STATE OF MICHIGAN



(57FR 58727)

JOHN ENGLER, Governor

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DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN / MARTIN L. KING JR. BLVD. P.O. BOX 30195, LANSING, MICHIGAN 48909

VERNICE DAVIS ANTHONY, MPH, Director

May 27, 1993

Secretary U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Attention: Docketing and Service Branch

Dear Mr. Secretary:

As directed in the letter dated December 4, 1992 from Francis X. Cameron to me, and/osed are our comments on the proposed rulemaking by the U.S. Nuclear Regulatory Commission to establish radiological criteria for decommissioning of licensed facilities.

Should there be any questions concerning the enclosed comments, please contact me or David Minnaar of my staff at (517) 335-8200.

Sincerely,

BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

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George W Bruchmann, Chief Division of Radiological Health

GWB:DWM:rt Enclosure

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MICHIGAN DEPARTMENT OF PUBLIC HEALTH BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH DIVISION OF RADIOLOGICAL HEALTH

Comments on U.S. Nuclear Regulatory Commission Proposed Rulemaking to Establish Radiological Criteria for Decommissioning of Licensed Facilities

On December 4, 1992, the U.S. Nuclear Regulatory Commission (NRC) invited staff participation in the first of several NRC workshops on NRC's proposed rulemaking to establish radiological criteria for decommissioning of NRClicensed facilities. Based upon a review of the NRC Notice of Workshops (dated December 2, 1992) and associated Rulemaking Issues Paper included with the December 4 invitation, and as a result of staff participation in the Workshop held in Chicago on January 27-28, 1993, the following comments are offered for NRC consideration.

General Comments

- We consider this rulemaking effort as appropriate and necessary in order to establish a sufficient, consistent, and enforceable level of public health protection resulting from the termination of activities involving licensable quantities of radioactive materials.
- 2. We believe that this rulemaking effort should be fully consistent with and primarily based upon updated national and international recommendations on radiation dose limits for members of the general public as embodied by the revised radiation dose limits and dose assessment methodology contained in the recent revision to 10 CFR Part 20.
- 3. Aside from the noted exceptions to the applicability of this rulemaking (i.e. high-level waste, low-level waste, and mill tailings sites), we support efforts to extend the applicability of this rulemaking effort to all regulable radioactive materials, including materials not regulated by NPC, such as naturally-occurring and accelerator-produced radioactive materials (NARM). We encourage the continued cooperative effort by NRC and the U.S. Environmental Protection Agency (EPA) to use the NRC rulemaking effort as a basis for further federal regulatory action to set appropriate decommissioning and cleanup standards for all types of radioactive materials, including NARM. The need for cleanup standards to address contamination from enhanced concentrations of naturally-occurring radioactive material (NORM) from oil and gas extraction activities is especially important and immediate within many states, including Michigan.

Specific Comments

4. In view of the recommendations of the International Commission on Radiological Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP), we support the annual individual total effective dose equivalent (TEDE) limit of 100 millirem per year, as established by the NRC in the revised 10 CFR Part 20, as the technical and regulatory basis for adequate radiation protection for any member of the general public. We further believe this dose limit to represent a technical basis for consideration of detailed criteria for acceptable levels of radioactive contamination for purposes of allowing release of faci ities, equipment, or materials for unrestricted use. As a result, we support the risk (or dose) limit approach to establishing appropriate generic decommissioning criteria or cleanup standards. We believe the remaining alternative approaches described in the Rulemaking Issues Paper are undesirable either due to their inability to afford practicality during implementation or their inability to assure equitable levels of radiological health protection.

Considering that compliance with decommissioning criteria or cleanup standards represents the termination of regulatory activities for any licensee with no further regulatory controls presumed to be operative, and considering that any given individual member of the public may receive dose impacts from each of several formerly regulated sites, we support the ICRP notion of a dose limit "constraint" as being appropriate to this rulemaking effort. Dose limits for the decommissioning of a single licensee ought to be constrained to an appropriate fraction of the lo0 millirem per year individual dose limit in order to assure that the likelihood of an individual exceeding the annual dose limit under conditions where no further regulatory oversight occurs does not increase compared to when activities producing dose impacts are under the not, tinuing oversight of regulatory agencies. Intuitively, the potential dose impact on any individual following decommissioning should, in fact, decrease.

We suggest that "constrained" dose limits from residual radioactivity to allow release for unrestricted use be codified by NRC. Specifically, we propose that NRC codify these limits to indicate that following decommissioning no individual member of the public will receive, under any prudently conservative scenario, an internal radiation dose producing a committed effective dose equivalent in excess of 10 millirem per year or an external radiation dose producing a deep dose equivalent in excess of 30 millirem per year.

In our view, these limits represent appropriate constraints to assure an adequate level of public health protection while taking into account practical limitations on assessing residual radioactivity and external radiation levels. The use of the 30 millirem per year deep dose equivalent results from considering a reasonably detectable, low level of external penetrating radiation of 5 microroentgens per hour above background and assuming 70% occupancy by a member of the public, which may be as practicably conservative as possible when considering acceptable external radiation levels.

Coupled with the inclusion of a generic "as low as reasonably achievable" (ALARA) principle as part of the codification, these dose limits should result in an assurance that, even under conditions of exposure to several formerly regulated sites, no individual is likely to receive a TEDE in

excess of 100 millirem per year. The constrained dose limits described above, coupled with ALARA, also appear to us to be commensurate with the range of acceptable risk levels used by the U.S. EPA for an individual lifetime risk goal approach applicable to any single contaminated site under EPA's Superfund program.

We support the use of decommissioning criteria that are practical and relatively easy to implement. We suggest that individual radionuclide concentration limits, for both surface and volumetric contamination, be codified in a manner similar to the revised Appendix B of 10 CFR 20 to correspond with the 10 millirem per year individual internal committed effective dose equivalent limit. The radionuclide concentration limits could be used as a practical means to demonstrate compliance with the internal dose limit. The selection of appropriately conservative internal dose pathway scenarios and parameters is important. The unrestricted use scenarios described in NUREG/CR-5512 appear to form a good basis for the selection of generic scenarios to address doses resulting from residual radioactivity. Site specific values different than the generic values chosen to generate the codified tables should , considered by a licensee if determined appropriate and specifically approved by NRC.

We further suggest that a residual external gamma exposure rate limit of 5 microroentgens per hour above background measured at one foot from any residual radioactive contamination be codified as evidence of acceptable external radiation levels to meet the deep dose equivalent limit of 30 millirems per year to any individual.

- 8. Considering that some licensees may experience a hardship in meeting new decommissioning criteria and cleanup standards described above, we suggest that the NRC rulemaking effort include codification of specific requirements to address requests for exemption from the codified dose limits. These specific provisions should include a reference to a maximum annual TEDE of 100 millirem that NRC would consider as a dose limit "cap" in order to grant such an exemption.
- 9. We suggest that NRC provide detailed guidance documents to accompany the rulemaking effort to provide information to licensees on acceptable methodology to assess contamination and radiation levels, including surveying and sampling techniques and pathway analyses for applicable unrestricted use scenarios for buildings, equipment, or land contaminated with residual radioactivity.
- 10. For radioactive contamination involving radon as a decay product of licensed material, we believe that an assessment of potential future doses to an individual presents a formidable difficulty due to the extreme uncertainty in estimating associated radon doses and differentiating radon doses caused by licensed material from those caused by naturally occurring radon in the local area of the site. As a result, radon levels in air resulting from residual radioactivity should be assessed and compared to local background radon levels. ALARA should then be applied based on the relative differences in the two assessments

as a minimum effort to controlling this potential hazard. The approach to assessing acceptable levels of radon exposure should be separate from that of other radionuclides.

- 11. We believe that any specific requirements resulting from EPA regulatory action (e.g. drinking water standards, indoor radon action levels) should be applied independently of NRC's current rulemaking effort and that NRC address EPA standards and recommendations as a matter restricted to NRC guidance documents and not included as codified NKC regulations.
- 12. For previously licensed sites which have been decommissioned and which involved the on-site burial of radioactive waste, we suggest that the NRC conduct a review to determine which sites may not meet cleanup standards resulting from this rulemaking and that NRC consider whether further remediation appears warranted based upon a site-specific risk/bene'it analysis.