

RULEMAKING ISSUE NOTATION VOTE

October 1, 2010

SECY-10-0128

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: PROPOSED RULE: DOMESTIC LICENSING OF SOURCE
MATERIAL - AMENDMENTS/INTEGRATED SAFETY ANALYSIS
(RIN 3150-AI50)

PURPOSE:

To request Commission approval to publish a proposed rule, in the *Federal Register*, that would amend Title 10 of the *Code of Federal Regulations* (10 CFR) Part 40. The proposed amendments would primarily require source material licensees possessing significant amounts of uranium hexafluoride (UF₆) to perform integrated safety analyses (ISAs) similar to the ISAs performed by 10 CFR Part 70 licensees. The proposed amendments would also set possession limits for UF₆ in determining whether the U.S. Nuclear Regulatory Commission (NRC) or Agreement States have licensing authority.

SUMMARY:

The proposed amendments would require source material licensees possessing significant amounts of UF₆ to perform ISAs similar to the ISAs performed by 10 CFR Part 70 licensees; set possession limits for UF₆ for determining licensing authority (NRC or Agreement States); add defined terms; add an additional evaluation criterion for applicants who submit an evaluation in lieu of an emergency plan; and make administrative changes to the structure of 10 CFR Part 40. The proposed ISA requirements would not apply to facilities that are currently undergoing decommissioning under the provisions of § 40.42.

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In developing the proposed rule the staff considered input from a public meeting, stakeholder's written comments, and Agreement State's responses to a request for information. Additionally, the staff reviewed a petition for rulemaking (PRM-70-8) from the Nuclear Energy Institute (NEI), in which NEI requested that several changes be made to 10 CFR Part 70, Appendix A ("Reportable Safety Events"). The staff determined that three of the nine NEI issues raised in the PRM are related to this Part 40 proposed rule, which draws in part upon language and requirements in Appendix A to Part 70, and incorporated them into the proposed rulemaking.

BACKGROUND:

Part 40 fuel cycle facilities authorized to possess significant quantities of UF₆ pose radiological and chemical health and safety risks. The chemical hazards come primarily from hydrogen fluoride (HF), a highly reactive and corrosive chemical. HF evolves spontaneously from UF₆, when UF₆ is exposed to moisture in the air, thus posing a substantial inhalation and skin absorption hazard to workers and the public. An accident in 1986 involving UF₆ and HF killed a worker at the Sequoyah Fuels facility. Subsequently, the NRC promulgated 10 CFR Part 70, Subpart H to require certain fuel cycle facilities to conduct an ISA. The ISA is a structured, risk-informed approach for evaluating the consequences of facility accidents. The NRC staff considers an ISA to be an effective tool for managing risk to workers and the public from chemical and radiological hazards at Part 40 facilities which are authorized to possess significant quantities of UF₆.

Such facilities -- e.g., uranium conversion and deconversion facilities -- are not subject to the 10 CFR Part 70, Subpart H ("Additional Requirements for Certain Licensees Authorized To Possess a Critical Mass of Special Nuclear Material") ISA requirements, even though their operations entail similar risks.

Based on these risks, the Commission issued Staff Requirements Memorandum (SRM)-M070308B, "Staff Requirements – Briefing on NMSS Programs, Performance, and Plans" on March 22, 2007. The SRM directed the staff to propose options for rulemaking that would require major Part 40 facilities (e.g., uranium conversion and deconversion facilities) to complete an ISA similar to that currently required by 10 CFR Part 70 Subpart H. The SRM further directed the staff to inform the Agreement States that the NRC "will regulate future major fuel cycle facilities licensed under 10 CFR Part 40." A letter dated April 13, 2007, Agencywide Documents Access and Management Systems (ADAMS) Accession Number ML071030304, was sent to the Agreement States informing them of the Commission's decision.

In response to SRM-M070308B, the staff recommended to the Commission in SECY-07-0146, "Regulatory Options for Licensing New Uranium Conversion and Depleted Uranium Deconversion Facilities" (August 24, 2007):

- 1) Approve keeping the Starmet and Aerojet Ordnance facilities under Agreement State jurisdiction and, if similar new facilities are proposed in Agreement States in the future, NRC would retain jurisdiction of only those facilities that exceed the threshold quantity limits discussed below in Recommendation 2.

- 2) Approve conducting a rulemaking to amend Part 40. This would require new applicants and existing licensees for Part 40 fuel cycle facilities with UF₆ or uranium tetrafluoride (UF₄) inventories greater than 10,000 kilograms (or alternative threshold quantity) to meet ISA requirements similar to those required in Part 70, Subpart H. These new ISA requirements would not apply to existing Part 40 facilities currently undergoing decommissioning. If new applicants submit license applications before the completion of the rulemaking, the NRC would issue orders establishing the Part 70, Subpart H, requirements as part of the licensing basis for the application review.

The Commission issued an SRM for SECY-07-0146, dated October 10, 2007, approving the above recommendations. The Commission stated that Agreement State licensees that were undergoing decommissioning would not be subject to ISA requirements, and that if new license applications are submitted before the completion of the rulemaking, "the staff shall impose 10 CFR Part 70, Subpart H, performance requirements as part of the licensing basis for the application review." The agency has since received a license application on December 30, 2009, from International Isotopes, Inc., to which the above statement will apply.

As directed in the SRM, the NRC held a public meeting on February 22, 2008, to discuss the scope of the proposed rulemaking and to seek input on the proposed threshold quantities for determining when a facility will be regulated by the NRC or an Agreement State. The industry stakeholders that would be impacted by the rulemaking attended the meeting, either in person or via teleconference. All participants were also encouraged to send in written comments. Input from the public meeting and comments were considered in developing this proposed rule. The staff determined that UF₄ does not pose a risk comparable to UF₆ at facilities affected by this rulemaking. In a memorandum to the Commission, dated June 23, 2009, the staff informed the Commission of its intention not to pursue an ISA rulemaking for licensees possessing UF₄ in any quantity. Also, based on staff evaluation, the recommended threshold of 10,000 kilograms (kg) of UF₆ that was proposed in SECY-07-0146 for defining a major Part 40 fuel cycle facility was reduced to 2,000 kg (4400 lb). This reduction is based on the fact that both the Occupational Safety and Health Administration and the U.S. Environmental Protection Agency have established 450 kg (1000 lb) of HF as the threshold for requiring additional safety analyses. These agencies have determined through modeling and experience that accidents involving 450 kg of HF can induce irreversible or other serious, long-lasting health effects, or even fatalities, over a significant distance (typically 100 meters or more). Thus, the staff determined that a possession limit of 2000 kg of UF₆, which has the potential to release 450 kg of HF, is an appropriate threshold to require an ISA and for the NRC to be the sole licensing authority.

On March 4, 2010, the staff submitted SECY-10-0022 to the Commission, seeking approval to publish the proposed rule in the *Federal Register* for public comment. The proposed rule would amend Part 40 to require certain applicants and licensees to complete an ISA. The Commission returned the proposed rule to the staff on June 8, 2010 (SRM-10-0022), to address two issues. One issue concerned a pending petition for Part 70 rulemaking that could affect some parts of the proposed rule. The other issue involved Agreement States that had issued Part 40 licenses for possession of UF₆ in quantities far larger than the threshold of 2000 kg proposed in SECY-10-0022. These issues are addressed in the discussion below.

DISCUSSION:

As directed in the SRM for SECY-10-0022, the staff reviewed a petition for rulemaking (PRM-70-8) from NEI, in which NEI requested that several changes be made to 10 CFR Part 70, Appendix A ("Reportable Safety Events"). As discussed below, the staff determined that three of the nine NEI issues raised in the PRM are related to this Part 40 proposed rule, which draws in part upon language and requirements in Appendix A to Part 70. Specifically, as a follow-up to 1-hour reports that must be made to the NRC Operations Center after certain safety events occur at a facility, paragraph (a) in Appendix A to Part 70 requires that a written report be submitted within 30 days. Similarly, as a follow-up to 24-hour reports that must be made to the NRC Operations Center after certain other safety events occur at a facility, paragraph (b) in Appendix A to Part 70 requires that a written report be submitted within 30 days. In its petition, NEI requested that both of these 30-day deadlines be extended to 60 days. NEI also requested that paragraph (b)(5) in Appendix A to Part 70 – which sets forth one of the safety events triggering the 24-hour reporting requirement – be deleted, on the grounds that it is redundant to the set of events set forth in paragraph (b)(1) in Appendix A.

In resolving PRM-70-8, the NRC staff proposed to consider in a future rulemaking five of the nine NEI issues, including the three that are related to this Part 40 proposed rule as discussed above. The staff has thus revised the attached draft *Federal Register* notice regarding the proposed Part 40 rulemaking. The proposed 10 CFR 40.88(a) and 40.88(b) timing provisions for follow-up written reports have been changed from 30 to 60 days and 10 CFR 40.88(b)(5) has been deleted.

The SRM for SECY-10-0022 also directed the staff to address the potential concern that "some Agreement States have issued Part 40 licenses for possession of UF6 in quantities far larger than the threshold of 2000 kg proposed in SECY-10-0022." In response to this SRM, a letter was sent to the Agreement States (FSME-10-049, dated June 21, 2010) requesting information on this concern. Six Agreement State licensees were found to possess UF6 in quantities greater than the proposed 2000 kg threshold (one each in California, Tennessee, Virginia, and Washington, and two in South Carolina). Each of these six facilities also holds an NRC Part 70 license. The staff will work with these facilities to either move the UF6 onto their NRC license, or to reduce their authorized possession limits on their Agreement State licenses below the proposed 2000 kg threshold.

The staff found (from the responses to FSME-10-049) that of the 13 Agreement States that responded, there are an average of 6 licensees per state that are authorized to possess, but did not in fact possess, UF6 in quantities of 2000 kg or greater. If the proposed Part 40 rule becomes a final rule as now drafted, either (1) the Agreement State licenses which authorized possession of UF6 in quantities equal to or greater than the 2000 kg threshold will need to be revised below the threshold; or (2) such licensees will have to obtain an NRC Part 40 license for authority to possess UF6 in quantities greater than the 2000 kg threshold. Any such changes to Agreement State licenses would be conducted as part of the normal implementation process for rulemaking. Accordingly, the staff concludes that no modifications need to be made to the proposed amendments to Part 40.

The NRC is proposing to amend Part 40 to require applicants or licensees with a possession limit of 2000 kg or more of UF6 to conduct an ISA and submit an ISA summary. In the rulemaking, NRC would assert jurisdiction over all applicants and licensees that are authorized

to possess 2000 kg or more of UF₆, regardless of whether the affected facility is in an Agreement or Non-Agreement State since the common defense and security concerns cannot be separated from the health and safety concerns. The new ISA requirements would be similar to requirements found in Part 70, Subpart H, which are generally applicable to uranium fuel fabrication and uranium enrichment facilities.

The rulemaking would add an additional evaluation criterion for applicants or licensees who submit an evaluation in lieu of the emergency plan required by § 40.31(j). The evaluation would have to demonstrate that an acute chemical exposure from licensed material or hazardous chemicals produced from licensed material due to a release, would result in neither irreversible nor mild transient health effects to a member of the public offsite. If such an evaluation is not submitted, an emergency plan must be submitted in accordance with § 40.31(j)(3).

Part 40 would be administratively restructured to create subparts. Included in the restructuring would be the addition of a new subpart titled, "Additional Requirements for Certain Licensees Authorized to Possess 2000 kilograms (4400 lb) or More of Uranium Hexafluoride." The rulemaking would also add definitions to § 40.4 that pertain to the proposed ISA requirements. These definitions are essentially the same as those used in Part 70, Subpart H.

Amending 10 CFR Part 40 to require an ISA for those licensees authorized to possess 2000 kg or more of UF₆ supports the NRC's 2008–2013 Strategic Plan regarding safety. In the area of safety, the proposed rule supports Safety Goal Strategy 1 (develop, maintain, and implement licensing and regulatory programs for material users to ensure the adequate protection of health and safety) by requiring an ISA. An ISA enhances safety by requiring a risk informed assessment to identify and rank potential accidents. Safety is further enhanced by the development of a safety program that includes the requirement to describe items relied on to prevent or mitigate an accident and a description of how these items will be maintained.

Amending 10 CFR Parts 40 and 150 to reserve to NRC regulatory jurisdiction to authorize possession of 2000 kg or more of UF₆, supports NRC's 2008-2013 Strategic Plan regarding security. Historically, the NRC has regulated uranium conversion facilities in the United States. For example, the NRC retained regulatory authority over the Allied Chemical UF₆ conversion plant (now known as the Honeywell plant in Metropolis, Illinois) when Illinois became an Agreement State in 1987. The NRC declined the State's request to regulate the facility because of its potential significance to the common defense and security. In the security area, the proposed rule supports Security Goal Strategy 7 (enhance programs to control the security of radioactive sources commensurate with the risk). The rule change reserves regulatory jurisdiction to the NRC so that the common defense and security concerns and health and safety concern can be regulated in an integrated manner.

The staff is developing guidance documents which will parallel the existing guidance for the ISA requirements in Part 70, Subpart H, (i.e., Standard Review Plan, NUREG-1520). The guidance will provide a cross walk between the identical sections in Part 40 and Part 70, and will highlight differences between existing Subpart H and the proposed Part 40 requirements. Such differences stem primarily from the fact that criticality events at special nuclear material facilities are not credible at Part 40 source material facilities. This guidance will be distributed in draft form following publication of the proposed rule.

SPECIFIC AREAS FOR PUBLIC COMMENT:

In the proposed *Federal Register* notice (Enclosure 1), the staff plans to seek specific public comments on the proposed provision to require an additional evaluation criterion in § 40.84(d) for chemical hazards. This provision is not currently a requirement applicable to any fuel cycle facility. Specific discussion on this issue is located in question H of Section II, and in § 40.84(b) in Section II (Discussion of Proposed Amendments by Section).

AGREEMENT STATE ISSUES:

As stated above, in SRM-M070308B (dated March 22, 2007), the Commission directed the staff to inform the Agreement States that the NRC would be the sole regulator for future major fuel cycle facilities under 10 CFR Part 40. The NRC sent a letter to the Agreement States on April 13, 2007, notifying them of the Commission's directive.

There are no Agreement State compatibility issues because the NRC is reserving future licensing authority. Facilities located in Agreement States that hold 2000 kg or more of UF₆, but which are undergoing decommissioning, would be exempt from the rule.

RECOMMENDATIONS:

That the Commission:

1. Approve for publication, in the *Federal Register*, the proposed amendments to Part 40 (Enclosure 1).
2. Note:
 - a. That the proposed amendments will be published in the *Federal Register*, allowing 75 days for public comment.
 - b. That the Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification and the reasons for it, as required by the Regulatory Flexibility Act, 5 U.S.C. 605(b).
 - c. That a draft Regulatory Analysis has been prepared for this rulemaking (Enclosure 2).
 - d. That a draft Environmental Assessment has been prepared for this rulemaking (Enclosure 3).
 - e. That appropriate Congressional committees will be informed of this action.
 - f. That a press release will be issued by the Office of Public Affairs when the proposed rulemaking is filed with the Office of the Federal Register.
 - g. Office of Management and Budget (OMB) review is required and a clearance package will be forwarded to OMB no later than the date the proposed rule is submitted to the Office of the Federal Register for publication.

RESOURCES:

To complete the rulemaking, 1.5 full-time equivalent positions will be required. These resources are within existing budget allocations.

COORDINATION:

The Office of the General Counsel has no legal objection to the proposed rulemaking. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objections. The rule suggests changes in information collection requirements that must be submitted to OMB no later than the date the proposed rule is forwarded to the *Federal Register* for publication.

/RA by Michael F. Weber for/

R. W. Borchardt
Executive Director
for Operations

Enclosures:

1. Draft *Federal Register* Notice
2. Draft Regulatory Analysis
3. Draft Environmental Assessment

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