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PETITION RULE PRM 61-1
(55 FR 13797)

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COMMENTS OF OHIO CITIZENS FOR RESPONSIBLE ENERGY, INC. ("OCRE")
ON PRM-61-1, 55 FED. REG. 13797 (APRIL 12, 1990), AS AMENDED,
55 FED. REG. 23206 (JUNE 7, 1990)

The Sierra Club, North Carolina Chapter has petitioned the NRC to adopt regulations which would permit the design and construction of a zero-release low level radioactive waste disposal facility in a saturated zone. While OCRE considers the design proposals advanced by the petitioner to have potential merit, and that the goal of a zero-release facility is laudable and should continue to be developed, there is too much uncertainty in the long-range performance of the designs recommended by the petitioner to warrant the siting of a LLW disposal facility in a saturated zone. Appropriate siting and design for zero release should both be elements of defense-in-depth for protecting the public from LLW.

The original petition recommends that LLW be placed in facilities constructed of concrete coated with bitumen, which would make the facility water-impregnable. The amended petition recommends polymer impregnated concrete or polymer concrete with fiber reinforcement. However, it is not clear from the Federal Register notices that the petitioner has submitted data which would establish that these materials would retain their water-proof properties for perpetuity (the petitioner's recommended design life) without degradation. Aging mechanisms and effects, particularly those due to ionizing radiation, need to be addressed. Nor is it clear that the petitioner has established the required design dimensions, such as wall thickness, necessary for the facility to have zero releases for perpetuity. For example, the original petition states that the "base of the module would rest on a bitumen layer of appropriate thickness." How thick is appropriate? Would the proposed calcium hydroxide solution adversely affect the properties of bitumen through perpetuity? It is not clear whether the calcium hydroxide solution would be used with the polymer concrete technologies recommended by the petitioner in the amended petition. If so, this raises a concern with regard to the integrity of the glass fiber reinforcement recommended by the petitioner. Information Notice 90-07, "New Information Regarding Insulation Material Performance and Debris Blocking of PWR Containment Sumps," states that devitrification of fiberglass occurs under alkaline conditions. These questions must be answered with scientific evidence before the petitioner's request can be granted.

In the Federal Register notice on the amended petition, it is stated that "the petitioner believes the permeability of appropriately designed PIC's and PC's to dissolved radioactive

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materials would be expected to be nil." (Emphasis added.) The petitioner additionally admits that it "does not know whether bitumen impregnation would favorably affect the physical properties of Portland cement concrete." 55 FR 23207. There is entirely too much speculation to support a regulatory change permitting siting of a LLW disposal facility in a saturated zone. Such a drastic change in the regulatory philosophy must be based on hard technical evidence, not mere speculation.

However, the designs concepts advanced by the petitioner do appear to have promise if the long-term performance uncertainties can be satisfactorily resolved. They would especially be appropriate in conjunction with, rather than a replacement for, conservative site selection. The NRC should sponsor research to ascertain whether the design concepts in the petition would truly result in a zero-release facility for perpetuity. Development of such a facility would be a great benefit to the protection of the environment and the public health and safety.

In conclusion, the NRC should deny PRM-61-1, but institute a research program to establish whether the design concepts advocated by the petitioner can indeed be utilized to build a zero-release facility which would safely contain LLW for perpetuity.

Respectfully submitted,



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