

POLICY ISSUE
(Notation Vote)

August 30, 2013

SECY-13-0093

FOR: The Commissioners

FROM: Mark A. Satorius
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SUBJECT: REPROCESSING REGULATORY FRAMEWORK – STATUS AND NEXT STEPS

PURPOSE:

This paper responds to the Commission's questions in Staff Requirements Memorandum (SRM), "Staff Requirements – SECY-11-0163 – Reprocessing Rulemaking: Draft Regulatory Basis and Path Forward," dated August 30, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML122430189), and recommends finalization of the draft regulatory basis document. Staff seeks Commission direction regarding a path forward on the regulatory framework for licensing a reprocessing facility (i.e., production facility).

BACKGROUND:

On March 22, 2006, staff submitted SECY-06-0066, "Regulatory and Resource Implications of a Department of Energy Spent Nuclear Fuel Recycling Program" (ADAMS Accession No. ML060370037). SECY-06-0066 described the potential regulatory and resource implications for the U.S. Nuclear Regulatory Commission's (NRC), assuming the eventual licensing of spent fuel recycling facilities and advance recycling reactors. On November 18, 2011, staff submitted SECY-11-0163, "Reprocessing Rulemaking: Draft Regulatory Basis and Path Forward" (ADAMS Accession No. ML113210386). SECY-11-0163 summarizes the staff's progress and a path forward for updating the regulatory framework for licensing a reprocessing facility. In SECY-11-0163, staff provided a "Draft Regulatory Basis for Licensing and Regulating Reprocessing Facilities" (ADAMS Accession No. ML112081702) that addresses the regulatory gaps that need to be addressed to update the NRC's regulatory framework for licensing and regulating a reprocessing facility.

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DISCUSSION:

In SRM-SECY-11-0163, the Commission directed staff to address a number of questions related to the development of a reprocessing regulatory framework and rulemaking, including providing a staff recommendation and the pros and cons of staff approaches to address gaps and other issues identified by the staff as Commission policy decisions. Staff provides its responses to all the questions in SRM-SECY-11-0163 in Enclosure 1 to this paper, "Staff Responses to Commission's Questions in SRM-SECY-11-0163." As discussed below, one gap, Gap 1, "Regulatory Framework," is ready for Commission decision.

In its review of Gap 1, staff developed and assessed four possible regulatory framework options for licensing and regulating a reprocessing facility. Of the four options, Option 1, "Use, as is, existing 10 CFR Part 50," would not require rulemaking. Regardless of which one of the four options the Commission approves, the following tasks, as discussed in the draft regulatory basis, would need to be performed: (a) assuring compliance with operator licensing and technical specifications; (b) developing requirements to deal with worker protection from radiological and chemical hazards and accidents; (c) developing applicable regulatory guidance; (d) resolving regulatory gaps; (e) developing a standard review plan; (f) conducting an environmental review; (g) updating the policy statement on reprocessing in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix F, "Policy Relating to the Siting of Fuel Reprocessing Plants and Related Waste Management Facilities"; (h) assuring conformance with Commission policies and practices; (i) incorporating appropriate safeguards requirements; and (j) developing general design criteria specific for reprocessing facilities. Because these tasks need to be performed regardless of the option taken, the schedule and resource needs for each option are comparable.

OPTIONS

Staff outlined below four regulatory framework options for licensing and regulating a reprocessing facility. Enclosure 1 provides a detailed discussion of pros and cons for the options. Following is a summary of the four options.

Option 1 Use, as is, existing 10 CFR Part 50:

Option 1 would maintain the status quo. Accordingly, if the NRC received an application for a reprocessing facility now, that facility would be licensed under the existing 10 CFR Part 50 requirements. This is the only option that would not require revisions to the regulations, at this time.

In its review of 10 CFR Part 50, staff concluded that the regulatory framework for licensing a reprocessing facility may not be efficient or effective. Since the 1970s, updates to 10 CFR Part 50 have focused on light-water reactor design and safety issues that have limited applicability to commercial reprocessing facility design and technology. Current 10 CFR Part 50 regulations do not address many commercial reprocessing facility safety, security, and domestic safeguards issues, and are likely to contain requirements that are not applicable to a

reprocessing facility. Orders or license conditions addressing known regulatory gaps and potential exemptions from regulations that only apply to reactors may be required to license a reprocessing facility under the existing 10 CFR Part 50. This could lead to a complicated, ineffective, and inefficient set of regulatory requirements, and, therefore, staff does not recommend using the existing 10 CFR Part 50 regulatory requirements.

Option 2 Modify 10 CFR Part 50 to address licensing of a reprocessing facility:

Promulgating modifications to 10 CFR Part 50 to address the unique safety, security, and safeguards issues associated with commercial reprocessing facilities will require detailed legal and technical analysis in order to reduce regulatory uncertainty and confusion for current 10 CFR Part 50 licensees (i.e., nuclear power, research, and test reactors) by inadvertently imposing new requirements on existing reactor licensees or imposing reactor-related requirements on reprocessing applicants that should not be applicable to reprocessing facilities.

In SECY-88-0169, "Rulemaking on Standardization and Licensing Reform," dated June 20, 1988 (ADAMS Accession No. ML003707840), staff concluded that the agency should publish regulations for licensing standard plant designs separately from 10 CFR Part 50 and these separate regulations became 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The current situation is similar, as the provisions of 10 CFR Part 50 have been in use for many years by nuclear power, research, and test reactors, and are generally understood by applicants and the NRC staff. In its June 7, 1988, letter to the Commission (ADAMS Accession No. ML003707808), the Advisory Committee on Reactor Safeguards supported staff's proposed 10 CFR Part 52 rule, stating that 10 CFR Part 50 "is already confusing because it is a multipurpose regulation that includes power reactors, nonpower reactors, and fuel cycle facilities." The Advisory Committee on Reactor Safeguards recommended against promulgating another multipurpose part of the regulations. This logic is still applicable. Staff concludes that revising 10 CFR Part 50 may not be efficient or effective for licensing a reprocessing facility.

Option 3 Modify 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."

In promulgating 10 CFR Part 70, the NRC did not envision that it would encompass a reprocessing facility. Therefore, 10 CFR Part 70 does not include requirements for operator licensing and technical specifications that would be needed for regulating a reprocessing facility as required by the Atomic Energy Act. Additionally, 10 CFR Part 70 currently does not address specific hazards that accompany reprocessing facilities of spent nuclear fuel that contain fission products and actinides in large quantities. Incorporating such requirements for a production facility into 10 CFR Part 70 could lead to regulatory uncertainties for existing and future 10 CFR Part 70 licensees. As with Option 2, confusion could result from a multipurpose rule, and, therefore, staff does not recommend revising 10 CFR Part 70.

Option 4 Develop a new rule (e.g., 10 CFR Part 7x):

A reprocessing-specific rule, contained in a new part of the Commission's regulations, would provide the most effective, transparent, and efficient approach to licensing and regulating a reprocessing facility. Greater regulatory certainty for stakeholders would result from a new rule because it would not add to complexities of existing multipurpose regulations and associated licensing and oversight programs and licensing would be more directly against the regulations and not require an unusually large number of exemptions or finely tailored requirements. It also would incorporate applicable requirements from other Commission regulations, including 10 CFR Part 50 and 10 CFR Part 70, to develop an integrated and cohesive regulatory framework that addresses the specific safety and safeguards needs of a reprocessing facility.

RECOMMENDATIONS:

Given the possible inefficiencies in the existing regulatory framework for licensing a reprocessing facility and the potential negatives associated with modifying either 10 CFR Part 50 or 10 CFR Part 70 to address the safety, security, and safeguards issues associated with commercial reprocessing facilities, staff recommends that the Commission approve Option 4 as the framework for reviewing the regulatory gaps and completing the regulatory basis document, if the Commission wants to continue development of the regulatory basis.

Continuing involvement in reprocessing by completing the regulatory basis would enable staff to maintain technical expertise in the safety and safeguards of advanced fuel cycle technologies, respond to evolving national fuel cycle strategies, oversee and contribute to international safety and safeguards standards pursued by the International Atomic Energy Agency, minimize uncertainty for existing licensees, and continue interagency technical exchanges to ensure coherent integration of regulatory and scientific programs.

If staff finalizes the regulatory basis (over the next 20 years at current resource levels), should the Commission decide to pursue rulemaking and authorize the necessary resources, staff estimates that it would take a minimum of 4 years to develop and promulgate a rule and associated guidance with a significant increase in annual resource expenditures. At lower levels of resource, considerably longer periods would be required to develop the rule.

RESOURCES:

The non-public Enclosure 2 to this paper, "Estimated Time and Resources," provides the proposed process and estimates of time and resources to finalize the regulatory basis and rulemaking.

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

/RA/

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for Operations

Enclosures:

1. Staff Responses to Commission's Questions in SRM-SECY-11-0163
2. Estimated Time and Resources

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