ADJUDICATORY ISSUE

January 31, 1985 (Notation Vote) SECY-85-37

For:	The Commissioners
From:	James A. Fitzgerald Assistant General Counsel
Subject:	REVIEW OF ALAB-793 (IN THE MATTER OF COMMONWEALTH EDISON COMPANY)
Facility:	Byron Nuclear Station, Units 1 and 2
Petitions for Review:	None
Review Time Expires:	February 15, 1985 (as extended)

B/8

James A. Fitzgerald
Assistant General Counsel

Attachments:

A. ALAB-793
B. OPE analysis

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Friday, February 15, 1985.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Friday, February 7, 1985, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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Attachment A

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. Reginald L. Gotchy
Howard A. Wilber

December 20, 1984
(ALAB-793)

In the Matter of	)	
COMMONWEALTH EDISON COMPANY	)	Docket Nos. STN 50-454 STN 50-455
(Byron Nuclear Power Station, Units 1 and 2)	)	

Michael I. Miller, Chicago, Illinois, for the applicant, Commonwealth Edison Company.

Jane M. Whicher and Timothy W. Wright, III, Chicago, Illinois (with whom Douglass W. Cassel, Jr., Chicago, Illinois, was on the briefs), for the intervenors, Rockford League of Women Voters and Dekalb Area Alliance for Responsible Energy/ Sinnissippi Alliance for the Environment.

Richard J. Rawson and Stephen H. Lewis (with whom Mitzi A. Young was on one of the briefs) for the Nuclear Regulatory Commission staff.

DECISION

This is an operating license proceeding involving the Byron nuclear power facility located in Ogle County, Illinois, about seventeen miles southwest of the City of Rockford. Last January, applicant Commonwealth Edison Company appealed from an initial decision in which the Licensing Board denied the operating license application by reason of determined construction quality assurance deficiencies.[1] Following consideration of that appeal, in ALAB-770[2] we remanded the proceeding to the Licensing Board for a further evidentiary hearing on particular quality assurance issues. In doing so, we (1) retained jurisdiction over the applicant's appeal, and (2) reserved judgment on certain other issues that the Licensing Board had resolved in the applicant's favor.[3]

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[1] LBP-84-2, 19 NRC 36 (1984). As employed in this opinion, the term "quality assurance" encompasses "quality control" as well.

[2] 19 NRC 1163 (1984).

[3] In urging that the result reached in the Licensing Board's January 1984 decision should be affirmed, the intervenors (Rockford League of Women Voters and Dekalb Area Alliance for Responsible Energy/Sinnissippi Alliance for the Environment) challenged the disposition of those issues below. This was, of course, permissible. A party is always free to urge the affirmance of a trial tribunal's result on grounds other than those assigned by that tribunal. See, e.g., Niagara Mohawk Power Corp. (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975).

In compliance with ALAB-770, the Licensing Board took further evidence and, on October 16, 1984, issued a supplemental initial decision in which, on the strength of that evidence, it concluded that the quality assurance deficiencies had been rectified.[4] Accordingly, the Board set aside the result reached in its January 1984 initial decision and authorized the issuance of operating licenses for the two-unit Byron facility.

We have heard the intervenors' challenge to that outcome on an expedited briefing and oral argument schedule. For the reasons that follow, we affirm both (1) the Licensing Board's supplemental initial decision, and (2) its disposition of issues other than construction quality assurance as reflected in its January 1984 initial decision.

I.

QUALITY ASSURANCE ISSUES IN CONTROVERSY ON APPEAL

A. Background

Utilities engaged in the construction of nuclear power plants are required by the Commission's regulations to have a quality assurance program that, among other things, verifies that activities affecting the safety-related functions of structures, systems, and components have been

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[4] LBP-84-41, 20 NRC ___.

performed correctly.[5] While it must retain ultimate responsibility for full compliance with all quality assurance requirements, an applicant may delegate to its construction contractors the establishment and execution of individual quality assurance programs.[6] This practice was followed at Byron with the applicant providing oversight of its contractors through audits and surveillances of construction work and contractor inspection activities.[7] As part of their quality assurance programs, the contractors were required to use properly qualified individuals to inspect safety-related work so as to provide assurance that no significant construction defects had gone undetected.[8]

In early 1982, when the facility was completed to a significant degree, an NRC Construction Assessment Team (CAT) carried out an in-depth inspection of Byron construction.[9] The purpose of that inspection was to assess the adequacy of certain aspects of quality assurance and construction activities, including the training, qualifications, and certification of contractor quality

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[5] 10 CFR Part 50, Appendix B, Criterion I.

[6] Ibid.

[7] LBP-84-2, supra, 19 NRC at 128-29.

[8] Id. at 128.

[9] Id. at 196.

assurance personnel.[10] While the NRC staff did not identify any serious construction defects, deficiencies were found involving the methods used by the contractors to evaluate the capabilities of prospective inspectors, the documentation of inspector certification, and the criteria for the qualification of inspectors.[11] These deficiencies raised questions regarding the competence of the individuals performing quality assurance inspections of contractor work. Therefore, notwithstanding the fact that the CAT inspection did not itself reveal any serious construction defects, there were concerns that the contractor inspectors may have overlooked such defects.[12]

To determine whether the inspector certification practices at Byron were adequate despite the certification deficiencies identified by the CAT inspection, the applicant developed a program to reexamine a representative sample of the safety-related work previously found acceptable by the inspectors in question. [13] These reexaminations were

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[10] Applicant's (App.) Exh. 8 at cover letter and 65.

[11] Id. at 67; LBP-84-2, supra, 19 NRC at 196-97; Tr. fol. 7801 at 4 (Forney, et al.); Tr. 7964.

[12] Obviously, the CAT inspection did not, and could not with a reasonable expenditure of resources, review all of the safety-related work at Byron.

[13] Tr. fol. 7549 at 5 (Stanish); Tr. fol. 7760 at 3-4

(Footnote Continued)

performed by inspectors who had been properly certified.[14]

All safety-related work inspected in the first ninety-day period by the sampled inspectors was reinspected to the extent possible.[15] If the individual performing the reinspection agreed with at least 95% of the original inspector's decisions for objective attributes and 90% for subjective attributes, the inspector was considered qualified regardless of any deficiencies in certification paperwork.[16] If, on the other hand, the reexamination reflected an unacceptably high error rate in a particular area of inspection (e.g., welding), the inspector's work in that area over the next ninety days was examined. Should the acceptance criterion not have been met for that second period, all of the inspector's remaining work in the area was then reinspected and, for that area, the number of

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(Footnote Continued)
(Tuetken). The reexamination focused upon work inspected before September 1982. The inspections subsequent to that time were conducted by individuals whose qualifications were established through revised certification practices. Tr. 7964-65, 7978-79.

[14] Tr. fol. 8406 at 20-21 (Del George); Tr. fol. 8408 at 14-17 (Tuetken).

[15] Tr. fol. 7801 at 6 (Forney, et al.).

[16] Tr. fol. 7760 at 5-6 (Tuetken). A subjective attribute is one that requires qualitative judgment by the inspector. The only subjective attribute covered in the reinspection program was visual weld examination. In contrast, objective attributes, e.g., as-built dimensions, require little judgment. Ibid.

inspectors whose work was subject to reexamination increased by 50%.[17]

As of the end of 1983, the staff (and the Licensing Board) had in hand only a preliminary report on the results of the reinspection program.[18] Rather than await the final results of the program (which became available in February 1984), the Licensing Board elected to issue its initial decision in January 1984, denying the application for an operating license.[19] In explaining that denial, the Board noted that the applicant took advantage of the opportunity, allowed by the regulations, to delegate to its construction contractors the execution of a quality assurance program.[20] The applicant, however, was found by the Board to have "failed in its responsibility to assure that its contractors carried out their delegated quality assurance tasks."[21] The Board was concerned particularly with the applicant's failure to assure that the contractors' quality assurance

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[17] Id. at 6.

[18] See letter from Bruce D. Becker to Licensing Board (Nov. 3, 1983) with enclosure.

[19] LBP-84-2, supra, 19 NRC at 36.

[20] Id. at 43.

[21] Ibid.

perscnnel were properly trained, qualified, and certified.[22]

Although this concern extended to virtually all of the contractors, the Licensing Board's result rested upon the uncertainties respecting the qualifications of only those inspectors in the employ of the Hatfield Electric Company (electrical contractor) and Hunter Corporation (piping contractor). This was because, unlike that of the other contractors with quality assurance weaknesses, the work of those two companies was not subject to 100% reinspection.[23]

The Board took pains to stress that, despite its denial of the operating license application, it had not concluded that the applicant was "institutionally unable or unwilling to maintain a reliable quality assurance program."[24] In addition, while expressing reservations about certain aspects of the reinspection program, the Board indicated

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[22] Ibid. In its supplemental initial decision, the Licensing Board reiterated that its principal quality assurance concern at Byron was with respect to inspector competence. LBP-84-41, supra, 20 NRC at __ (slip opinion at 121).

[23] LBP-84-2, supra, 19 NRC at 196-97, 217. As a secondary matter, the Board also found Hatfield and Hunter to be documenting improperly discrepancies identified during the reinspection program. Id. at 200, 214-16. This matter is no longer in issue.

[24] Id. at 44.

that this could be a method of resolving its concerns with quality assurance at Byron.[25]

On the applicant's appeal, we held that the Licensing Board correctly declined to authorize the issuance of an operating license when, by reason of lingering questions regarding inspector competence, legitimate uncertainty remained respecting whether the Byron facility had been properly constructed.[26] We further decided, however, that the Board should have awaited the receipt of the final results of the reinspection program before arriving at an ultimate determination regarding the application for an operating license.[27] Accordingly, we concluded:

> In the totality of circumstances, the appropriate course is a further hearing to permit a full exploration of the significance of the program in terms of whether there is currently reasonable assurance that the Byron facility has been properly constructed. Stated otherwise, the focus of the inquiry should be upon whether, as formulated and executed, the reinspection program has now provided the requisite degree of confidence that the Hatfield and Hunter quality assurance inspectors were competent and, thus, can be presumed to have uncovered any construction defects of possible safety consequence.[28]

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[25] Id. at 43-44, 214-16.

[26] ALAB-770, supra, 19 NRC at 1169.

[27] Id. at 1169-70.

[28] Id. at 1178 (footnotes omitted).

In this connection, we posed several questions to be addressed by the Board at the remanded hearing. Among other things, the Board was to inquire into whether construction defects identified during the reinspection program had been properly "resolved" -- i.e., either rectified or found upon analysis to be without safety significance.[29]

B. Remanded Hearing

As contemplated by ALAB-770, with respect to the reinspection program, the remanded hearing focused upon Hatfield Electric Company and Hunter Corporation. The Licensing Board, however, also looked at the program results for the Pittsburgh Testing Laboratory (PTL) because of that organization's role as an independent testing contractor and its performance in connection with Systems Control Corporation.[30]

All Hatfield, Hunter, and PTL inspectors included in the reinspection program passed the 95% acceptance criterion for objective attributes for their first three months of inspections. For visual weld inspection, Hatfield and Hunter each had one inspector and PTL had three

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[29] Id. at 1178-79.

[30] Memorandum and Order (June 8, 1984) (unpublished) at 12-13. We discuss Systems Control Corporation later in this opinion, pp. 60-65, infra.

inspectors who, for the first three months, failed to meet the 90% acceptance criterion for subjective attributes. Because these Hatfield and Hunter inspectors, and two of the PTL inspectors, had performed no inspections thereafter, other inspectors underwent reexamination in their stead. The substitute inspectors all met the acceptance criterion. The other PTL inspector who failed for the first three months also did not meet the acceptance criterion for the second three-month period. As a result, the balance of his accessible work was reinspected. Further, the sample of PTL inspectors was expanded to encompass every such inspector who performed accessible visual weld inspections. Each of these additional PTL inspectors passed the 90% acceptance criterion for the first three months of work.[31]

In accordance with our direction in ALAB-770 that evidence be presented to demonstrate that the discrepancies identified during the reinspection program were properly resolved, applicant witnesses described the engineering evaluations of those discrepancies that were performed by Sargent & Lundy.[32] In conducting the evaluations, the

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[31] Tr. fol. 8406 at 27-28 (Del George); Tr. fol. 9510 at 8-10 (Little, et al.).

[32] See generally Tr. fol. 9044 (French); Tr. fol. 9047 (McLaughlin); Tr. fol. 9051 (Branch). Sargent & Lundy is the architect-engineer for the Byron facility. Staff Exh. 1 (Safety Evaluation Report, Feb. 1982) at 1-6.

discrepancies were first compared to current design parameters and tolerances.[33] Discrepancies found to be outside these design parameters and tolerances were analyzed by engineering judgment or calculations.[34] Evaluations by engineering judgment were performed by comparison of the particular discrepancy with the design margin to ascertain the discrepancy's significance. All of the identified discrepancies (with the exception of discrepant Hatfield welds that were sampled) underwent evaluation.[35]

None of the discrepancies was determined by Sargent & Lundy to have safety or design significance.[36] Nevertheless, all work subject to the American Society of Mechanical Engineers (ASME) Code and having discrepancies that exceeded its examination acceptance criteria was

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[33] Tr. fol. 9044 at 6 (French); Tr. fol. 9051 at 7 (Branch).

[34] Tr. fol. 9044 at 6 (French); Tr. fol. 9051 at 7 (Branch).

[35] Tr. fol. 9044 at 6, 9 (French); Tr. fol. 9047 at 7-8 (McLaughlin); Tr. fol. 9051 at 8-14 (Branch); App. Exh. R-4 at VI-2.

[36] Tr. fol. 9044 at 8 (French); Tr. fol. 9047 at 12 (McLaughlin); Tr. fol. 9051 at 8-14 (Branch); Tr. 9282-85. Design significance is a lower threshold than safety significance (i.e., if a deficiency is not design significant, it will not be safety significant). Tr. 9159.

repaired.[37] All other discrepancies were either repaired or considered acceptable "as is" based on the results of the engineering evaluations.[38] The decision to repair discrepant non-ASME work was made on the basis of work status in the area.[39]

While the reinspection program was developed for the specific purpose of demonstrating inspector competence, a secondary effort was undertaken to analyze the extensive data produced by the program to determine whether inferences could be drawn about the quality of Hatfield and Hunter work in general. Along this line, the applicant presented testimony that applied statistical principles to the reinspection data to arrive at reliability estimates of work quality.[40] The applicant concluded that the quality of work is adequate.[41] It based this view, however, on engineering judgment, independent of the statistical analysis.[42] The

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[37] Tr. fol. 8406 at 36 (Del George); Tr. 8719; App. Exh. R-4 at Exh. C-3 and Appendix F (at F-6).

[38] Tr. fol. 8406 at 36 (Del George); Tr. 8719.

[39] Tr. 8825-26.

[40] See Tr. fol. 9055 (Singh).

[41] Tr. fol. 8406 at 47-53 (Del George); Tr. fol. 9336 at 13-14 (Behnke).

[42] Tr. 9272-78.

staff also considered the results of the reinspection program to have reinforced its positive conclusions about construction quality at Byron.[43] On the other hand, intervenors expressed considerable doubt whether the program was structured in such a manner as to allow inferences to be drawn respecting work quality.[44]

C. Licensing Board Determinations

Upon consideration of the evidence produced at the remanded hearing, the Licensing Board found in its October 16 supplemental initial decision that the sampling scheme for selecting inspectors whose work was to be reexamined was appropriate; that the choice of the first ninety days of an inspector's tenure was a proper time period for verifying the inspector certification process; that the acceptance criteria for establishing whether an

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[43] Tr. 9872-73; Tr. fol. 10,135 at 2 (Keppler). The staff testified that the primary purpose of the reinspection program was to determine whether inspectors had overlooked significant deficiencies. Tr. fol. 9510 at 4 (Little, et al.). But staff witness Little agreed that determining whether the inspectors had overlooked significant deficiencies was equivalent to determining whether they were competent. Tr. 9582-83. Staff witness Forney had some disagreement with other staff witnesses on the extent that inferences about the qualification of all inspectors and work quality could be drawn from the reinspection program but characterized these differences as "miniscule." Tr. 10,069; Tr. fol. 10,040 (Forney); Tr. 10,063-64.

[44] Tr. fol. 11,045 (Ericksen).

inspector was competent were appropriate; and that reasonable assurance had been provided that all of the Hatfield, Hunter, and PTL inspectors in question were competent, even though deficiencies had existed in the certification practices at Byron.[45]

The Licensing Board further found that the Sargent & Lundy engineering evaluations of discrepancies identified during the reinspection program were performed in accordance with proper engineering standards and that the assumptions used in the evaluations were sufficiently conservative. In addition, the Board was satisfied that the identified discrepancies had been properly resolved by either repair or disposition as acceptable "as-is" based on engineering evaluations. The Board considered the Sargent & Lundy determination that none of the discrepancies was design significant to be a "strong indication" that the inspectors of concern (i.e., those employed before revised certification practices were implemented) had not overlooked any significant safety-related deficiencies.[46]

With respect to construction work quality, the Licensing Board stressed that this matter was never directly

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[45] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 77-78).

[46] Id. at ___ (slip opinion at 106).

in question during the hearings leading to its initial decision. Rather, the Board's concerns with quality assurance at Byron centered on the failure to demonstrate that the inspectors were properly trained, tested, and certified.[47] The Board further recognized that ALAB-770 emphasized the need to establish inspector competence.[48] Nevertheless, the Board believed it important to take advantage of the extensive data collected from the reinspection program to help assess the safety of the Byron facility.[49] While noting that the reinspection data were a byproduct of an inspector competence program and that their value as a measure of work quality was limited, the Board was impressed by the absence of any design-significant discrepancies in the large number of reinspections (covering a broad range of work).[50] As a result of the evidence produced throughout the entire proceeding, the Licensing Board found that the applicant had demonstrated that the quality of the Hatfield and Hunter work is adequate.[51]

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[47] Id. at __ (slip opinion at 121).

[48] Id. at __ (slip opinion at 122)

[49] Id. at __ (slip opinion at 123).

[50] Ibid.

[51] Id. at ___ (slip opinion at 124). It should be stressed that, although our remand required the Licensing

(Footnote Continued)

Based on its detailed findings, the Board concluded that the applicant had prevailed on the quality assurance issue. The Board, therefore, set aside its prior denial of the operating license application. Interpreting our remand order to have returned to it full jurisdiction on the quality assurance issue in all substantive respects, the Board authorized the Director of Nuclear Reactor Regulation, upon making the findings on all applicable matters specified in 10 CFR § 50.57(a), to issue full power licenses to Byron Nuclear Power Station, Units 1 and 2, subject to the provisions of 10 CFR § 2.764(f).[52]

D. Intervenors' Claims on Appeal

Except in one limited respect, the intervenors do not attack the Licensing Board's conclusion that the reinspection program was adequate to establish the competence of the quality assurance inspectors. Rather, the main thrust of their challenge to the result reached in the supplemental initial decision is that the reinspection program failed to demonstrate affirmatively that the

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(Footnote Continued)
Board to focus upon whether the reinspection program established the competence of the quality assurance inspectors, (see p. 9, supra), ALAB-770 went on to authorize the Board to examine any other question that it deemed relevant to the ultimate issue of whether reasonable assurance existed that the Byron facility was properly constructed. 19 NRC at 1182 n.72.

[52] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 159-60).

inspectors had not overlooked construction defects of safety significance. In the intervenors' view, the ALAB-770 remand required a determination that the program satisfactorily served that purpose.

In addition, the intervenors complain of the Licensing Board's refusal to admit into evidence a part or the entirety of the proffered written testimony of four of their witnesses. Still further, the intervenors insist that the Licensing Board went beyond the scope of the remand in considering and making findings on matters of plant design and design margin. Finally, intervenors assert flaws in Sargent & Lundy's evaluation of the safety significance of the discrepancies found during the course of the reinspection.

E. Analysis

1. As just noted, the primary argument advanced by the intervenors in support of their attack on the supplemental initial decision rests upon a specific articulated premise with regard to the ALAB-770 mandate. If we understand it correctly, intervenors' thesis is that our remand required the Licensing Board to determine whether the reinspection program brought about a second look at a sufficiently large percentage of the construction work of assertedly high safety significance to allow an informed judgment that it was unlikely that any of that work was in fact defective. In intervenors' view, the reinspection program did not

satisfy this objective, with the purported consequence that the applicant failed to sustain its burden of demonstrating the existence of reasonable assurance that significant construction defects had not eluded discovery at the first inspection.[53]

a. The complete answer to this line of argument is that the intervenors have misread ALAB-770. Our instructions to the Licensing Board were explicit: it was to focus its inquiry upon "whether as formulated and executed, the reinspection program has now provided the requisite degree of confidence that Hatfield and Hunter quality assurance inspectors were competent."[54] If so, we stated, those inspectors could "be presumed to have uncovered any construction defects of possible safety consequence."[55]

The intervenors did not ask us to reconsider this instruction when we issued ALAB-770; nor do they now attempt to argue that it was unjustified. And our own independent reassessment of the matter has given us no cause to alter our thinking on it. To the contrary, we remain fully

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[53] Intervenors' Supplemental Brief on Appeal (Nov. 6, 1984) (hereafter, Intervenors' Supplemental Brief) at 6-11.

[54] ALAB-770, supra, 19 NRC at 1169 (emphasis supplied).

[55] Ibid. (emphasis supplied).

persuaded that, in the context of this case, it was perfectly appropriate to confine the required inquiry to a determination as to the competence of the Hatfield and Hunter inspectors.

As earlier observed, the genesis of the reinspection program was not the discovery -- either in the course of the staff's CAT inspection or on some other occasion -- of actual safety-significant construction defects that apparently had escaped the notice of the quality assurance inspectors. Instead, to repeat, what brought about the reinspection program were ascertained quality assurance deficiencies of a quite different stripe -- inspector certification.

An integral part of all acceptable construction quality assurance programs understandably is confidence that the individuals carrying out the inspections have the qualifications to fulfill their responsibilities properly: if there is any doubt in that regard, there necessarily must also be equal doubt respecting whether the inspectors in fact uncovered all significant construction defects. For this reason, it is of crucial importance in the assessment of the adequacy of a quality assurance program that there be satisfactory proof of the inspectors' qualifications. Normally, that proof will take the form of quality assurance documentation establishing that the individual in question has the training and experience appropriate to his or her

assigned function and has passed any requisite qualifying examinations.

The rub here was that such proof was lacking; i.e., it could not be ascertained from the available documentation that the inspectors in question were fully qualified. Accordingly, even though there was no objective indication that those inspectors were unqualified and consequently might have overlooked safety-significant defects, that possibility could not be excluded.

It was this consideration that led to the establishment of the reinspection program. Similarly, the uncertainty as to the inspectors' competence stemming from inadequate documentation of their qualifications -- rather than the discovery of any actual overlooked safety-significant construction defects -- was at the foundation of the Licensing Board's rejection last January of the operating license application on quality assurance grounds.[56]

It follows from the foregoing that the instruction to the Licensing Board to focus upon whether the reinspection program established inspector competence is fully consistent with the intervenors' own stated concept of "the central issue on remand." That issue, the intervenors insist, is

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[56] See pp. 7-8, supra.

whether "the new evidence [i.e., the results of the reinspection program] sufficiently cured or overcame the quality assurance failures identified in the initial decision such that there is now reasonable assurance that inspectors did not overlook construction defects of 'possible safety significance.'"[57] Once again, the identified "quality assurance failures" upon which the denial of the operating license rested related essentially to the demonstration of the inspectors' qualifications. And, in light of the fact that the CAT inspection did not disclose a previously undetected safety-significant defect, there no longer would be any reason to question the existence of reasonable assurance that the Byron facility had been properly built if those "quality assurance failures" were overcome (i.e., the inspectors' competence was established through the reinspection program). Indeed, it is highly improbable that, had there not been the discovered lack of proper documentation of the inspectors' qualifications, an issue would ever have arisen regarding whether the inspectors might have overlooked significant construction defects.

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[57] Intervenors' Supplemental Brief at 6.

b. The principal question before us is thus whether the Licensing Board correctly found that "as formulated and executed, the reinspection program has now provided the requisite degree of confidence that the Hatfield and Hunter quality assurance inspectors were competent."[58] No ultimate conclusion on this score can be reached prior to consideration later in this opinion of the intervenors' complaint regarding certain Licensing Board rulings excluding evidence. It can be said at this point, however, that the evidence that was received by the Board gives us no cause to disagree with the result below.

Inasmuch as the structure and fruits of the reinspection program are fully and accurately described in the supplemental initial decision, we need not detail that evidence here. Rather, we can confine our discussion to the one aspect of the program that the intervenors now appear to claim affects its worth as a determinant of inspector competence: the selection of an initial sampling period of ninety days.[59] According to the testimony of their witness

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[58] See p. 9, supra.

[59] See p. 6, supra. Although in ALAB-770 (19 NRC at 1170) we raised a question respecting whether the integrity of the reinspection program was affected by the fact that it was carried out by Hatfield and Hunter personnel, the intervenors do not challenge the Licensing Board's answer in the negative. See LBP-84-41, supra, 20 NRC at ___ (slip opinion at 53-60).

Dr. Dev S. Kochhar, the overall level of performance of an inspector would not be reflected by a review of his or her work over such a short period. This is assertedly because, with the passage of time, a newly trained inspector will become increasingly bored and, thus, less attentive to the proper execution of what Dr. Kochhar characterized as a "repetitive, dull and unstimulating . . . inspection task."[60]

In the supplemental initial decision, the Licensing Board rejected this "fall-off theory" on the ground, among others, that it

> is irrelevant to the issue pervading our initial decision and the proceeding on remand, i.e., whether the reinspection program reliably demonstrated that the inspectors were properly trained and tested and qualified at the beginning of their inspection work. The period of interest for that issue is obviously the first few months of their employment as inspectors.[61]

We agree with that conclusion. In addition, although not necessary to reach the point, we share the Board's further view that Dr. Kochhar did not lay an adequate foundation for his theory. As the Board observed, the witness's short-term

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[60] Tr. fol. 10,538 at 8 (Kochhar). Similar testimony was submitted by another intervenors' witness, Dr. William H. Bleuel. That testimony was, however, excluded by the Licensing Board. See pp. 27-29, infra.

[61] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 42-43).

studies were insufficient to permit an informed judgment respecting whether the ninety-day period would provide a reliable measure of inspector performance.[62]

2. We now move on to the intervenors' complaint about the Licensing Board's exclusion, in whole or in part, of the testimony of four of their witnesses: Dr. William H. Bleuel, Dr. Eugene P. Ericksen, Sargent Podworny, and Charles C. Stokes. The assigned basis (or bases) for the exclusion varied from individual to individual. We find it necessary to consider in each instance two questions. First, was the excluded testimony relevant to the disposition of any crucial issue? Second, if so, was it nonetheless cumulative and, accordingly, its exclusion not prejudicial?

In order to pass the test of relevance, the testimony would have had to bear upon one of the two principal issues that the ALAB-770 remand required the Licensing Board to explore. As just emphasized, one of those issues focused upon the reinspection program and called upon the Board to decide whether that program established the competence of the Hatfield and Hunter quality assurance inspectors. The

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[62] Id. at ___ (slip opinion at 44-46).

other issue involved the disposition of any discrepancies brought to light by the reinspection program.[63]

On the latter score, as earlier noted, the essence of the reinspection program was the reexamination by indisputably qualified inspectors of the work that had been previously accepted by the inspectors whose qualifications were in doubt because of lack of proper documentation. Needless to say, in most instances at least, there was not absolute agreement between the original inspector and the reinspector. Total agreement was, of course, not a condition precedent to a conclusion that the original inspector was competent (90 or 95% agreement was sufficient depending upon whether subjective or objective criteria were employed). But where the reinspector did find a deviation from established standards that had not been recorded by the original inspector, the question naturally arose: was that deviation significant and, if so, had it been rectified? In ALAB-770, we directed the Licensing Board to address this question: "Have all identified discrepant conditions, such as poor welding, been properly resolved?"[64] And, in its

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[63] As discussed at pp. 60-61, infra, ALAB-770 also called upon the Licensing Board to explore an issue relating to the quality assurance program of the Systems Control Corporation. None of the excluded testimony was, however, directed to that issue.

[64] 19 NRC at 1179.

supplemental initial decision, the Licensing Board answered the question in the affirmative based upon Sargent & Lundy's analysis that demonstrated that none of the identified discrepancies had design significance.

With these considerations in mind, we examine in turn each witness's excluded testimony.

a. Dr. Bleuel is a partner in the consulting firm of Zarkov & Gordon. He was described by the intervenors as a reliability and design assurance engineer with twenty-five years experience in design and quality assurance.[65] On July 24, 1984 (after the start of the hearing on remand), the Board was first notified that he might serve as a witness and his proposed testimony was thereafter filed on August 13, 1984.[66]

That testimony offered three reasons why, in Dr. Bleuel's opinion, the reinspection program did not provide adequate assurance that Byron will be operated safely. The first reason was that a failure modes and effects analysis had not been employed in the formulation of the program.[67]

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[65] Intervenors' Supplemental Brief at 11-12.

[66] Id. at 15.

[67] The intervenors submitted Dr. Bleuel's description of such an analysis: "Failure modes and effects analysis is a tool of reliability engineering. Essentially it entails three steps: first, identifying each of the possible ways

(Footnote Continued)

Second, Dr. Bleuel asserted, the engineering evaluation that was performed by Sargent & Lundy should have been performed with either pre-established criteria or by an independent group. Finally, Dr. Bleuel stated that his professional experience contradicted the assumption underlying the program that inspectors would perform least well during the initial three months.[68]

We need not decide here whether the Licensing Board correctly rejected this testimony as untimely.[69] Be that as it may, its rejection was not reversible error.

To begin with, intervenors' counsel explicitly conceded at oral argument that the failure modes and effects analysis called for by Dr. Bleuel did not address the question of inspector competence.[70] Further, there is no apparent connection between the analysis and the Sargent & Lundy evaluation of ascertained deviations. Accordingly, that portion of the Bleuel testimony simply lacked relevance.[71]

(Footnote Continued)
(modes) in which a system could fail; second, analyzing the effects of each such failure mode; and third, categorizing the failure modes according to their effects." Id. at 12A.

[68] Id. at 12.

[69] See Tr. 10,743-44.

[70] App. Tr. 27, 33 ("App. Tr." refers to the transcript of the November 29, 1984 oral argument on the intervenors' challenge to the supplemental initial decision).

[71] See p. 25, supra.

Dr. Bleuel's second point -- addressed to the Sargent & Lundy evaluation -- covered essentially the same territory as a portion of the admitted testimony of intervenors' witness Charles Stokes.[72] In the circumstances, we see no prejudice to intervenors stemming from the fact that Dr. Bleuel was not permitted to rehearse that testimony. The same lack of possible prejudice attaches to the exclusion of so much of Dr. Bleuel's proposed testimony as mirrored Dr. Kochhar's assertion respecting the decline in inspector performance over a period of time. Apart from the consideration that the reinspection program was properly designed to determine inspector competence (i.e., capability) and not performance, Dr. Bleuel's foundation for offering his opinion on the subject was no firmer than that of Dr. Kochhar.[73]

b. Dr. Ericksen is a senior sampling statistician for Mathematica Policy Research, Incorporated and a member of the Temple University faculty. He holds degrees in sociology, mathematical statistics, and mathematics. Those portions of his testimony that were excluded did no more than criticize one aspect of the structure of the

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[72] See pp. 35-36, infra.

[73] See pp. 24-25, supra.

reinspection program -- (i.e., they did not relate to the Sargent & Lundy evaluation to any extent).

At oral argument, intervenors' counsel expressly conceded that the criticism had no bearing upon the efficacy of the program as a vehicle for determining inspector competence.[74] Thus, whether or not the Licensing Board was right that Dr. Ericksen was unqualified to appraise the program,[75] his criticism was wholly irrelevant.

c. The same lack of relevance attends upon the excluded proposed testimony of Mr. Podworny, an Authorized Nuclear Inspector in the employ of the Hartford Steam Boiler Inspection and Insurance Company. That testimony related primarily to practices utilized by Hartford in determining compliance with the ASME Code. At oral argument, intervenors' counsel expressly conceded that it would not "shed light" on the inspector competency issue.[76] And, manifestly, it had nothing to do with the Sargent & Lundy evaluation.

d. Mr. Stokes is a nuclear engineering consultant with a newly formed firm, P/S Associates. He holds a degree in civil engineering and has worked professionally as a

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[74] App. Tr. 29.

[75] Tr. 11,026.

[76] App. Tr. 40.

civil and mechanical engineer for approximately ten years, principally in the design area.[77]

Mr. Stokes's testimony was submitted in question and answer form.[78] Although certain other answers were similarly treated, the intervenors' complaint to us is directed solely to the exclusion of the answers to questions 19 and 29-33.[79]

Question 19 probed Mr. Stokes's concerns about a broad range of Sargent & Lundy's design criteria applicable to such Byron components as safety-related pipe hangers.[80] In response to the question, Mr. Stokes criticized some of those criteria on the ground that they either failed to take into account certain stresses or made incorrect assumptions regarding the weight distribution of the component parts.[81]

As intervenors conceded at oral argument,[82] this criticism had nothing to do with the determination as to

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[77] Tr. fol. 10,770 at 1-3 (Stokes).

[78] See generally Tr. fol. 10,770 (Stokes).

[79] Intervenors' Supplemental Brief at 26-28.

[80] Tr. fol. 10,770 at 13 (Stokes). As far as we can tell, these criteria were early developed by Sargent & Lundy in its role as the architect-engineer for the Byron project, and not in the course of its engineering evaluation following the reinspection program.

[81] Ibid.

[82] App. Tr. 38.

inspector competence. Nor is there anything to indicate that Mr. Stokes's concerns on this score bear specifically upon Sargent & Lundy's disposition of the discrepancies revealed by the reinspection program. Indeed, while their brief advances the naked assertion of such a link, the intervenors have shed no light upon what they deem the connection to be. Moreover, it is worthy of note that, in their proposed supplemental initial decision below, the intervenors accepted the applicant's proposed finding that "in response to the issue added by the Board concerning [a]pplicant's repair of defects, the Board finds that all discrepancies were either repaired or dispositioned as acceptable 'as-is' based on engineering evaluation results, thereby resolving this issue."[83]

In these circumstances, the answer to question 19 was not relevant to any issue on remand. The same may be said with regard to the excluded answers to questions 29-33.[84] In a word, those questions related to the reinspection of welding performed by Blount Brothers Corporation, the general contractor responsible for concrete work,

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[83] Intervenors' Proposed Supplemental Initial Decision (Sept. 18, 1984) at 85.

[84] See Tr. fol. 10,770 at 20-22 (Stokes).

post-tensioning, and containment structural steel.[85] As ALAB-770 makes clear, however, our remand to the Licensing Board did not extend to Blount because its quality assurance program had been found adequate.[86]

3. In its supplemental initial decision, the Licensing Board did not confine itself to determining whether the results of the reinspection program demonstrated inspector competence. As earlier noted, it also concluded that those results (together with certain other evidence) affirmatively established the quality of the work performed by Hatfield and Hunter.[87] In reaching that conclusion, the Board made and relied upon, inter alia, findings regarding the safety margins included in the general design of the Byron facility.[88] According to the intervenors, that design was not in issue on the remand and thus was improperly invoked by the Licensing Board.[89]

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[85] See Affidavit of Kenneth T. Kostal (Aug. 18, 1984), appended as Attachment A to Motion to Exclude Testimony of Mr. Charles C. Stokes (Aug. 19, 1984). See also LBP-84-2, supra, 19 NRC at 149.

[86] 19 NRC at 1170 n.23.

[87] See pp. 15-16, supra.

[88] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 100-06, 123-24).

[89] Intervenors' Supplemental Brief at 23-26.

It is quite true that the general design was not open to challenge on the remand. To the contrary, any questions with regard to it had to be litigated in the hearings preceding the initial decision last January.[90] But it scarcely follows that the plant design and its associated safety margins, to the extent not successfully attacked in the prior hearings, could not be relied upon by the Licensing Board on the remand. Be that as it may, the underpinnings of the Board's findings regarding the affirmative evidence as to construction work quality are not of present importance. Once again, we determined in ALAB-770 that all the Board need determine in that regard was that the quality assurance inspectors were competent -- if competent, the quality of the work could be presumed.

It should only be added in this connection that the intervenors were permitted to adduce evidence on the subject of design criteria and safety margins to the extent relevant to the other principal issue on remand: the Sargent & Lundy disposition of the deficiencies disclosed by the reinspection.[91] This being so, they have no basis for

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[90] As will shortly be seen, at least questions relating to the seismic design were in fact so litigated. See pp. 41-59, infra.

[91] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 101 n.10). See Tr. 10,668; Tr. fol. 10,770 at 16-20 (Stokes).

complaint as to the scope of the Licensing Board's inquiry into design matters.[92]

4. In determining whether a particular deficiency identified during the reinspection had design significance, Sargent & Lundy sometimes employed what it characterized as "engineering judgment."[93] The intervenors complain that that organization failed to "define" in advance the criteria to be used in making such judgments.[94] They insist that, given that failure, the evaluation should not have been performed by Sargent & Lundy but, instead, by an organization not previously associated with the project.[95] This thesis was advanced in both the accepted testimony

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[92] In its supplemental brief (at 26), the intervenors note in passing their disagreement with the Licensing Board's denial, in an unpublished November 2, 1984 order, of their September 12, 1984 motion to reopen the record on design issues. In a September 19, 1984 unpublished order, we expressed doubt that the motion came within the scope of the ALAB-770 remand inasmuch as "design quality assurance issues [are] separate and distinct from construction quality assurance issues." For this reason, we felt constrained to authorize explicitly the Licensing Board to entertain the motion. In these particular circumstances, if dissatisfied with the denial of the motion, the intervenors should have noted an appeal from it. They did not and, therefore, all that is now properly before us is the Licensing Board's disposition of the remanded construction quality assurance issues.

[93] Tr. fol. 9044 at 6 (French); Tr. fol. 9051 at 7 (Branch); App. Exh. R-4 at VI-1, VI-2.

[94] Intervenors' Supplemental Brief at 29A.

[95] Id. at 29.

of Mr. Stokes and the excluded testimony of Dr. Bleuel.[96]

We agree with the Licensing Board's rejection of the intervenors' position. Our examination of the record has disclosed no evidence to suggest either that Sargent & Lundy's engineering judgments were flawed or that the organization allowed its evaluations to be influenced by its prior association with Byron.[97] In this connection, although Mr. Stokes performed a detailed review of "many" of the evaluations, on cross-examination he was able to describe only one purported example of a relevant lack of objectivity by Sargent & Lundy: an alleged inconsistency between its structural engineering and mechanical engineering groups in the treatment accorded fatigue loading.[98] But, as the Licensing Board observed, no such inconsistency existed.[99] This was because the two groups were looking at different components and each adhered to the portions of the ASME and American Institute of Steel Construction (AISC) Codes applicable to those components

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[96] Tr. fol. 10,770 at 4-6 (Stokes); p. 28, supra.

[97] We have earlier discussed the evaluation methodology. See pp. 11-12, supra.

[98] Tr. fol. 10,770 at 4, 18-19 (Stokes); Tr. 10,893-94.

[99] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 105-06).

under its examination.[100] Consequently, it is not surprising that, notwithstanding their appellate claims, the intervenors acknowledged below that the record did not support the need for an independent evaluation effort because of Sargent & Lundy's association with the applicant.[101]

II.

OTHER ISSUES IN CONTROVERSY ON APPEAL

As previously noted, in its response to the applicant's appeal from the January 1984 Licensing Board decision the intervenors challenged the Board's resolution of several non-quality assurance issues. In a June 13, 1984 memorandum and order (unpublished), we rejected one of those challenges -- directed to the Licensing Board's refusal to allow the intervenors to litigate their contention that the applicant was not financially qualified to operate the facility. (The text of that memorandum and order is contained in the Appendix to this decision, infra, pp. 67-70.) We now consider the intervenors' remaining claims, which we conclude to be without merit.

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[100] Tr. fol. 11,158 at 8-9 (Erler).

[101] Intervenors' Proposed Supplemental Initial Decision, at 85.

A. Need For Power and Alternative Energy Sources

Effective April 26, 1982, the Commission amended its regulations to prohibit the litigation of need for power and alternative energy source issues in operating license proceedings.[102] The prohibition currently is found in 10 CFR 51.53(c).[103]

In unpublished memoranda and orders issued on August 5 and 26, 1982, the Licensing Board denied the intervenors' petitions seeking a waiver of or an exception to the prohibition. The Board pointed out that, under the terms of 10 CFR 2.758(b), relief may be granted only upon a demonstration "that special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted." In the Board's view, the intervenors had failed to make a prima facie showing in this regard.

Before us, the intervenors not merely challenge this conclusion but, more fundamentally, maintain that 10 CFR 51.53(c) contravenes the National Environmental Policy Act of 1969, 42 U.S.C. 4321, and therefore is unlawful. The

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[102] 47 Fed. Reg. 12,940 (1982).

[103] See also 10 CFR 51.23(e).

latter claim is, of course, addressed to the wrong forum: within this agency, only the Commission itself has the authority to invalidate one of its own rules or regulations.[104] And we find nothing in the intervenors' assertions that might possibly establish the existence of the "special circumstances" required for a waiver of or exception to the Section 51.53(c) mandate.

Undergirding the 1982 amendment was the Commission's belief that, as a general matter, no useful purpose is served by considering need for power and alternative energy sources issues at the operating license stage. As the Commission put it in the statement of consideration accompanying the amendment:

> [W]hile there is no diminution of the importance of these issues at the construction permit stage, the situation is such that at the time of the operating license proceeding the plant would be needed to either meet increased energy needs or replace older less economical generating capacity and that no viable alternatives to the completed nuclear plant are likely to exist which would tip the NEPA cost-benefit balance against issuance of the operating license.[105]

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[104] See 10 CFR 2.758(a); Kansas Gas and Electric Co. (Wolf Creek Generating Station, Unit 1), ALAB-784, 20 NRC ___, ___ (Sept. 13, 1984) (slip opinion at 2); Potomac Electric Power Co. (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 89 (1974).

[105] 47 Fed. Reg. 12,940.

Neither the intervenors' filings below nor their brief to us presents nearly enough specific facts (as opposed to broad, unparticularized averments) to persuade us that the present and projected energy situation in Commonwealth Edison's service area is sufficiently special that that rationale is inapplicable here.

Stated otherwise, the laying by intervenors of a proper foundation for their waiver or exemption request necessitated a substantial concrete demonstration that, notwithstanding the enormous economic investment in Byron, the NEPA cost-benefit balance might now tip in the direction of abandoning this essentially completed facility. For, assuredly, that proposition is far from self-evident. There may well be room for legitimate doubt regarding whether warrant exists to undertake the erection of a particular nuclear facility -- i.e., whether the need for the electricity that the facility would generate is sufficient to justify assuming the environmental and other costs associated with its construction and operation. Thus, as the Commission pointed out, need for power and alternative energy sources issues remain of importance at the construction permit stage. But it is difficult to perceive many sets of circumstances that might lead one to a reasoned conclusion that the environmental costs of operating an already built facility would exceed the benefit to be

derived from utilization of the electric power that the facility is capable of producing.[106] Accordingly, it does not seem unfair to expect a threshold particularization on the part of a party claiming the presence of such circumstances and, therefore, an entitlement to litigate whether NEPA requires that the facility be mothballed or dismantled. Once again, such particularization was absent here.

B. Seismic Design

All nuclear power plants must be designed and built to protect the public from the hazards of radioactive release should the plant be subjected to movements in the earth's crust.[107] Under the Commission's regulatory scheme, this protection is achieved in part through the requirement that the plant be designed to withstand the maximum vibratory ground motion (in terms of acceleration) that might result

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[106] Needless to say, that the need for a facility's generating capacity (either to meet increased demand or to provide replacement electric power) might not be sufficient to justify building the plant does not perforce mean that, if the plant has already been constructed, it should be abandoned. Nor does a present judgment that the construction of, e.g., a coal-fired facility might have been preferable to the construction of the nuclear facility have much significance in determining whether, having been built, the nuclear plant should be allowed to operate.

[107] Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-644, 13 NRC 903, 909 (1981), quoting Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-519, 9 NRC 42, 45 (1979).

upon the occurrence of one of two different possible seismic events: the Safe Shutdown Earthquake (SSE)[108] and the Operating Basis Earthquake (OBE).[109] The SSE is the most powerful earthquake ever expected to occur at the plant site.[110] The plant must be able to withstand the forces of the SSE without releasing dangerous quantities of radioactivity.[111] The OBE is the strongest earthquake considered likely to occur during a plant's operating lifetime.[112] The facility must be designed and built to function through the OBE without creating undue risk to the public health and safety.[113] The vibratory ground acceleration assigned to the OBE must be at least one-half that assigned to the SSE[114] unless a lesser value is justified.[115]

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[108] 10 CFR 100, Appendix A, § III(c).

[109] Id. at § III(d).

[110] Diablo Canyon, ALAB-644, supra, 13 NRC at 911.

[111] Ibid.

[112] Ibid.

[113] Ibid.

[114] 10 CFR 100, Appendix A, § V(a)(2).

[115] Id. at § II; Diablo Canyon, ALAB-644, supra, 13 NRC at 989-92.

Before selecting the SSE and OBE that are to serve as the design bases for its proposed facility, a utility is required to investigate in sufficient scope and detail, inter alia, the structural geologic conditions of the site and surrounding region, including its geologic history.[116] If there is a fault[117] within 200 miles of the site that might be of significance in establishing the SSE,[118] the applicant must further determine whether that fault is "capable."[119] If so, it must then be evaluated for its potential for causing vibratory ground motion and surface

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[116] 10 CFR 100, Appendix A, § IV.

[117] A fault is a large-scale dislocation or distortion within the earth's crust along which differential slippage of the adjacent earth materials has occurred parallel to the fracture plane. Id. at § III(e).

[118] Id. at § IV.

[119] A capable fault is defined in 10 CFR Part 100, Appendix A, § III(g) as a fault which has exhibited one or more of the following characteristics:

1. Movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years.

2. Macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault.

3. A structural relationship to a capable fault according to characteristics (1) or (2) of this paragraph such that movement on one could be reasonably expected to be accompanied by movement on the other.

displacement, and taken into account in establishing the SSE.[120] In this connection, if the investigation both demonstrates that a particular fault is structurally associated with geologically old structural features (such as many of those found in the eastern region of the United States) and uncovers no affirmative evidence of capability, that fault shall be presumed to be not capable.[121]

1. The Byron site is located in the Central Stable Region tectonic province -- an area that extends from the Rocky Mountains east into New York State and south to Oklahoma. It is a region characterized, in general, by a relatively low level of seismicity.[122]

Approximately six miles southwest of the Byron site lies the Sandwich Fault Zone, encompassing a noncapable fault. The existence of the Zone was known at the time the construction permit for the plant was issued. It was then thought to be the nearest major fault zone to Byron.[123]

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[120] Id. at §§ IV(a)(7) and (8), IV(b).

[121] Id. at § III(g). For purposes of this regulation, "old" means at least "pre-Quaternary". Ibid. The Quaternary period starts with the Pleistocene (glacial) age, roughly one million years ago.

[122] LBP-84-2, supra, 19 NRC at 241.

[123] LBP-74-87, 8 AEC 1006, 1036 (1974).

There are minor but no capable faults underlying the site itself.[124]

Maximum accelerations of 0.2g for the SSE and 0.09g for the OBE were adopted as part of the design bases for the plant.[125] These values were determined to be sufficiently high based on an examination of the intensities and recurrence rates for earthquakes in the Central Stable Region.[126]

Subsequent to the issuance of the construction permit, a study undertaken by the Illinois State Geological Survey (ISGS) identified the existence of the Plum River Fault Zone just 5.3 miles northwest of Byron, which was earlier thought to be another type of geologic structure. Principally on the basis of the information developed by the ISGS study, the applicant and the NRC staff determined that the Plum River Fault Zone was not capable.[127]

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[124] LBP-75-64, 2 NRC 712, 716-17 (1975).

[125] Tr. fol. 479 at 3 (Singh); Tr. fol. 760 at 3-4 (Rothman); Staff Exh. 1 (SER) at 2-24. Earthquake acceleration is measured in units of gravity, or "g." One g, the acceleration of a free falling body due to gravity, is equal to an acceleration of 32.17 ft/sec/sec.

[126] Staff Exh. 1 at 2-26 to 2-28; LBP-75-64, supra, 2 NRC at 718.

[127] LBP-84-2, supra, 19 NRC at 242-44.

2. At the hearing below, the intervenors contested the seismic design of the plant.[128] In particular, they disputed the acceptability of the ground acceleration values selected for the plant's SSE and OBE, claiming that there was not sufficient information pertaining to either the causes of earthquakes in northern Illinois or the Plum River Fault Zone to arrive at those values. The Licensing Board rejected this claim and found the plant's seismic design to be in compliance with Commission regulations.[129]

Before us, the intervenors renew their challenge to the adequacy of the plant's seismic design. They maintain that the Licensing Board erred in finding that the Plum River Fault Zone was not capable and in endorsing the 0.09g value for the OBE. On the latter score, the intervenors contend that the applicant did not show good cause for deviating from the requirement that the value assigned to the OBE be at least one-half of the value given the SSE. According to the intervenors, the OBE value should be at least 0.1g and not the 0.09g employed for seismic design purposes.[130]

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[128] In actuality, it was only the League of Women Voters that pressed the matter before the Licensing Board. But because the other intervenors have joined the seismic arguments presented by the League to us, for convenience we are using the term "intervenors" throughout this discussion.

[129] Id. at 247-50.

[130] Brief of Intervenors (March 12, 1984) at 55-57.

At the hearing, the only dispute concerning whether the Plum River Fault Zone is capable related to the first criterion for determining a capable fault: whether there had been movement at or near the ground surface at least once during the last 35,000 years or movement of a recurring nature within the past 500,000 years.[131] In this regard, both the applicant and the staff presented considerable evidence supporting the absence of such movement. The intervenors insisted, however, that that evidence wa inadequate to reach any conclusion respecting the fault's capability.

The intervenors continue to press that position before us. They maintain tnat the Licensing Board's finding that the Plum River Fault Zone was not capable rested upon information acquired by "inaccurate" and "indirect" methods (i.e., by core drilling and seismic refraction) "while an accurate and direct method (excavation and direct observation of the fault itself) is available."[132] But the intervenors neither explain why the core drilling and seismic refraction methods produced unsatisfactory results nor refer us to any evidence in the record that might

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[131] See note 119, supra. The other two criteria for determining a capable fault were never seriously raised by the intervenors as issues in the proceeding.

[132] Brief of Intervenors at 56.

support such an assertion. This being so, the intervenors could not have complained had we elected to treat as abandoned their challenge to the Licensing Board's Plum River Fault Zone findings.[133]

We have chosen, however, not to take that route but, rather, to consider the intervenors' claim. Our review of the record persuades us that it is without merit.

One means of determining the age of a fault is the relative age dating method.[134] Basically, it consists of examining the material that overlies the fault and ascertaining when this material was deposited. The fault is then dated by tracing it upward through each stratum (or layer) of material to the point where the fault stops. An

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[133] See Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-270, 1 NRC 473, 475 (1975). True, the intervenors in that case failed to file any brief in support of their appeal. While the intervenors here did file one, nonetheless the observation we made in Midland applies to them as well: a failure to brief issues adequately "deprives us precisely of that assistance which the Rules of Practice are designed to have an appellant provide, i.e., to flesh out the bare bones exceptions 'with the precise portion of the record relied on in support of the assertion of error,' 10 C.F.R. § 2.762(a), and to present us 'with sufficient information or argument to allow an intelligent disposition of [the] issue[s].'"

[134] 10 CFR 100, Appendix A, § IV(a)(7) n.3; Tr. fol. 432 at 4 (Yonk). The other basic method (known as absolute age dating) employs radiometric studies of naturally occurring radioisotopes and their daughter products. Unlike the relative age dating method, it was not used in the ISGS study because of the absence of proper mineralogy at the site. Tr. fol. 432 at 3-4 (Yonk).

undisturbed stratum above the fault indicates that the fault is older than the overlying material.[135] Although not conclusive, an absence of signs of disturbance of the overlying material also provides some indication of the lack of fault movement since the time of deposit of the overlying materials.[136] On the other hand, evidence of displacement could indicate movement of the underlying fault since that time.[137]

The Plum River Fault Zone was extensively studied by the ISGS,[138] which is the repository for all geological information gathered in Illinois and is staffed by well-recognized experts on the geology of that state.[139] Indeed, the intervenors' own expert on geology, Dr. Henry H. Woodard, Chairman of the Geology Department, Beloit College, Wisconsin, credits the ISGS with being the "foremost state geology group in the United States."[140]

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[135] Id. at 4.

[136] Tr. 567-68, 597-98, 762-64, 820-21.

[137] Tr. 816-17.

[138] The study is reported in Plum River Fault Zone of Northwestern Illinois, ISGS Circular 491 (hereafter ISGS Circular). See also, Tr. fol. 753 at 3, 5 (Alterman); Tr. 791; Staff Exh. 1 at 2-22 to 2-24; Tr. 802-03, 822, 824.

[139] Tr. 436.

[140] Tr. 582.

In using the relative age dating method, the ISGS study examined data acquired from field observations, existing well records, and cores obtained from the area of the fault zone. In addition, the ISGS made use of a limited amount of refraction seismography data pertaining to the area of the fault zone, principally to locate anomalies in the bedrock surface and determine the position of the zone.[141] After that determination was made, two holes were drilled, one on each side of the fault zone, as interpreted from the refraction seismographic data. A core extending twenty feet into the bedrock was taken from one hole; a twenty-five foot core from the other. The underlying materials and bedrock obtained from the two drillings were analyzed and the relative position of layers of materials compared.[142] No displacement of the overlying materials, consisting of soils of the Illinoian and pre-Illinoian ages (200,000 to 500,000 years ago) at the top of the bedrock, was observed.[143] The

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[141] ISGS Circular at 2, 16; Tr. fol. 753 at 5 (Alterman); Tr. 568-69, 791. Refraction seismography basically involves the use of seismographs at specific locations to record sound waves set off in the ground by explosives. The sound waves pass through the soil and rock and their arrival times are recorded. Calculations can then be made of the depths and structure of the various underlying formations. Tr. 792-93.

[142] ISGS Circular at 15; Tr. 569-70.

[143] Tr. 815, 822; ISGS Circular at 16; Tr. fol. 753 at 2-4 (Alterman); Staff Exh. 1 at 2-22 to 2-24.

fault zone itself was determined to have been formed sometime in the interval between the Niagaran and Pleistocene periods.[144] The ISGS thought it likely that the fault zone was formed around the Pennsylvanian period.[145]

The ISGS study was reviewed by, among others, Alan K. Yonk, a geologist retained by the applicant,[146] and Dr. Ina B. Alterman, an NRC staff geologist.[147] Relying on his own observations and investigations and the results of the ISGS study, Mr. Yonk concluded that there had been no movement of any fault near the Byron site for at least 200,000 years and no movement of a recurrent nature for 500,000 years. In his opinion, therefore, the Plum River Fault Zone was not capable within the meaning of the Commission's seismic regulations.[148] Dr. Alterman reached the same conclusion.[149] Apart from the information provided by the

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[144] ISGS Circular at 17; Tr. fol. 432 at 7 (Yonk). Roughly, the interval between the Niagaran and Pleistocene times translates into a period from 400 million to about one million years ago.

[145] ISGS Circular at 17. The Pennsylvanian period was roughly 290 million years ago. Tr. fol. 753 at 7 (Alterman).

[146] Tr. fol. 432 at 5-6 (Yonk).

[147] Tr. fol. 753 at 3, 5 (Alterman).

[148] Tr. fol. 432 at 2, 6-8 (Yonk).

[149] Tr. fol. 753 at 3 (Alterman).

ISGS study,[150] she was influenced by the fact that there is no known seismicity associated with the fault zone, by the absence of any scarp at the fault zone, and by the tectonic history of the surrounding area indicating that any faulting in Illinois is no younger than sixty-five million years.[151]

The only witness presented by the intervenors on this issue was Dr. Woodard. His position appeared to be that any conclusion that the Plum River Fault Zone was not capable was premature because of the absence of information "one way or the other."[152] He conceded that he knew of no evidence of fault movement within the past 35,000 years or movement of a recurring nature within the past 500,000 years.[153] But, as he saw it, that was not determinative because "critical information" had not been obtained. According to Dr. Woodward, the overlying material should have been excavated "right across the fault zone." This would have permitted "direct observation" respecting whether the

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[150] The NRC staff routinely relies on state groups such as the ISGS because they are generally recognized as experts on the geology of their own states. Tr. 835-36.

[151] Tr. 818. Scarp, or escarpment, is a steep face frequently presented by the abrupt termination of stratified rocks. Its presence over a fault is an indication of vertical fault movement. Tr. 821.

[152] Tr. 565, 599.

[153] Tr. 561.

material overlying the fault is or is not displaced.[154] In his view, the method followed by the ISGS did not provide this "critical information" because of the "relative inaccuracies" of the technique.[155] Dr. Woodard admitted, however, that his proposed method, like core drilling and seismic refraction, in and of itself would not provide absolute proof of fault movement.[156]

The Licensing Board was not persuaded on the need for the "excavation" and "direct observation" insisted upon by Dr. Woodard. According to the Board, the evidence already in the record on the Plum River Fault Zone was "considerable and convincing," justifying the conclusion that the Plum River Fault Zone was not capable. As it explained:

> The Board relied principally on testimony presented by the [s]taff based on and supported by the observation and analysis of data by the ISGS and reported in its Circular 491. These arguments by the [s]taff, leading to the conclusion that the overlay of till has not been disturbed in recent geologic times, include the absence of an escarpment at the fault, the equality of the elevation of the bedrock strata bordering the fault even though those strata are of different ages, and the tectonic history of the region which includes no record of local seismicity. Additionally, the finding of no fault in northern Illinois which has displaced overlying Illinoian-age soil and that there are no known capable faults in the United States east of the

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154 Tr. 565-68, 574.

155 Tr. 571.

156 Tr. 568.

> Rocky Mountains assisted the Board in concluding that the noncapability of the Plum River Fault Zone has been sufficiently demonstrated to support our decision that no movement has occurred at Plum River within the past 0.13 to 0.40my [million years].[157]

On the record before us, we see no basis for the rejection of the Board's analysis of the matter. The Plum River Fault Zone had been studied in detail by the agency undoubtedly most familiar with the geology of the area, which found no evidence suggesting that the fault might be capable. Similarly, studies of the area by the applicant's and staff's experts uncovered no such evidence. In the circumstances, the Licensing Board had an ample foundation for its conclusions, contrary to the opinion of Dr. Woodard, that the Plum River Fault Zone had been adequately investigated and that the Zone contained no capable faults.

3. As noted earlier (pp. 41-42, supra), a nuclear power plant must be designed to withstand the ground acceleration that might occur as a result of an SSE and OBE. To arrive at the SSE for the Byron facility, the applicant studied the seismic history of the area and ascertained that the greatest intensity earthquake to have occurred in that area was a Modified Mercalli (MM) VII - VIII earthquake at

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[157] LBP-84-2, supra, 19 NRC at 245.

Anna, Ohio in 1937.[158] Although no earthquake of that intensity had ever been recorded closer to the Byron site, for conservatism (and at the request of the staff) the applicant postulated a MM VIII earthquake and associated ground acceleration of 0.2g as the basis for the Byron SSE.[159] It then confirmed the appropriateness of that value for the Byron site conditions. For this purpose, it utilized the data from an existing study conducted in connection with the establishment of the SSE for the Tennessee Valley Authority's Sequoyah Nuclear Power Plant located near Chattanooga, Tennessee.

As for the OBE for Byron, its value was arrived at following a study of the earthquakes known to have occurred in a 250-mile radius from the site during a ninety-year period.[160] On the basis of that study, it was determined

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[158] Tr. fol. 479 at 4-7 (Singh); Staff Exh. 1 at 2-24. Earthquakes are generally reported in terms of intensity (on the so-called Modified Mercalli Intensity Scale) or magnitude (on the so-called Richter Scale.) The Modified Mercalli Scale is based on sensed ground motion and observed damage to buildings, etc. The Richter magnitude is generally related to the total amount of energy released by the earthquake and is determined by movement on a standard seismometer. These movements are then corrected for distance from the epicenter of the earthquake. See R. Foster, Physical Geology (1971) at 311-14.

[159] Tr. fol. Tr. 479 at 4-7 (Singh); Staff Exh. 1 at 2-24 to 2-27.

[160] Tr. 491-92. The ninety-year period ran from 1880 (Footnote Continued)

that the largest earthquake that could be expected to affect the Byron site during the operating life of the facility would have an intensity of MM VI with a corresponding ground acceleration of less than 0.07g at the site.[161] For conservatism, the peak acceleration value was increased to 0.09g.[162]

Both the applicant and (on behalf of the NRC staff) the Lawrence Livermore Laboratory independently calculated the likelihood of the occurrence of an earthquake that might produce a 0.09g acceleration at the site. The applicant's analysis indicated such an earthquake would occur once in every 2150 years;[163] the Livermore conclusion was a recurrence rate of once in every 200 to 1000 years.[164] Although not undertaken for Byron but rather as part of a general study, probabilistic estimates of earthquake hazards

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(Footnote Continued)
to 1970. Ibid.

[161] Staff Exh. 1 at 2-27 to 2-28.

[162] Ibid.

[163] Tr. 757; Tr. fol. 760 at 4 (Rothman). The site for purposes of the calculation was considered to be an area with an 18-mile radius from the plant. Tr. 493.

[164] Tr. fol. Tr. 479 at 6-7 (Singh). The difference in the estimates, according to Dr. Robert L. Rothman, NRC staff seismologist, is most probably caused by different techniques used and the assumptions made in performing the study. Tr. 757-58; Tr. fol. 760 at 5 (Rothman).

in the central United States were performed by Dr. Robert B. Herrmann of St. Louis University. His calculations showed a return period in the order of once every 1000 years for peak accelerations of about the 0.09g level in the site area.[165]

On the basis of this evidence, the Licensing Board found the ground acceleration values of 0.2g for the SSE and 0.09g for the OBE to be appropriate. The intervenors do not challenge the former finding (except as discussed with respect to the Plum River Fault Zone) but do argue that sufficient justification has not been shown to support the Board's endorsement of an 0.09g value for the OBE.[166] As best as we can understand it, the gist of their argument is that the OBE was not correctly determined because its value was based on the Sequoyah study. That study could not be used for that purpose, according to the intervenors, for the reason that it was not "Byron specific" and, additionally, did not take into proper consideration the ground

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[165] Tr. fol. 760 at 5 (Rothman); Tr. 757-58.

[166] Brief of Intervenors at 57. The intervenors apparently recognize that Commission regulations permit exceptions to this requirement. ALAB-644, supra, 13 NRC at 989-92. Their only disagreement lies in the factual basis for the Licensing Board's approval of the exception here.

acceleration that resulted from a 1982 earthquake at Enola, Arkansas.[167]

The short and complete answer to the intervenors' argument is that the Sequoyah study was never used for purposes of the OBE. Instead, it was employed only in connection with the formulation of the SSE value and, even then, solely to confirm the adequacy of the 0.2g value after it had been established on the basis of data from a study of the seismological history of the Byron region and local site conditions.[168]

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[167] Brief of Intervenors at 57.

[168] In any event, we find the intervenors' claim regarding the Enola earthquake without merit. According to Dr. Woodard, that earthquake recorded ground acceleration of 0.59g, far higher than the ground acceleration values adopted for the SSE and OBE. Tr. fol. 548 at 3-4 (Woodard). He thus maintains that, until ground acceleration data are available for any of the earthquakes that have occurred recently in northern Illinois, the effect on the Byron structure of potential earthquakes ranging in intensity from MM IV to VIII remains unknown. Ibid.

We disagree. As explained earlier (see pp. 54- 55, supra), the 0.2g value for the SSE was based on studies of the intensities of earthquakes that had occurred in the Byron area. Tr. fol. 479 at 4-6 (Singh). The earthquake characteristics developed for the 0.2g Byron SSE were then confirmed by comparison with characteristics determined from real accelerograms of earthquakes of magnitudes of approximately 5.8 (equivalent to MM VIII earthquakes) at a site having features similar to those at Byron. Tr. fol. 760 at 2-3 (Rothman). We do not believe that the 0.59g value obtained from a single recording compromises the validity of the SSE and OBE. More than 20,000 small earthquakes have occurred in the Enola area and apparently only that one

(Footnote Continued)

In sum, we reject the intervenors' attack upon the 0.09g ground acceleration value assigned to the Byron OBE. In common with the Licensing Board, we conclude that that value has sufficient record support.

III.

SUA SPONTE REVIEW

For the reasons set forth above, we have found the intervenors' challenges to the initial decision and supplemental initial decision to be without merit. Pursuant to our long-standing practice of reviewing, sua sponte, "any final disposition of a licensing proceeding that either was or had to be founded upon substantive determinations of significant safety or environmental issues,"[169] we have also

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(Footnote Continued)
recorded a ground acceleration of 0.59g. Id. at 6. Another seismograph, co-sited with the first, recorded a ground acceleration of 0.19g. Ibid. The Tennessee Earthquake Information Center, which monitored the earthquake, attributed the 0.59g acceleration to "installation effect." Ibid. And most significant, the earthquake was of short duration (three seconds), had a ground motion of high frequency, and caused no damage to the shed in which the seismograph involved was located. Id. at 6-7. This suggests an earthquake with little energy and motion that would be well encompassed by the design of a nuclear plant. Id. at 7.

[169] Offshore Power Systems (Manufacturing License for Floating Nuclear Plants), ALAB-689, 16 NRC 887, 890 (1982); Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), ALAB-665, 14 NRC 799, 803 (1981), quoting Washington Public Power Supply System (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 692 (1979);
(Footnote Continued)

examined the balance of the two decisions. We have found no error requiring corrective action.[170]

Only one issue warrants any further discussion. That issue relates to the quality assurance program of the Systems Control Corporation (SCC), a supplier of various electrical equipment for the Byron plant, and the actions of the applicant in overseeing that program.[171]

Serious quality assurance failures at SCC led the applicant to establish in 1980 an independent inspection program of SCC's work. In its January initial decision, the Licensing Board observed that the quality assurance program of SCC "broke down" but concluded that "100 percent

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(Footnote Continued)
Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-509, 8 NRC 679, 683 n.8 (1978).

[170] Although not affecting the Licensing Board's decision to authorize the issuance of operating licenses for the plant, we note an incorrect statement made by the Licensing Board in its findings on the applicant's occupational radiation program for the Byron plant. In discussing the potential risks of radiation exposures during pregnancy, the Board concluded that "[p]re-conception internal accumulations of strontium-90 would have been detected by whole-body counting." LBP-84-2, supra, 19 NRC at 94. The typical industrial whole body counter cannot detect Sr-90. Nevertheless, our review of the record confirms that other types of monitoring and bioassay procedures used by the applicant would detect Sr-90 in the workplace and in the worker in the event such exposures were to occur. See generally Tr. fol. 1157 at 25-27 (Rescek); Tr. 1195-1212; Tr. fol. 1707 at Exh. 8 (Van Laere).

[171] See ALAB-770, supra, 19 NRC at 1179-80.

reinspection of Systems Control work may remove the matter from a direct safety concern."[172] Subsequent to the rendition of that decision, however, we received information from the applicant and staff indicating that the 100% reinspection predicate to that Board's safety conclusion may not have been correct.[173]

At our urging, the matter was extensively explored further at the hearing on remand. It developed that the applicant had not conducted a 100% inspection of the SCC equipment but, rather, had looked at only a sample.[174] Because of deficiencies found in the equipment and the limited scope of the sampling employed, the staff required the applicant to undertake an evaluation and reinspection program sufficient to demonstrate that all equipment supplied by SCC was capable of withstanding required loads in conformance with applicable codes.[175]

A number of witnesses were heard on the applicant's efforts in that respect.[176] Testifying were a

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[172] LBP-84-2, supra, 19 NRC at 135, 216.

[173] See ALAB-770, supra, 19 NRC at 1179-80.

[174] Tr. fol. 10,319 at 4 and Attachment A (Marcus); Tr. fol. 10,478 at 6 (Hayes, et al.).

[175] Tr. fol. 10,478 at 8 (Hayes, et al.).

[176] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 130).

representative of the Westinghouse Electric Corporation, which had evaluated the structural adequacy of the main control panels supplied by SCC; and representatives of Sargent & Lundy, which had both (1) evaluated the adequacy of the DC fuse panels, cable trays, cable tray hangers, and local instrument panels and (2) performed a statistical analysis of those evaluations.[177] Testimony was also received from the Manager of Projects (who was also a mechanical engineer) for Torrey Pines Technology (TPT), which had performed an independent third-party review of the various aspects of SCC's work.[178] In addition, three members of the NRC staff testified with regard to their own review of the reinspection and evaluation programs.[179]

On the basis of the evidence adduced at the remanded hearing, the Licensing Board concluded in its supplemental

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[177] Id. at ___ (slip opinion at 131).

[178] Id. at ___ (slip opinion at 130-31). For each kind of SCC equipment, TPT collected and evaluated pertinent records, performed an engineering evaluation of the technical bases used to substantiate the acceptability of SCC work, reinspected samples of SCC work, and documented discrepancies found during such reinspection. Id. at ___ (slip opinion at 131-32); see also Tr. fol. 10,294 at 9-12 (Johnson).

[179] LBP-84-41, supra, 20 NRC at ___ (slip opinion at 131).

initial decision that, except for cable tray hangers,[180] which were then still undergoing reinspection and analysis, the SCC-supplied equipment was adequate to accept design loads without exceeding the stresses allowed by applicable codes.[181] All the parties agreed with this assessment. Without objection of any party, the Board left to the staff the responsibility for assessing and reviewing the adequacy of the inspection program relating to the cable tray hangers.[182]

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[180] Cable tray hangers are used to support the trays that, in turn, support and protect electrical cables. Id. at ___ (slip opinion at 133).

[181] Id. at ___ (slip opinion at 132).

[182] Id. at ___ (slip opinion at 137). This inspection program is the third stage of applicant's program for verifying the adequacy of the cable tray hangers. The first was a computer analysis of the load capacity of three hangers, of 80 hangers inspected, which had the greatest reduction in load capacity due to discrepant welds. This analysis showed that all three hangers could bear at least two times design load without exceeding code-allowable stresses. Id. at ___ (slip opinion at 134); Tr. fol. 10,159 at 14-15 (Kostal); Tr. 10,241. The second stage was a program of inspection and repair of about 3000 (out of 5637 hangers) selected hanger connections for missing portions of welds. Because at least one of these hanger connections was found to have load capacity reductions beyond the specified amount, the third stage of the program was instituted to inspect all of the remaining accessible connections plus others that could reasonably be made accessible. LBP-84-41, supra, 20 NRC at ___ (slip opinion at 135-37).

As staff counsel reported at oral argument last month, that program is now completed.[183] It originally called for the inspection of all accessible welded connections on cable tray hangers and two specified types of welded connections that were accessible only by removal of obstructions such as fireproofing material or block walls.[184] The program was later expanded to include additional types of hangers that also had to be made accessible, with the result that only 816 out of 31,583 SCC welded connections on cable tray hangers were not reinspected.[185] Of the more than 30,000 welded connections that were reinspected, it was determined that only 83 had missing portions of welds, and that none had design significance.[186]

We have no reason to disagree with the Licensing Board's ultimate conclusion respecting the adequacy of SCC furnished equipment. Specifically, we believe that the serious deficiencies that existed earlier with respect to

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[183] App. Tr. 84-85.

[184] LBP-84-41, supra, 20 NRC ___ (slip opinion at 136); Tr. 10,489.

[185] Letter from L.O. Del George to the Regional Administrator, NRC Region III (Sept. 26, 1984), attached to letter from M.C. Furse to Licensing Board (Sept. 28, 1984).

[186] Ibid.

SCC's quality assurance program, and the applicant's failure to oversee it properly, have been cured. We base that belief upon the extensive reinspection program, the engineering evaluations and analyses of various equipment, and review of all of the types of SCC's work by an independent party and the NRC staff -- in totality they provide reasonable assurance that the SCC furnished equipment is acceptable. This conclusion applies equally to cable tray hangers. From the results of the reinspection program, there is nothing to suggest that the few uninspected welded connections have any deficiency of safety significance.

For the foregoing reasons, both (1) the Licensing Board's October 16, 1984 supplemental initial decision and (2) the portion of that Board's January 13, 1984 initial decision concerned with issues not covered by the ALAB-770 remand are affirmed.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

The Appendix to this opinion follows, pp. 67-70, infra.

APPENDIX

June 13, 1984 Appeal Board Memorandum and Order in Byron proceeding.

[Caption Omitted]

In ALAB-770,[1] we remanded the record in this operating license proceeding to the Licensing Board with instructions to conduct a further evidentiary hearing on the quality assurance issues and to render a supplemental initial decision. In footnote 73 of our decision, we announced that:

> With a single exception, our consideration of all non-quality assurance issues raised by the intervenors will abide the event of the rendition of the supplemental initial decision. The exception is the financial qualifications issue. The Licensing Board precluded the intervenors from pressing a contention that the applicant was not financially qualified to operate the facility. It did so because, effective March 31, 1982, the Commission had amended its regulations to remove financial qualifications issues from, inter alia, licensing proceedings such as this one. 47 Fed. Reg. 13750 (March 31, 1982). Last February, however, the Court of Appeals for the District of Columbia Circuit held the amended rule was not supported by its accompanying statement of basis and purpose, as required by the Administrative Procedure Act. Accordingly, the court remanded the rule to the Commission for further proceedings consistent with its opinion. New England Coalition on Nuclear Pollution v. Nuclear

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[1] 19 NRC ___ (May 7, 1984).

> Regulatory Commission, No. 82-1581, [727] F.2d [1127] (D.C. Cir. February 7, 1984).
>
> The court's mandate having been issued, we solicited the views of the parties respecting the course that now should be followed on the financial qualification question in this case. In addition, we expect generic Commission guidance to be forthcoming shortly. Once it has been received and considered, we will issue a further order on the matter.

On June 7, 1984, the Commission issued its generic guidance in the form of a Financial Qualifications Statement of Policy.[2] Noting that, in response to the Court of Appeals' decision, it had "initiated a new financial qualification rulemaking to clarify its position on financial qualification reviews for electric utilities," the Commission stated that it anticipated

> that the new rule eliminating financial review at the operating license stage only will soon be in place. While there are no construction permits proceedings now in progress, there are several ongoing operating license proceedings to which the new rule will apply. It would not appear reasonable to construe the Court's opinion as requiring that the Commission instruct its adjudicatory panels in these proceedings to begin the process of accepting and litigating financial qualifications contentions, a process which would delay the licensing of several plants which are at or near completion, only to be required to dismiss the contentions when the new rule takes effect in the near future.
>
> Accordingly, the March 31, 1982 rule will continue in effect until finalization of the Commission's response to the Court's remand. The Commission

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[2] 49 Fed. Reg. 24,111 (1984).

directs its Atomic Safety and Licensing Board Panel and Atomic Safety and Licensing Appeal Panel to proceed accordingly.[3]

Given this clear directive, all we need now consider is the intervenors' claim that they made a prima facie showing below of "special circumstances" warranting the conclusion that the application of the 1982 financial qualifications rule in the proceeding at bar "would not serve the purposes for which the rule . . . was adopted."[4] We agree with the Licensing Board that the intervenors have not fulfilled their burden on that score: there is simply nothing in their averments that materially distinguishes this proceeding from any other in which a party might wish to put in issue the sufficiency of the applicant utility's economic resources. Hence, no cause exists to certify to the Commission the matter of whether the 1982 rule should be waived insofar as it precludes an inquiry into this applicant's financial qualifications.[5]

It follows that, absent some future development having the effect of reinstating the entitlement to raise financial qualifications questions in operating license proceedings, the intervenors' contentions addressed to that subject are

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[3] Ibid. (emphasis supplied).

[4] See 10 CFR 2.758(b) and (c).

[5] See 10 CFR 2.758(d).

not litigable. The hearing on the ALAB-770 remand will thus continue to be restricted to quality assurance issues.

It is so ORDERED.

FOR THE APPEAL BOARD

/s/ Barbara A. Tompkins
Barbara A. Tompkins
Secretary to the
Appeal Board

Attachment B