Response to Public Comments for Draft Regulatory Guide DG-3032, "Design, Construction, and Inspection of Embankment Retention Systems at Uranium Recovery Facilities" Proposed Revision 3 to Regulatory Guide RG 3.11

A notice that Draft Regulatory Guide DG-3032 (proposed Revision 3 of Regulatory Guide 3.11) was available for public comment was published in the *Federal Register* (73 FR 14510) on Tuesday March 18, 2008. Two organizations submitted nearly identical sets of comments on the draft guide. The NRC has combined the comments and NRC staff disposition in the following table.

Comments were received from:

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Combined comments of Kennecott Uranium Co. and Wyoming Mining Association		
Number	**Comment**	**NRC Staff Disposition**
1	**Liner Requirements** The document fails to reference or discuss 40 CFR 192 Subpart D - Standards for Management of Uranium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended. The standards in 40 CFR 192.32 (a) state: *(a) Standards for application during processing operations and prior to the end of the closure period. (1) Surface impoundments (except for an existing portion) subject to this subpart must be designed, constructed, and installed in such manner as to conform to the requirements of §264.221 of this chapter, except that at sites where the annual precipitation falling on the impoundment and any drainage area contributing surface runoff to the impoundment is less than the annual evaporation from the impoundment,*	1. The Regulatory Guide will be revised to include a statement that Uranium Recovery licensees/applicants should consider the requirements of both 40 CFR 192.32(a) and 40 CFR 264.221in their design of embankment retention systems.

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	the requirements of §264.228(a)(2) (iii)(E) referenced in §264.221 do not apply. The above cited regulation drives licensees to design impoundments to the standards in 40 CFR Part 264.221 that contain the standards for surface impoundments for owners and operators of hazardous waste treatment storage and disposal facilities. These standards include liner requirements as per 40 CFR 264.221(c) (1): *(1)(i) The liner system must include:* *(A) A top liner designed and constructed of materials (e.g., a geo-membrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and…* The commenter requests that the final Regulatory Guide based on DG-3032 incorporate the standards referenced above and currently found in 40 CFR 192.32(a) and 40 CFR 264.221(c) (1).	
2	**Seismicity** In discussing seismic evaluations for impoundments in Wyoming, a specific document should be considered. A document entitled *Seismic hazard analysis of Title II reclamation plans: a report prepared by Lawrence Livermore National Laboratory for the U.S. Nuclear Regulatory Commission* by D. Bernreuter, E. McDermott and J. Wagoner was released in 1994. The report was examined in detail by James C. Case of the Wyoming State Geological Survey (WSGS). He prepared a Seismic Hazards Report entitled *Hazards Report 96-1: Recommendations Regarding Seismic Design Standards for Uranium Mill Sites in Wyoming* discussing the Lawrence Livermore National Laboratories (LLNL) report. The report prepared by the Wyoming State Geological Survey (WSGS) was submitted to the NRC under cover of letter dated March 5, 1996 by the Governor of the State of Wyoming. The commenter requests that the hazards report prepared by the WSGS be referenced in the final regulatory guide and that the final regulatory guide clearly	2. The staff is aware of the WSGS report and decided not to include this reference in RG 3.11 specifically for evaluating seismic hazards in Wyoming. The RG is written generally to cover uranium recovery impoundments constructed anywhere in the U.S. It would not be appropriate to include a reference that would only be of use in Wyoming. An application for a site in Wyoming can always include an evaluation based on the conclusions of the WSGS report, and the staff would consider it as it would any site-specific, case-by-case analysis of peak ground acceleration.

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	state that the recommendations of the report be the applicable guidance for evaluating seismic hazards for designing fluid and tailings retention systems in Wyoming.	
3	**"Bathtub Effect"** The NRC's Uranium Recovery Program Policy and Guidance Directive LLWM 94-01, "*Synthetic Liner Considerations during Reclamation of Surface Impoundments at Title II Uranium and Thorium Mill Tailing Sites*" dated July 1994 requires that staff verify that proposed reclamation and closure plans will either adequately minimize the possibility of creating a "bathtub effect" or that potential impacts of a projected "bathtub effect" will not adversely impact the structural integrity of impoundments or ground-water quality. This guidance conflicts with the draft regulatory guide. Draft Guide DG-3032 touts the use of synthetic liners, citing their advantages. Contrary to the clear support for liners given in DG-3032, the July 1994 document states: *"Several licensees have used and/or proposed to use synthetic liners on the bottom of surface impoundments at uranium and thorium mill tailings sites. Use of these liners could create a "bathtub effect" following reclamation and closure of impoundments, due to passive infiltration through the surface and buildup of liquids above the liners. The "bathtub effect" can potentially have adverse impacts on the structural integrity of impoundments as well as ground-water quality. Specifically, the "bathtub effect" may cause local differential settlement,' subsidence, slope instability, and/or a breach in the liner, containment walls, and/or cover. This could result in contaminant seepage into ground-water and surface water, and possibly uncontrolled release of tailings and contaminated materials to the environment."* These documents disagree in that the older document finds fault with synthetically lined impoundments while the new draft regulatory guide cites their advantages. In addition, 40 CFR 264.221(c) (1) drives licensees to use synthetic liners at least as the upper liner in a double lined impoundment when it states:	3. The staff disagrees in part. A final draft of Directive LLWM 94-01, "*Synthetic Liner Considerations during Reclamation of Surface Impoundments at Title II Uranium and Thorium Mill Tailing Sites*" was sent to Agreement States and uranium recovery licensees for comment on July 18, 1994. This guidance discussed the potential bathtub effect issue at lined impoundments as presented in the comment. Although the bathtub effect is a real issue for synthetically-lined impoundments, Directive LLWM 94-01 can be disregarded in the context of RG 3.11 for the following reasons: 1. The bathtub guidance addressed long-term situations that could develop after covering and closure of a reclaimed tailings impoundment. RG 3.11 addresses design, construction, and operation of impoundments, not closure. 2. 10 CFR Part 40, Appendix A, Criterion 5E requires that new operating tailings impoundments have a dewatering system, which should serve to lessen concerns about bathtub effects after closure given the dewatered tailings and placement of a cover

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	(1)(i) The liner system must include: *(A) A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and …* The commenter requests that the final Regulatory Guide based on DG-3032 promote the advantages of synthetic liners and state clearly that licensees no longer have to consider the July 1994 guidance document.	that minimizes infiltration. 3. It appears that this 1994 bathtub guidance was never finalized and thus, may not exist as applicable guidance. Therefore, the RG section on seepage control will be revised to mention the bathtub effect possibility, but also to state that design requirements exist to lessen this post-closure concern.
4	**Environmental Protection Agency (EPA) Issues:** The EPA gave a presentation on 40 CFR Part 61 Subpart W at the National Mining Association (NMA)/NRC Uranium Recovery Workshop in Denver, Colorado on Wednesday, April 30, 2008. The presentation discussed the following items: • Inclusion of All 11(e).2 Byproduct Material Impoundments In their presentation, Agency staff stated that impoundments regulated under 40 CFR Part 61 Subpart W included all impoundments that contained 11(e).2 byproduct material including fluids such as tailings fluids and fluids at in-situ uranium recovery operations. They stated that evaporation ponds at conventional uranium mills and in-situ uranium recovery facilities as well as conventional tailings impoundments will now be regulated under 40 CFR Part 61 Subpart W. This is a radical departure from the situation to date in which 40 CFR Part 61 Subpart W was solely applied to operating uranium mill tailings impoundments. In fact 40 CFR Part 61 Subpart W states: *§ 61.250 Designation of facilities.* *The provisions of this subpart apply to owners or operators of facilities licensed to manage uranium byproduct materials during and following the processing of uranium ores, commonly referred to as uranium mills and*	4. The NRC staff recognizes that the EPA staff disagrees in part (in a presentation at the April 2008 NMA/NRC Workshop) and has indicated that the EPA's Subpart W regulations would apply to radon emissions from evaporation ponds used by ISL operators. However, the NRC staff does not think it is appropriate to interpret the applicability of EPA regulations in this RG. Uranium Recovery licensees/applicants should work directly with EPA on this or any other issue related to EPA regulations. The staff agrees to add a statement to the revised RG 3.11 indicating that uranium recovery licensees/applicants will need to fulfill any other permitting requirements outside of the NRC license application or amendment process.

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	their associated tailings. This subpart does not apply to the disposal of tailings. Regulation of impoundments containing 11(e).2 byproduct material fluids is contrary to the specific language and intent of the regulation itself. The commenter requests that the Commission clearly state in the guidance that only impoundments designed to contain associated tailings at uranium mills are regulated under 40 CFR Part 61 Subpart W and that impoundments containing 11(e).2 byproduct material fluids do not fall under 40 CFR Part 61 Subpart W.	
5	**Discrete EPA Approval of Subpart W Facilities:** The NRC is the lead Federal agency involved in the permitting of source material recovery facilities. The Agency representatives at the meeting stated that the EPA wants to perform their own discrete and separate review of applications to construct impoundments and that such review would require one (1) year. They stated that this would be performed concurrently with the NRC review. This is contrary to the current effective and well established regulatory practice in which the NRC has been and is the lead federal regulatory agency for the permitting of source material recovery facilities. The commenter requests that the NRC assert its lead agency status over the permitting of impoundments at licensed source material recovery facilities including uranium mill tailings impoundments regulated under 40 CFR Part 61 Subpart W.	5. The NRC staff disagrees. EPA actions with regard to its role in implementing the requirements of 40 CFR Part 61 are beyond the scope of this RG. Uranium recovery licensees/applicants still need to fulfill any other permitting requirements outside of the NRC regulations for license applications or amendments.