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H-6-47

GENERAL (T. N. White) Group Annual

document consists of ______ pages L_ copies. _ of _. Series A

(NB. It is assumed that t H-1, H-6 reorganization the annual report. Perh there too.)

and mechanics of the d in the H-DO part of e following should go

Within the scope of operations H-6 is to provide specialized Group in the fields of radiolo for Health Division support of Advisory Panel, advice on radand dosimetry services), and He site field test work, have come Group H-6.

, the general purpose of Group ort for the H-1 Monitoring and meteorology. Responsibility membership in the Test Director's certain specialized meteorological support of miscellaneous offto a considerable extent in

In terms of man-hours expended, a upper of J-Division activities reprefacilitated by a military assig 🖠

sents a greater fraction of the 1 to 1 to 6 Group than might appear from a reading of the following report the intermed the report does not make apparent the very consider- # FX'-17 to which this work has been . The assignment of Major John D. Servis (Army Chemical Corps) to Los Alabas (4) and 1.952) where he has been able to work closely with this Group on satisfacter planning for Operations Ivy and Castle (and has assisted with some mobilers of Tumbler-Snapper and Upshot-Knothole) has been very beneficial and all dincerned.

The Special Problems Section (as was the preceding Biophysics Section of H-1) has been occupied most of the time with pressing programmatic problems, with little opportunity for the stimulas of research. The situation has improved somewhat over 1951 in this respect, newever, and it is hoped that it can be improved further by the addition of another member during the coming year.

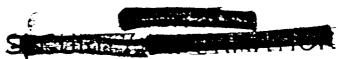
It became evident during Operation Ivy that a two-man Field Test Section is Not large enough to cover all the problems that may arise at one time. However, the necessary work was done satisfactorily with aid from elsewhere So in the Division, and no effort will be made to augment the Section unless Tit is found that this method of solving such problems is unsuccessful.

In the Meteorology Section, the high quality of the support, in personnel Massignments from the Air Weather Service, has continued to be apparent. As one example, notable contributions were made by the officer in charge at a recent conference with representatives from the Savannah River Project concerning radiological hazards that might follow the explosion of a pile.

Of particular interest to the Group Office has been an effort to improve the criteria for airways closure prior to detonations at Revada Proving Ground. Although some improvements have been made, lack of data on eddy diffusion remains the chief obstacle. The problem of the spectral distribution in an atomic cloud continues to be of interest, and although little progress has been made here, a possible source of information has been found.

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Toward the end of the year, re-investigation of the wave-length response of the LASL film badge was undertaken, using the theory of Greening (Proc. Phys. Soc. LXIV, 11-B, p. 977) as a guide. Results to date indicate the possibility of considerable improvement in the badge.

The Group Office has been considerably overcrowded during much of the year. The pending move to H-Building should relieve this situation.



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SPECIAL PROBLEMS SECTION (3.

A. PERSONNEL

With its inception (in fact a former H-1) at the start of th members (B. Schnap, A. Dodd) w of the Section but had other do transferred to H-6 Field Test : the complement of the Section & was added in February. At the six, with one member (G. Anglet September on for the purpose of

Dimedical the "Biophysics Section" of our, the laction acquired, on paper, two dic not actively participate in the work is. Farit; the year, these two were tion Fig other individuals formed ts create n, and a new member (I. Israel) ess of the year, the Section consisted of the having then on leave of absence from midnum , raduate study.

B. ACTIVITIES

As the name implies, there is we yelitale at at is routine in the work of the Special Problems Section. It is Section's services to other Groups have ranged from consultation and adv is, through information and education, to investigation and research. : the following paragraphs, some of the problems handled by the Section will be note and briefly described in order to give some idea of the notices and was lety of the work done.

- 1. Perhaps the hearest to by source shielding problem:
- satine were the problems that arose in connection with the monitor a activities of H-1 and other Groups. These problems involved this my instrumentation, and entailed the calibration, evaluation and odification of monitoring materials. In addition, many calculations were done, for example, those required
- 2. In the field of information and edication, the Section was responsible during the year for a mamber of lectures delivered before several different groups. Radiation hazards and radiologic safety procedures were the principal subjects of the lectures. The nature of the material covered varied with the type of group. The groups ranged from civil defense personnel to new staff members attending the orientation course.
- 3. The Section participated in weapons test programs, cooperating with J-13 in making film measurements of gamma-radiation exposure as a function of distance. The measurements were made both at Nevada and at Eniwetok. The Section designed and tested the stations that were used, and had members at both test sites to see to the installation of stations and the recovery of film. The results obtained have been analyzed, and the analysis will appear in a forthcoming report. The results of like measurements made by the fection at Operation Buster were published in March as report WT 408.
- 4. Post-shot measurements were made in Cotober at tower shot sites in Nevada are covered in the report of the Field Test Section.
- 5. Investigations of a research nature concerning properties of plutonium and thorium were rade. The plutchium investigation was an inquiry into the energy and intensity of the x- and gamma-rays from plutonium metal. The results of the inquiry, combined with results obtained by other Sections of H-6 in studies of plutonium metal, were presented in October at an AEC Health Physics Conference in Idaho Falls. In addition, a part of the results obtained in the Section were published in The Physical Review.





6. The thorium investigation development of a more sensiti thoron concentration in air. inadequacy was presented at t the work was forwarded to the in August.

m we main was concerned with the all more a surate method of monitoring per on the existing methods and their Li Meetin: s on Industrial Health at Cincinnati in April. Subseque to the meeting, a more sensitive method for monitoring thoron was developed, and the completed description of 1. Public 1 alth Service at Cincinnati

METEOROLOGY SECTION (Lt. Col. Cli : A. Spoh:)

A. PERSONNEL AND ADVINISTRATION

Military administration underwent i real changes during the year, the

detachment being assigned successive to the 2009th Air Weather Wing, the 6th Weather Squadron and the 4th We let Group. It is now stabilized as Detachment 22, 4th Weather Group, * : tendquarters in Bultimore, Maryland, under the command of Octonel George : Taylor.

Two personnel changes took place du that he year. CWO Blair M. Younkin leaving in July and Major George J. expenden III arriving in December.

B. OPERATIONS

1. Scheduled

- a.) Preparation and dissemi stich of a fifty-four hour forecast on all regular work days.
- b.) Maintenance and servicing of meteorological instruments at various points throughout the project.
- c.) Accumulation and process well alimatic data for the project.

2. Non-scheduled

- a.) Meteorological advisory service to the Test Director during Operation Tumbler-Snapper, mair elements being fall-out forecasts, cloud height forecasts. CAA warning service, and post-shot trajectories.
- b.) Preparation and dissemination of climatic studies relative to atomic test activities.
- c.) Preparation of modal climatic statistics for the support of miscellaneous laboratory operations throughout the year.
- d.) Preparation of reports to the Test Director of the Section's activities in support of Operations Buster-Jangle and Tumbler-Snapper.

C. RESEARCH ACTIVITIES

Major activity was directed at the problem of forecasting atomic cloud heights and a study of the accuracy of the fall-out forecasting techniques in use at Nevada Proving Grounds. 22

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FIELD TEST ARCTION (w. S. Konnedy, 1 1/ Schiavone)

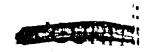
The Field Test Section was created January 1, 1952 to assist in the handling of problems arising as a result of the increased frequency of, and duration of, and Health Division participation in atomic tests.

Activities of the Section were divided into two main categories: test operations and laboratory operations. Laboratory operations were conducted during times not taken up with field test work, or preparations for same (which usually consumes more time that actually sport on field tests). An outline of the work performed to be the categories is as follows:

A. TEST OPERATIONS

- 1. Buster-Jacgle
 - 2.) Prepared data for the final Suster-Jangle report.
- 2. Kark 8 Operational Suitability Tests
 - a.) Provided complete Rad-Safr coverage for the operations at Sglir Field, Florida and New Mexico.
 - b.) Theoreta standing a fine of med components.
- 3. Tumbler-Snapper
 - a.) Provided advisory service
 - b.) Investigated high film-badge readings of cloud sampling personnel. It was shown by film comparise is and Victoreen R chamber experiments that high film readings were die to interpretation of film badges under a portion of the film which had a lead filter on one side only. This investigation led to a conference in Washington later in the year (at which we work represented) called by the ABC for the purpose of specifying a standard film hadge and film processing method for use at atomic tests. As a result of this conference and additional work by the Bureau of Standards, ABC Division of Biology and Medicine and the Test Section, design for a test badge has been completed and standard processing techniques accommended.
 - c.) Investigated the problem of the average photon energy of radiation encountered by cloud sampling personnel. This study revealed the importance of pecaetric 1 factors in the losage indications by film badges and verified the connections of the decision to apply no energy connection factors to lith exposure readings of cloud sampling tensoure) during Puster Jawan
 - d.) Additional desiretry problems arese during the decontamination of the tower-shot areas at Hevada avoing Ground, which occurred during the Iny Operation. Newtons of special Problems Section (H. Israel) and the H-1 Poritoring Group carried out this work for the Field Test Destion (on duty at Ivy). The relative importance of test and pass the Albage in the contaminated areas





was given special attenti. indicated that the beta do badges) may be about a hun Under actual working condibeta dose is approximately permissible skin dose is a: dose, it was concluded that serious over-exposure could ray badges.

heoretical calculations have easured by the personnel film less larger than the gamma dose. was found experimentally that the the gamma dose. Since the . Coly twice the permissible depth Fr. he conditions investigated) no is a controlling exposures by gamma

4. Ivy

- a.) Provided advisory serve to clanning stages.
- b.) Assisted in the decist minimize radiation exposure: of about 13r were reduced to of three or sore were expericases averaged reductions of
- conference in Washington to have two cases on Hike shot exposures than 3.5r. Reductions by a factor . In two other cases. The remaining . t 40%.
- c.) Conducted studies on the for the test.
- restriction of the film packet proposed
- d.) Became was ing members duration of the operation. Information Center and P. R. (loaned by EML) responsibil Section.
- : Rad-Safe organization for the the Tennedy was in charge of the t wrone shared with Harold Abes - operation of the Dosimetry

- 5. Upshot-Encthole
 - a.) Provided advisory service
 - b.) Assisted in the procurers of file badges.
- 6. Castle
 - a.) Provider advisory service.
- B. LABCEATORY (PERATIONS
 - 1. Made extrapolation chamber measurements on bulk plutonium and analymed the results in the light of spectrometer measurements made by other investigators. A report is currently being prepared on this work.
 - 2. Extrapolation chamber measurements were made on several samples of natural uranium in LASL stock. Surface dose rates about 15% lower than the generally accepted value of 240 mrsp/hr were determined. Our measurements were confirmed by an independent surface dose estimation of one specimen boths New York Operations Office. Analysis of the samples used is being made to account for the discrepancy.
 - A formal report was written on the decontamination of platinum containing alobe-active material,

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- 4. An informal report on considerations of health hazards and precautions incidental to the casting of ten quantities of normal uranium was prepared for a consultent agency to CMS Divi-ion
- 5. A stack was designed for CMR-2 for work with large quantities of tritium.
- 6. Assistance was given in the instrumentation and administration of radioiodine treatment for two patients as the Fedical Center.
- 7. Supervision of circulating and drinking water contamination analyses (B. Schnap), and certain aspects of a however environmental survey program, were undertaken
- 8. A chart of true mass absorption curves for X & Fradiations between 10 and 100 KeV was prepared from h.B.S. .33, "X-Ray Attenuation Coefficients from 1: Fev to 300 Jev"; Class H. White.



