

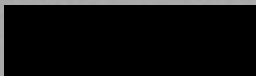


Safety Design Strategy and the Y-12 National Security Complex Uranium Processing Facility Project

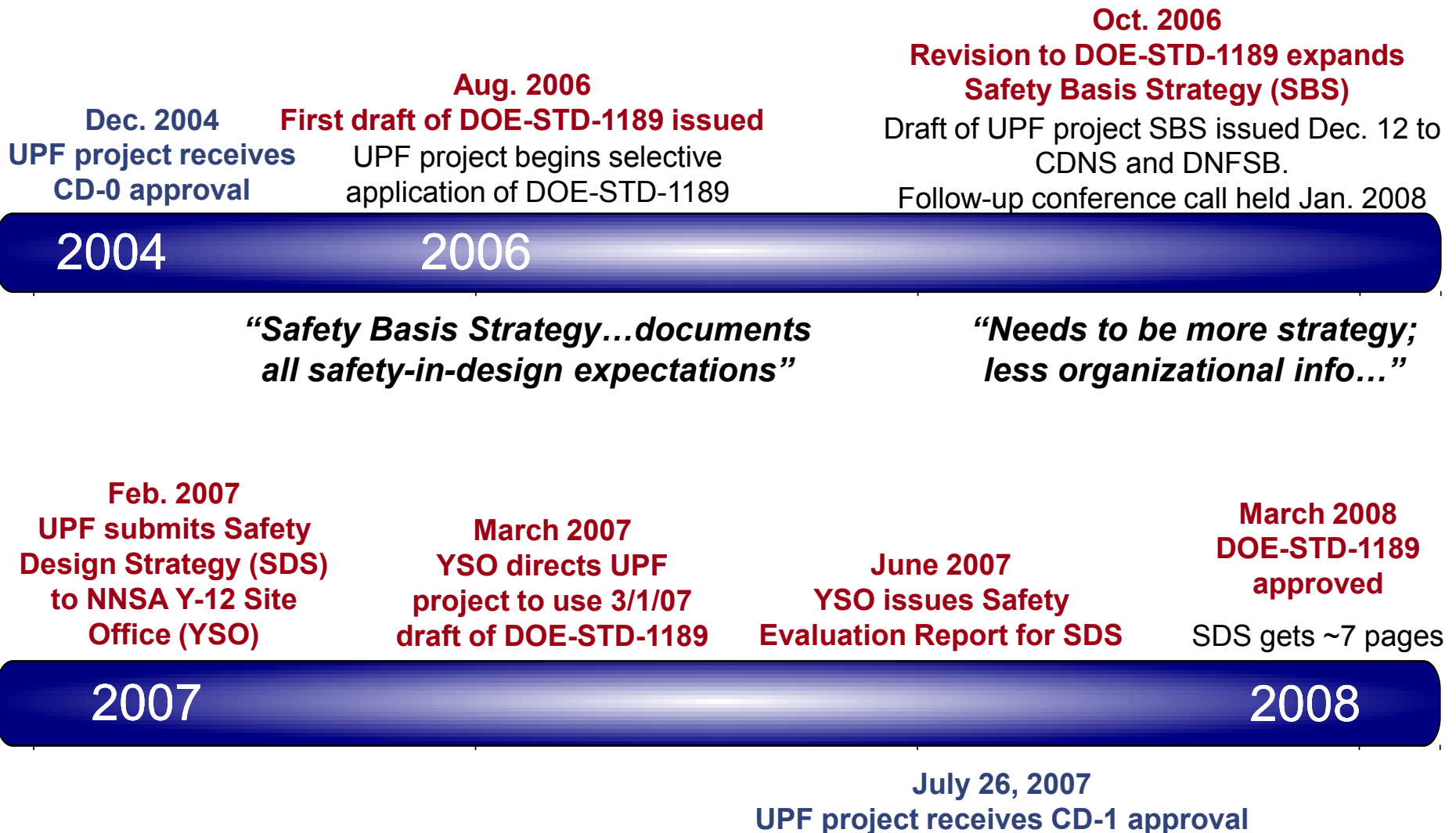
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2008 EFCOG Safety Analysis Working Group



UPF SDS Timeline



UPF SDS Overview

Meets the general format and content guidance of DOE-STD-1189

(both 3/1/07 draft and approved version)

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Example Content

3.1.2 Safety Strategy

A safety strategy has been established related to the facility safety aspects of the UPF. The key elements of the strategy shown below have been identified for CD-1. Additional elements may be developed as the SDS evolves throughout the project life cycle.

- Minimize MAR through deployment of new technologies, minimization of storage capacity (e.g., no use of safe bottles for storage of fissile solutions), the use of less hazardous materials where possible, and the sizing of systems;
- Preclude a nuclear criticality accident primarily through design features that preclude criticality and, where necessary, by following the double contingency principle;
- Minimize risk to public through design and engineered controls by considering the need for safety class controls if unmitigated consequences could exceed 5 rem at the emergency response boundary;
- No active, safety class SSCs through reliance on elimination of the hazard (where possible), minimization of MAR, and prevention of accidents with significant consequences through the use of passive engineered controls. Plans are to minimize the number of safety class SSCs by compartmentalizing the MAR with passive, safety class, PC-3 fire barriers.
- Minimize administrative controls to the extent practical through the identification and use of proper engineered controls;
- Minimize risk to workers through design and engineered controls that prevent or minimize daily worker exposures to radiological/toxicological materials (e.g., no reliance on PPE for routine operations). Examples include active confinement ventilation system and the use of containers, gloveboxes, and piping systems;
- No administrative controls related to criticality safety (unless approved by the Functional Area Manager).
- Limit hazardous material inventories such that the facility does not fall under PSM/RMP regulation through the use of proper design (e.g., tank sizing) and other means.



Moving Forward

- Since CD-1, SDS revisions
 - ANS 2.26/ASCE43.05 (SDCs/LS)
 - ICRP 72; MACCS2; Dry Dep.;
Lower BR → Rad. Exposure \ll 5 REM
 - No SC SSCs

