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COMMENTS ON
NRC DRAFT PROPOSED RADIOLOGICAL CRITERIA
FOR DECOMMISSIONING

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Submitted by

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The U. S. Nuclear Regulatory Commission (NRC) is proposing to amend 10 C.F.R. Part 20 to provide specific radiological criteria for the decommissioning of soils and structures. NRC staff has developed and has requested comments on a "staff draft" of the proposed radiological criteria for decommissioning. See January 26, 1994 Draft Proposed Federal Register Notice (Draft Proposal).

The Bluewater Uranium Mill Site (Site) located near Grants, New Mexico is owned by the Atlantic Richfield Company (ARCO). The Site is a Title II site licensed by the NRC under the Atomic Energy Act (AEA). The Mill structures at the Site were decommissioned in 1990 under a NRC-approved Decommissioning Plan. Currently, the remediation of the mill tailings at the Site is in progress under a NRC-approved Reclamation Plan.

ARCO has reviewed the draft proposed radiological criteria for decommissioning, and offers the following comments for NRC's consideration in preparing the draft rule for publication in the Federal Register. ARCO understands that the American Mining Congress (AMC) is also submitting comments on the draft proposal. As a member of AMC, ARCO adopts and incorporates by reference AMC's comments, with one exception. Because ARCO has not and is not presently involved in in situ leaching (ISL) operations, ARCO does not consider it appropriate to adopt AMC's comments addressing ISL issues.

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Applicability of the Proposed Rule

NRC notes throughout the proposal that the new criteria would not apply to sites already covered by a decommissioning plan approved by the NRC prior to the effective date of the rule. See, e.g., Draft Proposal, pgs. 4, 10, 41, and 69 (Proposed Section 20.1401(b)). As set forth above, ARCO implemented a NRC-approved Decommissioning Plan at the Site in 1990. ARCO interprets Section 20.1401(b) such that its Site will not be subject to the new radiological criteria. ARCO believes it is entirely appropriate to exempt facilities that have nearly completed decommissioning from the scope of the new criteria. This will avoid retroactive application of the new criteria. Furthermore, ARCO concurs that this provision will ensure that licensees with approved plans continue to implement and complete ongoing decommissioning activities.

ARCO lauds NRC for its efforts to limit the applicability of the proposed rule. However, this applicability provision seems to be undermined by provisions in the proposed rule requiring additional remediation actions after completion of site decommissioning. NRC is proposing to reopen decommissioning, even after license termination, if NRC determines, based on new information, that additional cleanup is necessary. The draft proposal is entirely confusing and unclear; it sets forth numerous, and apparently conflicting, standards for such a reopener.

For example, NRC notes that it would reopen decommissioning if NRC determines, based on new information, that the level of residual radioactivity at the site "substantially violates" the new radiological criteria. Draft Proposal, p. 22. Yet on the very next page of the draft proposal, NRC states that it would require additional remediation based on a totally different standard: if NRC identified "significant additional contamination" or if "the technical basis on which the criteria are founded changes significantly." Draft Proposal, p. 23. NRC then proposes yet another standard for a reopener in Section 20.1401(c), which provides that additional remediation would be required if, based on new information, NRC determines that "residual radioactivity remaining at the site could result in significant public or environmental harm." Draft Proposal, p. 70. These standards are problematic because they do not define what new information would be considered appropriate for a reopener, nor do they require an actual finding by NRC of substantial violation, significant additional contamination, significant technical changes, or significant public or environmental harm. It would permit NRC to

exercise its discretion in an unlimited and potentially arbitrary manner. The proposal permits NRC to reopen a matter if it merely believes a site could, rather than actually does, result in significant harm.

ARCO concurs with NRC's decision to exempt from the proposed rule the disposal of uranium mill tailings, which is presently subject to comprehensive regulation under Appendix A of 10 C.F.R. Part 40. ARCO believes that the existing regulation of the disposal of uranium mill tailings already encompasses site-specific standards for the decommissioning of structures contaminated with residual radioactive material at inactive sites. Remediation of uranium mill sites normally involves decommissioning of mill structures and disposal (reclamation) of mill tailings. Uranium mills are decommissioned by dismantling the mill structures and placing the debris contaminated with residual radioactive material in an engineered disposal cell, which is often located adjacent to the mill tailings or in the mill tailings themselves. Decommissioning in this manner is environmentally sound, limits off-site disposal, restricts the creation of additional waste disposal facilities, and results in engineered consolidation, all of which offer enhanced human health and environment protection. Consistent with existing regulation, the entire uranium mill site, including both the decommissioned mill areas and the uranium mill tailings disposal areas, is transferred to a government agency for long-term surveillance and care. Given the existing regulatory regime and the practical realities of uranium mill site decommissioning, ARCO requests that decommissioning of inactive uranium mill sites should be exempted from the new criteria.

Proposed Radiological Criteria

NRC correctly states that decommissioning is presently conducted using existing guidance applied on a site-specific basis. See Draft Proposal, p. 5. Since these decommissioning guidance provide an already workable means of ensuring adequate protection to the public and environment from decommissioning, ARCO questions the need for NRC to establish generic criteria to be applied to all sites. ARCO also questions whether the proposed criteria would even result in a more workable regulation, especially since NRC repeatedly points out in the draft proposal that it will be need to issue a myriad of additional guidance to assist in the interpretation and implementation of the new rule. However, to the extent such generic criteria

are being considered by NRC, ARCO urges NRC to consider the following points in developing the generic criteria.

ARCO could possibly support a risk-based limit to be applied in conjunction with the existing As Low As Reasonably Achievable (ALARA) standard, but strongly opposes the development or use of a decommissioning goal. A goal is, and can be, nothing more than that. Compliance with a goal cannot be enforced as a regulatory standard. Accordingly, the proposed goal is simply unnecessary. By including a goal in the proposed rule, ARCO wonders whether NRC is attempting to create a "de facto" limit that could be applied unnecessarily and perhaps arbitrarily to sites undergoing decommissioning.

While ARCO could possibly support a risk-based limit, ARCO believes that the radiological limit proposed by NRC (i.e., 15 mrem/year) is being driven by the unrealistically low decommissioning goal. The goal of 3 mrem and the limit of 15 mrem per year are the same numbers for all practical purposes, and the approach to cleanup to these two numerical levels would be indistinguishable. In other words, both the goal and the limit would mandate cleanup to or below background concentrations, especially for uranium mill tailings sites at which naturally occurring radioactive materials are ubiquitous in the environment. For most places in the world, background terrestrial radiation rates can vary by $2 \mu\text{R/hr}$, or approximately 17 mrem/year, within a distance of a few miles. Similar variations are common within a single structure. It would be difficult to distinguish the decommissioning goal of 3 mrem/year for uranium mills from the natural background level of over 300 mrem/year due to uranium and its decay product. Therefore, it would be unjustifiable to use such a low level as a generic criterion. A licensee has no control over naturally occurring radioactive material, and, as NRC appropriately notes, should not be required to remediate materials over which it has no control Draft Proposal, p.41. However, contrary to NRC's statements in this regard, the proposal does not compensate for naturally occurring radioactive material in either the goal or the limit.

ARCO believes that the proposed decommissioning criteria will not be supported by the Generic Environmental Impact Statement (GEIS). Based on ARCO's experience and considering all pathways, a numerical criteria leading to a risk of 10^{-4} leads to residual radioactivity levels that are so low that monitoring for compliance is impractical, if not technically impossible. This is

even of greater concern for uranium mill structures because levels of uranium and its decay products in the natural background would be as much as 100 times higher than the residual radioactivity from uranium mill decommissioning. This proposed criteria will lead to excessive monitoring costs and may result in excessive quantities of waste, both of which would make decommissioning extremely costly without a corresponding increase in risk reduction. The proposed criteria may also result in decommissioning costs escalating so significantly that many sites will not be remediated due to the absence of sufficient financial resources.

Establishing a limit within EPA's Superfund risk range of 10^{-6} to 10^{-4} is inappropriate for many radiologically contaminated sites governed by NRC. In most situations, a risk of 10^{-6} will result in radioactivity levels at or below detection limits and definitely far below background concentrations for natural series of radionuclides. This risk range would correspond to an external exposure rate of about 0.003 to 0.3 $\mu\text{R/hr}$. This is about 0.02 to 2 percent of the natural background levels from the external exposure pathway alone. The decommissioning criteria should consider, rather than be established at, detection limits and background levels. In the past, it was generally acknowledged that EPA's Superfund risk range was not achievable for most radiologically contaminated sites, especially when EPA's conservative pathway analyses with default parameters are used. ARCO believes that this remains the case and that the decommissioning limit should not be tied to this restrictive risk range. ARCO suggests that the NRC reconsider the need to establish a limit within EPA's Superfund risk range.

ARCO concurs that it is impractical to include radon and radon progeny in the calculation of the total effective dose equivalent (TEDE).

Consistency with CERCLA

ARCO questions whether it is appropriate for NRC to strive for consistency with EPA's program under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLA generally addresses abandoned sites at which releases or threatened releases of hazardous substances are occurring. In the instance of uranium mill tailings sites licensed by the NRC, the sites are not abandoned and will never be. To the contrary, upon license termination, uranium mill tailings sites will be under the stewardship of either the federal or

state government for long-term care. Furthermore, under the draft proposal, if a site is unable to meet the limit eventually established by NRC, institutional controls may be implemented to control access to the site and the ultimate land uses permitted at the site.

In addition, risks from radiation exposure should be treated differently from the typical risks presented by chemical exposures at CERCLA sites. EPA's own Science Advisory Board recently issued a report noting that it is unsound to treat radiation risks and chemical risks identically.

Finality of Decommissioning

NRC recognizes in the draft proposal that "it is important to provide a high level of assurance that decommissioning actions . . . will not need to be revisited in the future." Draft Proposal, p. 22. ARCO applauds NRC's attempts to strive for finality in decommissioning. Finality is a desirable objective and promotes site closure and license termination. Nevertheless, the draft proposal wholly fails to provide assurances of finality. Instead, as discussed above, NRC proposes to adopt reopeners to decommissioning. ARCO questions the need for reopeners, particularly given the overly conservative standards which already apply or are being proposed. ARCO maintains that these standards offer long-lasting protection to the public and the environment. However, if NRC continues to propose a reopener, ARCO suggests that site decommissioning be subject to a reopener only in the event that there is a demonstration that residual radioactive materials result in a TEDE exceeding 100 mrem per year.

Conclusion

As is evident from these comments, ARCO is concerned about the proposed radiological criteria and questions whether the proposed criteria are justified, workable or scientifically supportable. In light of the fact that the Commission has not yet reviewed or approved the staff draft proposal, ARCO respectfully requests NRC to give due and serious consideration to ARCO's comments in preparing the next draft of the rule for Commission review and publication in the Federal Register.

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ARCO appreciates having been provided with this advanced opportunity to comment, and would be pleased to respond to any questions you may have concerning these comments.

Respectfully submitted,

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