

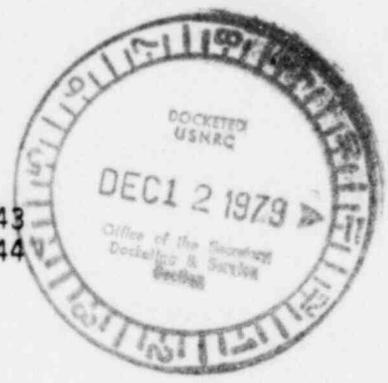
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of
PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE, ET AL.
(Seabrook Station, Units 1
and 2)

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Docket Nos. 50-443
50-444



NRC STAFF'S RESPONSE TO NECNP SUPPLEMENTAL
MEMORANDUM IN SUPPORT OF PETITION TO REVIEW

On September 26, 1979, the New England Coalition on Nuclear Pollution (NECNP) filed a supplemental memorandum in support of its petition seeking Commission review of the Appeal Board determination on the seismic design of the Seabrook facility.^{1/} The NRC Staff opposes this petition for Commission review.

The Atomic Safety and Licensing Board issued a decision granting a construction permit for the Seabrook facility determining inter alia the appropriate safe shutdown earthquake (SSE) for this facility and the proper "maximum vibratory acceleration" to be applied in the design of that facility.^{2/} See LBP-76-26,

^{1/} The Appeal Board's determination was issued on July 26, 1977 (ALAB-422, 6 NRC 33). On September 15, 1977, the Commission had extended its time for review of the seismic issues until the Appeal Board member Michael Farrar had filed his supplemental memorandum more fully setting out his dissenting views on the seismic issues. See CLI-77-27, 6 NRC 451, 453 (1977); Order (unpublished) June 22, 1979; Order (unpublished) August 23, 1979. The dissenting member's supplemental memorandum was published on August 3, 1979, and the majority supplemented its opinion on September 6, 1979 in response to the dissent, and at which time the dissenting member also supplemented his August 3, 1979, opinion (ALAB-461, 10 NRC ____). The Staff's time to answer NECNP's petition for review was extended to December 11, 1979, by unpublished order of October 25, 1979.

^{2/} The determination of these values is required by sections II, IV, V and VI of Appendix A to Part 100 of the Commission's regulations (10 CFR).

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3 NRC 857, 768-71, 919-22 (1976). The Atomic Safety and Licensing Appeal Board affirmed the Licensing Board's determination of these seismic issues on July 26, 1977. See ALAB-422, 6 NRC 33, 54-65, 106, 111-113 (1977). Both the Licensing Board and the Appeal Board determined that the Safe Shutdown Earthquake for Seabrook was one of Modified Mercalli Intensity (MMI) VIII and that the facility should be designed for a maximum vibratory ground acceleration of 0.25g.^{3/}

NECNP asserts that these determinations of seismic values were erroneous for six reasons.^{4/} The issues it seeks to raise are not significant issues of law or policy, but disagreements with the factual conclusions reached by the Licensing Board and the Appeal Board. The Staff will deal with each of these purported errors ad seriatim, but first will show that the Commission's Rules

^{3/} The U.S. Geological Survey reached the same conclusion on the maximum vibratory ground acceleration value. ALAB-422, 6 NRC at 55. The ACRS also reached this conclusion. See ACRS letter dated December 10, 1974. All other issues in the proceeding, with the exception of the determination of the proper value for radon in Table S-3, have been resolved. See ALAB-422, 6 NRC 33 (1977); CLI-77-22, 6 NRC 451 (1977).

^{4/} NECNP also maintains that "new information" supports its view that the Appeal Board and the Licensing Board erred. However, it has not shown or even claimed that this "new evidence" consisting of two articles published by its witness, Dr. Chinnery, since the hearing, would lead to a different determination, or that the record should be reopened to receive these articles. Under the standards of the Commission, proceedings are reopened to receive new evidence only on a showing that the new evidence could or would lead to a different determination upon a material health and safety or important environmental issue in the proceeding. Public Service Co. of New Hampshire (Seabrook Station), supra 6 NRC at 64 n. 35, 81-82; Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 2), ALAB-486, 8 NRC 9, 21-22 (1978). Staff review of these articles by NECNP's witness as well as much other material published since the conclusion of these hearings confirms the conclusion that there is no need to reopen the record to consider these matters as these articles do not provide a base to change the SSE and acceleration values established herein. See affidavit of Richard B. McMullen and Leon Reiter, submitted herewith.

do not call for review of such factual differences where the Licensing Board and the Appeal Board resolved such issues in a consistent manner.

II. ARGUMENT

A. No Legal Basis for Grant of the Petition for Review.

The Commission by regulation has limited its jurisdiction to review matters of fact established below to instances where the Appeal Board and the Licensing Board have come to different conclusions. 10 CFR 2.786(6)(a)(4)(ii) provides in pertinent part that:

- (4) The grant or denial of a petition for review is within the discretion of the Commission, except that:
 - (i) * * *
 - (ii) A petition for review of matters of fact will not be granted unless it appears that the Atomic Safety and Licensing Appeal Board has resolved a factual issue necessary for decision in a clearly erroneous manner contrary to the resolution of that same issue by the Atomic Safety and Licensing Board.

4/ FOOTNOTE CONTINUED FROM PREVIOUS PAGE

These articles, however, were suitable for Commission notification under the standards established in Virginia Electric Power Co. (North Anna Power Station, Units 1 & 2), CLI-76-22, 4 NRC 480 (1976); Duke Power Co. (William B. McGuire Nuclear Power Station, Units 1 & 2), ALAB-143, 6 AEC 623, 625-626 (1973). The NRC technical staff receives an extremely large number of research reports sponsored by it or others on numerous technical issues, and the individual staff members reviewing the subject articles were not cognizant of the need to call these articles dealing generally with seismicity to the Commission's attention in this proceeding. As the NRC Staff has previously advised the Commission, it has instituted a new procedure to prevent this from happening again. All NRC sponsored research reports, such as the Chinnery articles, will be analyzed by the Office of Nuclear Reactor Regulation within 60 days of receipt to determine if notification of the Board and the parties is appropriate. If a report cannot be reviewed within that period it will be forwarded to the appropriate Boards or the Commission, without that review. See Information Report, SECY-79-602, November 5, 1979.

The seismic issues on which NECNP seeks review concerning the selection of the correct values for a safe shutdown earthquake and the maximum vibratory acceleration are questions of fact upon which the Licensing Board and the Appeal Board have reached the same conclusions. The Commission's rules do not call for Commission review of these questions in such a situation, and NECNP's petition for review should be denied.

B. Each NECNP's Numbered Reasons for Review Raise Only Factual Matters Conclusively Established Below.

1. Both Boards Factually Concluded Not to Accept Dr. Chinnery's Testimony.

As NECNP points out in its supplemental memorandum (Memorandum at 4), the rejection of Dr. Chinnery's testimony was a factual (evidentiary) determination. It was based on the Board's conclusions that Dr. Chinnery did not sufficiently explain the geology of the areas he studied, did not sufficiently account for the differences in the geology of those areas he studied, and failed to explain the basis of the assumptions on which he predicated his hypotheses. As explained in detail, Dr. Chinnery's testimony was not accepted by the Appeal Board because it believed he had little knowledge of the geology of the areas on which he predicated his theories, and gave no explanation of why he felt the differences in such geology were irrelevant. As the Appeal Board stated (ALAB-561, slip op. p. 11 n. 8):

. . . Indeed, one might well question whether weight should ever be attached in an adjudicatory proceeding to theories advanced by a scientist who, no matter the reason, did not undertake the research necessary to enable him (or others) to pass an informed judgment upon the likely validity of his underlying assumptions.

Cf. ALAB-561, dissenting slip op. pp. 33-39. On these bases, the Board factually determined not to credit Dr. Chinnery's testimony. ALAB-422, 6 NRC 57-60; ALAB-561, slip op. pp. 6-13. The Licensing Board also did not factually accept Dr. Chinnery's testimony. 3 NRC 920. It matters not that NECNP thinks the evidence should have been weighed differently. Under the regulations of the Commission, the Appeal Board's affirmation of the Licensing Board's conclusions of design values for the Safe Shutdown Earthquake are conclusive.

2. Both Boards Determined That No Further Hearings are Needed on the Validity of Dr. Chinnery's Testimony.

NECNP also maintains that, "Even if Dr. Chinnery's testimony was not sufficient to carry the day . . ." it was at least sufficient to require remand of the proceeding to the Licensing Board, Memorandum at p. 6. The Licensing Board in not ordering further hearings on Dr. Chinnery's hypotheses, and the Appeal Board in not remanding the proceeding for further testimony on this hypothesis, both ruled that no further hearings are needed on these matters. These determinations, as the determinations not to credit Dr. Chinnery's testimony--are factual conclusions. Having been made by the Licensing Board and concurred in by the Appeal Board, they are not open to further review.

3. Both Boards Concluded That Dr. Chinnery's Testimony Was Not Technically Sufficient to Allow its Consideration Under Appendix A to Part 100, 10 CFR.

Paragraph V(a)(1)(i) of Appendix A to 10 CFR Part 100 provides that Safe Shutdown Earthquakes shall be identified through the use of seismic and geologic information including historic earthquakes of the greatest magnitude or intensity correlated with the tectonic structures involved. It further

provides that the magnitude or intensity of earthquakes based on geologic evidence may be larger than that of the largest relevant earthquakes historically recorded.

Dr. Chinnery presented hypotheses indicating how he believed earthquakes larger than those historically recorded might be determined. After considering his testimony, both the Licensing and the Appeal Board determined that his conclusions were not supported by scientific evidence concerning the geology of the regions involved or any research it could credit and both Boards rejected them. The Appeal Board thus stated:

. . . It may nonetheless be possible for Appendix A purposes to use the probabilistic approach to determine the probability of the occurrence of a certain intensity earthquake in one area from the data in a second area. To do this, however, complete geological data (e.g., rock type, age, type and magnitude of stress) must be available for both areas in question and must reflect that a close geological similarity exists; further, reliable seismological data must be at hand for at least one of the two areas. Dr. Chinnery's analysis did not contain these ingredients. No attempt was made to demonstrate geologic or seismic similarities between New England and the southeastern United States or the Mississippi Basin areas pointed to by Dr. Chinnery.

In sum, Dr. Chinnery's probabilistic theory, as presented on this record, is both technically deficient and inconsistent with Appendix A, and is hereby rejected.

Both the Licensing Board and the Appeal Board recognized that earthquakes larger than those historically recorded might be the proper Safe Shutdown

Earthquake, but rejected Dr. Chinnery's testimony in the present case because of the insufficiency of the factual showing made in support of his conclusion. See ALAB-422, 6 NRC 57-60; ALAB-561, slip op. pp. 6-18; 3 NRC 869-70, 919-20; cf. ALAB-561, dissenting slip op. pp. 31-39.^{5/}

4 and 5. Both Boards Concluded that the Montreal Earthquake Was Not Indicative of Earthquakes That Could Occur at the Seabrook Site.

NECNP argues that both the Licensing Board and the Appeal Board made erroneous determinations of fact in not selecting the Montreal earthquake of 1789 as the Safe Shutdown Earthquake for the Seabrook site. The Boards' determinations as recognized in NECNP's supplemental motion were based on matters of fact indicating that the Montreal and the Seabrook areas are in different tectonic provinces. These areas are separated by a gap coinciding with the Green Mountain Anticlinorium, which has a high gravity level and low seismic activity. Further, the Montreal area has a different geologic character than the Seabrook area. It is younger and is associated with structures known as the Montereian Hills intrusives and an extensive fault zone. See 3 NRC at 920, and ALAB-422 6 NRC at 61-62; ALAB-561, slip op. pp. 3, 14, cf. ALAB-561, dissent slip op. pp. 41-42. These are matters of fact. No question of law or policy exists for the Commission to review in both Board's like determinations that there was no cause to consider the Montreal earthquake in setting the Safe Shutdown Earthquake for Seabrook.

^{5/}The Staff does believe use of the probabilistic method of ascertaining seismic risk can be proper, and uses such method when it has sufficient facts to apply such method. See attached affidavit of Richard B. McMullen and Leon Reiter.

6. Both Boards Factually Determined That the Maximum Vibratory Ground Acceleration for Design of Safety Related Structures at Seabrook Is 0.25g.

Paragraph V(a) of Appendix A to 10 CFR Part 100 provides that the design of nuclear plants shall take into account the potential effects of vibratory ground motion caused by earthquakes. Paragraph VI(a) of that Appendix provides that this vibratory ground motion shall be defined by the response spectra corresponding to maximum vibratory accelerations at the nuclear plants foundation, and that the response spectra shall relate the response of the foundations of the plant to the vibratory ground motion. It further provides that it will usually be appropriate that the response spectra be a smoothed design spectra developed from a series of response spectra caused by more than one earthquake.

Thus under Appendix A the determinations of the maximum vibratory accelerations at the nuclear plant foundation, and subsidiary questions of the relation of the foundations to the vibratory ground motion to determine the acceleration and the smoothing of the response spectra to develop design spectra were left open for the subjective determination of the triers of facts. ALAB-422, 6 NRC 63-64; ALAB-561, slip op. p. 19; 3 NRC 870-871, 920-922; cf. ALAB-561, dissenting slip op. pp. 47-55 (as amended). The maximum vibratory acceleration is the effective maximum vibratory acceleration that could affect a nuclear plant's foundation, and not all possible maximum vibrations. See ALAB-561, slip op. p. 15; dissenting op. p. 49; ALAB-422, 6 NRC 63. The Staff here made the determination of this value by using the mean of the accelerations peaks of recorded earthquakes of the relevant intensity to arrive at what it believed

was a conservative effective maximum vibratory acceleration at the plant's foundations of 0.25g. Contrary testimony by NECNP proposed to derive this value as this mean of the acceleration peaks plus one standard deviation. Both Boards accepted the Staff testimony. See 3 NRC 870-871; 920-921; ALAB-422, 6 NRC 62-64; ALAB-561, slip op. pp. 14-19; cf. ALAB-561, dissenting op. pp. 47-52 (as amended). This was an issue of fact. No issue of fact law or interpretation of Appendix A to Part 100 exists.^{6/} Both Boards' determination of a maximum vibratory acceleration value of 0.25g is conclusive.

C. No Ground Exists to Review ALAB-421 and ALAB-561.

Under the regulations of the Commission a dissent by an Appeal Board member is not a jurisdictional ground to review that Board's affirmance of the factual determinations of Licensing Board. 10 CFR 2.786(a)(4)(ii). The dissenting opinion, like the NECNP petition, is in essence a disagreement with the majority on factual issues and in particular on the probative weight that should be accorded the parties' respective witnesses. The dissent credited Dr. Chinnery's testimony, while the majority did not. The majority determined that Seabrook was not in the same tectonic province as Montreal and did not have similar geology, while the minority disagreed. All this, as well as the determination of

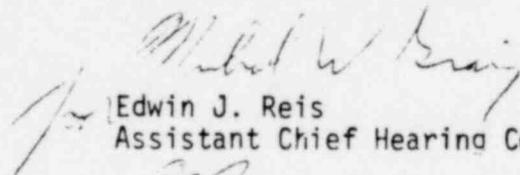
^{6/} NECNP attempts to phrase the question of the proper maximum vibratory accelerations at the plant's foundations in terms of the proper interpretation of the word "maximum" in Appendix A to 10 CFR Part 100. However, as the Board recognized, the dispute is really one of how to compute that maximum value. See ALAB-561, slip op. pp. 14-19.

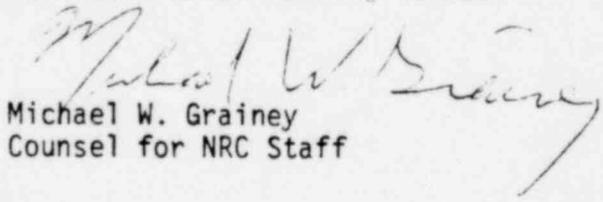
maximum vibratory acceleration values were based on differences in the appraisal of the various witnesses who appeared before the Licensing Board. Given the Commission's limited review of factual issues, the dissenting opinion does not constitute a basis for Commission review.

CONCLUSION

For the above reasons, no ground exists to grant NECNP's petition for review and it should be denied.

Respectfully submitted,


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Dated at Bethesda, Maryland
this 11th day of December, 1979

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