

Richard F. Foster, Ph.D.
CONSULTANT Environmental Effects of Energy Systems

ACNWC-0001
PDR 11/10/88

July 27, 1988

TO: O.S. Merrill, Senior Staff Engineer

FOR: D. W. Moeller, Chairman, ACNW

FROM: R. F. Foster, Consultant

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SUBJECT: COMMENTS ON DRAFT GENERIC TECHNICAL POSITION
"Guidance for Determination of Anticipated
Processes and Events and Unanticipated
Processes and Events"

At the second meeting of the ACNW on July 21, 1988, you asked that I provide additional comments on the subject GTP. After rereading the draft available to the committee and pertinent parts of 10 CFR 60, my reaction is as follows:

Section 2 of the GTP, titled "Regulatory Background", makes it abundantly clear that the reason for developing this guidance is associated with 10 CFR 60 and specifically § 60.112 and 60.113. The meaning of the terms "anticipated processes and events" and "unanticipated processes and events" is sufficiently important to the application of Part 60 that they are specifically defined in § 60.2 (copied as a part of Appendix A of the GTP).

Precisely how the NRC will interpret the language of Part 60 is crucial for several reasons and ought to be the focus of the GTP and follow on documents, perhaps including a new Commission Rule. As I see it, the crucial needs are:

- 1) To aid DOE in designing the engineered barrier system.
- 2) To provide guidance to the NRC Staff in deciding whether DOE's design is good enough.
- 3) To aid DOE and NRC in deciding whether the site is acceptable in respect to catastrophic events that might disrupt it.
- 4) To provide licensing boards with a basis for accepting or rejecting contentions that postulate events for which the barrier system is not designed (i.e. beyond a design base accident), or which might otherwise disrupt isolation of the waste.

In order for the GTP to be of significant value, it needs to sharpen the focus of Part 60 in these areas. I find the existing draft of limited value in these areas, and by reaching back to

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the "driving processes" of tectonics and climatology it may even muddy the decision process.

Section 60.112 specifies the need for the site and engineered barrier system to conform to EPA's environmental standards "--with respect to both anticipated processes and events and unanticipated processes and events." It does not differentiate between "anticipated" and "unanticipated". However, the following paragraph (§ 60.113) states that "(t)he engineered barrier system shall be designed so that assuming anticipated processes and events: --". Significantly, unanticipated processes and events are not mentioned in § 60.113 which is specifically concerned with the "Performance of particular barriers after permanent closure".

My reading of Sections 60.112 and 60.113 is that the design of the engineered barrier system must take into account "anticipated processes and events", but not "unanticipated" ones. Unanticipated processes and events must, however, be considered in relation to a massive disruption of the site that could release materials to the accessible environment in amounts exceeding EPA standards.

The translation of this concept into a GTP suggests that the "anticipated" processes and events should be identified as factors affecting the design of the engineered barrier in relation to compliance with EPA standards. "Unanticipated" processes and events would not influence design, but would influence decisions on acceptance of the site as a whole. The Siting Criteria of 10 CFR 60 already contain a comprehensive and well thought out list of potentially adverse conditions [§ 60.122(c)]. These could be sorted into "anticipated" and "unanticipated" categories and elaborated on in respect to design of the engineered barrier system and of the acceptability of the site.

Although I question the practical use of much of this draft GTP, the paragraph on Pg.13, concerned with human-induced processes and events does provide appropriate specific guidance. Use of this kind of instruction for other types of processes and events would substantially enhance the value of the document.

The draft GTP introduces a third category, "not sufficiently credible to warrant consideration" (Pg. 12). "Unanticipated processes and events" would fall between "not sufficiently credible" and "anticipated". I favor inclusion of the "not sufficiently credible" category and would encourage the possible inclusion of other candidate scenarios beyond "processes and events that have not occurred in the geologic setting during the Quaternary Period".

The Staff has shied away from use of a probabilistic basis for classifying events as anticipated or unanticipated (GTP Pg. 8) and points out that the Commission rejected this approach. Indeed, § 60.101(a)(2) states: "While these performance objectives and criteria are generally stated in unqualified terms, it is not expected that complete assurance that they will be met can be presented. A reasonable assurance, on the basis of the record before the Commission that the objectives and criteria will be met is the general standard that is required. For § 60.112, and other portions of this subpart that impose objectives and criteria for repository performance over long times in the future, there will inevitably be greater uncertainties. Proof of the future performance of engineered barrier systems and the geologic setting over time periods of many hundreds or many thousands of years is not to be had in the ordinary sense of the word. For such long-term objectives and criteria, what is required is reasonable assurance,---".

Absent a probabilistic approach, it seems to me that "reasonable assurance" should have a least a generally recognized basis. Other wise the burden of deciding what this means will fall completely on the licensing boards and, probably, the courts. I find the first paragraph of Section 4.2, "NRC Approach-Rationale" of the draft GTP to be particularly obscure on the matter of probabilistic risk assessment vs. compliance.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555

November 10, 1988

MEMORANDUM FOR: Jim McKnight
Document Control Systems

FROM: Ethel Barnard *EB*
Advisory Committee on Nuclear Waste

The attached ACNW Documents are being provided to you for listing on the accessions list. Please forward to the Public Document Room.

Attachments:
As Stated

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ACNW MINUTES AND CONSULTANT REPORTS

(PDR 111088)

1. ACNWC-0001 Foster memo 7/27/88 to Merrill re Comments on Draft Generic Technical Position, "Guidance for Determination of Anticipated Processes and Events and Unanticipated Processes and Events"
2. ACNWC-0002 Maxwell ltr 8/17/88 to Merrill re Comments on Draft Generic Technical Position: "Guidance for Determination of Anticipated Processes and Events and Unanticipated Processes and Events"
3. ACNWC-0003 Krauskopf memo 8/19/88 to Moeller re Draft Generic Technical Position on Anticipated and Unanticipated Processes and Events
4. ACNWC-0004 Page ltr 8/30/88 to Moeller re Comments on Draft Document re Anticipated Processes and Events
5. ACNW-0004 Fourth ACNW Meeting Minutes, September 13-14, 1988