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January 17, 1986

Ms. Catherine Russell
Division of Waste Management
U.S. Nuclear Regulatory Commission
Mail Stop 623-SS
Washington, D.C. 20555

Dear Cathy:

As we discussed on the phone today, enclosed are the long-lost comments of the Yakima Indian Nation on the Commission's Draft Generic Technical Position on Licensing Assessment Methodology. As I explained, they were prepared in October 1984, but inadvertently were not forwarded to you from the YIN Nuclear Waste Program Office, which was at that time just getting started.

Because of their age, certain aspects of these comments (such as references to Working Draft #4 of the EPA Standards) are out-of-date. Nonetheless, because of your need to receive them very soon if they are to be considered, we are forwarding them in their present form.

We greatly appreciate the NRC staff's diligence in noting that our comments were not received and inquiring about them at this late date, and your offer to consider them despite their untimeliness. Thank you.

Sincerely yours,

Dean R. Tousley

ASSOCIATE ATTORNEY FOR
THE YAKIMA INDIAN NATION

Enclosure

cc: Russell Jim
James B. Hovis

WM Record File _____
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NRC DRAFT GENERIC TECHNICAL POSITION
ON LICENSING ASSESSMENT METHODOLOGY
FOR HIGH-LEVEL WASTE GEOLOGIC REPOSITORIES

COMMENTS OF THE YAKIMA INDIAN NATION
October 26, 1984

The following are Yakima Indian Nation ("YIN") comments on the "Draft Generic Technical Position on Licensing Assessment Methodology for High-Level Waste Geologic Repositories," by the U.S. Nuclear Regulatory Commission.

In general, the NRC's position represents a fairly complete, rigorous approach to evaluating a license application. It outlines a stringent set of criteria for the Site Characterization Plans ("SCPs"), as well. These criteria could cause delays in issuance of the SCP's if DOE has not already anticipated NRC's wishes from previous meetings. One outstanding requirement by the NRC is its insistence that DOE designate subsystem performance requirements early on, as well as establish what DOE intends to demonstrate with respect to the performance of each subsystem. The YIN strongly supports the NRC position in this matter, and urges NRC to stand firm in its insistence. NRC should continue to press with DOE the likelihood of difficulties at the licensing stage if DOE continues to drag its feet with respect to subsystem performance requirements.

NRC has also made a strong statement in this technical position regarding its desires for an early demonstration of DOE's intent to consider coupled effects of various physical and chemical processes. This position, too, is strongly supported by the YIN.

On the down side, there are three significant weaknesses in this technical position: (1) it is not clear how the NRC will interact with States and Tribes in the prelicensing stage; (2) the new groundwater protection requirements in the EPA Standard (Working Draft #4) are not discussed; and (3) an unworkable threshold is suggested for determining "structures, systems, and components important to safety."

State and Tribal Interaction

The first problem is partially addressed in that review by States and Tribes is mentioned in regard to scenario selection and petitions to the Atomic Safety and Licensing Board (ASLB). What is needed, however, is a discussion of how the NRC staff will take into account--before the hearing stage--State and Tribal issues which may differ from the major concerns of the NRC Staff. There

is no discussion of mechanisms for States and Tribes to interact with NRC regarding differences of opinion, or the need to change the relative emphasis of certain issues.

Under the Nuclear Waste Policy Act, affected States and Tribes are to be treated as active participants in all significant aspects of this process--not just post hoc reviewers of selected pieces of it. Accordingly, Figure 1 should have an additional box for Affected States and Tribes, and there should be arrows leading from that box to both the Staff and the ASLB.. The Applicant should not be the only party with opportunities for input to the Staff. Figure 1 would also be more complete if it showed additional arrows leading from the Staff back to the Applicant and Affected Tribes and States.

For example, the States and Tribes should have opportunities to express their views to NRC Staff before decisions are made concerning discretionary matters such as the selection of areas for "independent NRC assessment" (p. 4) and the Commission's consideration of DOE suggestions for lower subsystem performance goals (p. 6). The adversary process, which will govern at ASLB hearings should be viewed not as the primary mechanism for State and Tribal involvement, but rather as a last resort which will at least partially reflect the failure of interactions which precede it.

Groundwater Protection Requirements

The footnote on page 7 of the Draft Technical Position states that it is based on Working Draft #4 of Proposed 40 CFR 191. Notwithstanding this assertion, the paper ignores a crucial new provision in Working Draft 4 of Part 191--the new groundwater protection requirement. The technical position only addresses releases to the accessible environment. If a major groundwater source is present, the latest version of the EPA Standards requires that an additional performance assessment over 100,000 years be performed within the boundary of the accessible environment. This provision of Working Draft #4 should be addressed in the final version of this Technical Position.

Importance to Safety

Section 3.3.1, on page 18, states:

NRC regulates--and the DOE application must address-- structures, systems, and components important to safety (§60.131(b)). An accident which produced an off-site dose of 500 mrem/yr will be limiting in determining what is "important to safety."

It is totally inappropriate to try to determine the importance of structures, systems, and components of a repository

to safety on the basis of any offsite dose limit. It simply does not make sense. How, for example, could a determination be made whether any particular item of equipment could produce a 500 mrem accident?

In the context of reactor regulation, from which this concept is taken, the term "structures, systems, and components important to safety" is defined as those "structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public." 10 CFR Part 50, Appendix A, Introductory paragraph. This language is equally applicable to a geologic repository. There is no way this concept can be meaningfully reduced to a speculative projection of offsite dose consequences. Indeed, there has been no such effort in the reactor context. See, e.g., Metropolitan Edison Company (Three Mile Island, Unit 1 Restart), LBP-81-59, 14 NRC 1211 (1981), at 1342-46.

Even if a dose limit could be justified as a surrogate for the importance of structures or components to safety, the 500 mrem/year level specified in the Technical Position is much too high. As stated above, the safety importance of structures or components turns on their ability to prevent or mitigate undue risk to the health and safety of the public. The health and safety of the public is best protected by the principle that exposures should be kept "as low as reasonably achievable" ("ALARA"). The EPA Standards for exposures for fuel cycle activities at 40 CFR Part 190, and even NRC's guidelines for determining compliance with the ALARA standard at 10 CFR Part 50, Appendix I, are many times lower than 500 mrem. To suggest that accident consequences many times higher than these standards would not be "important" is totally unacceptable to the YIN.

Other Specific Comments

Section 1.2, Page 4.

Comment: The term "uncertainties in the methods" is ambiguous. Does it mean uncertainties in assumptions, parameters or scales of the methods used?

Section 2.0, Page 9.

Comment: How can an "initial assessment" include "full consideration of the impact of all sources of uncertainty?"

The performance assessment results should be required to meet the Commission's criteria for successfully demonstrating compliance with 10 CFR 60, not the Department's.

Section 3.0, Page 10.

Comment: The licensing assessment should also require the identification of model testing and experimentation procedures.

Section 3.2.1.1, Page 16.

Comment: Codes selected by DOE must be justified by comparing predictions with appropriate naturation analogs. Natural analogs have unknown or conjectured boundary and initial conditions. How suitable and meaningful can natural analog comparisons be?

Section 3.2.1.3, Page 18.

Comment: "Examples of uncertainties in data and ...interpreted data and extrapolated data...." Add the words "interpolated data".

Section 3.3.2, Page 19.

Comment: "Therefore the staff considers that the Site characterization Plans should address the approach that DOE intends to take to addressing the potential coupling of physical and chemical processes...." Add the words "and nuclear (irradiation) processes".

Section 3.3.3, Page 20.

Comment: "...address the approach that DOE intends to take to addressing the potential coupling of physical and chemical processes" Add the words "and nuclear (irradiation) processes."

Section 3.3.4, Page 21.

Comment: NRC should define what it considers to be a "defensible boundary condition".

Section 3.3.5, page 23

Comment: This section discusses the possibility that coupling of scenarios could cause synergistic effects. It further states that scenarios will be assessed as to their effect on the performance objectives of 10CFR60, then grouped as to consequence and associated risk. Does this type of analysis allow for coupled scenarios? Can these synergistic effects be accounted for? This section should be rewritten to explain how scenarios can be coupled.

Likewise "degrees of intensity" may be permitted for scenario identification, but NRC may not necessarily allow this for probability or consequence assessments. This section should

be expanded to explain why NRC may not permit degrees of intensity to be used in probability or consequence analysis. If the problem is related to the mathematics of probability theory, then this should be explained in terms understandable by the general public.

The following statement is inscrutable: "Difficulties in implementing the EPA standard might be overcome by 'discretizing' processes, events, and failure conditions." As far as we are aware, putting it in quotes does not make it a word.

Figure 1

See comment under State and Tribal Interaction, above.

Figure 3

Comment: This figure is a flow chart and should have arrows signifying the direction of flow. Also, it is not clear from the diagram whether NRC intends to formulate conceptual models, perform scenario analyses and apply mathematical models in selected areas, or simply review DOE analyses in these areas. This diagram should have a better explanation in the text.