February 10, 1999

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: RADIOLOGICAL CRITERIA FOR LICENSE TERMINATION OF URANIUM RECOVERY FACILITIES

PURPOSE:

To obtain Commission approval to publish a final rule in the Federal Register to amend 10 CFR Part 40, Appendix A, Criterion 6(6), to provide radiological criteria for building surfaces and radionuclides other than radium in soil, for termination of uranium recovery licenses.

SUMMARY:

In a Staff Requirements Memorandum (SRM) on SECY-98-084, dated August 11, 1998 (Attachment 1), the Commission indicated that it did not object to the staff's recommendation to use the radium benchmark dose in developing a final rule applicable to uranium recovery licensees. The final rule addresses radiological criteria for decommissioning land and buildings required for license termination for uranium recovery facilities, e.g., uranium mills and in situ leach facilities (ISLs). The final rule will provide a clear and consistent regulatory basis for determining the extent to which lands and structures can be considered to be decommissioned.

BACKGROUND:

On August 22, 1994 (59 FR 43200), the U.S. Nuclear Regulatory Commission (NRC) published a proposed rule for comment in the Federal Register, to amend 10 CFR Part 20, "Standards for Protection Against Radiation," to include radiological criteria for decommissioning as subpart E. The proposed rule applied to uranium mill facilities and other NRC licensees, but did not apply to mill tailings disposal or to soil radium cleanup at mills because the radiological criteria for these activities are regulated under 10 CFR Part 40, Appendix A. Some commenters recommended that the rule exempt conventional thorium and uranium mill facilities and ISLs. In SECY-97-046A, dated March 28, 1997, entitled "Final Rule on Radiological Criteria for License Termination," the staff recommended that the final rule indicate that for uranium and thorium mill facilities the cleanup of radionuclides other than radium from soil and buildings must result in a dose no greater than the dose resulting from the cleanup of radium-contaminated soil (benchmark approach).

The SRM on SECY-97-046A (May 21, 1997) (Attachment 1) directed the staff to exclude facilities that are currently subject to 10 CFR Part 40, Appendix A (i.e., uranium and thorium mills), from the final rule to allow NRC and affected parties to give additional consideration to the resolution of issues associated with these facilities. Accordingly, on July 21, 1997 (62 FR 39093), the staff published a request for additional comments, entitled "Radiological Criteria for License Termination: Uranium Recovery Facilities." This notice addressed only uranium recovery (UR) facilities, because there are no existing thorium mills in this country and it is unlikely that one will be licensed in the foreseeable future. However, thorium mills are addressed in this final rule for consistency with Appendix A. The notice requested comments on the standard to be used for cleanup of residual radionuclides other than radium at UR facilities. One of the approaches discussed was the use of the radium standard(1) as a source term to establish a dose benchmark for the cleanup of radionuclides other than radium in soil and for cleanup of building surfaces.

After considering the public comments received as a result of the notice, the staff submitted an analysis paper to the Commission (SECY-98-084) that recommended the benchmark approach. A differing viewpoint to the benchmark approach was attached to the paper. The Commission indicated, in an SRM dated August 11, 1998, that there was no objection to the benchmark approach as presented. The staff was instructed to codify the requirement that the Commission be consulted where the benchmark dose exceeds 100 mrem/yr (1mSv/yr), continue dialogue with other agencies on how to use the various dose modeling codes through the Interagency Steering Committee on Radiation Standards, and consider the points made in the differing viewpoint to strengthen the staff's approach in developing the final rule.

DISCUSSION:

The definitions in 10 CFR 40.4 state that uranium milling is any activity resulting in byproduct material and that byproduct material is the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes (such as ISLs, heap leach, and ion-exchange facilities that produce byproduct material).

The existing radium soil standard contained in Appendix A conforms to the generally applicable U.S. Environmental Protection Agency (EPA) standards in 40 CFR Part 192, as required by the Uranium Mill Tailings Radiation Control Act of 1978. However, in some mill and ISL site areas proximate to locations where radium contamination exists, uranium or thorium would be the residual radionuclide of concern. Because Part 40, Appendix A, codifies cleanup criteria for ground water, but not for buildings or for soil contamination from radionuclides other than radium, the staff has relied on NRC guidance documents for surface activity and soil uranium and thorium cleanup criteria.

To provide the needed regulatory radiological criteria, the final rule amends Criterion 6(6) of Appendix A to establish radiological criteria for cleanup of surface activity on structures that will remain after decommissioning and for residual radionuclides (thorium and uranium) other than radium in soil. The existing radium soil standard will be used to calculate a site-specific benchmark dose. Use of this benchmark approach will provide for a common dose

criterion across a UR site for those areas contaminated with radium and for those areas contaminated with other radionuclides. It should also be noted that the 5 pCi/g radium value has been recommended as an exemption level by the Board of Directors of the Conference of Radiation Control Program Directors for the Suggested State Regulations on technologically enhanced naturally-occurring materials.

The final rule will not apply to sites that have a decommissioning plan approved by NRC. The NRC-licensed sites that will be impacted by this rule include four mill facilities and seven ISLs. Any future UR licensees would also be subject to the rule (two license applications for ISL facilities are currently under review). The only sites in the four Agreement States for byproduct material that might be impacted by this rule are seven ISLs in Texas.

The use of the radium standard as a dose benchmark for the cleanup of residual radionuclides will mean that cleanup of the top 15 cm (6 inches) of soil of radionuclides other than radium or of building surfaces, will have as a dose criterion the estimated dose resulting from cleanup to 5 pCi/g (0.19 Bq/g) radium at that site. Subsurface soil cleanup will use the estimated dose resulting from the 15 pCi/g (0.56 Bq/g) radium standard for the subsurface contaminated area at that site. The areas requiring subsurface remediation are expected to be small based on past UR facility decommissioning activities.

The benchmark approach requires the UR licensees to calculate the potential total effective dose equivalent to the average member of the critical group that will result from the radium standard within 1000 years, based on site-specific parameter values. Licensees will be required to provide justification for the models and parameter values selected in the dose calculations. Licensees will remediate the site such that the radioactive materials remaining on the site that are distinguishable from background will not result in a dose that is greater than that which would result from radium in soil at the radium standard (the surface standard would be applicable for most of the site contamination).

Using realistic parameter values and the RESRAD code, the staff has recently calculated the potential dose from the 5 pCi/g (0.19 Bq/g) surface radium standard to be between 22 and 34 mrem/yr (0.22 or 0.34 mSv/yr) for typical NRC-licensed sites that will be affected by the rule, depending on the scenario, exclusive of the radon contribution. Although it is possible that some site-specific parameter values and subsurface contamination could result in a higher benchmark dose than that estimated by the staff for the various scenarios, the staff has high confidence that a site-specific dose using the benchmark approach will typically be a small fraction of 100 mrem/yr (1 mSv/yr), and in all cases will not exceed 100 mrem/yr (1 mSv/yr). In the unlikely event that a site benchmark dose (before the application of ALARA) exceeds 100 mrem/yr (1 mSv/yr), the final rule indicates that the staff will consult with the Commission before approving such a benchmark dose.

Licensees will also be required to demonstrate that doses are "as low as is reasonably achievable" (ALARA). Application of the ALARA principle has resulted in an average residual radium level in the unrestricted release area of less than 2 pCi/g (0.07 Bq/g) based on soil cleanup data from the last three mill sites to complete remediation.

If more than one residual radionuclide is present in the same 100-square-meter (1076-square-foot) area, the sum of the ratios for each radionuclide of concentration present to the concentration limit will not exceed "1" (unity). Therefore, the benchmark dose will not be exceeded if more than one residual radionuclide is present in the same area.

Draft guidance on benchmark dose modeling and implementation is being prepared as a chapter to the UR Standard Review Plan (SRP) and will be published for public comment concurrent with the final rule.

The staff is addressing the direction expressed in the August 11, 1998, SRM to continue dialogue with other agencies. A summary of the rulemaking was presented at the September meeting of the Interagency Steering Committee on Radiation Standards. Interaction on the various modeling codes will be accomplished at public workshops and future interagency meetings. The staff also is considering the issues raised in the differing viewpoint, as the guidance is being developed.

RESOURCES:

Additional resources (0.2 FTE) to complete the rulemaking activities and guidance development in FY 1999 will be reallocated within the uranium recovery program budget from inspection work. There are sufficient resources in the FY 2000 budget to implement the rule.

COORDINATION:

This paper has been coordinated with the Office of the General Counsel and there was no legal objection. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objection. The Office of the Chief Information Officer has reviewed the final rule for information technology and information management implications and concurs in the rulemaking.

RECOMMENDATIONS:

That the Commission:

1. Approve the Notice of Final Rulemaking for publication (Attachment 2).
2. Certify that this rule, if promulgated, will not have a negative economic impact on a substantial number of small entities to satisfy the requirements of the Regulatory Flexibility Act, 5. U.S.C. 605(b).
3. Note:
    a. The environmental assessment for this rulemaking will be available in the Public Document Room (Attachment 3);
    b. A regulatory analysis was prepared and will be available in the Public Document Room (Attachment 4);
    c. A public announcement will be issued by the Office of Public Affairs when the final rulemaking is filed with the Office of the Federal

Register (Attachment 5);

d. The appropriate Congressional committees will be informed (Attachment 6);

e. All Agreement States will be sent a copy of the final rule upon approval for publication;

f. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the reasons for it, as required by the Regulatory Flexibility Act, and Congressional Review letters will also be sent (Attachment 7);

g. The final rule contains information collection requirements that have previously been reviewed and approved by the Office of Management and Budget.

William D. Travers
Executive Director for Operations

CONTACTS: Frank Cardile, NMSS/IMNS
(301) 415-6185
Elaine Brummett, NMSS/DWM
(301) 415-6606

Attachments:
1. SRMs dtd 5/21/97 and 8/11/98
2. Notice of Final Rulemaking
3. Environmental Assessment
4. Regulatory Analysis
5. Draft Press Release
6. Congressional Letters
7. Small Business Letters

ATTACHMENT 2

[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 40, Appendix A, Criterion 6 (6)
RIN 3150-AD65-2

Radiological Criteria for License Termination of Uranium Recovery Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The U. S. Nuclear Regulatory Commission (NRC) is amending its regulations regarding decommissioning of licensed thorium mills and uranium recovery facilities to provide specific radiological criteria for the decommissioning of lands and structures. This final rule uses the existing soil radium standard to derive a dose criterion (benchmark approach) for the cleanup of byproduct material other than radium in soil and for the cleanup of surface activity on structures to be released for unrestricted use. This final rule is intended to provide a clear and consistent regulatory basis for determining the extent to which lands and structures can be considered to be decommissioned.

EFFECTIVE DATE: This regulation becomes effective on [60 days after publication in the Federal Register].

FOR FURTHER INFORMATION CONTACT: Frank Cardile, telephone: (301) 415-6185; e-mail: fpc@nrc.gov; or Elaine Brummett, telephone: (301) 415-6606, e-mail: esb@nrc.gov, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is amending its regulations regarding decommissioning of licensed thorium mills and uranium recovery (UR) facilities (conventional uranium mills and uranium extraction processes such as in situ leach (ISL) facilities) to provide radiological criteria for the decommissioning of lands and structures. These criteria apply to the decommissioning of licensed UR facilities subject to the NRC's jurisdiction and will also apply to thorium mills if any become licensed in the future. The criteria apply to decommissioning of UR facilities that operate through their normal lifetime and to those that may be shut down prematurely. The NRC will apply these criteria in determining the adequacy of remediation of residual radionuclides resulting from the possession or use of byproduct material(2).

The intent of this rulemaking is to provide a clear and consistent regulatory basis for determining the extent to which lands and structures at UR facilities must be remediated before decommissioning of a site can be considered complete and the license terminated. The NRC has previously applied site release criteria for decommissioning on a site-specific basis using existing guidance for surface activity and radionuclides other than radium in soil. The NRC believes that inclusion of criteria in the regulations will result in more efficient and consistent licensing actions related to site remediation activities.

II. Background

On August 22, 1994 (59 FR 43200), the NRC published a proposed rule to amend 10 CFR Part 20 of its regulations "Standards for Protection Against Radiation" to include radiological criteria for license termination as subpart E. The proposed rule applied to uranium mills and other NRC-licensed facilities, but did not apply to mill tailings or to soil radium cleanup at mills because they are regulated under 10 CFR Part 40, Appendix A.

On July 21, 1997 (62 FR 39058), the NRC published a final rule that codified radiological criteria for license termination for NRC licensees, but excluded UR facilities. The NRC excluded UR facilities from the scope of the final cleanup rule to allow further consideration of the issues unique to the decommissioning of these facilities. These unique issues include the existing regulatory framework for UR facilities and the nature of contamination at UR facilities, both of which are discussed below.

Under the existing regulatory framework for UR facilities, the Environmental Protection Agency (EPA EXIT) has the authority to set cleanup standards for uranium and thorium mills and, based on that authority, issued regulations in 40 CFR Part 192 that contain some decommissioning criteria for these facilities. NRC's regulations in 10 CFR Part 40, Appendix A, Criterion 6(6), conform to EPA's standards for radium in soil. Appendix A also provides ground-water protection criteria.

Therefore, this rulemaking addresses only the radiological criteria for decommissioning of lands and structures. The rule only applies to those UR facilities that do not have an approved decommissioning plan for buildings and soil when the rule becomes effective. The sites with approved decommissioning plans may request an amendment to their license to adopt the criteria of this rule after the revision to Criterion 6(6) is promulgated.

The applicable cleanup standards for soil radium in 10 CFR Part 40, Appendix A, Criterion 6(6), address the main contaminant at uranium mills in the large areas where windblown contamination from the tailings pile has occurred, and to a lesser extent, at ISLs in holding/settling ponds and process or bleed solution spills. These standards require that the concentration of radium (Ra-226 at UR facilities, Ra-228 at thorium mills) not exceed the background level by more than 5 pCi/g (0.19 Bq/g) in the first 15 cm (6 inches) of soil and 15 pCi/g (0.56 Bq/g) for every subsequent 15 cm (6 inch) layer. However, in other mill and ISL site areas proximate to locations where radium contamination exists (e.g., under/around the mill/process building, in a yellow cake storage area, and under/around an ore crusher), uranium (U-nat) is the radionuclide of concern. At least one mill site must also address soil cleanup of thorium (Th-230, the parent of Ra-226, is usually in approximate equilibrium (same activity concentration) with Ra-226) because thorium is more mobile in the acidic milling solutions and leaches farther into the ground than the radium under raffinate ponds and heap leach pads. Because 10 CFR Part 40, Appendix A, does not have cleanup standards for surface activity or for soil contamination from radionuclides other than radium, NRC guidance documents have been the source of cleanup criteria for residual uranium, thorium, and building surface activity.

An additional difficulty for remediation of UR facilities is that the residual radionuclides to be addressed in the site decommissioning are also present in the surrounding background soil in elevated and widely variable concentrations. Some mill sites even have uranium mine pits and/or piles of overburden soil containing low-grade ore on or adjacent to the areas to be remediated. This complicates the determination of background values and limits the ability of the licensee to distinguish residual radioactivity from naturally occurring (in-situ) radioactivity.

To allow for consideration of these issues, the NRC also published, on July 21, 1997 (62 FR 39093), a request for additional comments on regulatory options for decommissioning of UR facilities. Included as part of the request was a discussion of an option to codify a dose objective for radionuclides other than radium (uranium and thorium) at UR facilities consistent with the radium cleanup standard. Under this approach, UR facilities would use the

dose, excluding radon, from radium at the cleanup standard in existing 10 CFR Part 40, Appendix A, Criterion 6(6), as a benchmark for the cleanup of building surface activity and radionuclides other than radium in soil. Commenters were requested to provide input on options for decommissioning and, specifically, on the benchmark approach.

Use of the benchmark approach would provide for a common dose criterion across a UR site for those areas contaminated with radium and for those areas contaminated with other radionuclides.

The radium dose benchmark approach would require UR licensees subject to the rule to calculate the potential total effective dose equivalent to the average member of the critical group for the site that would result from the radium standard within 1000 years, based upon site-specific parameters. These licensees would be required to provide justification for the models and parameters selected in the dose calculations. The dose from the 5 pCi/g (0.19 Bq/g) radium standard would be applicable for most of the site contamination. Licensees would then remediate the site such that the residual radionuclides (byproduct material) remaining on the site that are distinguishable from background would not result in a dose that is greater than that which would result from the radium soil standard. The radionuclides of concern are uranium and thorium, because it is assumed that the progeny of Ra-226 are at acceptable levels when the radium standard is achieved. Licensees would also be required to demonstrate that doses were "as low as is reasonably achievable" (ALARA). In the unlikely event that a site benchmark dose (before application of ALARA) exceeds 100 mrem/yr (1 mSv/yr), the NRC staff would consult with the Commission before approving such a benchmark dose.

III. Summary of Public Comments and Responses to Comments

Comments received on the 1994 proposed rule for 10 CFR Part 20 subpart E were summarized in NUREG/CR-6353 and in the final rule notice (62 FR 39058, July 21, 1997). The eleven responses (nine commenters) to the July 21, 1997, request for additional comments on radiological criteria for UR facilities are addressed here.

A. COMMENTS ON APPROACH TO THE CRITERIA

One commenter indicated that the standards should be technically-based, protective of human health, and based on a substantial fraction of the 100 mrem/yr (1 mSv/yr) public dose limit. The use of dose-objective standards was encouraged. Evaluation of radon and thoron exposure was considered essential. This commenter also pointed out that the benchmark approach would codify a different dose limit for each facility.

The EPA commented that the soil radium standard of 5 pCi/g (0.19 Bq/g) is consistent with the minimally acceptable dose limit of 15 mrem/yr (0.15 mSv/yr) for the residential scenario, and that for other land use scenarios, the cleanup standards are more stringent for Ra-226, Ra-228, Th-232, and Th-230. The EPA also cautioned that a dose limit for uranium cleanup should not exceed 15 mrem/yr (0.15 mSv/yr).

A third commenter stated that the proposed rule is not acceptable because doses resulting from the benchmark approach could exceed 100 mrem/yr; NRC's existing guidance on cleanup of uranium, thorium, and surface activity should be used to set the minimum requirements; the expected dose from the radium standard should be clarified; the radon dose should be included in demonstrating compliance; and the time frame for dose modeling should be 10,000 years. The commenter also indicated that the proposed approach seems to allow a total dose of twice the radium dose; and that if more types of areas are to be included than those indicated in the proposal, then the enlargement of scope would require additional notice and review.

Six other commenters supported the Ra-226 benchmark dose approach for cleanup of other radionuclides such as U-nat, Th-230, and Th-232. These commenters indicated that the existing regulatory framework is appropriate and provides for flexibility to allow optimum tailings disposal on a site-specific basis. One of these commenters also pointed out that uranium mill sites will be turned over to the custodial care of the Department of Energy (DOE EXIT) or the State for long-term care, effectively eliminating substantial portions of these sites from the public exposure pathways. In addition, some of the vicinity properties remediated with neighboring abandoned mills (under the DOE's's Uranium Mill Tailings Remedial Action Project) have deposits of contamination (Ra-226, Th-230, or U-nat) above the limits remaining under the supplemental standards provisions of 40 CFR 192.21.

A. Response: The NRC agrees with the need to develop regulations that are protective of public health and safety with regard to decommissioning of UR facilities. NRC has previously addressed considerations related to radioactivity and dose to the public, public health aspects, fraction of the 100 mrem/yr (1 mSv/yr) dose, and the rationale for excluding the radon dose in Sections A.2.2.1, A.2.2.2, and F.6 of the July 21,1997, Federal Register notice (62 FR at 39060-64 and 39082) for the final rule for 10 CFR Part 20, subpart E; those discussions remain applicable to this final rulemaking.

As discussed above, the UR facilities have large areas contaminated with radium in soils where the existing radium standard is applied. The NRC believes that it is important to promulgate cleanup standards for other residual radionuclides that are consistent with the radium cleanup standards. Use of such an approach would result in a common dose criterion across an entire UR site, both for those areas contaminated with radium and for those areas contaminated with uranium and thorium. As noted above, the 5 pCi/g radium standard was promulgated by EPA for UR sites. The 5 pCi/g radium value has also been recommended as an exemption level by the Board of Directors of the Conference of Radiation Control Program Directors (October 1998) for the Suggested State Regulations on technologically enhanced naturally occurring materials.

The NRC staff's preliminary dose modeling indicates that at typical UR facilities, where the background radiation results in doses of over 200 mrem/yr (2.0 mSv/yr), the Ra-226 standard of 5 pCi/g (0.19 Bq/g) could typically result in a potential dose on the order of 20 to 35 mrem/yr (0.2 to 0.35 mSv/yr). Although it is possible that some site-specific parameter values and subsurface contamination could result in a higher benchmark dose than that estimated by the staff for the various scenarios, the staff has high confidence that a site-specific dose using the benchmark approach will typically be a small fraction of 100 mrem/yr (1 mSv/yr), and in all cases will not exceed 100 mrem/yr (1 mSv/yr). The rule also requires licensee's to demonstrate that doses are ALARA which should result in a potential dose of less than 25 mrem/yr (0.2 mSv/yr) from the residual Ra-226 on the remediated site for most sites. Therefore, the potential health risk should be similar to the NRC dose limit established for other facilities in Part 20, subpart E, and approximate the level suggested in the EPA comment.

The radium benchmark dose modeling results are greater than the 5 pCi/g (0.19 Bq/g) radium modeling results reported by the EPA. The main reason

for the difference in results is that the EPA modeled a much smaller area of contamination than that used by NRC staff (100 m^2 versus 404,687 m^2). What is not factored into the dose modeling is the low probability of anyone constructing a house or growing a large garden on the areas of residual contamination at these facilities. The UR facilities are in semi-arid (7-15 inches (18-39 cm) annual precipitation), sparsely populated areas (1-13 persons/$mile^2$(0.4-5 persons/km^2)) where mining and grazing (3 cows/acre (1 cow/1348 m^2)) are the main land uses.

The existing regulatory framework does not provide criteria for the cleanup of radionuclides other than radium in soil. Also, the existing guidance does not provide dose criteria, so additional criteria are warranted. In areas where there is more than one residual radionuclide, the benchmark dose would apply to the sum of all radionuclides present in that area (i.e., radium, uranium, thorium, etc.). This is indicated in the rule text, and in draft guidance for implementation of the benchmark approach, where it is stated that, for each 100 m^2 area, the unity rule will apply such that the sum of the ratios for each radionuclide of the concentration present to the concentration limit may not exceed "1" (i.e., unity). The rule text and guidance also stipulate that the total effective dose equivalent limit is based on the maximum annual dose within a 1000 year period. This time frame is in keeping with the EPA regulatory time frame for these facilities (40 CFR Part 192).

Only portions of uranium mill sites and no portion of ISL facilities are anticipated to be turned over to the custodial care of Government entities. The radium standard applies to all areas of a site except the disposal cell, regardless of future use. The NRC staff plans a similar approach for the criteria for other radionuclides. The restricted use of areas that will be in perpetual custodial care could be considered under the ALARA provision, if cleanup is difficult or expensive in these areas.

B. RADIONUCLIDES AT UR SITES ARE NATURALLY OCCURRING AND OF VARIABLE CONCENTRATION IN NATURE

Several commenters indicated that the residual radionuclides at UR sites (uranium, thorium, radium) are naturally occurring in the local environment and that there is significant variability in soil background concentrations of these radionuclides, in particular at UR facilities where uranium pit mines or mineral outcrops exist. This leads to variability in potential dose such that the 25 mrem/yr (0.25 mSv/yr) dose in Part 20 subpart E would be indiscernible in the natural variability of background at a UR site. Any concentration standard must account for the significant variability in background and state that the limits are for "concentrations above background" at the different areas of the site. Also, two commenters indicated that a statistical approach, not just an average value, should be used to determine the background values for a site.

It was also mentioned that measurement of U-238 and Th-230 at levels above background, which result in an annual dose to residents of 25 mrem (0.25 mSv), would not be possible using reasonably available field techniques and that the additional cost of laboratory analyses to demonstrate compliance could be $100,000 per acre.

Several commenters stated that there is no reliable way to distinguish natural (in situ) ore material from processed (licensed) ore. A related concern was that decommissioning standards for UR facilities must not regulate mining activities and the associated ore material that may be present at UR sites.

B. Response: As noted above in Section II, and as described in the rule implementation guidance, the radionuclide dose limit is applied to the level of licensed (byproduct) material distinguishable from background. Site cleanup guidance indicates that background values should be based on areas with characteristics similar to the contaminated area(s) and that distinct areas of the site could have different background values. Statistical approaches, such as those discussed in the Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575 EXIT, 1997), will be considered.

Field measurements for soil U-nat and Th-230 in general are difficult and not just in the concentration equivalent of 25 mrem/yr (0.25 mSv/yr). Laboratory measurements are practical because site-specific dose modeling provides derived concentration limits for U-nat and Th-230 that can exceed current guideline values. For most sites, cleanup of soil U-nat and Th-230 would involve less than an acre (4,047 m^2). Therefore, the costs of sampling and of laboratory analysis for these radionuclides would be a minor part of the decommissioning costs.

Distinguishing in situ ore from processed ore material can be a problem on some sites and is addressed in the guidance. The NRC will regulate only NRC-licensed materials remaining at UR facilities, not in situ ore or mine waste. In determining compliance with the new regulation, the NRC staff will consider 10 CFR 40.42(j) and (k) that state, in part, that as a final step in decommissioning, the licensee shall demonstrate that the site is suitable for release and that reasonable effort has been made to eliminate residual radioactive contamination.

C. CONSIDERATIONS OF RISKS, COSTS, AND BENEFITS OF CLEANUP

Several commenters pointed out that the actual risk of excavating and moving dirt (construction and transport accident risks that are actuarial) must be compared against health risks of radiation exposure which have not been demonstrated below 10 rem/yr (0.1 mSv/yr). The risk of cleaning up areas to below regional background levels would likely result in net human health and environmental detriment. Lowering of the current radium standard for uranium and thorium could cause undue economic burden to industry and the Government based on the need for cleanup of large soil areas and would not result in significant (if any) risk reduction.

At ISL facilities, lowering dose criteria could result in large areas retroactively becoming disposal areas requiring substantial and costly cleanup, and could inhibit efficiency of mining if irrigation practices with restoration fluids were effectively prohibited.

C. Response: The NRC considered the risk of the cleanup work in the regulatory analysis. The radium standard is not lowered by the rulemaking; therefore, there is no undue economic burden for licensees. Providing a radium benchmark dose standard for U-nat and Th-230 should not result in significant decrease in the soil concentration allowed to remain, compared to current guidance.

D. REGULATORY GUIDANCE

Several commenters offered suggestions for regulatory guidance and requested that the regulatory guidance implementing the standard include determination of background and dose modeling flexibility.

D. Response: The NRC recognizes that there may be difficulties in the determination of background concentrations of radionuclides at some UR facility sites. The NRC staff has prepared guidance (in the form of evaluation criteria) on mill site cleanup in the draft Standard Review Plan (SRP) for reclamation plans. This draft SRP will soon be published for public comment. The NRC staff is preparing another chapter of this SRP to address the implementation of the radium benchmark dose approach and dose modeling flexibility for this unique set of licensees. This chapter will also be published as a draft for public comment before finalization and incorporation into the SRP.

IV. Agreement State Compatibility

This rule will be a matter of compatibility between the NRC and the Agreement States, thereby providing consistency among State and Federal safety requirements. The final rule on radiological criteria for license termination for nuclear facilities issued July 21, 1997 (62 FR 39058), was determined to be a Division 2 matter of compatibility under the previous Commission policy for Agreement State compatibility. As noted for that final rule (at 62 FR 39079), Division 2 rules address basic principles of radiation safety and regulatory functions. Although Agreement States must address these principles in their regulations, the use of language identical to that in NRC rules is not necessary if the underlying principles are the same. Also, the Agreement States may adopt requirements more stringent than NRC rules. Under the current NRC policy, Category C compatibility would be consistent with that indicated in 62 FR 39079, and, hence, the NRC has determined that this rule will be a Category C matter of compatibility.

V. Finding of No Significant Environmental Impact: Availability

The NRC has determined under the National Environmental Policy Act of 1969, as amended, and the regulations in Subpart A of 10 CFR Part 51, that this rule will not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The final rule amends the NRC's regulations in 10 CFR Part 40 to include radiological dose criteria for decommissioning of lands and structures at UR facilities. The rule will affect 11 current NRC licensees. The environmental impact of this rule will be insignificant compared to current practice and to the decommissioning process in general because the areas requiring cleanup for residual radionuclides other than radium are small.

The final environmental assessment and finding of no significant impact on which this determination is based are available for inspection in the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. Single copies of the environmental assessment and the finding of no significant environmental impact are available from Elaine Brummett, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Mailstop T7-J9, Washington, DC 20555-0001, telephone (301) 415-6066.

VI. Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0014.

PUBLIC PROTECTION NOTIFICATION
If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

VII. Regulatory Analysis

The NRC has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the NRC. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Frank Cardile, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, MailstopT-C24, Washington, DC 20555-0001, telephone (301) 415-6185.

VIII. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the NRC certifies that this rule, if adopted, does not have a significant economic impact upon a substantial number of small entities. The rule will affect 11 current NRC licensees and any future licensees who will be conducting uranium milling operations. These licensees are not small entities as defined in 10 CFR 2.810.

IX. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and therefore, a backfit analysis is not required for this final rule because these amendments do not involve reactor operations and do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

X. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a "major" rule and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

XI. Criminal Penalties

For the purposes of Section 223 of the Atomic Energy Act (AEA), the NRC is issuing the final rule under one or more of sections 161b, 161i, or 161o of the AEA. Willful violations of the rule will be subject to criminal enforcement.

LIST OF SUBJECTS
10 CFR Part 40

Criminal penalties, Government contracts, Hazardous materials transportation, Nuclear materials, Reporting and recordkeeping requirements, Source material, Uranium.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR Part 40.

PART 40--DOMESTIC LICENSING OF SOURCE MATERIAL

1. The authority citation for Part 40 continues to read as follows:

Authority: Secs. 62, 63, 64, 65, 81, 161, 182, 183, 186, 68 Stat. 932, 933, 935, 948, 953, 954, 955, as amended, secs. 11e(2), 83, 84, Pub. L. 95-604, 92 Stat. 3033, as amended, 3039, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2014(e)(2), 2092, 2093, 2094, 2095, 2111, 2113, 2114, 2201, 2232, 2233, 2236, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688 (42 U.S.C. 2021); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 275, 92 Stat. 3021, as amended by Pub. L. 97-415, 96 Stat. 2067 (42 U.S.C. 2022); 193, 104 Stat. 2835 as amended by Pub. L. 104-134, 110 Stat. 1321, 1321-349 (42 U.S.C. 2243).

Section 40.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 40.31(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 40.46 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 40.71 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In 10 CFR Part 40, Appendix A, Criterion 6(6), a second paragraph is added to read as follows:

* * * * *

Byproduct material containing concentrations of radionuclides other than radium in soil, and surface activity on remaining structures, must not result in a total effective dose equivalent (TEDE) exceeding the dose from cleanup of radium contaminated soil to the above standard (benchmark dose), and must be at levels which are as low as is reasonably achievable. If more than one residual radionuclide is present in the same 100-square-meter area, the sum of the ratios for each radionuclide of concentration present to the concentration limit will not exceed "1" (unity). A calculation of the potential peak annual TEDE within 1000 years to the average member of the critical group that would result from applying the radium standard (not including radon) on the site must be submitted for approval. If the benchmark dose, before application of ALARA, exceeds 100 mrem/yr, the staff will consult the Commission before approving the decommissioning plan.

This requirement for dose criteria does not apply to sites that have decommissioning plans for soil and structures approved before the effective date of this rule.

* * * * *

Dated at Rockville, Maryland, this day of 1999.

For the Nuclear Regulatory Commission

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Annette L. Vietti-Cook,
Secretary of the Commission

ATTACHMENT 3

FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

FINAL RULE: RADIOLOGICAL CRITERIA FOR LICENSE TERMINATION OF URANIUM RECOVERY SITES

The action being considered in this Final Environmental Assessment (EA) is an amendment to the U.S. Nuclear Regulatory Commission's (NRC) regulations in 10 CFR Part 40, Appendix A, to include radiological dose criteria for decommissioning of lands and structures at thorium mills and uranium recovery (UR) facilities (uranium mills and in situ leach facilities (ISLs)). Under the National Environmental Policy Act (NEPA), all Federal agencies must consider the effect of their actions on the environment. To fulfill NRC's responsibilities under NEPA, the NRC has prepared this EA which analyzes alternative courses of action and the costs and health impacts associated with those alternatives. Environmental consequences other than those directly affecting human health were also considered. In addition, staff considered the comments received on the proposed rule "Radiological Criteria for Decommissioning" for Part 20 subpart E (59 FR 43200, August 22, 1994) and on the request for additional comments on radiological criteria for UR

facilities (62 FR 39093, July 21, 1997).

Impacts were previously evaluated for the entire decommissioning process for NRC-licensed nuclear facilities and are described in NUREG-0586 (NRC 1988) and in NUREG-1496 (NRC 1997). Because the decontamination of structures and removal of contaminated soils are components of decommissioning, some of the same activities and impacts considered for this EA were discussed in those documents. The staff also considered that a site specific EA or Environmental Impact Statement (EIS) would be required before approval of a site decommissioning plan or license amendment related to a major decommissioning activity.

An EIS is not required for this rulemaking because the rule is not a major Federal action significantly affecting the quality of the human environment and the Commission has not determined that the rule should be covered by an EIS. The impact of the rule will be very minor compared to current guidance because the areas requiring cleanup for residual radionuclides other than Ra-226 are small and the impact is insignificant compared to the total decommissioning process.

BACKGROUND

There are existing regulations applicable to remediation of both inactive uranium mill sites (including vicinity properties) and active thorium and uranium mills. Under the Uranium Mill Tailings Radiation Control Act of 1978, as amended, the Environmental Protection Agency (EPA) has the authority to set cleanup standards for thorium and uranium mills and, based on that authority, issued regulations in 40 CFR Part 192 that contain some decommissioning criteria for these facilities. NRC's regulations in 10 CFR Part 40, Appendix A, Criterion 6(6), conform to EPA's standards for radium in soil. Because 10 CFR 40.4 defines uranium milling as any activity resulting in byproduct material,[(3)] Part 40, Appendix A, applies to ISLs, heap leach, and ion-exchange facilities that produce byproduct material, as well as uranium and thorium mills.

Also, 10 CFRPart 40, Appendix A, provides ground-water protection criteria, and there are no currently licensed or planned thorium mills. Therefore, this EA addresses only the radiological criteria for decommissioning of lands and structures at UR facilities.

Decommissioning of ISLs is similar to that of mills because the type of soil and building contamination is the same, consisting mainly of residual radium (Ra-226) and uranium (U-nat). The applicable cleanup standards for soil radium (Ra-226) in 10 CFR Part 40, Appendix A, Criterion 6(6), address the main contaminant at uranium mills in the large areas (30 to 1000 acres) (12-405 hectares) where windblown contamination from the tailings pile has occurred, and at ISLs (in holding/settling ponds and spills). These standards require that the concentration of radium not exceed the background level by more than 5 pCi/g (0.19 Bq/g) in the first 15 cm (6 inches) of soil, and 15 pCi/g (0.56 Bq/g) for every subsequent 15 cm (6 inch) layer. However, in other mill and ISL site areas proximate to locations where radium contamination exists (e.g., under the mill building, in a yellow cake storage area, and under/around an ore crusher), uranium or (under acidic raffinate ponds) thorium (Th-230, the parent of Ra-226) would be the radionuclide of concern. Because 10 CFR Part 40, Appendix A, does not have cleanup standards for building surface activity or for soil contamination from radionuclides other than radium, NRC guidance documents have been the source of cleanup criteria.

In issuing the final decommissioning rule in Part 20, Subpart E (dose limit of 25 mrem/yr (0.25 mSv/yr)), the NRC excluded facilities that are currently subject to 10 CFR Part 40, Appendix A, (e.g., uranium mills and ISLs) based on the complexity of the issues surrounding these sites and decided that NRC and affected parties should give additional consideration to the resolution of the issues.

On July 21, 1997 (62 FR 39093), the staff published a request for additional comments, entitled "Radiological Criteria for License Termination: Uranium Recovery Facilities." The staff summarized the history of this rulemaking and indicated that the main contaminant at uranium mills in the large areas where windblown contamination from the tailings pile has occurred and at ISL holding ponds and pipe spills is radium. The soil radium standard would generally result in doses greater than the 25 mrem/yr (0.25 mSv/yr) for all radionuclides and all pathways standard in the final "Radiological Criteria for License Termination" rule. The notice requested specific comment on an approach for addressing decommissioning criteria for UR facilities and discussed the radium benchmark approach.

After considering the public comments received as a result of the FRN, the NRC has approved use of the benchmark approach. The NRC-licensed sites that could be impacted by this rule consist of four mill facilities and seven ISLs that do not have detailed decommissioning (buildings and soil) plans approved. Also, two applications for new ISL facilities in Wyoming are under review.

The NRC-licensed sites are in New Mexico, Wyoming, Utah, and Nebraska. The locale is typically high desert (7-14 inches (18 to 35 cm) of precipitation/year) with low population density (1-3 people per square mile (0.4-1/km^2)), and mining and ranching (3 cows/acre (1/1348 m^2)) as the predominate land use in the area. The Nebraska site (15.6 inches (39.3 cm) of precipitation/year) is the only one likely to support a resident farmer. In the four agreement States for byproduct material, the only sites likely to be impacted by this rule (do not have approved decommissioning plans) are seven ISLs in Texas.

PROPOSED ACTION

The rulemaking requires the use of the existing soil radium standard (10 CFR Part 40, Appendix A, Criterion 6(6)) to develop a site-specific dose benchmark for the cleanup of residual radionuclides (byproduct material), other than radium, at UR sites. The benchmark approach would ensure that the dose limit across the UR site would be equal for all radionuclides (other than radon) and that this approach will not be more restrictive than the EPA standard for soil radium. Sites that have completed decommissioning or have approved detailed decommissioning plans addressing soil and building cleanup at the time this rule becomes effective will not have to demonstrate compliance with this rule (grandfathered sites).

The benchmark dose would apply to surface cleanup (building surface activity or the top 15 cm (6 inches) of soil) of radionuclides other than radium and is the estimated dose resulting from cleanup to the 5 pCi/g (0.19 Bq/g) Ra-226 standard at that site. For the small areas requiring the use of the subsurface soil cleanup, the estimated dose resulting from the 15 pCi/g (0.56 Bq/g) radium standard at that site would be used. The same concept of

regulation (using a Ra-228 benchmark dose) would be applicable to thorium mills if any are licensed in the future.

The benchmark approach will require UR licensees to calculate the potential dose to the average member of the critical group that would result from the radium standard within 1000 years based upon site-specific parameter values. Licensees would be required to provide justification for the models and parameter values selected in the dose calculations. Licensees would remediate the site such that the radioactive materials remaining on the site that are distinguishable from background would not result in a dose that is greater than that which would result from application of the radium soil standard (the surface standard would be applicable for most of the site contamination). For areas containing more than one residual radionuclide, the benchmark dose should not be exceeded (unity rule). In addition, UR licensees would be required to demonstrate that doses were "as low as is reasonably achievable" (ALARA). Application of the ALARA principle has resulted in an average residual radium level in the unrestricted release area of less than 2 pCi/g (0.07 Bq/g) based on soil cleanup data from the last three mill sites to complete remediation.

Guidance on dose modeling for the benchmark approach is being developed in conjunction with the standard review plans for uranium mill reclamation and ISL licensing. The guidance includes evaluation criteria for implementation of the benchmark dose approach.

Using realistic parameter values for typical sites that would be affected by the rule, and the RESRAD code, the staff has recently calculated that the potential dose from the 5 pCi/g (0.19 Bq/g) surface radium standard is between 22 and 34 mrem/yr (0.22 and 0.34 mSv/yr) depending on the scenario, exclusive of the radon contribution. This typical UR site-specific dose range may not be bounding for all the UR sites. The subsurface benchmark dose would add some dose, but the model input would be based on the area likely to require application of the subsurface radium standard in the portion of the site to be released for unrestricted use. For mill sites, the deeper excavations have been in the area to be deeded to the perpetual custodian. At ISLs, the areas requiring subsurface cleanup would be very limited. Another important consideration relative to the UR facilities' impact to the public health is the low probability of someone building a house or planting a large garden on the areas of residual radioactive contamination in the forseeable future.

Although it is possible that some site-specific values would result in a higher benchmark dose than that estimated by the staff, the staff has high confidence that a site-specific dose using the benchmark approach will generally be a small fraction of 100 mrem/yr (1 mSv/yr), and in all cases will not exceed 100 mrem/yr (1 mSv/yr). In the unlikely event that a site benchmark dose (before the application of ALARA) exceeds 100 mrem/yr (1 mSv/yr), the staff will consult with the Commission before approving such a benchmark dose.

NEED FOR ACTION

The NRC guidance currently being used to cleanup residual radionuclides in soil (other than radium) and surface activity, will no longer be used because 10 CFR 20 subpart E requires a dose-based criteria. The NRC believes that radiological criteria for decommissioning of UR facilities should also be dose-based and codified in its regulations so that the NRC can more effectively and consistently regulate decommissioning sites and still assure protection of the public health and the environment after license termination.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

Decommissioning activities at UR facilities include physical removal of the contaminated soils to depths of usually 3-12 inches (7.6-30.5 cm) followed by conditioning and revegetating of the disturbed area. Buildings are demolished and buried in an authorized disposal cell or cleaned and reused. A Generic Impact Statement was prepared for decommissioning of different types of NRC-licensed sites (NUREG-1496) that encompasses these activities. Also, where warranted, site surveys for State and Federally listed or candidate threatened or endangered species would be made prior to any land disturbance outside of the UR facility structures. These and other environmental impacts, as well as cultural impacts, would be addressed in an EIS or EA for each UR facility at the time of decommissioning of that facility.

The environmental effect of the proposed rule would be a small fraction of the effects created by soil cleanup to the soil radium standard because of the small areas that would require remediation for radionuclides other than radium. The impacts resulting from this rule would be insignificant and indistinguishable from those due to the general site decommissioning activities.

ALTERNATIVES TO THE PROPOSED ACTION

The staff considered several alternatives for resolution of the issue of radiological criteria for radionuclides other than radium, for uranium recovery facilities. The ALARA process would apply to all alternatives considered. The alternatives to the benchmark approach considered are:

1. No Action (Status Quo)

Continue with the case-by-case approach, using existing guidance for radionuclides other than radium. Radium is limited to the existing standard. Under NRC guidance, uranium is limited to 30 pCi/g (1.11 Bq/g) total uranium, with Th-230 and its progeny near background levels. There are no standards for thorium-230 (Th-230) but one approach is application of the 5 and 15 pCi/g (0.19 and 0.56 Bq/g) standard. Higher concentrations of uranium or thorium may be justified on a case-by-case basis. All-pathway (except radon inhalation) dose estimates could approach 100 mrem/yr (1 mSv/yr), depending on site-specific conditions and assumed future land use.

2. Part 20 subpart E (25 mrem/yr) for all radionuclides

Apply the same criteria as promulgated by the NRC on July 21, 1997, in Part 20, subpart E, for other NRC-licensed facilities, i.e., the concentration of residual radioactive material that is distinguishable from background shall result in a dose to the average member of the critical group of no more than 25 mrem/yr (0.25 mSv/yr) from all pathways and all radionuclides.

3. Part 20 subpart E (25 mrem/yr) for radionuclides other than radium

Apply the 25 mrem/yr (0.25 mSv/yr) standard to all radionuclides except radium and the existing radium standard for radium-contaminated areas.

ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

Based on potential doses resultant to decommissioning typical UR sites under the different alternatives, Alternative 2 could provide for somewhat lower potential doses and would result in more soil removal than Alternative 1 or Alternative 3. Alternative 3 could provide a slightly lower potential dose level than Alternative 1 and could result in more soil removal, especially for the one site that has thorium contamination. Because Alternative 2 would not be consistent with existing NRC and EPA regulations in 10 CFR Part 40 and 40 CFR Part 192, respectively, it was considered unfeasible. Because actual soil and building cleanup at mills done under existing guidance (Alternative 1) can result in potential doses of less than 20 mrem/year, the staff concluded that the environmental impacts of Alternatives 1 and 3 compared to the benchmark approach would be minor.

AGENCIES AND PERSONS CONSULTED

On December 17, 1996, representatives of the Agreement States (Steve Collins, State of Illinois and Ken Weaver, State of Colorado) attended a meeting at NRC Headquarters to discuss "Policy Decisions on the Final Rule on Radiological Criteria for Decommissioning." The agenda included the topic of disposition of uranium and thorium mills. Consideration was given to benchmarking the doses from uranium and thorium to existing values for soil radium in 10 CFR Part 40, Appendix A. The agreement States and other agencies also had the opportunity to comment on the July 21, 1997, Federal Register Notice, "Radiological Criteria for License Termination: Uranium Recovery Facilities."

Written comments on the July 1997 notice were provided by the Director of the EPA Center for Cleanup and Reuse, the Chief of the Division of Radioactive Materials for the State of Illinois, two industry representatives, four NRC licensees, and an officer of a New York public interest group. These documents are available in the Public Document Room.

Agencies in the seven States with UR facilities and one State agency with oversight of the decommissioning of a former thorium mill were individually contacted as indicated:

February 9, 1998, Joseph Klinger, Chief of the Division of Radioactive Materials, Office of Radiation Safety, Illinois Department of Nuclear Safety. Mr. Klinger asked if NRC would consider applying similar standards to naturally occurring radioactive materials. He stated that the radium benchmark approach was acceptable for the desert environments of UR facilities.

February 10 and October 2, 1998, Gary Robertson, Head of the Waste Management Section, Division of Radiation Control, Washington Dept of Health. He indicated that the one operational UR site had its closure plan approved in 1995. No concerns were expressed

August 24, 1998, Ruth Mc Burnie, Director of the Division of Licensing, Registration, and Standards, Bureau of Radiation Control, Texas Department of Health. No concerns were expressed.

August 26, 1998, Benito Garcia, Chief of Hazardous and Radiological Materials Bureau, New Mexico Department of the Environment. He indicated that the changes to soil and building cleanup standards are not a concern.

September 30, 1998, Cheryl Rogers, Program Manager for Radiation Materials and John Fassell, Acting Program Manager for Low Radioactive Waste, Nebraska Department of Health and Human Services. Mr. Fassell indicated that a dose-based criteria for uranium of approximately 25 mrem/yr (0.25 mSv/yr) is better than the existing guidance that results in less than 15 mrem/yr (0.15 mSv/yr).

September 30, 1998, David Finley, Administrator of Solid and Hazardous Waste and Mark Moxley, District 2 Supervisor, Wyoming Department of Environmental Quality. The new rule would have little impact on the environment. The areas remediated by the Wyoming Abandoned Mine Lands Program have a 20 pCi/g radium soil surface standard.

October 2, 1998, Jeffery Deckler, Division of Hazardous Waste, Colorado Department of Public Health and the Environment. No comments were provided.

October 2, 1998, William Sinclair, Director of Radiation Control Division, Utah Department of Environmental Quality. No comments were provided.

CONCLUSION

This rule will not result in significant effects on the quality of the environment because the impact of the rule would involve a small area of the site and any effect would be a small fraction of the effects created by soil cleanup to the soil radium standard. The impacts resulting from this rule will be insignificant and indistinguishable from those due to the general site decommissioning activities, which also include restoration of vegetation and acceptable site grading. In addition, the impacts of decommissioning will be addressed in an EIS or EA on a site-specific basis before the decommissioning activities begin at a UR facility.

REFERENCES

NRC. 1988. Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities. NUREG-0586. U.S. Nuclear Regulatory Commission, Washington, D.C.

NRC. 1997. Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for license Termination of NRC-Licensed Nuclear Facilities. NUREG-1496 Vol.1. U.S. Nuclear Regulatory Commission, Washington, D.C.

1. Statement of Problem

Amendment of the U.S. Nuclear Regulatory Commission's (NRC) regulations in 10 CFR Part 40 regarding decommissioning of licensed facilities to provide specific radiological criteria for the decommissioning of lands and structures at uranium recovery (UR) facilities is necessary to provide a clear and consistent regulatory basis for determining the extent to which lands and structures at UR facilities (i.e., uranium mills and in situ leach (ISL) facilities) must be remediated before decommissioning of a site can be considered complete and the license terminated. The NRC has previously applied certain site release criteria for decommissioning on a site-specific basis, using existing guidance. The NRC believes that inclusion of specific radiological criteria in the regulations will result in more efficient and consistent UR licensing actions.

On July 21, 1997, the staff published in the Federal Register a final rule that codified radiological criteria for license termination under subpart E of 10 CFR Part 20, for all NRC licensees except UR facilities (62 FR 39093). Although the proposed rule was to apply to all NRC licensees (59 FR 43200, August 22, 1994), the NRC excluded UR facilities from the scope of the final subpart E rule to allow further consideration of the issues unique to decommissioning of these facilities. Specifically, the NRC published a request for additional comments on regulatory options for decommissioning of UR facilities (62 FR 39093, July 21, 1997). One option discussed in the notice was to codify a dose objective for radionuclides other than radium (principally uranium and thorium) at UR facilities consistent with the radium cleanup standard already in place for those sites in 10 CFR Part 40, Appendix A and in 40 CFR Part 192. Under this approach, UR facilities would use the dose from radium in existing

10 CFR Part 40, Appendix A, Criterion 6(6), as a benchmark for the cleanup of building surface activity and radionuclides other than radium in soil. Use of this approach would thus allow for consistent criteria to be applied across the site. Commenters were requested to provide input on options for decommissioning, and specifically on the benchmark approach.

2. Objectives

The objectives of this rulemaking are to codify radiological criteria for license termination of UR facilities based on the considerations described in the notice soliciting public comment on July 21, 1997 (62 FR 39093). These considerations would include existing radium soil standards, consistency of standards across the UR facility site, public health and safety, cost-benefit impacts, and as low as is reasonably achievable (ALARA) provisions.

3. Alternatives

For this regulatory analysis, the staff has considered several alternatives for resolution of the issue of radiological criteria for radionuclides other than radium for UR facilities.

Alternative 1 -Take No Action

In this approach, the staff would continue with the case-by-case decisions using existing guidance. Radium is limited to the standards in 10 CFR Part 40, Appendix A, Criterion 6(6). Total (natural) uranium is limited in guidance to 30 pCi/g (1.1 Bq/g), with its decay products (thorium-230 and its progeny) at background levels. Thorium (both thorium-232 and thorium-230) has been considered to be limited to the radium standard. Higher concentrations of uranium or thorium have been justified on a case-by-case basis, using an ALARA analysis.

This approach was rejected because it does not achieve the objectives of this rule, i.e., it does not codify radiological criteria for UR facility license termination and does not provide a consistent approach considering potential doses across an individual UR site or between UR sites. In addition, existing guidance upon which this approach is based is in need of updating and will be discontinued.

Alternative 2 - Regulatory Guidance

In this approach, the staff would revise the existing guidance to be based on evaluation of potential dose. This alternative was rejected because it would not provide the necessary regulatory basis to mandate particular licensee actions. In order to maintain regulatory flexibility consistent with current regulatory needs, changes to the way in which license termination activities are regulated are necessary.

Alternative 3 - Rulemaking

Under this alternative, there are three rulemaking suboptions. These suboptions include: 3(a) applying the criteria of subpart E (62 FR 39058) to all site areas; 3(b) applying the criteria of subpart E to radionuclides other than radium and using the existing radium standard for radium-contaminated areas;

and 3(c) using a radium benchmark approach for radionuclides other than radium. Briefly, these options are as follows:

3(a) Apply the criteria of the subpart E cleanup rule to all site areas

In this alternative, the criteria contained in the final cleanup rule promulgated on July 21, 1997, for all facilities except UR facilities (Subpart E to 10 CFR Part 20) would be applied to all site areas, including those where the principal contaminant is radium. Therefore, the concentration of residual radioactive material (i.e., byproduct material) that is distinguishable from background would result in a dose to the average member of the critical group of no more than 25 mrem/yr (0.25 mSv/yr) from all pathways (other than radon inhalation) before application of ALARA.

This approach was rejected because it would involve instituting a standard for the radium-contaminated areas of the site inconsistent with that in existing radium standards in 40 CFR Part 192 and in 10 CFR Part 40, Appendix A. Under the existing regulatory framework for UR facilities, the Environmental Protection Agency (EPA) has the authority to establish generally applicable radiation standards for uranium and thorium mills and, based on that authority, has established the radium standard for UR facilities in 40 CFR 192. 10 CFR Part 40, Appendix A, Criterion 6(6), conforms to EPA's standards. As such, establishing a more restrictive standard for radium in this rule would be inconsistent with the EPA standard.

3(b) Apply the criteria of the subpart E cleanup rule to radionuclides other than radium and use the existing radium standard for radium-contaminated areas

In this alternative, the dose standard of subpart E would be applied to all radionuclides except radium. The existing standard for radium in Criterion 6(6) would be applied to radium-contaminated areas. This alternative would have the advantage of being based on an evaluation of potential dose at a site (for radionuclides other than radium) consistent with other types of NRC-licensed sites. However, for radionuclides other than radium this could result in a dose generally more restrictive than the existing radium standard and, therefore, would result in an inconsistent site-wide risk-based approach with the smaller uranium and thorium contaminated areas of the site having different criteria than the generally larger radium contaminated areas.

3(c) Benchmark approach

In this alternative, the dose from the radium standard in existing 10 CFR Part 40, Appendix A, Criterion 6(6), would be used as a standard (benchmark) to be applied to the uranium and thorium contaminated areas of the site. In this approach, the licensee would use site-specific models and parameter values to calculate the dose that would result from unrestricted release of the site if the contaminated area were cleaned to the radium standard. This would mean that surface activity cleanup of buildings or the top 15 cm (6 inches) of soil for radionuclides other than radium would have, as a dose criterion, the estimated dose resulting from 5 pCi/g (0.16 Bq/g) radium at that site. Subsurface soil cleanup would use the estimated dose resulting from application of the 15 pCi/g (0.56 Bq/g) radium standard to the contaminated area of that site (usually a very small area of the unrestricted use area) as a dose criterion.

Based on preliminary dose modeling by the staff, potential doses to members of the public are expected to be a fraction of 100 mrem/yr (1 mSv/yr) using the benchmark approach. Although it is possible that some site-specific parameter values or subsurface contamination could result in a higher benchmark dose than that estimated by the staff for the various scenarios, the staff has high confidence that a site-specific dose using the benchmark approach will typically be a small fraction of 100 mrem/yr (1 mSv/yr), and in all cases will not exceed 100 mrem/yr (1 mSv/yr). Application of ALARA requirements should result in a potential dose of less than 25 mrem/yr (0.2 mSv/yr) from the residual Ra-226 on the remediated site for most sites (the three mill sites that recently completed soil cleanup each averaged less than 2 pCi/g radium which at these sites results in a potential dose of less than 25 mrem/yr (0.25 mSv/yr)). Therefore, the potential health risk for this approach should be similar to the NRC dose limit established for other facilities in Part 20, subpart E.

This alternative would result in consistency with the EPA standards in 40 CFR Part 192 established under EPA's authority to establish generally applicable radiation standards. The benchmark approach limits the dose from all radionuclides other than radium to that dose that could be expected at the site from the radium standard. The relatively small mill area will be subject to a dose limit that is the same as the dose from the radium standard to which the large tracts of land (windblown tailings areas) are subject. At ISLs, the uranium-contaminated areas (yellowcake or pregnant lixiviant spills) would be subject to the same dose limit as the radium-contaminated areas. Use of the benchmark approach would provide for a common dose criterion across a UR site for those areas contaminated with radium and for those areas contaminated with uranium or thorium.

One concern with this alternative is that, due to the uncertainty of some site-specific parameters, there is a small potential for a benchmark dose exceeding the public dose limit (before application of ALARA). However, if a site benchmark dose exceeds 100 mrem/yr (1 mSv/yr), the staff will consult with the Commission before approving the benchmark dose.

4. Regulatory Impact - Costs and Benefits

4.1 ANALYSIS OF COSTS AND IMPACTS

Detailed analysis of the costs and benefits associated with choosing various alternative criteria for license termination were discussed in the draft Generic Environmental Impact Statement (GEIS) (draft NUREG-1496, August 1994) and regulatory analysis (RA) for the proposed subpart E rule which, as noted above, included uranium mills. The draft GEIS and draft RA for the Subpart E rule provided costs and impacts associated with alternative dose criteria for 10 different reference facilities, including a reference uranium mill. The draft GEIS and the draft RA for the Subpart E rule also provided costs and impacts associated with cleanup of the references facilities to various alternative dose criteria, ranging from the public dose limit of 100 mrem/yr (1mSv/yr) to levels less than 1 mrem/yr (0.01 mSv/yr).

Based on public comments received on these documents, a final GEIS (NUREG-1496, July 1997) and final RA for the final Subpart E rule were prepared which modified the draft GEIS and regulatory analysis to provide a more broad analysis by: (1) including analysis of more complex and deeper soil profiles for certain facilities to provide an extreme or bounding analysis of actual situations in addition to the fairly simple types of soil contamination

with depth caused by diffusion into the soil analyzed in draft GEIS; (2) providing a range of possible alternative land and building uses after the facilities are released for unrestricted use which would result in a variation in the population density using the site; 3) including a set of different burial charges for different possible situations; and 4) providing a clearer presentation of results by doing separate analyses of the cost-benefit for structures and soils. The final GEIS and final RA for the Subpart E rule provided results for a reference power reactor, sealed source manufacturing facility, uranium fuel fabrication facility, and rare earth facility.

The results of the draft and final GEIS and the draft and final RA for the Subpart E rule provide the bases for this regulatory analysis, and the analysis of potential dose criteria, noted above, in those documents envelop possible doses which could result from Options 3(b) and 3(c), above, as well as Option 1. Therefore, this regulatory analysis is prepared by considering parameters pertinent to a reference uranium mill and reference ISL and the impact that differences in parameters between these facilities and those analyzed in the final GEIS and RA for the Subpart E rule would have on the results in the final GEIS and RA.

For a uranium mill, the assumptions for a reference situation are given in Table 1. For an ISL, assumptions for a reference situation are given in Table 2. Assumptions not given in Tables 1 and 2 are assumed to be the same as those used in the final GEIS.

4.2 RESULTS OF ANALYSIS OF COSTS AND IMPACTS

In considering the results of this analysis, the NRC uses the decision-making guidance of NUREG/BR-0058 and NUREG-1530 which recommend that $2000 per person-rem be the value used by NRC in making decisions between regulatory alternatives. The $2000 per person-rem is derived from the studies reviewed by NUREG-1530 which arrive at $3 million per statistical life.

The results in the final RA for the Subpart E rule indicate a wide range of results for different assumptions of soil contamination type (diffusion into the soil and deeper mixing), site areal extent (in acres), cost of waste burial, and future site use after license termination and population density (in person/km^2) using the site. Table 4.2 of the final RA for the Subpart E rule is reproduced here as Table 3. The table indicates assumptions used for several cases which analyzed variations in soil contamination (diffusion vs. real world soil profiles), future site use (resident farmer/industrial use/residential dwellings), soil treatment methods, and disposal costs. Similar assumptions and results are contained in Tables 4.1, 4.3, and 4.4 of the final RA for the Subpart E rule for the other reference facilities. The variations in the assumptions used for the final RA for the Subpart E rule are illustrative of the variations for uranium mills and ISLs. For example, the range of soil treatment methods and burial charges for UR facilities could be similar to that in Table 3; soil contamination profiles could be in the range of those indicated in Table 4.2 or could have alternate profiles. Assumptions for the future use of a uranium mill or ISL site, as indicated in Tables 1 and 2, indicate that it is likely that the site could be used for farming or ranching which would result in lower population density than that assumed in the RA for the Subpart E rule. However, for the long time horizons considered in the RA, predictions on future site use are difficult which is why a range of sites usages is assumed. Based on the range of different assumptions in Table 3, the results and conclusions of the final RA for the Subpart E rule can be extrapolated to cover uranium mills and ISLs.

The results in the final RA for the Subpart E rule shown in Table 3 show a wide range of cost-benefit ratio variation and are sensitive to the assumptions and parameters used in the analyses. Similar variations occur in Tables 4.1, 4.3, and 4.4 of the final RA for the Subpart E rule for the other reference facilities. Because of these variations, the conclusion of the final RA for the Subpart E rule was that such results do not provide a quantitative basis for optimizing the selection of a cost-benefit ratio that can be implemented on a generic basis. Nevertheless, certain trends can be inferred that provide guidance for overall cost-benefit considerations: (a) for soils, residual radioactivity levels resulting in a dose of less than 25 mrem/yr (0.25 mSv/yr) generally result in a cost-benefit ratio not considered reasonably justifiable under NRC's regulatory framework; and (b) for structures, levels less than 25 mrem/yr (0.25 mSv/yr) show more tendency to be reasonably justifiable under NRC's regulatory framework. Because of this wide range of variations, the RA for the Subpart E rule relied upon additional considerations in establishing a standard for radiological criteria. Similar considerations are discussed below in Section 4.3.

4.3 ADDITIONAL CONSIDERATIONS

As noted in Section 4.2, given the range of possible parameters, scenarios, and site-specific situations, there is a wide range of cost-benefit results among the different facilities and within facility types. Also, there is no unique algorithm that decisively is the most beneficial result for all facilities which could be set as a constraint. As discussed in the Federal Register notice, the NRC has considered potential options for setting decommissioning criteria for UR facilities and, based on its judgement, considering sources of exposure, consistency with other standards, potential risk and consistency of risk at a site, etc., has decided that a benchmark approach for setting criteria for uranium and thorium contamination at UR facilities would provide a sufficient and ample margin of safety for protection of public health and safety. Specifically, these considerations included the applicable standards that already exist for radium in EPA's regulations in 40 CFR Part 192 (established based on EPA's authority under the UMTRCA) and in NRC's conforming requirements in 10 CFR Part 40, Appendix A, Criterion 6(6). These standards, however, do not contain criteria for uranium and thorium soil contamination or surface activity. Application of criteria for areas of a site contaminated with uranium and thorium different from the radium standard would result in a situation where the cleanup standard of that small portion of the UR facility site would be lower than the standard for the larger areas where radium is the nuclide of concern. This would result in situations of differing criteria being applied across essentially the same areas and would be a problem for contamination existing both in UR facility soils and buildings. In addition, site-specific situations and ALARA evaluations need to be considered.

5. Decision Rationale

Based on the assessment of costs and benefits and the additional considerations discussed in Section 4.3, a benchmark approach with the following characteristics is reasonable: (1) the contamination criteria for uranium and thorium in soil and surface activity in buildings will be benchmarked to the site specific dose from the radium standard in 40 CFR Part 192 and in 10 CFR Part 40, Appendix A, Criterion 6(6); (2) ALARA would be applied to the cleanup; (3) any benchmark dose exceeding 100 mrem/yr (1 mSv/yr) will require Commission review; and (4) sites with approved decommissioning plans for soils and buildings will be grandfathered.

6. Implementation

Guidance is being developed for implementation of the rule in areas of benchmark dose modeling and methodology for performing ALARA calculations. In addition, the draft Standard Review Plans for uranium mill reclamation plans and licensing of ISLs are being revised to provide more specific guidance related to decommissioning.

Table 1
Assumptions for a Reference Uranium Mill

1. Most of the buildings are assumed to have been demolished and disposed of in the tailings impoundment area located on the site. Demolition and disposal of these buildings are considered outside the scope of these analyses.

2. Contaminated soil is assumed to be disposed in the tailings impoundment and, therefore, costs do not include a cost per volume disposal charge, but rather reflect only the costs of transport to, and inclusion in, the impoundment.

3. The reference uranium mill site has a windblown tailings contaminated area of about 30 - 300 acres (12 - 120 hectares), the principal contaminant in which is radium. The mill buildings cover less than about 20 acres (8.1 hectares) and the principal contaminant is uranium. Areas where uranium would be the principal nuclide of concern at the mill facility would include soil areas beneath the demolished and removed structures and a few remaining structures that could be re-occupied, in yellowcake storage or spill areas, under/around ore crushers, and debris burials on the site. It is assumed that the diffusion soil contamination model of the draft and final GEIS is appropriate.

4. The reference site is a Western ranching site; the calculation of collective dose is based on information available and is about 1 person/km^2.

Table 2
Assumptions for a Reference ISL

1. Buildings could be decontaminated and released for unrestricted use, although the yellowcake dryer building would be demolished and disposed of in a tailings impoundment or appropriate (11e.(2) byproduct material) commercial disposal facility.

2. Contaminated soil is assumed to be disposed of at an appropriate commercial disposal site in a manner similar to that in the final NUREG-1496 or in a tailings impoundment.

3. The reference ISL is built on 100 acres of land (not including well fields), most of which is unaffected by the operations of the facility. About 20 acres (8 hectares) surrounding the process buildings are potentially affected by uranium contamination resulting from yellowcake residues and spills. Also, areas where spray irrigation has occurred as a means of bleed water disposal may contain uranium elevated above background. It is assumed that the diffusion soil contamination model of the draft and final GEIS is appropriate. An alternate would be to assume that the more bounding soil contamination model of the final GEIS, involving deeper leak-driven penetration, is appropriate.

4. The reference site is a Western farming site. The calculation of collective dose is based on information available and is about 5 persons/km^2.

Table 3
Cost-Benefit for Soil Cleanup at Reference Uranium Fuel Fabrication Facility

Unrestricted Use

Case 1 -Diffusion into the soil; \$50/ft^3 burial cost for soil; soil removal after soil washing; unrestricted use with resident farmer use or industrial use of the site

Case 2 -Diffusion into the soil; \$50/ft^3 burial cost for soil; no soil washing; unrestricted use with resident farmer or industrial use of the site

Case 2A-Same as Case 2, but with \$10/ft^3 burial cost for soil

Case 2B-Same as Case 2, but with residential high density dwelling use of the site

Case 5 -Real world soil profile data; \$50/ft^3 burial cost for soil; soil removal after soil washing; unrestricted use with resident farmer or industrial use of the site

Case 6 -Real world soil profile data; \$50/ft^3 burial cost; no soil washing; resident farmer or industrial use of the site

Case 6A-Same as Case 6, but with \$10/ft^3 burial cost for soil

Case 6B -Same as Case 6, but with residential high density dwelling use of the site

Dose Reduction (mrem/y)	Case 6	Cases 6A, 5, 6B	Case 2	Cases 1, 2A, 2B

100 - 60	34(1)	7 - 20(1)	5(1)	1 - 3(1)
60 - 25	250	36 - 94	7	2 - 4
25 - 15	670	64 - 210	24	5 - 18
15 - 3	neg(2)	280 - neg	87	17 - 71

Notes:

1) Table entries are in incremental $M/estimated mortality averted.

2) Table entry "neg" means that there is a net negative health effect, i.e., the negative impact of radiological and non-radiological risks (e.g., truck transport of larger quantities of waste to transport at lower doses) is greater than the positive impact of lowering the dose criteria

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ATTACHMENT 6

The Honorable James M. Inhofe, Chairman
Subcommittee on Clean Air, Wetlands, Private
Property and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The Nuclear Regulatory Commission (NRC) has sent to the Office of the Federal Register for publication the enclosed revisions to the Commission's rules in 10 CFR Part 40 regarding decommissioning of uranium recovery (UR) facilities to provide specific radiological criteria for decommissioning of lands and structures. The final rule is intended to enhance the efficiency and consistency of license termination decisions. This final rule completes the Commission's efforts that began in 1997 when it issued a final rule in Parts 20, 30, 40, 50, 70, and 72 for decommissioning of other NRC-licensed facilities but decided to exclude criteria for UR facilities and instead request additional public comment so as to provide full consideration of the issues involving decommissioning of UR facilities.

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: 1. Public Announcement for Final Rule
2. Federal Register Notice for Final Rule

cc: Senator Bob Graham

The Honorable Joe Barton
Chairman, Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, DC 20515
Dear Mr. Chairman:

The Nuclear Regulatory Commission (NRC) has sent to the Office of the Federal Register for publication the enclosed revisions to the Commission's rules in 10 CFR Part 40 regarding decommissioning of uranium recovery (UR) facilities to provide specific radiological criteria for decommissioning of lands and structures. The final rule is intended to enhance the efficiency and consistency of license termination decisions. This final rule completes the Commission's efforts that began in 1997 when it issued a final rule in Parts 20, 30, 40, 50, 70, and 72 for decommissioning of other NRC-licensed facilities but decided to exclude criteria for UR facilities and instead request additional public comment so as to provide full consideration of the issues involving decommissioning of UR facilities.

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: 1. Public Announcement for Final Rule
2. Federal Register Notice for Final Rule

cc: Ranking Member

ATTACHMENT 7

Mr. Robert P. Murphy
General Counsel
General Accounting Office
Room 7175
441 G. St., NW
Washington, DC 20548

Dear Mr. Murphy:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule regarding decommissioning of licensed uranium recovery facilities to provide specific radiological criteria for the decommissioning of lands and structures. The final rule is intended to enhance the efficiency and consistency of license termination decisions.

We have determined that this rule is not a "major rule" as defined in 5 U.S.C. 804(2). We have confirmed this determination with the Office of Management and Budget.

Enclosed is a copy of the final rule that is being transmitted to the Office of the Federal Register for publication. The Regulatory Flexibility Certification and Regulatory Analysis are included in the final rule. This final rule is scheduled to become effective 60 days after publication in the Federal Register.

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure: Final Rule

The Honorable Al Gore
President of the United States Senate
Washington, DC 20510
Dear Mr. President:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule regarding decommissioning of licensed uranium recovery facilities to provide specific radiological criteria for the decommissioning of lands and structures. The final rule is intended to enhance the efficiency and consistency of license termination decisions.

We have determined that this rule is not a "major rule" as defined in 5 U.S.C. 804(2). We have confirmed this determination with the Office of Management and Budget.

Enclosed is a copy of the final rule that is being transmitted to the Office of the Federal Register for publication. The Regulatory Flexibility Certification and Regulatory Analysis are included in the final rule. This final rule is scheduled to become effective 60 days after publication in the Federal Register.

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure: Final Rule

The Honorable J. Dennis Hastert
Speaker of the United States
House of Representatives
Washington, DC 20515
Dear Mr. Speaker:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule regarding decommissioning of licensed uranium recovery facilities to provide specific radiological criteria for the decommissioning

of lands and structures. The final rule is intended to enhance the efficiency and consistency of license termination decisions.

We have determined that this rule is not a "major rule" as defined in 5 U.S.C. 804(2). We have confirmed this determination with the Office of Management and Budget.

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Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure: Final Rule

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1. Appendix A, Criterion 6(6), states that for land at uranium or thorium mill sites, the concentration of radium-226 (uranium sites) or radium-228 (thorium sites), averaged over areas of 100 square meters, shall not "...exceed the background level by more than: (i) 5 pCi/g ... averaged over the first 15 cm below the surface; and (ii) 15 pCi/g ... averaged over 15-cm-thick layers more than 15 cm below the surface."

2. As defined in 10 CFR Part 40, byproduct material is the tailings or wastes produced by the extraction of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes.

3. Byproduct material, as defined in 10 CFR Part 40, is the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes.