February 24, 1994

Memo for: Commissioner de Planque

From: Eileen McKenna EM

SUBJECT: BRIEFING ON SECY-94-017 PART 100 SITING CRITERIA RULE

On March 1, 1994, the staff will brief the Commission on their current thinking with respect to changes to Part 100 (and Part 50) which would: (1) incorporate new source term, (2) "decouple" siting and design aspects in parts 50 and 100, and (3) revise seismic design aspects in Part 100.

SECY-94-017 presents options for Commission consideration on how to proceed. Recall that the version of the proposed rule issued in 1992 was universally disliked. The staff last briefed the Commission on this issue in August 1993 (copy of your notes and SRM enclosed).

An EDO memo of 2/10/94 provides a draft Commission paper on Source Term, as it relates to advanced reactor reviews. This also presents the present status of the new source term (see tab).

SECY-94-017 and the briefing slides address five options (including pros and cons) with respect to the non-seismic issues for part 50/100 decoupling. Option 1 is "status quo" and Option 2 is "proceed with the proposed rule from 1992". I think both of these can be readily rejected from further consideration.

The staff recommended option is Option 4, which would relocate the source term and dose calculations from Part 100 to Part 50, incorporate the new source term, and establish (new) general siting criteria in Part 100. Specifics for such things as exclusion area boundary or population density criteria would be in regulatory guides.

The other two options have some appealing aspects. Option 5 would retain the basic framework of the existing rules (i.e. no decoupling of siting and design in parts 50/100) but would substitute the updated source term. Option 3 would eliminate the source term/dose calculations in the determination of exclusion area (although these would be relocated to part 50 for purposes of plant design review) and would instead establish a minimum distance (0.25 miles), with population criteria in a regulatory guide. Thus, I think the only difference from Option 4 is the specification of the size of the EAB, rather than more general language (see enclosure 6).

Questions: I would suggest you ask staff about the differences between Option 3 and 4, whether the 0.25 miles is sufficient from security standoff distance)/emergency planning perspectives, whether current sites (and what about foreign sites?) would meet this (I think about four US sites would not), from a litigative view, would setting the EAB (but not other values in the rule) have a significant advantage over Option 4?

The other aspect of this paper and briefing is the seismic part. (You and Cr. Remick had a briefing with staff in June 1993 that discussed this aspect in more detail). Recall proposal for a hybrid of deterministic and probabilistic approaches, with the question then being, what do you do if the results don't agree. Question: This is an area you may wish to explore; have they revised their earlier plan for 10% (.03 g) agreement?

Staff still plans to pursue this hybrid approach, with explanations in regulatory guides. The options discussed in the paper related to format of the rule, that is, whether to maintain the details in the rule itself (in an appendix to Part 100), or to have the basic requirements in Part 100, with specifics in regulatory guides. The proposed rule followed the first course; staff is now recommending the second.

One of the issues the Chairman is expected to raise is whether staff could proceed with a final rule on this, or would need to renotice as a proposed rule. It is not clear from the paper what is intended for the non-seismic portions. (For the seismic part, staff specifically says they plan to proceed with a final rule; this will probably not be a problem as they are basically following what was in the proposed rule, except for moving some of the details to guidance rather than the rule itself).

March 14, 1994

Memo for: Commissioner de Planque

From: Eileen McKenna

SUBJECT: SECY-94-017 PART 100 SITING CRITERIA

Recommendation: Approve with comment

Discussion: You have seen this paper, and attended the briefing. I have attached the vote sheets of the Chairman and Cr. Rogers. Also, you asked about the seismic ground motion and the comparison between the probabilistic and deterministic approaches. I have attached a few pages from the paper which address this point. Basically, the staff is not saying at this time how they will make this decision. Therefore, in the proposed vote (attached), I have included a comment about this.

With the Chairman's vote, the staff would prepare a proposed rule (for both seismic and siting parts) for Commission review, followed by a public comment period. He also says that when the rule is brought forward, the staff should also include "outlines" of the SRP and reg. guides (which was actually one of your comments from the briefing) for the siting part. I am suggesting similar response on the seismic.

Cr. Rogers wants clarification on two points: That this rule is for initial siting only, and on the degree of coupling between design and siting. I think you can go along with these.

I vote
aa 7/7

July 6, 1992

Note for: Commissioner de Planque

From: Eileen McKenna EMM

SUBJECT: SECY-92-215 REVISIONS TO PARTS 50 AND 100 ON SITING

Recommendation: Approve publication of proposed rule changes for public comment with attached comments.

Background: As discussed in SECY-92-215, and at a Commission briefing on June 24 (which you missed due to ANO exercise), this rulemaking is part of a larger effort to update siting and design criteria, including update of the source term. This package would relocate the existing design-related dose criteria from Part 100 to Part 50, and would update site-related information in Part 100, such as the seismic hazard. Some of the detailed earthquake engineering requirements for design would be relocated to an appendix to Part 50, and other documents, such as regulatory guides would be updated. (Note that the revised source term information is out for comment; staff will provide a separate rulemaking to update the (to be Part 50) requirements on the source term to be used for determining containment and engineered safety feature design.)

This rule would be applicable to future applications. Thus, the existing requirements will be retained in the regulations. The new requirements will have different subsection numbers. However, as noted below, since some current reactors would not meet these limits, it does raise the potential for concern.

Some of the key issues related to this rulemaking are:

- establishment of an exclusion area distance of 0.4 miles, whih would preclude siting additional reactors at 25 sites.

- specifying in the rule population density limits. About eight present sites would not meet these proposed limits.

- redefinition of Operating Basis Earthquake, and required actions if the OBE is exceeded.

- requirement to perform both deterministic and probabilistic seismic hazard analysis.

Staff is soliciting comments on a number of issues associated with this rulemaking (see tab).

The folder includes the paper, the transcript from the briefing, the briefing slides, and an earlier paper (90-341) which has good background informationm on the purpose and consequences of the proposed rulemaking.

Commissioner Remick is the only vote as yet. I agree with his comments, and thus recommend that you support them. I have also suggested some other areas for clarification by the staff for the final rulemaking package.

August 3, 1994

Memo for: Commissioner de Planque

From: Eileen McKenna

SUBJECT: SECY-94-194 REVISIONS TO PART 50/100 DECOUPLING SITING AND DESIGN
Briefing on August 22, 1994

The Commission will be briefed by the staff on the proposed rule changes to parts 50 and 100 to accomplish a "decoupling" of siting and design criteria, for both seismic and non-seismic criteria. This paper and briefing are the latest steps in a long chain on this subject. The Commission approved the staff's approach for this particular round, following a paper and a briefing, in an SRM on March 28, 1994. (copy enclosed).

The paper is responsive to the Commission's direction, and explains the proposed changes very well. Staff proposes to publish this proposed rule for an 120-day comment period.

Your attention is drawn to a few key proposals:

Source term:

The staff proposes to remove reference to TID-14844. No specific source term is now given, although new footnote 6 notes that arises from an accident which "results in substantial meltdown of the core with subsequent release into the containment of appreciable quantities of fission products". Presently RG 1.3 and 1.4 describe the source terms for PWRs and BWRs respectively, based on TID. Another paper, in draft form, dated February 1994, indicated that these RGs would be updated to use NUREG-1465 source terms. Is this still planned? Schedule?

Note also that the criteria has been revised from 25 rem whole body (and 300 rem thyroid) to 25 TEDE. (Comments are specifically requested on this point). Also, exclusion area evaluation is revised to consider "any" two-hour period after the onset of fission product release. Again, you might ask how this would be applied, as for instance, if the NRC-developed source term were to be used.

(1)

Siting Away from Densely Populated Centers:

Refer to discussion at yellow tabs. This has probably been the most controversial part of the entire thing. In this version, no numerical values for either minimum exclusion area distance or for population densities are in the rule. The RG (enclosure 6) gives a value for average density, out to 20 miles of 500 persons per square mile, at time of site approval and projected out 5 years. The rule and guidance address the situation where a site is "away from a very densely populated center, but not in an area of low density", suggesting a need to consider alternative sites, using a number of factors.

There are several terms tossed around here: Very densely populated center, low density, major population centers, well in excess of preferred value. It might be helpful to ask staff to list these, with some what they think each means.

Also, the current RG 4.7 gives population densities up to 500 persons per square mile out to a distance of 30 miles. The new guide says "averaged over any radial

(2)

distance out to 20 miles ...does not exceed 500 persons per square miles". What is rationale for this?

Seismic Factors:

The general approach now is to have streamlined requirements in the rule, with detailed guidance moved to regulatory guides. As requested by the Commission, outlines of the regulatory guide are provided (Enclosure 7) as a means to help understand how the probabilistic and deterministic approaches would be integrated. See also SRP in Enclosure 8.

In general, I think the staff has done a commendable job in developing these rule changes. It's time to test the waters again on public comment. Our friends abroad should like this formulation better.

Gender-based language
-man-related - p 40
pRA-16

10.20

August 17, 1994

Note for: Commissioner de Planque

From: Eileen McKenna

SUBJECT: BRIEFING ON SECY-94-194 REVISIONS TO PARTS 50/100 (addendum)

We now have the slides for the briefing. No surprises.

Also, Bill Russell, Ashok Thadani and Nilesh Chokshi came to see me on this paper, especially with respect to the seismic aspects. Bill will be on leave next week and thus will miss the briefing. He wanted to explain the staff's approach to the earthquake evaluation, whereby an applicant uses a probabilistic approach to develop the spectra, further the applicant is to perform some near-field investigations. The staff, as part of its review, does certain deterministic checks. For instance, if there are other reactors on the same site, or in the vicinity, staff will look at design spectra for these, and look at the differences, to understand why they might be different. The staff calls this a sanity check. There is no pre-determined factor of agreement.

With respect to the two main methodologies (Livermore and EPRI), Russell noted that in the past, there were big differences in the results, but through further development, the results are more consistent.

In a related matter, for operating plants, they are relooking at their approach to the IPEEE (Individual plant examination for external events). Some guidance is due out in September, describing how plant walkdowns can be used to check for seismic vulnerabilities, with some additional attention on things such as tanks, anchorages, relays and block walls, that have historically been most affected by seismic events. This work will be coordinated with another generic issue, on Seismic Quailfication of equipment, such that one walkdown will serve both purposes. Staff plans some audit reviews, including observation of parts of the walkdowns.

In our discussion, we also touched on some of the aspects of the non-seismic part of the rule. For example, on population density. The value in the RG is a screening, "walk-away" value, that if met, needs no further review. If exceeded, other factors will be considered and alternative sites, per NEPA. On the five year projection, this is as far out as seems reasonable to project; sites may be pre-approved (early site permit), this gives some confidence.

The connections between certified designs, future sites and these regulations come from values of atmospheric dispersion (x/q) and size of LPZ (for dose calculation), and, for seismic, of ground motion. The safety analysis determines doses based on the parameters, as long as a site meets these, no further review needed. Similarly, the standard designs used 0.3 g ground motion. If the site-specific spectrum is lower, work is done; otherwise, would need to examine areas where it exceeds, and either consider margins or reanalyze.

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