-60 (16)
(51 FR 22288)

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OFFICE OF SECRETARY
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BRANCH

September 12, 1986

Secretary
U.S. Nuclear Regulatory
Commission
Room 1121
1717 H Street, N.W.
Washington, D.C. 20555

Dear Mr. Secretary:

Enclosed are the comments of the Yakima Indian Nation on the proposed amendments to 10 CFR Part 60, which were published at 51 Fed. Reg. 22288, June 19, 1986. We apologize for the late submission of these comments, which resulted from the coincidence of several deadlines related to the nuclear waste program. We hope that the Commission will still be able to fully consider these views.

Sincerely yours,

Dean R. Tousley

Dean R. Tousley
ASSOCIATE ATTORNEY FOR
THE YAKIMA INDIAN NATION

Enclosure

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Docketed 9-24-86, 62355
Dr. Jack Ro[illegible], 113655

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COMMENTS OF THE YAKIMA INDIAN NATION

on

PROPOSED AMENDMENTS TO 10 CFR PART 60

TO CONFORM TO EPA STANDARDS

51 Fed. Reg. 22288

Submitted September 12, 1986

On June 19, 1986, the Nuclear Regulatory Commission published in the Federal Register for comment a Proposed Rule, Disposal of High-Level Radioactive Wastes in Geologic Repositories; Conforming Amendments, 51 Fed. Reg. 22288. The proposed rule takes the form of amendments to 10 CFR Part 60, nominally to conform Part 60 to the Environmental Protection Agency environmental standards for disposal of spent fuel, high-level, and transuranic wastes, 40 CFR Part 191, which was finalized September 19, 1985, 50 Fed. Reg. 38066.

Following are the comments of the Confederated Tribes and Bands of the Yakima Indian Nation, an affected Indian Tribe under the Nuclear Waste Policy Act of 1982, on the proposed amendments. We apologize for the late submittal of these comments, which resulted from the coincidence of several deadlines in the nuclear waste program.

1. "Reasonable Assurance"

Part II of the NRC notice contains a lengthy discussion about demonstration of compliance with the EPA containment requirements in the licensing proceeding, "reasonable assurance", dealing with uncertainties, cumulative probability distributions, etc. 51 Fed. Reg. 22290-92. The release limits in the EPA standards are themselves stated in quantitative probabilistic terms. NRC says it will issue a license "only if it finds a substantial, though unquantified, level of confidence that compliance with the release limits will be achieved." In order to make this finding with "reasonable assurance", "the performance assessment ... must indicate that the likelihood of exceeding the EPA standard is low...." 51 Fed. Reg. 22291.

It appears that NRC is over-reacting to the charges earlier this year by the Radioactive Waste Subcommittee of the Advisory Committee on Reactor Safeguards that the EPA standards will be excessively difficult to demonstrate compliance with in licensing. Here the Commission is adding an additional, unnecessary

layer of subjectivity and "judgment", so that there is really no actual standard left, in the sense that a standard is something to measure DOE's application against.

It is justifiable that a standard of reasonable assurance would apply to the adequacy of documentation supporting an application to construct a repository. This documentation should demonstrate that the quantitative analyses are technically defensible. Adequate rationales must be provided for the selected parameters, types of analyses, and input data incorporated into performance assessments. For example, an effective porosity value used in a calculation should be representative of the site under consideration. If there is uncertainty in the value, a degree of conservatism should be added to the calculation commensurate with the perceived uncertainty to compensate for this uncertainty. NRC must then find, with "reasonable assurance", that the values derived and the degree of conservatism employed are analytically defensible. The "reasonable assurance" aspect of the NRC's licensing decision should be limited to qualitative assessments of the adequacy of the technical analyses supporting the application.

Unfortunately, NRC is proposing new language in the rule--specifically the last two sentences in section 60.101--and language in the Statement of Considerations, that carries the "flexibility" the NRC seeks in the "reasonable assurance" concept to unjustifiable extremes. In discussing treatment of uncertainties, NRC states that "an apparent violation of the standard (based on conservative analyses) would not necessarily preclude the Commission from finding, with reasonable assurance, that repository performance would conform to the EPA standard." 51 Fed. Reg. 22292. On the other hand, NRC also states that "analyses based on 'best estimates' of repository performance might be found to be inadequate if substantial uncertainties are present." Id.

The latter concept just quoted is a reasonable statement of one possible manifestation of the analytical conservatism that should characterize the Commission's licensing decision in consideration of the great uncertainty involved. The former concept says, in effect, that even if the performance assessment results do not indicate compliance with the EPA standards, NRC may nonetheless issue a license based on some type of "warm feeling" about the site. The Commission here seeks to define reasonable assurance as the "flexibility" to license a site which does not appear to comply with the regulatory standards.

There is absolutely no need for the flexibility to "supplement numerical analyses with qualitative judgments." The numerical analyses will themselves be rife with qualitative judgments, unverifiable assumptions, and multitudinous opportunities for subjectivity. Similarly, "diversity or redundancy among the multiple barriers" cannot be accepted as grounds for ignoring or overriding the results of performance assessments which indicate

non-compliance. Indeed, whatever diversity and redundancy is present in the system should already be accounted for in the numerical analyses as reductions in the quantitative probabilities of exceeding the EPA standards which are an integral part of the analyses.

The Yakima Nation respectfully submits that the Commission's "flexibility" cannot extend so far. If DOE cannot come up with an analysis that permits the Commission to find, with reasonable assurance about the technical defensibility of the analysis, that the numerical EPA standards--including their quantitative probabilities--will be satisfied, there should not be the remotest possibility that the Commission will issue a license.

The Commission is correct in observing that absolute proof of compliance is not to be had in these circumstances, and that many qualitative judgments will permeate the licensing analysis. However, it is a far different matter to assert--in the name of flexibility--the right to grant a license in spite of apparent non-compliance. All the involved federal agencies have expressed the belief that there are many prospective sites which can satisfy the EPA standards. In light of that optimism, the Commission need not and should not destroy public confidence in the adequacy of radioactive waste disposal, or destroy its own credibility, by telling DOE and the public that it might issue a license even where those key regulatory requirements are apparently not satisfied.

The four new sentences at the end of section 60.101(a)(2) should be deleted. New language, relating "reasonable assurance" to the degree of conservatism in assigning input values and appropriateness of employed analyses (e.g., models), should be inserted in this section (60.101) and in the Statements of Consideration.

2. "Disturbed zone"

In Part IV of the NRC notice, discussing Section 60.2 definitions, the NRC goes out of its way to state that the extent of the "disturbed zone" should not be defined in relation to the zone affected by thermal buoyancy. 51 Fed. Reg. 22295. This statement of NRC's understanding is not consistent with the intent of the existing rule.

It is clear that back in 1983 when the rule was published, the NRC did intend to include the buoyancy affected zone in the disturbed zone. This is apparent from at least three sources as follows:

1) The definition of disturbed zone in the rule is as follows:

> "Disturbed zone" means that portion of the controlled area the physical or chemical properties of which have changed as a result of heat generated by the emplaced radioactive

> wastes such that the resultant change of properties may have a significant effect on the performance of the geologic repository."

The definition does not distinguish between properties of the rock medium and the included fluids. A geologic repository, by definition, includes the portion of the geologic setting important to isolation. The geologic setting includes the hydrologic system, which is indeed important to isolation. The fact that repository performance is considered also implies the fluid changes must be considered. For example, temperature increases in the fluid cause changes in fluid density and viscosity, thereby increasing hydraulic conductivity. Small increases in hydraulic conductivity can significantly increase release rates from a repository, and therefore are significant to repository performance. Density changes will also produce buoyancy effects, thereby altering flow directions.

2) Further, as the NRC explained in the June 21, 1983 Federal Register, the ground water travel time provision is a parameter which is "not dependent upon the effects of waste emplacement." (i.e., heat):

> Some commenters suggested that the groundwater travel time be expressed in terms of post-emplacement as well as pre-emplacement conditions. This assumes that post-emplacement changes would be significant. By definition, however, the portion of the geologic setting significantly affected by waste emplacement constitutes the "disturbed zone." The groundwater travel time provision applies to transport from the disturbed zone to the accessible environment. This parameter is not dependent upon the effects of waste emplacement.

This quote makes it clear that the GWTT parameter was intended to reflect post-emplacement performance and therefore must be evaluated outside the area affected by heat. This mandates that the disturbed zone encompass the zone of thermal buoyancy of ground water.

3) Additional evidence indicating that NRC originally envisioned a disturbed zone on the scale of kilometers (rather than meters as in the current Draft Generic Technical Position on the Disturbed Zone) appears in Section 60.123(b) of the 1981 proposed rule (Federal Register notice of July 8, 1981). This section reads:

> Adverse conditions in the disturbed zone. For the purpose of determining the presence of the following conditions within the disturbed zone, investigations should extend to the greater of either its calculated extent or a horizontal distance of 2 km from the limits of the underground facility, and from the surface to a depth of 500 meters below the limits of the repository excavation.

Outward distances of these magnitudes is of the order roughly equivalent to the outer extent of buoyancy effects.

The following statement in the June 19, 1986 Federal Register notice (51 Fed. Reg. 22295) clearly indicates that NRC is changing the intent of the rule, although the Commission is less than forthcoming about that intent:

> One potential type of effect which could alter local groundwater flow conditions is thermal buoyancy of ground water. Because buoyancy effects could extend over significant distances (see, e.g., M. Gordon and M. Weber, "Non-isothermal Flow Modeling of the Hanford Site," available in the NRC Public document room) and because the Commission is proposing to reduce the maximum allowable distance to the accessible environment, it is particularly important to emphasize that the Commission did not intend such effects to serve as the basis for defining the extent of the disturbed zone. The Commission recognizes that such effects can be modeled with well developed assessment methods, and therefore were not the type of effects for which the disturbed zone concept was developed. Any contrary implication in our statement of considerations at the time the technical criteria were issued in final form (see 48 Fed. Reg. 28210) should be disregarded.

NRC purports to justify this change in interpretation of the definition of the disturbed zone because 1) thermal-induced ground water flow supposedly can now be adequately modeled, and 2) the accessible environment is now limited to no more than 5 kilometers from the underground workings. It is very doubtful that the scientific community as a whole would agree that understanding of coupled ground water/heat flow modeling has been advanced to the point that it is no longer a considerable source of uncertainty. Particularly questionable is the adequacy of input data and data collection techniques for such sophisticated modeling.

The second stated reason, a nearer accessible environment, is a totally inappropriate basis for NRC to liberalize its definition of the disturbed zone. EPA changed the distance to the disturbed zone from 10 km to 5 km in order to make the analysis more conservative. Even so, this change in the direction of conservatism is overwhelmed by the many other changes in the direction of non-conservatism in the final EPA rule. NRC now seeks to neutralize that incremental conservatism for purposes of the GWTT determination by re-defining the disturbed zone as one which is much smaller than that which is actually, incontrovertibly "disturbed" by the heat effects of emplaced wastes. Inasmuch as the GWTT will be calculated using present-day hydraulic conductivities and gradients that later will be significantly altered by heat effects, the GWTT will no longer be a reasonable indicator of long-term, post-emplacement performance

under NRC's new interpretation of the disturbed zone.

Exclusion of thermal buoyancy effects in the determination of the disturbed zone boundary will have potentially determinative impacts on the licenseability of marginal sites. In a program where regulatory decision-making in the face of scientific uncertainty will be taken to unprecedented extremes, and where DOE, EPA, NAS, and NRC have already professed their belief that there will be no shortage of potential repository sites capable of satisfying the standards, it is unnecessary and unwarranted for the NRC to make unacknowledged liberalizing changes which enhance the prospective licenseability of the worst sites.

3. ALARA Should Be Restored.

In all its comments on the many iterations of the EPA standards, the YIN has insisted that the most important of the EPA's proposed assurance requirements was the one calling for releases to be kept "as low as reasonably achievable" ("ALARA"), even when the numerical containment requirements have been complied with. The ALARA principle, which is widely applied in the context of regulation of nuclear hazards, would provide a much-needed incentive for excellence in the repository site selection process, which clearly is lacking in DOE's "mere suitability" approach to repository siting.

Unfortunately, in the course of the extensive interactions among EPA, NRC, and DOE concerning the jurisdictional controversies inherent in the assurance requirements, the ALARA principle has fallen completely through the cracks. Because the Commission objected to EPA's proposed assurance requirements on jurisdictional grounds, but EPA declined to drop them, the Commission agreed to incorporate most of the concepts embodied therein in Part 60. At the same time as these discussions were going on between EPA and NRC, a separate dialog was occurring between NRC and DOE staffs concerning NRC's requested revisions to 10 CFR Part 960, the siting guidelines. NRC was unwilling to incorporate the ALARA assurance requirement in Part 60, and instead urged DOE to include the concept in the siting guidelines. Unfortunately, as discussed below, the form that the concept was given in the siting guidelines makes it virtually meaningless.

EPA, meanwhile, decided to retain most of the assurance requirements in 40 CFR Part 191, but provided that they will apply only for facilities not licensed by NRC, 40 CFR sec. 191.14, 50 Fed. Reg. 38086. EPA did not retain the ALARA assurance requirement, however. EPA's stated rationale for dropping this assurance requirement was that it is unnecessary because the idea has been incorporated in 10 CFR Part 60 and 10 CFR Part 960 (50 Fed. Reg. 38072, September 19, 1985).

This argument does not hold water. Since EPA's assurance requirements now apply only to facilities not licensed by NRC,

provisions in Part 60 and Part 960, both of which regulations apply only to licensed deep geologic repositories, obviously cannot take the place of EPA's assurance requirement. While the NRC is powerless to correct EPA's error with respect to unlicensed facilities, the Commission can and should correct the corresponding error with respect to licensed repositories.

The argument that the ALARA concept has been properly incorporated for repositories in DOE's siting guidelines is also without merit. DOE's alleged implementation of the concept in 10 CFR 960.3-1-5 is meaningless. It says, in effect: "In recommending a site for repository development, we will compare the sites based on two projections of releases over 100,000 years--one projection will emphasize natural barrier performance, and the second will emphasize total system performance, including full consideration of engineered barriers. The first of these two projections will take precedence as long as it does not make any difference in the recommendation. If it would make a difference, the two evaluations are to receive comparable consideration."

In the first place, it should be apparent that DOE is not really giving any precedence to an analysis that stresses natural barrier performance if that precedence would be discarded in the case where it made a difference in the decision. The claim that such a requirement serves as a substitute for a requirement to make siting decisions so as to keep exposures "as low as reasonably achievable" rings hollow, indeed.

In the second place, the ALARA principle should be applied not just at the repository recommendation stage, but at the recommendation for characterization stage as well. We can think of no better argument for the need for an ALARA-type incentive for excellence in the repository siting process than DOE's recent recommendation decision. The Department went through an elaborate multi-attribute site comparison methodology, then totally ignored its results and selected the site which is by far the worst in DOE's own ranking.

The Commission has heretofore declined to get more involved in DOE's siting decisions, a position with which the YIN respectfully disagrees. We urge the Commission to consider whether it really wants DOE to bring it a construction authorization application for the worst site that has been considered. In the absence of an ALARA-type incentive in the siting process, and particularly in light of DOE's interpretation of the timing of the preliminary determination of suitability, that result is not at all unlikely.

In rejecting an earlier suggestion to incorporate the ALARA principle in the geologic performance requirements of Part 60, NRC stated that because the EPA limits are already so low, "[e]fforts to reduce releases further would have little, if any, demonstrable value commensurate with their costs." 48 Fed. Reg. 28198 (June 21, 1983). This misses the point. An ALARA-type

comparative evaluation is needed not so much to reduce releases as to improve confidence in the face of enormous uncertainty that releases will indeed be below those EPA standards.

NRC makes much of the large inherent uncertainty in repository licensing findings, 51 Fed. Reg. 22292. That uncertainty argues for, rather than against, an ALARA requirement. EPA originally proposed the ALARA assurance requirement as a means of reducing that uncertainty, on the widely-accepted theory that uncertainty is less distorting in comparative analyses than in absolute ones. (That is, we can have greater confidence that site C is significantly worse than sites A and B than we can have that all three sites are "suitable.") The Commission can ultimately have much greater confidence that the site for which DOE applies for construction authorization is indeed "suitable" if that site is selected by DOE so as to keep exposures "as low as reasonably achievable." NRC should restore the ALARA principle to the repository licensing process by including it in Part 60. (EPA should also restore it to 40 CFR 191 for any HLW facilities other than NRC-licensed repositories.)

4. Scope of Application of Part 60.

Part 60 by its own terms applies only to licensing of deep-mined geologic repositories. The EPA standards, in contrast, apply to all forms of HLW and TRU disposal. NRC should clarify that it will promulgate separate regulations for licensing of any HLW disposal other than repositories, but still requiring NRC licensing under section 202 of the Energy Reorganization Act of 1974, and that any such alternative requirements will seek to achieve protection comparable to or greater than Part 60.

5. Part 20 Compliance

In the proposed amendment for section 60.111(a)(2), the Commission is proposing wording to state, "The geologic repository operations area shall be designated so that ... radiation exposures and radiation levels, and releases of radioactive materials to unrestricted areas, will at all times, including the retrievability period of sec. 60.111(b), be maintained within the limits specified in Part 20". If this language means to suggest that potential exceedance of Part 20 limits would necessarily preclude retrieval, it is unacceptable. Depending on the circumstances and the necessity of retrieval, exposures or releases in excess of Part 20 might be deemed justifiable or necessary. NRC should clarify that this provision is not intended to preclude retrieval operations if the site is found to be unsuitable for a repository at any time following waste emplacement.

6. Monitoring Requirements

The proposed section of the rule regarding post-closure monitoring (60.144) is discussed in section III of the Supplementary Information. This was added for consistency with the EPA Assurance Requirements [40 CFR 191.14(b)]. It would appear, however, that the NRC proposed rule will allow the operator to "walk away" from the site once the expectation of predicted performance is "confirmed". The EPA requirements call for monitoring until no useful information can be realized from this data collection. We believe the EPA formulation of an endpoint for monitoring will be more readily determinable. Moreover, given the degree of hazard of high-level waste, monitoring a high-level repository for as long as possible would be prudent. Therefore, the proposed NRC section 60.144 should read exactly the same as 40 CFR 191.14(b), with the intent that the repository will be monitored as long as possible. It is acknowledged that the NRC cannot enforce such monitoring. Nonetheless, including such language would be prudent.

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(51 FR 22288)

RICHARD H. BRYAN
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

DOCKETED
USNRC

'86 SEP 22 P3:54

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

AGENCY FOR NUCLEAR PROJECTS
NUCLEAR WASTE PROJECT OFFICE
Capitol Complex
Carson City, Nevada 89710
(702) 885-3744

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

RRL:CAJ/njc

Enclosure

SEP 23 1986

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.

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

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 quantative, 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

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September 2, 1986

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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 document[1] 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-0074[2] and DOE/RW-0073[3] are good examples. Therefore, it is imperative that the NRC produce as soon as possible generic technical position (GTP) papers that outline probabilistic

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[1]U.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.

[2]U.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.

[3]U.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 where 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 excessible 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 quantative, 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.

PROPOSED RULE PR-60
(51 FR 22288)

Department of Energy
Washington, DC 20585

DOCKETED
USNRC

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OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

Attention: Docketing and Services Branch

Dear Sir:

On June 19, 1986, the Commission issued for comment a proposed rule, 10 CFR Part 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories; Conforming Amendments (51 FR 22288), which is intended to conform 10 CFR Part 60 with standards for the management and disposal of high-level radioactive wastes promulgated by the Environmental Protection Agency. The interpretations of the EPA standards and the analysis described in the proposed amendment involve substantive, complex technical issues and major policy issues.

We appreciate the opportunity to comment on these important issues and are in the process of preparing comments. However, we find we have not been able to complete our review and comment preparation in the allocated 60 day period. Thus, we hereby request a 30-day extension of the comment period. Our comments are extensive and we would expect to be able to submit them to the Commission within this period of time.

Sincerely,

Gerald J. Parker /FOR JPK

James P. Knight, Director
Siting, Licensing and Quality
Assurance Division
Office of Civilian Radioactive
Waste Management

PROPOSED RULE PR-60
(51 FR 22288)
(18)
DOCKETED USNRC

University of Wisconsin—Extension
GNHS
M.E. Ostrom
Director and State Geologist

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October 13, 1986

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Samuel J. Chilk
Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

On behalf of the Technical Advisory Council, Wisconsin Radioactive Waste Review Board, I am submitting the following comments on proposed rule 10 CFR Part 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories; Conforming Admendments (Federal Register, v. 51, no. 188, pp. 22288-22301). The proposed rule was reviewed by myself, DuWayne Gebken and Steve Dodge (Wisconsin Department of Natural Resources), and Bob Halstead (Wisconsin Department of Administration, Division of State Energy). I respectfully request that the Commission give the fullest possible consideration to these comments.

A. Proposed section 60.2 (Definitions)

Section 60.2 (Definitions) includes two amended definitions and seven new definitions. The new definition proposed by the Nuclear Regulatory Commission for "special source of groundwater" is based of 40 CFR Part 191, specifically section 191.12 (o), a rule adopted by the Environmental Protection Agency and currently under judicial review. For reasons of both process and substance, the NRC should not adopt the definition for "special source of groundwater" as proposed for section 60.2, Federal Register, v. 51, no. 118, p. 22298.

Process Concerns

It is not in the interest of the NRC to adopt by rule a definition that is currently under judicial review. The NRC by proposing this adoption of the EPA definition of "special source of groundwater" leaves its own rules open to the same substantive deficiencies currently being reviewed in the courts. A decision favorable to the petitioners in Docket No. 85-1915, U.S. Court of Appeals for the First Circuit, would compromise NRC's own rules and result in delay and confusion until the definition could be changed by EPA in accordance with judicial review.

The NRC should seek to determine its own definition of the phrase "special source of groundwater" that would be consistent with the intent of 40 C.F.R. Part 191 and the NRC's obligations to license high-level radioactive waste disposal facilities under 10 C.F.R. Part 60.

Substantive Concerns

The proposed adoption of 40 C.F.R. Part 191, section 191.12(o) as 10 C.F.R. Part 60, section 60.2 leaves the NRC open to the substantive shortcomings of the current EPA rule. These include (1) limited applicability of the proposed standard to groundwater supplies, (2) restrictive geographic extent of the applicability of the proposed rule,

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(3) adoption of such terminology as "thousands of persons" that is vague, at best, and ignores more restrictive definitions in the Safe Drinking Water Act requiring protection of "public water systems" serving at least 25 individuals at least 60 days of the year, and (4) the little to no practical application of the proposed rule that is feasible.

1. The proposed definition encompasses only certain Class I groundwaters and ignores Class II and III groundwaters. To the extent the DOE selects a site in Class II aquifers or Class I aquifers which do not fall within the restrictive "special source" definition in proposed section 60.2, the rule provides no design standard for the protection of groundwater.

2. The range of protected groundwaters is limited under the proposed "special source" definition in section 60.2. No rationale is offered to justify the geographic limitation to the application of this proposed rule. Class I groundwaters within the controlled area or less than 5 kilometers beyond the controlled area are unprotected. This is not acceptable; there should be a groundwater standard for the controlled area that is no different than the individual protection requirements. This effectively allows the controlled area to be a transition area between the accessible environment and the disturbed zone of the repository.

3. The term "thousands of persons" included on the proposed definition is vague and arbitrary and cannot, without considerable hydrogeologic information and evaluation, be definitely ascertained. The more restrictive definition of "public water systems" in the Safe Drinking Water Act should, in our opinion, be the applicable concept though it, too, may be subject to the uncertainties of inadequate hydrogeologic characterization.

The restriction of the population to which this definition of "special source" is applicable is proposed to be to those persons present on the date of recommendation for further characterization. This restriction appears to arbitrarily limit the ability to protect water supplies and human health. The proposed definition ignores population growth in the area subsequent to the characterization decision and also ignores seasonal and part-year residents and tourists, who may well constitute a significant number of people potentially adversely affected by repository siting.

4. The proposed "special source" definition has little, if any practical application. The very nature of repository site evaluation mitigates against collection of the degree of hydrogeologic information that can sustain the "special source" definition.

For the reasons stated above, <u>the NRC should seek to adopt a different definition to describe groundwaters to be specially protected in the course of repository characterization, construction, operation, and post-closure activities.</u>

B. Proposed section 60.2 (Definitions)

NRC proposes to amend its definition of "controlled area" to specify that the controlled area is to encompass "no more than 100 square kilometers" and to extend "horizontally no more than five kilometers in any direction from the outer boundary of the location of the radioactive wastes." We support these proposed changes.

C. Proposed section 60.51 (License amendment for permanent closure)

We support this language requiring more specificity on post-closure monitoring and proposed changes in section 60.52 adding a new condition for license termination relating to confirmation of expected repository performance.

D. Proposed section 60.111 (Performance of the geologic repository operations area ...)

Despite the discussion on p. 22289 explaining NRC interpretation of EPA's uranium fuel cycle standards, and the substitution of "or" for "and" therein, the NRC appears to perpetuate this confusion between language and intent in its own proposed section 60.111 on p. 22298. Despite the correct wording usage in proposed section 60.112(b) on p. 22299, the NRC has not been consistent. We object to the use of "or" in the description of individual dose limits in section 60.111(a)(1).

E. Proposed sections 60.112-115 (Overall system performance...)

We are in general support of the proposed changes in these sections, but wish to point to seeming inconsistencies in language and intent of the rules as applied to high-level radioactive waste repository siting.

1. Both 40 CFR 191 and the June 30, 1983 version of 10 CFR 60 require the prewaste emplacement groundwater travel times from the disturbed zone to the accessible environment shall either "be at least" {60.113(a)(2)} or "substantially exceeds" {60.122(b)(2)(i)} 1000 years. However, at page 22295, first column, first paragraph, last sentence, it states the "fastest path of likely radionuclide travel from the disturbed zone to the accessible environment shall be a specified period (generally, 1000 years)." This sounds like the 1000-year travel time is a maximum, whereas, it really is a minimum.

2. A groundwater travel time of 1000 years over a distance of 5 km results in a conductivity of 1.59×10^{-5} cm/s. This is unacceptably high and approaches the conductivity of glacial tills and weathered granites.

3. This high conductivity in the controlled area is particularly troublesome since the individual protection requirement is not applicable (see previous comments). In addition, the only seemingly applicable standard, the special source of groundwater, is restricted to such large populations that it probably would not be applicable if the screening methodology

worked as it was supposed to. Thus, there would be no applicable limit to meet within the first 5 km of the repository and no protection for people who may live in this area.

4. Under these assumptions, it would be possible to rely entirely on engineered barrier and waste package performance to meet the 1000-year containment requirement after closure rather than to calculate expected radionuclides in the groundwater and potential doses to individuals. Let's assume that DOE decides to do that but to only take credit for the minimum 300 years allowed in 60.113(a)(1)(ii)(a) for waste package longevity. Does this then mean the groundwater between the repository and the controlled area can be counted on for the remaining 700 years containment since there are no applicable standards here anyway and the potential dose to individuals would not have to be calculated because these are not groundwaters of concern (page 22290, second column, individual and groundwater protection requirements)? This could have the unintended undesirable effect of putting absolutely no confidence in the geologic media, which was the original objective.

5. The lack of standards in the controlled area, the relatively high conductivity resulting from the 1000 year travel time over 5 km and the fact that people could be living in the controlled area are of concern. The basis of our concern is the thermal pulse and thermal bouyancy affect which can be attributed to the repository. It is likely the repository will act as a convection cell which would considerably alter pre-emplacement groundwater travel time, volumes and directions; yet, thermal buoyancy will not be considered in setting the extent of the disturbed zone (page 22295, second column, first full paragraph, first sentence). These factors together should be of concern for anyone within the controlled area or close proximity to the repository since groundwater flow rates may not provide sufficient time for radionuclide decay, sorption and dilution. In addition, the controlled area could be considered as an extension of the repository from a regulatory and engineering standpoint and, instead of being a transition zone for radionuclide decay, sorption and dilution, it could become the primary source of contamination for the area outside of the controlled area. The farther one is away from a groundwater of concern (which is based on use), the greater the distance before the standards will apply.

6. We would suggest that there should be primary and secondary disturbed areas. The primary disturbed area could be the area closest to the facility where the physical disturbances are such that conductivities would be substantially altered beyond pre-emplacement conditions. The secondary disturbed area may be a much larger area where thermal bouyancy effects predominate and where the rate and direction of flows may be altered beyond pre-emplacement conditions. There should then be conductivity

criteria imposed on the primary and secondary disturbed areas with some allowances for variation (eg., 10^{-9} cm/sec to 10^{-10}cm/sec for undisturbed granite and 10^{-5} cm/sec to 10^{-6} cm/sec for the primary disturbed area around the repository facility). The problem with things as they are now is the uncertainty and ambiguity in interpretation of the regulations. The siting guidelines didn't help and it seems things are getting less predictable rather than more predictable. Somewhere a benchmark has to be set and the best basis for comparison would be the pre-emplacement conditions. There shouldn't be substantial variations from those conditions which can be determined and established beforehand. In fact, most of their generic engineering and mechanical properties are already known.

In light of the abovementioned concerns with groundwater standards, groundwater travel times, and waste-package performance, it is particularly troublesome that the NRC can apparently still ignore a violation (p. 22292, 2nd col., 1st paragraph, 4th sentence). We object that the finding of an apparent violation can be considered as not preclusive in terms of the Commission's findings that repository performance would conform to the EPA standard. This philosophy of selective ignoring of apparent violations appears to set a dangerous precedent of selective evaluation of legitimate data that indicates an apparent violation.

F. Proposed section 60.144 (Monitoring after permanent closure)

We support NRC's proposal for a program of monitoring after permanent (not "payment" as listed on p. 22300) closure of a repository. There is no reason that nondestructive monitoring could and should not be done to not only monitor repository performance but also to validate the models.

G. Proposed use of "negotiated rulemaking" (p. 22292)

Negotiated rulemaking on issues other than some generic issues is not acceptable. Issues that are particularly site-specific, for example, should not be decided outside of the full, open rulemaking process which is fully reviewable.

The proposed use of negotiated rulemaking on acceptable assessment methods is not advisable and we would urge the NRC to hold to formal rulemaking where it needs to adopt methods to evaluate risk, expected repository performance, and so forth.

Sincerely,

Thomas J. Evans

Thomas J. Evans
Chairman, Technical Advisory Council
Wisconsin Radioactive Waste Review Board

TJE:rm