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ROBERT R. LOUX
Executive Director



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September 2, 1986

Mr. Samuel J. Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Docketing and Service Branch

Dear Secretary Chilk:

In the June 19, 1986 Federal Register, the NRC published for public comment proposed amendments to its regulations in 10 CFR Part 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories. The Nevada Agency for Nuclear Projects submits the enclosed comments in response to the Commission's request that parties with interest comment on the proposed rules. The subject amendments to 10 CFR Part 60 are responsive to the statutory requirement that the NRC conform its regulations to the "generally applicable standards for protection of the general environment from off-site releases from radioactive material and repositories" promulgated by the Environmental Protection Agency as 40 CFR Part 191. The Nevada Agency for Nuclear Projects commented upon the enactment of those general environmental standards and submitted a petition for rulemaking to the Commission (PRM 60-2, PRM 60-2A), receipt of which the Commission noted on December 19, 1985, 50 FR 51701.

Should you have any questions concerning our comments, do not hesitate to contact me or Carl Johnson of my staff.

Sincerely,

Robert R. Loux
Executive Director

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Enclosure

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COMMENTS OF THE STATE OF NEVADA
REGARDING THE JUNE 19, 1986 PROPOSED
AMENDMENTS TO 10 CFR PART 60

General Comments

Statutory Authority of the Commission

The Commission cites Section 121(b)(1)(C) of the Nuclear Waste Policy Act, 42 U.S.C. 10141(b)(1)(C), the "consistency" provision, as its primary basis for enactment of the proposed amendments. Though this is an appropriate reference and the requirement for consistency between NRC technical requirements and criteria and EPA environmental standards is a statutory one, the Commission should retain as its paramount objective the requirement of the Atomic Energy Act of 1954, reacknowledged by Section 121(b)(1)(A) of the Nuclear Waste Policy Act, 42 U.S.C. 10141(b)(1)(A), that nuclear programs under its licensing authority be consistent with the health and safety of the public. 42 U.S.C. 2013 d.

Coordinated Rulemaking

Nevada has commented, in connection with proposed amendments to 10 CFR Part 2, Part 51 and Part 60, that all of the proposed amendments to NRC regulations affecting the federal government's high-level nuclear waste program should be done in a single, coordinated rulemaking. The Commission has continued to disregard this comment, going forward with independent initiatives on the subjects of procedural rules, NEPA compliance, pre-licensing activity and EPA standards "consistency" regulations. Once again Nevada must reserve judgment on the final question whether all NRC's regulatory initiatives make a complete package, adequately respecting the objective of maintaining the public health and safety.

EPA Assurance Requirements

The Commission has made a concerted effort to incorporate the substance of the assurance requirements contained within 40 CFR 191.14. However, the translation of substantive requirements into the framework of the Commission's licensing regulations has resulted in a weakening of the assurance requirements to a certain extent. In particular, note the following:

- a. 40 CFR 191.14(a) NRC's approach is to analyze the need for active institutional controls after disposal is complete in the license termination context. Though the issue remains open for subsequent analysis, the substantive requirement of 40 CFR 191.14(a) is omitted. (See discussion of Section 60.2 below).

- b. 40 CFR 191.14(b) Post-closure monitoring. (See discussion of Section 60.51 and 60.52 below).
- c. 40 CFR 191.14(c) Monuments. EPA's rule is substantive, requiring permanent markers, records and other passive controls. NRC's rule, contained in 10 CFR 60.21(c)(8) and 60.51(a)(2) require only that such controls be described in a license application. 10 CFR 60.121, the land ownership requirement, on the other hand is a substantive requirement, using the word "shall". In order to be completely consistent with EPA's rule, NRC should enact equivalent substantive requirements.
- d. 40 CFR 191.14(f) Retrievability. The Commission chooses to omit any substantive requirement that disposal systems be selected so that removal of most of the waste is not precluded for a reasonable time after disposal. Though we agree with the Commission's observation that a deep geologic repository would theoretically be openable so that wastes could be removed, the obvious intention of the EPA rule is that each component of the repository system and the repository design itself not preclude removal of wastes. Certainly EPA was as aware as NRC that a deep geologic repository could be reopened. We suggest that the Commission adopt the removal of waste requirement as a substantive requirement.

PRM 60-2A

Though PRM 60-2A filed by the States of Nevada and Minnesota, primarily addressed the assurance requirements, the amended petition included suggested amendments to 10 CFR Section 60.24, addressing the Commission's implementation of Section 114(f) of the Nuclear Waste Policy Act, 42 U.S.C. 10134(f). That proposal is nowhere addressed in the amendments to 10 CFR Part 60 published on June 19, 1986. Nevada regards the proposed amendment to 10 CFR 60.24 contained in its petition to be relevant to the Commission's duty to protect the public health and safety under the Atomic Energy Act as well as the Commission's duty to protect the environment under the National Environmental Policy Act. We are aware that the Commission is in the process of considering its implementation of NEPA as it pertains to nuclear waste repositories and that the Commission has before it SECY 86-51, 86-51A, 86-51B, which staff papers have not been released to Nevada for review or comment. Once again we stress the need for coordinated rulemaking and request that the Commission promulgate all its repository related regulations at one time so as to guarantee their comprehensive success at protecting the public health and safety.

Section by Section Analysis and Comment

Section I Limits on Exposures and Releases

On Page 22290 the following statement is made:

"The Commission expects that the information considered in a licensing proceeding will include probability distribution functions for the consequences from anticipated and unanticipated processes and events." It should be pointed out that there is a precedent to this type of analysis, which suggests that this is not the approach that will help the fact finder to conclude that the standard of performance has been met. With the nomination of the three sites selected for characterization in May, 1986, the DOE issued a document¹ which contains analyses of anticipated and unanticipated processes and events, and which was used to obtain insight into the comparative advantages and disadvantages of all the sites under consideration for characterization. The document was not subjected to external peer review, and the affected States and Indian Tribes were never allowed to submit comments on the validity of the analysis. The NRC has yet to publish its critique of the document, which would provide an insight into the relevancy of such data to the licensing process.

Section II Additional Comments on Implementation of the EPA Standards

With reference to Figures 1 and 2 on Page 22291 and the accompanying discussion, the generation of "Complementary Cumulative Distribution Functions" appears to be simple and straight forward. In practice, the generation of such curves without an excessive number of "if" statements is virtually impossible. The analyses presented in the documents DOE/RW-0074² and DOE/RW-0073³ are good examples. Therefore, it is imperative that the NRC produce as soon as possible generic technical position (GTP) papers that outline probabilistic

¹U.S. Department of Energy, A Multiattribute Utility Analysis of Sites Nominated for Characterization for the First Radioactive-Waste Repository - A Decision-Aiding Methodology, DOE/RW-0074, May, 1986.

²U.S. Department of Energy, A Multiattribute Utility Analysis of Sites Nominated for Characterization for the First Radioactive-Waste Repository - A Decision-Aiding Methodology, DOE/RW-0074, May, 1986.

³U.S. Department of Energy, Environmental Assessment, Yucca Mountain Site, Nevada Research and Development Area, Nevada, DOE/RW-0073, May, 1986.

methods of analysis of anticipated and unanticipated processes and events that would be acceptable for evaluating compliance with the EPA standard in a licensing hearing.

On Page 22292 the following statement is made: "On the other hand, an apparent violation of the standard (based on conservative analysis) would not necessarily preclude the Commission from finding, with reasonable assurance, that repository performance would conform to the EPA standard". This statement appears to allow the Commission the latitude to replace scientific predictions of repository performance with qualitative judgments. This appears to run counter to the intent of the EPA containment requirements. The State could not support a finding by the Commission that repository performance conforms to the EPA standard when conservative analysis indicates the repository does not satisfy the requirements. The Commission should give further consideration to this position before final adoption. (See discussion of reasonable assurance, below, for amplification).

60.2 - Definitions

a. "Active Institutional Control"

The proposed definition of "active institutional control" deletes important language from the Commissions earlier circulated draft and PRM 60-2. In particular, the earlier version included institutional controls performed to monitor compliance with standards limiting releases of radioactivity to the accessible environment. Though Nevada endorses the concept, incorporated in the proposed rule that repository monitoring not interfere with the containment capability of the repository, compliance monitoring nevertheless remains a necessary element of certainty of performance, and also provides a first alarm notice of potential repository failure, thereby allowing repair of the repository system at the first possible opportunity. The language of the earlier draft should be restored.

b. "Controlled Area"

As redefined, the term "controlled area" allows amoeba-like configurations of the controlled area. This could allow the applicant to selectively exclude from the area important weaknesses in surrounding geologic formations.

c. "Transmissivity"

It should be emphasized that this definition of transmissivity is only considered in assessing whether an aquifer meets the EPA classification of "Significant Source of Groundwater". This definition should not be used in

calculating release limits for overall system performance objective or transport through unsaturated zone media.

Section 60.21-Content of Application

See discussion of reasonable assurance, below.

Section 60.21(c) (9)

See discussion of post closure monitoring, below.

60.51, 60.52 - Post-Closure Monitoring

At the outset, we note that the proposed amendment deletes two required characteristics of post-closure monitoring which were included in the earlier draft and in PRM 60-2A. Those were requirements that the description of the monitoring program, to be included in the application for license amendment for permanent closure, include:

1. a description of those monitoring devices which will indicate the likelihood that standards limiting releases of radioactivity to the accessible environment may not be met; and
2. an indication how the results of post permanent closure monitoring will be shared with affected State, Indian Tribal, and local governments.

The deletion is significant. Compliance monitoring is essential to the notice of repository failure to the public generally, and states and tribes in particular, in order to compel repair or maintenance. Compliance monitoring should be required and should be performed in a manner which does not interfere with repository safety.

More generally, Nevada finds problematic the proposed approach contained within Sections 60.51 and 60.52 regarding post-closure monitoring and license termination. The approach, as we understand it, is that monitoring will only be required until license termination occurs and that license termination will not occur unless the Commission is convinced that no more information obtained by monitoring would be material to the Commission's reasonable assurance that repository performance will be in conformance with the Commission's originally established objectives and criteria. The problem is that the two principles are symbiotically related. The lack of continued monitoring may be the reason why the Commission may determine that its reasonable assurance could not, in future, be altered. Nevada suggests that the monitoring requirement be perpetual, even past license termination, insuring perpetual compliance. We are, of course, conscious of the reality that all things must end. And certainly, if the deep geologic disposal of

high-level waste is successful, human memory, institutional protections and monitoring will stop. Even so, the better and safer approach now is to require perpetual monitoring.

Section 60.101 - Reasonable Assurance

The proposed amendment to Section 60.101(a)(2) adds new breadth to the concept of reasonable assurance. Whereas the current rule uses the phrase "reasonable assurance that the types and amounts of radioactive materials described in the application can be received, possessed, and disposed of in a geologic repository operations area of the design proposed without unreasonable risk to the health and safety of the public," the proposed rule uses the phrase "reasonable assurance, making allowances for the time period, hazards and uncertainties involved, that the outcome will be in conformance with those objectives and criteria." Assuming that "those objectives and criteria" include "a finding that the issuance of a license will not constitute an unreasonable risk to the health and safety of the public," the only change is the addition of the phrase "making allowances for the time period, hazards and uncertainties involve". Nevada supports the inclusion of this additional phrase, assuming that it clarifies and strengthens the standard of reasonable assurance, rather than weakens it. Our analysis of the explanatory discussion of the reasonable assurance concept, at 51 FR 22291,92, seems to confirm that it is the Commission's intention to clarify that the long time period, the severe hazards, and the extreme uncertainties, dictate a more conservative and cautious approach in order that the Commission's assurance be reasonable. The concept of reasonable assurance is indeed a qualitative one, requiring the Commission to exercise its judgment regarding the proposed repository's ability to operate without unreasonable risk to the health and safety of the public. Assuming that all of the factors considered by the Commission in making that judgment are quantitative, a qualitative judgment is appropriate. But the qualitative judgment should be made cautiously when the quantitative analysis is imprecise because of long time periods and uncertainties about future events. Even more caution is required when significant hazards may result from being wrong. The phrase in the introductory comments "a substantial, though unquantified, level of confidence that compliance with release limits will be achieved" 51 FR 22291 and the phrase "apparent violation of the standard (based on conservative analysis)" indicate that we are correct in our assumption that the added phrase "making allowances for the time period, hazards and uncertainties involved," is intended to dictate a more cautious Commission exercise of its qualitative judgment.

Nevada specifically requests that the Commission confirm that the changed rule moves toward more cautious exercise of judgment. We seek this confirmation because the phrase "making allowances for the time period, hazards and uncertainties involved" is capable of the interpretation that the unknowns of repository performance make stricter analysis less reasonable. (This was exactly the position

taken by the Department of Energy, in adopting its site selection guidelines, that the complex nature and length of geologic systems make quantitative analysis impossible). The word "allowance" is connotative of more liberal scrutiny. A better substitute would be "taking into account". We specifically request that the Commission address this important issue in its final enactment of the proposed rule.

Though the proposed rule does not address it, the standard of reasonable assurance as used therein indicates that the burden of proof of the ability of a repository to operate so as not to constitute an unreasonable risk to the health and safety of the public is upon the applicant Department of Energy. In other words, the entire licensing proceeding must be conducted in such a way as to institutionalize a bias against the proponent of the resolution of any issue when long time periods, unknown hazards or uncertainties exist.