

The Uranium Processing Facility (UPF) in Oak Ridge is being designed to replace a number of existing World War II Era facilities at the Y-12 National Security Complex. Extensive interface between nuclear criticality safety professionals and the design team is necessary to gather and convey subcritical limit information needed for design. Ensuring that a consistent technical basis is used for this design information is important. Without guidance for details such as material properties, uranium enrichment, reflection conditions, and maximum uranium concentrations likely to be encountered in various processes, nuclear criticality safety staff tend to use values based on their diverse past experience which can lead to derivation of inconsistent limits for similar fissile material activities. To promote consistency in a quality and compliance driven environment, a Nuclear Criticality Safety Data Book, document DAC-EN-801768-A100, was created to provide a single, authoritative source for many of the details needed to derive subcritical limits. This document is periodically updated to add information the design progresses.