

Fuel Cycle Facilities Forum **UNMARKETED**

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Chairman  
David G. Culberson

Secretary  
Donald A. Barbour

DOCKET NUMBER  
PROPOSED RULE PR 20  
159FR4868

March 9, 1994

Secretary  
U.S. Nuclear Regulatory Commission  
Attention: Docketing and Service Branch  
Washington, DC 20555

Dear Sir:

The comments herein are submitted on behalf of the Fuel Cycle Facilities Forum (FCFF), an industrial consortium of current and former fuel fabricators and other source material processors formed to address decontamination and decommissioning issues (listing of member companies attached). The FCFF appreciates this opportunity to review the proposed "staff draft" radiological criteria for decommissioning and submits the following comments for your consideration.

Fuel cycle facilities are committed to protecting the general public and the environment from the adverse effects of radiation and radioactive materials. The comments provided herein are based on technical consideration of the proposed cleanup criteria and are not based solely on saving the licensees money. We will exercise diligence in carrying out any new criteria imposed by regulatory agencies, but we see no technical justification for overly-restrictive criteria which lead to technical and economic impossibilities.

Our concerns fall into three categories: technical, practicality/achievability, and miscellaneous. Some of the comments will overlap categories. In the background section of the proposed rule, the Commission has stated that restricted termination could be approved based on technical achievability, prohibitive expenses, and net environmental or public harm. We firmly believe most, if not all, of our facilities will be in a situation of having to maintain their sites under restricted termination if the current draft limit of 15 mrem/yr is included in the final rule. Our comments will explain the basis of this opinion.

TECHNICAL

The proposed 15 mrem/yr has no technical basis. From the background material, it appears that the NRC has selected this number because it is a fraction of the National Council on Radiation Protection and Measurements and the International Commission on Radiological Protection limit of 100 mrem/yr. Additionally, it is based on the  $10^{-4}$  lifetime risk and  $10^{-6}$  annual risk levels in Superfund legislation. The staff draft has taken liberties with these

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values to justify an arbitrary number. The draft states that the 100 mrem/yr is for operating facilities and does not apply to non-operating facilities. We differ with that interpretation. The NCRP/ICRP recommendation is 100 mrem/yr with ALARA applied to reduce the exposure. It does not differentiate between operating and non-operating facilities, nor do the health impacts of radiation exposure at a given level change in going from an operating to a non-operating facility. NCRP and ICRP go on to state that reduction below the 100 mrem is appropriate provided it does not do more harm than good.

The comparison to the  $10^{-4}$  and  $10^{-6}$  risk levels is also mis-constructed. These numbers are Superfund goals, not limits. By establishing the regulation at 15 mrem/yr the risk level is lower than the  $10^{-4}$  lifetime risk goal of Superfund. In reality, Superfund sites rarely achieve the  $10^{-4}$  level; they terminate clean-up in the range of  $10^{-3}$  risk. The proposed 3 mrem/yr goal is close to a  $10^{-6}$  annual risk level. Therefore, the "limits" proposed are well below the "goals" of Superfund. From this, it is apparent that the NRC does not have a technical basis for 15 mrem/yr.

We have serious concerns about the message that is being sent to the often misinformed general public by introducing proposed criteria and limits which go far beyond what science has shown to be of significance from a health standpoint. Continual lowering of limits and goals seems to say that regulatory agencies and the industry really do not know what the health risks are, but that there is a good basis for making them lower in order to protect the general public. This is not the case at all. NRC should be willing to stand behind the limit already established in the recently revised 10 CFR 20.

The proposed limits and goals for decommissioning are inconsistent with the radiation protection criteria for operating facilities under other parts of 10 CFR 20. As discussed earlier, there is no technical basis or health reason for setting dose limits for the general public lower for decommissioning than for operations.

Whatever TEDE is ultimately set for release of a site for unrestricted use, it is apparent that a number of fuel cycle facilities, which have large quantities of low-level contaminated soils, will not be able to achieve it. The proposed criteria acknowledge that under these circumstances society will benefit from permitting license termination under restricted conditions. Obviously the allowable TEDE from such a site should be higher than 15 mrem/year, i.e., it should be at least 100 mrem/year, as we suggest for a site released for unrestricted use. We have three additional comments regarding a site released under restricted conditions:

- 1) The regulation should make clear that if a site meets the specified provisions for license termination under restricted conditions, no exemption is needed.

The Commission should consider exemptions for those cases where a licensee cannot meet the specified provisions.

- 2) There is no reason for the additional requirement that a site meet specific TEDE limits if institutional controls are no longer in effect. Neither the NRC nor other agencies impose such a limit for other sites. If there is a limit however, it should be higher than 100 mrem/yr and should be approved on a site-specific basis.
- 3) Both the NRC's "Issues for Discussion at Workshops" and the discussion of the staff draft criteria acknowledge that there will be instances where engineered disposal facilities, such as uranium mill tailing disposal cells under UMTRCA, should be considered at a site. Any radioactive materials placed in such a cell should not be included in any consideration of theoretical TEDE doses if institutional controls are no longer in effect, since such consideration would effectively preclude use of an engineered cell and eliminate what may be the optimal solution for the site.

Our final comment on the technical aspects deals with radon. It is our understanding that the intent of the proposed criteria is that radon will not be considered in determining compliance with whatever TEDEs are specified in the regulations and that the NRC will not establish a separate standard for radon. Instead, the NRC will consider the precursors of radon, like uranium, thorium and radium. This is technically sound. The draft criteria should be revised so that this intent is clear.

#### PRACTICALITY/ACHIEVABILITY

Current-day measurement techniques may not permit accurate detection of radionuclides or radiation levels at the very low levels required to demonstrate reaching the limit (15 mrem/yr) or the goal (3 mrem/yr). Statistics, associated with counting and/or measurements, may not permit distinguishing activity at these levels from background. The margin for detectability above background has essentially been eliminated, and local variation in background may make detection impossible.

There are no industry standards (counting standards, standard procedures/protocol, etc.) for making measurements to demonstrate compliance at the very low levels required to meet a 15 mrem/yr limit. The current "standard" which industry currently uses is ORISE, which is a subjective standard at this point. Thus, each facility must simply do the best it can and hope it matches ORISE results.

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Demonstration of compliance relies heavily on computer modeling techniques, which may vary significantly and which contain uncertainties. Again, there is no standard for reference. Demonstration of compliance should be achievable by direct measurements, whenever possible.

In-process monitoring during decommissioning will be impossible without the use of costly, time-consuming laboratory analysis. The use of hand-held detection equipment to guide cleanup crews is not an option since none will detect activity at the extremely low levels associated with a 15 mrem/yr limit. This simply multiplies the costs associated with this aspect of the cleanup.

#### MISCELLANEOUS

The proposed rule includes many terms and definitions which are very subjective and which may be interpreted in many different ways by regulators or by others. For example:

"not technically achievable" -

By whose standards? Who decides? Achievability changes continually.

"prohibitively expensive" -

By whose standards? (Licensee? NRC? Public?)

"net public or environmental harm"

By whose standards? How is it determined? How is it measured? How is it demonstrated?

Section 20.1408, "Minimization of Contamination," does not belong in this proposed criteria. This is an issue which is adequately addressed in other parts of 10 CFR 20. Waste minimization, and hence minimization of contamination, is commonplace in the nuclear industry and is driven by such economic incentives as reduction of disposal costs. These concepts do not need to be put in regulations.

We are concerned about the creation of SSABs for restricted sites. Although the proposed criteria state the SSAB would provide advice, the concept would in essence place decision-making and regulatory responsibilities in the hands of non-technical individuals. In practice it could result in the application of differing criteria and requirements at specific sites without adequate technical basis. Thus, we believe that the creation of SSABs results in unnecessary complications and is unwarranted. The proposed members of SSABs will have ample opportunity to comment to both the NRC and to the licensee as a site

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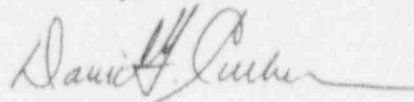
decommissioning plan is developed and submitted to the NRC for approval. They will also have opportunities to comment on environmental assessments or environmental impact statement, and, if affected, they will be able to request a hearing on the formal NRC licensing action and to participate as parties in that proceeding. Accordingly, we suggest deletion of the SSAB provisions. However, if these provisions are retained in the criteria, the SSAB should be established by and responsible to the Commission, not the licensee, who should not have these extra-regulatory burdens placed upon him.

Finally, we agree with the Commission's intent that it will not require additional cleanup for sites decommissioned in accordance with approved criteria unless new information demonstrates that residual radioactivity could result in significant public or environmental harm. However, the regulation should make clear that the new information would have to be newly discovered site-specific information (e.g., discovery of previously unknown additional residual materials or site characteristics) and not new approaches to site evaluation.

Our companies have actively participated over the past two years in the NRC site cleanup criteria process. We still believe that a national cleanup standard is needed in order to prevent unnecessary delays in the license termination process which we have experienced at many of our facilities. However, we are concerned that the proposed rulemaking will be counter-productive in that the adoption of unrealistic and unjustifiable requirements will make the release of sites for unrestricted use unfeasible, will preclude or discourage cleanup of sites so that they can be released under reasonable restrictions, and will force many facilities to delay decommissioning actions (perhaps indefinitely) and to maintain their sites under regulatory oversight (i.e., continued licenses).

Based on the comments provided above, we have attached specific revisions to the draft criteria to reflect our position. Clarification may also be needed regarding radon. If you have any questions, please call me at 615-743-9141, extension 1414.

Sincerely,



David G. Culberson  
Chairman

cc: Dr. Donald A. Cool  
Francis X. Cameron



Fuel Cycle Facilities Forum's (FCFF)  
Revision of 10CFR Part 20 as Proposed by NRC

SUBPART A

20.1003 Definitions

DELETE LAST SENTENCE IN THE FIRST PARAGRAPH UNDER 20.1003 "Background radiation" does not include radiation from source, byproduct, or special nuclear materials regulated by the Commission. [Since the first sentence defines what is included "background radiation", it is unnecessary to define what is not included and will create confusion.]

BEFORE THE THIRD PARAGRAPH UNDER 20.1003 DEFINITIONS ADD:  
(Decommission definition needs to be included in Parts 30, 40, 50, 70, 72.)

BEFORE THE FOURTH PARAGRAPH UNDER 20.1003 DEFINITIONS ADD THE PARAGRAPH:

**Decommissioning Goal:** The goal for decommissioning is to reduce the residual radioactivity at the site in structures, materials, soils, groundwater, and other media that is distinguishable from background radiation to such level that the cumulative TEDE to the average member of the critical group from such residual radioactivity does not exceed 3 mrem (0.03 mSv) per year.

20.1401 Scope

REPLACE SECTION (c) WITH:

- (c) Once a site has been decommissioned and the license terminated in accordance with the criteria in this rule, or in accordance with the criteria established in a decommissioning plan approved by the Commission prior to [insert effective date of rule], the Commission will require additional cleanup only if, based on new site specific technical information, it determines that residual radioactivity remaining at the site exceeds the approved decommissioning criteria and could result in significant public or environmental harm.

20.1402, 20.1404, 20.1405, 20.1407

REPLACE 15 mrem/y WITH 100 mrem/y AND (0.15 mSv/y) WITH (1.0 mSv/y) IN ALL INSTANCES -- IN 20.1402 IN THE SECOND AND THIRD PARAGRAPHS AND IN SECTIONS (1) AND (2); IN 20.1404 IN SECTION (b); IN 20.1405 IN SECTION (b); AND IN 20.1407 IN THE (a)-(2)-(a) SECTION.

20.1402 Concepts

REVISE FIRST PARAGRAPH (THE GOAL) TO BE CONSISTENT WITH THE DEFINITION OF "DECOMMISSIONING GOAL" ADDED TO SECTION 20.1003.

UNDER SECTION (4), CHANGE SENTENCE TO READ:

...TEDE from residual radioactivity (except radioactivity confined to an approved engineered disposal cell) would not exceed an approved site-specific limit even if....[deleting the 100 mrem (1mSv) per year]

REVISE THE LAST PARAGRAPH OF SECTION 20.1402 TO READ:

The Commission will consider terminating a license under circumstances where the TEDEs specified above are not satisfied only through the granting of an exemption pursuant to 20.2301.

20.1404 Radiological Criteria for Unrestricted Release

DELETE FIRST PARAGRAPH (a), DELETE (a)-(1) and (a)-(2) [completely]

CHANGE (b) TO (a)

20.1405 Criteria for License Termination Under Restricted Conditions

REVISE THE ENDING OF SECTION (d) TO READ:

"... the TEDE to that member would not exceed an approved site-specific limit."

AFTER SECTION (d) ADD:

(e) Residual radioactivity at the site that has been confined to an approved engineered disposal cell would not be included in the 20.1405(d) determination.

20.1406 Notification and Public Participation

IN SECTION (b), REVISE THE FIRST SENTENCE TO READ:

...pursuant to 20.1404, the Commission shall convene....

20.1407 Site Specific Advisory Board - The SSAB concept should be eliminated, but if it isn't:

IN SECTION (a), REVISE THE FIRST SENTENCE TO READ:

The SSAB should provide advice to the Commission, as appropriate....

IN SECTION (e), REVISE THE END OF THE LAST SENTENCE (a plan for establishing and supporting an SSAB.) TO READ:

...in accordance with 20.1405, shall submit a plan for the SSAB review.

IN SECTION (f), REVISE THE FIRST SENTENCE TO READ:

The Commission shall be responsible....

IN SECTION (g) REVISE THE BEGINNING OF THE SENTENCE TO READ:

The Commission shall provide administrative support for SSAB activities and the licensee shall provide the SSAB...

IN SECTION (h) REVISE THE BEGINNING OF THE SECOND SENTENCE TO READ:

The Commission shall provide adequate public notice...

20.1408 Minimization of Contamination

DELETE ALL PARTS OF 20.1408:

The items raised in the section are issues of license renewal and facility design and have nothing to do with decommissioning criteria. They should be addressed in an entirely separate rule making, if at all. Economics are already effectively driving waste minimization.



## FUEL CYCLE FACILITIES FORUM

### MEMBER COMPANIES

ABB Combustion Engineering  
Aerojet Ordnance TN  
ARCO  
Babcock and Wilcox  
Battelle-Columbus  
BP Chemicals, Inc.  
Cabot Corporation  
COGEMA, Inc.  
EcoTek, Inc.  
Fansteel  
General Atomics  
General Electric  
Kerr-McGee Corporation  
Lawrence Livermore National Laboratory  
Nuclear Fuel Services, Inc.  
Nuclear Metals, Inc.  
NUMARC  
Olin Corporation  
Sequoyah Fuels Corporation  
Siemens Nuclear Power Corporation  
Teledyne Wah Chang  
Texas Instruments, Inc.  
UMETCO Minerals Corporation  
UNC Naval Products  
United Kingdom Atomic Energy Authority  
US Council for Energy Awareness  
Westinghouse Electric Corporation