

Nuclear Material Strategic Reserves

Program Management Plan

I. Purpose

National Security Directive 78 directed DOE to establish and maintain a reserve of plutonium and highly-enriched uranium (HEU) for weapon purposes. It also tasked DOE to establish and maintain a tritium reserve to support stockpile requirements for a five-year period. The size and content of the plutonium and HEU reserve is to be established in the context of the DoD strategy for support of the enduring stockpile (the tritium reserve is based upon projected requirements for the next five years).

II. Administration

A. Responsibilities

DoD is the primary customer for the strategic reserve. HQ, DP-22, is the principal DOE interface with the DoD. Together, they are responsible for defining the requirements which must be met by the strategic reserves (missions, system designs to be protected, etc.), primarily through the annual Nuclear Weapons Stockpile Memorandum and Production and Planning Directives. HQ must also define any constraints on the reserves, such as maximum material quantities, projects to be used, funding limitations, etc. HQ also provides additional feedback and guidance, as necessary, to ensure that the content, size, and management of the reserves meet customer requirements.

AL is the manager of the strategic reserves. AL has the responsibility to establish the reserves (including directing project transfers), integrate the reserves with and track related activities (dismantlement efforts, technology competence and demonstration programs, component evaluation, storage, facility operations, foreign inspections of facilities, etc.), identify issues, assemble teams to resolve issues, maintain the reserves, document the reserves program in the AL Development and Production Manual, and report on the reserves to HQ and others.

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In support of these management responsibilities, AL chairs a Steering Committee for the strategic reserves which includes representatives of DOE/HQ (DP-22), the weapon design laboratories, and the appropriate production plants. This committee is and will be primarily responsible for providing technical support on weaponization of the reserves materials, viability and maturity of designs to meet the reserves mission, and integration with technology competence and demonstration programs.

The production plants and laboratories are responsible for supporting AL in the implementation of the Strategic Reserve Program Management Plan, participating in the Steering Committee, identifying facility and/or production issues which could impact the strategic reserves' mission, and assisting in integration with other related activities at their sites.

**B. Reporting Requirements**

This management plan for establishment of the strategic reserves will be prepared by June 15, 1994, subsequently provided to DP-22, DOE/HQ. It is expected that annual reports to DOE/HQ will be required after that to assess progress against the management plan and to address any changes in the reserves or in the plan. While frequent communication among AL, the laboratories, and the plants will be essential during the establishment of the reserves (and to some extent in its subsequent maintenance), we do not believe that more frequent formal reports from the sites are necessary. Thus, reports from the sites holding reserves material will be required only as necessary to support the reports to HQ.

As noted in the FY 1994 Nuclear Weapons Stockpile Memorandum, once the strategic reserve is established, AL is required to notify HQ immediately if any material falls below 90 percent of the quantity required.

**C. Project Numbers**

AL will work with DOE/HQ to establish project numbers for exclusive use in management of the strategic reserves. AL, as the manager of the reserves, is responsible for these projects. All withdrawals, returns, or transfers involving these projects will require prior authorization from the AL Weapons Quality Division.

**D. Funding**

HQ has indicated that no incremental funding will be provided for the establishment and maintenance of the strategic reserves. This program will depend upon and be supported within existing and future budgets of other ongoing missions or new missions.

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III. Systems

A. Reserve Strategy

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D. Production Issues

There are no current facilities in the complex for production level pit fabrication. A project is underway at LLNL and Pantex to develop a glovebox facility in which to modify W68 pits so they can be reused. The current plans are to demonstrate a pit reuse capability, as opposed to establishing a pit reuse production capacity. The emphasis, as with a growing number of weapon component product lines, is to protect the technology. As budgets continue to be reduced, production capacities may be eliminated for some product lines.

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Based upon the status of current development and demonstration programs, we believe that it would take a minimum of five years to go from authorization to production of replacement warheads in support of the strategic reserve mission. While increased funding of demonstration projects could shorten that period, we do not believe that additional funding is likely in the current budget environment. Should budgets continue to decrease in this arena, this period will have to be reevaluated.

The laboratories have indicated that production verification tests are desirable for new systems entering the stockpile. This would appear to apply to most of the options examined above and would need to be addressed should we have to weaponize the strategic reserve at some time in the future.

IV. Plutonium

At this time, DOE does not have a production level capability for new pit fabrication. LLNL and LANL are protecting the technologies required for new pit fabrication, however they could not currently support sustained new pit production.

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Should DOE reestablish a pit production facility in the future, or should the laboratories develop sufficient production capacities, we would replace components in the reserve with enough specification metal to support pit production until plutonium removed from pits was available to sustain production. The reliance of the strategic reserve on pit reuse technology provides additional justification for continued support of the pit reuse development and demonstration project at LLNL and Pantex, and the pit reuse fire resistant pit testing facility at LANL. Technology demonstration programs for pit reuse are essential to the strategic reserves initiative.

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The W68 pits are currently located at several sites (at Pantex, Rocky Flats, Savannah River and in retired warheads at DoD sites). We recommend that they be consolidated in one location as soon as possible, but such an action would probably have to await the completion of the Pantex Site-Wide EIS and other NEPA documents currently being developed within the DOE. We will continue to monitor such activities and will pursue such a consolidation as soon as possible. The W62 and B61 pits in the reserve will all be from the inventory at Pantex (including those from future dismantlement activities) and will remain there pending further decisions on pit storage in the DOE complex.

The following guidance regarding the storage of reuse pits was issued jointly by LLNL and LANL in August 1992.

"The pits should be stored in an approved container and array that provides for mechanical protection and gives due consideration for thermal and criticality management. A molecular sieve desiccant should be placed inside the container with an elastomer dust seal. The humidity inside the pit storage facility should be such that a non-condensing environment is maintained. Specific attention needs to be given to supporting the tube or tubes to protect the tube-pit joint. Damaged pits should be treated separately and designated for dismantlement."

LLNL and LANL have indicated that this guidance remains in effect and is appropriate for the reuse pits identified above. Specific questions regarding this guidance should be brought to AL's attention as soon as possible.

V. Uranium

Canned subassemblies (CSA's), like pits, are effective, reliable storage configurations for special nuclear material. Given the resources required to manufacture and accept the CSA's being removed from the stockpile and their potential for reuse to support the strategic reserve mission, we believe that it is prudent that the majority of the uranium reserve consist of CSA's.

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~~While these components~~ appear to be the most appropriate to retain in the reserve, we will periodically review the objectives of the reserve against the systems being removed from the stockpile to determine if different components or a different mix of components is more appropriate.

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At present, the CSA's removed from the stockpile are stored primarily at Y-12. Secondaries/CSA's removed from retired weapons are staged at Pantex for a short time before shipment to Y-12 for storage or dismantlement. It is our intent to have the entire uranium reserve stored at Y-12; thus, the reserve components removed from weapons would not be transferred to the reserve until they are received at Y-12.

The following guidance regarding the storage of reuse CSA's was issued jointly by LLNL and LANL in August 1992.

"All CSA's that are to be stored should go through an integrated leak check before final storage packaging. CSA's that do not pass this test or have some visual damage should be dismantled.

The stainless steel cans should be protected from potential damage due to handling and other potential mechanical excursions. This can be accomplished by storing in a 55 or 30 gallon drum that has an elastomer dust seal. Inside the container, the CSA should be mechanically protected by using a polystyrene foam or a fire resistant polyurethane foam around the CSA. No desiccant needs to be added to the drum.

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The specific evaluation program for the reuse components in storage is still forthcoming, but we currently expect destructive analysis of one CSA for each system annually.

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VI. Tritium

The tritium strategic reserve is fundamentally different from the plutonium and uranium reserves in that it is not set to provide a replacement capability for the active stockpile. Rather, it is set to the net quantity of tritium required to support stockpile maintenance, research, development, testing, stockpile evaluation, decay, and commercial sales for the next five years. HQ is responsible for determining what the required tritium reserve quantity is and providing that to AL. AL will monitor (using the Master Nuclear Schedule) the tritium inventory and report to HQ whether or not sufficient tritium exists to meet this requirement.

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