DNA1.950224.062

OTI-57-NN
Rev.

Nevada Test Organization
OFFICE OF TEST INFORMATION
1235 South Main Street
Las Vegas, Nevada

PRE-SERIES BRIEFING
May 1957

27608

ATOMIC ENERGY COMMISSION
DIV OF BIOL MED
3205

Remarks by

Robert L. Corsbie, Director
Civil Effects Test Group

Organizationally, the Civil Effects Test Group is one of six scientific and technical units reporting to the Test Director and is a counterpart of the Military Effects Group. It is principally sponsored by AEC and FCDA. Other government agencies, some private industrial groups, and two foreign nations have projects in this program. The foreign nation and industry projects are proposed and sponsored by FCDA. There are financial arrangements between the participants and the Civil Defense Administration.

The scientific and technical content comprises 10 programs, 54 projects, about 200 shot-participations, and requires at NTS a peak population of around 400 scientific and staff personnel over the operational period of several months. All projects are reviewed by the appropriate scientific and technical test screening and planning committees before acceptance for field testing, and are coordinated with the military effects tests.

The continuing need for effects information parallels and keeps pace with new developments in weapons. The Civil Effects program stems from this continuing need for up-to-date information on the weapons effects given by a family of nuclear weapons. Our weapons development tests afford an opportunity to augment laboratory experiments with new and useful knowledge from nuclear detonations. Continental tests afford unusually good opportunities to verify in the field various theoretical concepts and laboratory programs which are directed towards complete knowledge of effects on man.

The six general areas of study in the PLUMBBOB program are as follows:

1. Fallout Radiation
2. Prompt-Gamma and Prompt-Neutron Radiation
3. Blast Effects on Structures
4. Blast Biology Studies
5. Radiological Countermeasures and Training
6. Instrumentation and Supporting Services

(more)

HRE-1099
HRE-1000

information that will permit the administration of improved treatment of radiation effects on man. Two of the major laboratories of the AEC are cooperating on this program. They are Oak Ridge National Laboratory and Los Alamos Scientific Laboratory. In addition, the Division of Biology and Medicine of the AEC is being assisted in this program by the Brookhaven National Laboratory, the Air Force School of Aviation Medicine, the Army Surgeon General's Office, and the Naval Medical Research Institute.

Blast Effects on Structures

Studies of blast effects on shelters and structures are sponsored principally by FCDA. Included are reinforced-concrete home-type shelters for a few persons and so-called mass shelters, capable of holding large numbers of people as well as performing dual functions, such as serving as a parking garage in ordinary times. Also, there are some industry-sponsored items, namely, a protective vault for records, and a windowless reinforced-clay masonry structure. Three reinforced-concrete dome structures are being subjected to overpressures in several ranges to obtain engineering design data for use in future mass shelter designs. Through a U. S. architect-engineering firm and FCDA, France and West Germany are testing a number of shelters of their design. This represents the first time other nations have included structures or otherwise participated in the Civil Effects Test Group. In addition, a variety of valves, devices and equipment will be tested for use as shelter components.

Blast Biology

The present state of knowledge makes mandatory further studies relating to blast biology. These investigations are being carried out by the Lovelace Foundation and are directed toward obtaining more information on the primary, secondary, and tertiary effects of blast. They are a continuation of the work begun during 1953-1955, where together with other valuable data for the first time a means was devised of obtaining usable information on numbers and types of missiles (flying bricks, timber, glass, etc.) per unit area and on the penetrability of glass and masonry fragments and other small missiles likely to be produced in an urban area that has been subjected to a nuclear blast. It is expected that the studies during PLUMBBOB will provide equally valuable information on the problems associated with biomedical effects of static pressures and dynamic pressures sufficiently strong to translate bodies the size and weight of a man from a state of rest to a state of motion.

Countermeasures and Training

One of the most important new programs that will be initiated during PLUMBBOB is work by the Naval Radiological Defense Laboratory on countermeasures against fallout radiation. The proof-testing of radiological shelters and typical buildings is expected to produce data useful in practical applications and guidance for planning a long-range program on methods of survival and continuing occupation of areas that have been subjected to

(more)

US DOE ARCHIVES

heavy radioactive fallout. This program is designed to provide confirmation and applicability of laboratory theories and methods of decontamination to the large-scale recovery of areas contaminated by radioactivity and in addition to develop data on scaling from low yield to megaton detonations.

Our program includes several training exercises and an offsite radiological defense project of especial importance to civil defense. In addition, other projects will include the field testing of aerial monitoring equipment, and the indoctrination and training of radiological defense personnel drawn generally from state and community civil defense organizations. The field testing of commercially produced radiation detection instruments is included in these projects.

Instrumentation and Supporting Services

The instrumentation and supporting services concerned with radiation, blast, thermal, technical photography, are self-explanatory and are designed to give necessary measurements and records to project authors for use in reaching conclusions and in the preparation of technical reports. To supplement and make these physical measurements more meaningful, biological materials and dosimeters are used to provide data for correlating exposures with effects and extrapolating the findings to probable physical effects on human beings. This requires for PLUMBBOB several species of animals such as mice, guinea pigs, primates (monkeys), dogs and swine -- all of which you will recognize as routinely used in biomedical research.

Summary

It is emphasized that probably the most significant aspect of the Civil Effects Test Program, Operation PLUMBBOB, is the coordination of continuing laboratory research and less frequent test activities in planning projects to provide information essential to an adequate understanding of nuclear effects on life in all its phases. This coupling provides a continuous flow of basic data usable in immediate practical application and in planning of future research into the means of national self-protection, individual survival, and accomodation of medical practice to the atomic era.

In any case, peace or war, we are already well into the atomic age. Learning to live with the by-products of nuclear reactions is now necessary and urgent. In addition to the necessity for developing military strength, the weapons testing programs furnish a unique opportunity for providing indispensable information to this end. Additionally, opportunity is provided for the training of key personnel in the theoretical and practical aspects of dealing with environmental radiation in the great variety of situations in which it occurs.

- 0 -