W76

The NWC approved the Block 1 refurbishment plan for the W76 in March 2000. The Block 1 refurbishment of the warhead (about one quarter of all W76 warheads) will focus on the high explosive, detonators, organic materials, cables and addition of a new Acorn gas transfer system. The Block 1 refurbishment will also add a new arming firing and fusing (AF&F) system. The FPU of Block 1 will be available by the end of FY 2007, and Block 1 production is planned for completion in FY 2012. During the Block 1 production, a decision will be made to either continue Block 1 retrofits on the entire W76 stockpile, change to a Block 2 retrofit that could include other options, or stop the retrofit altogether. The Block 2 effort, if approved by the NWC, would continue from FY 2012 to FY 2022 to refurbish the remaining W76 warheads.

W80

The NWC approved the refurbishment of the W80 in the beginning of FY 2001. The Block 1 refurbishment of the warhead (about one third of the warheads in the stockpile) will focus on replacing the current gas transfer system with an Acorn design, new neutron generators, redesign of the warhead electrical system, addition of improved surety features and replacement of other associated components. The need to perform refurbishment work is driven by several factors including: age related effects that must be addressed to ensure the continued performance of the warhead, minimizing weapon movements between DoD and DOE, and infrastructure and capacities issues within the weapons complex. The FPU of the Block 1 design will be available in the second quarter of FY 2006, and Block 1 production is scheduled for completion in FY 2010. During the Block 1 production, a decision will be made to either continue Block 1 retrofits on the entire W80 stockpile, change to a Block 2 retrofit that could include enhanced surety options, or stop the retrofit altogether. The Block 2 effort, if approved by the NWC, would continue from FY 2011 to FY 2017 to refurbish the remaining W80 warheads.

B61-7/11

NNSA and DoD are working to identify refurbishment options for the aging B61-7/11 Canned Subassembly (CSA) and associated cables, connectors, some limited life components, and foam components. The study effort is expected to be completed in late FY 2002. Development Engineering will begin following Nuclear Weapons Council approval in late FY 2002. This program will use systems engineering approaches, and the planned FPU of the refurbished B61-7/11 will be in the third quarter of FY 2006. Production of these refurbished CSAs is scheduled to continue to the end of FY 2008. The plan also calls for some selective non-destructive evaluation (NDE) and screening of CSAs as a risk mitigation effort for other warheads during FY 2003 and FY 2004.

Pit Manufacturing and Certification Campaign

The reestablishment of a plutonium pit manufacturing capability, a capability that the United States has not had since the cessation of manufacturing at the Rocky Flats Plant in 1989, is a key national security challenge that the NNSA must meet. The W88 pit is a primary focus of NNSA's pit campaign because an insufficient number of W88 pits were produced to support pit surveillance activities prior to the closure of Rocky Flats.

The Pit Manufacturing and Certification Campaign is focused in the near-term on development of the manufacturing processes at Los Alamos and a certification methodology applicable to the W88 pit, with a long range goal of reestablishing the capability to manufacture all pit types within the stockpile. The program remains on track to deliver a certifiable W88 pit in FY 2003. Over the last year Headquarters and Los Alamos staffs have worked aggressively and have been able to accelerate the date for a certified pit to FY 2007.

Program Accomplishments in FY 2001/2002 include:

- Accelerated the certification date for a manufactured W88 war reserve pit from FY 2009 to FY 2007.
- Manufactured 3 development and 6 standard W88 pits in FY 2001; to qualify processes to be used for a certifiable pit.
- Projectized W88 activities are on-track, with all major milestones for FY 2001 accomplished.
- Reorganized W88 Pit Manufacturing and Certification Activity at Los Alamos to increase management attention and resources on the project.
- Obtained Secretarial approval in Spring of 2002 on Mission Need for a Modern Pit Facility (MPF).

The FY 2003 budget will allow the W88 project to:

- Manufacture additional development and standard pits and as a precursor to the first certifiable pit in FY 2003.
- Conduct two integrated physics tests and pit engineering tests in FY 2003.
- Establish and implement a peer process that includes at least one technical data exchange between Los Alamos and Lawrence Livermore National Laboratory in FY 2003.

While the Los Alamos facility (TA-55) for making W88 pits is adequate for the task at hand, it lacks the capacity and flexibility to manufacture pits in sufficient quantity to support the NPR requirements. Therefore, the NNSA is working on a longer term solution for a Modern Pit Facility (MPF). A project team is in place and has undertaken the required preconceptual planning work. During this phase we will carefully examine a number of issues, including technology development to ensure that the facility will meet both current and future requirements. Last month the Secretary of Energy approved Critical Decision 0 for the MPF. With this decision in hand, NNSA can start the National Environmental Policy Act (NEPA) process and conceptual design of an MPF. The NEPA process will support a record of decision

on the construction, location and capacity of an MPF, as well as the steps to be taken to mitigate environmental impact. A siting decision will be made after completion of programmatic NEPA actions for the MPF.

The baseline MPF development schedule is as follows:

- NNSA to start conceptual design and begin the NEPA process June 2002.
- Issue Notice of Intent (NOI) in the fall of 2002 that lists sites under consideration.
- Issue programmatic Record of Decision (ROD) in the spring of 2004 following completion of supplemental environmental impact statement process. The ROD will include a decision on host site selection.

Subcritical Experiments

The subcritical experiments, conducted at the Nevada Test Site in U1A continue to provide our scientists and engineers vital data on the performance characteristics of plutonium. Our most recent experiment, code named Vito, was successfully carried out on February 14th. Vito was the first of three subcritical experiments in FY 2002 in support of pit certification. Our next subcritical experiment, code named Oboe 9, will be conducted this month. To date, 16 subcritical experiments have been conducted at the Nevada Test Site.

Tritium Campaign

The NNSA is also proceeding with plans for producing new tritium to support the stockpile. Tritium is a radioactive isotope of hydrogen which decays at a rate of about 5 percent per year. All weapons in the stockpile must have tritium to function as designed. The United States has not manufactured new tritium since 1988 and has been relying on recycled tritium from retired weapons to meet stockpile requirements. To manufacture new tritium, the Tennessee Valley Authority (TVA) will be irradiating tritium producing burnable absorber rods (TPBARS) in the Watts Bar and Sequoyah 2 reactors. Irradiation of the TPBARS remains on schedule for the fall of 2003. The rods will remain in the reactors throughout the plants' normal 18-month operating cycles.

In order to irradiate tritium-producing rods, the TVA reactors must have approval from the Nuclear Regulatory Commission. The TVA submitted formal requests in August-September 2001 asking that the reactors' operating licenses be amended to permit tritium production. In December 2001 the Nuclear Regulatory Commission published a Federal Register notice proposing to issue a "no significant hazards consideration determination", which means that the Nuclear Regulatory Commission can issue the license amendments without first holding hearings. We expect that the Commission will issue the license amendments by this fall.

While the recent Nuclear Posture Review reduces the number of active, deployed nuclear weapons, it also requires that NNSA support a responsive reserve of warheads. This support would include maintenance of tritium inventories for the reserve. When all these factors are considered, the impact is small on the date when new tritium will be needed.