U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

BOUNDING ASSUMPTIONS AND DESIGN FEATURES IN ISA

Daniel H. Dorman, Director

Division of Fuel Cycle Safety and Safeguards

April 27, 2010

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Summary of Part 70 Requirements

- Risk of each *credible* high and intermediate consequence event must be limited. *Engineered and administrative controls* must be applied to the extent needed to ensure:
  - High consequence events "highly unlikely" (70.61(b))
  - Intermediate consequence events "unlikely" (70.61(c))

- Nuclear processes must be subcritical under normal and credible abnormal conditions. *Preventive controls* must be primary means of protection for criticality. (70.61(d))

- *Each engineered and administrative controls* needed to meet 70.61(b), (c), or (d) *must be items relied on for safety (IROFS)* (70.61(e))

- **Regulatory Conclusion***:* *Any engineered (passive or active) or administrative item relied on to demonstrate compliance with 70.61(b), (c), or (d) must be designated as an IROFS.*

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Significance of IROFS Designation

- Ensures that ISA and ISA Summary accurately reflect the facility safety basis
  - Controls relied on the meet performance requirements have appropriate management measures to ensure reliability and availability
  - Configuration Management Program focuses attention on aspects of the facility design most important to safety
- Provides regulatory oversight as envisioned in Part 70 framework—
  - Record of failures must be maintained and factored into ISA process (70.62(a)(3))
  - Subject to restriction on changes that can be made without prior NRC approval/knowledge (up to one year) (70.72(c))
  - NRC approval required to alter sole IROFS
  - Certain loss or degradation of IROFS must be reported (Appendix A)

- *Staff has not identified an immediate safety concern, but the safety basis may be degraded over time without appropriate regulatory oversight*

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Proposed Path Forward

- Guiding Philosophy—Given that rule requires all items relied on to meet 70.61 be designated as IROFS, find ways to address concerns raised by the industry and reduce unnecessary regulatory burden

- Issues to be addressed:
  - Clarification that <u>everything</u> in the facility does not need to be an IROFS
  - Clarification of *what* bounding assumptions/design features must be IROFS (especially for 70.61(d) ('what makes a facility safe' as important as 'what can go wrong'))
  - Recognition of existence of generic IROFS (no need to list for every affected sequence)
  - Level of detail of description of IROFS' safety function in ISA Summary
  - Level of detail tied to concept of "altering" a sole IROFS (DG-3037)
  - Providing guidance on grading facility management measures and QA
  - Clarification of what constitutes a sole IROFS (not merely because a design change could result in a high- or intermediate-consequence)

- *NRC believes that these issues are solvable within existing rule language*