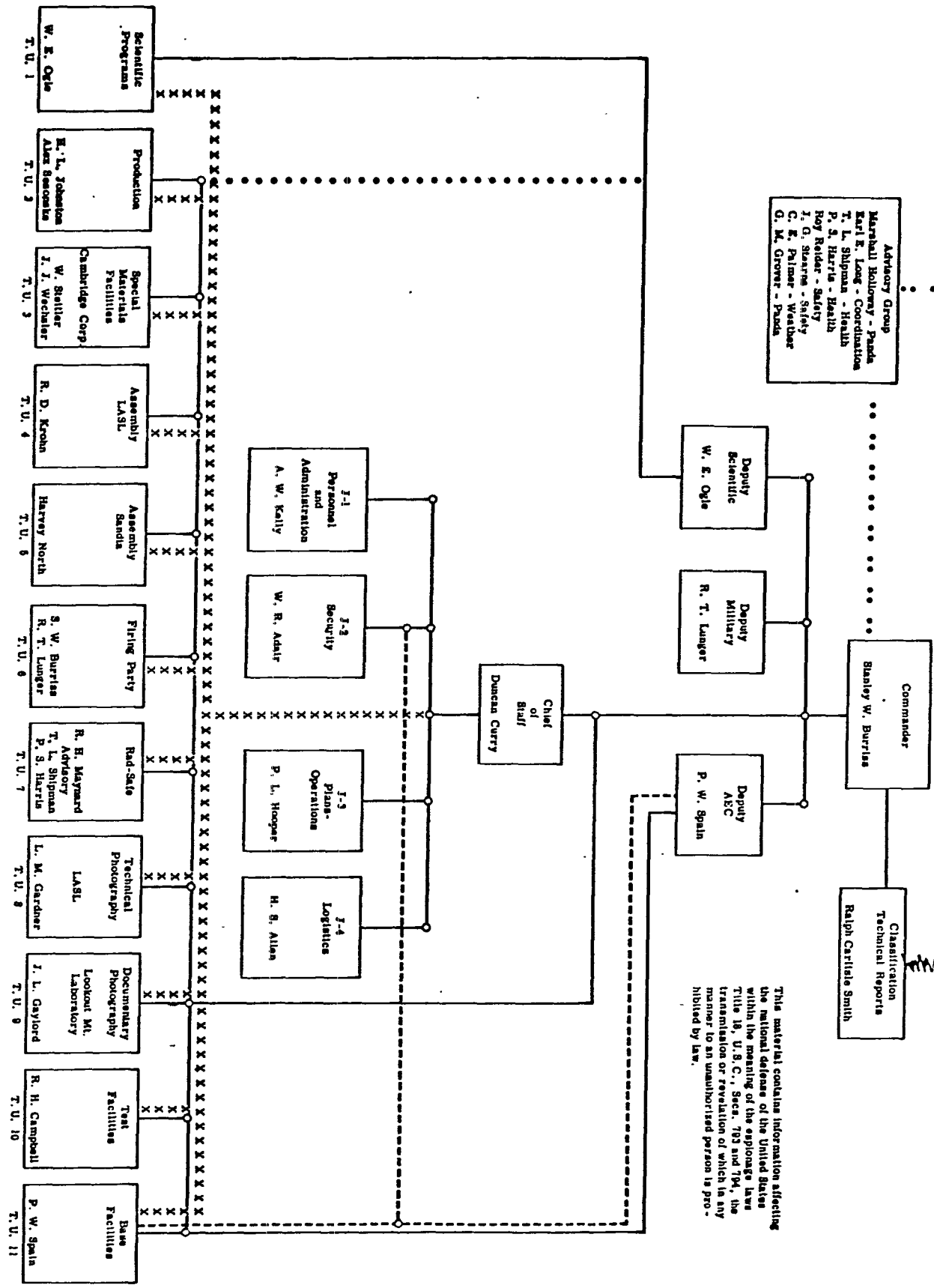
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ORGANIZATION CHART
TASK GROUP 132.1

Revised 18 August 1953

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----- Command

----- AEC Field Manager Responsibility as per SF-O & M-48

Serial 301, 18 November, 1951

••••• Technical Requirements

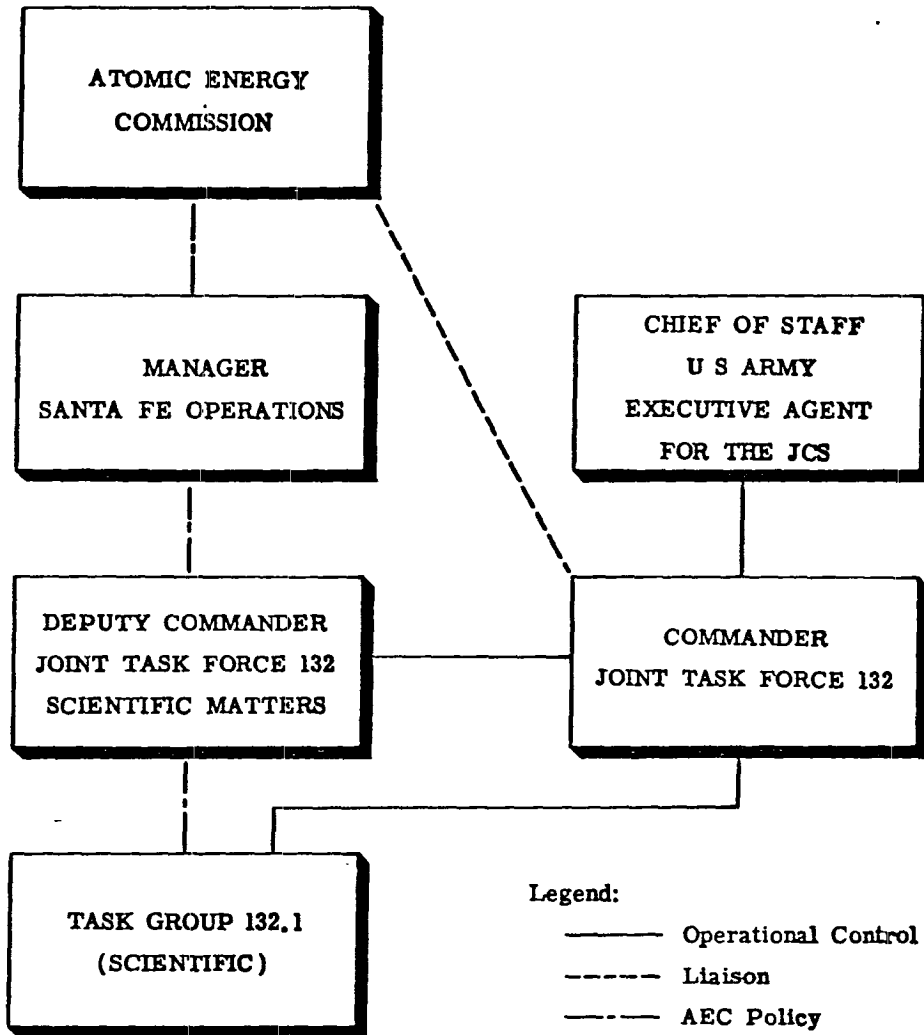
••••• Operations, Administration, and Logistics

••••• Advisory

J-10265

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RELATION OF TG 132.1 TO HIGHER HEADQUARTERS

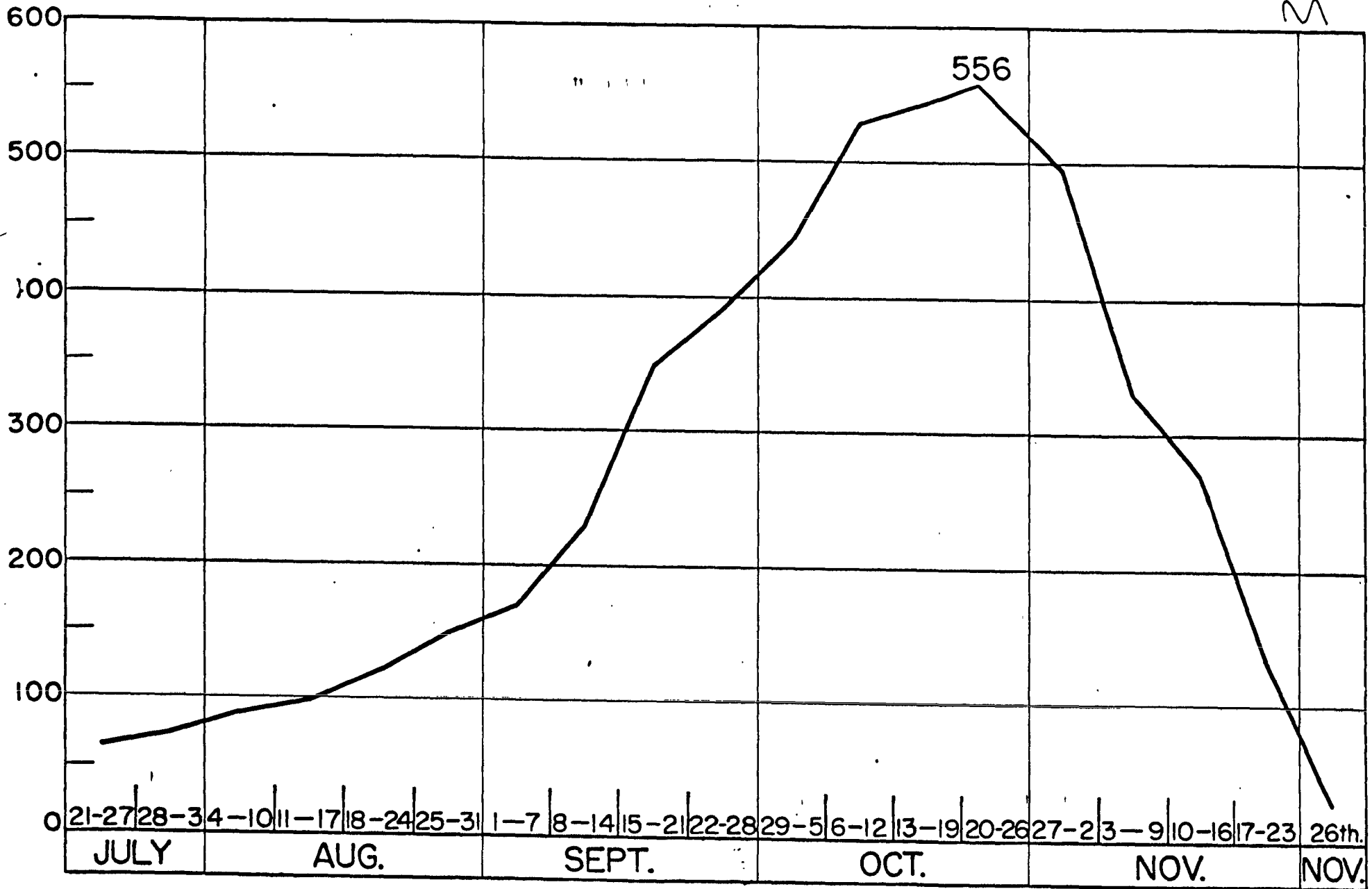


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WEEKLY AVERAGE OF TG 132.1 PERSONNEL IN FORWARD AREA

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PROGRAM 5 - GAMMA-RAY MEASUREMENTS

This program was another of those devoted to studying the "phenomenology" of the device tested. Measurements were made of the gamma-ray intensity as a function of both time and distance, including that due to fallout, and of the total gamma-ray dose as a function of distance. The close-up instrumentation was also designed for diagnostic studies and a study of shock wave effects upon gamma radiation. The more distant instrumentation was concerned largely with fallout, and included utilization of several newly developed collection and recording devices.

Total dose was measured with film badges on both shots, many badge stations being established on radial lines extending from bomb zero. Close-in intensity versus time (one ten-millionth of a second time resolution) was measured with phosphor-photocell-oscilloscope-camera combinations for the first few seconds. More distant intensity versus time measurements (few second time resolution) were made with ionization chamber-recorder combinations. Fall-out samples were collected both over land and over water at selected points ranging from a few to several hundred miles from bomb zero.

For Mike Shot, the film badge stations were nearly all destroyed. Meager data will be extracted from those more than 4,500 yards from zero, however. High time resolution intensity

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records were obtained in sufficient quantity to indicate the pronounced effect of the shock wave and to measure the time between the two fission phases of the device. Lower time resolution intensity records were obtained on seven islands of Eniwetok Atoll. Thus far no such data have been recovered from the off-atoll stations, although fall-out has been recorded on Kusaie and Ujelang Atolls. Useable fallout samples (some of them as a function of time) were collected on the island of Eniwetok Atoll, on rafts within the lagoon, on buoy-type sea stations, and at other atolls. It is expected that analysis of these samples and the ionization chamber-recorder data will definitely augment our understanding of the over-all fall-out hazard problem - particularly because of the time dependence of portions of the data.

For King Shot, the film badge stations out to 1,200 yards were destroyed, apparently by a large block of concrete which rolled down the line wrecking both film and badge and neutron detector stations. The remainder of the badges were recovered and are undergoing analysis. Useable intensity versus time data was obtained with both slow and fast time resolution. It is interesting to note that the peak radiation level on Runit (2,000 yards from zero) was 5,000 Roentgens per hour five seconds after zero, and had dropped to 1/2 Roentgen per hour approximately one minute later. No significant fall-out was

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recorded on any other island of the atoll, and none was reported at any off-atoll station at this writing. Samples were obtained from 24 fall-out collector stations on islands on the atoll. These samples exhibited extremely low activity, however, indicating very slight to no fall-out.

PROGRAM 6 - BLAST MEASUREMENTS

This program was designed to study the characteristics of the Mike and King blast waves, their propagation through air, water, and earth, and their transient effects upon those media. In particular, data were sought to document the following: (a) Pressure versus time as a function of distance from zero at the surface, (b) Material velocity behind the shock front at known positions in space, (c) Shock wind, afterwind, and sound velocity before, during, and after blast wave passage, (d) Water surface motions in both deep and shallow water, (e) Sub-surface earth accelerations, (f) Sub-surface pressures in both deep and shallow water, to include acoustic pressure waves at great distances, (g) Air density versus time before, during, and after shock wave passage, and (h) Free air pressure versus time at known positions in space. The tremendous energy released associated with Mike Shot and the quasi-operational nature of the King Shot air drop assured that great interest would be shown in

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