ATTACHMENT 4

Disposition of
Staff Requirements Memorandum
(SRM-SECY-00-0023)
Comments on Partial Site Release Rulemaking

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In response to SECY-00-0023, the Commission issued a staff requirements memorandum (SRM) dated April 26, 2000. In the SRM, the Commission approved the staff's rulemaking plan for partial site release with several comments.

Comment 1: Coordination with NMSS and RES

A. Commission Direction

The staff (NRR) should coordinate development of this rule with NMSS and RES to ensure that a consistent approach to partial site release and dose modeling is applied across strategic arenas.

B. Staff Response

NRR has collaborated with NMSS in developing the proposed rule since a May 1999 NEI/EPRI meeting in which NRC and licensees discussed partial site release issues. NMSS concurred with the February 2000 partial site release rulemaking plan and this proposed rule package. NMSS has jointly participated with NRR in a number of meetings and workshops related to partial site release and the license termination process. The partial site release plan was presented to the public and industry during the NMSS Decommissioning Workshop in November 2000. In addition, partial site release has been the subject of several presentations to the NRR/NMSS Decommissioning Management Board. Most recently, NMSS has agreed to provide licensee and staff guidance regarding the evaluation of potential interactive dose effects as a result of partial site releases (see Comment #3, below). This guidance will ultimately be incorporated in NUREG-1727, "NMSS Decommissioning Standard Review Plan."

RES has provided a technical point of contact with regard to partial site release issues and has concurred with this proposed rule package. During its review, RES determined that no technical basis exists for specifying a distinguishability from background release criteria and, as a result of its recommendation, the criteria has been deleted from the proposed rule. The proposed release area's classification as either impacted or non-impacted remains the sole radiological criterion by which it is determined whether the release can be approved by letter as opposed to a license amendment.

Comment 2: Schedule for Completion of the Rulemaking

A. Commission Direction

The staff should submit a schedule for completion of the rulemaking as part of the proposed rule package.

B. Staff Response

The proposed schedule milestones for the rulemaking are as follows:

Publish proposed rule: Date of Commission's SRM for proposed rule plus 4 weeks.
Final rule to Commission: Date of Commission's SRM for proposed rule plus 12 months.

Comment 3: Synergistic Dose Effects

A. Commission Direction

Because the nature and scope of the proposed evaluation of "synergistic" effects are unclear, the staff should, as it finalizes the rulemaking plan, more clearly define the possible role of "synergistic" effects. In addition, the staff should ensure that this effort is coordinated, as necessary, with NMSS' development of the standard review plan for license termination.

B. Staff Response

In October 2000, NRR formally asked NMSS's Division of Waste Management to provide licensee and staff guidance on evaluating potential interactive or synergistic dose effects as a result of partial site releases. NMSS was requested to address the following objectives:

1. Identify scenarios and determine the extent to which interactive or synergistic dose effects could occur between parts of a site as they are released before license termination and between parts of a site previously released and the remainder of the site as it is when the license is terminated. Additionally, answer the questions in the Commission's SRM (see Comment # 5 below).

2. Identify changes needed in the guidance in the current NMSS Decommissioning Standard Review Plan to address partial site releases and provide licensees with acceptable methods for demonstrating compliance with the dose criteria of 10 CFR Part 20, Subpart E, where interactive or synergistic dose effects could occur.

3. Suggest changes in licensee recordkeeping, historical site assessments, radiological surveys, or other related requirements as a result of changing guidance to account for synergistic or interactive dose effects. NRR would incorporate the suggested changes in the proposed rulemaking language where appropriate.

4. Incorporate the guidance identified in Objective 2 above into NUREG-1727, "NMSS Decommissioning Standard Review Plan."

In a memorandum dated March 28, 2001, NMSS responded to the above request. The specific responses to the questions of the Commission and NRR provided in the memorandum are included in this attachment. The key points of the responses to the questions of the Commission and NRR are as follows:

- NMSS has not identified any scenarios that would result in synergistic effects; all interactions between the partial site and the rest of the site are additive;

- NMSS is developing guidance, in the form of a staff technical position, that will address how to use NUREG-1727 and how to perform dose modeling when reviewing a partial site release request;

- The guidance will address the issues raised by the Commission, such as groundwater; and,

- The goals of the review process are finality in approving the partial site release and recognition and identification of issues that will need to be addressed during future decommissioning of the remainder of the site.

The dose modeling guidance, including guidance on how to use the rest of the NMSS Standard Review Plan (NUREG-1727) relative to partial site releases, is scheduled for completion in June 2001. Discussions on the guidance will be incorporated into the final partial site release rulemaking.

Comment 4: Part 2, Subpart L Informal Hearings

A. Commission Direction

Although the staff's proposal to apply Section 2.1201(a)(3) of Part 2, Subpart L, appears reasonable, the staff should ensure that the approach taken in this rulemaking is consistent with the Commission decision on the revision of Part 2 (currently under consideration).

B. Staff Response

As stated in SECY-00-0023, the staff believes that informal Part 2, Subpart L, hearings are appropriate for hearings requested in response to an amendment for a partial site release. It is recognized, however, that the Commission has recently approved with comment a proposed rule (SECY-00-0017) that would expand the use of informal hearing procedures to include amendments such as those for partial site releases. No amendment to Part 2, Subpart L, would be required to permit use of these informal hearing procedures for partial site release amendments if the proposed rulemaking of SECY-00-0017 is adopted as a final rule. The staff will monitor the progress of the rulemaking and delete the amendment to Part 2 from the final partial site release rule as appropriate.

Comment 5: Dose Contributions

A. Commission Direction

As part of the rulemaking, the staff should consider several issues discussed in SECY-00-0023 guided by focused interactions with stakeholders, such as (1) Would the dose contribution from the released portion of the site need to be calculated, particularly in cases where residual radioactivity has significantly decayed, thereby reducing the potential public dose? (2) What would happen in cases where subsequent owners of the released portion of the site engage in activities (licensed or unlicensed) that result in a higher dose contribution from this portion of the site--would this dose "count against" the Part 20 allowable dose limit for unrestricted use? and (3) Would the contribution from the groundwater pathway need to be recalculated, if years have elapsed between the partial site release and license termination?

B. Staff Response

In its memorandum of March 28, 2001, discussed above, NMSS provided specific responses to the Commission's questions. These responses are included with this attachment.

Comment 6: Timeliness Rule

A. Commission Direction

The proposed rule package should clearly discuss the role of the timeliness rule relative to partial site release.

B. Staff Response

A discussion in the *Federal Register* notice (Attachment 1 to this Commission paper) makes it clear that the rule for timeliness in decommissioning for facilities in § 30.36, § 40.42, and § 70.38 is not applicable to a partial site release at a power reactor site.

Comment 7: 10 CFR 20.2002 Disposals

A. Commission Direction

The proposed rule package should clearly discuss that 10 CFR 20.2002 does not provide for partial site release and 10 CFR 20.2002 disposals on those portions of the site proposed for release will be considered impacted areas.

B. Staff Response

A discussion in the *Federal Register* notice (Attachment 1 to this Commission paper) makes it clear that 10 CFR 20.2002 is not appropriate for a partial site release and that disposals under 10 CFR 20.2002 on those portions of the site proposed for release will be considered impacted areas.

Comment 8: Rulemaking Focused on Power Reactors

A. Commission Direction

The proposed rule package should clearly discuss that this rulemaking narrowly focuses on power reactor licensees to be responsive to current industry needs, and that a separate rulemaking is needed to address the wide variety of materials sites, many of which are technically more complex from a decommissioning perspective than reactor sites, to provide a uniform and consistent agency approach to partial site release.

B. Staff Response

The *Federal Register* notice (Attachment 1 to this Commission paper) states that the proposed rulemaking concerns partial site releases for power reactor licensees and that there will be a need for a future, separate rulemaking for materials sites.

Comment 9: Generic Communication

A. Commission Direction

The staff should continue to review requests for partial site release on a case-by-case basis and consider issuing a generic communication informing reactor licensees of this approach.

B. Staff Response

The staff plans to review requests for partial site release on a case-by-case basis until the rulemaking is complete. A regulatory issue summary (RIS 2000-019) was issued on October 24, 2000. This generic communication informs licensees of the pending rulemaking and tells how the staff will handle partial site release requests in the interim. The staff has no plans at this time to issue another generic communication.

ENCLOSURE TO ATTACHMENT 4
NMSS RESPONSES TO QUESTIONS RAISED ON
DOSE MODELING PARTIAL SITE RELEASE

This enclosure is taken from a memorandum dated March 28, 2001, from John T. Greeves to John A. Zwolinski, "Partial Site Release Dose Modeling Considerations" (ADAMS Accession Number ML010920318) with some clarifications incorporated following issuance.

COMMISSION QUESTIONS (SRM ON SECY-00-023, APRIL 26, 2000)

SRM-Q1. Would the dose contribution from the released portion of the site need to be recalculated, particularly in cases where residual radioactivity has significantly decayed, thereby reducing the potential dose?

SRM-R1. The licensee would need to consider credible scenarios involving the use of the previously released area and portions of the area being decommissioned. The U.S. Nuclear Regulatory Commission (NRC) will request the licensee to calculate dose to the average member of the critical group as defined in 10 CFR Part 20, and not the maximally exposed individual. In most cases, dose contributions from the partial site that has been released previously on the remainder of the site will not need additional calculations, as the guidance being developed by Office of Nuclear Material Safety and Safeguards (NMSS) is focused upon reducing the need for recalculation of the dose contribution from the partial site release, by taking prospective looks at possible interactions and dose consequences. If the licensee wished to take credit for the decay of the residual radioactivity on the previously released portions of the site, justification of the revised dose commitment would need to be included in the license termination plan. This justification may, in a few cases, require additional modeling.

SRM-Q2. What would happen in cases where subsequent owners of the released portion of the site engaged in activities (licensed or unlicensed) that result in a higher dose contribution from this portion of the site - would this dose "count against" the Part 20 allowable dose limit for unrestricted use?

SRM-R2. If the new owners perform activities at the released area that results in new information concerning the dose at the time the release was made, that was not considered or known when the partial site release was approved, the licensee and NRC would need to evaluate whether this new information results in the need for further dose calculations or whether it would impact the decommissioning plans for the remainder of the site. The licensee would not be responsible for any additional radioactive material brought onto or produced on the site by the new owners.

The philosophy behind unrestricted release is that NRC allows a licensee to release its site or portion of the site without any restrictions on its use. To remain cognizant of the potential dangers of a facility, the dose assessment uses the average member of the critical group and reasonable scenarios. In certain analyses, the staff may need to review a number of different scenarios to provide reasonable assurance that the risk of a released site actually resulting in a real dose of greater than 0.25 mSv/y (25 mrem/y) is very small.

In this regard, the partial site release guidance being developed by NMSS minimizes the risk that a partial site release will either result in doses exceeding the 0.25 mSv/y (25 mrem/y) limit by itself or in conjunction with likely scenarios involving interactive effects with the rest of the

site. The decision to allow a licensee to release a portion of their site will involve developing dose analyses of the bounding scenario for the site. At the time of decommissioning the remainder of the site, if the actions on the previously released land are widely different than those assessed in the original licensing action and likely to result in an interaction that was not previously addressed, the interaction would need to be reassessed. The impact of the reassessment depends on the interactions possible between contaminated areas of the released portion and the remainder of the site. As stated in SRM-R1 above, the NMSS guidance is focused at taking the possible future interactions into account during the initial partial site release and use those analyses as bases in the license termination to reduce the need for recalculation.

SRM-Q3. Would the contribution from the groundwater pathway need to be recalculated, if years have elapsed between the partial site release and license termination?

SRM-R3. In a small number of cases, the contribution from the groundwater pathway might need to reevaluated at the time of final license termination. In general, the level of reevaluation will depend on a number of factors: (1) robustness of the scenarios and modeling at time of the partial site release, (2) the degree of difference between the site data and what was assumed in the partial site release, and (3) the amount of decay. The biggest issue will likely be the site data assumed in the partial site release. Licensees with little characterization of the potential or current groundwater contamination at the site during partial site release could have a higher risk of needing to reevaluate the groundwater pathways, depending on the assumptions used in the initial analyses.

NRR QUESTIONS

NRR-Q1. Identify scenarios and determine the extent to which interactive or synergistic dose effects could occur between parts of a site as they are released before license termination, and between parts of a site previously released and the remainder of the site as it exists when the license is terminated.

NRR-R1. The NMSS staff began looking at scenarios to determine whether we could identify specific scenarios that would result in interactions that would increase either the dose associated with the partial site release or the final license termination decision. It quickly became apparent that defining generic scenarios would be an inefficient use of resources because of all the possible variations with the different media, exposure scenarios, and size of both the partial site[1] and the main site.

In an alternate approach, the staff began developing a framework that would guide licensees and reviewers through a set of screening criteria that would eliminate various features, events or processes from consideration. The general categories of the screening criteria are (1) the presence of residual radioactivity in various media (including effluent releases from the operating site), (2) availability of mechanisms to move material from one site to another (e.g., groundwater movement), and (3) exposure pathway analysis. The processes focus not only on the effect of the main site (or a previously released area) on the partial site but also the

[1] Partial site means the area the licensee is requesting to be released under this rulemaking.

potential contribution of the partial site on the decommissioning of the main site. After a medium, such as ground water, is found to contain residual radioactivity the transport mechanism(s) that may contribute to a dose are screened to evaluate the capacity of the process to move material on or off the site. This is then compared to the residual radioactivity present or other processes moving material. Processes that pass these two screens will then need to be evaluated for their effect on the dose for the appropriate scenario.

In developing the conceptual framework, we did not identify any processes that were synergistic. The processes are simply additive and therefore, the guidance will discuss interactive effects rather than synergistic effects.

In addition to the framework to screen processes that may result in additional exposures, the guidance will discuss screening the possible assumption that someone in the future could use portions of both the partial site area and another contaminated area on the main site after final decommissioning. An example would be a situation where the size of the partial site is smaller than that assumed to fully implement the reasonable exposure scenario. In this example, between partial site release and the decommissioning of the rest of the site, an individual would only be exposed to residual radioactivity from the partial site and potential airborne effluents or direct radiation exposure from the rest of the site. After the decommissioning of the main site, it may be reasonable to assume that the individual continues to use the partial site as previously evaluated and use portions of the main site for activities that they were unable to perform due to the size of the partial site. If this is a reasonable scenario, the licensee would need to evaluate this scenario as part of the partial site release, using assumptions of the residual radioactivity present on the main site at the time of its license termination. The results and assumptions of this scenario would be reviewed as part of the historical site assessment for the final license termination to verify that the data or assumptions used were similar to the available data at the time of final license termination.

The goal of the NMSS staff's framework is to maximize the degree of finality in decisions about partial site releases. It considers both the impact of the main site on the partial site releases exposures, and the impact of the partial site release on the dose modeling scenarios or source terms used in the final decommissioning action. By doing this, the licensee, NRC, and the public would be aware of potential issues that may arise in the future decommissioning of the rest of the site, including constraining the concentration limits allowable at time of final license termination. Therefore, any decisions made will be more robust and more unlikely to result in the released portion of the site needing additional remediation or intervention, or unduly constraining the decommissioning of the main site.

NRR-Q2. Identify needed changes to the guidance currently provided in the NMSS Decommissioning Standard Review Plan (NUREG-1727, SRP) in order to address partial site releases and provide licensees with acceptable methods for demonstrating compliance with the dose criteria of 10 CFR Part 20, Subpart E, where interactive or synergistic dose effects could occur.

NRR-R2. The current guidance is very general and, with a little effort, can be used nearly as is for partial site releases. Review of the SRP has found a few general issues that will need to be addressed, including the implied purpose of the document (final site decommissioning), the use of "site" and "facility" nearly interchangeably, the use of "all" statements in informational needs,

wording of evaluation findings, and the historical site assessment and dose modeling sections will need additional guidance provided for partial site releases.

The NMSS staff is looking into different methods for addressing these issues. The staff is proceeding on a plan to create a staff technical position that will include all of these changes and additional material, which will be inserted into the SRP during a future revision. At the preliminary stages, it appears that a section on how to use the SRP for partial site releases will help clarify a number of these issues. The historical site assessment section will need a specific subsection addressing previous partial site releases. The dose modeling section will need a few word changes and the supporting Appendix C will need a new subsection on partial site release and how it affects scenario development and review.

NRR-Q3. Provide NRR with any suggested changes in licensee recordkeeping, historical site assessments, radiological surveys, or other related requirements as a result of identified guidance in accounting for synergistic or interactive dose effect issues.

NRR-R3. After reviewing the latest version of the rulemaking package, no issues related to the guidance, either developed or being developed, and the requirements in the proposed rule were found. Modification to the guidance will need to properly account for the requirements in final rule. A number of the issues that would need changes are discussed in NRR-R2.