Draft Regulatory (DG) Guide:	DG-4014 "Decommissioning Planning During Operations"
Associated Regulatory Guide (RG):	RG 4.22
Proposed RG Revision:	New Regulatory Guide
DG Issued as:	76 FR 77431
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The NRC received 6 comment submissions responding to the December 13, 2011 *Federal Register* Notice solicitation of comments on DG-4014. Table 1 shows the organization that submitted comments. The text of the comments is also available at www.regulations.gov under docket NRC-2011-0286.

Table 1: List of Comment Submissions on DG-4014

Commenter Organization	ADAMS
GE Hitachi Nuclear Energy	ML12040A158
Council on Radionuclides and Radiopharmaceuticals, Inc. (CORAR)	ML12045A073
Nuclear Energy Institute (NEI)	ML12045A074
Duke Energy	ML12046A024
University of Missouri Research Reactor (MURR)	ML12090A536
The Ohio State University Nuclear Reactor Laboratory (OSURR)	ML12094A094

The submissions included more than 100 individual comments, but many addressed similar issues from different perspectives. Therefore, similar comments are grouped for purposes of responses.

1) Operate to minimize introduction of residual radioactivity

   a) Comment summary

      i) NRC should revise DG-4014 to reflect that the requirement to operate in a manner to minimize the introduction of residual radioactivity is not new. NRC always has required licensees to minimize and control radioactive contamination wherever it is located; and to do so, licensees have been required to implement procedures and practices that minimize the occurrence of leaks and spills, identify leaks and spills

throughout the facility soon after they occur, and minimize to the extent practicable the spread of leaks and spills.

ii) Licensees need guidance on the acceptable level, if any, of contamination in the environment including whether As Low As Reasonably Achievable (ALARA) is an element of the agency's determination of acceptability. Also, additional guidance is needed on how to identify and contain leaks and spills in facilities where releases are not accessible, including specified quantities that require action and a description of the required actions.

b) NRC Response

i) Staff agrees that ALARA is a principle of control of radioactivity and is embodied in NRC's regulations (for example see 10 CFR Part 20). Appropriate wording has been added to Section B of the guide to reiterate this principle. The new emphasis in the Decommissioning Planning Rule (DPR) is on identifying events that affect decommissioning. Leaks and spills occur at facilities. If they do not result in identified exposure paths, generally to workers, then they are not always fully documented or remediated. The emphasis of this guide is estimating the actual extent of contamination in a risk-informed manner and planning for decommissioning the site at the time of license termination.

ii) The purpose of this guide is not to develop site-specific plans for the entire range of Federal and Agreement State Licensees. As stated above, ALARA is always a principle of control of radioactive materials. The suggestion of providing guidance on how to identify and contain leaks and spills in facilities where releases are not accessible, including specified quantities that require action and a description of the required actions is beyond the scope of this guide. However, Table I ("Extent to Which Actions in this Guide Apply to Type of Facility, Physical Form of Radioactive Material, Half-Life, and Inventory") has been added to the Discussion Section and Table A-2 ("Risk Evaluation Table") to the Appendix with an explanation that licensees should take a risk-informed approach relative to the conditions at their facility. The tables in conjunction with Figures 1-3 will provide guidance for implementation of the DPR. The purpose of the DPR is for licensees to define adequately the condition of the site and set aside enough money to remediate it to release for unrestricted use conditions at the time of license termination. The DPR does not require any actions beyond documenting the radiological condition of the site and adequately funding decommissioning. Other parts of NRC regulations define criteria for limiting potential exposure to individuals.

2) Radiological Surveys and Plans

a) Comment summary

i) DG-4014 should be revised to include additional detail and specific examples of monitoring plans acceptable under commonly occurring conditions.

ii) Licensees who are not required to file a decommissioning plan and/or only possess sealed sources or short-lived radionuclides or inert radioactive gases should be exempt from the requirement to review monitoring and surveillance plans.

iii) The presence of "fluid processes" alone should not require a comprehensive review of monitoring and surveillance plans. The recommendation is that the NRC eliminate unnecessary requirements by specifying in DG-4014 that action will not be required for licensees that demonstrate that their fluid processes cannot result in significant residual radioactivity.

iv) Clarify who is required to receive NRC verification of monitoring and surveillance plans and whether the verification requirement was limited to plans that were required as a license condition.

b) NRC Response

i) Information about the extent to which actions in the guide should be implemented has been added in Table I and the tables in Appendix A. They provide examples of sampling under various conditions.

ii) Those licensees that are exempt from the requirements of 10 CFR 20.1101 remain exempt. Therefore, these licensees are not required to review monitoring and surveillance plans. As shown in Figure 2 and its accompanying text, the test is whether the licensee is required to have financial assurance. If the licensee is required to have financial assurance, then it must meet the requirements of 10 CFR 20.1101(c).

iii) Since the December 2011 version, DG-4014 was revised to include more risk-informed performance based information in the Discussion Section and Appendix A-2. Table 1 and Table A-2 both provide information for making risk based decisions. If a licensee demonstrates in its review that release of its fluids cannot result in unplanned exposure or change in decommissioning costs, then it has satisfied the actions required by the rule.

iv) This comment is addressed in the discussion of Figure 3a in Appendix A-1. The text has been revised to clarify the issue. All NRC licensees with monitoring and surveillance plans have them verified by NRC. Surveillance plans are identified in the license, so licensees should discuss changes with the NRC. Because the DPR concerns decommissioning, this discussion should focus on meeting the requirements for information in the Decommissioning Plan or License Termination Plan. If specific activities are defined in the license, then the licensee must conform to them or obtain an amendment to implement changes to the condition of the

license. For other licensees, NRC inspectors periodically review the plans to determine the sufficiency of revisions. These actions – discussions between the licensee and NRC staff, license amendment requests, inspections – allow the NRC staff to verify the plans.

3) Record Keeping

a) Comment summary

i) NRC should revise DG-4014 to indicate clearly whether all 10 CFR 20.1501(a) survey results must be considered important for decommissioning planning, and therefore retained in accordance with §§ 30.35(g), 40.36(f), 50.75(g), 70.25(g), or 72.30(d), or whether the requirement to label survey results as important for decommissioning planning applies only to 10 CFR 20.1501(a) survey results that reveal "significant residual radioactivity." Clarify whether nuclear reactor licensees were required to review and include survey results collected prior to the effective date of the DPR.

ii) NRC should revise DG-4014 to indicate the duration of time for which records of 10 CFR 20.1501(a) surveys must be kept.

iii) Clarify if the requirement that the survey results be included in records important to decommissioning is applicable only to nuclear power plants or, whether it applies to all licensees with a decommissioning plan.

b) NRC Response

i) DG-4014 has been clarified to state that only survey results showing significant residual radioactivity are required by the DPR to be retained. The DPR is not retroactively applicable to existing results. However, spills and leaks are likely to recur in particular locations, so the results should account for all contamination at a location; licensees should not try to parse the results by date of occurrence. Compliance with release criteria for license termination requires accounting for all residual radioactivity, as defined in 10 CFR 20.1003, at the site.

ii) Retention requirements of records important to decommissioning are defined in each appropriate part of the regulations (e.g. 10 CFR 30.35(g)). In general, a licensee retains these records until the license is terminated and the site released for unrestricted use. This is explained in the Discussion section of the guide.

iii) The guide identifies records requirements for all applicable license types, not just nuclear power plants.

4) Adjusting decommissioning funding

   a) Comment summary

      i) NRC should revise DG-4014 to state clearly that if significant residual radioactivity is detected, then licensees are not necessarily required to adjust decommissioning funding levels to allow for unrestricted release. If significant residual radioactivity is detected, then a licensee has the choice of adjusting decommissioning funding or demonstrating that license termination pursuant to restricted conditions or alternate criteria is reasonable.

   b) NRC Response

      i) Staff agrees with the comment and has revised the wording on page 2 of the guidance to clarify that licensees can use restricted use if they can demonstrate that they will meet all of the criteria of 10 CFR 20.1403. However, as discussed in Section II.P of the Statement of Considerations for the DPR (76 FR 35512, 35527), licensees should use unrestricted use criteria for planning purposes during operations. Demonstrating that a licensee will meet all of the criteria for restricted release in 10 CFR 20.1403 or for the use of alternate criteria in 10 CFR 20.1404 is difficult to do while a facility is still operating. Because of the challenges during operations in demonstrating future compliance with restricted release criteria during operations, restricted release is not addressed in this guide.

5) Risk informed Approach

   a) Comment summary

      i) The draft guidance does not explain circumstances under which the NRC will approve a licensee's conclusion that there is not a significant risk that the licensee will cause a legacy site. DG-4014 fails to provide practical guidance on implementation of the risk-informed approach that can be applied broadly in a variety of circumstances and it is unclear how to ensure compliance with the proposed risk-informed approach without performing complex detailed surveys.

      ii) The criteria –the radionuclides in the source term, actual and potential migration, both vertical and horizontal, dilution and natural attenuation, and radioactive decay - that DG-4014 requires that licensees consider may be impractical for most licensees and prohibitively expensive if the potential residual radioactivity is inaccessible. If residual radioactivity is potentially in subsurface locations, which may be inaccessible, then licensees will need guidance on how to evaluate the potential migration and/or concentration.

iii) In addition, licensees will need guidance on which models are acceptable to the NRC for estimating reductions due to evaporation/re-suspension and/or other benign dispersion pathways.

b) NRC Response

i) To explain a risk informed approach, Table I has been added to the Discussion Section and Table A-2 to the Appendix with an explanation that licensees should take a risk-informed approach relative to the conditions at their facility. As discussed below, there is a trade-off between analyses and sampling that each licensee must make after evaluating site-specific circumstances. Each licensee should make site-specific conclusions about the condition of its site and estimated remediation costs. Licensees should keep in mind that they are responsible for the full cost of actual remediation regardless of the estimated values.

ii) The current range of sensing devices, including remote sensing, allows licensees to monitor and directly sample many more areas than in the past. Where a specific source location is truly inaccessible, licensees need to ask themselves two questions: (1) is it reasonably likely there has been a release from the location; and (2) if the answer to (1) is yes, where are the most likely places that a release would migrate. Then, using the new risk table, Table A-2, in the appendix to RG 4.22, the licensee can decide whether to analyze the source(s) or sampling areas that are accessible, such as the subsurface adjacent to building footers. To demonstrate compliance with release criteria at the time of license termination, licensees are required to sample all the appropriate areas.

iii) Aside from codes used to demonstrate compliance with release criteria, such as RESRAD, generally NRC does not endorse specific models. Detailed mathematical modeling is not usually necessary to estimate if an area may be contaminated to the extent that it will need remediation to meet criteria for release for unrestricted use at the time of license termination. The purpose of the DPR is to require licensees to make reasonable estimates of (1) the amount of contamination at a site, (2) the cost to remediate it, and (3) make provision for those funds.

6) Relationship to other NRC regulations

a) Comment summary

i) Commenters disagreed with a statement in paragraph 6 on page 5 of DG-4014 that originally read “Decommissioning regulations require licensees to remediate sites to approved release criteria for unrestricted use (unless they can demonstrate the need for restricted use) without regard to the cost.” The commenters disagreed with the assertion that costs cannot be criteria included in the determination of the appropriate option for license termination.

ii) Other NRC regulations throughout Part 20, including Subpart D and Appendix B, are relevant to the discussions in the guidance for the DPR and should be included.

b) NRC Response

i) Paragraph 6 on page 5 of DG-4014 was rewritten to clarify the issue raised by the commenters. License termination under restricted conditions, including use of alternate criteria, is allowed by 10 CFR 20.1403 and 20.1404. However, prior to approval for use of either of these provisions, as part of the application for license termination, licensees must demonstrate that further reduction in site contamination is prohibitively expensive or would result in environmental harm. Licensees must also establish a trust outside of licensee control to fully fund the approved institutional controls for the duration of the radiological hazard.

ii) Staff agrees that other parts of NRC regulations are relevant to minimizing contamination and limiting exposure of individuals. These requirements exist in addition to the DPR, which focuses on planning for decommissioning. Exceeding Subpart D limits requires licensee action unrelated to the DPR. Appendix B to Part 20 is referenced in the Appendix A discussion of Figure 2 in RG 4.22.

7) DPR vs. industry voluntary initiatives

a) Comment Summary

i) Ensure DG-4014 does not codify any industry voluntary initiatives.

b) NRC Response

i) References to the industry's voluntary initiatives have been minimized. The guide emphasizes that sampling according to NEI-07-07 is one acceptable approach for nuclear power plants to meet the DPR. It also clarifies that the DPR does not replace any of the actions in NEI-08-08 for new nuclear power plants. Because the groundwater protection programs implemented pursuant to the industry's Groundwater Protection Initiative (GPI) are more expansive than what is required by the DPR, failure to implement all or part of the GPI does not always equate to a violation of 10 CFR Part 20.

8) "Significant residual radioactivity" is confusing

a) Comments Summary

i) The term should not be interpreted to mean that the existence of contamination that could require remediation in order to meet the unrestricted release criteria at some future date is significant from a public health and safety standpoint. Use of the term

"significant" is misleading to licensees because the long-standing requirement is for licensees to maintain levels of contamination in the course of ongoing operations below limits and to levels that are ALARA. The definition implies that residual radioactivity requiring remediation to meet unrestricted use could present a risk during operations and require remediation prior to decommissioning.

ii) The term "residual radioactivity" should not be defined in terms of radioactivity resulting from activities under the licensee's control. Specifically, "control" should be replaced with the word "responsibility."

b) NRC Response

i) Staff agrees that the term "significant" does not refer to a health and safety issue during operations. It refers to the defined criteria of release for unrestricted use at license termination. As discussed throughout the Statement of Considerations for the DPR (e.g., 76 FR 35514 - 35516), staff considers this amount of contamination significant because it impacts the funding necessary to decommission the site. The value of 25 mrem/yr has been added to the definition of significant residual radioactivity in the Glossary of the guide.

ii) "Residual radioactivity" is defined in 10 CFR 20.1003 and neither the DPR nor the guide changes it.

9) Delay the implementation date of the DPR

a) Comment Summary

i) NRC should delay the implementation date of the rule until 18 months after final guidance is issued.

b) NRC Response

i) Change of the effective date of the rule requires a rulemaking effort. The staff does not intend to initiate rulemaking to delay further the implementation of this important rule. The draft guidance has been available to the licensed community since 2008. Staff has revised it twice in response to industry comments. Staff has also conducted several public presentations over two years to explain the guidance. Many of the comments address details of sampling schemes for particular groups of licensees. While sampling is one important part of the DPR, the ultimate goal is that licensees understand the condition of their sites and set aside sufficient funding to remediate their sites to the release for unrestricted use criteria at license termination. It is more important for licensees to begin this process than to define *a priori* a perfect sampling scheme that is likely to change over the life of the plant.

10) NRC should conduct a public workshop on the draft guidance

a) Comment Summary

i) Prior to issuance of the final guide, NRC should conduct a public workshop so it could receive stakeholder feedback on the staff's proposed response to the comments submitted on the draft guidance.

b) NRC Response

i) Staff conducted a workshop by a meeting at NRC headquarters and a concurrent webinar on July 12, 2012 and the comments received at the workshop were considered in the revision of the DG-4014. NRC will consider further public interactions when the guidance is finalized.

11) The backfit discussion provided is overly broad

a) Comment Summary

i) The backfit discussion provided in the *Federal Register* notice was overly broad and could lead to an inappropriate treatment of backfitting issues if adopted by the staff as boilerplate language. The backfit discussion will propagate the assumption that guidance documents are consistent with the underlying regulatory requirements without an analysis.

ii) DG-4014 should explain what a "generic regulatory issue" is in the backfit analysis context.

b) NRC Response

i) The NRC disagrees, in part, with the comment's conclusion that a backfit analysis is necessary to ensure that guidance documents are consistent with the underlying regulations. The backfitting discussion in the *Federal Register* notice concerned backfitting issues related to the issuance of the guidance document. Specifically, RG 4.22 is the NRC staff's first guidance addressing compliance with the revised § 20.1501(a) and (b) and the new paragraph (c) of § 20.1406. Issuance of the guide does not constitute issuance of "changed" or "new" guidance within the meaning of the definition of "backfitting" in 10 CFR 50.109(a)(1) because the guide does not present positions that are different in any way from the positions set forth in the amended regulations (including the Statement of Considerations for the amendment). Moreover, the comment did not specifically identify any guidance in RG 4.22 that is inconsistent with either the underlying amended regulations or the accompanying statement of considerations.

In general, whether any specific guidance document is consistent with applicable underlying regulatory requirements must be determined on a case-by-case basis. If a certain guidance document contains "new" or "changed" positions within the meaning of the definition of "backfitting" in 10 CFR 50.109(a)(1), the staff intends to impose the guidance on existing licensees, and no exceptions to the preparation of a backfit analysis apply, then the staff would need to prepare a backfit analysis. But if these conditions are not met, then issuance of the guidance document would not raise backfitting concerns, and a backfit analysis would not be necessary (although the staff would have to prepare a documented evaluation if the staff relies on one or more of the exceptions to preparation of a backfitting analysis).

ii) A Generic Issue is a well-defined, discrete, technical or security issue, the risk or safety significance of which can be determined adequately, and, among other things, applies to two or more facilities and potentially affects public health and safety and may lead to regulatory changes. Details of NRC's Generic Issues Program are explained in detail on the agency's public web site at: http://www.nrc.gov/reading-rm/doc-collections/generic-issues/.

12) The DPR is not necessary

a) Comment Summary

i) The goals of the DPR could be more efficiently achieved if the requirements are established in a license. The new requirements are likely to be costly to implement with no benefit beyond what is achieved under existing regulatory requirements.

b) NRC Response

i) The DPR was issued in June 2011. Review of the rule itself is outside the scope of the guidance.