United States Nuclear Regulatory Commission

Protecting People and the Environment

NUREG-1962

Guidance on the Implementation of Integrated Safety Analysis Requirements for 10 CFR Part 40 Facilities Authorized To Possess 2,000 Kilograms or More of Uranium Hexafluoride

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ABSTRACT

This NUREG is written to provide guidance on the implementation of additional regulatory requirements for licensees authorized under Title 10 of the *Code of Federal Regulations* (10 CFR), Part 40 (Part 40), "Domestic Licensing of Source Material," to possess threshold quantities of uranium hexafluoride (UF_6). The document primarily provides guidance on the implementation of integrated safety analysis (ISA) requirements and also addresses updates to the emergency plan criteria, and reporting requirements among others. These requirements were implemented in the Part 40 rulemaking, dated [ENTER FEDERAL REGISTER DATE FOR PUBLICATION OF FINAL RULE FOR PART 40]. The guidance consists of references to the applicable portions of existing ISA guidance in NUREG-1513, "Integrated Safety Analysis Guidance Document," issued May 2001 and NUREG-1520, Revision 1, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," issued May 2010, which were written to support the implementation of ISA requirements in 10 CFR Part 70 (Part 70), "Domestic Licensing of Special Nuclear Material."

The Commission directed the staff to implement the Part 40 ISA requirements in the Staff Requirements Memorandum to SECY-07-0146, "Regulatory Options for Licensing New Uranium Conversion and Depleted Uranium Deconversion Facilities," dated October 10, 2007. The requirements are designed to better address the potential radiological and chemical hazards resulting from UF_6 and hydrogen fluoride at certain source material facilities.

The ISA requirements are incorporated into Part 40, Subpart H, "Additional Requirements for Certain Licensees Authorized to Possess 2000 Kilograms (4400 lbs) or More of Uranium Hexafluoride," and parallel the majority of ISA requirements in the existing Part 70, Subpart H, "Additional Requirements for Certain Licensees Authorized To Possess a Critical Mass of Special Nuclear Material." The chief difference between the Part 40 and Part 70 ISA regulations is the absence of criticality requirements in the Part 40 ISA provisions. Due to the similarities in the ISA requirements between Part 40 and Part 70, portions of NUREG-1513 and NUREG-1520 apply to the Part 40 ISA. The guidance which is not applicable to Part 40, e.g., criticality, are noted and explained.

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GUIDANCE ON THE IMPLEMENTATION OF INTEGRATED SAFETY ANALYSIS REQUIREMENTS FOR 10 CFR PART 40 FACILITIES

1. Purpose

This document provides information on implementing the requirements of Title 10 of the *Code of Federal Regulations* (CFR) Part 40, Subpart H requirements (e.g., Integrated Safety Analysis, emergency plan criteria, and reporting requirements) for source material licensees who are authorized to possess 2,000 kilograms or more of uranium hexafluoride (UF_6).

2. Overview

The Commission's staff requirements memoranda (SRM) M070308B, "Briefing on NMSS Programs, Performance, and Plans," dated March 22, 2007, and SRM to SECY-07-0146, "Regulatory Options for Licensing New Uranium Conversion and Depleted Uranium Deconversion Facilities," dated October 10, 2007, directed the U.S. Nuclear Regulatory Commission's (NRC) staff to proceed with rulemaking to ensure that chemical hazards at certain source material facilities have a more risk-informed regulatory structure. The threshold for triggering the Part 40 Integrated Safety Analysis (ISA) requirements was established at 2,000 kilograms (kg) of uranium hexafluoride, an amount which has the potential to produce hydrogen fluoride (HF)—a hazardous chemical—in significant quantities (450 kg). Both the Occupational Safety and Health Administration (OSHA) and the U.S. Environmental Protection Agency (EPA) have established 450 kg of HF as the threshold for requiring additional safety analyses.[1]

This NUREG begins with Table 1, "Requirements Added to 10 CFR Part 40 in the ISA Rulemaking," which provides a description of the major changes to Part 40 which were implemented in the rulemaking, dated [ENTER DATE OF FEDERAL REGISTER FOR FINAL RULE]. As part of the rulemaking, the Commission directed the NRC staff in SRM to SECY-10-0128, "Proposed Rule: Domestic Licensing of Source Material - Amendments/Integrated Safety Analysis," to provide a clear explanation as to how to evaluate the NRC/OSHA Memorandum of Understanding (MOU) criterion 3 when completing the ISA. Guidance on implementing the MOU in the ISA is provided along with multiple examples.

The NUREG provides guidance for the ISA primarily through references to existing guidance developed for Part 70. One section focuses on NUREG-1513, "Integrated Safety Analysis Guidance Document," which illustrates how to develop an ISA. The bulk of NUREG-1513 can be applied directly to Part 40, excluding some topics unique to Part 70 (e.g., criticality). The ISA guidance NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," is also applicable to Part 40, Subpart H. NUREG-1520 provides the NRC's acceptance review criteria for the ISA Summary.

To facilitate the comparison between Part 40 and Part 70, Table 2, "Crosswalk between Requirements in 10 CFR Part 40, 10 CFR Part 70, and NUREG 1520," provides a crosswalk between the Part 40 ISA requirements and the existing ISA requirements in Part 70. The

[1]See 29 CFR 1910.119, "Regulatory Options for Licensing New Uranium Conversion and Depleted Uranium Deconversion Facilities," (the OSHA Process Safety Management regulation); 40 CFR Part 68, "Chemical Accident Prevention Provisions" (EPA's Risk Management Program requirements); and 40 CFR Part 355, "Emergency Planning and Notification.

NUREG also describes the differences between the existing guidance, written for Part 70, and the Part 40 ISA requirements. The two remaining tables (Tables 3 and 4) provide additional cross references between the ISA requirements in Part 40, Part 70, and the guidance in NUREG-1520. Table 3, "Location of ISA Terms and Requirements Referenced in NUREG-1520, Revision 1," contains a list of the major ISA terms and requirements used in the proposed Part 40, Subpart H. Table 4, "Expanded Information Requirements for the Integrated Safety Analysis Summary," lists the regulatory criteria and expectations for each type of information to be required in the ISA Summary. Table 4 also includes the Part 40 criteria and their matching counterparts in the existing Part 70 requirements.

3. Description of Rule Changes to 10 CFR Part 40

Table 1 describes the requirements in 10 CFR Part 40 for licensees who are authorized to possess 2,000 kilograms or more of uranium hexafluoride, briefly describes the background for the regulatory change, and indicates the available guidance for each requirement.

4. Completing an ISA Consistent with the 1988 NRC/OSHA MOU

To achieve greater worker protection, in 1988 the U.S. Nuclear Regulatory Commission (NRC) and the Occupational Safety and Health Administration (OSHA) entered into a Memorandum of Understanding (MOU) (53 FR 43950-43952; 1988). As stated there, the NRC regulates nuclear and radiological safety at NRC-licensed facilities, including plant conditions which "present an increased radiation risk to workers." The NRC and OSHA have jurisdiction over the safety and health of workers at NRC-licensed facilities. OSHA regulates industrial safety in general.

The Commission directed the staff in the SRM-SECY-10-0128 to evaluate whether there was need to update the 1988 MOU or provide additional guidance on its implementation. The evaluation determined that the MOU adequately defines the dividing line between NRC and OSHA regulated activities for Part 40 facilities authorized to possess 2,000 kg or more of UF_6. This section provides the additional guidance on completing the ISA consistent with the MOU.

The 1988 MOU defined the agencies' general areas of responsibilities for the regulation of industrial hazards at nuclear facilities. The MOU identified the following four areas of responsibility. The NRC has regulatory oversight for the first three areas, whereas OSHA has authority for the fourth area:

1. Radiation risk produced by radioactive materials;
2. Chemical risk produced by radioactive materials;
3. Plant conditions that affect the safety of radioactive materials and thus present an increased radiation risk to workers; and
4. Plant conditions that result in an occupational risk, but do not affect the safety of licensed radioactive materials.

The NRC's area of responsibility covered by the first criterion is easily identified, but the second and third criteria often require some evaluation. In SRM-SECY-10-0128, the Commission directed the staff to provide a clear explanation as to how a licensee should evaluate the MOU's third criterion when completing its ISA.

Conducting an ISA requires evaluating all the accident sequences which meet the criteria in § 40.82. Some of these criteria are drawn from the NRC–OSHA MOU and include § 40.82(c)(i) (radiological hazards); § 40.82(c)(ii) (chemicals produced from radioactive materials); and § 40.82(c)(iii) (plant conditions which could impact the safety of radioactive material). Once the accident sequences are identified, the applicant must meet the performance requirements in § 40.81.

Accident sequences which involve radioactive materials directly are easily identified to be under NRC's jurisdiction and must be considered in the ISA. In addition, accidents which do not result directly from the hazards of radioactive materials may still be under NRC's jurisdiction and considered in the ISA, if they fall within the scope of the MOU criteria 2 (chemicals produced from radioactive material) and 3 (impact the safety of radioactive materials).

This guidance provides a number of examples to illustrate the types of events which fall within the MOU criteria 2 and 3, and are subject to the ISA § 40.82 requirements. Some of the examples have previously been published following the establishment of the ISA requirements for Part 70 in September 2000. These examples are included below.

1. Statements of Consideration (SOC) for Part 70.61 (64 FR 41341-41342; July 30, 1999). "As an example of the third MOU area, if the failure of a chemical system adjacent to a nuclear system could affect the safety of the nuclear system such that the radiation dose (and associated likelihood of that accident) exceeded a performance requirement, the chemical system failure would be within the scope of the ISA and the means to prevent the chemical system failure from impacting the nuclear system would be within NRC's regulatory purview."

2. March 10, 2003, NRC Memorandum entitled, "Regulatory Authority Over Chemical Hazards at Fuel Cycle Facilities," (Accession Number ML030700317).
   - "An example corresponding to Item (2) [MOU criterion 2] above would be uranium hexafluoride which reacts with moisture in the air to produce uranyl fluoride and hydrofluoric acid."
   - "Another example of Item (2) [MOU criterion 2] would be the release of nitric acid that would result during a dissolution operation where an excess amount of nitric acid is added to uranium oxide."
   - "An example of Item (3) [MOU criterion 3] above would be a spill of aqueous ammonia due to overfilling of a mixing vessel containing both liquid ammonia and uranyl fluoride which would increase radiological risk."

In addition to these previously published examples, the following examples are provided.

3. A chlorine tank located onsite but at a distance from radioactive material ruptures. The resulting cloud of chlorine vapor prevents an NRC-licensed operator from taking actions needed to ensure radiological safety (such as the shutting down or isolation of radiological processes) prior to evacuating a process control area.
4. A fire in an electrical box results in loss of power to a radiological safety system such as ventilation or radiation monitoring devises.
5. A crane lift accident which results in the rupture of a radioactive material container due to a drop, puncture, or a fire involving a forklift.

The scenarios in these examples have the potential to impact the safety of radioactive material. Therefore, consistent with MOU criterion 3, these types of accident sequences involve hazards

that are within NRC's jurisdiction and must be evaluated in the ISA. The accident sequences would be analyzed in the ISA as required by § 40.82(c); and if they challenge the performance requirements in § 40.81, they would require implementation of additional items relied on for safety to mitigate the risk.

The example below illustrates a hazard which would not impact radioactive material and, consistent with MOU criterion 4, would be under OSHA jurisdiction and would not need to be evaluated in the ISA.

6. An event results in a chemical spill, chemical plume, smoke plume, fire, etc., in a warehouse building located onsite but isolated from radioactive material, such that the hazard could not impact NRC-licensed material or licensed activities.

Since the event would have no impact on the safety of radioactive material, the event would not challenge the performance requirements in § 40.81. In addition, this type of event would not need to be evaluated in the ISA because it is outside the scope of § 40.82.

The examples provided above illustrate the types of events which must be evaluated in the ISA to ensure that the accident sequences meet the performance requirements in § 40.81. Comprehensive implementation of the ISA requirements addresses the areas specified in the MOU and provides reasonable assurance of safety.

5. Applicability of NUREG-1513 TO 10 CFR Part 40 ISA

After publication of the final rule for ISA in 10 CFR Part 70 on September 18, 2000, the U.S. Nuclear Regulatory Commission (NRC) developed NUREG-1513 entitled, "Integrated Safety Analysis Guidance Document." As indicated in the document's abstract, the purpose was to provide general guidance to NRC's fuel cycle licensee/applicants on how to perform an ISA and document the results. In particular, the document defines an ISA, identifies its role in a facility's safety program, identifies and describes several generally accepted ISA methods, and provides guidance in choosing a method.

Although NUREG-1513 was written to apply to the ISA requirements in Part 70, the document also applies to the ISA requirements in Part 40, with minor modifications. The following modification should be taken into consideration when applying NUREG-1513 for guidance on Part 40 ISA.

1. The NUREG-1513 only references sections in Part 70. The guidance also applies to the corresponding sections in Part 40, which can be identified using the crosswalk provided in Table 2 of this guidance document.

2. The NUREG-1513 was written to apply to facilities that process special nuclear material. As a result, there are a number of references to criticality, double contingency, and fuel fabrication. Such hazards are outside the scope of the Part 40 facilities and should be disregarded. However, the guidance for developing an ISA still applies to Part 40 because it also addresses radiological and chemical hazards, which are present at Part 40 facilities. The references to criticality, double contingency, and fuel fabrication are generally illustrative and accompanied by additional examples of radiological and chemical hazards, e.g., vaporization of uranium hexafluoride.

3. The Appendix B provides several useful examples for Part 40 and Part 70.

    - Appendix B.1 entitled, "What-If Analysis of the Pelletizing, Rod-loading, and Fuel Bundle Assembly Steps," provides an example of a what-if analysis as applied to a fuel fabrication system involving criticality. The details of the analysis do not apply to Part 40, but the procedure for conducting the analysis is illustrative of the what-if process that may be used for Part 40.

    - Appendix B.2 and B.3 provide examples which are more likely applicable to a Part 40 facility.

Aside from these items, the guidance in NUREG-1513 should be used by Part 40 applicants and licensees as guidance for developing an ISA.

6. Applicability of NUREG-1520, Revision 1 to 10 CFR Part 40 ISA

The majority of information for ISA regulations is contained in NUREG-1520 and also applies to Part 40, Subpart H, via reference, with only minor modifications. These changes are described in the crosswalk in Table 2. This guidance includes:

- NUREG-1520, Chapter 3, "Integrated Safety Analysis (ISA) and ISA Summary;"
- Appendix A to Chapter 3, "Example Procedure for Accident Sequence Evaluation;"
- Chapter 11, "Management Measures," apply to the Part 40 requirements; and
- Specific ISA references spread throughout each chapter of NUREG-1520.

A few considerations must be kept in mind when applying NUREG-1520 to Part 40. References to criticality are not applicable to Part 40 licensees, since such licensees are not authorized to possess special nuclear material. A criticality event involving source material is not credible at facilities that are licensed under 10 CFR Part 40. NUREG-1520 references to subsections in Part 70 must be substituted with references to Part 40. (Note: Table 2 provides the crosswalk for these substitutions.) In addition, the following sections in NUREG-1520 require minor modification to be applied to Part 40 ISA.

- NUREG-1520, Section 3.1, "Purpose of Review"

  This section describes the Part 70 facilities that are required to implement an ISA. The Part 40 facilities subject to Subpart H are major facilities that are authorized to possess 2000 kg or more of UF_6 source material.

- NUREG-1520, Section 3.3.2, "ISA Summary and ISA Documentation"

  The Part 70 acceptance criteria require demonstration of the ISA methodology on three or four nuclear criticality events. The operations of Part 40 licensees do not generate criticality hazards, so the ISA methodology should be demonstrated on three or four hazardous chemical events. Table 2 provides the crosswalk between Part 40, Part 70 and NUREG-1520. A discussion of the differences between the Parts is also provided.

7. Sections in NUREG-1520 that Involve ISA

Although Chapters 3, “ISA and ISA Summary,” and Chapter 11, “Management Measures” of NUREG-1520 address the implementation of ISA, additional information on ISA is spread throughout the NUREG. This is because the ISA impacts the safety basis for each of the major review areas (e.g., chemical, fire, radiation safety, etc.). Table 3 lists the sections in NUREG-1520, outside of Chapters 3 and 11, which contain additional information about implementing the ISA.

8. Information Requirements for the ISA Summary

Table 4 is an amended version of Table 3.1, “Information Requirements for the ISA Summary,” in NUREG-1520, Revision 1, Section 3.4. The table lists the regulatory citations and expectations for each type of information required in the ISA Summary, e.g., (1) site and facility characteristics, (2) ISA methods, (3) hazards and accident analysis, and (4) items relied on for safety. Table 4 augments Table 3.1 from NUREG-1520 with the 10 CFR Part 40 citations that correspond to the 10 CFR Part 70 requirements given in the original table.

Table 1 Requirements Added to 10 CFR Part 40 in the ISA Rulemaking

Requirement	Discussion
40.3(a) Requirement	"After [Effective date of final rule], Agreement States may not issue new licenses covering the [authorization for] possession of 2000 kilograms (4400 lbs) or more of uranium hexafluoride."
Background	2,000 kg of UF_6 have the potential to release hazardous quantities of HF if released during an event. Consistent with the direction in the SRM to SECY-07-0146, the Commission determined that facilities with this quantity of material should be regulated by the NRC and not by Agreement States.
Guidance	This section does not affect the technical review. No additional guidance is provided.
New Subpart H in Par 40	"The regulations in §§ 40.81 through 40.89 apply, in addition to other applicable Commission regulations, to each applicant or licensee that is or plans to be authorized to possess 2000 kilograms (4400 lbs) or more of uranium hexafluoride."
Background	Subpart H has been added to 10 CFR Part 40 to implement ISA requirements. This subpart is structured parallel to 10 CFR Part 70, Subpart H, "Additional Requirements for Certain Licensees Authorized To Possess a Critical Mass of Special Nuclear Material." However, references to criticality have been removed because Part 40 regulates source and byproduct material, which does not include special nuclear material.
Guidance	Table 2 of this guidance document provides a section-by-section crosswalk between the regulations in 10 CFR Part 40 and the existing regulations in 10 CFR Part 70. A description of any differences between the two parts is provided after each comparison.
40.84(b) Requirement	"In any evaluation submitted under § 40.31(j)(1)(i), licensees and applicants must also show that, in the event of a release, an acute chemical exposure from licensed material or hazardous chemicals produced from licensed materials would result in neither irreversible nor mild transient health effects to a member of the public offsite. If such an evaluation is not submitted, licensees and applicants must submit an emergency plan pursuant to § 40.31(j)(3)."
Background	Under 10 CFR 40.31(j)(1), applicants have one of two options: they must either submit an evaluation that complies with 10 CFR 40.31(j)(1)(i) or submit an emergency plan in accordance with 10 CFR 40.31(j)(1)(ii). The 10 CFR 40.31(j)(1)(i) criterion is based on uranium exposure. The regulation in 10 CFR 40.84(b) adds an additional emergency evaluation criterion. This criterion requires licensees authorized to posses 2,000 kg or more of UF_6 to demonstrate that hazardous chemicals involved in the processing of licensed material cannot cause mild transient health effects offsite. If a credible

Table 1 Requirements Added to 10 CFR Part 40 in the ISA Rulemaking (Continued)

Requirement	Discussion
	potential exists to exceed this threshold, the licensee is required to implement an emergency plan in accordance with 10 CFR 40.31(j).
Guidance	The guidance in NUREG-1520, Sections 8.3.2 and 8.4.3.2, applies to the new emergency evaluation criterion. References in the guidance to 10 CFR 70.22(i)(1)(i) apply to 10 CFR 40.31(j)(1)(i), and references to 10 CFR 70.22(i)(1)(ii) apply to 10 CFR 40.31(j)(1)(ii).
40.88(a) and (b) Requirement	"(a) […] the following events must be reported to the NRC Operations Center within 1 hour of discovery, supplemented with the information described in paragraph (d)(1) of this section as it becomes available, followed by a written report within 60 days: […] (b) […] the following events must also be reported to the NRC Operations Center within 24 hours of discovery, supplemented with the information described in Paragraph (d)(1) of this section as it becomes available, followed by a written report within 60 days: […]"
Background	The agency is considering a rule change to the reporting requirements in 10 CFR Part 70 similar to those implemented here (i.e., change 30 to 60 days). The change allows licensees to submit the supplemental reports required by 10 CFR 40.88(a) and (b) within 60 days.
Guidance	This section does not affect the technical review. No additional guidance is provided.
40.89(a)(1) Requirement	The Commission shall require a systematic and documented analysis pursuant to paragraph (b) of this section for backfits that it seeks to impose.
Background	The regulations in 10 CFR 40.89 govern the backfitting of new or modified requirements for 10 CFR Part 40 licensees authorized to possess 2,000 kg or more of UF_6. The regulation requires that the NRC justify each backfit with a backfit analysis (10 CFR 40.89(a)(2)) or a documented evaluation (10 CFR 40.89(a)(4)) and specify its use and contents.
Guidance	The backfit analysis is conducted by the NRC, so no external guidance is provided for its implementation. However, several internal guidance documents are publically available and provide additional information. These include (1) NRC Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection," issued June 2001; and (2) NMSS P&P 1-82, Revision 1, "10 CFR Part 70 Backfit Guidance," issued October 2005.

Table 2 Crosswalk between Requirements in 10 CFR Part 40, 10 CFR Part 70, and NUREG-1520

10 CFR PART 40	10 CFR PART 70	NUREG-1520	Discussion
40.3a Denial of Licensing by Agreement States	70.3 License Requirements	NA	10 CFR Part 40.3a requires licensees that are authorized to possess 2,000 kg or more of UF6 to be licensed by the NRC. 10 CFR Part 70 does not contain a parallel requirement.
40.4 Definitions	70.4 Definitions	Glossary	The NRC has added definitions for the following ISA-related terms to 10 CFR 40.4: • acute • available and reliable to perform their function when needed • configuration management • defense-in-depth • hazardous chemicals produced from licensed materials • integrated safety analysis • integrated safety analysis summary • items relied on for safety • management measures • unacceptable performance deficiencies • worker These definitions are identical to the definitions in 10 CFR Part 70 with two exceptions. First, the defense-in-depth definition located in a footnote to 10 CFR 70.64 has been placed in the definitions section of 10 CFR 40.4. Second, the reference to criticality has been removed from the ISA definition.
40.80 Applicability	70.60 Applicability	Section 9.4.3.3	10 CFR Part 40 facilities are subject to ISA requirements based on the quantity of UF_6 they possess, rather than on the quantity of special nuclear material as for 10 CFR Part 70 facilities.

Table 2 Crosswalk between Requirements in 10 CFR Part 40, 10 CFR Part 70, and NUREG-1520 (continued)

10 CFR PART 40	10 CFR PART 70	NUREG-1520	Discussion
40.81 Performance Requirements	70.61 Performance Requirements	Throughout, but especially in Chapter 3 (on ISAs)	Both 10 CFR Part 40 and 10 CFR Part 70 have similar performance requirements except for the criticality requirements, which do not apply to 10 CFR Part 40 licensees. As a result, references to criticality have been removed from 10 CFR 40.81.
40.82 Safety Program and Integrated Safety Analysis	70.62 Safety Program and Integrated Safety Analysis	Introduction Chapters 2–3, 5–7, 11	The times specified for existing 10 CFR Part 40 facilities to complete an ISA, ISA plan, and ISA summary and to correct performance deficiencies have been modified. These changes impact the ISA development schedule rather than the content of ISA documents.
40.83 Requirements for New Facilities or New Processes at Existing Facilities	70.64 Requirements for New Facilities or New Processes at Existing Facilities	Introduction Chapters 3, 5–8, 11	The reference to criticality design has been removed. In addition, 10 CFR 70.64 contained a footnote that defined defense-in-depth. This definition has been moved to 10 CFR 40.4.
40.84 Additional Content of Applications	70.65 Additional Content of Applications	Introduction Chapters 1, 3, 5–7, 11	10 CFR 40.84(b) adds a new emergency evaluation criterion in addition to the existing criterion in 10 CFR 40.31(j). Under 10 CFR 40.31(j), facilities must either submit an emergency plan or provide an evaluation that demonstrates limited public exposure to uranium. In 10 CFR 40.84(b), the NRC adds an additional evaluation criterion that requires facilities to also demonstrate limited public exposure to hazardous chemicals to a member of the public offsite. This additional criterion does not exist in 10 CFR Part 70.
40.85 Additional Requirements for Approval of License Application	70.66 Additional Requirements for Approval of License Application	Introduction Chapter 3	No substantive differences

Table 2 Crosswalk between Requirements in 10 CFR Part 40, 10 CFR Part 70, and NUREG-1520 (continued)

10 CFR PART 40	10 CFR PART 70	NUREG-1520	Discussion
40.86 Facility Changes and Change Process	70.72 Facility Changes and Change Process	Introduction Chapters 3, 5–8, 11	No substantive differences
40.87 Renewal of Licenses	70.73 Renewal of Licenses	NA	No substantive differences
40.88 Additional Reporting Requirements	70.74 Additional Reporting Requirements	Chapters 4, 5, 11	10 CFR 40.88 contains the combined ISA reporting requirements drawn from 10 CFR 70.50, 10 CFR 70.74, and Appendix A to 10 CFR Part 70. The ISA 10 CFR Part 70 requirements are spread throughout each of these three sections but have been assembled in one place in 10 CFR 40.88. References to criticality have been removed. In addition, the 10 CFR Part 70 requirement for a 30-day follow-up report for events notified to the NRC in 1 hour and 24 hours has been changed to 60 days in 10 CFR Part 40.
40.89 Backfitting	70.76 Backfitting	NA	The wording of 10 CFR 40.89(a) differs from the wording of 10 CFR 70.76(a) in that the new backfit requirements apply to a limited subset of part 40 licensees (i.e. those authorized to possess 2,000 kg or more of UF_6). In addition, the provisions of 40.89 do not apply to a licensee until their ISA Summary is approved by the NRC.

Table 3 Location of ISA Terms and Requirements in NUREG-1520, Revision 1

Each term or ISA requirement is referenced in the list of chapters and subsections located in NUREG-1520, Revision 1.

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Table 3 Location of ISA Terms and Requirements in NUREG-1520, Revision 1 (continued)

Each term or ISA requirement is referenced in the list of chapters and subsections located in NUREG-1520, Revision 1.

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6.3 Areas of Review
6.4.1 Regulatory Requirements
6.4.3 Regulatory Acceptance Criteria
Chapter 7 Fire Safety
7.3 Areas of Review
7.4.1 Regulatory Requirements
7.4.3 Regulatory Acceptance Criteria
7.5.1 Acceptance Review

10 CFR 40.83 (10 CFR 70.64)

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Chapter 6 Chemical Process Safety
6.4.1 Regulatory Requirements
6.4.3 Regulatory Acceptance Criteria
6.5.2 Safety Evaluation
Chapter 7 Fire Safety
7.4.1 Regulatory Requirements
7.4.3 Regulatory Acceptance Criteria
7.5.1 Acceptance Review
7.6 Evaluation Findings
Chapter 8 Emergency Management
8.4.1 Regulatory Requirements

Table 3 Location of ISA Terms and Requirements in NUREG-1520, Revision 1 (continued)

Each term or ISA requirement is referenced in the list of chapters and subsections located in NUREG-1520, Revision 1.	
10 CFR 40.84 (10 CFR 70.65) **Introduction Pages 1–4** **Chapter 1 General Information** 1.1.4 Acceptance Requirement 1.1.6 Evaluation of Findings 1.2.6 Evaluation of Findings 1.3.4 Acceptance Criteria **Chapter 6 Chemical Process Safety** 6.1 Purpose of the Review 6.3 Areas of Review 6.4.1 Regulatory Requirements 6.4.3 Regulatory Acceptance Criteria **Chapter 7 Fire Safety** 7.4.1 Regulatory Requirements 7.4.3 Regulatory Acceptance Criteria 7.5.1 Acceptance Review 7.6 Evaluation Findings	**10 CFR 40.86 (10 CFR 40.72)** **Introduction Pages 1–4** **Chapter 6 Chemical Process Safety** 6.4.3 Regulatory Acceptance Criteria 6.5.2 Safety Evaluation **Chapter 7 Fire Safety** 7.4.3 Regulatory Acceptance Criteria 7.5.1 Acceptance Review **10 CFR 40.88 (10 CFR 40.74)** **Chapter 4 Radiation Protection** 4.4.9 Additional Program Commitments **Chapter 6 Chemical Process Safety** 6.4.1 Regulatory Requirements

Table 4 Expanded Information Requirements for the ISA Summary

INFORMATION CATEGORY AND REQUIREMENT	10 CFR PART 70 REGULATORY CITATION	10 CFR PART 40 REGULATORY CITATION	NUREG-1520, CHAPTER 3 SECTION REFERENCE
Site and Facility Characteristics:			
Site description	70.65(b)(1)	40.84(c)(1)	3.4.3.2(1)
Facility description	70.65(b)(2)	40.84(c)(2)	3.4.3.2(2)
Compliance with baseline design criteria	70.64 (if applicable)	40.83 (if applicable)	3.4.3.2(4)(d)
ISA Method(s):			
ISA method(s) description	70.65(b)(5)	40.84(c)(5)	3.4.3.2(5)
ISA team description	70.65(b)(5)	40.84(c)(5)	3.4.3.2(5)
Quantitative standards for acute chemical exposures	70.65(b)(7)	40.84(c)(7)	3.4.3.2(7)
Definition of “unlikely,” “highly unlikely,” and “credible”	70.65(b)(9)	40.84(c)(9)	3.4.3.2(9)
Hazards and Accident Analysis:			
Description of processes analyzed	70.65(b)(3)	40.84(c)(3)	3.4.3.2(3)
Identification of hazards	70.65(b)(3)	40.84(c)(3)	3.4.3.2(3)
Description of accident sequences	70.65(b)(3)	40.84(c)(3)	3.4.3.2(3)
Characterization of high- and intermediate-consequence accident sequences	70.65(b)(3)	40.84(c)(3)	3.4.3.2(3)
Items Relied on for Safety:			
List and description of IROFS	70.65(b)(6)	40.84(c)(6)	3.4.3.2(6)
Description of IROFS’s link to accident sequences to show compliance with 10 CFR 70.61	70.65(b)(6)	40.84(c)(6)	3.4.3.2(4) and (6)
IROFS management measures	70.65(b)(4)	40.84(c)(4)	3.4.3.2(4)(b) and (6)
List of sole IROFS	70.65(b)(8)	40.84(c)(8)	3.4.3.2(8)