

**U.S. NUCLEAR REGULATORY COMMISSION**

**NRC-2009-0257**

**Notice of Public Workshop on a Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Notice of Public Workshop and a Request for Comment.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) plans to conduct two public workshops to solicit public input on major issues associated with a potential rulemaking for land disposal of unique waste streams including, but not limited to, significant quantities of depleted uranium in near-surface radioactive waste disposal facilities. The public workshops are intended to solicit the views of representatives of interests that may be affected by the rulemaking. Members of the public are invited to provide written comments on the issues presented in this notice and to attend the workshops to provide feedback on the potential rulemaking. The public workshops will be held in Rockville, Maryland on September 2-3, 2009 and in Salt Lake City, Utah on September 23-24, 2009.

**DATES:** Members of the public may provide feedback at the transcribed public workshops or may submit written comments on the issues discussed in this notice. Comments on issues for the agenda should be postmarked no later than August 1, 2009. Comments on the issues and questions presented in this notice and discussed at the workshops should be postmarked no later than October 30, 2009. Comments received after these dates will be considered if it is

practical to do so. NRC plans to consider these stakeholder views in the development of a technical basis for the planned rulemaking. Written comments may be sent to the address listed in the **ADDRESSES** Section. Questions about participation in the roundtable discussion at the public workshops should be directed to the facilitator at the address listed in the **ADDRESSES** Section. Members of the public planning to attend the workshops are invited to RSVP at least ten (10) days prior to each workshop. Replies should be directed to the points of contact listed in the **FOR FURTHER INFORMATION CONTACT** Section.

The public workshops will be held in Rockville, Maryland on September 2, 2009, from 8:00 a.m. to 5:00 p.m. and on September 3, 2009, from 8:00 a.m. to 5:00 p.m. and in Salt Lake City, Utah on September 23, 2009, from 8:00 a.m. to 5:00 p.m. and on September 24, 2009, from 8:00 a.m. to 5:00 p.m. The location of and final agenda for each public workshop will be noticed no fewer than ten (10) days prior to each workshop on the NRC's electronic public workshop schedule at <http://www.nrc.gov/public-involve/public-meetings/index.cfm>. Please refer the **SUPPLEMENTARY INFORMATION** section for additional information on the issues proposed for discussion at the public workshops.

**ADDRESSES:** Submit written comments to the Chief, Rulemaking and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Mail Stop TWB 5B01M, Washington, DC 20555-0001, and cite the publication date and page number of this Federal Register notice, or by fax at 301- 492-3446. Comments may also be submitted electronically at <http://www.regulations.gov>. Search on docket ID NRC-2009-0257.

Questions regarding participation in the roundtable discussions should be submitted to the facilitator, Francis Cameron, by mail to Mail Stop O16-E15, U.S. Nuclear Regulatory

Commission, Washington, DC 20555-0001, by telephone at 301-415-1006 or 240-205-2091, or by e-mail at *francis.cameron@nrc.gov*.

**FOR FURTHER INFORMATION CONTACT:** Priya Yadav, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301-415-6667; e-mail *priya.yadav@nrc.gov*, or Christopher Grossman, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301-415-7658; e-mail *christopher.grossman@nrc.gov*.

The public may examine and have copied for a fee, publicly available documents at the Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. Publicly available documents created or received at NRC after November 1, 1999, are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html*. From this site, the public can gain entry into the NRC's Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. If you do not have access to ADAMS, contact the Public Document Room at 1-800-397-4209, 301-415-4737, or by e-mail to *pdr.resource@nrc.gov*.

## **SUPPLEMENTARY INFORMATION:**

### **I. Background**

The Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) sets forth the Federal policy, including responsibilities, for the disposal of low-level radioactive waste to ensure available disposal capacity for all classes of waste, as specified by Title 10, Section 61.55, of the *Code of Federal Regulations* (CFR). Existing NRC regulations in

10 CFR 61.55 specify criteria for determining the classification of low-level radioactive waste for land disposal at a near-surface facility. The original development of 10 CFR 61.55 did not explicitly consider the impacts resulting from the disposal of significant quantities of depleted uranium from the operation of a commercial uranium enrichment facility (“Draft Environmental Impact Statement on 10 CFR Part 61 Licensing Requirements for Land Disposal of Radioactive Waste,” NUREG-0782, 1981, ADAMS Accession Nos. ML060930564 (vol. 1), ML060930573 (vol. 2), ML060930577 (vol. 3), and ML060930583 (vol. 4); “Final Environmental Impact Statement on 10 CFR Part 61 Licensing Requirements for Land Disposal of Radioactive Waste”, NUREG-0945, 1982, ADAMS Accession Nos. ML052590184 (vol. 1) and ML052920727 (vol. 2)). When 10 CFR Part 61 was initially developed, there were no commercial facilities generating significant quantities of depleted uranium waste. As a result, the analysis only considered the types of uranium-bearing waste streams being typically disposed by the NRC licensees at the time.

The NRC issued licenses for two commercial uranium enrichment facilities in 2006 and 2007, which are expected to generate significant quantities of depleted uranium. Depleted uranium is source material, as defined by Section 11(z) of the Atomic Energy Act of 1954, as amended, and if treated as a waste would fall under the definition of a low-level radioactive waste under 10 CFR 61.55(a). The NRC reaffirmed this waste classification in Memorandum and Order CLI-05-20 dated October 19, 2005 (ADAMS Accession No. ML052930035). Consistent with its policy to increase the use of risk-informed decision-making in all regulatory matters (“Staff Requirements – COMSECY-96-061 – Risk-Informed, Performance-Based Regulation (DSI 12)”, April 15, 1997, ADAMS Accession No. ML003671740), the NRC considered in a screening analysis (“Response to Commission Order CLI-05-20 Regarding Depleted Uranium”, SECY-08-0147, October 7, 2008, ADAMS Accession No. ML081820762) whether quantities of depleted uranium at issue in the waste stream from commercial uranium

enrichment facilities warrant amending the waste classification tables in 10 CFR 61.55(a) or amending 10 CFR 61.55(a)(6). The NRC decided to pursue a limited rulemaking to specify a requirement for a site-specific analysis and associated technical requirements for unique waste streams including, but not limited to, the disposal of significant quantities of depleted uranium (“Staff Requirements – SECY-08-0147 – Response to Commission Order CLI-05-20 Regarding Depleted Uranium,” SRM-SECY-08-0147, March 18, 2009, ADAMS Accession No. ML090770988). In pursuing this limited rulemaking, the NRC is not proposing to alter the waste classification scheme. However, for unique waste streams including, but not limited to, significant quantities of depleted uranium, there may be a need to place additional criteria on its disposal at a specific facility or deny such disposal based on unique site characteristics. Those restrictions would be determined via a site-specific analysis that satisfies the requirements developed through this rulemaking process.

In advance of this planned rulemaking, NRC will conduct public workshops inviting representatives of the stakeholders affected by the rulemaking in a “roundtable” format. At these workshops, NRC plans to discuss with stakeholders the issues to be considered in the rulemaking and the technical parameters of concern for a site-specific analysis associated with the disposal of unique waste streams, including significant quantities of depleted uranium. NRC plans to consider these stakeholder views in the development of a technical basis for the planned rulemaking.

In order to have a manageable discussion, the number of participants around the table will, of necessity, be limited. The NRC, through the facilitator of the workshop, will attempt to ensure broad participation by the spectrum of interests affected by the rulemaking, including citizen and environmental groups, nuclear industry interests, state, tribal, and local governments, and experts from academia and other federal agencies. Other members of the public are welcome to attend. Those not seated at the tables, including individual members of

the public, will have the opportunity to provide feedback on each of the issues slated for discussion by the roundtable participants. Questions about participation in the roundtable discussion may be directed to the facilitator.

Section II describes issues associated with disposal of unique waste streams in general, while Section III describes specific issues associated with technical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium that were identified from the screening analysis (SECY-08-0147, October 7, 2008).

## **II. Issues with Disposal of Unique Waste Streams**

This section discusses issues associated with a regulatory definition of unique waste streams that should be considered before commencing regulatory activities related to technical requirements for a site-specific analysis for land disposal of unique waste streams in the near-surface. Each issue is assigned a number, a short title, and a list of questions and factors for consideration. These issues, questions, and factors are not meant to be a complete or final list, but are intended to initiate discussion. Interested stakeholders are welcome to recommend additions, deletions, or modifications to the key issues for consideration. These issues and factors will focus the discussion at the public workshops. All public feedback will be used in developing options for NRC consideration.

### *Issue II-1. Definition of Unique Waste Streams*

The NRC plans to propose a rulemaking in 10 CFR Part 61 to specify a requirement for a site-specific analysis for the disposal of unique waste streams including, but not limited to, significant quantities of depleted uranium. As part of this planned rulemaking, NRC will solicit stakeholder views on considerations for a regulatory definition for unique waste streams requiring a site-specific analysis.

Question II-1.1 – Should the NRC propose a regulatory definition to (a) specify general criteria that would capture both current and foreseeable unique waste streams; or (b) limit the definition to a known set of current unique waste streams including significant quantities of depleted uranium? What characteristics should NRC propose as defining for unique waste streams?

Question II-1.2 – What waste streams containing radionuclides listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in quantities significantly greater than initially considered in the development of 10 CFR Part 61?

Question II-1.3 – What waste streams containing radionuclides that are *not* listed in the waste classification tables at 10 CFR 61.55 are currently, or possibly in the foreseeable future, being disposed of in concentrations or quantities significantly greater than initially considered in the development of 10 CFR Part 61?

Question II-1.4 – What waste streams that were not considered in the initial development of 10 CFR Part 61 should be considered under the definition of “unique waste streams”?

Question II-1.5 – Should the NRC consider waste streams that result from spent fuel reprocessing and are not high-level or greater-than-class C waste in the definition of “unique waste streams”?

Question II-1.6 – Are there other characteristics besides concentration and quantity that NRC should consider when defining “unique waste streams”?

*Issue II-2. Time Period of Performance*

While a period of 10,000 years was initially considered in NUREG-0782 (1981), 10 CFR Part 61 does not specify a period to evaluate performance of a near-surface low-level radioactive disposal facility, in part due to the effects of site and waste characteristics on the timing of projected radiological doses. NRC continues to consider 10,000 years a sufficient

period, with some exceptions, to capture (i) the risk from the short-lived radionuclides, which comprise the bulk of the activity disposed; and (ii) the peak radiological doses from the more mobile long-lived radionuclides, which tend to bound the potential radiological doses at time frames greater than 10,000 years (“A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities”, NUREG-1573, 2000, ADAMS Accession No. ML003770778). Internationally, selection of a time frame for evaluation of facility performance has generally considered the hazard and longevity of the waste, the analysis framework (i.e., scenarios, receptors, and pathways), socioeconomic uncertainties, and uncertainty in extending models and data to times beyond those for which the underlying assumptions can be justified (“Safety Assessment for Near Surface Disposal of Radioactive Waste”, Safety Standards Series No. WS-G-1.1, International Atomic Energy Agency, 1999, available electronically at [http://www-pub.iaea.org/MTCD/publications/PDF/Pub1075\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1075_web.pdf), “The Handling of Timescales in Assessing Post-closure Safety - Lessons Learnt from the April 2002 Workshop in Paris, France”, Organization for Economic Co-operation and Development Nuclear Energy Agency, 2004, available electronically at <http://www.nea.fr/html/rwm/reports/2004/nea4435-timescales.pdf>). As part of a planned rulemaking, NRC is soliciting stakeholder views regarding a time period to evaluate the performance of near-surface disposal of unique waste streams.

Question II-2.1 – Should the NRC (a) specify a single time period to evaluate the performance of facilities disposing of all unique waste streams in the near-surface; (b) specify criteria requiring the consideration of how the hazard for each unique waste stream evolves over time; or (c) permit a licensee to justify a period of performance?

Question II-2.2 – If NRC were to specify a single time period for site-specific analysis of facilities disposing of unique waste streams in the near-surface, what would be an appropriate period? What factors should NRC consider in determining a single time period of performance?

Question II-2.3 – If NRC were to specify criteria requiring the consideration of how the hazard evolves over time for each unique waste stream, what factors should NRC consider in determining these criteria?

Question II-2.4 – If NRC were to permit a licensee to justify a time period of performance, what factors should NRC consider when evaluating a licensee’s justification?

Question II-2.5 – If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a time period of performance, should the NRC consider limiting the maximum extent of the time period considered? If so, what factors should NRC consider when specifying a maximum period of performance?

Question II-2.6 – What other approaches might NRC consider when specifying criteria for a period of performance for facilities disposing of unique waste streams in the near-surface?

*Issue II-3. Exposure Scenarios for a Site-Specific Analysis*

Disposal of radioactive waste in near-surface disposal facilities has several performance objectives, specified at 10 CFR Part 61, including protection of the general population from releases of radioactivity and protection of individuals from inadvertent intrusion. In developing the waste classification scheme in 10 CFR Part 61, NRC performed an analysis (NUREG-0782, 1981; NUREG-0945, 1982) applying several assumptions with respect to exposure scenarios and potential receptors. Following the period of active institutional control, the member of the public was assumed to engage in residential, agricultural, or other activities at the boundary of the 100 meter (330 feet) buffer zone surrounding the disposal area that circumscribes the disposal units. These assumed activities were consistent with regional practices current at the time of the analysis. Additionally, the analysis assumed that an inadvertent intruder engaged in activities on the disposal site rather than outside the buffer zone following the period of active institutional control. The inadvertent intruder exposure scenario assumed the exposure via either disruption of waste during the excavation and construction of a residence on the disposal

site (i.e., intruder-construction) or occupation of a dwelling located on the disposal site and ingestion of food grown in contaminated soils (i.e., intruder-agriculture) if the waste had degraded to an unrecognizable form. As part of a planned rulemaking NRC is considering whether to specify criteria or provide guidance for appropriate exposure scenarios for site-specific analyses associated with disposal of unique waste streams.

Question II-3.1 – Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting members of the public for unique waste streams? What factors should NRC consider in specifying technical criteria or reviewing licensee justifications for exposure scenarios associated with members of the public?

Question II-3.2 – Should NRC specify technical criteria for, or permit licensees to justify, site-specific exposure scenarios for demonstrating compliance with the performance objective protecting individuals from inadvertent intrusion for unique waste streams? What factors should NRC consider in specifying technical criteria, or reviewing licensee justifications, for inadvertent intruder exposure scenarios?

### **III. Issues with Disposal of Significant Quantities of Depleted Uranium**

This section discusses major issues to be considered before commencing regulatory activities related to requirements for a site-specific analysis for near-surface land disposal of significant quantities of depleted uranium, a unique waste stream. Each issue is assigned a number, a short title, and a list of questions and factors for consideration. These issues, questions, and factors are not meant to be a complete or final list, but are intended to initiate discussion. Interested stakeholders are welcome to recommend additions, deletions, or modifications to the key issues for consideration and propose implementation considerations.

These issues and factors will serve as the basis for discussion at the public workshops. All public feedback will be used in developing implementation options for NRC consideration.

*Issue III-1. Definition of Significant Quantities*

The NRC plans to propose a rulemaking in 10 CFR Part 61 to specify a requirement for a site-specific analysis for the disposal of significant quantities of depleted uranium (SRM-SECY-08-0147, March 18, 2009). As part of this rulemaking, the NRC intends to define “significant quantities” of depleted uranium in the regulation. Recently, the NRC performed an analysis that confirmed that small quantities of depleted uranium (approximately 1-10 metric tons) may be disposed of at shallow depths and meet the performance objectives specified in 10 CFR Part 61. This result is consistent with the conclusions of an earlier analysis that the types of uranium-bearing waste streams typically disposed of by NRC licensees in limited quantities do not present a significant hazard to warrant limitation on the concentration of this naturally occurring material (NUREG-0945, 1982). Because small quantities and lower concentrations of uranium were previously evaluated and recently re-affirmed, the rulemaking will focus on ensuring additional disposal considerations are taken for depleted uranium based on the quantity and concentration of material at issue.

Question III-1.1 – Should NRC specify a lower quantity limit in the definition of “significant quantities” for near-surface disposal? If so, what factors should NRC consider in setting an appropriate lower threshold for near-surface disposal?

Question III-1.2 – Should NRC specify an upper quantity limit in the definition of “significant quantities”? If so, what factors should NRC consider in setting an appropriate upper threshold for near-surface disposal?

Question III-1.3 – Are there alternative methods NRC should consider when specifying criteria to define “significant quantities”?

*Issue III-2. Time Period of Performance for a Site-Specific Analysis*

In addition to the issue described earlier in Section II for unique waste streams, generally, the following questions are provided to focus discussion on the disposal of significant quantities of depleted uranium.

Question III-2.1 – If NRC were to specify a single time period for the site-specific analysis of near-surface disposal of unique waste streams (see Question II.2.1), what factors associated with disposal of significant quantities of depleted uranium should NRC consider in determining a single time period of performance for unique waste streams, including significant quantities of depleted uranium?

Question III-2.2 – If NRC were to specify criteria requiring the consideration of hazards for each unique waste stream evolving over time (see Question II.2.1), what factors should NRC consider in determining these criteria for disposal of significant quantities of depleted uranium?

Question III-2.3 – If NRC were to permit a licensee to justify a time period of performance (see Question II.2.1), what factors should NRC consider when evaluating a licensee's justification for disposal of significant quantities of depleted uranium?

Question III-2.4 – If NRC were to specify criteria requiring the consideration of how the hazard evolves over time, or permit a licensee to justify a reasonable time period of performance (see Question II-2.1), should the NRC consider limiting the maximum extent of the time period considered for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider when specifying a maximum period of performance?

Question III-2.5 – What other approaches might NRC consider when specifying criteria for a period of performance for near-surface disposal of significant quantities of depleted uranium?

*Issue III-3. Exposure Scenario(s) for a Site-Specific Analysis*

In addition to the issue described earlier in Section II for unique waste streams, generally, the following questions are provided to focus discussion on the disposal of significant quantities of depleted uranium.

Question III-3.1 – What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee’s justification for exposure scenarios for protection of members of the public?

Question III-3.2 – What factors specific to disposal of significant quantities of depleted uranium should NRC consider in specifying criteria or reviewing a licensee’s justification for exposure scenarios for the protection of individuals from inadvertent intrusion?

*Issue III-4. Source Term Issues for a Site-Specific Analysis*

Depleted uranium can have a variety of chemical and physical forms which are dependent on enrichment and deconversion processing. For instance, depleted uranium is commonly stored as a hexafluoride gas byproduct material. Depleted uranium hexafluoride gas may also be deconverted to an oxide form. Recently, the NRC performed a screening analysis (SECY-08-0147, October 7, 2008) that confirmed that small quantities of depleted uranium (approximately 1-10 metric tons) may be disposed of at shallow depths and meet the performance objectives specified in 10 CFR 61. This screening analysis assumed that depleted uranium would be disposed in an oxide form following deconversion. NRC is seeking stakeholder views on modeling source terms in a site-specific analysis for near-surface disposal of significant quantities of depleted uranium.

Question III-4.1 – Should NRC specify or permit licensees to propose physical or chemical forms (e.g.,  $UF_6$ ,  $U_3O_8$ , metal) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for or developing guidance to review an analysis of physical or chemical forms?

Question III-4.2 – Should NRC specify criteria for, or permit licensees to justify, stabilizing admixtures (e.g., grout) for disposal of significant quantities of depleted uranium? If so, what factors should NRC consider in specifying criteria for, or developing guidance to review, an analysis of admixtures?

Question III-4.3 – What other factors should NRC consider when specifying criteria, or developing technical guidance, regarding waste forms for disposal of significant quantities of depleted uranium in near-surface facilities?

Question III-4.4 – Should NRC require a site-specific analysis to capture previously disposed quantities of depleted uranium? If so, what factors should NRC consider when specifying criteria, or developing technical guidance, regarding previously disposed quantities of depleted uranium?

*Issue III-5. Modeling of Uranium Geochemistry in a Site-Specific Analysis*

The NRC plans to propose a rulemaking in 10 CFR Part 61 to specify a requirement for a site-specific analysis for the disposal of significant quantities of depleted uranium. Recently, the NRC performed a screening analysis (SECY-08-0147, October 7, 2008) that confirmed that small quantities of depleted uranium (approximately 1-10 metric tons) may be disposed of at shallow depths and meet the performance objectives specified in 10 CFR Part 61. The results of this analysis noted the dependence of disposal facility performance on site-specific geochemical conditions. Geochemical conditions were represented in the screening analysis as epistemic uncertainty over a broad range of disposal sites and conditions. In reality, many of these parameters may be constrained at a particular disposal facility.

Question III-5.1 – Should NRC specify regulatory criteria for, or permit licensees to justify, site-specific geochemical parameters for the analysis of disposal of significant quantities of depleted uranium?

Question III-5.2 – If NRC should specify regulatory criteria, then what factors should NRC consider in developing criteria for geochemical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

Question III-5.3 – If NRC should permit licensees to justify site-specific geochemical parameters, then what factors should NRC consider when reviewing a licensee's justification?

Question III-5.4 – What new or alternative approaches should NRC consider regarding the incorporation of geochemical parameters in a site-specific analysis for disposal of significant quantities of depleted uranium?

*Issue III-6. Modeling of Radon in the Environment in a Site-Specific Analysis*

Over time, the uranium isotopes comprising depleted uranium decay to multiple progeny radionuclides. Many of these progeny radionuclides are different elements, and differ from depleted uranium in their radiotoxicity and mobility in the environment. Among the progeny radionuclides exhibiting these differing characteristics, radon-222 is of particular interest because it exists as a gas under typical environmental conditions and presents a unique challenge to evaluate in a site-specific analysis of the performance of a near-surface, low-level radioactive waste disposal facility. Analyzing the mobility of radon-222 in the environment involves demonstrating a reasonable understanding of the emanation of the radon gas from the depleted uranium solids, and migration to the surface of the disposal facility. Additionally, NRC anticipates that radon migration may require policy considerations of societal uncertainties in developing appropriate exposure scenarios.

Question III-6.1 – What new approaches for modeling radon emanation, migration, and exposure pathways, including the effects of differences in the physical and chemical properties between radon and its progeny, should NRC consider?

Question III-6.2 – Should NRC require licensees to evaluate the effects of radon in a site-specific analysis for disposal of significant quantities of depleted uranium in near-surface facilities?

Question III-6.3 – Should NRC specify by regulation, or develop guidance on, the technical parameters for evaluating radon emanation, migration, and exposure in a site-specific analysis of significant quantities of depleted uranium?

Question III-6.4 – If NRC should specify by regulation the technical parameters for evaluating radon emanation, migration, and exposure, what factors should NRC consider in specifying technical parameters for a site-specific analysis for significant quantities of depleted uranium?

Question III-6.5 – If NRC should develop guidance on the technical parameters for evaluating radon emanation, migration, and exposures to accompany regulatory criteria, then what factors should NRC consider in the development of guidance for evaluating technical parameters for a site-specific analysis for disposal of significant quantities of depleted uranium?

Question III-6.6 – What societal uncertainties should NRC consider when developing guidance for scenarios of exposure to radon gas released from the disposal of significant quantities of depleted uranium?

Question III-6.7 – What alternative methods should NRC consider when developing guidance on evaluating the impacts of radon gas exposures? For instance, U.S. Environmental Protection Agency standards at 40 CFR Part 192 for the control of residual radioactive materials from inactive uranium mill tailings sites specify that releases of radon-222 to the atmosphere will not exceed an average release rate of 20 picoCuries per square meter per second or increase the annual average concentration of radon-222 in air at or above any location outside the disposal site by more than 0.5 picoCuries per liter.

Dated at Rockville, Maryland this 16 day of June, 2009.

FOR THE NUCLEAR REGULATORY COMMISSION

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Patrice M. Bubar, Deputy Director  
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