



Alternatives

Introduction

The National Nuclear Security Administration (NNSA), a separately organized agency within the U.S. Department of Energy (DOE), is the Federal agency responsible for maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile. The Site-Wide Environmental Impact Statement for the Y-12 National Security Complex (Y-12 SWEIS) analyzes the potential environmental impacts of ongoing and future operations, facilities, and activities at the Y-12 National Security Complex (Y-12). The primary purpose of continuing operation of Y-12 is to provide support for the NNSA's nuclear weapons stockpile stewardship missions.

Today, as one of the NNSA's major production facilities, Y-12 is the primary site for enriched uranium processing and storage, and one of the primary manufacturing facilities for maintaining the U.S. nuclear weapons stockpile. Y-12 is unique in that it is the only source of secondaries, cases, and other weapons components within the NNSA nuclear security enterprise. Y-12 also safely and securely stores and manages special nuclear material and supplies special nuclear material for use in naval reactors. Y-12's nuclear nonproliferation programs play a critical role in securing our Nation and the globe and in combating the spread of weapons of mass destruction.

This new Y-12 SWEIS expands on and updates the analyses in the 2001 Y-12 SWEIS and includes alternatives for proposed new actions and changes since the 2002 Y-12 SWEIS Record of Decision. Four action alternatives are considered in this SWEIS in addition to the No Action Alternative. The four alternatives differ in that Alternative 2 involves a new, fully modernized manufacturing facility (the Uranium Processing Facility [UPF]) optimized for safety, security, and efficiency; Alternative 3 involves upgrading the existing facilities to attain the highest level of safety, security and efficiency possible without constructing new facilities; and Alternatives 4 and 5 involve building a smaller UPF based on a reduced production capacity needed to support a smaller stockpile. The proposed alternatives are described below.

Alternative 1 – No Action Alternative

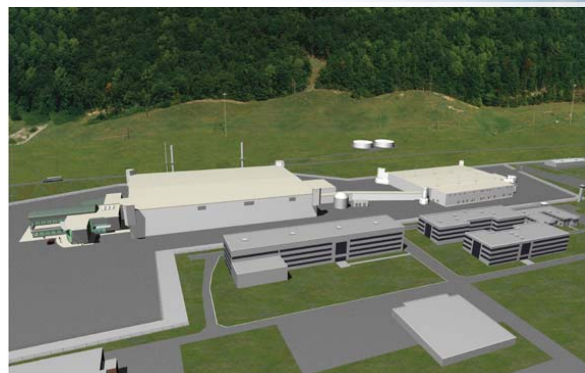
The No Action Alternative reflects the current nuclear weapons program missions at Y-12 and includes the manufacture and assembly/disassembly of weapons components, the continued processing and storage of enriched uranium materials, the operation of the recently constructed Highly Enriched Uranium Materials Facility (HEUMF), disposition of excess materials, and Infrastructure Reduction, which will remove excess buildings and infrastructure. Construction of a UPF and CCC are not part of the No Action Alternative. As part of the No Action Alternative, other construction projects are also underway or planned for the future. Some are refurbishments or upgrades to plant systems, such as those for potable water, which have been analyzed in separate NEPA documentation. The No Action Alternative also includes continued operations related to other National Security Programs, such as Nonproliferation, Global Threat Reduction Initiatives, and support to Naval Reactors. Additionally, there are many non-NNSA programs at Y-12 that would continue under the No Action Alternative.

Alternative 2 – Uranium Processing Facility Alternative

Under this alternative, NNSA would implement all actions in the No Action Alternative, and construct and operate a modern UPF and a new Complex Command Center (CCC). The UPF Alternative would be capable of supporting a baseline throughput of approximately 125 secondaries and cases per year.

UPF. The UPF would consolidate EU operations into an integrated manufacturing operation, sized to satisfy programmatic needs. The UPF is proposed to be sited adjacent to the HEUMF to allow the two facilities to function as one integrated operation. Transition of enriched uranium (EU) production operations to the UPF (Alternative 2) and transition of EU storage operations into HEUMF (No Action Alternative) would enable the creation of a new high-security area 90 percent smaller than the current high security protected area. Operations to be consolidated in the UPF are currently located in multiple facilities. After startup of UPF operations some of these facilities could be used to consolidate non-EU operations already existing in those facilities and others would undergo D&D.

CCC. The CCC is proposed under all action alternatives (Alternatives 2-5). The CCC would comprise a new Emergency Services Complex for Y-12. The new facility would house equipment and personnel for the plant shift superintendent, Fire Department, and Emergency Operations Center (EOC). Approximately 50,000 square feet of enclosed facility space would be required to accommodate operational needs.



Artist's Rendering of the Proposed UPF adjacent to the HEUMF

Alternative 3 – Upgrade In-place Alternative

Under this alternative, NNSA would continue the No Action Alternative and upgrade the existing enriched uranium and nonnuclear processing facilities to contemporary environmental, safety, and security standards to the extent possible within the limitations of the existing structures and without prolonged interruptions of manufacturing operations. Under this alternative there would be no UPF and parts of the current high-security area would not be downsized. Although existing production facilities would be modernized, it would not be possible to attain the combined level of safety, security and efficiency made possible by the UPF. The CCC would also be proposed under this alternative. The Upgrade in-Place Alternative would be capable of supporting a baseline throughput of approximately 125 secondaries and cases per year.

Alternative 4 – Capability-sized UPF Alternative

Under Alternative 4, NNSA would maintain a basic manufacturing capability to conduct surveillance and produce and dismantle secondaries and cases. To support this alternative, NNSA would build a smaller UPF (350,000 square feet) compared to the UPF described under Alternative 2 (388,000 square feet). A smaller UPF would maintain all capabilities for producing secondaries and cases, and capabilities for planned dismantlement, surveillance and uranium work for other NNSA and non-NNSA customers. This UPF would have a baseline throughput of approximately 50-80 secondaries per year (compared to 125 secondaries per year for the UPF Alternative). The CCC would also be proposed under this alternative.

Alternative 5 – No Net Production/capability-sized UPF Alternative

Similar to Alternative 4, a No Net Production/Capability-sized UPF Alternative would maintain the capability to conduct surveillance, dismantle secondaries and cases, and produce secondaries and cases, but would not support adding new types or increased numbers of secondaries to the total stockpile. It would reduce the operational throughput of facilities to a throughput of approximately 10 secondaries per year, which would support a limited Life Extension Program workload. This alternative would involve an even further reduction of production throughput at Y-12 compared to Alternative 4. The CCC would also be proposed under this alternative.

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