



Nuclear Regulatory Commission
MFFF Human Factors
Engineering
Review Kickoff Meeting

14 June 2007

Enclosure 3

Agenda

- Background
- Human Factors Engineering (HFE) in the Integrated Safety Analysis (ISA)
- HFE Program Plan
- HFE Implementation Plan
- HFE status

Background

- MFFF utilizes and adapts an existing design to American standards (“Cultural Calibration”)
- HFE concerns involve the use of on modern technology, and identified Administrative Items Relied on for Safety (IROFS):
 - employment of automated systems
 - advanced digital instrumentation
 - advanced control technology
- HFE design support increases with detailed design phase (guidance in NUREGs 1718, 0711, 0700)
- MOX HFE program and the focused approach

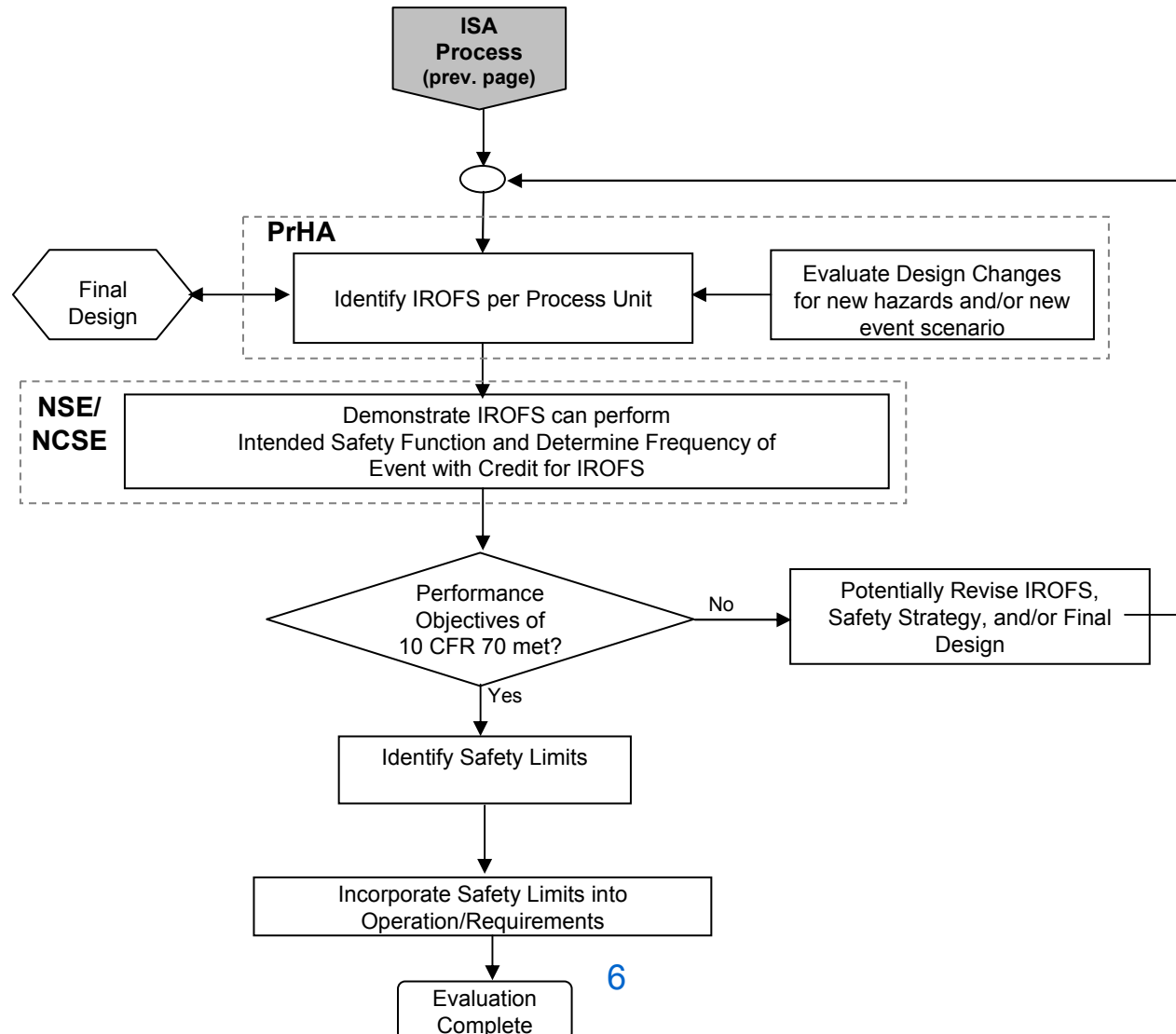
HFE Consideration in the ISA

- Integrated Safety Analysis (ISA) – identification of IROFS
- Supports facility design tolerant of both upsets and human error
 - the human component is considered during the ISA process
- Process Hazards Analyses (PrHAs) for each process unit or workshop
 - human consideration
- ISA includes the Nuclear Safety Evaluations (NSEs) and Nuclear Criticality Safety Evaluations (NCSEs)
- Review of operational sequences to identify upsets and deviations, including human error of omission and commission

HFE Consideration in the ISA

- ISA teams, organized with persons with a variety of backgrounds and experiences, met to evaluate event scenarios (consideration given to the human factor)
- IROFS types:
 - Active Engineered Controls (AEC)
 - Passive Engineered Controls (PEC)
 - Enhanced Administrative Controls (EAC)
 - A procedurally required or prohibited human action, combined with a physical device that alerts the operator that the action is needed to maintain safe process conditions.
 - Administrative Controls (AC)
 - A human action that is prohibited or required to maintain safe process conditions.

ISA Process



HFE Program Plan

- HFE Program Plan last updated in October 2003; revision is in progress
 - Demonstrates HFE integral involvement in design, operation, testing and maintenance of the MOX facility
- Recognizes the importance of IROFS, especially Administrative IROFS
- HFE Program Plan developed with guidance from NUREG 1718, Chapter 12
- Plan covers the need for safety and effective integration of staff into the applicable MOX processes

HFE Implementation Plan

- MOX Services is developing an HFE Implementation Plan
- Implementation plan reiterates a top down approach to HFE
- Provides our proposed methodology; tells “how” we plan to integrate the HFE effort during detailed design and design Verification & Validation (V&V)
- Provides guidance in implementing HFE on an existing process design, including new or modified equipment
- Implementation plan will be issued after revision of the HFE Plan

Summary

- HFE has been considered via the development of the ISA
- HFE Program Plan is currently being revised
- HFE Implementation Plan will be issued following the HFE Program Plan
- Long term milestones will be discussed in HFE Program Plan