

US General Accounts Office - 3/5/97 - NW: J

these RTGs have never been used, they will need to be replaced within 5 or 6 years because of their age. DOE has enough RTGs in inventory to support requirements until about 2004. At that time, they will need to have commercially produced batteries available. No weapons currently scheduled for possible reactivation have RTGs.

Sandia National Laboratories is currently conducting a study of RTGs, their projected design life, and replacement requirements. This study could result in extending RTG life, thus delaying the need for replacements. The results of the study are expected in February 1998.

#### TRITIUM RESERVOIRS

----- Letter :2.3

Tritium reservoirs are stainless steel vessels designed to contain tritium in a nuclear weapon. The reservoir must be removed from a weapon periodically and replaced with one containing fresh tritium because the tritium decays at a rate of 5.5 percent per year and thus loses its effectiveness. Once a reservoir is loaded with tritium, not only does the tritium start to decay, but the tritium reservoir also starts to deteriorate. As a result, a reservoir can be refilled only a limited number of times (depending on the design of the reservoir) before it has to be replaced. Tritium reservoirs had been manufactured at DOE's Rocky Flats Plant near Denver, Colorado, but in 1993, DOE transferred the mission to its facility in Kansas City, Missouri. DOE appears capable of providing tritium reservoirs for active weapons for the next several years. However, DOE will not be able to provide tritium reservoirs for reactivation weapons unless current capacity is doubled. DOE continually needs to replace tritium reservoirs. To provide reservoirs during the movement of operations from Rocky Flats to Kansas City, DOE had Rocky Flats preproduce reservoirs. DOE's Kansas City facility began producing reservoirs in 1995 and, in September 1996, the first Kansas City-made reservoir was approved for use. Kansas City is now in full production mode. This mode will allow DOE to service active weapons according to current requirements contained in the Production and Planning Directive.

The production capacity currently available at Kansas City is not sufficient to service reactivated weapons. DOE studies have concluded that Kansas City will need to substantially increase its production capacity and preproduce some reservoirs to meet possible requirements for reactivated weapons. DOE estimates that the expansion will have total costs of about \$9.4 million. It will be completed in fiscal year 2000. DOE officials believe that completing this expansion on time will allow them to meet the Production and Planning Directive's requirements by providing the capacity to service inactive weapons that may be reactivated.

In May and June 1996, DOE's Office of the Assistant Secretary for Defense Programs considered delaying this expansion by not funding the activity in the fiscal year 1997 budget. On September 16, 1996, the Albuquerque Operations Office wrote to the Deputy Assistant Secretary for Military Applications and Stockpile Management, pointing out the conflict between the budget and the Production and Planning Directive's requirement that DOE be prepared to provide

Finally, the Savannah River plant, where the reservoirs are filled, has sufficient capacity to meet requirements for active and reactivated weapons. The Replacement Tritium Facility is a relatively new building which was completed in 1993 at a cost of \$413 million. The facility was sized to support a considerably larger nuclear weapons stockpile than exists today. Although DOE has sufficient capacity, it will have to convert an existing tritium loading line to enable it to handle a new type of reservoir. This conversion, which will not be needed until at least 2002, will cost about \$250,000.

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\\2 Tritium is a gaseous radioactive isotope that is used to enhance the power of nuclear weapons.

#### NEUTRON GENERATORS

----- Letter :2.4

Neutron generators are timing devices that provide triggering pulses for nuclear weapons. Neutron generators had been produced by DOE's plant in Pinellas, Florida. In 1993, the Department closed the Pinellas plant and transferred production to Los Alamos and Sandia. It now appears that Los Alamos and Sandia will be able to meet the current requirements for servicing active weapons. These requirements should be met if the facilities begin production on schedule and, in some cases, preproduce some neutron generators. DOE will not, however, be able to provide neutron generators for reactivated weapons unless current production capacity is doubled.

DOE will not need to supply new neutron generators for nuclear weapons until 2000 or 2001. Preparations for production at Los Alamos and Sandia are currently on schedule and, if production begins on schedule in 1999, DOE should be able to provide neutron generators for active weapons for the next several years. However, DOE will not be able to meet the requirements for neutron generators in reactivated weapons with the current planned capacity. As a result, the Albuquerque Operations Office developed plans to nearly double the production capability at Sandia and Los Alamos. This expansion is expected to have total costs of about \$17.8 million. It will be completed in fiscal year 2000. DOE officials believe that completing this expansion on time will allow them to meet the Production and Planning Directive's requirements by providing the capacity to service inactive weapons that may be reactivated.

As with tritium reservoirs, DOE's Office of the Assistant Secretary for Defense Programs initially considered not funding the expansion in the fiscal year 1997 budget. However, on October 18, 1996, DOE instructed that the expansion be funded. DOE headquarters officials informed us that expansion of DOE's capability to manufacture neutron generators is now also one of the Albuquerque Operations Office's highest priorities.

#### OBSERVATIONS

----- Letter :3

Battery design studies and finds a suitable commercial battery vendor. However, DOE does not currently have the required capability to provide tritium reservoirs and neutron generators for weapons in the inactive stockpile that may be reactivated. While initially unfunded, projects to expand production have recently been placed on a high priority. In our view, on the basis of the number of nuclear weapons planned for the current and future stockpile, DOE's continued commitment to these expansion plans for the limited life component program is essential if the nuclear weapons stockpile is to be maintained in accordance with the existing Production and Planning Directive.

AGENCY COMMENTS AND OUR  
EVALUATION

----- Letter :4

We provided a draft of this report to DOE for its review and comment. We met with officials from DOE's Office of Military Applications and Stockpile Management and its Albuquerque Operations Office, who agreed with the contents of this report. The full text of DOE's comments is included as appendix I.

SCOPE AND METHODOLOGY

----- Letter :5

Our objectives were to provide information on DOE's ability to provide limited life components for nuclear weapons in the current active stockpile and the extent to which the components can be supplied to weapons reactivated from the inactive stockpile. To determine if DOE could provide limited life components for nuclear weapons, we obtained schedules showing the requirements for replacing limited life components and compared these requirements with DOE's production capabilities and planned production schedules. We discussed this data with DOE officials responsible for the limited life component program, with representatives of the contractors that operate DOE's limited life component production facilities, and with the company that supplies gas generators to DOE. We conducted our review from November 1986 through January 1987 in accordance with generally accepted government auditing standards.

----- Letter :5.1

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days after the date of this report. At that time, we will send copies of the report to the Secretary of Energy; the Secretary of Defense; and the Director, Office of Management and Budget. We will also make copies available to others on request.

If you or your staff have any questions about this report, please call me at (202) 512-3841. Major contributors to this report include William F. Wenzel, Assistant Director; Kenneth E. Lightner Jr., Evaluator; and William R. Seay, Evaluator.