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November 30, 1955

AEC 746/13

COPY NO 27

ATOMIC ENERGY COMMISSION
QUARTERLY PROGRESS REPORT
TO THE JOINT COMMITTEE ON ATOMIC ENERGY
JULY - SEPTEMBER 1955

Note by the Acting Secretary

1. The General Manager has requested that the attached report by the Controller be circulated for consideration by the Commission during the week of December 5, 1955.

2. Part III - Weapons - of the Quarterly Progress Report to the Joint Committee is being circulated separately as AEC 746/14.

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HAROLD D. ANAMOSA
Acting Secretary

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ATOMIC ENERGY COMMISSION

QUARTERLY PROGRESS REPORT
TO THE JOINT COMMITTEE ON ATOMIC ENERGY
JULY - SEPTEMBER 1955

Report to the General Manager by the Controller

1. Senator Anderson on May 23, 1955, requested that the Commission resume the plan in effect from 1947 to 1950 of submitting classified progress reports at quarterly intervals. Since 1950 such reports have been prepared only twice a year.

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2. Discussions held with the staff of the Joint Committee led to the plan subsequently outlined in the Chairman's letter of August 24 to Senator Anderson. Four reports are to be submitted each year, as of the end of each calendar quarter. The report for December 31, to be transmitted about February 1, would be a comprehensive statement covering the basic programs in much the same manner as has been done in recent Program Status Reports. The three subsequent reports during the year would not necessarily undertake a comprehensive treatment, but would be primarily concerned with updating the information contained in the comprehensive report furnished early in the session. They would include, for example, production statistics and current schedules of construction projects, as well as significant changes in program planning and highlight accomplishments.

3. The attached draft, together with Part III - Weapons, being circulated as AEC 746/14, is the first report to be prepared under this modified requirement. If acceptable to the

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Joint Committee, it will go far to establish a pattern for the content and style of the interim quarterly report.

4. The current report is an updating of information in the Program Status Report for June 30, 1955. It omits all charts. In this way it avoids reaffirmation of earlier long-range projections and leaves the definition of new projections to the comprehensive report to be prepared as of December 31, 1955.

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5. The report will be submitted as two documents, as in the past. Part III - Weapons - will be a TOP SECRET document. The remaining sections of the report will comprise a SECRET document. The report will be printed at Oak Ridge and distribution will be in accord with lists approved by the General Manager.

RECOMMENDATION

6. The General Manager recommends that the Atomic Energy Commission:

Approve, for transmittal to the Joint Committee on Atomic Energy, the report attached as an Enclosure, and Part III - Weapons - being circulated as AEC 746/14.

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U. S. ATOMIC ENERGY COMMISSION

WASHINGTON, D. C.

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QUARTERLY PROGRESS REPORT
TO THE JOINT COMMITTEE ON ATOMIC ENERGY
JULY - SEPTEMBER 1955

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*Transmitted as a separate document.
**Available in Progress Reports and Statistics Branch, Division of Finance.

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PART VII

BIOLOGY AND MEDICINE

RESEARCH ACTIVITIES

Carbon 14 Tracer Studies

1. The assimilation of carbon and the biosynthesis of rubber in rubber trees are being investigated at Argonne National Laboratory in cooperation with the U. S. Department of Agriculture and the Quartermaster Corps, U. S. Army. Most important findings are:

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a. Radioactive carbon was found first in leaf rubber and only later in stem rubber. This finding conflicts with the earlier theory that rubber formation occurs only in the bark.

b. Radioactive carbon assimilated in rubber trees appears to be formed initially into high-molecular-weight rather than low-molecular-weight rubber.

c. Starved rubber plants may metabolize at least a fraction of the rubber formed.

2. The carbon 14-labeled rubber formed in these experiments will be used:

a. By the Quartermaster Corps to study the breakdown or degradation of rubber under various environmental conditions.

b. By the New South Wales University of Technology in an attempt to isolate and identify the inositolis present in the rubber plant tissues. Inositolis are sugar-like compounds which may, when labeled, provide useful information in plant and animal studies.

INTERNATIONAL CONFERENCES

Conference on the Soil-Plant-Animal Cycle

3. AEC representatives participated with United Kingdom and Canadian personnel in an unclassified conference at Harwell during July on the soil-plant-animal cycle of fission products from fallout. Particular attention was given to radioactive

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strontium as a fallout hazard in agricultural areas. Information exchanged will assist technical personnel in all three countries in studies of this problem.

Conference on Genetics

4. The status of research on genetics was discussed in an unclassified conference at Harwell in September. The exchange of ideas and the outlining of areas for future study will facilitate research on the possible genetic effects of atomic energy activities.

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CIVIL DEFENSE ACTIVITIES

Operation ARME

5. An aerial radiological monitoring exercise (Operation ARME) was conducted at the Nevada Test Site in October by AEC for personnel sponsored by the Federal Civil Defense Administration. Participants observed the use of aerial survey techniques and equipment developed by the AEC Health and Safety Laboratory to monitor large water and land areas adjacent to test sites. Residual radiation data collected by aerial monitoring were found to be generally consistent with data gathered by conventional surface monitoring techniques. The test demonstrated the technical feasibility of using aerial radiological survey techniques in civil defense against fallout from nuclear weapons.

Civil Defense Conference

6. A two-day classified conference on "Nuclear Effects and Civil Defense" was held in Chicago in October in response to a request by FCDA for further assistance in defining and evaluating weapons effects information. AEC and contractor personnel summarized the state of knowledge of the effects of

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atomic weapons to the extent that such information is applicable to civil defense research. The discussions covered the types of physical damage to civilian structures; biomedical effects including blast biology; the effects of prompt and residual radiation on foodstuffs; and the measurement and evaluation of radiological contamination. DOE ARCHIVES

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Resolution on Ionizing Radiation

11. In light of world-wide interest in radiation effects, the State Department in consultation with AEC developed a resolution on this subject for presentation before the United Nations. The resolution, presented to the General Assembly's Political and Security Committee on November 1, recommended that:

a. A scientific committee be established to assemble reports from member States or specialized agencies of the United Nations;

b. Membership consist of representatives from Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, Egypt, France, India, Japan, Mexico, Sweden, the United Kingdom, the United States, and the U.S.S.R.;

c. The committee develop uniform standards for sample collection, instrumentation, radiation counting, and sample analysis. The committee is to prepare annual reports if appropriate and to submit by July 1, 1958, a summary of all reports collected under this program.

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