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QUARTERLY PROGRESS REPORT

to the JOINT COMMITTEE on ATOMIC ENERGY

Part III - WEAPONS

July - September 1959

UNITED STATES ATOMIC ENERGY COMMISSION

524

[redacted]

Part III

Weapons

WEAPONS PRODUCTION [redacted]

Production of nuclear weapons in the July-September quarter was essentially in accordance with schedule. There was a three-week strike at Mound Laboratory at Miamisburg, Ohio, and a six-week strike at ACF Industries, Inc., at Albuquerque, New Mexico.* The Mark-28 program was affected somewhat by the ACF strike; however, it was settled on August 31. The effect of the strike will be of short duration. Production programs were not affected by the other strike.

WEAPONS RESEARCH AND DEVELOPMENT

In view of the fact that the Winslow bombing range project did not materialize, increased use of the Tonopah bombing range in Nevada is being made, and facilities are being expanded. A major portion of the technical operating personnel at the present Salton Sea range in California is to be transferred to Tonopah by July 1961. The Salton Sea facility will be maintained in a readiness state for test of systems which require sea level conditions or drops into water.

The AEC informed the Department of Defense (DOD) of the status of development of the ETED devices and has inquired about DOD interest in these devices. Both are low yield

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The DOD has requested the development of a lightweight multipurpose bomb or depth charge called "Little Lulu." Probably the [redacted] device will be used, giving yields of about [redacted] This weapon will be capable of all bomb-type deliveries, including lay-down, plus use as a depth charge. The anticipated date for stockpile entry is July 1962.

A development request was received for a warhead for the Minuteman missile. A warhead similar to that used in the Polaris missile will be developed. Also, a more advanced warhead of greater yield, but based on an untested device, will be developed to the point where it could be tested within a short time.

*The Joint Committee was informed by letters of the anticipated and actual outages, April 24–September 19.

[redacted]

The DOD is establishing a program for the detection of nuclear explosions at very high altitudes ranging into outer space. Certain analyses of instrumentation are being presently conducted in AEC weapons laboratories, and it is anticipated that the AEC will be assigned the development of the instrumentation required for the detection portion of the DOD mission.

The study of the feasibility of developing a Class B laydown bomb of about 10,000 pound size has been completed and it has been concluded that development is not possible without nuclear testing.

TEST OPERATIONS

Delays have been encountered in the installation of equipment and the excavating of cavities for the nonnuclear, high explosive experiments deep in a salt mine, Project COWBOY. It may be April 1960 before the experiments can be completed. It is hoped that from these high explosive experiments preliminary information will be obtained on the possibility of decoupling the long-distance, seismic effects of underground nuclear detonations.

The drilling of a 3-foot hole 950 feet deep in granite at the Nevada Test Site for the emplacement of a 5-kiloton device for the first Berkner Panel recommended nuclear shot is progressing. The readiness date is May 1, 1960. However, no Presidential decision has been made as yet as to whether the shot will be fired. Surveys for a nuclear decoupling experiment, Project PEACOCK, are proceeding.

Manpower and supplies at Eniwetok Proving Ground have been reduced to a readiness level projected toward resumption of testing only on 12-months' notice.

EXCHANGE OF WEAPONS INFORMATION WITH UNITED KINGDOM

Joint Working Group

By the end of September, 13 of the 15 joint working groups, reported upon in the previous quarterly report, had held their initial meetings. These 13 groups are those which are chaired by either the Atomic Energy Commission or the Atomic Weapons Research Establishment (AWRE), the remaining two groups are numbers 1 and 14 on the list furnished in the last quarterly report, chaired by the DOD.

Other Visits

In addition to these meetings, separate visits were made by joint working group members to various AEC and AEC contractor facilities for meetings on such subjects as: computational techniques and IBM computer codes, cryogenics, aerodynamics, Mk-28 production problems, hydrostatic pressing, seismic detection and decoupling, diagnostic instrumentation, RaLa techniques, safety philosophy, and fuzing and firing.

United States-United Kingdom Review Meeting

A second review meeting, similar to the one held in England on April 13–14, was planned to be held in Washington, D. C. on October 26–27. In addition to a general review of the exchange program to date and a discussion of additional areas for increased cooperation, the separate reports and recommendations of each of the joint working groups were to be considered.

Presidential Determination

The President made determinations that cooperation with and communication to the United Kingdom in the following areas will promote and will not constitute an unreasonable risk to the common defense and security:*

1. Information necessary to explore jointly with the United Kingdom various concepts which might lead to the development of a 500- to 600-pound, [redacted]TED warhead,

2. Information necessary to explore jointly with the United Kingdom various concepts which might lead to the development of warheads in the weight range of 100 to 200 pounds with yields of [redacted]

3. Information necessary to explore jointly with the United Kingdom the possibilities of conducting weapons testing underground and in outer space,

4. Information concerning clean weapon designs and supporting laboratory data,

5. Prices of components and materials for use in manufacture or preparation for manufacture of nuclear weapons and prices for nonnuclear parts which involve Restricted Data, and

6. Design information on the XW-35. The XW-35 was a 1,600 pound device tested during Phase I of Operation HARDTACK and produced [redacted] yield.

Executive Order

On September 30, the President approved Executive Order 10841 which delegates to the AEC and the DOD the authority to make joint determinations, such as those stated above, under Sections 144 b. and c. of the Atomic Energy Act.

WEAPONS FACILITIES

The status of construction on weapons facilities at the end of September is shown below:

Description of facility	Percentage completion
Manufacturing plant expansion, Albuquerque, New Mexico–Expansion of ACF Industries, Inc., plant which produces thermonuclear cases.	90
New Sigma Laboratory, Los Alamos, New Mexico–Replacement of temporary and inadequate weapons research and development facilities.	89
Weapons development and engineering facilities, Livermore, California–Ordnance engineering support of the Lawrence Radiation Laboratory weapons program.	98
Area 5 expansion, Oak Ridge, Tennessee–Facilities for fabrication of [redacted] components.	100

* The Joint Committee was informed in greater detail of the above by letters of July 25 and September 11.

Description of facility	Percentage completion
Fabrication plant, Oak Ridge, Tennessee – Facilities capable of manufacturing a new family of thermonuclear weapon components.	65
Metallurgy Laboratory, Livermore, California – A laboratory to handle plutonium problems associated with current and future devices and weapons.	58
Reactor Area II, Sandia Base, Albuquerque, New Mexico – A 5,000-kilowatt testing reactor to investigate the effects of radiation upon weapon components.	14

A contract was awarded in September for construction of additional facilities amounting to about $1 million at the Clarksville Modification Center. The project includes igloo and warehouse modifications and railhead and plant alterations. (End of [redacted] section.)

AEC Technical Information Service Extension
Oak Ridge, Tennessee