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March 11, 1994
C311-94-2036

Office of the Secretary
U. S. Nuclear Regulatory Commission
Attn: Docketing and Service Branch
Washington, D.C. 20555-0001

Dear Sir:

Subject: NRC Preliminary Proposed Rule on Radiological Criteria for Decommissioning

The purpose of this letter is to convey the GPU Nuclear comments on the NRC Preliminary Proposed Rule on Radiological Criteria for Decommissioning. Attachment 1 delineates the GPU Nuclear position on the subject.

Sincerely,

J. R. Leonchick for

B. A. Good
Environmental Controls Director

WGH

Attachment

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GPU Nuclear Comments on NRC Preliminary Proposed Rule On Radiological Criteria for Decommissioning

Position Summary

The criteria for cleanup and decommissioning of NRC licensed facilities should have a sufficient basis for measuring radiation exposures and quantities of radioactivity. Realistic assessment of the potential risk from residual radioactivity requires an analytical and objective approach utilizing current state of technology and acceptable scientific methods. Recommendations of the International Commission of Radiological Protection (ICRP) and the National Council on Radiation Protection (NCRP) are aimed to help regulatory and advisory agencies at national, regional and international levels by providing guidance on the fundamental principals of radiation protection. Since the recommendations from these bodies constitute a scientific consensus on the health effects of radiation it is GPU Nuclear's desire that these recommendations should form the basis for development of a standard for site cleanup to protect the remediation workers, public and the environment. A previous correspondence (licensee memo C311-93-2100 dated June 23, 1993) was submitted to the NRC by GPU Nuclear indicating its position on "Radiological Criteria for Decommissioning NRC-Licensed Facilities Rulemaking Issues Paper". In this position statement we proposed that cleanup standards should express a dose limit, based on generally accepted risk, and ALARA (as low as reasonably achievable) principles. The dose limit approach and ALARA ensures protection of individuals while permitting flexibility to avoid large expenditures in funds to remediate small radiation risks affecting small numbers of people.

For site cleanup GPU Nuclear endorsed the ICRP/NCRP recommendations of 100 mrem total effective dose equivalent (TEDE) to any member of the public above background from all site specific sources excluding indoor radon, in any one year. The annual dose limit (100 mrem) should be averaged over a 50 year interval following decommissioning and should account for radioactive decay and daughter ingrowth and should be the net increase above local background. A compliance screening level of 25 mrem per year should be applied to the mean annual TEDE to the critical population, i.e., the most highly exposed homogeneous group who may inhabit or be affected by the restored site. The aforementioned dose limits were previously recommended to restore the site for unrestricted use. Criteria to further reduce exposure after the dose limit has been achieved, i.e., further reducing a critical pathway exposure, should be based upon the ALARA principle taking into account various implementation factors such as costs, benefits and socioeconomic considerations for a specific site. Chemical toxicity to members of the work force, public, biota or environment from radionuclides should also be addressed.

By contrast, the proposed rule establishes a dose limit of 15 mrem/yr TEDE (total effective dose eqivalent) and a dose goal of 3 mrem/yr TEDE where further ALARA efforts need not be considered. These criteria would apply to the average member of the critical group from all radionuclides that could contribute to residual radioactivity. Past recommendations by nuclear utilities, NUMARC, ANS and the Health Physics Society (HPS) expressed a dose

limit, based on generally accepted risk and ALARA principles. Although the NRC has adopted this approach their criteria is much lower than the ICRP/NCRP recommendations(i.e. 100 mrem/yr TEDE to any member of the public) originally advocated by the industry. It is understandable that the NRC recognizes the public's interest in and potential for contributing to the decommissioning process, that some sites will no longer be under the control of the licensee once decommissioning is completed, and return to background is in the public interest. However, the 3 mrem/yr goal is well below natural background radiation variations, impossible to demonstrate compliance using direct radiation measurements, and could be construed as a defacto limit by the public.

The HPS has recently published a position statement entitled "Return to Background" and recommends cleanup standards based on lifetime risk and natural variations of background radiation. For purposes of limiting lifetime risk, a specific dose rate of 10-30 mrem/yr above background should be considered equivalent to background and without demonstrable increased risk. The cost of an ALARA program to demonstrate compliance with the 3 mrem/yr goal will be excessive. Costs are primarily related to increased technician time to obtain thousands of measurements and the corresponding increase in measurement time (10 times longer) to achieve the sensitivity in seeing 3 mrem/yr. Additional costs to rate payers could be in the millions. Using a dose limit and an ALARA program with no lower threshhold would provide licensees more economic incentives to dedicate their time and money on cleanup and not analysis and compliance demonstration, which offer no benefit to society.

Although dose based criteria were selected over risk based criteria for ease of implementation the 3 mrem/yr is consistent with the 1E-4 level of lifetime risk used by EPA for Superfund. It is not well understood how the NRC draft risk value identified above is derived and compared directly to EPA risk estimates since each agency uses different risk assessment methodologies. First, the NRC uses only fatal cancer risks while EPA considers both fatal and non-fatal cancer risks. Different time frames are also considered. In calculating individual doses to verify compliance with regulations, the radiation community traditionally has assumed that an individual is exposed over his/her entire lifetime (approximately 70 years, on average). The EPA Superfund program, however, recognizes that individuals do not spend their entire lives living in the same location. Accordingly, Superfund risk assessors assume that members of the general public are exposed for 350 days per year for 30 years when evaluating future residential, agricultural and recreational land use scenarios for contaminated sites. For future commercial/industrial scenarios, the guidance recommends that risk assessors assume a worker is exposed for 250 days per year for 25 years. The NRC needs to clarify how its risk based number is derived and amend it, if necessary, to reflect the same risk assessment techniques used by the EPA.

EPA has recently stated their radiation risk limits in EPA 402-R-94-005, "The Radiation Site Cleanup Regulation, An Interim Progress Report," February, 1994. These limits are in the range of 1E-4 to 1E-2 and also correspond to

similar Superfund risk estimates. Using the 30 year exposure period that EPA applies to Superfund, a 30 mrem/yr standard results in a risk of 5E-4 which falls within the acceptable range of values.

Prior to the effective date of the final rule, the NRC will provide guidance on acceptable methodologies for demonstrating compliance with the Commission's residual radioactivity criteria. Guidance will include: converting concentrations of radionuclides to dose, how to evaluate alternate risks and costs when making the ALARA analyses, choosing scenarios and defining the critical group for exposure determinations, and how to determine if the return to background goal has been met. Whatever rule supporting document, e.g. Regulatory Guide, NUREG, or Branch Technical Position (BTP) is issued by the Commission, adequate review time and constructive input by both public and licensees need to be provided. Existing or new methodologies need to be widely understood, easy to use and verifiable. For example will acceptable methods be based on RG 1.109 (currently being used for environmental pathway radiological analysis and based on ICRP 2) or new 10CFR20 models, currently used in-plant and based on newer ICRP 26/30 methodology or both? To date the NRC has not combined these two methods due to each one's respective applicability.

An objective stated within the proposed draft suggests that EPA will be able to make a finding that NRC decommissioning criteria provide adequate protection for the public and the environment and will exclude NRC licensees from the EPA cleanup standards. In addition, State and local governments will have opportunities to participate in individual decommissioning actions carried out under the proposed regulation. The EPA and NRC have overlapping authority in the area of developing radiological criteria for decommissioning for nuclear sites. Public hearings for both agencies have been underway for the past year. EPA has not proposed specific rules to date but further hearings are to be scheduled. In addition, decommissioned sites, if not remediated properly, could later be subject to remedial action under EPA Superfund requirements using different risk based methodologies. Currently there are no assurances that meeting NRC criteria will automatically satisfy EPA requirements.

For decommissioning actions where the licensee proposes to request license termination with land use restrictions, the licensee would be required to convene a Site Specific Advisory Board (SSAB) for the purpose of obtaining advice from affected parties regarding the proposed decommissioning. Although the SSAB function and membership makeup are briefly described in the draft there is no authority figure responsible for final decision making. The licensee is responsible for establishing the SSAB, setting appropriate ground rules, providing public notice of meetings, and ensuring records of SSAB meetings become part of the decommissioning docket. It is not clear whether certain SSAB members may prescribe more stringent remediation criteria. This lack of definition could result in extended deliberations over policy, individual roles and authority. Community involvement will take place whether the site license is being terminated under the restricted or unrestricted criteria as part of the decommissioning plan. Through the process of town meetings more of the local population is informed on the nature and complexity

of facility decontamination and land use options are more clearly determined as a result of the composition of the community.

The NRC staff's definition of residual contamination includes radioactivity from all licensed and unlicensed sources discharged from the site in accordance with 10CFR20. This definition implies that for slight amounts of licensed material in the environment, as a result of legally permitted discharges over the facilty operating period, remediation will be performed. To broadly require licensees to include such discharges under the decommissioning rule contradicts the terms of the original license and facility Environmental Impact Statement.

GPU Nuclear's Position

1. Standards should be based on ICRP/NCRP recommendations for an annual risk based dose limit to a critical group and ALARA. This is the consensus opinion of scientific groups such as ANS, HPS, and NUMARC and most state and local governments involved with the NRC site remediation workshops. Although the 100 mrem/yr limit recommended by these groups has not been adopted by the Commission for reasons of public interest, GPU Nuclear recommends that a conservative and practical limit should be established to meet both the concerns of the public and economically achieve a safe site remediation level based on sound scientific evidence. We propose that 30 mrem/yr be incorporated into the draft as an alternative to the 15 mrem/yr limit. This value is achievable, falls within the acceptable EPA Superfund risk range and corresponds to limits of detectability for direct exposure measuring equipment.

2. ALARA programs should achieve as close to background as possible without imposition of dose goal threshholds. Dose goals should not be codified to preclude their use as defacto limits. This would allocate more decommissioning funds on actual cleanup work than on excessive analyses for compliance demonstration. Meaningful assessment utilizing ALARA must weigh the benefit vs. cost in a qualitative sense.

3. Standards should be simple to understand, enforceable and verifiable. Guidance should provide industry acceptable assessment methodologies published in a Reg. Guide, NUREG, or Branch Technical Position. Cleanup dose rate criteria should be set such that direct measurement can demonstrate compliance without excessive modelling. Standards should contain compliance and implementation methods for assessing dose from concentrations or surface measurements of radioactive contamination and for determining if the site meets the release criteria.

4. State and local governments and citizen oversight committees should be empowered to have input into the ALARA process on a site by site basis but should not be able to set more stringent standards. The process

already exists for public notification and participation. On obtaining a Decommissioning Plan from a licensee, the NRC is obligated to notice the document and provide a period for public comment. The formality and precedents set by this process provide both the utility and the commentors a logical framework to operate in. The concept of an SSAB as proposed is not seen as having any public participation benefit and has numerous downsides as a result of the lack of the formality and precedents set by the existing process, not to mention the administrative and financial burden it imposes on the licensee prior to the submittal of the Decommissioning Plan. Public participation should continue via recognized processes, and where community involvement is appropriate, it should take place through the town meeting process. It is ill advised to implement a concept such as the SSAB.

5. Areas influenced by legally permitted discharges, under 10CFR20, should be excluded from the decommissioning rule unless unforeseen mechanisms have led to a buildup of materials in the environment that would pose an unacceptable risk to members of the public.

References

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2. "Recommendations on Limits for Exposure to Ionizing Radiation," NCRP Report No. 91, June 1, 1987 and "Limitation of Exposure to Ionizing Radiation," NCRP Report No. 116, April, 1993, National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814.

3. "Residual Radioactive Contamination from Decommissioning," NUREG/CR-5512, Final Report, PNL-7994, Vol. 1, October 1992.

4. NUMARC Memo, "Draft Industry Comments on NRC Preliminary Proposed Rule on Radiological Criteria for Decommissioning", March 4, 1994.

5. EPA 402-R-93-084, "Issues Paper on Radiation Site Cleanup Regulations", September, 1993.

6. EPA 402-R-94-005, "The Radiation Site Cleanup Regulation-An Interim Progress Report", February, 1994.