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# LA & ISA Summary Format and Content



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# Agenda

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- Welcome & Introductions
- Meeting Purpose
- DCS Proposed Approach
- Flow from CAR to LA/ISA Summary
- LA Discussion
- ISA Summary Discussion
- Discussion of Project Status and Management Issues



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## Meeting Purpose

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- Present Proposed Format and Content for the Mixed Oxide Fuel Fabrication Facility License Application and Integrated Safety Analysis Summary
- Obtain NRC feedback on proposed approach



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## DCS Proposed Approach

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- Build off the information presented in the Construction Authorization Request and the familiarity gained over the last several years of NRC review
- The keys to success are:
  - To adequately separate the information presented in the CAR into the two required documents (i.e., the License Application and the ISA Summary), while minimizing duplication
  - To show the evolution from Principal SSCs to IROFS
  - Add safety information required by 10 CFR Part 70 and
  - Follow the guidance in the SRP (NUREG 1718)



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## Flow from CAR to LA & ISA Summary

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- In general Programmatic information will be in the LA and detail/quantitative information will be provided in the ISA Summary
- For example, it is easy to see how:
  - Some Chapters move directly from the CAR to the LA (i.e., 2, 3, 4, 12, 13, 14, 15)
  - Others are divided but not complicated (i.e., 1, 5, 9, 10)
  - Yet, others are divided but potentially complicated/duplicative (i.e., 6, 7, 8, 11)



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# LA Table of Contents

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- 1.0 GENERAL INFORMATION
- 2.0 FINANCIAL QUALIFICATIONS
- 3.0 PROTECTION OF CLASSIFIED MATTER
- 4.0 ORGANIZATION AND ADMINISTRATION
- 5.0 INTEGRATED SAFETY ANALYSIS (ISA)
- 6.0 NUCLEAR CRITICALITY SAFETY (NCS)
- 7.0 FIRE PROTECTION
- 8.0 CHEMICAL SAFETY
- 9.0 RADIATION SAFETY
- 10.0 ENVIRONMENTAL PROTECTION
- 11.0 PLANT SYSTEMS
- 12.0 HUMAN FACTORS ENGINEERING
- 13.0 SAFEGUARDS
- 14.0 EMERGENCY MANAGEMENT
- 15.0 MANAGEMENT MEASURES

- Bold highlights indicate Chapters transferring directly from CAR to LA



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## A Divided but not Complicated Example of a License Application Chapter

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- 1.0 General Information
  - 1.1 Facility and Process Overview
    - Described in LA
  - 1.2 Institutional Information
    - Described in LA
  - 1.3 General Site Description
    - Brief high-level description in LA, Detailed Description in ISA-Summary



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## Potentially Complicated and/or Duplicative Example of a License Application Chapter

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- 8.0 CHEMICAL SAFETY
  - Chemical Process Description
  - Hazardous Chemicals and Potential Interactions
  - Chemical Safety Controls
  - Chemical Process Safety Interfaces
  - Chemical Safety Analysis Methodology





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## ISA Summary

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- 10 CFR Part 70
  - 10 CFR 70.65 – Additional Contents of Applications
- Guidance Documents
  - NUREG 1718 – Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility
  - NUREG 1520 – Standard Review Plan for the Review of License Applications for a Fuel Cycle Facility
  - NUREG 1513 – Integrated Safety Analysis Guidance Document



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# ISA Summary Table of Contents

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- ISA Summary Chapters
  - 1.0 Overview
  - 2.0 Site Description
  - 3.0 Facility Description
  - 4.0 Process and System Descriptions
  - 5.0 General ISA Method, ISA Team, and Accident Sequences



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# Chapter 1 - ISA Summary

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- Introduction and Overview of the Document
- Purpose and Regulatory Framework
- Identifies suite of Document Types that comprise the ISA
- Provides the relationship between the ISA and ISA Summary
- Overall Conclusion
  - Part 70 Performance requirements have been met



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## Chapter 2 - Site Description

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- Contains information similar to the contents of CAR section 1.3
  - No significant change from CAR expected



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## Chapter 3 - Facility Description

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- Contains information similar to the contents of CAR sections 11.1 (Civil Structural Systems) and 11.12 (Seismic Qualification of Equipment, Systems and Components)
  - Functions
  - System Description
  - Major Components
  - Control Concepts
  - Interfaces
  - Design Basis for IROFS Structures
  - Demonstration that Civil/Structural IROFS Satisfy Requirements
  - Seismic Qualification of System, Structures, and Components
- New information
  - IROFS descriptions



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## Chapter 4 - Process and System Descriptions

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- Contains information similar to the contents of CAR sections 11.2 and 11.11 and appropriate System Description information from Chapters 6, 7, 9 & 10
  - Functional Description
  - Description and Major Components
  - Control Concepts
  - Interfaces
  - IROFS Descriptions and Design Basis
- New Information
  - IROFS descriptions



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## IROFS Information Provided in ISA Summary

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- Physical description
- Safety requirements
- Functional requirements
- Satisfaction of safety and functional requirements
- Applicable codes and standards
- Identification of parameters
- IROFS failure detection method
- Applicable Management Measures



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## Chapter 5 - General ISA Method, ISA Team, and Accident Sequences

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- Contains information from the contents of CAR Chapters 5, 6, 7, and 8
  - ISA Method
    - methodology descriptions
  - ISA Team
  - ISA Results
    - Hazard assessment
    - Accident evaluation
    - Bounding consequence assessment
    - Likelihood assessment
    - Accident sequences and identification of IROFS
    - Demonstration that event sequences are highly unlikely for required events



# DRAFT

70.65 Requirement	Implementing Documents
(a) In addition to the contents required by §70.22, each application must include a description of the applicant's safety program established under §70.62.	Ch 5 of the LA will make these commitments
(b) The integrated safety analysis summary must be submitted with the license or renewal application (and amendment application as necessary), but shall not be incorporated in the license. However, changes to the integrated safety analysis summary shall meet the conditions of §70.72. The integrated safety analysis summary must contain:	Ch 5 of the LA will make these commitments
(1) A general description of the site with emphasis on those factors that could affect safety (i.e., meteorology, seismology);	Ch 2 of the ISA Summary
(2) A general description of the facility with emphasis on those areas that could affect safety, including an identification of the controlled area boundaries;	Ch 3 of the ISA Summary
(3) A description of each process (defined as a single reasonably simple integrated unit operation within an overall production line) analyzed in the integrated safety analysis in sufficient detail to understand the theory of operation; and, for each process, the hazards that were identified in the integrated safety analysis pursuant to §70.62(c)(1)(i)-(iii) and a general description of the types of accident sequences;	Ch 4 of the ISA Summary for process and system descriptions; Ch 5 of the ISA Summary for accident analysis
(4) Information that demonstrates the licensee's compliance with the performance requirements of §70.61, including a description of the management measures; the requirements for criticality monitoring and alarms in §70.24; and, if applicable, the requirements of §70.64;	Ch 5 of the ISA Summary for conformance to the 70.61; Ch 4 of the ISA Summary for identification of specific management measures associated with specific IROFS, Ch 15 of the LA for commitments and programmatic descriptions of management measures; Ch 6 of the LA for Programmatic Criticality Monitoring Commitments*; Ch 4 of the ISA Summary for CAS Specifics* Ch 4 of the ISA Summary for 70.64 compliance **
(5) A description of the team, qualifications, and the methods used to perform the integrated safety analysis;	Ch 5 of the ISA Summary
(6) A list briefly describing each item relied on for safety which is identified pursuant to §70.61(e) in sufficient detail to understand their functions in relation to the performance requirements of §70.61;	Ch 3 (facility related) and Ch 4 (process and system related) of the ISA Summary
(7) A description of the proposed quantitative standards used to assess the consequences to an individual from acute chemical exposure to licensed material or chemicals produced from licensed materials which are on-site, or expected to be on-site as described in §70.61(b)(4) and (c)(4);	Ch 5 of the ISA Summary
(8) A descriptive list that identifies all items relied on for safety that are the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of §70.61; and	Ch 3 (facility related) and Ch 4 (process and system related) of the ISA Summary
(9) A description of the definitions of unlikely, highly unlikely, and credible as used in the evaluations in the integrated safety analysis.	Ch 5 of the ISA Summary

\* 10 CFR 70.22 (a) (7) requires the license application to provide a description of the criticality accident alarm system. 10 CFR 70.65 requires the ISA Summary to include a description of the compliance with 70.24 (criticality accident requirements). It is not clear within the regulations which portions of 70.24 are to be addressed in which document, nor is it clear how to avoid duplication of information. This is a topic that needs to be discussed with NRC staff.

\*\* While the bulk of the information requested under 70.64 is provided in the ISA Summary, some of the programmatic information requested is in fact more appropriately addressed within the License Application since it is not specific to a summary of analyses. Examples of programmatic information under 70.64 is commitment to double contingency principle for criticality and commitment to maintain quality standards and records.