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AEC 129/86

February 24, 1958

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ATOMIC ENERGY COMMISSION

PART III - "WEAPONS" - QUARTERLY PROGRESS REPORT TO THE JOINT COMMITTEE ON ATOMIC ENERGY - OCTOBER-DECEMBER 1957

Note by the Secretary

Attached for consideration by the Commission during the week of February 24, 1958, in connection with AEC 129/84, is a draft of Part III - Weapons, of the Quarterly Progress Report to the JCAE. Part II - Special Nuclear Materials, is being circulated separately as AEC 129/85.

326 U.S. ATOMIC ENERGY COMMISSION
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OM 8 Quarterly Progress Rpt. to the JCAE Vol. 5

W. B. McCool

Secretary

[redacted]

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PART III

WEAPONS

GROWTH OF WEAPONS STOCKPILE

1. The number of nuclear weapons in stockpile at the end of each fiscal year since 1952 and the projected number for the years 1958 through 1960 are shown in chart III-A on an index basis. The size of the stockpile is considered for this purpose to be the number of nuclear assemblies.

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2. The 1958 projection is a firm production schedule based on requirements established by the Department of Defense, and the 1959 and 1960 projections are based on longer range guidance furnished by the Department of Defense in November 1957 as to desired stockpile composition.

RESTRICTED DATA

This [redacted] data as [redacted] Act of 1954. Its transmittal or the disclosure of its [redacted] to an unauthorized person is prohibited.

[redacted] Declassification

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NUMBER OF WEAPONS IN STOCKPILE END OF FISCAL YEAR
NUMBER OF NUCLEAR ASSEMBLIES IN STOCKPILE

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CHART III-A

DOE ARCHIVE

[redacted]

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CURRENT WEAPON PROGRAMS

3. The accompanying Table 1 shown actual composition of the nuclear weapon stockpile on June 30, 1957, and planned composition through June 30, 1960, as well as development programs for which stockpile planning has not yet been finalized. By appropriate markings in the first column, three categories are distinguished:

a. Weapons now in production for stockpile,

b. Weapons in stockpile, for which there is no current production requirements, and

c. Weapons in the development or production engineering phase.

WEAPONS PRODUCTION

4. Weapon production during the first half of fiscal year 1958 was in accordance with schedules, and it is expected that production schedules for the remainder of the year will also be met.

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6. All Mark 17, Class A thermonuclear bombs have been retired from stockpile. The [redacted] have been removed

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from the retired bombs and shipped to AEC plants for rework.

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Most of the remaining portions of the retired bombs will be shipped to Oak Ridge for salvage.

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WEAPONS DEVELOPMENT

8. Weapons programs in the development phase are described in Table 1. Emphasis in weapons development is being placed on warheads for Department of Defense missiles, weapons with greatly reduced radioactive fallout, more rugged weapons, and more efficient weapons. Developmental programs added since the last quarterly report are the XW-47 and the TX-48. All development programs for implosion-type weapons provide for

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DOE-Archive

9. A modification of XW-28 is being made to provide emergency capability thermonuclear warheads for the Intermediate Range Ballistic Missile. This modification has been designated the XW-49, and the warheads are scheduled to be available in

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10. The following feasibility studies, requested by the Department of Defense, were in progress on December 31, 1957:

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a. Warhead for the submerged submarine launched missile, SUBROC.

b. New Class A weapon.

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d. PROJECT D-ADM - Nuclear warhead for a demolition munition.

e. Warhead for Nike-Zeus - Army anti-missile system.

f. An ICBM warhead weighing 2600 pounds.

g. Warhead in the megaton range for the Air Force surface-to-air missile, BOMARC.

h. Warhead for Sergeant - Army surface-to-surface missile.

11. The DOD has cancelled its requests for feasibility studies on the warhead of minimal plutonium hazard for application in air defense rockets, and on the all-oralloy, gun-assembled warhead for application to the Air-to-air Rocket ME-1 (Genie).

12. At the request of the Department of Defense, the development program for application of the XW-42 warhead to the Navy Sparrow-X air-to-air missile has been cancelled.

DOE ARCHIVES

Project PLOWSHARE

13. In the program of investigation into the nonmilitary uses of nuclear explosive devices, Project PLOWSHARE, excavation is currently being given primary emphasis. Preliminary studies indicate that other possible nonmilitary uses may be in mining, increasing oil flow in wells, extraction of power, and production of isotopes.

TEST OPERATIONS

14. Test Operation PLUMBBOB was successfully concluded on October 12. The post-shot investigation of the effects of the

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underground test, RAINIER, is in progress. These effects studies are of interest to the PLOWSHARE Project. Studies are continuing on the fireball chemistry project, the study of ways and means of reducing the accessibility of radio strontium in fallout to the biosphere and in particular to the human body. Further experiments are planned in Operation HARDTACK.

15. Two one-point safety tests were conducted at Nevada Test Site during December. The test devices were the

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The tests provided information on safety features which will be incorporated in the design of these devices, which are to be tested in Operation HARDTACK.

16. Approximately ten safety tests are planned at Nevada Test Site in the spring and fall of 1958, as required.

17. Consideration is being given to conducting a series of low yield nuclear tests underground in the fall of 1958 at Nevada Test Site in order to reduce the total number of tests in Operation HARDTACK and the over-all costs. This operation would be known as Operation MILLRACE.

DOE ARCHIVES

18. Planning continued on Operation HARDTACK, to begin in April 1958 at Eniwetok Proving Ground. A firm schedule of tests will be provided the Joint Committee as soon as it is available.

WEAPONS FACILITIES

19. Construction on the expansion of weapons facilities proceeded satisfactorily. The status of construction at the end of December is shown below:

[redacted]

[redacted]

Facility	Cost of Expansion (in millions)	Completion (percent)
Expansion of manufacturing support facilities for Bendix Plant at Kansas City	$ 2.5	99
Expansion of ACF Industries plant at Albuquerque, which produces TN weapons cases	1.7	45
Expansion of research and development facilities at UCRL at Livermore	12.7	15
Sigma Building at Los Alamos to replace temporary and inadequate facilities	5.3	6
Facilities for fabrication [redacted] at Oak Ridge	20.9	75

OPERATION OF THE WEAPONS PROGRAM IN THE ATOMIC ENERGY COMMISSION

20. The AEC programs for research, testing, development, production, and storage of atomic weapons in accordance with approved policies of the Commission are directed by the Division of Military Application as provided in the Atomic Energy Act. The operations offices responsible for placing in effect the programs, plans, policies, and directives of the Division of Military Application are the Albuquerque Operations Office (ALOO) Albuquerque, N. M., and the San Francisco Operations Office (SAN) Oakland, California.

DOE ARCHIVES

Research And Development Operations

21. Research and development functions on new and improved nuclear explosive systems and basic research in a variety of scientific fields are performed at Los Alamos Scientific Laboratory, Los Alamos, N. M., and University of California Radiation Laboratory, Livermore, California, by the University of California under contracts administered by ALOO and SAN. The

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Sandia Laboratory, Albuquerque, N. M., under a contract administered by ALOO, develops, designs, and engineers for production the portions of atomic weapons (nonnuclear portions) which are primarily related to the adapting of the nuclear assemblies for operational utilization by the Armed Forces.

Production Operations

22. Contracts for the production of nonnuclear weapons components are administered by ALOO. The following is a list of prime production contractors and the nonnuclear components they produce:

Contractor	Operation
Bendix Aviation Corporation Kansas City, Mo.	Produces ballistic cases, electrical and electronic components, aluminum and plastic spheres, bomb handling and testing equipment, and special small items of a hardware nature.
ACF Industries, Inc. Albuquerque, N.Mex.	Produces thermonuclear weapon cases and other nonnuclear components.
Iowa Ordnance Plant */ Army Ordnance Corps Mason Hanger-Silas Mason Co. Inc. Burlington, Iowa	Produces implosion spheres and assembles implosion-type weapons as well as sealed-pit weapons.
Pantex Ordnance Plant */ Army Ordnance Corps Mason Hanger-Silas Mason Co. Inc. Amarillo, Texas	Produces implosion spheres and assembles implosion-type weapons as well as sealed-pit weapons.
Picatinny Arsenal Army Ordnance Corps Dover, New Jersey	Produces detonators.
Mound Laboratory Monsanto Chemical Company Miamisburg, Ohio	Produces detonators.

*/ The Commission has arranged with the Armed Services for the production of high explosives. The plants are operated by private companies under contract to the Department of Defense. AEC representatives have technical liaison with the contractors and control of the product.

[redacted]

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23. Nuclear components are produced in some instances under contracts administered by the AEC Division of Production and in other instances under contracts administered by the ALOO. Following is a list of contractors for production of nuclear components and the operations they perform:

Contractor	Operation
Mound Laboratory Monsanto Chemical Co. Miamisburg, Ohio	Produces initiators for both removable-capsule and sealed-pit type nuclear components.
General Electric Company Pinellas Peninsula Plant Clearwater, Florida	Produces external initiators for sealed-pit weapons.
Union Carbide Nuclear Company Oak Ridge, Tennessee (Division of Production)	Produces U235 and enriched lithium. Fabricates D 38 (depleted uranium) components, uranium 235 components, and components for secondary of thermonuclear weapons.
General Electric Company Hanford, Washington (Division of Production)	Produces plutonium and fabricates plutonium components.
E. I. duPont de Nemours & Co. Aiken, S.C. (Division of Production)	Produces plutonium, deuterium, and tritium and fabricates gas-boosting components.
Rocky Flats Plant Dow Chemical Company Denver, Colorado	Fabricates plutonium and U235 components; issues production engineering specifications; performs all final inspection and assembly of nuclear compone. into capsules and sealed-pits.

DOE ARCHIVES

TEST OPERATIONS

24. Testing operations are conducted at a continental testing site, Nevada Test Site, Mercury, Nevada, under the control of the AEC, and at an overseas site, Eniwetok Proving Ground, Eniwetok and Bikini Atolls, under the control of the AEC and a Joint Task Force of the Department of Defense. During the operational phase of an overseas test, the Commander, Joint Task Force, represents both the AEC and the DOD.