POLICY ISSUE
(Notation Vote)

March 27, 2007 SECY-07-0060

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations /RA/

SUBJECT: BASIS AND JUSTIFICATION FOR APPROVAL PROCESS FOR 10 CFR 20.2002 AUTHORIZATIONS AND OPTIONS FOR CHANGE

PURPOSE:

In the March 31, 2006, Staff Requirements Memorandum (SRM) on SECY-06-0056, "Improving Transparency in the 10 CFR 20.2002 Process" (March 9, 2006), the Commission directed the staff to provide a basis and justification of why some 10 CFR 20.2002 disposals are authorized by letter and why some are authorized by license amendment and present a range of reasonable options in a risk informed manner for any changes which may be appropriate. The SRM also directed the staff to address what happens when a decommissioning power reactor is transferred from the Office of Nuclear Reactor Regulation (NRR) to the Office of Nuclear Material Safety and Safeguards (NMSS). This paper responds to this direction, provides five options, and recommends the Commission approve Option 4, to maintain the status quo. This paper does not address any new commitments.

BACKGROUND:

10 CFR 20.2002 is a provision in the U.S. Nuclear Regulatory Commission's (NRC) regulations that allows for other disposal methods, different from those already defined in the regulations, provided that doses are maintained as low as is reasonably achievable and within the dose

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limits in 10 CFR Part 20.[1] In practice, 10 CFR 20.2002 has most often been used for disposal of radioactive waste in hazardous or solid waste landfills that are permitted under the Resource Conservation and Recovery Act, but it can be used for any type of disposal not already defined in the regulations, such as disposal on a licensee's site or on offsite private property. NRC has granted an average of fewer than three 10 CFR 20.2002 approvals each year since 2000.

In SECY-06-0056, the staff provided options for enhancing public understanding and awareness of 10 CFR 20.2002 approvals. The Commission approved the staff's recommendation for improving transparency in its March 31, 2006, SRM. The recommendation included enhancements to NRC's public web site, development of a communication plan, and additional public outreach for significant 10 CFR 20.2002 requests from licensees.

SECY-06-0056 also noted that the agency used two different approval processes for 10 CFR 20.2002 requests. NMSS, the Office of Federal and State Materials and Environmental Management Programs (FSME), and the Regions approve 10 CFR 20.2002 requests from materials and fuel cycle licensees with a license amendment. For reactor licensees, however, NRC approves 10 CFR 20.2002 disposals with a letter. The staff committed in SECY-06-0056 to provide the Commission an analysis of how 10 CFR 20.2002 approvals are granted and whether changes in the process are warranted. In the SRM for SECY-06-0056, the Commission stated that the staff should present a range of reasonable options for approving 10 CFR 20.2002 requests in a risk informed manner and not focus solely on an all or nothing approach (i.e., all NRR approvals must be by letter and all NMSS approvals must be by amendment). Under a risk informed approach, the Commission noted that it may be possible that some approvals are by letter and others by license amendments, regardless of which office has the lead.

In a related matter, in the SRM for SECY-06-0056, the Commission also directed the staff to address what happens when a decommissioning power reactor is transferred from NRR to NMSS. FSME is now responsible for the reactor decommissioning program. Under the existing procedures, FSME approves 10 CFR 20.2002 requests with a letter for power reactors undergoing decommissioning, like NRR, and does not amend reactor licenses as it does licenses for materials and fuel cycle facilities.

DISCUSSION:

NRC has discretion in determining the procedure by which it may approve 10 CFR 20.2002 alternate disposal requests from licensees, since the language in 10 CFR 20.2002 does not specify how these approvals are to be granted. Given this flexibility, the reactor program and the materials and fuel cycle programs have developed different approaches, based on other

[1] The Part 20 dose limit is 100 millirem/year (mrem/yr). NRC typically approves 10 CFR 20.2002 requests that will result in a dose to a member of the public that is no more than "a few millirem/year." NRC selected this criterion because it is a fraction of the natural radiation dose, a fraction of the annual public dose limit, and an attainable objective in the majority of cases. NRC has approved one 10 CFR 20.2002 request that exceeded this criterion, but was less than 25 mrem/yr.

considerations, as discussed below, in the more than 30 years that 10 CFR 20.2002 and its predecessors have been in use. NRC approves 10 CFR 20.2002 requests from nuclear reactor licensees with a letter. Licenses for nuclear power reactors are reserved to address matters of high safety or regulatory significance, such as operating limits and surveillance requirements for safety systems. Many other documents, aside from the license itself, make up the licensing basis for a nuclear power plant, and NRR has extensive procedures for establishing and maintaining the basic framework for making decisions about creating, revising, or deleting licensing basis information for operating nuclear power plants. NRR has established a hierarchy of documents with associated change controls and reporting requirements. The hierarchy contains obligations (usually found in the license and technical specifications, which are part of the operating license); "mandated licensing-basis documents," such as the Final Safety Analysis Report, the Quality Assurance program, and security plan; and regulatory commitments (i.e., an explicit statement to take a specific action agreed to, or volunteered by, a licensee and submitted in writing, on the docket, to NRC). Thus, many documents that make up the licensing basis are not included in the license itself. NRR's Office Instructions, "Control of Licensing Bases for Operating Reactors," LIC-100, Rev. 1, and "Managing Regulatory Commitments Made by Licensees to the NRC," LIC-105, describe in detail the requirements and commitments related to operation of a nuclear power plant and how they are to be managed and controlled. This licensing framework facilitates NRC's regulation of nuclear reactor licensees. In addition, each nuclear power plant has dedicated onsite inspection staff, who remain aware of new actions as part of their day-to-day job.

It is within this existing framework for licensing of operating reactors that NRR has established letter approvals for 10 CFR 20.2002 requests. To date, these disposals have involved low-activity waste, with hypothetical exposures of only a few mrem/yr, and without any potentially higher consequences from accident scenarios. Thus, they are by their very nature significantly different from essential safety systems and equipment that are relied on for safe operation of the plant and accident mitigation, and which are included in a reactor license.

Fuel cycle and materials 10 CFR 20.2002 authorizations are handled differently from nuclear power plants in that 10 CFR 20.2002 requests are approved with an amendment to the license. There are several reasons for amending the license. First, a license amendment facilitates inspections by regional staff who perform periodic inspections of various licensees in contrast to onsite inspections. NRC uses the license to track 10 CFR 20.2002 approvals and inspect against any commitments made by the licensee. Letters of approval, on the other hand, would not be identified in a license, and thus inspectors, in preparing for inspections, would have to perform a search to determine if any 10 CFR 20.2002 requests had been approved for a particular licensee about to undergo a regional inspection and, for those granted, the relevant NRC and licensee documents. These steps would take extra time to perform and there is a risk that inspectors may not identify all the pertinent documents in preparing for an inspection. Alternatively, a separate tracking system could be used, but this also would require a separate step in preparing for inspections and training for using the system to prepare for inspections. There are only a few dozen 10 CFR 20.2002 authorizations that have been granted to NRC's 4500 materials licensees in the last 10 years, so most of the resources used in searching for 10 CFR 20.2002 authorizations would simply determine that none had been granted. Using a license amendment as the standard procedure eliminates any need to perform separate

searches for 10 CFR 20.2002 authorizations in preparing for an inspection. Second, materials and fuel cycle licenses are far less complex and lengthy than those for nuclear reactors, and including the authorization in the license does not significantly affect the scope of the license as it would for reactor licenses. A typical license for a materials licensee is several pages in length, and for fuel cycle licensees, less than 20 pages (the recently issued Louisiana Energy Services enrichment facility license is 6 pages long). This compares with 300+ pages for nuclear reactors, including the technical specifications.

There are two other reasons for having a different approval method for these types of licensees. Materials licensees, which do not have the extensive commitment tracking framework that reactor licensees utilize, may also use information in the license to ensure that regulatory commitments are met. An NRC letter, acknowledging a materials licensee commitment, would have to be kept in a file, potentially at another location, such as the corporate office. Having the commitment in the license thus may also facilitate tracking of the 10 CFR 20.2002 conditions and compliance by the licensee. Finally, including the 10 CFR 20.2002 authorization in the license facilitates enforcement. The materials and fuel cycle programs do not have the same extensive hierarchy of commitments that the reactor program has implemented and in practice rely on the license conditions (and the regulations) as the bases for taking enforcement action. Authorizing 10 CFR 20.2002 disposals by letter in these programs would make enforcement different from standard practice, if a licensee did not fulfill the commitments made regarding the 10 CFR 20.2002 request.

As can be seen from the above descriptions, the letter approval procedure used for reactors and the license amendment procedure used for materials and fuel cycle licensees are not based on risk, but rather on efficiency and effectiveness considerations appropriate to each program. As directed by the Commission, the staff has developed options for how these approvals might be issued in the future. The Commission requested a range of reasonable options for approving 10 CFR 20.2002 requests in a risk informed manner, without focusing solely on an all or nothing approach. The options presented include several that include a risk consideration, and several that do not. 10 CFR 20.2002 approvals are inherently low in risk (i.e., the associated risk is typically a few mrem/yr and often much less), and options tied exclusively to risk would be unnecessarily narrow. Thus, the staff has presented other options that are based on efficiency and effectiveness or consistency considerations. The assumption is made that the license amendment procedure may be more appropriate for approvals of waste disposals under 10 CFR 20.2002 which pose a greater risk to the public than the usual “few millirem/year” waste disposals for which the letter approval procedure is appropriate.[2] However, both letter approvals and amendments to licenses involve the same level of staff review, evaluation and documentation of results. Use of the license amendment procedure may serve a different agency goal from that of efficiency and effectiveness; namely, the goal of transparency, since the license amendment process could provide an additional avenue for public input if an opportunity for hearing were to be requested and granted.

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[2] In the options, the staff has chosen doses above a few millirem/yr as the criterion for using a different 10 CFR 20.2002 approval process. A higher, more risk-significant, but still safe, dose could have been presented in the options (e.g., 25 millirem/yr), but there has been only one 10 CFR 20.2002 request approved above a few millrem/yr, and it was less than 25 millirem/yr. While such an option with a higher dose would better delineate risk-significance in the approval process, the staff believes that it would rarely, if ever, be used in practice. For this reason, the staff uses exposures above and below “a few millirem/yr” for delineating risk in the options.

The options developed by the staff are discussed in the Enclosure, including pros and cons. Options 1 and 2 both contain a risk consideration in how these approvals are granted. Option 1 bases the approval procedure solely on the expected dose to the public (all requests with projected doses above a few mrem/yr would require a license amendment, all those with projected doses below a few mrem/yr would require a letter approval). Option 2 is a hybrid option that includes a risk consideration for reactor licensee approvals, but maintains the existing process of using license amendments for materials and fuel cycle licensees. Options 3 (all letter approvals) and 5 (all license amendments) both provide one method, irrespective of the NRC program in how the agency approves these requests. Option 4 maintains the "status quo."

In a matter not directly related to this paper, the staff intends to interact in the future with Agreement States on issues concerning 10 CFR 20.2002 and similar provisions in Agreement State regulations. The goal is to assess the need for changes to current processes to improve the consistency and efficiency in the use of this provision by the national program. Among the issues to be examined are dose limits, exposure scenarios to evaluate compliance with the limits, coordination with regulatory authorities for the solid and hazardous waste facilities where materials are disposed of, and methods of approval.

RECOMMENDATION:

The staff recommends Option 4, Status Quo. There are no compelling reasons for changing the existing process, which is both effective and efficient, and which has ensured protection of public health and safety and the environment.

RESOURCES:

Option 4, Status Quo (the recommended option), requires no new resources, and projected costs for implementing existing procedures are included in the fiscal year (FY) 2007 and FY 2008 budgets. Resources for the other options have not been budgeted. Option 1 (letter approvals for low doses, license amendments for higher doses) would require an additional 0.20 full time equivalents/year (FTE/yr), principally for the additional time Regional inspectors will need to prepare for inspections using letter approvals for materials licensees. Option 2 (license amendments for reactor approvals when the dose is more than a few mrem) is assumed to require no additional resources because no reactor licensee requests with projected doses above a few mrem/yr are expected. Option 3 (all letter approvals) would require the same additional resources as Option 1, 0.2 FTE, for the same additional work. Option 5 (all license amendments) is estimated to require an additional 0.5 FTE/yr for reactor adjudicatory hearings that could result from the use of a license amendment process. Three 10 CFR 20.2002 requests from reactor licensees are assumed each year, and it is assumed that an average of 1.5 of these each year would require a hearing.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. The Office of the Chief Financial Officer has also reviewed the paper and concurs.

/RA/

Luis A. Reyes
Executive Director
for Operations

Enclosure:
Options for NRC Authorization
of 10 CFR 20.2002 Requests

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OFC	CFO	DWMEP	TechEd	FSME	EDO
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