



**KERR-McGEE CORPORATION**

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5-12-00  
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May 5, 2000

Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, D.C. 20555-0001

64FR# 14952  
29 March 99  
(13)

Dear Sir:

The Nuclear Regulatory Commission (NRC) published NUREG-1640, "Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities", for comment in March, 1999. Kerr-McGee Corporation recognizes that NRC requested that comments be submitted earlier, but was prevented from submitting the following comments on NUREG-1640 for NRC consideration until this time. Kerr-McGee still trusts that review of these comments will be beneficial in the development of this document.

Specific Dose Criterion Information Is Needed for Evaluation of NUREG-1640

NUREG-1640 utilizes, for comparison purposes, a dose criterion of 10  $\mu$ Sv/y (1 mrem/y). This dose criterion is used to allow for comparison of numerical derivations in NUREG-1640 with the previous numerical derivations of the NRC (i.e., Regulatory Guide 1.86), EPA, European Commission, and IAEA. The methodologies presented in NUREG-1640 appear more restrictive to many source material and fuel cycle licensees if the dose criterion of 1 mrem/y is applied. The "de-coupling" of the methods presented in NUREG-1640 from the "yet to be determined" dose criterion does not allow for a full evaluation by licensees as to the impact and costs of the NUREG-1640 methods on facility operations. In addition, the methods as presented do not allow for the application of ALARA principles, since the proposed dose criterion is not being presented. The dose conversion factors derived in NUREG-1640 also appear to be skewed toward the upper ranges of dose that will be received by members of the general population (i.e., the average member of the critical group). Therefore, Kerr-McGee Corporation recommends that the dose conversion factors in NUREG-1640 not be accepted until such time that the dose criterion to be applied is also provided for comment. This will allow for a complete evaluation to determine the significance of the proposed methods on industry.

Grandfathering of Licensees Using Other Criteria

Kerr-McGee currently has several facilities undergoing decommissioning. These facilities have a long history of releasing equipment and materials in accordance with the August, 1987 NRC "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of License for By-Product, Source, or Special Nuclear Material." Several facilities have this guidance specified in their licenses and/or Decommissioning Plans. The application of different criteria to these facilities will result in undue delays and expenses, and would delay the beneficial impacts to the public resulting from the timely decommissioning of facilities. NRC should acknowledge that licensees with stipulated release criteria in license conditions or approved decommissioning plans can release equipment and materials for

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unrestricted use in accordance with existing guidance, using language similar to that in 10 CFR 20.1404.

#### Practical Aspects Related to the Measurement of Source Material

Many fuel cycle licensees have uranium and thorium contamination along with naturally occurring isotopes such as uranium, thorium, potassium-40, and Ra-226. Naturally occurring radioactive materials are currently unregulated in many states. Therefore, radioactive materials entering a facility may contain or be contaminated with unregulated NORM materials, or with materials previously released in accordance with Regulatory Guide 1.86 and/or the August, 1987 NRC Guidance. As a consequence, licensees may be faced with the practical requirement of measuring incoming, as well as outgoing materials and equipment, to provide confidence that unregulated or previously released materials are not allowed into the facility. This practical requirement is significant due to the lowering of allowable levels under the proposed NUREG-1640 along with the potential dose criterion of 1 mrem/y.

In addition to the above considerations, the lowered criteria for releases (assuming NUREG-1640 factors and 1 mrem/y are applied) will result in significant additional monitoring expenses due to the need for more complex measurement techniques, such as multi-channel analysis of spectra. The costs of measurement of materials entering and leaving facilities could be significant, and might also result in more materials sent offsite for disposal rather than recycle.

Many fuel cycle licensees have alpha emitters that are not easily quantified when embedded into porous materials such as concrete or wood. Many licensees utilize beta measurement techniques as a means of quantifying the alpha emitters. These correlation techniques are not well defined in the industry. In addition, the NRC has not provided final guidance as to the techniques acceptable for such measurements. Kerr-McGee believes that any action regarding NUREG-1640 should be performed in unison with a document that outlines the techniques acceptable to the NRC for the performance of measurements.

#### Use of Other Pathway Scenarios/Dose Assessments by Licensees

The pathway analyses presented in NUREG-1640 utilize assumptions and are based upon the mean dose to the maximally exposed critical group. Licensees may have specific situations or materials that are inconsistent with the NUREG-1640 modeled pathway scenarios. Therefore, Kerr-McGee requests that allowances be made for the use of site specific analyses to support dose conversion factors that are different from those presented in NUREG-1640. This approach will allow for the dose criterion to be met using methods/pathways that are specific to the material or equipment being released and the potential uses of the materials/equipment.

#### Inconsistencies between the Dose Criterion of 1 mrem/y and Decommissioning Criteria

The New Rule, 10 CFR 20 Subpart E, contains a dose criterion of 25 mrem/y TEDE above background for average members of the critical group. The dose criterion for release of materials and equipment which *remain* installed at a site would be based upon the 25 mrem/y criterion. If the materials or equipment were released from the facility post license termination, the potential exists for an individual to receive up to the dose criterion of 25 mrem/y from the item. Generally, no limitations would be placed upon a former licensee after a license has been terminated for unrestricted use of the facility. Therefore, it appears that there is an inconsistency between the EC/IAEA dose criterion of 1 mrem/y and the decommissioning criterion of 25

mrem/y. Kerr-McGee believes that specific consideration of these types of inconsistencies is warranted, and that any new guidance should address and delineate the responsibilities of licensees with respect to compliance. The 25 mrem/y criterion for release of facilities undergoing decommissioning has been demonstrated to provide an ample margin of safety for members of the public. Therefore, we do not recommend adoption of the 1 mrem/y criterion for the release of equipment and materials.

Allowances for "Hot-Spots"

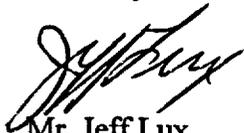
The current guidance (e.g., Regulatory Guide 1.86 and the 1987 update thereof) allows for up to three times the average value to be present in "hot-spots", provided that the average surface contamination does not exceed the average over any contiguous one meter area. Similar allowances should be considered in the NUREG-1640 guidance. The application of such allowances will provide for ALARA considerations when deciding whether to clean or not clean an item. Furthermore, the dose conversion factors within NUREG-1640 are based upon averages for the entire piece of equipment or materials to be released; therefore, the item to be released should only have to meet the criteria *on average* over the entire area or mass.

Surveys for Release of Materials from Controlled Areas

For every survey performed to release material from the site, many exit surveys are performed to release people and/or materials from controlled areas to other portions of the site. NUREG-1640 views release surveys from a microcosm – that of release of material off site. Measurement methods that may be justifiable for the release of materials from a site for use in consumer goods may be prohibitively expensive to apply to all exit surveys, and would threaten to stalemate decommissioning progress. Yet it would be difficult to justify a different set of requirements for exit surveys from controlled areas, since such material is often later taken off site. NUREG-1640 should consider the impact on exit surveys as well as those performed to release material before considering survey methods to be reasonable or appropriate.

Kerr-McGee submits the above comments for NRC evaluation and consideration regarding the analytical methods and criteria to be applied to the release of materials and equipment. Should additional clarification or information be desired, please contact Mr. Jeff Lux at (405) 270-2694.

Sincerely,



Mr. Jeff Lux  
Kerr-McGee Corporation