



United States Nuclear Regulatory Commission

Protecting People and the Environment

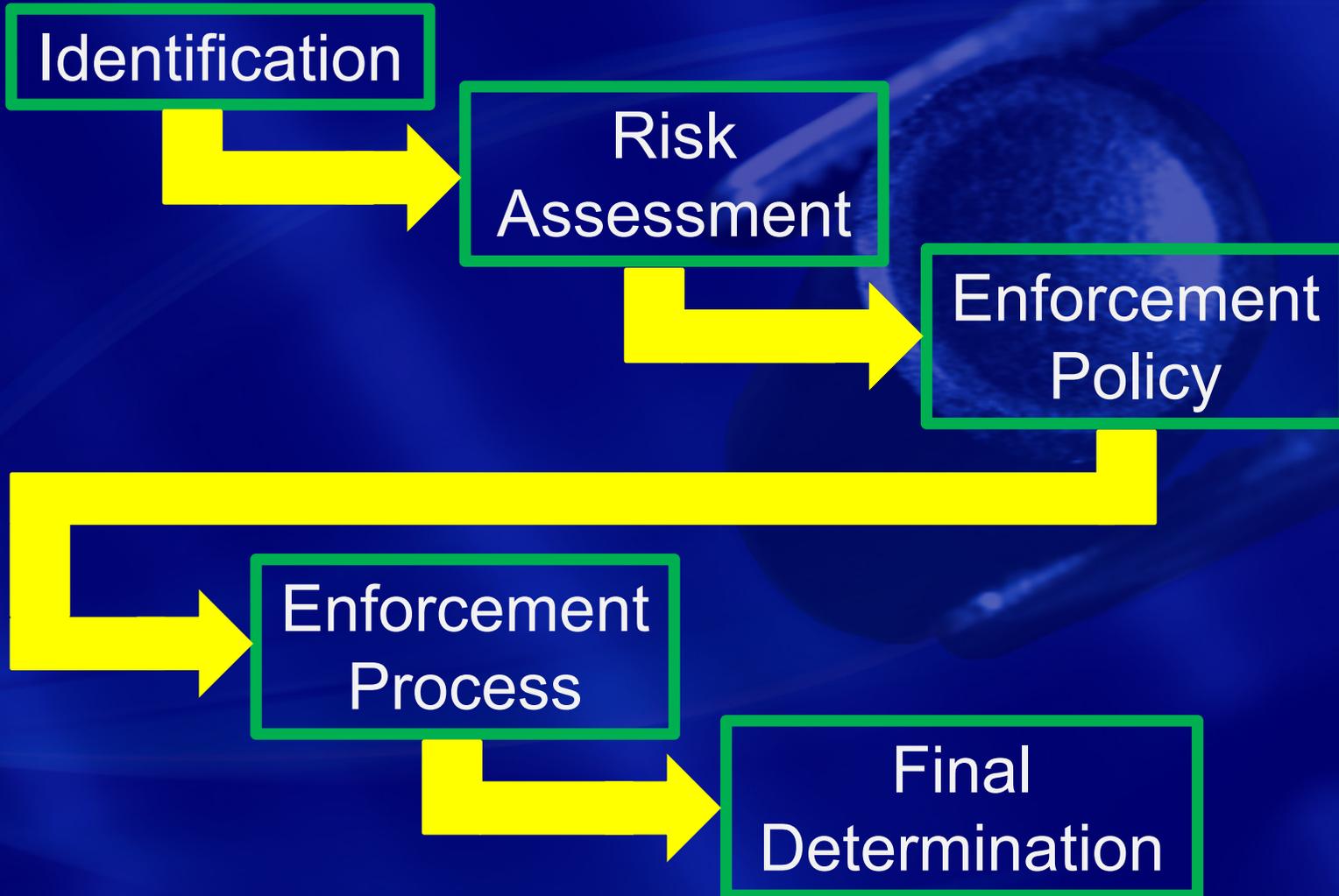
Assessment of the Change in Risk Resulting From a Violation at a Fuel Cycle Facility IMC 2606

U.S. Nuclear Regulatory Commission



Division of Fuel Facility Inspection

Non-Compliance Flowpath



What is IMC 2606

- A framework for changes in risk
- Methods to account for:
 - IROFS from other accident sequences
 - Non-IROFS controls
- Accurate assessment of risk using all available information

Credit for Other IROFS

- To be applicable:
 - It must be available and reliable
 - It must prevent or mitigate
 - It must have adequate management measures
- Credit consideration should be consistent with the licensee's ISA methodology.

Non-IROFS and Uncredited Controls

- To be applicable:
 - It must be available and reliable
 - It must prevent or mitigate
 - It must have management measures consistent with IROFS
- Credit consideration should be consistent with the licensee's ISA methodology.

Non-IROFS and Uncredited Controls

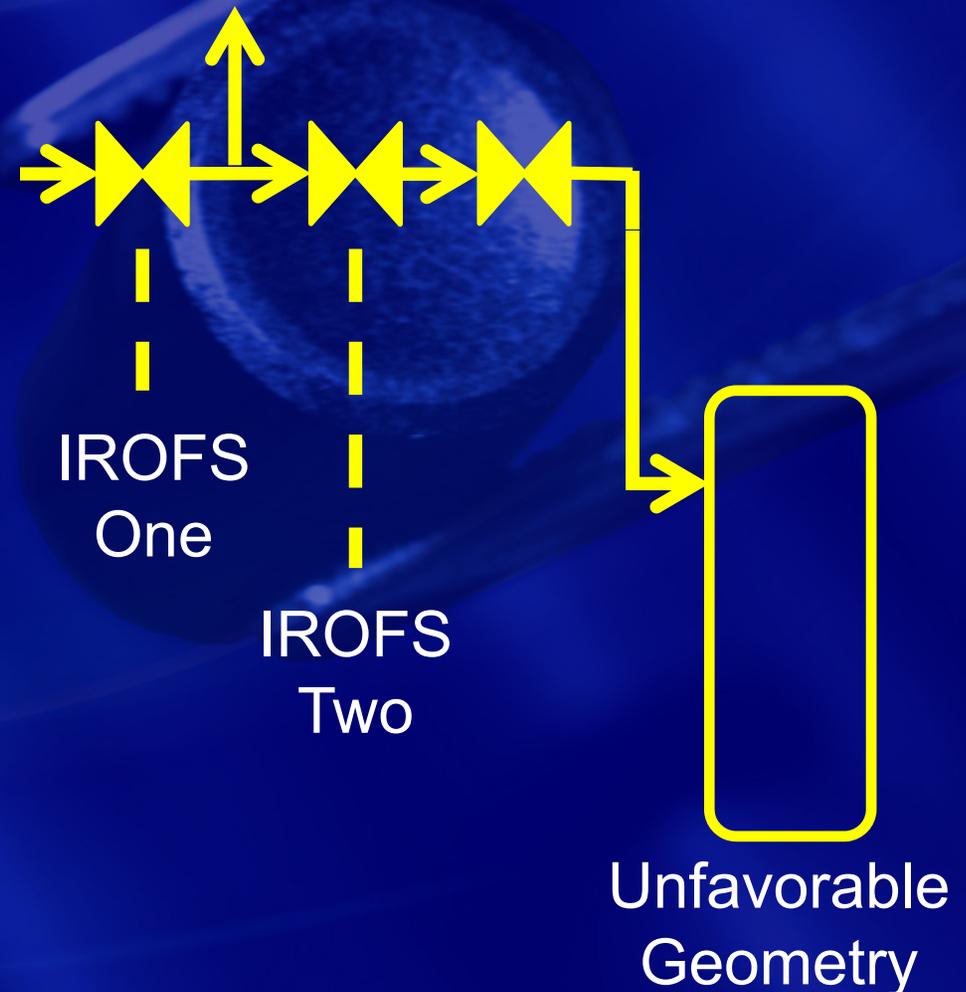
- Duration
 - may impact the likelihood
 - impact should be in accordance the ISA methodology or IMC 2606
- Physical Principles
 - Credit may be given for physical or scientific principles
 - Consideration should be consistent with the licensing basis

Assessing Final Likelihood

- Assess all applicable controls:
 - Credited
 - Uncredited
- Assess physical characteristics
- Assess duration

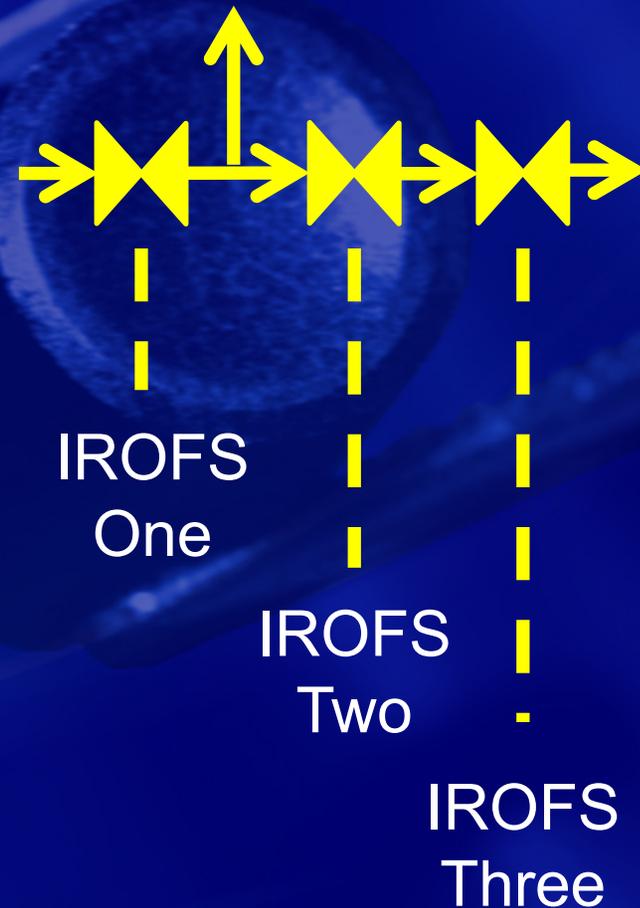
Example One – Using IROFS From Other Accident Sequences

- ISA identifies two controls to meet performance requirements
 - Initiating Event Frequency is credited with [0]
 - IROFS One is credited with [-2]
 - IROFS Two is credited with [-2]



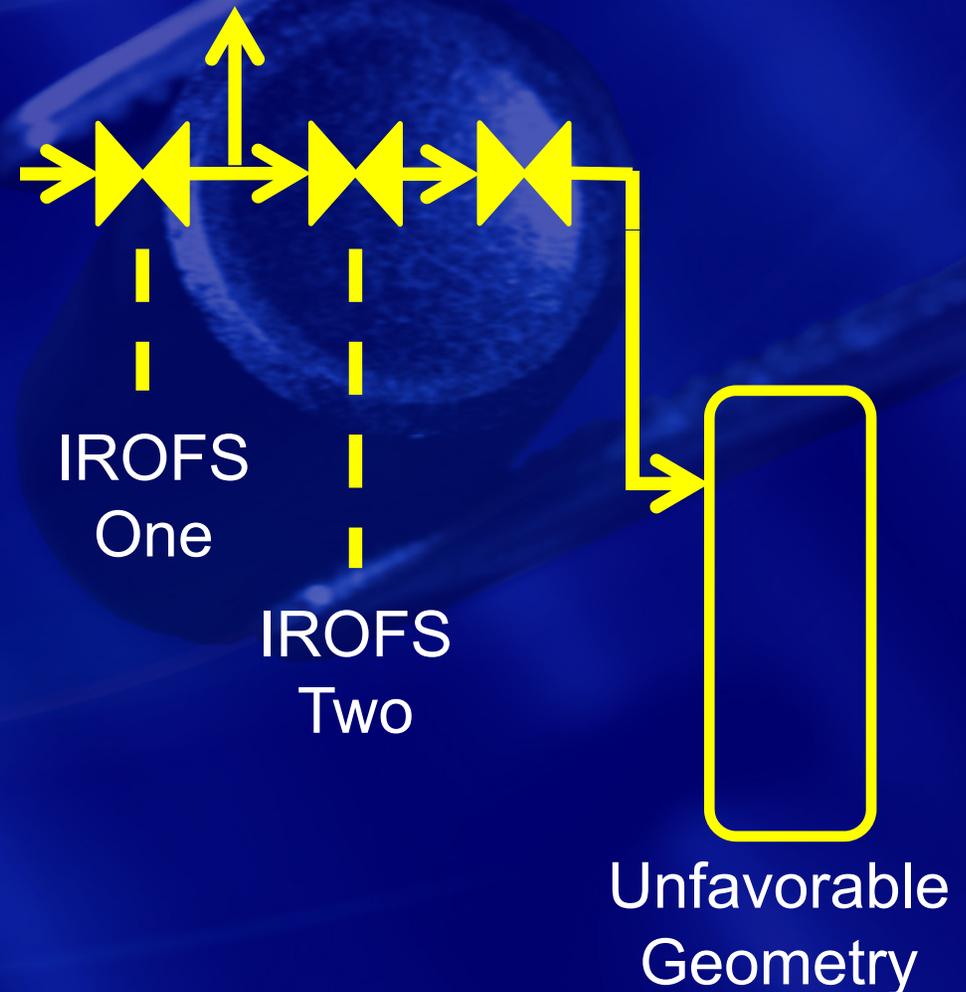
Example One Cont.

- IROFS One failed
- IROFS Three:
 - Designated an IROFS,
 - physically in place,
 - available and reliable, and
 - has management measures
- IROFS Three is determined to have a [-2] credit using the licensee's ISA methodology



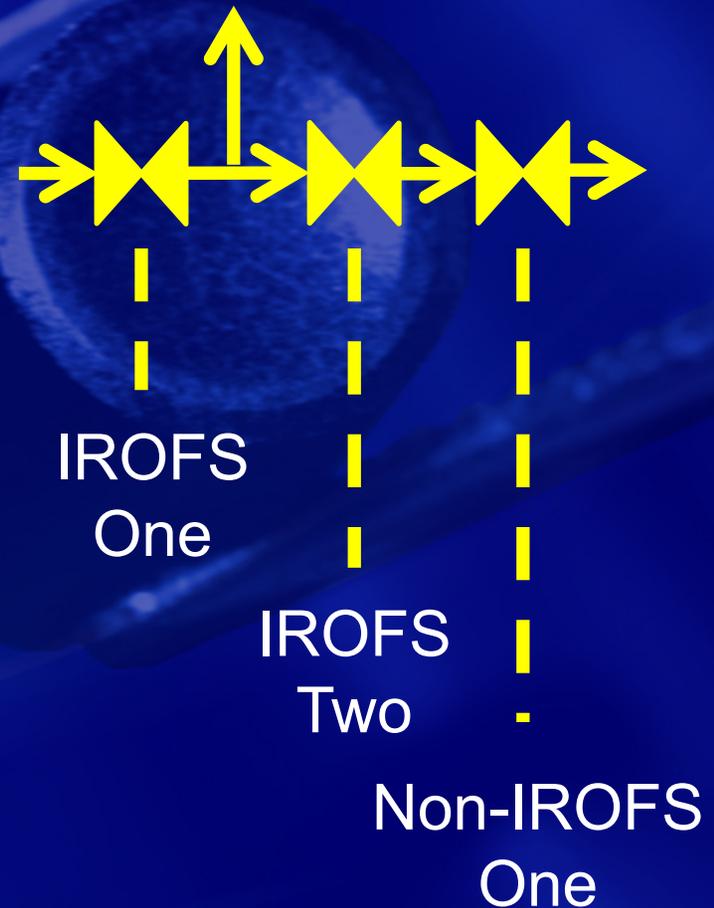
Example Two – Using Non-IROFS Controls

- ISA identifies two controls to meet performance requirements
 - Initiating Event Frequency is credited with [0]
 - IROFS One is credited with [-2]
 - IROFS Two is credited with [-2]



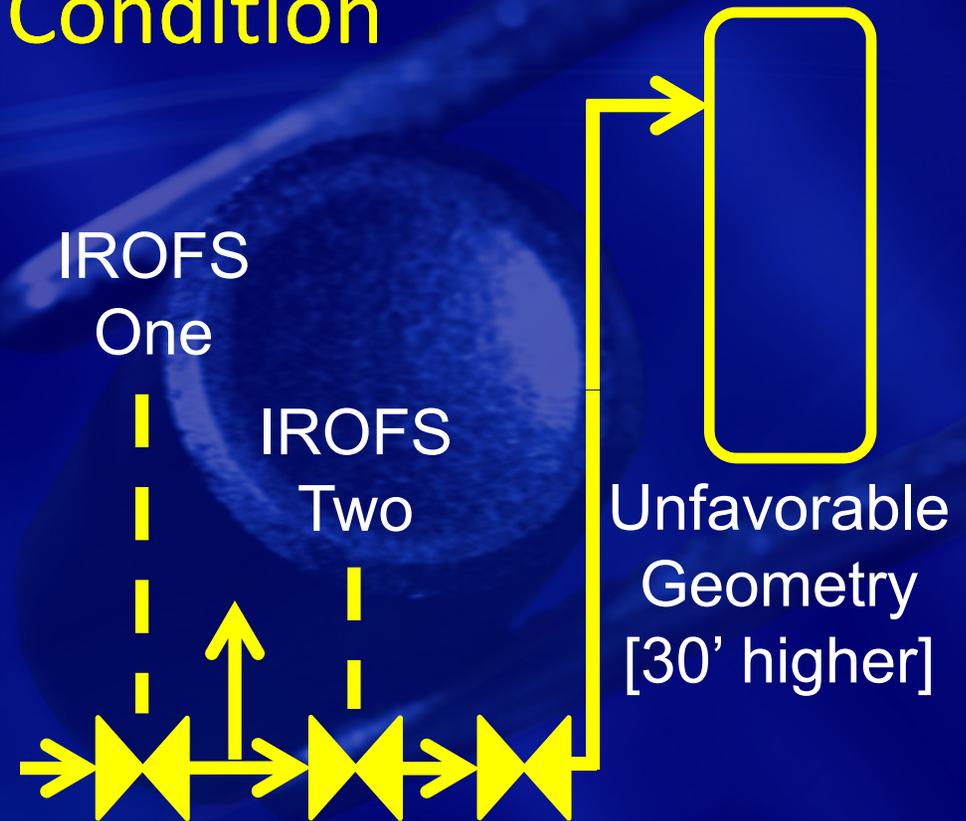
Example Two Cont.

- IROFS One failed
- Non-IROFS One:
 - physically in place,
 - available and reliable, and
 - has equivalent management measures
- Non-IROFS One is determined to have a [-2] credit using the licensee's ISA methodology



Example Three – Unanalyzed Condition

- The licensee discovers SNM-bearing solution in an unexpected location (i.e., unanalyzed condition) that could potentially lead to a high-consequence event due to backflow into an unfavorable geometry vessel.
- The licensee's ISA does not specify this sequence and does not credit controls to prevent the sequence



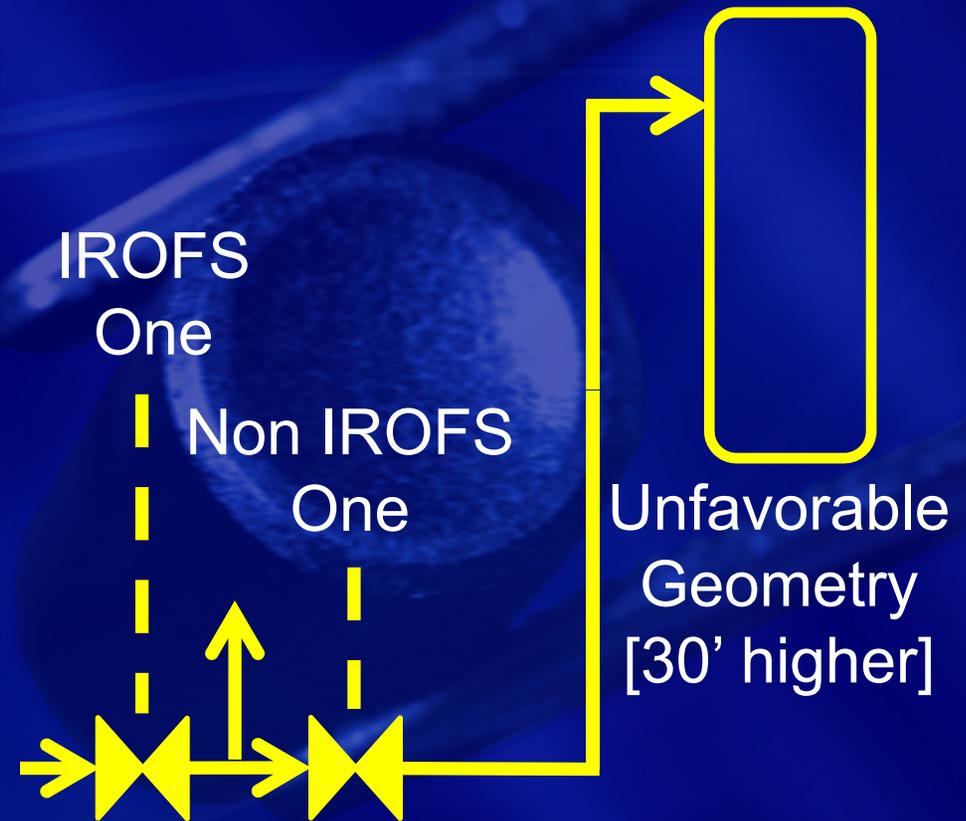
Example Three Cont.

- Two controls would be effective in preventing a criticality
 - One is an IROFS for another accident sequence
 - One is a non-IROFS control.



Example Three Cont.

- IROFS One aligns with [-2]
- Non-IROFS One lacks management measures so no credit is assigned
- Physical Principles still apply:
 - Backflow would have to overcome elevation,
 - Depressurization of the chemical line
- Credit for this physical principle aligns with [-1].





Questions?