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M. H. Boyer, General Manager

September 10, 1952

John C. Bagher, Director
Division of Biology and Medicine

328

MONTHLY STATUS AND PROGRESS REPORT, AUGUST 1952 -
DIVISION OF BIOLOGY AND MEDICINE

SYMBOL: FMA: FL

Transmitted herewith is the Monthly Status and Progress Report for this Division covering the month of August 1952.

Enclosure:
Report

CC: J. H. Burchard

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MONTHLY STATUS AND PROGRESS REPORT

Division of Biology and Medicine

MORTH OF AUGUST, 1952

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Weapons Test Activities

Conference on Fall-out Studies. [redacted] A conference was held at the Los Alamos Scientific Laboratory on August 5-6, 1952, to establish objectives in connection with the fall-out program following nuclear detonations. Representatives were present from U. S. Public Health Service, the Atomic Energy Project at BGLA, the Atomic Energy Project at University of Rochester, New York Operations Office, Santa Fe Operations Office (Los Alamos) and the Division of Biology and Medicine.

The purposes of the meeting were:

1. To review and re-evaluate the objectives of a fall-out program;
2. To determine the necessary procedures and equipment to fulfill the objectives;
3. To reach agreements on collection and counting procedures in order to provide readily interpretable data in common terms;
4. To establish mutually agreeable organizational relationships between the working groups concerned with the fall-out studies conducted at the Nevada Test Site.

The results of the conference enabled all of the various groups, who have participated in some phase of the fall-out program in the past, to formalize a clear concept of the necessary objectives for such activities. Agreement was reached on specific procedures and equipment needed to accomplish the objectives of the objectives and equipment.

Examination of Cattle Exposed during Recent Tests. (URGENT) The possibility of radioactive dust fall-out within the Nevada Proving Ground and immediately adjacent areas, and of the potential hazard to range cattle have been made known repeatedly by the Commission to the public and to cattle grazers in that area. However, during the spring 1952 test series, range cattle were found inside the firing area on several occasions.

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Early in August, Mr. Floyd Lamb of Alamo, Nevada, requested that the Commission examine some of his cattle which had lost patches of hair believed to have been caused by radiation. A preliminary examination of these animals by a team from Los Alamos indicated that the cattle had been exposed to ~~small doses of~~ radiation carried by dust particles in low level dust clouds which settled in the firing site and adjacent areas. Some cattle showed patches indicating only temporary loss or discoloring of hair, others revealed localized radiation damage to the skin, not unlike a burn; however, these showed normal healing.

Although the cattle showed no ill effects other than superficial burns, the Commission will continue observations of the exposed animals in cooperation with Mr. Lamb. Arrangements have also been made to purchase two of the cattle most severely burned. These will be shipped to the University of Tennessee Farm at Oak Ridge for further study. The U-2 Group has been engaged in a long-range study of cattle which had been exposed at Alamogordo during the 1945 tests.

Research Activities

Uptake of Fission Products by Plants. ([REDACTED]) Studies of the uptake of fission products in plants are being made using radioactive fall-out soil caught within a few miles of the underground shot during weapons test detonations (Jangle). The radioactive soil was added to representative soils found in the United States. Crops grown in these soils take up a sizeable amount of the total activity present in the original radioactive material. The activity is mainly radioactive strontium. Plants grown in typical eastern acid soils low in calcium took up many times as much radioactivity as in western type alkaline soils. The large difference between uptake of the activity from the various soils indicates the dependence of the uptake of strontium on the level of exchangeable calcium in the soil. Continued investigations will also include the use of weathered fall-out radioactive material.

These studies involve long-term investigations on distribution of radioactivity and biological pathways whereby the material may be absorbed, and the effects of the deposition in plants and animals.

Industrial Health

Health Physics

Health Physics Conference. (UNCLASSIFIED) A classified Health Physics Conference will be held at Idaho Falls, Idaho, on October 16-18, 1952. The meeting which will be sponsored by the Division of Biology and Medicine will include industrial health personnel from AEC-contractors, military and civil defense agencies and the Commission.

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Administrative and research problems in the radiation protection field will be discussed, and informal papers on pertinent questions will be presented.

Photodosimetry Meeting [REDACTED] The problems associated with photodosimetry during nuclear weapons tests were considered at a recent meeting of personnel from AEC-contractors, Armed Forces Special Weapons Project, the Bureau of Standards, the National Institutes of Health, and the Commission.

The objectives of the conference were to establish standardized procedures for: the use of film badges; wearing, developing and interpreting film badges; and record keeping.

A special study group was appointed to conduct research on problems for which sufficient data are not now available, and plans were made to have a set of standard procedures issued by the Division at an early date.

Waste Disposal at Sea. (UNCLASSIFIED) Investigations as to the feasibility of disposing of large quantities of radioactive liquid waste material into the sea are under way by the Division. This matter is of much interest and importance and necessitates consideration of such items as:

- a. Disposal of radioactive waste in sealed containers (as drums or large tanks), or disposal by pumping the waste directly into certain ocean areas;
- b. Ocean areas most suitable for such disposal;
- c. Ultimate distribution of waste in the sea;
- d. Effects of such disposal on sea life, and ultimate^{ly} human life.

Discussions have been held recently with the Scripps Oceanographic Institute at La Jolla, California, to determine their willingness to undertake such a survey. Further meetings will be held with other oceanographic groups in order to interest them also in the problem.

General

Atomic Bomb Casualty Commission [REDACTED] The present status of the Atomic Bomb Casualty Commission project since the signing of the peace treaty was reported by the Director of the project in Japan during his recent visit to Washington. As previously reported (see July Progress Report), arrangements were made through the U. S. Embassy in Japan whereby ABCC and its personnel would be accepted by the Japanese Government as an adjunct to the U. S. Embassy. The Japanese Government, however, has declined to formalize such an agreement in writing. In the opinion of the Director, Dr. Grant Taylor, this lack of

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formal understanding imposes serious obstacles in the daily dealings with other elements of the Japanese Government. In addition, concern was expressed over the welfare of ABCC personnel and the ability to recruit additional or replacement personnel due to the post-treaty unrest and anti-American sentiment which now appears to be widespread.

In view of these problems, the Director believes strongly that continued operation in Japan would be possible only by outright attachment to the Far Eastern Command. Affiliation with the U. S. Embassy had been considered desirable to avoid the stigma of the military in a research operation so intimately connected with the Japanese community, while at the same time enabling most of the pre-treaty privileges accorded to ABCC. If, however, the anti-American sentiment grows to the extent that the safety of ABCC personnel would be jeopardized, arrangements with the Department of Defense may be necessary. The solution would be either to have the Department of Defense take over the operation of ABCC, or to include it as one of the contractors of the Far Eastern Command essential to the military operation and in accordance with the Administrative Agreement. The National Academy of Sciences, contractors to the Commission for operation of the project in Japan, have been authorized to explore with the Department of Defense alternative mechanisms on a preliminary basis by which a change-over to the Far Eastern Command might be effected.

Visit to Harwell, England. (UNCLASSIFIED) During a recent visit to Europe Dr. Paul B. Pearson of the Biology Branch visited Harwell, England. The following items pertaining to the program of the Harwell group were reported by Dr. Pearson:

1. Neutron Effects on Mice. A small pile is used in this project, and 500 male mice (about 6 weeks old) are exposed continuously to neutrons. Three levels of exposure are used, namely, 6 rep (roentgen equivalent physical) per week; 0.7 rep per week; and 0.3 rep per week. The mice receiving 6 rep per week become completely sterile after about 12 weeks, and this condition continues even after removal of the mice from the exposed field. It has also been found that cataracts develop in most of the mice.

Approximately 50 rep reduces the weight of the testes by 50%; this weight change of the testes is considered by Dr. R. E. Mole of Harwell as a more sensitive measure of radiation injury than change in the weight of the spleen.

Hazards of Agricultural Contamination. The Harwell group has given a great deal of study to this problem. Primary interest concerns pasture and grazing areas that might be contaminated from radioactive fallout. The problem in the United Kingdom could be much more acute than in the United States due to the high concentration of livestock per square mile, and the fact that over 50% of the food supply is imported. Thus, a loss of home production should imports become restricted would be a serious problem.

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In this connection, the Harwell Group has requested that the Commission make available to them a shipment of soil samples taken from the area of the weapons test site. This soil would be used in connection with research studies now being made on crops in that country. Steps have been taken to implement this request.

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