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NUCLEAR REGULATORY COMMISSION ISSUANCES

April 1986

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April 1986

This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Appeal Boards (ALAB), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judge (ALJ), the Directors' Decisions (DD), and the Denials of Petitions for Rulemaking (DPRM).

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

U.S. NUCLEAR REGULATORY COMMISSION

Prepared by the Division of Technical Information and Document Control,
Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555
(301/492-8925)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

In the Matter of **Docket Nos. 50-440-OL**
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING COMPANY, *et al.*
(Perry Nuclear Power Plant, Units 1 and 2)

April 18, 1986

The Commission reiterates that the Board must decide motions to reopen on the pleadings before it. The Commission finds that the Appeal Board's uncertainty as to whether Intervenor's motion to reopen raised an issue of safety significance should have resulted in the Board's denial of the motion rather than its orders setting up exploratory hearings. The Commission notes that the issues raised by the orders can be handled by Staff outside of the adjudicatory context. Because the Board did not find the pleadings were sufficient to reopen, the Commission vacates the Board's orders and denies Intervenor's motion to reopen.

NRC: SUPERVISORY AUTHORITY

The Commission's inherent supervisory authority over the conduct of NRC adjudications gives it the authority to intervene in a proceeding at any time.

RULES OF PRACTICE: REOPENING OF RECORD

The standards for reopening a closed record require consideration of three factors: (1) whether the motion to reopen is timely; (2) whether the information raises a significant safety (or environmental) concern; and (3) the motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. *See, e.g., Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-2, 21 NRC 282, 311 (1985).

RULES OF PRACTICE: REOPENING OF RECORD (SATISFACTION OF REQUIREMENTS: BURDEN ON MOVANT)

The burden of satisfying reopening requirements is on the movant. A Board is to decide a motion to reopen on the information before it and has no authority to engage in discovery in order to supplement the pleadings before it. *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1 (1986).

LICENSING BOARDS: REOPENING OF PROCEEDINGS (NEW CONTENTIONS)

The fact that newly proffered contentions raise serious issues is insufficient justification to reopen the record to consider them as Board issues when they are being dealt with in the course of ongoing NRC investigation and Staff monitoring. *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), CLI-82-20, 16 NRC 109 (1982).

MEMORANDUM AND ORDER

I.

For the reasons set forth below, the Commission has determined that the Atomic Safety and Licensing Appeal Board's actions in this proceeding warrant intervention in order to clarify a misinterpretation of Commission case law and precedent. The Commission's inherent supervisory authority over the conduct of NRC adjudications gives it the authority to intervene.

On January 31, 1986, an earthquake occurred in northeastern Ohio. The earthquake measured 5.0 in magnitude and its epicenter was located approximately 10 miles south of the Perry nuclear facility. Three days later, on February 3, intervenor Ohio Citizens for Responsible Energy (OCRE) filed a motion to reopen the record in the Perry operating license proceeding for the purpose of admitting a new contention challenging the adequacy of the facility's seismic design. The Applicants and Staff opposed the motion to reopen primarily on the ground that the earthquake and its effects did not present a significant safety question. The Appeal Board, unable to decide whether the issue raised by the motion to reopen had true safety significance, decided to hold an exploratory hearing to aid it in its determination of safety significance. *See* Appeal Board Orders of March 20 and April 8, 1986 (unpublished).

II.

The standards for reopening a closed record require consideration of three factors: (1) whether the motion to reopen is timely; (2) whether the information raises a significant safety (or environmental) concern; and (3) the motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. *See, e.g., Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-2, 21 NRC 282, 311 (1985). The Board, in its analysis of the motion to reopen, found that the motion to reopen was timely. Order of March 20, 1986, at 4 n.7. However, the Board was not convinced that the motion had safety significance. If the Board, after considering the parties' submissions, was not convinced that the motion raised a matter of safety significance, it should have denied the motion to reopen.

In *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1 (1986), we addressed the issue of whether an Appeal Board has the authority to seek additional information before ruling on a motion to reopen. Our *Waterford* decision holds that a Board is to decide the motion to reopen on the information before it and has no authority to engage in discovery in order to supplement the pleadings before it. Simply put, the burden of satisfying reopening requirements is on the movant, and Boards must base their decisions on what is before them. That the movant did not meet this burden in the view of the Appeal Board is evident from the Board's order of April 8, 1986, in which it states that it needs the exploratory hearing to aid its "determination respecting *whether the new issue raised by the OCRE motion has true safety significance.*" (Emphasis added.) Accordingly, the Board had no

authority to pursue this matter as it did.[1] *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-7, 21 NRC 1104, 1106 (1985).

Additionally, we note that OCRE in its reply to the Staff and Applicant responses in opposition to its motion to reopen conceded "that the high frequency exceedances of the SSE design acceleration recorded in the January 31, 1986 earthquake do not have engineering significance." OCRE Reply to Staff and Applicant Responses to OCRE's Motion to Reopen the Record and to Submit a New Contention at 1. OCRE also concedes that the earthquake caused little or no damage to the plant. *Id.* Assuming *arguendo,* that the Appeal Board was correct in stating that the burden of going forward shifted to the Applicants and Staff when OCRE called "attention to the apparent fact that the earthquake exceeded the design basis SSE in at least one respect," these concessions appear to negate any *prima facie* case of safety significance. *See* Order of March 20, 1986, at 4 n.7, and at 6.

The earthquake has already received a great deal of attention. The NRC Staff has already completed one study (SSER No. 9), and some additional confirmatory work must be completed before the granting of a full-power license. Matters which need to be addressed before licensing can be handled by the Commission and its Staff outside of the adjudicatory context. *See Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), CLI-82-20, 16 NRC 109 (1982).

III.

The Appeal Board's orders setting up the exploratory hearings are VACATED. The petition to reopen is DENIED. The Staff, however, should be prepared to discuss the matters raised by the Board in its March 20, 1986 Order in its presentation before the Commission on the full-power license. The Applicants and the Intervenor will also be afforded an opportunity to make presentations to the Commission on these matters.

Chairman Palladino has additional remarks which are attached. Commissioner Asselstine disapproved this Order; his dissenting views are attached.

---

[1] Nor did the Appeal Board here have the authority *sua sponte* to seek to obtain information relevant to the motion to reopen. Boards have the authority to examine issues not placed in controversy by the parties only where specific facts are brought to their attention indicating that there is a serious safety, environmental, or common defense and security matter. *See* 40 C.F.R. § 2.760a; *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-81-24, 14 NRC 614, 615 (1981). The Appeal Board made no such finding here.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 18th day of April 1986.

SEPARATE VIEWS OF CHAIRMAN PALLADINO

While I support the *Waterford* doctrine referred to in the Commission's Order, I would have sought clarification of the Appeal Board's reasons behind its March 20, 1986 Order.

Notwithstanding the above, I find compelling the fact that Intervenor has abandoned the theory of their February 3, 1986 Motion to Reopen the Record as described in the Commission's order. Thus, I support the Commission's order denying the Motion to Reopen.

DISSENTING VIEWS OF COMMISSIONER ASSELSTINE

I do not agree with the Commission's action today. The Commission should not have interposed itself into the Appeal Board proceeding but should simply have permitted the Appeal Board to proceed as it outlined in its orders. At a minimum, the Commission should *not* have summarily vacated the Board's orders and summarily denied the motion to reopen without first hearing from the parties.

The action of the Appeal Board in this case is an eminently sensible solution to a difficult problem. The Board was told that, in at least one respect, the 1986 Ohio earthquake exceeded the SSE for the Perry

plant.[1] The Applicants and NRC Staff asserted that, even though the earthquake did exceed the SSE, the event did not present a significant safety issue for operation of Perry. The Appeal Board felt, however, that it needed more information before it could make a final determination of safety significance. The Board stated:

> Even with regard to so seemingly simply an issue as safety significance, it is difficult to make an informed judgment on the basis of preliminary written materials where, as here, the combined and complicated fields of geology, seismology and engineering mechanics come into play. In this connection, our examination of the documentary submissions of the Applicants and Staff have given rise to several questions that, in our view, require further exploration before we can decide with any degree of confidence whether a reopening of the record is justified.

Appeal Board Order dated March 20, 1986, at 6.

Given these circumstances, the Appeal Board decided to hold a 1-day "mini hearing" to obtain answers to its questions in order to make a decision on whether the Ohio earthquake presents a significant safety issue. Thus, the Board established a procedure by which it could ensure an adequate examination of the issue of safety significance without all of the trappings of a full-blown hearing. Rather than reining in the Appeal Board, the Commission should be encouraging the Board in its efforts to consider all the evidence carefully and to have a more complete record before deciding upon a motion to reopen.

Unfortunately, the Commission feels compelled to apply its decision in *Waterford* to this case. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 NRC 1 (1986). I disagreed with that decision as well, and for good reason. That decision denies Board members the opportunity to obtain answers to questions raised as a result of the parties' filings on a motion to reopen. The *Waterford* decision, when combined with the Commission's standards for reopening and the Commission's rules on raising issues *sua sponte*, ties the hands of the Boards. By setting such high standards in all of these areas, the Commission has made it extremely difficult for an intervenor to raise new issues.

---

[1] In its Order (p. 236), the Commission seems to attach some significance to the fact that OCRE has conceded in its response to Staff and Applicant filings "that the high frequency exceedances of the SSE design acceleration recorded in the January 31, 1986 earthquake do not have engineering significance" and that the earthquake caused little or no damage to the plant. This is largely irrelevant to the question at issue here. The Intervenor has not abandoned its claim that the earthquake raises questions about the adequacy of the seismic design basis for the plant and of compliance with NRC regulations. These are the very subjects on which the Appeal Board wished to obtain additional information from the Applicants and Staff.

In addition, the Commission has now made it virtually impossible for the Boards to obtain additional information, which is not in the parties' initial filings, in order to satisfy themselves that an issue does or does not present a significant safety issue. Thus, in the future, whether a Board can consider a safety issue in some detail before ruling on a motion to reopen will depend upon how adept a particular intervenor is in meeting these stringent pleading requirements on the first round of pleadings. If the intervenor does not make an open and shut case in his initial pleading, he will not get a second chance. Further, the Board will not be permitted to ask for additional information no matter how many questions the Board has, unless the Board grants the motion to reopen. This could have either of two results, neither of which is particularly beneficial. Either the Boards will read the *Waterford* and *Perry* orders strictly and will not grant a motion to reopen without a seemingly irrefutable pleading from the intervenor, in which case fewer issues will be resolved with input from the public. Or, rather than treat the issue superficially, the Boards will be more inclined to grant a motion to reopen if they have unanswered questions and thus begin a full-blown hearing. The action of the Appeal Board here seems to be a sensible compromise to avoid either extreme.

The Commission's devotion to technical pleading requirements with regard to motions to reopen is certainly understandable because proceedings must come to an end sometime. Such devotion to the Commission's rules and precedents might even be admirable, if it were applied uniformly to all parties. However, when I contrast this case with the Commission's recent orders in the *Braidwood* proceeding, it is apparent that the Commission does not require the same level of performance from all parties. (*See Commonwealth Edison Co.* (Braidwood Station, Units 1 and 2), Docket Nos. 50-456 and 457, Commission Orders dated December 5, 1985, and March 20, 1986 (both unpublished). In that case the Commission went out of its way to give the applicant a second chance to make its case on a motion on which it clearly had not met its burden as movant.

Aside from all of the above, however, the Commission's decision today suffers from an additional infirmity. At a minimum, the Commission should in this case have heard from the parties before deciding whether to issue this order. The Commission should not have interposed itself into the Perry proceeding, without being asked by any party, and then summarily disposed of both the Appeal Board "mini-hearing" and the intervenor's motion to reopen. Allowing the parties an opportunity to speak for a few minutes on this issue at the Commission meeting,

during which the Commission usually decides whether to issue a full-power license, is hardly an adequate substitute for a close look at this issue by the Appeal Board.

Cite as 23 NRC 241 (1986) CLI-86-8

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

In the Matter of **Docket Nos. 50-456-OL**
50-457-OL

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station,
Units 1 and 2)

April 24, 1986

The Commission dismisses intervenors' quality assurance contention because the Licensing Board erred in its finding that the contention satisfies the five-part balancing of factors test set forth in 10 C.F.R. § 2.714(a)(1). The Commission finds that the contention would not satisfy the test even if reevaluated in light of the developments since admission. The Commission directs the Board to evaluate the admissibility of intervenors' inspector harassment contention, which was admitted by a Board-approved stipulation, under the criteria set forth in 10 C.F.R. § 2.714(a)(1).

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

Acceptance or rejection of nontimely filings is controlled by the five-factor test set forth in 10 C.F.R. § 2.714(a)(1):

> (i) Good cause, if any, for failure to file on time;
> (ii) The availability of other means whereby the petitioner's interest will be protected;

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record;
(iv) The extent to which the petitioner's interest will be represented by existing parties; and
(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (GOOD CAUSE FOR DELAY)

Absent a showing of good cause for late filing, a "compelling" showing of the other four factors must be made. *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-83-58, 18 NRC 640, 663 (1983); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (OTHER MEANS AND OTHER PARTIES TO PROTECT INTERVENOR'S INTEREST)

The second and fourth prongs of the test are accorded less weight, under established Commission precedent, than the other three factors. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (ASSISTANCE IN DEVELOPMENT OF A SOUND RECORD)

In addressing criterion (iii) of the test, a petitioner should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony. *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (ASSISTANCE IN DEVELOPMENT OF A SOUND RECORD)

In weighing the contribution which a party is likely to make in the development of a sound record, the performance of its counsel in a different proceeding is not a relevant consideration.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (SIGNIFICANCE VERSUS DELAY)

The five-factor test assumes that a contention's significance under factor (iii) may have to be balanced against the likelihood of delay under factor (v), as part of an overall balancing of factors. It is inappropriate, however, to balance significance versus delay in evaluation of the fifth factor alone.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (DELAY)

Voluntary withdrawal of other, unrelated contentions from a proceeding does not serve to counterbalance the delaying effect of a late-filed contention.

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS (WAIVER OF OBJECTION)

Even a waiver of objections by all parties does not serve to render an otherwise untimely contention admissible. *Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 466 (1985).

MEMORANDUM AND ORDER

I. INTRODUCTION

On March 20, 1986, the Commission issued an order (unpublished) in which it asked the parties to the Braidwood proceeding to address two questions, designed to assist the Commission in determining whether the Intervenors' (Rorem *et al.*) amended quality assurance contention meets the five-part test set forth in 10 C.F.R. § 2.714 for the evaluation of late-filed contentions. Those questions were:

1. Did the Licensing Board apply the five-part test correctly in admitting the Intervenors' amended quality assurance contention?
2. If the Intervenors' contention were to be rejected, and then were to be resubmitted today, would the contention satisfy the five-part test, if it were judged in light of all the information which has developed in the course of the proceeding to date?

Upon consideration of the filings of the parties, we conclude, for the reasons set forth below, that with respect to the Intervenors' amended quality assurance contention, the Licensing Board erred in finding that the five-part test favored admission of the contention. We further conclude that the contention, if resubmitted today and evaluated in light of all the information which has developed to date in the course of the proceeding, would again fail the five-part test. Accordingly, we dismiss the quality assurance contention. Our ruling does not apply to the contention on the harassment of quality assurance inspectors. That contention, which was admitted by the Licensing Board pursuant to a stipulation agreed to by all parties to the proceeding, was not before us for consideration. The history of this proceeding having been amply described in our earlier orders, we need not repeat it here. We therefore proceed to a discussion of the five factors, as they apply to the Licensing Board's decision on the Intervenors' amended contention.

II. THE FIVE-FACTOR TEST

A. Good Cause, if Any, for Failure to File on Time

It is well established in our case law that this first factor is a crucial element in the analysis of whether a late-filed contention should be admitted. If the proponent of a contention fails to satisfy this element of the test, it must make a "compelling" showing with respect to the other four factors. *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), LBP-83-58, 18 NRC 640, 663 (1983); *Mississippi Power and Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

In the present case, the Licensing Board found that the Intervenors had sufficient information to file their contention by August 1, 1984, at the latest, yet failed to do so until March 7, 1985. It therefore found that Intervenors had failed to show good cause for their lateness. LBP-85-11, 21 NRC 609, 628-29 (1985); LBP-85-20, 21 NRC 1732, 1748 (1985). Intervenors, in their brief, assert that May 7, 1984, the publication date of Inspection Report 83-09, is a "reasonable starting point" from which to start counting delay. Brief at 28. Of the 10 months between that date and the filing of Intervenors' contention on March 7, 1985, they say, 2 months were taken up in good faith negotiations aimed at producing agreement on revised contentions, and 3 months were attributable to "the initial review of the reinspection program, illness of counsel and the unavailability of new counsel." *Id.* Five months, according to Intervenors, were spent in a "diligent effort to avoid needless litigation

through close monitoring of an ambitious and promising, but ultimately flawed and delayed reinspection program."

It is on those 5 months that we continue to focus. Reduced to its essentials, Intervenors' position is that during that period, they initially believed that their objectives could be achieved without the need for litigation, but later changed their minds. Intervenors assert that their actions were "in accord with the policies of both this Commission and the courts to avoid unnecessary lawsuits." We cannot agree.

While it may be true that the Commission and the courts prefer that parties seek to resolve their differences without the need for litigation, it is equally true that if a party is to pursue litigation, it must do so in conformity with established standards of timeliness. If Intervenors' rationale were taken to its logical end point, the more a party delayed, the more it would be given credit for its restraint in refraining from filing suit. Such a result would of course be absurd.

Parties to Commission proceedings must live with the choices they make. Intervenors had the option of pursuing their aims outside the adjudicatory context, or of filing a timely contention, but an untimely filing is not made more acceptable by the fact that the party refrained from burdening the adjudicatory process during the months of delay.

Even assuming that the Intervenors' explanation for the first 5 months of delay was satisfactory — a question which we need not decide — we find the Intervenors' explanation of the second 5 months of delay to be unacceptable. Their own submissions preclude a finding of "good cause" for at least 5 months of the untimeliness of their contention. We now turn to the remaining four elements of the five-part test, to see whether Intervenors have made the requisite "compelling" showing on those factors.

B. Availability of Other Means to Protect Petitioners' Interest

This factor, like the closely related fourth factor (the extent to which other parties will represent petitioners' interest) is accorded less weight, under established Commission precedent, than factors one, three, and five. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981). Before the Licensing Board, both the Applicant and the Staff conceded these two factors to the Intervenors, and neither asserts the Licensing Board erred in finding in the Intervenors' favor on these factors. We agree that the Licensing Board did not err in so finding.

C. Extent to Which Petitioner Can Contribute to Development of a Sound Record

Our case law establishes both the importance of this third factor in the evaluation of late-filed contentions and the necessity of the moving party to demonstrate that it has special expertise on the subjects which it seeks to raise. *Grand Gulf, supra,* 16 NRC at 1730. The Appeal Board has said: "When a petitioner addresses this criterion it should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony." *Id.* This the Intervenors did not do, even after the Licensing Board, in its Special Prehearing Conference Order, suggested that they do so. Indeed, the Intervenors' showing initially was so deficient that the Licensing Board was able to find in the Intervenors' favor only by including in its analysis its judgment on the capabilities of the Intervenors' attorneys:

> The third factor in 10 C.F.R. § 2.714(a)(1) compels the Board to prospectively ascertain whether Intervenors' participation in the proceeding will assist in developing a sound record. From the QA/QC contention Intervenors submitted, our answer to the above question might be negative. But the Board's background knowledge encompasses the fact that BPI, the law firm which now represents Intervenors, contributed to the development of a sound record in the *Byron* operating license hearing by bringing Commonwealth Edison's QA/QC deficiencies at the Byron plant to that Licensing Board's attention.

LBP-85-11, *supra,* 21 NRC at 629-30.

When the amended contention was filed, the Licensing Board again found in favor of the Intervenors on the third factor, although it noted that the Intervenors had not followed its suggestion that they identify their intended witnesses and the subjects on which they would testify. The Licensing Board reiterated its reliance on the fact that the law firm representing the Intervenors had also represented the *Byron* Intervenors, notwithstanding that Judge Smith, Chairman of the *Byron* Licensing Board, had complained that in *Byron,* BPI had "raise[d] every conceivable issue" without adequate followup. May 30, 1984 *Byron* Transcript at 8173-80; LBP-85-20, *supra,* 21 NRC at 1747. In the Licensing Board's view, the fact that Judge Smith "articulated his frustration" at the attorneys did not "negate[] the service they performed," and the Board asserted that it would by its own actions "limit the problem of unfocused litigation which arose in *Byron.*" 21 NRC at 1747.

In our view, the Licensing Board's finding in favor of the Intervenors, based upon the contribution of their attorneys to the development of

the record, was erroneous. No principle of law has been called to our attention that allows a court or an agency to make judgments, positive or negative, about the merits of a party's case based upon its evaluation of the performance of its counsel in a different proceeding. The Licensing Board appears to have derived such a principle from the Appeal Board's decision in *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1178 (1983). Any such conclusion was incorrect. In that case, the Appeal Board held that the Licensing Board did not err when, in rejecting a late intervention petition, it declined to count in petitioner's favor the fact that the same *petitioner* (rather than its counsel) had participated in other NRC licensing proceedings. The Appeal Board commented that the petitioner there had not even claimed, let alone demonstrated, that the issues sought to be raised in *WPPSS* were the same as those which it had litigated in prior proceedings. It would be difficult to read into that decision, or into the prior NRC decisions cited, strong support even for the proposition that a party's prior participation in NRC licensing proceedings is a weighty factor in weighing a request for late intervention; but there is no basis in that decision for a finding that *counsel's* participation in other proceedings can be taken into account.

Based on the Licensing Board's erroneous consideration of counsel's actions in the *Byron* proceeding, coupled with the Intervenors' failure, even after being urged by the Licensing Board, to provide specifics as to the witnesses to be called and the topics to be pursued, we find that the Licensing Board erred in finding that the third factor weighed in favor of the Intervenors. Since we find the consideration of counsel's participation to be legally irrelevant, we need not consider Judge Smith's critical comments on *Byron* counsel's actions.

D. The Extent to Which Other Parties Will Represent Petitioners' Interest

See § B, above.

E. Broadening and Delay of the Proceeding

The Licensing Board acknowledged that while admission of the Intervenors' quality assurance contention was likely to result in some additional delay of the proceeding, it found that this would not be "an unreasonable delay." LBP-85-11, *supra*, 21 NRC at 630. Even the Intervenors now concede that the Board's evaluation of the likely extent of the delay

resulting from litigation of the contention "may have been overly optimistic." Brief at 16. The Board relied on a number of factors which in our view were not properly part of the analysis. For example, it observed that the Intervenors had voluntarily dropped a number of contentions through stipulation; this served to "counterbalance" the delaying effect of adding the quality assurance contention. 21 NRC at 632. Furthermore, the Board proceeded to "balance" the potential significance of the contention against its potential for delaying the proceeding.

We believe the Board erred on both counts. The question, in assessing whether a contention will delay the proceeding, is directed to the proceeding as it stands, not to the proceeding as it might have stood but for the withdrawal of other, unrelated contentions. The appropriate place for taking into account the potential significance of a contention is in the evaluation of the third factor, contribution to the record of the proceeding. Implicit in the evaluation of the third factor is that a significant contention contributes more to the development of a sound record than does an insignificant contention. The five-factor test assumes that a party's showing on that third factor may have to be balanced against the likelihood of delay, under the fifth factor, as part of the overall balancing of factors. It was incorrect, however, of the Board to make its own balancing of significance versus delay in its evaluation of the fifth factor alone.

It is apparent that the admission of the Intervenors' quality assurance contention had a significant broadening and delaying effect on the proceeding. The contention is some 31 pages long and composed of numerous subparts. In a proceeding from which numerous issues had already dropped out through stipulation, it should have been clear to the Board that admission of the contention would substantially delay completion of the proceeding. On this fifth factor, we find that the Board erred in finding that the fifth factor weighed in favor of the Intervenors. LBP-85-20, *supra*, 21 NRC at 1749.

Taken as a whole, we find that the Intervenors failed to demonstrate that they prevailed on the five-factor test. Much less did they make the "compelling showing" on factors two through five that was required to overcome their failure to demonstrate good cause, under the first factor, for their failure to file on time.

III. WOULD INTERVENORS PREVAIL UNDER THE FIVE-FACTOR TEST IF THEIR CONTENTION WERE RESUBMITTED TODAY?

In the previous section of this Order, we explained why the Licensing Board erred in finding that the Intervenors' quality assurance contention, as admitted, satisfied the five-part test of § 2.714. In this section, we address the question of whether, in the light of developments since the Licensing Board's admission of the contention, a different result would be reached today. We conclude that it would not, for the reasons which follow.

The first factor, good cause for delay, would continue to weigh against the Intervenors; accordingly, they would still have to make a "compelling showing" on the remaining four factors. Factors two and four (other means and other parties to protect Intervenors' interests) would continue to weigh in Intervenors' favor, notwithstanding that the Intervenors' contention is grounded in oversight activities being conducted by another party, the NRC Staff. *See WPPSS, supra,* 18 NRC at 1175. These factors are, however, as noted previously, given less weight than factors one, three, and five.

On the third factor, we believe that Intervenors would be unable to demonstrate a significant contribution to the development of a sound record in the proceeding. Their contention continues to be grounded in NRC inspection reports, some years old. They have failed to identify any experts whom they intend to call. Rather, they have, in February of this year, offered a list of NRC Staff personnel and Applicant personnel whom they intend to call as witnesses in the event that they are not called as witnesses by another party. In other words, Intervenors intend to make their case through cross-examination of other parties' witnesses, calling other parties' employees as witnesses only if they have not already been called to testify by the Applicant or the Staff. In supplying their names to the Licensing Board, Intervenors stated that "since most of these witnesses are not subject to Intervenors' control the exact nature and scope of their personal knowledge or belief on these subjects is not known to Intervenors at this time. . . . [T]he identification of a witness with a specific subject or contention subpart is not meant to establish conclusively that the witness has admissible evidence to offer on that subject. . . ." Intervenors' Identification of QA Witnesses, Feb. 28, 1986, at 2.

In our view, this falls far short of demonstrating affirmatively that the Intervenors would be able to contribute significantly to the development of a sound record.

On the fifth and last factor, it is now indisputable that litigation of Intervenors' quality assurance contention, 31 pages long and composed of some 65 subparts, would significantly delay completion of the proceeding, since apart from quality assurance issues, the hearings are now concluded. On this issue, the case against admission of the contention is thus stronger than it was when the contention was submitted to the Licensing Board, when the course that the proceeding would take was far more a matter for conjecture.

Taken together, therefore, we find that the Intervenors, if they were to resubmit their contention today, would not be able to prevail on the five-factor test; as before, they would still less be able to demonstrate the "compelling case" on factors two through five that is needed to overcome a failure to show good cause for lateness. Accordingly, we direct the Licensing Board to dismiss the Intervenors' quality assurance contention.[1]

IV. INTERVENORS' CONTENTION ON INSPECTOR HARASSMENT

As we noted, the analysis in §§ II and III of this Order did not deal with that subpart of Intervenors' contention which dealt with harassment and intimidation of quality assurance inspectors at Comstock, Applicant's electrical contractor. That subpart was admitted separately, pursuant to a stipulation, signed by all parties and approved by the Licensing Board. Our earlier orders in this proceeding were directed to the elements of the quality assurance contention which were admitted pursuant to the Board's orders of April 17 (LBP-85-11) and June 21, 1985 (LBP-85-20); this subpart was admitted separately, on July 23, 1985.

The admission of subpart 2C is therefore not formally before the Commission for decision today; our dismissal of the Intervenors' quality assurance contention does not encompass subpart 2C. Our review of the record indicates, however, that the Licensing Board does not appear to

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[1] In their brief, Intervenors assert that their quality assurance contention had bases other than the deposition of Mr. Keppler and Mr. Warnick, and as evidence, they offered the Commission certain documents, enclosed in sealed envelopes, and not served on the other parties. Apparently, Intervenors are concerned that the Commission's decision on the admissibility of their contention may turn on the Licensing Board's legal error in authorizing the deposition of the Staff witnesses at a time when no contention had been admitted. Any such concern is misplaced. The Commission's ruling that the contention failed to satisfy the five-factor test in no way hinges on whether the Board should have authorized the Keppler and Warnick depositions. Accordingly, there is no need for us to entertain the documents submitted in the sealed envelopes, and we do not do so. We encourage the Intervenors, however, to make available to the Staff any documents which they believe to have safety significance, and we direct the Staff to contact the Intervenors for that purpose.

have conducted the formal balancing of factors called for by § 2.714. That regulation states that a Licensing Board must find that the five-factor test is satisfied in order to "entertain" a late-filed contention. The regulation makes no exception for stipulated contentions, and the Appeal Board has recently declared explicitly that even a waiver of objections by all parties would not serve to render an otherwise untimely contention admissible. *Boston Edison Co.* (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 466 (1985). Accordingly, we direct the Licensing Board to evaluate the admissibility of subpart 2C in light of the five-factor test of § 2.714, as contemplated by the regulation.

Commissioner Roberts has separate views, which are attached. Commissioner Asselstine disapproved the order; his separate views are attached.

It is so ORDERED.

For the Commission[2]

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 24th day of April 1986.

ADDITIONAL VIEWS OF COMMISSIONER ROBERTS

I would have directed the Licensing Board to dismiss the entire QA contention, including the portion alleging harassment of Comstock QC inspectors. The Licensing Board, when admitting the portions of the QA contention that we direct it to dismiss, deferred ruling on the portion alleging harassment of QC inspectors to allow the Intervenors to supplement their filing on that issue. The Intervenors filed a new motion seeking admission of the harassment portion of their QA contention on July 12, 1985. They did not affirmatively show in this new motion that the lateness factors balanced in favor of admitting the harassment portion of their QA contention or even attempt to do so. Therefore, to the extent

[2] Commissioners Bernthal and Asselstine were not present when this order was affirmed. If Commissioner Bernthal had been present he would have approved it; if Commissioner Asselstine had been present he would have disapproved it.

that it was admitted on the basis of a balancing of factors the harassment portion of the contention was admitted by the Licensing Board on the basis of the same flawed balancing of factors as were the portions of the QA contention that we direct the Board to dismiss, since the Board did not again balance the factors in admitting it.

Our Appeal Board pointed out over 5 years ago that our Rules of Practice are most explicit in establishing the criteria by which late-filed petitions must be judged. It emphasized that 10 C.F.R. § 2.714(a) provides that a nontimely petition will not be entertained by a Board absent its determination that the petition should be granted based on a balancing of the five lateness factors. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), ALAB-615, 12 NRC 350, 352-53 (1980). The Appeal Board also stressed that a late petitioner must address each of the five factors in its late petition and affirmatively demonstrate that on balance the factors favor granting the petition. *Id.* The Appeal Board recently reaffirmed that the requirement for a petitioner to address and a Board to balance the lateness factors is a jurisdictional one:

> There is no conceivable merit to [a] claim that [the] duty to confront the five lateness factors [does] not materialize until after the applicant and the staff [have] responded to the [late-filed] petition and raised the matter of its untimeliness. To begin with, on its face section 2.714(a)(1) lays to rest [the] suggestion that the lateness of such a petition is in the nature of an affirmative defense, to be considered by a licensing board only if the board is asked to do so by a party to the proceeding. In plain terms, the section permits a licensing board to grant an untimely petition only if, upon a consideration and balancing of the lateness factors, it determines that the petition should be granted: "Nontimely filings *will not be entertained absent a determination* by . . . the atomic safety and licensing board designated to rule on the petition and/or request, that the petition and/or request should be granted based upon a balancing of the [lateness factors]." In short, it is of no consequence whether, in an opposition to the late petition, one of the other litigants points to the untimeliness. Even if all of the parties are inclined to waive the tardiness, the board nevertheless is duty-bound to deny the petition on its own initiative unless it is persuaded that, on balance, the lateness factors point in the opposite direction.
>
> It is equally clear that the burden of persuasion on the lateness factors is on the tardy petitioner and that, in order to discharge that burden, the petitioner must come to grips with those factors in the petition itself. *See Duke Power Co.* (Perkins Nuclear Station, Units 1, 2, and 3), ALAB-615, 12 NRC 350, 352-53 (1980). The underlying reason for this requirement is particularly apparent in the context of the first factor. A licensing board hardly could determine whether there was justification for the untimely filing without knowing why the petition was not submitted by the prescribed deadline — information peculiarly within the possession of the petitioner. Likewise, in most instances at least, the board will not be able to assess confidently the third factor (the extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record) without having before it the petitioner's reasons for believing that the factor weighs in his or her favor.

Boston Edison Co. (Pilgrim Nuclear Power Station), ALAB-816, 22 NRC 461, 466-67 (1985) (footnote omitted).

Thus, even where the parties stipulate the admissibility of a late-filed issue, as was done in this case with respect to the harassment issue, a Licensing Board is duty-bound to deny admission of the issue on its own initiative unless the factors balance in favor of admission. Moreover, a petitioner has no *right* to a second opportunity to show that the lateness factors balance favorably to granting its petition. *Id.* at 468. Our Rules of Practice and the case law interpreting them are very clear on the requirements for untimely-filed petitions. Both lawyers and laymen in NRC proceedings are obligated to familiarize themselves with our Rules of Practice. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-609, 12 NRC 172, 173 n.1 (1980). They fail to do so at their peril.

Because to the extent that it was admitted on the basis of a balancing of factors the harassment portion of the QA contention was admitted on the basis of the same erroneous balancing of factors as were the portions of the QA contention that we direct the Board to dismiss, we should have directed the Licensing Board to dismiss that portion of the contention also. We would have violated no party's *rights* had we done so. In addition, we would have conveyed an even stronger message.

DISSENTING VIEWS OF COMMISSIONER ASSELSTINE

In my separate views on the March 20, 1986 Order issued in this matter, I stated that the fact that the Commission itself had decided to conduct a case-specific balancing of the five factors in 10 C.F.R. § 2.714(a)(1) did not bode well for further Licensing Board consideration of Intervenors' quality assurance contention. It appears that I was right. The Commission has now decided to dismiss the QA contention from the Licensing Board proceeding. However, the Commission was not satisfied with merely dismissing that contention. Because there remains one other contention (subpart 2C) still to be litigated, the Commission has decided to contrive a new requirement for the stipulated admission of late-filed contentions, thereby raising the possibility that subpart 2C might also be dismissed. I cannot support either action.

The Commission's actions in this case are an unwarranted intrusion into the licensing process. In the various orders dealing with this issue, the Commission has spent quite a bit of time discussing the importance of following rules, precedents, and policies. The Commission has then

proceeded to ignore those rules and policies which are inconvenient. First, the Commission ignored the fact that the movant has the burden of showing he is entitled to prevail on a motion for directed certification. The Commission could not make that finding in its first order so it decided to give the Applicant a second chance to make its case. *See Commonwealth Edison Co.* (Braidwood Station, Units 1 and 2), Docket Nos. 50-456 and 50-457, Commission Order dated December 5, 1985. Then, even though Applicant did not make its case after a second try, the Commission was unwilling to live with that result. Instead, it chose to interpose itself further into the adjudicatory process to hear an issue which no party did or could, at this point in the process, properly raise before the Commission. *See Commonwealth Edison Co.* (Braidwood Station, Units 1 and 2), Docket Nos. 50-456 and 50-457, Commission Order dated March 20, 1986. The Commission has now decided to overrule the Licensing Board and dismiss the QA contention.

The Commission did not stop there, however. Even though subpart 2C was not before it, the Commission decided to consider that contention as well. The Commission could not itself conduct a balancing of the factors in § 2.714(a)(1) because it had not given the parties notice that it intended to review the admissibility of contention 2C. Therefore, the Commission decided to provide "guidance" to the Licensing Board and remand the issue to the Board for consideration. This guidance consists of the establishment of a new requirement for the stipulated admission of contentions. The Commission has now decided that before a Licensing Board can entertain a late-filed contention it must first balance the factors in § 2.714(a)(1), even if all parties have agreed by stipulation to the admission of the contention.[1] This requirement makes no sense at all. If the parties have agreed to the admission of a contention, why should the Board also have to make the findings in § 2.714? Presumably, if the Applicant and Staff had thought there was a benefit to challenging admission of the contention, they would have done so. This requirement merely elevates form over substance. It also undercuts the Commission's policy favoring stipulations and settlements by the parties.

The Commission's handling of this case is evidence of an increasingly disturbing trend on the part of the Commission to interpose itself into the adjudicatory process. In both this case and the *Perry* case (*Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233 (1986)), the Commission has been unwilling to

[1] The Commission attempts to portray this requirement as one which has always existed. The Commission relies primarily on the language of § 2.714 itself which does not mention stipulations. The Commission also relies on dicta in a case which was not factually similar to this case and which was decided after the Braidwood Board had accepted the stipulated contention.

await the completion of the normal adjudicatory process. It has been unwilling to wait until in due course those matters the parties consider to be still at issue come to the Commission for consideration. Rather, the Commission has chosen to interject itself into the process out of turn. This is not only disruptive of the normal processes, but it demonstrates a lack of trust in the process and, more importantly, in the Boards who were constituted to manage the process.

Atomic Safety and Licensing Appeal Boards Issuances

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Thomas S. Moore
Christine N. Kohl
Gary J. Edles
Dr. Reginald L. Gotchy
Howard A. Wilber

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. Reginald L. Gotchy
Howard A. Wilber

In the Matter of **Docket No. 50-352-OLA**
(Check Valve)

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Unit 1) **April 4, 1986**

The Appeal Board denies the licensee's motion for directed certification of a Licensing Board ruling conditionally admitting an intervenor in this operating license amendment proceeding.

RULES OF PRACTICE: INTERVENTION

Even though a late petitioner seeking to intervene demonstrates standing to be heard and good cause for being late, unless that petitioner also submits an acceptable contention, intervention may still be denied. *Cincinnati Gas and Electric Co.* (Wm H. Zimmer Nuclear Power Station), ALAB-595, 11 NRC 860, 865 (1980).

RULES OF PRACTICE: INTERLOCUTORY REVIEW

The basic structure of an ongoing adjudication is not changed simply because the admission of a contention results from a licensing board ruling that is important or novel, or may conflict with case law, policy,

or Commission regulations. Similarly, the mere fact that a party must litigate an additional issue, or that a matter will be subject to adversarial exploration rather than staff review, does not alter the basic structure of the proceeding in a pervasive or unusual way so as to justify interlocutory review of a licensing board decision. *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), ALAB-817, 22 NRC 470, 474-75 (1985).

RULES OF PRACTICE: INTERLOCUTORY REVIEW

Claimed violations of the Commission's Rules of Practice, standing alone, are not enough to warrant invocation of the Appeal Board's discretionary interlocutory review of a licensing board ruling. This is especially true where another remedy is provided by the Rules of Practice.

RULES OF PRACTICE: INTERLOCUTORY APPEALS (INTERVENTION ORDERS)

The grant of a petition to intervene is appealable immediately on the question whether the petition should have been wholly denied. *See* 10 C.F.R. § 2.714a(c); *Zimmer*, 11 NRC 860; *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-472, 7 NRC 570 (1978).

APPEARANCES

Troy B. Conner, Jr., Robert M. Rader, and **Nils N. Nichols,** Washington, D.C., for licensee Philadelphia Electric Company.

Robert L. Anthony, Moylan, Pennsylvania, intervenor pro se and for intervenor Friends of the Earth.

Benjamin H. Vogler and **Joseph Rutberg** for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

We have before us Philadelphia Electric Company's (PECo) motion for directed certification of the Licensing Board's March 13, 1986 ruling

on Robert L. Anthony's petition to intervene and request for a hearing in this operating license amendment proceeding. That ruling conditionally granted the petition subject to the Board's later finding that at least one of Mr. Anthony's proffered contentions is admissible.

This matter began on December 18, 1985 when PECo applied for an amendment to its operating license for the Limerick Generating Station, Unit No. 1, located in Montgomery County, Pennsylvania. The amendment sought to revise the plant's Technical Specifications to allow a one-time-only extension of the interval between surveillance tests of the excess flow check valves in certain instrumentation lines. Such tests normally must be performed at least every 18 months and only when the plant is shut down. Under the requested amendment, the surveillance would be performed during a scheduled shutdown beginning no later than May 26, 1986 — a date some 96 days beyond the originally designated time for the testing. PECo sought the extension to allow continued operation of the plant until the time other more extensive surveillance testing would be performed, and for which plant shutdown already would be required.[1]

On December 25, 1985, the Commission published in the *Federal Register* a notice of consideration of the requested license amendment. The notice explained the technical details of the amendment, the reason for the request, and the Commission's proposed "no significant hazards" determination. It then provided a 30-day comment period on the Commission's proposed determination and stated that petitions for leave to intervene and requests for a hearing must be filed by January 26, 1986. Finally, the notice indicated that the Commission's proposed "no significant hazards" determination would become final absent a hearing request.[2]

On January 30, 1986, Mr. Anthony submitted to the Commission a letter requesting a hearing on the proposed license amendment and seeking leave to intervene. The Chief of the Docketing and Service Branch declined to docket the letter because it failed to comply with the Commission's rules. Mr. Anthony was informed of this determination orally

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[1] 50 Fed. Reg. 52,874 (1985).

[2] *Id.* at 52,874-76. Under section 189a(2)(A) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a)(2)(A), upon an initial determination by the Commission that an amendment to an operating license involves no significant hazards, that amendment may become immediately effective prior to the holding of any hearing required under the Act. Pursuant to 10 C.F.R. § 50.92(c), the Commission may make a "no significant hazards" determination if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

on February 5, 1986, and in writing on February 6. Thereupon, by a pleading dated February 5, 1986 (and received by the Commission on February 7), Mr. Anthony submitted an amendment to his January 30 letter, which the Docketing and Service Branch accepted and referred to the Atomic Safety and Licensing Board Panel for consideration. In the interim, on February 6, the Commission issued the requested operating license amendment. Unit No. 1 of the Limerick facility is currently operating under that authority.

Both PECo and the NRC staff opposed Mr. Anthony's intervention petition, although not on precisely the same grounds. Taken together, they claimed that he lacked standing to intervene, his petition was untimely, and his asserted intervention interests were not within the scope of the notice of opportunity for hearing.

The Licensing Board considered Mr. Anthony's submissions of January 30 and February 5, 1986 as making up his intervention petition.[3] Despite the fact that in his petition Mr. Anthony failed to address the five criteria in 10 C.F.R. § 2.714(a)(1) that a late petition must satisfy, the Licensing Board concluded "that the petition should not be denied on the grounds of tardiness."[4] The Board also found that Mr. Anthony's petition satisfied the other "threshold requirements for admission set out in § 2.714."[5] The Board then scheduled a prehearing conference for March 27, 1986, to consider, inter alia, the admissibility of Mr. Anthony's contentions.[6]

On March 19, 1986, PECo requested that we direct certification of the Licensing Board ruling. In short, PECo argues that the net effect of the ruling is to create an amendment proceeding where none would otherwise exist, and that this circumstance clearly meets the well-known requirement for directed certification that the challenged ruling "affect[ ] the basic structure of the proceeding in a pervasive or unusual manner."[7] Mr. Anthony opposes the grant of directed certification asserting generally that the Licensing Board's ruling is fair. The NRC staff, on the other hand, takes the position that PECo's motion is premature.

PECo's motion for directed certification is denied. The motion is premature because the Licensing Board's March 13, 1986 ruling did not have the effect of admitting Mr. Anthony as a party to the proceeding.

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[3] *See* LBP-86-6A, 23 NRC 165, 167 (1986).

[4] *Id.* at 169.

[5] *Id.* at 171.

[6] *Id.*

[7] *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

Under the Commission's Rules of Practice, Mr. Anthony cannot become a party to the proceeding until the Licensing Board rules on the admissibility of Mr. Anthony's proposed contentions and admits at least one of them.[8] Until that happens, there is no adversarial hearing and PECo has suffered no real harm. Indeed, if the Board finds none of Mr. Anthony's contentions acceptable, PECo's instant complaint will be moot. As we have said before, "even though a petitioner seeking to intervene demonstrates standing to be heard and good cause for being late, unless that petitioner also submits an acceptable contention, intervention may still be denied."[9] Thus, even assuming PECo's complaint is meritorious, PECo should have deferred seeking our intercession until the Board granted intervention to Mr. Anthony.

Even putting the timing of the instant motion aside, we note that the Licensing Board's ruling would not be a strong candidate for directed certification. The gist of PECo's argument is that the Licensing Board's ruling violates the Commission's rules and precedents. But as we said only recently,

> [t]he basic structure of an ongoing adjudication is not changed simply because the admission of a contention results from a licensing board ruling that is important or novel, or may conflict with case law, policy, or Commission regulations. Similarly, the mere fact that a party . . . must litigate an additional issue, or that a matter will be subject to adversarial exploration rather than staff review, does not alter the basic structure of the proceeding in a pervasive or unusual way so as to justify interlocutory review of a licensing board decision.[10]

Simply stated, claimed violations of the Commission's Rules of Practice, standing alone, are not enough to warrant invocation of our discretionary interlocutory review of a Licensing Board ruling.[11] This is especially true

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[8] 10 C.F.R. § 2.714(b), (g).

[9] *Cincinnati Gas and Electric Co.* (Wm. H. Zimmer Nuclear Power Station), ALAB-595, 11 NRC 860, 865 (1980).

[10] *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), ALAB-817, 22 NRC 470, 474-75 (1985) (footnotes omitted).

The licensee takes pains to point out that, in this case, the result of the Licensing Board decision may be the "initiation of an adjudicatory proceeding which otherwise would never take place." Licensee's Motion for Directed Certification of the "Memorandum and Order Ruling on Robert L. Anthony's Petition for Leave to Intervene" (March 19, 1986) at 3-4, 24. Although this factor was not present in *Braidwood*, the difference is not significant. It may be true that interlocutory review of the Board's ruling might obviate the hearing completely. The same consideration would be present, however, had the Licensing Board wrongly admitted, over objection, a *timely* intervenor. Certainly, in that case, it could not be argued successfully that directed certification would be warranted. *See Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371, 376 (1983), (*quoting Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464 (1982), *vacated in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983)).

[11] *But see Braidwood*, 22 NRC at 476-79 (Mr. Moore dissenting).

where another remedy is provided by the Rules of Practice, as is the case here.

Should any of Mr. Anthony's proposed contentions be admitted by the Licensing Board, PECo would be free to seek our review of the grant of intervention to Mr. Anthony under 10 C.F.R. § 2.714a(c).[12] That section provides that, "[a]n order granting a petition for leave to intervene and/or request for a hearing is appealable by a party other than the petitioner on the question whether the petition and/or the request for a hearing should have been wholly denied." Contrary to PECo's assertion that the Licensing Board's intention to attempt to complete the proceeding before the May 26 scheduled shutdown renders an appeal under section 2.714a impractical, such an appeal would offer meaningful relief. In light of the Licensing Board's stated intention to proceed on an expedited schedule, PECo may file its appeal immediately upon the issuance of any Licensing Board order accepting one or more of Mr. Anthony's contentions. At the same time, PECo is free to request that the schedule for responses to its brief be expedited if there is a basis for such relief. Because the principal issues in such an appeal likely already have been addressed in the directed certification pleadings, there does not appear to be any obstacle to such expedition.

The motion for directed certification is *denied.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[12] *See Zimmer*, 11 NRC 860, *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-472, 7 NRC 570 (1978).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Gary J. Edles
Dr. Reginald L. Gotchy

In the Matter of **Docket Nos. 50-352-OL**
50-353-OL

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)

April 9, 1986

The Appeal Board denies an intervenor's motion to reopen the record and introduce a new contention in this operating license proceeding.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

To prevail on a motion to reopen the record, a movant must demonstrate that (1) the motion is timely; (2) it addresses a significant safety or environmental issue; and (3) a different result might have been reached had the newly proffered material been considered initially. *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-753, 18 NRC 1321, 1324 (1983), *review declined*, CLI-85-3, 21 NRC 471, 473 n.1 (1985). The most important of these criteria is whether the motion raises a significant safety or environmental issue. ALAB-828, 23 NRC 13, 19 (1986).

APPEARANCES

Frank R. Romano, Ambler, Pennsylvania, for intervenor Air and Water Pollution Patrol.

Troy B. Conner, Jr., Mark J. Wetterhahn, and **Nils N. Nichols,** Washington, D.C., for applicant Philadelphia Electric Company.

Ann P. Hodgdon for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

We have before us a motion to reopen the record filed by intervenor Air and Water Pollution Patrol (AWPP).[1] As explained below, we deny the motion.

To prevail on a motion to reopen the record, a movant must demonstrate that (1) the motion is timely; (2) it addresses a significant safety or environmental issue; and (3) a different result might have been reached had the newly proffered material been considered initially.[2] The most important of these three criteria is whether the motion raises a significant safety or environmental issue.[3] AWPP's motion clearly does not. That being so, the motion fails and we need not address the other two criteria.

The Environmental Protection Agency (EPA) has established maximum contaminant levels for certain radionuclides (e.g., radium-226 and other alpha emitting isotopes, and radium-228) in community water systems.[4] At an earlier stage of this proceeding, AWPP sought to introduce a contention alleging that neither the applicant nor the NRC staff had adequately considered the potential release of radium-226 and other alpha emitters, and radium-228, from the Limerick facility.[5] AWPP suggested

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[1] *See* Air & Water Pollution Patrol [Motion to Reopen] (September 27, 1985). AWPP filed the motion with the Licensing Board. Because that Board had already issued several partial initial decisions resolving all issues in this proceeding, it referred the motion to us. Licensing Board Notice of October 4, 1985 (unpublished). *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699, 16 NRC 1324, 1326-27 (1982).

[2] *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-753, 18 NRC 1321, 1324 (1983), *review declined*, CLI-85-3, 21 NRC 471, 473 n.1 (1985).

[3] ALAB-828, 23 NRC 13, 19 (1986).

[4] *See* 40 C.F.R. § 141.15 (1985).

[5] New AWPP (Romano) Contention re Gross Alpha (June 26, 1984).

that these radionuclides, presumably if added to those occurring naturally, could result in exceeding the EPA standards, thus requiring the closure of many wells, particularly municipal wells within 10 to 15 miles of the Limerick plant.

The Licensing Board rejected the contention. It essentially concluded that the Limerick plant does not release the radionuclides mentioned in the contention, so that the operation of the facility can have no bearing on the maximum allowable levels of these radionuclides prescribed by the EPA regulations.[6] In reaching this conclusion, the Licensing Board indirectly referred to the Limerick Final Safety Analysis Report (FSAR), which indicates that radium-226 and radium-228 are not among the gaseous or liquid effluents that may be released from the Limerick plant.[7] AWPP did not appeal the Board's determination.

AWPP's motion here renews the claim that emissions from the Limerick plant could elevate the levels of radium-226 and other alpha emitters or radium-228 in the drinking water supply. In support of this claim, AWPP now relies on an August 16, 1985, letter from the Pennsylvania Department of Environmental Resources, advising community water suppliers of a change in the monitoring requirements for these radiological contaminants.[8] But nothing in that letter suggests that the Limerick facility is contributing to any radioactivity in the drinking water supplies. Nor does the letter or AWPP's motion to reopen contradict the Licensing Board's earlier conclusion that the Limerick plant does not release the radionuclides that are the subject of the motion and the recently changed monitoring requirements. Moreover, the Final Environmental Statement indicates that radium-226 and other alpha emitting radionuclides, and radium-228 are not expected to be released from the Limerick facility.[9] That being so, AWPP has not demonstrated that any significant safety or environmental issue related to Limerick is presented by

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[6] Licensing Board Memorandum and Order of August 24, 1984 (unpublished) at 14-16.

[7] *Id.* at 15, *citing* Applicant's Answer to New Proposed Contention by Air & Water Pollution Patrol Relating to "Gross Alpha" (July 10, 1984) at 7 n.13. *See* Limerick FSAR (Rev. 3) (March 1982), Table 11.2-11; Limerick FSAR (Rev. 16) (January 1983), Table 11.3-1.

[8] *See* Letter from Frederick A. Marrocco, Chief, Division of Water Supplies, Bureau of Community Environmental Control, Department of Environmental Resources, Commonwealth of Pennsylvania (August 16, 1985), appended to the NRC Staff Response to Air and Water Pollution Patrol's Motion to Reopen the Record (October 22, 1985).

[9] NUREG-0974, Final Environmental Statement Related to the Operation of Limerick Generating Station, Units 1 and 2 (April 1984), at D-4, D-7.

the Commonwealth's change in monitoring requirements for drinking water.[10]

AWPP's motion to reopen is *denied.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

[10] It is therefore unnecessary for us to decide whether AWPP's motion — which proposes a contention not previously admitted for litigation — also satisfies the five criteria of 10 C.F.R. § 2.714(a)(1), governing the consideration of late-filed contentions. *See Waterford,* 18 NRC at 1325 n.3, (*citing Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982)).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Thomas S. Moore, Chairman
Dr. Reginald L. Gotchy
Howard A. Wilber

In the Matter of

Docket No. 50-352-OLA-1
(Check Valve)
Docket No. 50-352-OLA-2
(Containment Isolation)

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station, Unit 1)

April 11, 1986

The Appeal Board denies intervenor's motion for a stay of the effectiveness of two license amendments under which Unit 1 of the Limerick Generating Station is currently operating.

RULES OF PRACTICE: STAY OF AGENCY ACTION

Whether requesting a stay from an appeal board under 10 C.F.R. § 2.788 or one under its broader authority as the Commission's delegate under 10 C.F.R. § 2.785, a movant must show that it is entitled to this equitable relief based on an analysis of four factors:

(1) Whether the moving party has made a strong showing that it is likely to prevail on the merits;

(2) Whether the party will be irreparably injured unless a stay is granted;

(3) Whether the granting of a stay would harm other parties; and

(4) Where the public interest lies.

See Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear-1), ALAB-224, 8 AEC 244, 272 (1974), *reh'g denied,* ALAB-227, 8 AEC 416 (1974), *rev'd on other grounds, Porter County Chapter of the Izaak Walter League v. AEC,* 515 F.2d 513 (7th Cir. 1975), *rev'd and remanded,* 423 U.S. 12 (1975).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

The second of the four stay factors, irreparable injury, is often the most important in determining if a stay is warranted. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1446 (1984).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

Speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for a stay. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-84-5, 19 NRC 953, 964 (1984).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

A party seeking a stay is required to demonstrate that the claimed irreparable injury is both certain and great. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-820, 22 NRC 743, 747 (1985).

MEMORANDUM AND ORDER

We have before us the motion of Robert L. Anthony for a stay of the effectiveness of two license amendments under which Unit 1 of the Limerick Generating Station is currently operating. For the reasons set out below, the motion is denied.

On December 18, 1985, the licensee, Philadelphia Electric Company (PECo) applied for two amendments to its operating license for Limerick. Amendment No. 1 sought a one-time-only extension of the interval between surveillance tests of the excess flow check valves in certain instrumentation lines. Such tests normally must be performed at least every 18 months and only when the plant is shut down. Under the requested amendment, the surveillance would be performed during a scheduled shutdown beginning no later than May 26, 1986 — a date some 96 days beyond the originally designated time for the testing. PECo sought the extension to allow continued operation of the plant until the time other more extensive surveillance testing would be performed, and for which the plant already would be shut down.[1] Amendment No. 2 sought a similar extension for the testing of primary containment isolation valves.[2]

Notices of opportunity for hearing were published for each amendment in the *Federal Register* on December 26 and December 30, 1985, respectively. In the notices, the Commission stated that it had made proposed determinations that both amendments involve "no significant hazards." The notices also indicated that the proposed determinations would become final absent a timely hearing request. As noted above, the amendments have been issued and the plant is currently operating pursuant to that authority.

Mr. Anthony filed an intervention petition after the deadline for such submissions given in the notices, and then petitioned the Licensing Board for an immediate stay of the operation of the plant, pending Board action on the intervention request. In a prehearing conference held March 27, 1986, the Licensing Board denied the stay, claiming a lack of jurisdiction.[3] Thereupon, on April 1, Mr. Anthony filed a meager one-page motion for a stay with us. On April 2, he sought to supplement his motion with his earlier filed March 24 motion to the Licensing

[1] 50 Fed. Reg. 52,874 (1985).
[2] 50 Fed. Reg. 53,226, 53,235 (1985).
[3] Tr. 8-11.

Board.[4] Although Mr. Anthony's procedures are a bit unorthodox, we will consider both filings together.[5]

Because the instant motion is easily resolved on the merits, we are denying the application for a stay without awaiting replies from the licensee and the NRC staff. Thus, we do not address the potentially significant question raised by the Licensing Board concerning its jurisdiction to stay these license amendments.[6]

In his motion, Mr. Anthony states that he seeks a stay from us pursuant to 10 C.F.R. § 2.788. Whether requesting a stay under that section or one under our broader authority as the Commission's delegate under 10 C.F.R. § 2.785, a movant must show that it is entitled to this equitable relief based on an analysis of four factors:

(1) Whether the moving party has made a strong showing that it is likely to prevail on the merits;

(2) Whether the party will be irreparably injured unless a stay is granted;

(3) Whether the granting of a stay would harm other parties; and

(4) Where the public interest lies.[7]

As we have stated before, the second factor, irreparable injury, is often the most important in determining if a stay is warranted.[8] Mr. Anthony's "analysis" of this element, however, amounts to nothing more than his own ipse dixit that "[s]kipping the valve tests makes [the]

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[4] In a decision dated April 4, 1986, the Licensing Board designated to rule on the intervention petitions of Mr. Anthony and a second petitioner terminated the intervention proceeding. It ruled that Mr. Anthony's petition on Amendment No. 1, which the Board had conditionally granted in LBP-86-6A, 23 NRC 165 (1986), should not have been admitted in the first place and that Mr. Anthony had failed to proffer any admissible contentions. As to Amendment No. 2, the Licensing Board denied Mr. Anthony's petition for being untimely. The second intervention petition on Amendment No. 1 was denied because it failed to raise any issue within the scope of the proceeding. *See* LBP-86-9, 23 NRC 273, 277 (1986). In that same decision, the Licensing Board also reaffirmed its oral ruling denying Mr. Anthony's motion for a stay. *Id.* at 280.

[5] We note that throughout his involvement with the *Limerick* proceedings Mr. Anthony has often failed to prepare his filings in accordance with the Commission's Rules of Practice, 10 C.F.R. Part 2. He has been warned about this on numerous occasions. *See, e.g.*, LBP-86-6A, 23 NRC at 167 n.3; ALAB-778, 20 NRC 42, 46 n.4 (1984); Appeal Board Operating License Proceeding Order of Aug. 5, 1985 (unpublished) at 2-3. In the future, should his filings with us related to these license amendments fail to conform to the regulations, they either will not be docketed (and no leave to refile will be granted), or will be summarily denied for failure to conform to the rules.

[6] Although we do not reach this issue, we question the Licensing Board's conclusion regarding its jurisdiction because its purported reasoning is so cryptic.

[7] *See Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-224, 8 AEC 244, 272 (1974), *reh'g denied*, ALAB-227, 8 AEC 416 (1974), *rev'd on other grounds, Porter County Chapter of the Izaak Walton League v. AEC*, 515 F.2d 513 (7th Cir. 1975), *rev'd and remanded*, 423 U.S. 12 (1975).

[8] *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1446 (1984).

probability [of a nuclear accident at Limerick] imminent."[9] He offers no foundation or substantiation for his belief. Such argument is manifestly insufficient to support the issuance of a stay. As the Commission has observed, "[i]t is well-established that speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for [a s ay]."[10] Further, we have recently concluded that "[a] party moving for a stay is required to demonstrate that the injury claimed is 'both certain and great.' "[11] Thus, it is apparent that Mr. Anthony has failed to show that he will suffer irreparable harm if not granted a stay. Similarly, he offers no concrete indication of why the staff's "no significant hazards" determinations are erroneous, and thus fails to show a likelihood of success on the merits. Additionally, Mr. Anthony offers little more on the third and fourth stay criteria (harm to other parties resulting from a grant of stay relief and public interest considerations) that would provide a basis for a decision in his favor. The motion is, therefore, *denied.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[9] Motion by R.L. Anthony/FOE to ASLB for an Immediate Stay on the Operation of Limerick #1 Reactor Pending the Outcome of Hearings on Amendment #1 & 2 (March 24, 1986) at 3.

[10] *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-84-5, 19 NRC 953, 964 (1984).

[11] *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-820, 22 NRC 743, 747 (1985).

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Cite as 23 NRC 273 (1986) LBP-86-9

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman
Richard F. Cole
Gustave A. Linenberger, Jr.

In the Matter of

Docket No. 50-352-OLA-1
(ASLBP No. 86-522-02-LA)
(Check Valves)
Docket No. 50-352-OLA-2
(ASLBP No. 86-526-04-LA)
(Containment Isolation)

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station, Unit 1)

April 4, 1986

MEMORANDUM AND ORDER DENYING AND DISMISSING PETITIONS FOR LEAVE TO INTERVENE AND TERMINATING PROCEEDING

I. BACKGROUND AND SUMMARY

The background of these consolidated proceedings is set out in our Orders of March 13 (LBP-86-6A, 23 NRC 165) and March 14, 1986 (LBP-86-6B, 23 NRC 173). In summary, on December 18, 1985, the Licensee, Philadelphia Electric Company, applied for Amendments No. 1 and 2 to the Limerick Operating License. Amendment No. 1 involved a one-time-only extension of time for the surveillance and testing of

instrument-line, excess-flow check valves ("check valves"). Amendment No. 2 involved a one-time-only amendment authorizing an extension of time for local leak-rate testing on primary containment isolation valves ("containment isolation"), and an exemption from certain 10 C.F.R. Part 50, Appendix J requirements.

The amendments were issued before any hearing upon a determination by the NRC Staff that they involved "no significant hazards considerations" under § 189a(2)(A) of the Atomic Energy Act (as amended by the "Sholly" Amendment). Notices of opportunity for hearing were published in the *Federal Register* on December 26, 1985 (Amendment No. 1) and December 30, 1985 (Amendment No. 2).

Mr. Robert L. Anthony petitioned for a hearing and leave to intervene on Amendment No. 1 (check valves) by letters dated January 27 and 30, 1986. On March 13, 1986, the Licensing Board ruled, over the objection of the Licensee and NRC Staff, that Mr. Anthony had established an interest in the Amendment No. 1 proceeding and had identified an appropriate aspect of the proceeding as to which he wished to intervene in conformance with the intervention regulation, 10 C.F.R. § 2.714. We deferred consideration of his contentions, however, until a prehearing conference which we convened in Philadelphia on March 27, 1986.

On February 26, 1986, Mr. Anthony also petitioned to intervene in the Amendment No. 2 (containment isolation) proceeding. That petition was opposed by the Licensee and the NRC Staff on the basis of lateness and on other grounds. Consideration of the containment isolation petition was also deferred to the prehearing conference.

On February 24, 1986, Mr. Frank R. Romano on behalf of the Air and Water Pollution Patrol petitioned to intervene in the check valve proceeding. His petition was also opposed by the Licensee and NRC Staff on the grounds of lateness and on other grounds. The Board also deferred consideration of Mr. Romano's petition until the prehearing conference.

On March 14, 1986, the Board consolidated the proceedings and directed the parties to appear at the prehearing conference noted above.

In the order below we dismiss Mr. Anthony's petition on Amendment No. 1 on the dual grounds that his petition should not have been granted in the first instance and that he failed to submit any contentions within the scope of the check valve proceeding. Mr. Romano's petition on Amendment No. 1 is denied on several grounds, especially on the ground of his failure to raise any issue within the scope of the proceeding. Mr. Anthony's petition in the Amendment No. 2 proceeding is denied on the grounds of lateness. As a consequence of these actions

there is nothing left to adjudicate and we direct that the consolidated proceeding be terminated.

II. AMENDMENT NO. 1 (CHECK VALVES)

A. Mr. Anthony's Petition

The *Federal Register* notice of opportunity to intervene in the Amendment No. 1 proceeding described the instrument-line, excess-flow check valves; the testing procedure for instrument-line, excess-flow check valves; and explained why they cannot be tested during operation. 50 Fed. Reg. 52,874 (1985). In explaining why the testing could safely be delayed from February 19, 1986, until the scheduled plant outage on May 26, 1986, the NRC Staff found:

> The consequences of leakage from an instrumentation line are minimal since the one-quarter inch orifice inside containment limits flow, and the majority of the line outside of primary containment is only *three-eighths* inch in diameter. The lines protected by the check valves are also located within the reactor enclosure which is served by the standby gas treatment system so that any release from the line would be filtered and monitored. The failure of an instrument line is an analyzed event in the Final Safety Analysis Report and no aspect of the proposed change to the Technical Specifications would require a change in the safety analysis.

Id.

The Licensing Board inferred, erroneously as we later learned, that there were two discrete safety aspects to Amendment No. 1: (1) leakage through primary containment via the instrument lines or their excess-flow check valves and (2) instrument-line failure as a consequence of a failure of their excess-flow check valves. In our Order of March 13, we noted that Mr. Anthony's petition did not relate to leakage from the containment, but, rather, that his petition related to the second perceived aspect, instrument-line failure. We quoted from his petition:

> We are convinced that any extension of time for the tests required to determine the ability of the instrumentation lines to function properly would pose risks to our health and safety since these lines are essential to operator information and functioning in every aspect of the plant's operation and are a key link in the control of the nuclear process and absolutely essential to the safe shutdown of the plant in the event of any accident at the plant which could result in the release of radioactive poisons to the environment, thereby threatening us and the public.

LBP-86-6A, *supra*, 23 NRC 169-170.

The difference in the two perceived aspects of Amendment No. 1 is very important. Had Mr. Anthony sought to intervene on the aspect of

leakage through the containment via the instrument lines or their excess-flow check valves, we would have found that his residence, 20 miles from the Limerick Station, is too far for "any injury in fact" to him as a consequence of any leakage through the small orifices into secondary containment.[1]

However, we found that, since Mr. Anthony sought to intervene on instrument-line failure, the consequence of any such failure might be about the same as in a traditional operating license or construction permit proceeding where a distance of about 50 miles has been thought to confer standing to intervene. *Id.* at 170.

Initially the Board construed some of Mr. Anthony's contentions to pertain to check-valve leakage through containment and some to relate to the instrument-line failure. Many are vague and would permit either construction. But at the prehearing conference, after being advised that the Board would not regard leakage-through-containment contentions to fall within the scope of his petition (Tr. 24-26, 51), Mr. Anthony avowed that each of his contentions relates to instrument-line failure. Tr. 40-55. His contentions, he explained, predict the broad operational consequences of instrument-line failure. *E.g.*, Contention 6, discussed at Tr. 43. They are not the consequences of instrument-line failure calling for check-valve actuation followed by check-valve failure with a resultant pathway through containment. *Id.*; Tr. 40-55.

In its pleadings and at the prehearing conference, the Licensee has taken the position that none of Mr. Anthony's contentions on Amendment No. 1 are litigable in this proceeding because both instrument-line, excess-flow check-valve failure and instrument-line failure have been analyzed in the Limerick Final Safety Analysis Report (FSAR) and that their assumed failures have been found to be acceptable. Therefore, Licensee's reasoning goes, since the amendment would not change those analyses, the contentions alleging the effects of the failures are not litigable today. They could have been addressed at the operating license stage. *E.g.*, Tr. 27-36 (Wetterhahn). The Staff agrees in principle with the Licensee's technical/legal argument. Tr. 36 (Vogler).

The Board, however, has not been persuaded by these arguments. Even though the FSAR might assume and find acceptable instrument-line, excess-flow check valve failures and instrument-line failures, the issue under the notice of hearing is whether the "no significant hazards

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[1] *But see Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-522, 9 NRC 54 (1979) (fuel pool modification). There the Appeal Board did not reject out-of-hand the Potomac intervenors' claim of standing based on a member's residence 35 miles away, finding only that Potomac's claim of interest on that basis was "not as strong." Standing by Potomac was found on the basis of recreational activities in the general vicinity of the plant. *Id.* at 57.

consideration" determination is correct. We would expect that, under § 189a(2)(A) of the Act, an allegation of any significant decrease in the margin of safety flowing from a "no significant hazards consideration" amendment would be a fairly litigable issue notwithstanding the continuing validity of the FSAR. We have no Commission or Appeal Board guidance on this issue, however. Our discussion is simply for the purpose of explaining the ruling on Mr. Anthony's intervention which turns on a somewhat different point.

Apparently the Licensee and the Staff were also trying to explain to the Board that instrument-line failure *qua* instrument-line failure is not an issue in the proceeding on Amendment No. 1. We have since revisited the application for Amendment No. 1;[2] the Staff's Safety Evaluation in support of Amendment No. 1;[3] pertinent parts of the Limerick FSAR;[4] and the explanations by Mr. Martin of the NRC Staff at the prehearing conference.[5] We now understand that the only issue considered in Amendment No. 1 was the effect of the delay in the surveillance and testing of the instrument-line, excess-flow check valves; not on the instrument lines themselves. Instrument lines are relevant because their failure may demand the actuation of the associated check valves. Instrument-line, excess-flow check valves which might fail during the extension of time until the surveillance and testing would not cause a failure of instrument lines. None of the analyses performed in connection with Amendment No. 1 relates to instrument-line failure except as a demand upon check valves. The rather vague statement in the notice of opportunity for hearing to the effect that failure of the instrument line is an analyzed event in the FSAR may pertain to the relative role of instrument lines *vis-a-vis* the check-valve failure.

Accordingly, none of Mr. Anthony's contentions on Amendment No. 1 are within the scope of the notice of hearing. Nor do they have bases. Nor is the aspect of his proposed intervention as set out in his petition for leave to intervene within the scope of the proceeding. Therefore, the Board does not have jurisdiction to consider Mr. Anthony's petition or his contentions on Amendment No. 1.

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[2] Attached to letter of March 16, 1986, from Mr. Connor to Licensing Board.

[3] Forwarded by letter of March 7, 1986, from Mr. Rutberg to the Licensing Board.

[4] Attached to Licensee's Answer to Contentions Proposed by Intervenor Robert L. Anthony on Amendment No. 1 and Contentions Proposed on Amendment No. 2, March 26, 1986.

[5] *E.g.*, Tr. 76-81 (Martin).

B. Mr. Romano's Petition

The notice of opportunity for hearing on Amendment No. 1 set January 26, 1986, as the date for petitions for leave to intervene. 50 Fed. Reg. at 52,875, *supra*. The Air and Water Pollution Patrol, by its President, Mr. Romano, filed a petition for leave to intervene dated February 24, 1986, asserting that he received his notice from Mr. Anthony on February 21, 1986 — "thus the delay." Other than that brief comment, the petition does not discuss the five factors under 10 C.F.R. § 2.714 which must be balanced when petitions are filed late.[6] The NRC Staff points out that Mr. Romano was served with the notice along with others on the Limerick service list with a letter from the NRC to Mr. Bauer of Philadelphia Electric Company on January 27, 1986.

Mr. Romano's petition is late and he has not demonstrated good cause for its lateness. However we do not burden the record with an unnecessary balancing of the four other factors for considering late-filed petitions because Mr. Romano's petition is fatally defective on at least two other counts. The aspect as to which he seeks to intervene is copied from Mr. Anthony's petition including spelling errors. He seeks to intervene on instrument-line failure as an aspect in itself. Therefore the petition is defective for the same reasons we cited above with respect to Mr. Anthony's petition. But his petitioning deteriorates even more in the March 19, 1986 supplement containing his contentions. It is a rambling, argumentative paper, which except for its title, has no discernable relevance to the instrument-line, excess-flow check valve proceeding. Overall his petitioning is without any merit.

III. AMENDMENT NO. 2 (CONTAINMENT ISOLATION)

The notice of opportunity for hearing on Amendment No. 2, published on December 30, 1985, set February 3, 1986, as the date for requests for hearing and petitions for leave to intervene. 50 Fed. Reg. 53,226-27, 53,235. Mr. Anthony filed his petition dated February 26, 1986, stating, as we believe to be the case, that he first received a copy

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[6] Section 2.714(a)(1):

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

of the *Federal Register* notice with the Staff's letter, dated January 27, 1986, to Philadelphia Electric Company's Mr. Bauer. He also stated in his petition that it was within the prescribed time period. Perhaps for that reason he did not address the five factors to be balanced in considering late-filed petitions.

At the prehearing conference, Mr. Anthony was requested to elaborate on his assertion that the petition on Amendment No. 2 was not late. He represented to the Board that he believed that regulations gave him 30 days from the day the Staff served him with the notice of opportunity for hearing. Tr. 115 (Anthony).

The Board has contrasted Mr. Anthony's oral representation with the plain language of the notice of opportunity for hearing and with his statement in his January 30 petition on Amendment No. 1. In his January 30 petition, Mr. Anthony asserted that he could not have responded any earlier to the NRC-to-Bauer letter because it "reached us only on 1/29/86." We are convinced that on January 30, 1986, Mr. Anthony knew that he had to petition immediately on Amendment No. 1 because he implied as much. The best inference is that he also knew that an immediate petition on Amendment No. 2 was required. Accordingly the Board does not accept Mr. Anthony's representation. We find that he has not demonstrated good cause for the late filing of his February 26, 1986 petition on Amendment No. 2.

We have also balanced the other four factors of the intervention regulation (note 6, *supra*) to determine whether his late-filed petition should nevertheless be accepted. He has a heavier burden on the other factors because of the absence of good cause for late filing.

There are no other means by which his interest may be protected and we assign that factor to his favor.

We cannot conclude either way whether his participation in any proceeding might reasonably be expected to assist in developing a sound record. On one hand the vagueness of his contentions does not bode well for a contribution to any record. On the other hand, there will be no record, sound or otherwise, on Amendment No. 2 unless Mr. Anthony assists in developing it. The third factor is neutral.

No other parties will represent his interests. We do not accept Licensee's argument that the NRC Staff will represent Mr. Anthony's interest. This factor favors accepting the late petition.

With respect to the fifth factor, Mr. Anthony's participation would broaden the issues because there will be no issues without his participation. In addressing this same factor with respect to Mr. Anthony's petition on Amendment No. 1, the Board commented that, since that amendment was already in force, his participation would not delay the

proceeding; that any harm to Licensee was obviated when the amendment was issued without considering the petition. Licensee has objected to that analysis in its motion for a directed certification. The Board recognizes some merit in Licensee's complaint. Requiring Licensee to go to hearing, when in fact it may be entitled as a matter of law to have an invalid petition dismissed, would be a harm unwarranted in the present situation. We weigh the fifth factor against accepting the late petition.

The sum of the balancing of the five factors for considering late-filed intervention petitions is that the petition should be denied on the ground of tardiness.

IV. MR. ANTHONY'S PETITION FOR STAY OF PROCEEDINGS

Mr. Anthony has filed with the Board two motions seeking a stay of the proceeding. The first, dated March 13, 1986, seeks leave to petition the Board to intervene with the Commission to set aside the referral to the Staff of Mr. Anthony's petition to the Commission for a stay on Amendment No. 1. *See* Letter from Chilk to Anthony, March 5, 1986.

The second motion, dated March 24, 1986, is brought under 10 C.F.R. § 2.788 and petitions for an immediate stay. We can select from a handful of grounds for denying both requests. Two come to mind immediately. First we have no jurisdiction to stay this proceeding. The Commission assigned that jurisdiction to the NRC Staff on March 5, 1986, pending the conclusion of the proceedings before this Board. Chilk letter, *supra*. Second, in view of today's Order terminating the proceeding, Mr. Anthony cannot prevail under § 2.788(e).

V. ORDER

1. Mr. Anthony's petition for leave to intervene on Amendment No. 1 is dismissed. The Board's memorandum of March 13, 1986 (LBP-86-6A, *supra*) granting that petition is vacated.
2. The petition of the Air and Water Pollution Patrol by Mr. Romano is denied.
3. Mr. Anthony's petition on Amendment No. 2 is denied.
4. The consolidated proceedings on Amendments No. 1 and 2 are terminated.

VI. APPEALABILITY

This Order wholly denies the petitions for leave to intervene by the petitioners. Pursuant to the provisions of 10 C.F.R. § 2.714a, this Order may be appealed to the Atomic Safety and Licensing Appeal Board within 10 days after it is served.

ATOMIC SAFETY AND
LICENSING BOARD

Richard F. Cole
ADMINISTRATIVE JUDGE

Gustave A. Linenberger, Jr.
ADMINISTRATIVE JUDGE

Ivan W. Smith, Chairman
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
April 4, 1986

APPENDIX

During the prehearing conference on March 27, 1986, the Licensing Board inquired of the parties whether a hearing on the amendments would be required under the "Sholly Amendment" if, as it then seemed likely, the Limerick plant would shut down before any hearing and decision. Mr. Anthony and counsel for the NRC Staff believe that a hearing is required in any event. Counsel for the Licensee believes that the proceeding would become moot and that no hearing would be required. Tr. 143-44 (Wetterhahn). The Licensing Board would not have conducted an evidentiary hearing if the matter had become moot by a plant shutdown before any hearing and decision even if we had found litigable contentions. Yet in *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Unit 1), LBP-84-23, 19 NRC 1412 (1984), another Licensing

Board would have conducted a hearing even where the amendment and action permitted under the "Sholly Amendment" may have already been completed and the matter had become otherwise moot. *Id.* at 1414.

Counsel for Licensee has suggested that the Licensing Board may wish to certify the issue, if not for this case, then for future cases. In light of the disposition made of this proceeding in today's order, we do not believe we have jurisdiction or need to certify this issue for use in the Limerick amendments proceeding. Sooner or later, however, a Licensing Board will be faced with the decision as to whether it must conduct a hearing on mooted matters under the Sholly Amendment. Prior guidance from the Appeal Board or the Commission may save either an unnecessary hearing or remand for a hearing.

Cite as 23 NRC 283 (1986) LBP-86-10

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

In the Matter of

Docket Nos. 50-289-OLA-1
50-289-OLA-2
(Steam Generator
Plugging Criteria)

GENERAL PUBLIC UTILITIES
NUCLEAR CORPORATION
(Three Mile Island Nuclear
Station, Unit 1)

April 9, 1986

The Board issues a Memorandum and Order which, *inter alia*, discusses rulings on admissibility of contentions.

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

There are five purposes for the basis-for-contention requirement in 10 C.F.R. § 2.714.

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

The degree of specificity required involves the exercise of judgment by licensing boards on a case-by-case basis.

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

Section 2.714 of 10 C.F.R. does not require the petition to detail the evidence which will be offered in support of the contentions, and it is not the function of a licensing board to reach the merits of a contention at this stage of the proceeding.

RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS

At the petition level, all that a petitioner is required to do is to state the reasons (i.e., the basis) for each contention.

RULES OF PRACTICE: COLLATERAL ESTOPPEL

While the doctrine of collateral estoppel may be raised in opposition to the admissibility of a contention, the petitioner may resist that affirmative defense, in whole or in part, on grounds outside the record of the prior proceeding; e.g., he may claim that, since the conclusion of the prior proceeding, there has been a material change in factual or legal circumstances, or that there exists some special public interest factor in the case. Confronted with such a claim, a licensing board may not reject the contention as barred by the doctrine of collateral estoppel.

MEMORANDUM AND ORDER

(Discussing Rulings on Admissibility of Contentions)

Memorandum

During the 10 C.F.R. § 2.751a special prehearing conference held on March 27, 1986, in these two currently consolidated cases, as memorialized in the Order of April 2, 1986 (unpublished), the Board heard oral argument upon five identical contentions proposed by Three Mile Island Alert Inc. (TMIA) in each case[1] (Tr. 15-120). In that conference, the

[1] In case OLA-1, at issue is the Licensee's application to amend the steam generator tube technical specifications. This proposed amendment, Technical Specification Change Request (TSCR) 148, would maintain the 40% throughwall limit on the secondary side of tubes but would replace the 40% limit on the primary side of tubes with a sliding scale which goes from 40% to 70% throughwall depending upon the size of the defect. In case OLA-2, at issue is Licensee's application to amend the steam generator tube specifications. That proposed amendment, TSCR 153, would in substance change the repair criteria to allow the Licensee not to repair tubes, under certain circumstances, if a tube has a defect up to 50% tube wall penetration.

(Continued)

Board stated that it would rule at that time only on the admissibility of the contentions in order to expedite the proceeding and thereafter would issue an Order discussing its reasons for rejecting or admitting contentions. The Board then admitted TMIA Contentions 1, 2, as clarified, and 5, as reworded, and rejected TMIA Contentions 3 and 4 in each case (Tr. 120-21).

I. DISCUSSION

A. Legal Standards for the Admissibility of Contentions

The Commission's Rules of Practice, 10 C.F.R. § 2.714(b), require that the bases for each contention be set forth with reasonable specificity. In *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974), the Appeal Board stated that the purposes of the basis-for-contention requirement in § 2.714 were:

1. to help assure that the hearing process is not improperly invoked, for example, to attack statutory requirements or regulations;
2. to help assure that other parties are sufficiently put on notice so that they will know at least generally what they will have to defend against or oppose;
3. to assure that the proposed issues are proper for adjudication in the particular proceeding — i.e. generalized views of what applicable policies ought to be are not proper for adjudication;
4. to assure that the contentions apply to the facility at bar; and
5. to assure that there has been sufficient foundation assigned for the contentions to warrant further exploration.

Further, with respect to the degree of specificity required, the Appeal Board noted in the *Peach Bottom* decision that this involves the exercise of judgment on a case-by-case basis. Moreover, the Appeal Board has stated that § 2.714 does not require the petition to detail the evidence which will be offered in support of the contentions and that it is not the function of a licensing board to reach the merits of a contention at this stage of a proceeding.[2] At the petition level all that a petitioner is required to do is to state the reasons (i.e., the basis) for each contention.[3]

In case OLA-1, TMIA submitted five proposed contentions on March 10, 1986, and the Licensee and the NRC Staff respectively responded on March 20. In case OLA-2, on March 10, 1986, TMIA submitted a request for hearing which set forth five proposed contentions, the Licensee responded on March 20, and the Staff responded on March 25. Since TMIA deleted certain wording from the contentions during the special prehearing conference, the contentions proposed in each case are identical.

[2] *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 426 (1973); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 548 (1980).

[3] *Allens Creek, supra*, 11 NRC at 548.

Finally, while the doctrine of collateral estoppel may be raised in opposition to the admissibility of a contention, the petitioner may resist that affirmative defense, in whole or in part, on grounds outside the record of the prior proceeding; e.g., he may claim that, since the conclusion of the prior proceeding, there has been a material change in factual or legal circumstances, or that there exists some special public interest factor in the case. Confronted with such a claim, a Licensing Board may not reject the contention as barred by the doctrine of collateral estoppel.[4]

B. TMIA's Contentions

Contention 1 states:

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria will provide reasonable assurance that TMI-1 can operate without endangering the public health and safety, because the form and rate of new tube degradation has not been determined.

Upon the assumption that, in using the words "new tube degradation," TMIA was claiming that corrosion had been reinitiated, the Staff did not oppose the admissibility of this contention. The Staff opined that the contention raised an issue within the scope of the proceeding, was adequately specific, and was supported on a minimally sufficient basis (Staff Response at 6; Tr. 47-49).[5] The Staff also felt that the doctrine of collateral estoppel did not preclude the admissibility of this contention. First, it believed that TMIA's oral argument had made a particularized showing of changed circumstances (Tr. 50). Second, with respect to the kinetic expansion tube repair case,[6] the Staff concluded that an integral part of the Appeal Board's conclusion as to the absence of new corrosion or of a different kind of corrosion was based on the assurance that tubes with greater than 40% throughwall would be plugged. The Staff also pointed to the fact that, while noting that the Licensee had requested permission to modify the tube-plugging criteria, the Appeal Board stated that it had not considered the proposed revision and that it took no position regarding its acceptability. Third, the Staff advised that, in its reviews, it questioned the extent of the intergranular attack (IGA),

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[4] *Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 216, 218-19, *remanded on other grounds*, CLI-74-12, 7 AEC 203 (1974).

[5] Since the Licensee's and the Staff's written responses in OLA-1 were substantially similar to those filed in OLA-2, the Board will cite their OLA-1 responses.

[6] *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-807, 21 NRC 1195 (1985).

requested additional assurance from the Licensee that the corrosion rate has been arrested, and queried about what expectations it should have as to the extent of the enlargement of the IGA cracks or defects before the next plugging interval or the next cycle when the tubes are inspected (Tr. 53-54).

In its written response at pages 11-12, the Licensee argued that TMIA had provided no basis whatsoever for any of the allegations contained or implied in this contention, and at pages 13-15 urged that collateral estoppel barred the admissibility of the contention. After hearing TMIA's oral argument, the Licensee objected to this procedure in that, for the first time, the Intervenor provided bases for its contention (Tr. 21-22). However, we conclude that, although in a negative way, TMIA did set forth a basis within the four corners of the contention in asserting that neither the Licensee nor the Staff has shown that there is no longer any on-going corrosion (Tr. 34). Faced with Licensee's objection that no basis had been set forth with reasonable specificity, in support of its contention TMIA adverted (1) to transcripts of meetings between Staff and Licensee, (2) to the Licensee's operating experience, and (3) to topical design reports (Tr. 15-18).

At this stage of the proceeding, it is not our function to reach the merits of a contention or to consider the evidence. Moreover, we were not convinced by the Licensee's arguments that all tube corrosion has stopped, since it has proceeded to seek permission to revise the plugging criteria from 40% throughwall to 50% for the short term and to 70% for the long term. Further, against this background of controversy over whether or not there has been a material change in factual circumstances since the ALAB-807 decision,[7] we could not and will not reject the contention because of collateral estoppel. For these reasons, then, we admitted TMIA Contention 1 in OLA-1 and OLA-2 during the special prehearing conference.

Contention 2, as clarified, states:

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria will provide reasonable assurance that TMI-1 can operate without endangering the public health and safety, because the testing technique relied upon to define degraded tubes is inaccurate and inconclusive, in light of the particular method of degradation characterized by intergranular attack (IGA) and pitting.

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[7] *See* note 6, *supra*.

As originally submitted by TMIA, Contention 2 did not contain the words "characterized by intergranular attack (IGA) and pitting." In its written response, the Staff urged rejection of this contention because the basis was not set forth with reasonable specificity. The Staff stated that, in using the words "particular method of degradation," TMIA had not made clear whether it was referring to intergranular stress corrosion cracking or to intergranular attack or to some other method of degradation, and it was not clear whether TMIA was challenging the eddy current testing (ECT) technique (Staff Response at 2). The Licensee, as well, objected for these reasons, and in addition argued that TMIA had not explained how the accuracy of eddy current testing was germane to the proposed revision of the plugging criteria (Licensee Response at 17).

During oral argument, TMIA clarified that it was alleging that there were new indications of degradation as characterized by IGA and pitting which eddy current testing would have difficulty in detecting. In support of its contention, TMIA adverted (1) to a statement by an NRC Staff member during a January 1986 meeting with the Licensee, (2) to TDRs 686 and 758, and (3) to statements by the Staff in meetings with the Licensee (Tr. 56-60).

After hearing TMIA's clarification as to what it meant by the words "particular method of degradation," the Staff withdrew its lack-of-basis objection raised in cases OLA-1 and OLA-2. Further, since the added words served to clarify rather than amend the identical contentions, the Staff withdrew its untimeliness objection to adding these words to the OLA-1 contention and did not oppose TMIA's motion to amend in OLA-1 and OLA-2 (Tr. 70-75).

While the Licensee ultimately did not object to TMIA's motion to modify this wording (Tr. 76), it urged that the proposed Contention 2 (even as clarified) lacked a basis, and that there was no nexus between the alleged inaccuracy of the ECT testing and the proposed revised plugging criteria. The Licensee proceeded at length then to discuss the merits and address evidentiary matters (Tr. 60-70).

In the special prehearing conference, we treated TMIA's motion to amend as a motion to clarify or to supplement, and permitted the addition of the above-mentioned wording (Tr. 77). We admitted Contention 2, as clarified in OLA-1 and OLA-2 (Tr. 120). We did so because a basis had been set forth with reasonable specificity, and because, at this stage of the proceeding, we could not consider the Licensee's arguments either upon the merits or upon the evidence. We rejected the Licensee's "lack of nexus" argument because it appeared obvious that if the method of measurement of crack size involves inaccuracies, a relaxation

of the plugging requirements could only be allowed if those inaccuracies did not permit gross underestimation of that crack size.

Contention 3 states:

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria, which could contribute to the frequency of leakage during plant operations, is consistent with the requirements of GDC 32.

In their written responses and in oral argument, the Licensee and the Staff opposed the admissibility of this contention because TMIA failed to show the relationship between GDC 32[8] and the proposed change in the plugging criteria (Licensee Response at 18-21; Staff Response at 7-8; Tr. 80-83).

During oral argument, TMIA stated that this matter came to its attention during the course of a Commission meeting with the Staff in February 1985 wherein one Staff member questioned why the Licensee had not demonstrated compliance with GDC 32. TMIA conceded that other than that one question or remark, it had no other independent basis in support of the contention. It alleged that, if the plugging criteria are amended, the current leak rate testing procedure might not be adequate to detect a crack before it ruptures (Tr. 79-80).

The Board agrees with the Licensee and the Staff. We see no nexus between revising the plugging criteria and the GDC 32 requirement that components of the reactor coolant pressure boundary should be designed to permit periodic inspection and testing to assure structural and leaktight integrity. Neither Staff nor the Licensee could know what they would have to defend against or oppose if we were to admit this contention. Moreover, contrary to the two Notices of Opportunity for Hearing in OLA-1 and OLA-2,[9] to the extent it solely adverts to inspection and surveillance programs for components of the reactor coolant pressure boundary, this contention does not raise matters that are within the scope of the amendments under consideration. For these reasons we rejected Contention 3, as proposed in both cases, during the special prehearing conference.

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[8] General Design Criterion 32, "Inspection of reactor coolant pressure boundary," 10 C.F.R. Part 50, Appendix A, states:

> Components which are part of the reactor coolant pressure boundary shall be designed to permit (1) periodic inspection and testing of important areas and features to assess their structural and leaktight integrity, and (2) an appropriate material surveillance program for the reactor pressure vessel.

[9] *See* 51 Fed. Reg. 459 (Jan. 6, 1986) and 51 Fed. Reg. 7157 (Feb. 28, 1986).

Contention 4 states:

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria is consistent with the requirements of GDC 31, in that the criteria does not take into account environmental effects, including possible environmental corrosion even in the absence of active corrosion mechanisms.

In their written responses and in oral argument, the Staff supported admission of this contention and the Licensee opposed its admission. The Staff believes that the contention raises an issue within the scope of the proceeding, is adequately specific, and is supported by a minimally sufficient basis (Response at 8; Tr. 88-89). Licensee argued that the contention is vague, especially as regards the meaning of "environmental corrosion" or how the tubes could experience corrosion in the absence of corrosive mechanisms, and, in any event, urged that it had met the requirements of GDC 31 (Response at 21-24).

During oral argument, the Intervenor explained that "absence of corrosion mechanisms" referred to the absence of the sulfur that caused the 1981 corrosive attack, and that "environmental corrosion" referred to other types of corrosive mechanisms that can affect the tubes (Tr. 84-86). Licensee argued that the Staff had asked about other environmental effects and that it had answered Staff's questions (Tr. 86-87). In response, the Staff argued that no final conclusion as to the adequacy of Licensee's documentation would be available until the Safety Evaluation is issued. Further, Staff pointed out that the issue raised in this contention is among the issues that Staff will be considering in reaching a decision as to whether to grant TSCR-148 and TSCR-153. Therefore Staff views Contention 4 to be set forth with adequate basis and to be relevant to both technical specification change requests (Tr. 88-89).

The Board agrees with the Staff as regards the basis and relevancy of this contention. But we have admitted Contention 1 which raises the general issue of unidentified new sources of tube degradation. Certainly new sources of tube degradation would include any new environmental corrosive mechanisms. Therefore we ruled at the prehearing conference that Contention 4 was subsumed under Contention 1 and hence was inadmissible as a separate contention (Tr. 120).

Contention 5, as reworded, states:[10]

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria will meet GDCs 14, 15 and 31 in that it is inconsistent with Regulatory Guide 1.121, which provides that plugging criteria takes into account variations in tube thickness due to possible corrosion.

(Tr. 117.)

Addressing the original wording of this contention, the NRC Staff said only "the contention raises an issue within the scope of the proceeding, is adequately specific, and is supported by a minimally sufficient basis." Accordingly the Staff supported the admission of the contention (Staff Response at 9). Licensee strongly objected to the contention's admission, however, arguing at the outset that Regulatory Guides are not requirements and that therefore a bald assertion that the plugging criteria are inconsistent with the Regulatory Guide "requirements" cannot constitute a viable contention (Licensee Response at 24-25).

At the prehearing conference, Licensee's attorney made clear Licensee's view that Regulatory Guides need not be specifically followed and that, in this case, Licensee intended to employ some alternate method to assure safety and compliance with the regulations (Tr. 95-96). Licensee readily agreed that the Board might appropriately hear a dispute as to whether that alternate method was, in fact, effective, but saw no specificity or basis in the contention sufficient to support such a factual dispute (Tr. 97). In short, "they have to first say what we have done wrong and what the basis is for saying that it is somehow inadequate or inconsistent either with a regulation or a requirement" (Tr. 98).

Staff's position at the conference was that the phrase "is inconsistent with" in the original contention did not merely signify a failure to follow the Guide but implied a failure to give safety protection equivalent to the Guide, a matter perhaps subject to adjudication if properly clarified (Tr. 100).

After some extensive discussion as to the nature of the clarification here needed, and after several attempts to phrase a properly clarified contention, the Board directed the parties to confer upon possible clarification and rewording of Contention 5 (Tr. 100-115).

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[10] As proposed, the original Contention 5 stated:

> Neither the Licensee nor the NRC Staff has demonstrated that allowing degraded tubes to remain in service under the proposed revised plugging criteria is consistent with Reg. Guide 1.121, which requires that plugging criteria take into account variations in tube thickness due to possible corrosion.

The resulting reworded contention is the one set forth in the text above (Tr. 117). Licensee still opposed the contention's admission, but no longer found the wording objectionable. The other parties had no objection to the contention (Tr. 119).

We believe the contention as reworded is admissible: It challenges neither regulations nor statutes; it is sufficiently clear so that adversary parties know what they must oppose; it is an issue proper for adjudication; it clearly applies to the facility at bar; and it has sufficient foundation to warrant farther inquiry. It seems to us to have the required basis and specificity, and it has clearly not been previously adjudicated. For these reasons, we admitted the reworded contention in OLA-1 and OLA-2 during the special prehearing conference.

Order

1. For the reasons set forth above, the Board confirms its rulings rendered during the special prehearing conference on March 27, 1986, that, in OLA-1 and OLA-2, TMIA Contentions 1, 2, as clarified, and 5, as reworded, are admitted and that TMIA Contentions 3 and 4 are rejected.
2. TMIA is admitted as an intervening party.
3. Pursuant to 10 C.F.R. § 2.714a(c), this Memorandum and Order may be appealed by the Licensee and/or the Staff to the Atomic Safety and Licensing Appeal Board within ten (10) days after service. However,

the Intervenor TMIA may not so appeal because some of its contentions have been admitted as issues in controversy (*see* § 2.714a(b)).

THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Dr. Oscar H. Paris
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 9th day of April 1986.

Cite as 23 NRC 294 (1986) LBP-86-11

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James L. Kelley, Chairman
Dr. James H. Carpenter
Glenn O. Bright

In the Matter of **Docket No. 50-400-OL**
(ASLBP No. 82-472-03-OL)

CAROLINA POWER & LIGHT COMPANY and
NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
(Shearon Harris Nuclear Power Plant) **April 28, 1986**

In this Final Licensing Boar Decision the Board resolves two remaining contentions in Applicants favor and authorizes the issuance of an operating license for the Shearon Harris Plant. The Board finds that drug use at the Shearon Harris construction site has not been "widespread" as alleged in the Intervenor's contention, and further finds no evidence that drug use has resulted in any specific deficient work or any specific safety concerns at the Harris Plant. The Board also finds that under summer nighttime conditions the combination of siren, informal alerting, and tone alert radio systems demonstrates compliance with the requirement of "essentially 100%" notification within 15 minutes in the first 5 miles of the Harris Emergency Planning Zone (EPZ).

QUALITY ASSURANCE: REQUIREMENTS

Although the NRC has no regulations specifically addressed to drug use at a nuclear power plant construction site, where the evidence has

established relationships between onsite use and the possibility of deficient work, an effective program to hold employee drug use to a minimum is an essential element of an applicant's Quality Assurance program, whether or not formally so denominated.

RULES OF PRACTICE: FEMA FINDINGS

In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability. 10 C.F.R. § 50.47(a)(2). Thus, the FEMA position on an issue may be accepted if that issue is uncontested. But if an intervenor contests such an issue, the rebuttable presumption "dissolves" and the FEMA testimony is given no special weight "beyond that to which [it] would be entitled by virtue of the expertise of the witnesses and the bases presented for their views." *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298 (1982), *aff'g* LBP-81-59, 14 NRC 1211, 1460-66 (1981).

EMERGENCY PLANNING: GUIDANCE ISSUED BY FEMA

The NUREG-0654, Appendix 3 provisions concerning percentages of people to be alerted and times for alerting in the 0-5- and 5-10-mile EPZs have the legal status of a Commission interpretation of 10 C.F.R. § 50.47(b)(5) and Appendix E to Part 50, and are thus binding on the licensing board. This legal status does not, however, extend to other provisions of NUREG-0654, Appendix 3.

EMERGENCY PLANNING: NOTIFICATION

Reasonable assurance of an alerting rate higher than 95% under summer nighttime conditions is acceptable in the first 5 miles of the EPZ, and therefore meets the NUREG-0654, Appendix 3 requirement of "essentially 100%" alerting within 15 minutes in the first 5 miles. The 90% alerting within 15 minutes under summer nighttime conditions to be expected of the Shearon Harris system is acceptable for the 5-10 mile EPZ.

APPEARANCES

Thomas A. Baxter, John H. O'Neill, Jr., and **Delissa A. Ridgway,** Washington, D.C., and **Richard E. Jones, Dale E. Hollar,** and **Andrew H. McDaniel,** Raleigh, North Carolina, for the Applicants Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency.

John Runkle, Chapel Hill, North Carolina, for the Intervenor Conservation Council of North Carolina.

Wells Eddleman, Durham, North Carolina, *pro se.*

Steve Bryant, H. Al Cole, Jr., Fred R. Gamin, Karen E. Long, and **Jo Anne Sanford** for the Attorney General of North Carolina.

Stephen Rochlis for the Federal Emergency Management Agency.

Charles A. Barth and **Janice E. Moore** for the Nuclear Regulatory Commission Staff.

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FINAL LICENSING BOARD DECISION

Introduction and Summary

The Board has issued three Partial Initial Decisions on a range of safety, environmental, and emergency planning contentions in this contested operating license proceeding.[1] This Final Licensing Board Decision resolves two contentions on which evidentiary hearings were held late in the proceeding. Those contentions, concerning alleged widespread drug use at the Shearon Harris site and the adequacy of Carolina Power & Light Co.'s ("CP&L") siren alert system in summer nighttime conditions, are resolved in the Applicants' favor. In addition, we provide reasons for our recent grant of two motions for summary disposition, and

[1] *See* LBP-85-5, 21 NRC 410 (1985); LBP-85-28, 22 NRC 232 (1985); LBP-85-49, 22 NRC 899 (1985).

for denial of a motion to reconsider rejection, of certain emergency planning contentions.

Our findings on the drug use and siren contentions are set forth at length hereafter. A capsule summary follows.

Alleged "Widespread" Drug Use. Drug use at the Shearon Harris construction site has not been "widespread" as alleged in the Intervenor's contention. The Board considered a range of evidence on this question, including an undercover investigation at the site in late 1984, statistics on terminations of employees for drug activity (proved or suspected), CP&L's multifaceted program to detect and deter drug use (including urinalysis testing and detection dogs), observations of site employees, and indirect indicators, such as comparative workplace accident rates. Because drug use is illegal and clandestine, it is impossible to determine with any precision the level of drug use at the site over time or at any particular time. On the basis of the record evidence, we estimate that drug use has ranged at various times from 3 to 4.5% of the work force at the Shearon Harris site.

CP&L's antidrug program is well conceived and vigorously enforced. This gives us confidence that the actual rate of drug use at the site is no higher than the other evidence indicates. Given the prevalence of drug use in American society today, we do not believe that further antidrug measures could be taken to reduce significantly the rate of drug use at the Harris site, short of cost-ineffective and/or Draconian actions.

There is no evidence that any specific deficient work has been done or that any specific safety concerns exist at the Harris Plant because of drug use. Furthermore, CP&L's quality assurance program is designed and implemented to detect and correct the kinds of mistakes workers are likely to make when under the influence of drugs. The Board was particularly concerned that a number of quality inspectors had been terminated for proven or suspected drug use. The work of these inspectors was reinspected on a random basis; it was convincingly shown that drug use had not affected their work.

Nighttime Emergency Notification. Alerting residents in the 10-mile Emergency Planning Zone (EPZ) around a nuclear power plant is an essential element in planning for possible emergencies. The applicable rule provides, in substance, that the "design objective" of the notification system shall be to essentially complete initial notification within about 15 minutes following a declared emergency. This "design objective" has been elaborated as requiring 15-minute notification of "essentially 100%" of the population within 5 miles of the site and some lesser unspecified (but substantial) percentage of the population in the 5- to 10-mile area.

Intervenor Wells Eddleman sponsored a contention that the Harris siren system would not alert the public during a summer night when most people are asleep. Consultants to both Applicants and the Federal Emergency Management Agency (FEMA) developed analytical estimates of the extent of arousal to be expected from the sirens and rather speculative estimates on the extent of "informal alerting" of the rest of the population by those awakened by the sirens. In our findings, we detail our views on the steps in the analytical procedures, which are separately different in Applicants' and FEMA's testimony. Applicants' and FEMA's estimates were developed independently. However, based on the record at the initial November 1985 hearing, both happened to arrive at similar numerical estimates that approximately 70% of the population would be awakened by the sirens and that roughly 88% would be alerted in 15 minutes as a result of both siren and "informal" alerting.

During the initial hearing, Mr. Eddleman brought to the Board's and parties' attention the existence of a research study conducted in 1962 at the University of Bonn, West Germany, that appeared to be potentially probative of the siren alerting issue. Subsequent to the initial hearing, the NRC Staff counsel had the report translated and served. The Board requested that the FEMA/NRC staffs have the report reviewed by a psychoacoustics professional and ordered a sharply limited reopening of the record to admit the review and allow cross-examination on the review results. A limited supplemental hearing was held in March 1986 for this purpose.

As a further development, in February 1986, Applicants announced their intention to supplement the siren system by providing tone alert radios to all households within the first 5 miles of the EPZ. Testimony on the Applicants' tone alert radio system formed a part of the March 1986 hearing.

Based on the record as finally developed, the Board finds that direct alerting by the siren system can be expected to be approximately 84% of the EPZ households and that, with consideration of "informal" alerting, siren-induced alerting would total approximately 91% throughout the Harris EPZ in 15 minutes. That 91% figure clearly satisfies the 15-minute notification requirement for the 5- to 10-mile outer area of the EPZ. In addition, route alerting with police and fire vehicles is an integral part of the Harris emergency plan. It would cover 30 to 40% of the Harris EPZ population in 15 minutes (most of whom would already be alerted) and can be completed in about 45 minutes. With the route alerting and continued "informal alerting," we find that the required "essentially 100%" coverage of the entire EPZ can be completed in 45 minutes.

With respect to the first 5 miles of the Harris EPZ, the Board finds that the combined effect of sirens and informal alerting — 91% — does not satisfy the required "essentially 100%," which we equate with greater than 95%. However, the tone alert radio system, if 100% functional and utilized by the residents, can be expected to alert approximately 97% of the households at night. A FEMA survey at the Fort St. Vrain site showed that 13.6% of the residents were not using their radios properly, which might reduce radio alerting to approximately 83%. However, 91% of the 17% not alerted by the radios would be expected to be alerted independently by the sirens and "informal" alerting. That 91% multiplied by 17% increases the percentage of persons alerted by 15.5%, so that the overall alerting level would be 98.5%. The Board concludes that the independence and partial redundancy of the siren and radio systems demonstrate compliance with the requirement of "essentially 100%" alerting in 15 minutes in the first 5 miles of the EPZ.

Findings of Fact

I. ALLEGED WIDESPREAD DRUG USE

A. Introduction

1. On January 18, 1985, the Conservation Council of North Carolina (CCNC) filed a motion for admission of a late-filed contention styled WB-3 (Drug Abuse During Construction). The contention referred to an attached newspaper article published in the *Raleigh News and Observer* on January 11, 1985, concerning an undercover drug investigation conducted by the North Carolina State Bureau of Investigation (SBI) and the Wake County Sheriff's Department (WCSD) at the Shearon Harris site. The investigation had resulted in the arrest of six workers and the issuance of warrants for the arrest of two others. On March 13, 1985, the Licensing Board admitted Contention WB-3. The contention, as modified by the Board to delete an allegation of widespread alcohol abuse, reads as follows:

> Drug use at the Harris Plant is widespread (see the attached newspaper article for details and basis). Employees under the influence of drugs are less able to follow proper procedures and tech specs for the installation of electrical systems, pipefitting, and other safety-related work. Applicants' management has failed to control drug use during the construction and further, has failed to reinspect all safety-related work done by known drug abusers.

2. After the conclusion of discovery, Applicants filed a motion for summary disposition of Contention WB-3. The motion included supporting affidavits describing CP&L's drug detection and control programs. On July 31, 1985, the Attorney General of North Carolina (NCAG) petitioned to intervene, pursuant to 10 C.F.R. § 2.715, and opposed the Applicants' motion for summary disposition. The basis for the North Carolina opposition was an affidavit of SBI Agent S. (Shirley) Burch. The affidavit described the undercover drug investigation referred to in the newspaper article which formed the basis for Contention WB-3. CCNC also filed in opposition to the Applicants' motion, offering an affidavit of Ms. Patty Miriello, a former site employee who alleged that she had witnessed drug use on site.

3. The Board subsequently denied the Applicants' motion for summary disposition, stating the issues for hearing as follows:

> (1) whether drug use at the Harris site is widespread;
> (2) whether the Applicants have failed to control drug use during construction; and
> (3) the possible effects of drug use on safety of construction and the Applicants' corrective actions.

Unpublished Order (Concerning Time, Place and Other Matters Related to Hearing on Drug Use Contention) at 1-2 (September 18, 1985).

4. The Board bifurcated the evidentiary hearing. At the first hearing, held September 30 through October 3, 1985, in Apex, North Carolina, evidence was presented concerning the extent of drug use at the Harris site, including the undercover operation of late 1984, and the Applicants' drug detection and prevention program — essentially issues (1) and (2), above. The second phase was held in Raleigh, North Carolina, on November 12, 1985, the evidence addressing the Applicants' quality assurance program and its ability to detect and correct any errors which might be caused by employees using drugs.

5. The record on Contention WB-3 is extensive — consisting of 1924 pages of transcript and over 1000 pages of prefiled written testimony and exhibits.[2]

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[2] The Board grants Applicants' unopposed request to amend the evidentiary record to incorporate corrections contained in "Applicants' Proposed Transcript Corrections" (December 11, 1985).

B. Applicable Standards

6. Although the NRC does not have regulations specifically addressed to the use of drugs on a nuclear power plant construction site,[3] its quality assurance standards applicable to the construction of nuclear power plants are relevant. Appendix B to 10 C.F.R. Part 50 requires a Quality Assurance (QA) program designed to eliminate the possibility that construction defects of potential safety significance will go undetected and therefore uncorrected. *See Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-802, 21 NRC 490, 492-93 (1985).

7. The Applicants' proposed findings properly emphasize the importance of their QA program for this drug abuse contention. We quote and adopt portions of those findings, as follows. "CCNC Contention WB-3 postulates construction defects caused by impaired employees under the influence of drugs. In its ruling on summary disposition, the Board raised the question of whether the QA program was designed to cope with the effects of widespread drug abuse. Tr. 8224." Appl. PF 8. Applicants' position concerning the capability of their QA program to identify construction defects is that the "unspecified CCNC postulated defects are not distinguishable from defects which result from other causes. Consequently, to a great extent the litigation of CCNC Contention WB-3 was viewed to be a challenge to the effectiveness of the QA program implemented during construction of the Shearon Harris Nuclear Power Plant." *Id.*

8. "In assessing the execution of construction QA programs, NRC adjudicatory boards appropriately have turned for standards and guidance to the legal findings required for grant of an operating license application. Error-free construction is not a precondition for an operating license under either the Atomic Energy Act or the Commission's regulations. What is required is a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1345 (1983), *aff'd, San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1319-21 (D.C. Cir. 1984), *partial reh'g granted on other grounds*, 760 F.2d 1320 (1985); *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983),

[3] The Commission has published a proposed rule on fitness for duty designed to prevent persons under the influence of drugs or otherwise unfit for duty from endangering public health or safety at an operating reactor. 74 Fed. Reg. 33,980 (1982).

reconsideration denied, ALAB-750, 18 NRC 1205 (1983), *as modified*, ALAB-750A, 18 NRC 1218 (1983)." Appl. PF 9.

9. "In examining claims of quality assurance deficiencies, then, boards are to look to the implication of those deficiencies in terms of safe plant operation. *Callaway, supra*, ALAB-740, 18 NRC at 346. Even if it is established that all ascertained construction errors have been cured

> there may remain a question whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components. A demonstration of a pervasive failure to carry out the quality assurance program might well stand in the way of the requisite safety finding.

Id. Thus, the two-pronged test for examining CCNC Contention WB-3 . . . is: (1) whether ascertained construction errors caused by employees under the influence of drugs have been corrected; and (2) whether there has been a pervasive failure to carry out the quality assurance program as a result of employees working under the influence of drugs.[4] *See Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-812, 22 NRC 5, 14-15 (1985); *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-788, 20 NRC 1102, 1141 (1984)." Appl. PF 11.

10. This is not to say, however, that the Board is not concerned with whether drug use has been "widespread" on the Harris site, as the contention alleges. Given the evidence in this record establishing relationships between onsite drug use and the possibility of deficient work (*see* Board Findings 143-155), we believe that an effective program to hold employee drug use to a minimum is an essential element in a nuclear construction licensee's QA program, whether or not formally so denominated. To put it another way, under the pending drug use contention, it is not enough to show a paper record of compliance, without consideration of the extent of drug use that has actually been occurring on the site — particularly where, as here, some QA personnel have themselves been implicated in drug use. Evidence of widespread drug use would also evidence a deficient antidrug program and could, in turn, evidence serious deterioration in the QA program.

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[4] The "pervasive failure" or "breakdown" portion of the test typically is applied in the context of alleged specific quality assurance deficiencies. *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 64-72 (1985); *Callaway, supra*; *Perry, supra*, ALAB-802, 21 NRC at 502 (attention focused on specific deficiencies at issue before deciding whether a need existed to expand the scope of the inquiry).

C. Extent of Drug Activity on Site

11. We begin with the knowledge that involvement with drugs has become an ever-increasing problem in American society. According to the National Institute on Drug Abuse, in 1983 there were over 22 million users of marijuana on a once-a-month basis, over 4 million users of cocaine at least once a month, and perhaps as many as 10 million abusers of prescribed medications. Drugs are in schools and universities, in jails, in the armed services, and in athletic teams at all levels. While most drug use occurs in a social setting, and is much less frequent on the job, drugs have also invaded workplaces in the United States — including government and law enforcement agencies. Arrests for drug use and sale have been made at a number of nuclear power plant construction sites throughout the country. Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, and Peter B. Bensinger on the Assessment of Employee Drug Activity, ff. Tr. 8893 (hereafter "Applicants' Assessment Testimony") at 17-18; Applicants' Testimony of Dr. Robert L. Dupont, Jr., on the Effects of Employee Drug Use, ff. Tr. 9994 (hereafter DuPont) at 4-5. Applicants' witness, Mr. Peter Bensinger, a former Administrator of the United States Drug Enforcement Administration, estimated that the level of drug abuse may be from 5 to 12% of the nation's work force on and off the job. Tr. 8338. It is against this background that we examine the extent of drug activity at the Shearon Harris construction site.

12. The Board heard testimony from several sources concerning the extent of drug activity[5] at the Harris site. These sources include participants in the undercover investigation at the plant, data on the number of employees terminated for suspected drug activity, CP&L's policies and implementing procedures on drug use (including testing), data on indirect indicators of drug activity (such as site accident rates, the quantity of drugs confiscated, and the age of site workers), and the judgments of witnesses for CP&L, CCNC, and the NRC Staff who have worked at the Harris site.

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[5] We often use the broader term "drug activity" in preference to the terms "drug abuse" or "drug use" used in the contention. While it is only employee impairment on the job due to drug consumption ("drug abuse") which has potential safety significance, much of the evidence, for example on employee termination, does not distinguish between consumption and other drug activity — such as possession, purchasing and selling, delivery and other supportive roles or failure to cooperate with site drug policy and procedures. However, it seems reasonable to assume that most drug activity indicates potential drug use or abuse.

D. The Undercover Investigation

13. The undercover drug investigation at the Harris site commenced in early November 1984, and ended in early January 1985. Tr. 9169 (Hensley). (We note that CCNC misstates the record when it claims the investigation began in December 1984. CCNC PF 11.) On this subject the Board heard the testimony of the two undercover operatives who conducted the investigation — Deputy Kenneth G. Hensley of the WCSD (Tr. 9164) and Agent Donald Williams (then of the SBI) (Tr. 9274) — and two supervisors from each agency: Major T.W. Lanier and Lt. R.J. Self of the WCSD (Tr. 9164), and Supervising Agent C.J. Overton and Assistant Supervisor Shirley Burch of the SBI (Tr. 9274). CP&L presented the testimony of its four employees involved in the planning and execution of the investigation: William J. Hindman, Jr., CP&L's Manager, Harris Project Administration and the project-level coordinator of drug information; Michael W. King, Supervisor of CP&L's Construction Security Unit; and the two employees who worked directly with the undercover agents — D. Glenn Joyner of CP&L Security and Michael L. Plueddemann of Daniel Industrial Relations. (Daniel is the principal contractor at the site.) Tr. 8471. In addition, although he played no part in the undercover investigation, Applicants' expert witness Peter B. Bensinger offered his opinion of the investigation. Tr. 8471.

14. The undercover investigation was initiated after CP&L requested such an operation be undertaken by offsite law enforcement. Affidavit of S.L. Burch, ff. Tr. 9274 (hereafter Burch) at 2; Applicants' Testimony of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, Michael L. Plueddemann, and Peter B. Bensinger on the Undercover Drug Investigation, ff. Tr. 8471 (hereafter "Applicants' Investigation Testimony"), at 10-11. CP&L introduced Deputy Hensley of the WCSD and Agent Williams of the SBI to a confidential informant and supplied the agents with names of twenty-one workers suspected of being involved in illegal drug activity. Applicants' Investigation Testimony at 13-16; Tr. 8568 (King). The informant, a former CP&L employee previously dismissed for drug involvement, worked on site with Hensley and Williams for the duration of the investigation. Tr. 8527-30 (King); Applicants' Investigation Testimony at 13. CP&L provided the agents with necessary "cover" as employees which gave them unrestricted access to any part of the site at any time. The investigation was, however, directed to the first (day) shift, on which approximately 5000 of the approximate total of 6000 employees then worked. Tr. 9216 (Hensley); Tr. 8526-27 (Joyner). Deputy Hensley worked at the site weekdays, except for holidays, from early November 1984 through early January 1985. Tr. 9169

(Hensley). Hensley was instructed to use his cover as an employee at the plant to try to purchase drugs and to obtain information about drug activity. Tr. 9173 (Hensley). SBI Agent Williams was on the Harris site 2 or 3 days a week for a total of about fifteen times. Statement of Donald Williams, Jr., ff. Tr. 9274 (hereafter Williams) at 3. During the investigation, the WCSD spent $1725 to purchase cocaine, marijuana, hashish, and methamphetamine. Tr. 9207-08 (Hensley); Applicants' Investigation Testimony at 40, Attach. 5. The investigation resulted in the arrest of eight persons for sales to the officers and the identification of fifty-three others suspected of drug activity. Tr. 9173-74 (Hensley).

15. The parties do not dispute the above facts concerning the investigation. However, there are significant disagreements among the parties concerning certain actions CP&L took during the course of the investigation, and the timing of and reasons for the termination of the investigation, as well as what the investigation reveals about the extent of drug activity at the Shearon Harris site. These disagreements are discussed below.

1. Metal Detector Searches

16. SBI Assistant Supervisor of Drug Investigations Burch testified concerning the undercover investigation. Burch was SBI Agent Williams' supervisor during the time he participated in the undercover operation at the Harris site. Burch's testimony criticizes certain of CP&L's actions as impeding the effectiveness of the investigation, endangering the undercover agents, and causing the investigation to be terminated prematurely. Burch at 3-4. Burch testified that shortly after the investigation commenced, CP&L began using hand-held metal detectors to perform random gate exit searches of employees. *Id.* Supervisor Burch alleged, without elaboration, that this procedure slowed the progress of the undercover operation. Burch at 3. Burch testified that Hensley told her that the procedure had never been used before and that the employees from whom Hensley had been purchasing drugs had reported that there was a "snitch" on site. *Id.* at 3-4.

17. CCNC asserts that the initiation of metal detector searches had the effect of making drug users "skittish," and attributes this testimony to Mr. *Joyner*. Tr. 8519-20, 8524, 8555; CCNC PF 17. However, at the relevant transcript page, Mr. *King* refused to agree with the questioner that this would be the effect of the introduction of metal detectors. Tr. 8524 (King). CCNC again misstates the record when it claims that "[g]ate searches also began during the investigation and indeed found two workers with drugs. Tr. 8614" CCNC PF 17. Gate searches did not

begin during the undercover investigation — only the use of hand-held metal detectors as an added element in random exit searches. *See* Appl. PF 36.[6] Gate searches were already in effect before the investigation commenced. Furthermore, the search which discovered two workers in possession of drugs was not a routine gate search but a planned interception of drugs based on specific information about the two workers gathered during the undercover investigation. Tr. 9221 (Hensley). This incident at the site gate is discussed below; we mention it here only to eliminate any confusion concerning the searches instituted during the course of the undercover investigation.

18. CP&L's Manager, Harris Project Administration, William Hindman, testified that the metal detectors had been requested by the Daniel Construction Company construction manager prior to the inception of the undercover operation and that the detectors' sole purpose was to curb tool theft. Applicants' Investigation Testimony at 16-19.

19. Metal detectors do not detect drugs, and the effect of the use of metal detectors on drug activity appears to be quite limited. Certainly, if an employee is carrying concealed tools or other objects which alert the metal detector, a further search might lead to discovery of any drugs on the employee's person. Thus, the discovery of drugs might well be an incidental benefit resulting from the program designed to curb tool theft. However, we expect the number of persons who would alert the metal detector and then be found to be carrying drugs would be quite small, since employees know they will be searched if they alert the metal detector. Presumably, employees would also realize that the institution of metal detector searches would not signal a "crackdown" on drugs. In addition, since the random gate searches were already in effect when the undercover investigation began, we find the use of metal detector searches to have had little, if any, effect on the undercover operation.

2. *Drug Detection Dogs*

20. Beginning in February 1985, under the direction of CP&L's security unit, a narcotic detection dog has been on the Harris construction site twice a month on an unannounced schedule to search a random sampling of areas on the site. If specific requests are made, or if information is available concerning the possibility of drugs at particular areas on

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[6] Such searches are conducted during every shift change, at which time lunch boxes, briefcases, and other containers are opened for inspection as employees leave the site, and on a random basis as employees enter the site. Applicants' Assessment Testimony at 5.

site, then those areas are given priority for search by the dog. Applicants' Assessment Testimony at 5-6; Testimony of Francis J. Long, William J. Tobin, and Richard L. Prevatte, ff. Tr. 8653 (hereafter "Long *et al.*"), at 8.

21. The dog handlers, Ms. Dana B. Mackonis and Mr. Kenneth A. Mathias, testified that the dogs used at the Harris site are "aggressive" dogs who will bark, scratch, dig, or bite at the area where they find drugs, and therefore these dogs do not perform body searches. Applicants' Testimony of Dana B. Mackonis and Kenneth A. Mathias on the Use of Drug Detection Dogs, ff. Tr. 8993 (hereafter "Mackonis and Mathias"), at 8. Thus, if an employee is carrying drugs on his or her person, the dog would not signal the presence of drugs on that employee. *Id.*

22. In Board Findings 107-111 we discuss whether the drug dogs were effective and what that indicated about the extent of drug use at the site. In the present context, we address whether the dogs' use obstructed the undercover investigation. SBI witnesses Burch and Overton testified that the undercover operation had to be terminated prematurely because CP&L insisted upon initiation of its program of narcotic detection dog searches at the Harris site. Burch at 7-8; Direct Testimony of C.J. Overton III, ff. Tr. 9274 (hereafter "Overton") at 5-6. CCNC and the NCAG contend that the undercover agents' safety would have been threatened by the presence of drug dogs. CCNC PF 12; NCAG PF 9.

23. As previously noted, the undercover investigation began in early November 1984 and culminated in arrests on January 10, 1985 (although agent activity ceased about the turn of the year). Applicants' Investigation Testimony at 16, 34; Board Finding 14. The first dog search was not actually conducted on site until February 25, 1985, but a misunderstanding appears to have developed between CP&L and the law enforcement personnel as to when the dog searches would begin. Applicants' Investigation Testimony at 37-38; Tr. 9203-04 (Lanier, Hensley, Self). Both CP&L's witnesses and those from the WCSD testified that Sheriff Baker believed that introduction of the dogs during the undercover investigation would endanger the physical safety of the agents on site, and therefore Sheriff Baker wanted the operation terminated. Tr. 9189 (Lanier); Tr. 8561-62 (Joyner); Tr. 8498 (King). Supervising Agent Overton testified that the use of the dogs during the undercover operation would have created the "distinct possibility" that the undercover agents would have been endangered and that the "risk was too great." Yet SBI Agent Overton gave no explanation for the perceived threat from the dogs. Overton at 5-6.

24. Deputy Hensley testified that "if the dogs had been used in a situation where a certain group of people, including myself, knew a stash area or a quantity of drugs would be or who would have them, and if the dog picked up on that, it could cause some fault as to an informer or something being into the plant which could have pointed back towards me." Tr. 9224. Deputy Hensley explained that if the dogs went directly to a stash area, this might make people believe that there was a "snitch" on site. Tr. 9258. However, SBI Agent Williams testified that in his opinion the investigation could have proceeded with the dog searches in progress. Williams at 12.

25. CP&L's employees, King and Joyner, who have experience as law enforcement officers, and CP&L's expert, Mr. Bensinger, testified that the random dog searches would not have posed a threat to the safety of the undercover agents. Applicants' Investigation Testimony at 38-39; Tr. 8562-65 (King).

26. Although it is not clearly stated in the parties' testimony or in the proposed findings, it appears to the Board that the most likely way the operatives might have been endangered would have been if the drug dogs were *always* taken to search places the agents had reported as stash areas. There was testimony that the drug dogs might be taken to search a specific place on a tip (Applicants' Assessment Testimony at 6), however there is no evidence that the dogs were consistently taken to stash areas reported by the undercover agents. Moreover, if this had been standard practice, the agents could have simply asked CP&L not to search consistently in the stash areas of the group with which the agents were working. In any event, Hensley testified that he did not inform CP&L of any stash locations of which he was aware. Tr. 9197. Finally, there seems to have been no reason why site workers should have had greater suspicion about Hensley and Williams than about other workers, other than the fact that the agents were among recent arrivals on site. Although the use of the dogs may have rendered the criminal investigation less effective as a law enforcement operation because of the dogs' general deterrent effect on drug activity, the Board finds that the occasional presence of dogs on site would not have presented a significant incremental threat to the safety of the undercover agents. Nor does the Board find any evidence that CP&L brought the dogs on site for any reason other than to find drugs and deter drug activity among site employees.

3. Alleged Premature Termination of the Undercover Investigation

27. CCNC and the NCAG claim that the undercover investigation was terminated prematurely. CP&L maintains that the investigation was

winding down in December 1984 in terms of cases being made against suspects (*see* Applicants' Investigation Testimony at 40-41 and Attach. 5; Tr. 8589 (King)), an assessment with which Hensley agreed, (Tr. 9231-32), and that based on the geographically concentrated area, the informant, and the leads it provided, CP&L understood the investigation would last about 8 weeks. Applicants' Investigation Testimony at 32-33. WCSD personnel testified that they had not intended to leave such an impression with CP&L employees. Tr. 9200-03 (Lanier, Self, Hensley). To resolve this issue, we examine the testimony of the witnesses who offered an opinion on the matter.

28. Major Lanier of the WCSD testified that he believed "more could have been accomplished on the operation, as in any operation, with an extension on the length of time that we might be involved." Tr. 9190. Lt. Self and Deputy Hensley agreed with Lanier. Tr. 9190.

29. SBI Supervisor Burch testified that the SBI had inadequate time to investigate at Shearon Harris. Tr. 9306. Burch stated that the investigation was not terminated because it was complete, nor because the law enforcement agencies conducting it recommended termination, nor because of a lack of suspects. Burch claimed that the operation was terminated because the drug detection dogs would have created a risk to the personal safety of the law enforcement officers, an issue we have just discussed. Burch at 7-8.

30. SBI Supervisor Overton testified that the operation would have been more successful if the investigators had changed shifts, but that bringing in drug dogs would severely hamper the undercover operation. Overton at 4-5. Overton testified that it is not unusual for an operation of the sort performed at Harris to have lasted 6 months and that the operation was not a success from the SBI's point of view. *Id.* at 6.

31. SBI Agent Williams expressed his frustration with the way CP&L pursued its investigation of drug activity at the site, which he characterized as primarily a "policy type investigation rather than law enforcement." Williams at 15. For example, Williams complained that CP&L would search without probable cause and then fire employees, thus hindering drug dealing. *Id.* Williams further testified that if Shearon Harris had "cut down on its security procedures" (the gate searches and the metal detector searches), he believed "a lot more could have been accomplished." *Id.* at 12. He would have preferred that CP&L "[j]ust let it be a mild atmosphere where people could feel like they were getting away with something and we could have made more buys readily." *Id.*

32. We find that much of the disagreement concerning whether the investigation was terminated prematurely stems from the different goals and perspectives of the participants. CP&L's primary goal was to rid the

site of drug activity as quickly as possible. Oriented as it was toward safety in construction, CP&L was reluctant to allow, let alone facilitate, drug use at the site for an extended period of time. CP&L had no direct interest in making arrests or obtaining convictions. The law enforcement officers, on the other hand, were primarily interested in arresting and convicting persons involved in drug activity. To that end, they wanted a site atmosphere in which drug dealing could occur more or less freely. These differences in goals and orientation are illustrated by an incident in which two individuals suspected of bringing marijuana on site were stopped by CP&L employees when the individuals attempted to enter the plant.

33. On December 20, 1984, the informant told Deputy Hensley about two individuals the informant believed were about to bring a large quantity of marijuana on site. Applicants' Investigation Testimony at 21; Tr. 9221 (Hensley). SBI Supervisor Burch claims that Deputy Hensley requested CP&L Security allow the two individuals to pass through the gate. Burch at 4. CP&L's employees, Joyner and Plueddemann, testified that there had never been a request to allow the individuals to pass through the gate. Joyner and Plueddemann claim it was agreed that they should search the employees, since they would be bringing a large amount of marijuana on site for distribution to other employees (Applicants' Investigation Testimony at 21), and because Hensley had said that these two individuals would not sell to him directly. Tr. 9221. We do not find Supervisor Burch's testimony on this matter persuasive for two reasons: (1) it conflicts with the testimony of all other persons involved in the investigation, and (2) Burch was not present at the meeting during which plans to deal with the two individuals were made. We instead rely on the testimony of witnesses who testified from first-hand knowledge.

34. The plan decided upon by Deputy Hensley, Mr. Joyner, and Mr. Plueddemann was to have a sheriff's deputy with a search warrant at the site on the morning of December 21, 1984, to search the two individuals as they attempted to enter. Deputy Hensley agreed with the plan and all involved agreed that it would not compromise the cover of Hensley or the informant. Applicants' Investigation Testimony at 21-22. Joyner testified that both he and Deputy Hensley discussed the plan by telephone with Lt. Self. *Id.* at 22. Although Lt. Self had agreed to provide a deputy with a search warrant, when the deputy did not arrive on the morning of December 21, 1984, Joyner and Plueddemann searched the two individuals rather than allow them to take marijuana on site. One suspect was found with two packages of marijuana in his pants. The other had a package of marijuana and a small amount of cocaine. The

marijuana was packaged in individual glassine bags typically used for distribution. *Id.*

35. CP&L's primary concern in this instance was not with probable cause to search, or, for that matter, with any of the formalities prerequisite to an arrest and conviction. CP&L's overriding concern was with preventing drugs from entering its site. The law enforcement authorities wanted to make arrests, and to do so in such a way as to maximize the chance of conviction, requiring that proper law enforcement procedures be followed. Thus the action which would serve CP&L's objectives was not the same action which would best serve the objectives of law enforcement authorities.

4. Deputy Hensley's Testimony

36. We give separate attention to the testimony of Deputy Hensley because he spent more time on site than did Williams, the other undercover agent, and because Hensley provided the most detailed information about what occurred during the undercover investigation. As noted above, Deputy Hensley was at the Harris site 5 days a week from early November 1984 through early January 1985, excluding holidays. Tr. 9169 (Hensley); Board Finding 14. The first purchase of drugs was accomplished after 1½ hours on site, which might suggest that drugs were easy to acquire. However, this was a "controlled buy," in that the informant actually made the purchase in Deputy Hensley's presence and under Hensley's supervision, after Hensley had given the informant the money with which to make the purchase. Tr. 9229 (Hensley).

37. The investigation resulted in the arrest of eight site employees for sales to officers and in the identification of fifty-three others suspected of drug activity. Tr. 8568 (King); Tr. 9174 (Hensley).[7] The original twenty-one individuals whose identity was provided by CP&L are included in the sixty-one either arrested for or suspected of drug activity. Tr. 8568 (King). In addition, Hensley testified that he observed about forty other employees, whom he could not identify, either using or being connected with drugs on the job. Tr. 9175. He also stated that he suspected, based on "intelligence" being gathered, another 100 employees. Tr. 9241, 9263-64.

38. CP&L contends that if Hensley was close enough to observe the forty employees allegedly engaging in drug activity he should have been able to identify these employees by their hardhat color and the

[7] Hensley testified that the number was 51 or 53. Tr. 9174.

identification letters on the hardhats. Appl. RF 27. There are approximately 15 different hardhat colors, and each color identifies a particular craft or function. Tr. 8975 (Joyner). These hats have letters and numbers which also identify the crew. The markings on the hats are approximately 3 inches high. *Id.* CP&L employees wear light blue hats. Tr. 8978 (Joyner). These hats have decals with half-inch identification letters. Tr. 8979 (Joyner). Visitors to the site wear whatever hats are available in the lobby. Tr. 8980 (Joyner). Based on the number of hat colors, the various sizes of letters and numbers on the hats, and the fact that visitors wear a variety of different hats, we do not believe it unreasonable for Hensley to have been unable to identify specific crafts, crews, or individuals on the basis of the hardhat colors and markings. Also, Hensley may have been reluctant to peer closely at hardhat identification markings. Even if he had been able to determine the craft and crew from the markings, Hensley may have had a difficult time keeping notes of such information without attracting attention to himself.

39. We accept Hensley's belief that he observed about forty unidentified employees engaged in drug activity and that as a trained law enforcement officer he was probably correct as to most of those employees.

40. Deputy Hensley's testimony was somewhat ambiguous concerning the scope of his investigation around the site. At the beginning of his cross-examination, he confirmed the accuracy of a statement attributed to him by Lt. Self, and reported in Ms. Burch's testimony, that "Deputy Hensley began to develop intelligence which indicated that there were several cliques dealing drugs at the Harris plant . . . ." Burch at 4-5; Tr. 9176. The reference to "several cliques" seems to suggest that there might have been several drug sales operations on site, possibly operating independently of each other. If that were so, and if Hensley had only managed to infiltrate one such operation, serious concerns might arise about the extent of drug activity on site. Similarly, if Hensley had worked primarily in one area of the plant or with one craft (e.g., electricians), that might suggest that the sixty-one definite identifications he made of employees involved in drug activity were a small part of a larger problem. Some other Hensley statements point toward, but more point away, from these concerns.

41. Deputy Hensley testified that the word "clique" (which possibly originated with Ms. Burch) means the same thing to him as "group." He testified that: "The scope was to try to determine as many individuals as there were involved in drugs at the plant as we could, and in order to do that we had to move elsewhere out of this little group." Tr. 9232-33. In a similar vein, Hensley testified that:

HENSLEY: I . . . acted on the informant's information. The people he originally started introducing me to that were dealing in drugs, or using drugs, were people that were on his work crew and people that they partied with off the site, and associates by some means or another with other folks.

JUDGE KELLEY: An interrelated group of people?

HENSLEY: Yes, I would say that is correct.

JUDGE KELLEY: Now, did you function while you were there primarily with that group of people?

HENSLEY: While I was on site, yes.

Tr. 9249.

42. On the other hand, other Hensley testimony seems inconsistent with his having been confined to a small area of the site or one or two types of craft workers. Thus, when Hensley spoke of "moving elsewhere out of this little group," he was thinking in terms of moving from the day shift to the night shift. Tr. 9232-33, 9225. At that time, approximately 5000 employees were working the day shift and only about 800 employees were on the night shift. Tr. 8527 (Joyner). Thus if one were to postulate several independent drug dealing "groups" it is reasonable to assume that most, if not all, of them would be working the day shift, which comprised over 85% of total workers. Yet Hensley apparently thought he had no other "group" to go to on the day shift.

43. Although Hensley repeatedly used the words "group" and "groups" in referring to persons involved in drug activity, he noted at one point that "group" is "probably the wrong term to use. The informant we were using was associated with these people." Tr. 9234. Captain Lanier suggested at this point, with Hensley's apparent concurrence, that:

> [B]ack during the operation there were several groups within the first shift that the informant associated with either through work or off the site. There were certain suppliers or dealers within each of these groups, but it would only throw suspicion on him if he developed one supplier in one group. There was a closeness between the dealers on site sufficient to the point where if he went to one supplier and placed an order, and then in the same day or in the same work period went to another supplier that it would draw suspicion. They were that close knit a group.

Tr. 9236. Lanier's statement suggests the existence of several "subgroups" in the first shift whose members knew each other, bought and sold to each other, and were themselves a "group" who dealt with the informant and, to some extent, with Hensley. Given that reading of these rather confusing portions of testimony, one would expect that

Hensley's activities were not confined to a small area of the site or a few crafts. Other testimony tends to confirm that reading.

44. Hensley testified of the informant's associates that "most were electricians, some pipefitters, people that he had been purchasing drugs off of . . . ." Tr. 9234-35. Further, he stated that "No, they were not all in the same craft." Apparently, the employees he saw buying drugs included some quality assurance inspectors. Tr. 9224. Furthermore Hensley's "cover" job gave him free access to all parts of the plant. Tr. 8527. His first purchase was made in a cable spreading room (Tr. 9230) and his last purchase was made in the parking lot. Tr. 9238. The following colloquy between counsel for the Applicants and Deputy Hensley illustrates Hensley's mobility on site:

> COUNSEL: And when you were undercover and working at the plant site, did you limit yourself in any way geographically to one small area?
>
> HENSLEY: No, I tried to go throughout the whole plant. A lot initially I was restricted to the area of where the people the informant knew were doing drugs.
>
> The longer the operation went on, I started moving through the plant more.

Tr. 9266.

45. The Board can draw no firm conclusions from Hensley's testimony about "groups" engaged in drug activity. His use of the term was very imprecise.[8] The weight of the evidence suggests, however, that he was referring primarily to a site-wide "group" of dealers on the day shift who had associations with his informant and, to some extent, with him. Taken as a whole and in context, the evidence does not indicate that there were several other "groups" of dealers operating on the day shift that he had been unable to infiltrate.

46. Deputy Hensley testified that based on his observations and on impressions gained from general conversations with people he had dealt with, drug use at the Harris site is "widespread." Tr. 9255. He based this conclusion in part on his estimate that there were an additional 100-200 employees on site involved with drugs than those he was able to identify and that since he could not see or watch everybody on site the actual number of persons involved with drugs had to be more than the number he was able to identify. Tr. 9256 (Hensley). However, since

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[8] In addition to the meanings discussed above, Hensley equated the term "group" with "the general work force," departing completely from the ordinary meaning of a relatively small, cohesive number of people. Tr. 9251.

the Harris investigation was Hensley's first undercover narcotics operation [Tr. 9167-68 (Hensley)] it is difficult to determine what comparative standard, if any, Hensley was using to judge the extent of drug activity at Harris. When asked how his opinion of "widespread" drug use at Harris compared to the 5-12% stated by Bensinger, Hensley responded "[a]s far as overall at Shearon Harris, probably 5-12%, somewhere in that area, would be an accurate statement. I don't know." Tr. 9246 (Hensley). He later testified that he did not have an estimate of the percentage of the site population which might be involved with drugs. Tr. 9256-57 (Hensley).

47. While the Board found Deputy Hensley to be a straightforward and credible witness about what he personally saw and did, we cannot attach much weight to his somewhat inconsistent estimates of overall drug use at the site. We discuss hereafter the significance of the numbers of arrests and identifications made as a result of the undercover investigation with respect to the "widespread use" issue.

5. Assessments of the Results of the Undercover Investigation

48. CCNC and the NCAG claim, based on the results of the undercover investigation, that drug use at Shearon Harris is widespread. CP&L claims that it is not, and bases its conclusion on the undercover investigation, as well as several other factors discussed below. Deputy Hensley's testimony has been discussed in Board Findings 36-47, above. We now consider the opinion of others involved in the undercover investigation.

49. Supervisor Burch testified that the results of the investigation cannot be used to show there is no drug problem at Harris. Tr. 9306. Not only does Burch's testimony evidence a lack of understanding of the issue — in that no one has claimed that there is no drug problem at the Harris site (or, for that matter, at any large construction site) — but her testimony was based almost entirely on what Agent Williams told her. She had virtually no personal knowledge about the factual issues in this case. Supervisor Burch also testified that "widespread" meant that there were drugs in several areas of the site (Tr. 9310), although she later testified she was not using the term in only a geographic sense. Tr. 9311. Her opinion, based on her experience as a law enforcement officer, was that if one dealer in one area was caught, she did not believe he or she could be the only one in that area engaging in drug activity. Tr. 9310. Assuming the accuracy of that statement, we do not believe that a conclusion of widespread use follows from it.

50. Agent Williams, although he spent less time than Hensley at the site, also expressed an opinion concerning the outcome of the investigation. Williams testified that there was drug use and dealing in the CP&L parking lot and at a nearby grocery store. Williams at 8. Based on his "intelligence" gathered at the site, Williams concluded that "there were a lot more drugs at the Harris site and that more people could be caught with drugs," but because of CP&L's policies the undercover agents would have had to make their buys off site. *Id.*

51. CP&L witnesses King and Joyner testified that they had no knowledge about specific persons at the site using drugs and that if they did know of anyone at the site involved in illegal drug activity that individual would be removed from the site. Both further testified that they had no estimate of the number of persons now on site involved in drugs. Tr. 8816-18 (King, Joyner). In its proposed findings, CP&L claims that even accepting the accuracy of Hensley's estimate of 100-200 employees involved in drug activity (including the 40 seen but not identified by name, and the estimate of up to 100 others) this does not represent widespread drug use in a population of over 6000. Appl. RF 34. Mr. Bensinger testified that from 5 to 12% of the working population may be using illegal drugs, on and off the job. His opinion is that "a figure in the upper limits of 10% of all employees at a job site would represent widespread use." Tr. 8338-39. Mr. Bensinger did not venture an opinion as to the percent of the Shearon Harris work force that may be involved in illegal drug activity.

52. The Board will not make a finding concerning alleged widespread drug use at the Harris site on the basis of one undercover investigation. We have discussed that investigation in detail because it provided the original impetus for this contention and because, owing to conflicting testimony, a large portion of the hearing record focuses on it. However, there are other important indicators of the extent of drug use at the site which, taken together, are also significant. We will base our conclusion about alleged "widespread" drug use on a balance of all relevant factors.

E. Employee Terminations for Alleged Drug Activity

53. CP&L reported that "[a] review has been made of Security, CP&L and Daniel records to provide an assessment of the extent of drug activity among employees at the Shearon Harris site (CP&L, Daniel and/or other contractor employees) since February 1978, and

through October 15, 1985. More than 26,000 people have been employed at the site during this time period."[9] Appl. PF 69.

54. "CP&L has identified 218 employees as confirmed or suspected of some level of involvement with controlled substances.[10] None of these 218 individuals are now employed at Shearon Harris." Appl. PF 70. The following data, referred to at the hearing as the "matrix," indicate the bases for personnel actions on these employees:

Presence of drugs confirmed through urinalysis drug screening:	23
Found to be in possession of a controlled substance on site:	54
Arrested off site:	6
Arrested on site:	8
Refused to submit to a urinalysis test or a search of their person, property, or vehicle:	50
Suspicion, based on less than search or testing:	77
Total as of October 15, 1985	218

Applicants' Assessment Testimony at 12; Appl. Exh. 51.

55. These statistics do not prove that a terminated employee's job performance was impaired,[11] since terminations were for any suspected drug-related activity, without regard to actual consumption or work impairment. Applicants' Assessment Testimony at 15. Further, a high rate of detection of drug activity can be caused by a high rate of drug activity or by a high level of enforcement of antidrug policies, or both. Used in isolation, arrests or dismissals for drug activity can be misleading because they can seem to show that the sites with the most effective drug abuse prevention efforts have the highest rate of drug activity (because

[9] At the time of the hearing, and during the 1984 undercover investigation, the daily employee population was approximately 6000. This number was lower during the earlier years of construction. Tr. 8346-47 (Ferguson).

[10] In addition, by stipulation with CCNC, Applicants agreed to treat five employees of CONAM Inspection, who performed preservice, baseline eddy current testing on the Harris Plant steam generators, in the same manner as employees potentially implicated in drug activity for purposes of reevaluating their work. Tr. 8891-92. A CCNC witness had made certain drug use accusations against certain CONAM employees in prefiled testimony. The Board encouraged CCNC and the Applicants to enter into the stipulation withdrawing that testimony as a means of avoiding collateral issues.

[11] CP&L knows of no instances of employees being impaired by drugs on site. Tr. 8841-42 (Joyner, King, Hindman).

they have the most arrests and dismissals, for example), when these indicators may actually reflect a relatively low rate of drug activity at a particular site. *Id.* at 19. Appl. PF 71.

56. CCNC asserts, *citing* Tr. 8504, that the 218 employee terminations include 29 individuals identified from a 6-week investigation in 1982, and that these 29 plus the 61 identified in the 1984 investigation show that over 40% of all workers terminated because of drug activity have been identified through the two undercover investigations. CCNC PF 23. There are two flaws in CCNC's argument. First, CCNC fails to acknowledge that prior to the 1984 investigation, CP&L security provided law enforcement officers with a list of twenty-one suspected employees. Tr. 8568 (King). Thus the number of workers identified in the 1984 investigation was forty, not sixty-one. Second, Mr. King did not testify that the twenty-nine individuals identified in 1982 are included in the matrix. *See* Tr. 8813. Mr. King testified that these individuals have been released from the job site, although all of them may not have been released in 1982. Mr. King did not know how many of the twenty-nine were either immediately terminated or later terminated for involvement with drugs. Tr. 8813 (King). (We note the maximum number that could have been terminated in 1982 is eight, since that is the total terminated for all of 1982. *See* Board Finding 57.) In any event, if the 29 were not included in the matrix and the 1984 number is actually forty, then CCNC's claim that over 40% of all workers terminated because of drug activity have been identified through the two undercover investigations is without merit.

57. The number of employees terminated by year since 1979 is as follows:

Year	**1979**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**
Number of employees terminated	1	2	9	8	8	27	163
Total number of employees terminated as of October 15, 1985							218

Tr. 8806 (Hindman); Appl. Exh. 51.

58. These figures show a large increase in the number of terminations in 1985 over the year 1984 and previous years.[12] CP&L's witness Hindman offered four reasons why the number increased so markedly in

[12] CP&L asserts that the correct numbers of terminations for 1984 should be 87, and for 1985 should be 103, because 60 of those terminated in 1985 were actually identified in 1984. Appl. RF 35. Under that reasoning, however, the final number for 1985 could be expected to rise significantly, due to persons being "identified" in 1985 and not terminated until 1986.

1985. First, Mr. Hindman cited the general increase in drug use in American society. Second, he pointed to a doubling of the site population in 1984 over 1983. Third, Hindman noted the changing nature of the work site, explaining that in the early years there was not much cover and work was performed by large, closely supervised crews. Finally, he mentioned the heightened awareness of the drug situation.[13] Tr. 8899-8900, 8902 (Hindman); 8973-74 (Bensinger).

59. The Board finds each of these reasons persuasive to some degree, particularly the doubling of the site work force. However, we believe that CP&L's increased emphasis on drug detection played the largest role in the dramatic increase in terminations in 1985.

60. Applicants claim the drug activity at the Harris site that has been identified by CP&L, its contractors, and law enforcement representatives, as a percent of the site work force is less than one-eighth of the national work forces' percentage of drug abusers. Appl. PF 72. The national figure provided by Mr. Bensinger was 5-12%. Applicants' Assessment Testimony at 17-18. The total number of employees terminated (218) is less than 1% of the total Harris work force of 26,000. If the average of the national average 5-12% is 8%, then 1% compared to 8% is indeed one-eighth.

61. Viewed in isolation, the total number of employees actually terminated over time does not suggest "widespread" drug use, since that statistic represents slightly less than 1% of the total work force over time. However, that termination statistic cannot be viewed in isolation. For one thing, it distorts the dimensions of the problem at particular times, particularly 1985, when about 200 (extrapolated to year's end) employees (over 3% of the current work force) were terminated for drug use. Furthermore, drug sales and use are illegal, clandestine activities, and not all drug dealers and users get caught. Mr. Bensinger estimated that the number of persons involved in drug activity is roughly 20 to 30% higher than the number identified and terminated.[14] Tr. 8967. Thus, termination statistics are a function of the effectiveness of an employer's policies and procedures to prevent drug activity. Even under the best antidrug programs, *some* drug activity will occur and escape detection. We assess further the significance of the Shearon Harris termina-

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[13] Although from Mr. Hindman's testimony it was not entirely clear whether he was referring the Applicants' awareness or the awareness by employees of CP&L's policies, from his later testimony it appears that he was referring to the Applicants' heightened awareness of drug activity and its actions in instituting and enforcing more stringent drug control policies. Tr. 8900-01 (Hindman).

[14] We note that CCNC is mistaken in its assertion that Mr. Bensinger testified that the number of users identified in 1985 represented 20-30% of the total number of persons involved in drug activity. CCNC PF 24.

tion statistics following our discussion of the CP&L drug prevention program.

F. Indirect Indicators of Drug Activity

62. Other significant indicators of the extent of drug activity include site accident rates, the quantity of drugs found on employees and in stash areas over time, and the age of the site work force. We examine each of these in turn.

1. Site Accident Rates

63. We agree with Applicants that "a high rate of arrests and dismissals with a low accident rate would suggest a low relative rate of drug use and effective intervention. A high rate of arrests and dismissals, however, when found with high accident rates would suggest a higher rate of drug abuse. A low rate of arrests and dismissals with a high accident rate would reflect ineffective intervention. Applicants' Assessment Testimony at 19-20; DuPont at 13." Appl. PF 73.

64. "The Daniel Construction Company and its subcontractor (Davis Electric Company) have a 0.80 incidence of lost workday accident cases per 200,000 work hours for the period November 1984 through July 1985. For the immediately preceding year (November 1983 though October 1984), the figure was 0.30. By comparison, the North Carolina State Department of Labor, Injury Statistics (1983-Construction) show a 4.7 incidence of lost workday accident cases per 200,000 work hours for heavy construction in North Carolina. The national average — Construction 1984 Edition 'Accident Facts National Safety Council' — for heavy construction in this same category is 3.5."

65. "During 1984, CP&L employees at Harris experienced 0.79 lost workdays from accidents per 200,000 work hours, compared to 1.23 lost workdays for the Company as a whole. Additionally, the Harris project has experienced no fatal accidents. The Board finds this to be an excellent safety record and a strong indication of a low rate of substance abuse. If drug use were widespread at the Harris Plant, one would expect to see a higher accident rate among the site work force. Applicants' Assessment Testimony at 20; DuPont at 13." Appl. PF 74.

2. Quantity of Drugs Found

66. Another indirect indicator of the level of drug activity is the quantity of drugs involved in the drug-related incidents at the site. Appli-

cants' estimate, based upon a review of their site security files, is that CP&L security has confiscated misdemeanor amounts of approximately 282 grams of marijuana, 4.5 grams of cocaine, 50 pills (controlled) and 450 pills (nonschedule). CP&L's estimates of drugs collected and given to the WCSD in felony amounts are 16 ounces of marijuana and 3 grams of cocaine. Applicants' Assessment Testimony at 12. These estimates do not include the drugs purchased during the 1984-1985 undercover investigation. Deputy Hensley testified that during the investigation he purchased 7 grams of cocaine, 4.5 ounces of marijuana, 5 grams of crystal (methamphetamine), and 16 ounces of hashish, which cost a total of $1725. Applicants' Investigation Testimony, Attach. 5; Tr. 9207-08.

67. Both NCAG and CCNC speculate that an unnamed supervisor was bringing pound quantities of cocaine into the site. CCNC PF 14; NCAG PF 5; Tr. 9182-83 (Hensley). They base this claim on information that a worker allegedly told Hensley about pound quantities coming on site from Florida. Tr. 9182 (Hensley). No details, such as the suspected dealer's name, or dates the cocaine might be delivered, were offered concerning this speculation, nor was the testimony corroborated. The Board believes this testimony is too speculative to serve as the basis for a finding that anyone at the plant was dealing in large quantities of cocaine.

68. CCNC attributes to Mr. Bensinger testimony that "drug dealers on site are more of concern than simple use." CCNC PF 27. However, Mr. Bensinger actually testified that "the information on dealing on site is more serious than use . . . although at a work location people generally will sell and exchange and deal to friends, people they know or are introduced to." Tr. 8597. CCNC fails to state the inference to be drawn from this testimony. We agree that larger quantities of drugs, typically possessed by dealers, are a greater cause for concern than simple use of small quantities. However, on this issue the record weighs in Applicants' favor, since the quantities of drugs confiscated generally indicate personal use, rather than large-scale distribution. Tr. 8596-98 (King, Bensinger); Applicants' Assessment Testimony at 12-16; *see also* Tr. 8344, 8575 (Bensinger).

69. In addition, the record includes the results of sixteen drug detection dog searches performed at the Harris site. Most searches were negative, and the positive searches discovered only minute quantities of marijuana. Mackonis and Mathias at 10-12; Tr. 8994-95 (Mackonis).

70. CCNC claims that Ms. Mackonis, handler of the drug detection dog at the site, testified that during one of her searches the dog identified 11 out of the 200-500 cars in the parking lot. CCNC then postulates that since there are usually several thousand cars in the parking lot,

there would be an average of 60-150 cars in the parking lot which would have drugs or residue from drugs in them. CCNC PF 28. If the dog detected drugs associated with 11 out of 200 vehicles this represents 5.5% of the cars. Eleven cars out of 500 is 2.2%. Assuming that, on a given day, 2 to 6% of the cars in the parking lot caused a dog to signal the presence of drugs, these figures would not be inconsistent with our findings about drug activity at the site. *See* Board Findings 124-139. In any event, searches of ten of the vehicles the following day were negative (one employee refused to permit a vehicle search). Mackonis and Mathias at 11. However, such results are not conclusive since drug odors might have dissipated or drugs might have been removed from the vehicle before it was searched.

3. Age of Site Work Force

71. CCNC cites Dr. DuPont's testimony (although CCNC's citations to the record are incorrect) that males in the 18-25 age group have the highest rate of drug use in American society. DuPont at 5; CCNC PF 49. CCNC then cites age and gender data for current CP&L employees, and concludes that "[t]he Harris work force is primarily young males." CCNC PF 49. The age and gender data for CP&L employees is as follows:

Age	Male		Female		Total
18-25	77		37		114
26-35	444		91		535
36-66	279		27		306
TOTAL	800	+	155	=	955

Appl. Exh. 53 (Supplemental Affidavit of William J. Hindman, Jr., on Gender Age Information About Certain Harris Employees, dated November 26, 1985).

72. The very data identified in CCNC's proposed finding, however, contradict CCNC's conclusion. Appl. RF 39. Only 77 of the 955 CP&L employees are males in the 18 to 25 age group. For Daniel/Davis employees, males under 25 constitute 13% of the employees, and for QA inspectors, they represent only 5% of the employees. Appl. Exh. 53 (Supplemental Affidavit of William J. Hindman, Jr., on Gender and Age Information About Certain Harris Employees, dated November 26, 1985); Appl. RF 39.

73. According to Dr. DuPont, in 1982, 64% of 18- to 25-year-olds had used marijuana at least once in their lives and 28% had used it in the month before the survey. By comparison, 23% of those 26 years of age and older had ever used marijuana, and 7% had used it in the month prior to the survey. The equivalent percentages for cocaine, the second most commonly used illegal drug, were 29% (at least once) and 7% (in the previous month) for 18- to 25-year-olds, and 9% and 1% for those 26 years and older. DuPont at 4. Thus, the relevant age group for our purposes is 18-25. The Board finds that the percentage of males in the age group 18-25 is quite small, about 8% of the CP&L work force and 13% of Daniel/Davis employees. Even if the males in the age group 18-35 were included, the percentage would be slightly more than one-half of the total CP&L employees (54%). These age statistics are not indicative of a high level of drug activity.

G. Observations of Persons Working on Site

74. The Board heard testimony from several persons who have worked at the Shearon Harris site. All but one of these witnesses, Ms. Patty Miriello, expressed the opinion that drug use at the plant is not widespread.

75. CCNC witness Miriello was employed at the site from April 1984 to August 1985.[15] Applicants' witness Joyner testified that Ms. Miriello was dismissed by CP&L on August 30, 1985, because of her inability to function cooperatively with her co-workers and supervisors. Applicants' Assessment Testimony at 15. Ms. Miriello testified that drug abuse at the Harris Plant is widespread. Testimony of Patty Miriello for Conservation Council, ff. Tr. 9084 (hereafter "Miriello") at 5-6. She testified that on one occasion she "observed seven or eight workers up on the boilers smoking marijuana . . . in plain view of the administration building." Miriello at 4. The reliability of this observation is subject to question, in light of her admission on cross-examination that the view of the boilers — 660 feet from the administration building — is obscured by another building. Tr. 9117-18 (Miriello).

76. Ms. Miriello also testified that she smelled marijuana when walking through the Daniel parking lot (Miriello at 4) but she did not attempt to identify the individuals involved or report the incidents to site authorities. Tr. 9118, 9150-51. Nor did she include these observations in

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[15] Ms. Miriello was employed by Nuclear Energy Services from April 1984 to February 1985. She was employed by CP&L from February 25 until August 30, 1985. Miriello at 2; Applicants' Assessment Testimony at 14.

her affidavit of September 6, 1985, in opposition to Applicants' summary disposition motion. Tr. 9115-16 (Miriello). In that regard, Ms. Miriello testified that she recalled these incidents before the affidavit was filed, but that the "priority there was the safety issue with the steam generator tubing," and that she and CCNC were in a rush to get that brought to the attention of the public. Tr. 9116. We find this statement difficult to credit. The few lines necessary for Ms. Miriello to state her alleged observation of the boiler incident and parking lot incidents could not have delayed submission of her affidavit, which we initially understood to incorporate all of her concerns.

77. The alleged incident of workers smoking marijuana on the boilers occurred in October 1984. Miriello at 4. However, in a Quality Check Employee Exit Questionnaire signed by Ms. Miriello on February 19, 1985, she indicated that she had reported no safety concerns, and that she had no unreported concerns.[16] Appl. Exh. 41. At the hearing, Ms. Miriello stated that she "didn't care" about completing this form, and refused to acknowledge what she had marked on the form.[17] Tr. 9105-08. Although an occasional inconsistency in testimony is to be expected as memories fade, we find that Ms. Miriello's testimony is unusually inconsistent. In addition, Ms. Miriello threatened CP&L in writing that she would attempt to stop the plant through intervention in this proceeding if she were fired. Tr. 9101 (Miriello); Applicants' Assessment Testimony at 15. In fact, Ms. Miriello contacted counsel for CCNC within 2 days after her dismissal by CP&L. Tr. 9110 (Miriello).[18] Finally, the Board observed Ms. Miriello's open hostility toward CP&L at the hearing. For all of the foregoing reasons, we give very little weight to Ms. Miriello's testimony.

78. A panel of CP&L witnesses associated with drug prevention at the site testified on the extent of drug activity. Mr. Hindman, Manager, Harris Project Administration, has been employed by CP&L at the Harris site full time since February 1979, and was on site part time before that date. Applicants' Investigation Testimony at 1. His opinion is that drug abuse is not widespread among site employees. Applicants' Assessment Testimony at 16-17, 21. Mr. Joyner, a law enforcement officer who has investigated alleged drug activity at the site for 6 years, testi-

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[16] Ms. Miriello also testified, in contradiction, that she had reported the concerns on drug activity to the FBI in November 1984. Tr. 9109 (Miriello).

[17] Ms. Miriello also misstated her qualifications by testifying that she has an M.S. degree from Pennsylvania State University, when in fact the degree has not been conferred. *Compare* Miriello at 2 with Tr. 9114 (Miriello).

[18] Although Ms. Miriello testified that she thought she had contacted counsel for CCNC earlier, she could not recall when she did so. Tr. 9110 (Miriello).

fied that drug use at the site has not been widespread. Applicants' Assessment Testimony at 16. Mr. King, who has been on site frequently in his 7 years of employment with CP&L, also concluded that drug abuse is not widespread. Applicants' Investigation Testimony at 2-3; Applicants' Assessment Testimony at 16-17, 21; Appl. PF 81. As indicated in some of our other findings, the Board does not agree with these CP&L enforcement witnesses in some respects. Nevertheless, we believe that their testimony on the overall question of widespread use was sincere and informed.

79. Mr. Prevatte, the NRC Resident Inspector at Harris from March 1983 to October 1985, testified that he is on the site almost daily, has free access to the entire site, can observe workers at any time or location, and spends the majority of his time in actual inspection in the field, but has never observed drug use on the site. Tr. 10,164 (Prevatte); Tr. 8679-80, 8755, 8759. Although Prevatte acknowledged that drug use has occurred on the site, based upon his experience, he does not believe "it is a dominant factor that is occurring continuously, that high percentages of people are using [drugs] on site." Tr. 8760-61. Prevatte testified that he has been trained to identify drug use, and that he would be able to detect someone under the strong influence of drugs. Tr. 8762. Finally, Prevatte testified that if there had been widespread drug use at the Harris site, he would have seen direct evidence of it over time. Tr. 8764. The Board believes that Prevatte would have been able to detect an employee exhibiting noticeable signs of drug use. However, Mr. Prevatte's primary responsibility was to make inspections of the plant, not to look for evidence of drug use. We therefore believe he simply might not have noticed employees who were using drugs infrequently or at low doses.

H. Applicants' Drug Abuse Control Policies and Procedures

1. Introduction

80. The Applicants presented extensive testimony concerning their policies and programs for control of illegal drug activity. Witnesses testifying for the Applicants included Peter B. Bensinger, a consultant and former Administrator of the U.S. Drug Enforcement Agency; John D. Ferguson, Director — Personnel Relations at Harris; Garry W. Flowers, Manager of Corporate Security at Daniel International Corporation; and A. Reid Pannill, Daniel's Personnel Manager at Harris from 1982 to 1985. Tr. 8326. A panel comprised of William J. Hindman, Jr., Michael W. King, D. Glenn Joyner, and Peter B. Bensinger also testified for Applicants concerning their drug abuse policies and procedures. Tr. 8893.

Dog handlers Dana B. Mackonis and Kenneth A. Mathias testified concerning the use of drug detection dogs at the Harris site. Tr. 8993. The NRC Staff presented the testimony of Loren L. Bush, Jr., Senior Security Specialist with the Operating Reactors Branch, Division of Inspection Programs, Office of Inspection and Enforcement, U.S. NRC. Tr. 8653. Francis T. Long, William R. Tobin III, and Richard L. Prevatte also testified for the Staff. Mr. Long is Technical Assistant to the Regional Administrator, Region II, U.S. NRC. Mr. Tobin is Senior Physical Security Inspector, Harris Plant. Mr. Prevatte was Senior Resident Inspector for Construction at the Shearon Harris Plant from March 1983 to October 1985. Tr. 8653.

2. CP&L Policies and Procedures

81. CP&L employees at the Harris site are subject to CP&L's Drug and Alcohol Abuse Statement of Practice. The statement, excluding the provisions related to alcohol abuse, is as follows:

> The use, possession, or sale of narcotics, hallucinogens, depressants, stimulants, marijuana, or other controlled substances by an employee while on Company business or on Company property will result in disciplinary action, including possible termination.
>
> Any other use, possession, or sale of narcotics, hallucinogens, depressants, marijuana, or controlled substances by an employee that may adversely affect the employee's job performance, or that may reflect unfavorably upon public or governmental confidence in the manner in which the Company carries out its responsibilities, may result in disciplinary action, including possible termination.
>
> This statement of practice does not apply to medication prescribed by a licensed physician and taken in accordance with such prescription.

Applicants' Testimony of Peter B. Bensinger, John D. Ferguson, Garry W. Flowers, and A. Reid Pannill on Drug Abuse Control Policies and Training, ff. Tr. 8326 (hereafter "Bensinger *et al.*"), at 8. CP&L has also adopted a Drug and Alcohol Interdepartmental Procedure, which prescribes responsibilities for implementing the policy. *Id.* at 8-9; Appl. Exh. 30; Appl. PF 12.[19]

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[19] The Applicants presented extensive testimony detailing their drug control program and policies. Although CCNC alleges defects in the Applicants' programs and policies, for the most part the Applicants' testimony on this issue went unchallenged. We therefore adopt much of the Applicants' proposed findings concerning measures taken to prevent drug activity at the Harris site. Portions of the Applicants' Findings which have been paraphrased by the Board bear the appropriate finding number. Those portions adopted in whole are designated with quotation marks and the appropriate finding number.

82. CCNC alleges that CP&L policy on drug use on site is unclear, citing Tr. 8406-08. CCNC PF 39. The Board agrees with Applicants' reply that "CCNC's proposed finding is entirely misplaced. [At the cited transcript page] Judge Kelley was questioning Applicants' witnesses on the *second* paragraph [of the policy], which addresses offsite drug activity. There is no testimony which questions the clarity of the *first* paragraph, and the Board fails to see how the policy against drug activity on site could be clearer."[20] Appl. RF 7.

83. Prospective CP&L Harris site employees "are fully informed of the Company's Drug and Alcohol Abuse Statement of Practice and related Drug and Alcohol Interdepartmental Procedures. They are advised that a thorough 5-year background investigation will be conducted, that drug screening procedures are a part of the required preemployment physical examination, and that a professional evaluation using the Minnesota Multiphasic Personality Inventory (MMPI) is a part of the total preemployment procedure." If the drug screen indicates the presence of drugs or controlled substances not properly obtained and used, the applicant will not be considered further for employment. "Also, if the MMPI indicates a background of or tendency toward drug or alcohol abuse or aberrant behavior in the opinion of professional advisors to the Company, they may not be considered further for employment. Bensinger *et al.* at 9; [NRC Staff] Testimony of Francis J. Long, William J. Tobin and Richard L. Prevatte on CCNC Contention WB-3 (Drug Use During Construction), ff. Tr. 8653 (hereafter 'Long *et al.*'), at 7." Appl. PF 13.

84. New Harris site employees attend an instructional program which explains CP&L's Drug and Alcohol Abuse Practice and Procedures, the adverse effects of drug and alcohol abuse, and CP&L's Employee Assistance Program. Employees receive copies of the CP&L "Drug and Alcohol Abuse Reference Manual" (Appl. Exh. 31), which states that the Company may conduct announced or unannounced inspections, investigations, and searches for illegal drugs and controlled substances. The Manual makes clear that based on the results of such action employees may be asked to undergo a company-approved medical examination, including a drug screen, and that failure to cooperate in an inspection, investigation, or search may result in disciplinary action,

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[20] As to the paragraph on offsite activity, Applicants explained the basis in judicial precedent for articulating a nexus between the policy and the employment. Tr. 8406 (Bensinger). It was also explained that the Statement, rather than exempting offsite activity, provides the basis for CP&L personnel action with regard to such activity. Tr. 8409 (Bensinger, Ferguson). The first sentence of the CP&L Chairman/President statement in the employees' Reference Manual is that "[d]rug and alcohol abuse whether on or off the job is a serious concern to our Company." Appl. Exh. 31 at 2. The record demonstrates that in fact CP&L and Daniel do terminate employees for offsite drug activity. Applicants' Assessment Testimony, ff. Tr. 8893, at 12; Tr. 8405 (Flowers).

including possible dismissal. "The last page of the Manual is detached and retained as the employee-signed record of participation in the orientation, of the employee's agreement to abide by the Statement of Practice and related Procedures, and of the employee's understanding that compliance with the Statement of Practice and related Procedures is required for continued employment with CP&L." Bensinger *et al.* at 9-10; Appl. Exh. 31; Long *et al.* at 6-7; Appl. PF 14.

3. Contractors' Drug Policy

85. By contract amendment, a drug and alcohol abuse policy is imposed upon contractors at the Harris site. This amendment requires the contractor to inform its employees of CP&L's drug abuse policy, CP&L's right to search on its property, and CP&L's discretion to remove from the site any employee who does not cooperate with or is found to be in violation of CP&L's drug abuse policy. Bensinger *et al.* at 11; Appl. Exh. 32; Appl. PF 15.

86. The employees of Daniel Construction Company and its subcontractors represent approximately 70% of the site work force. Prospective Daniel employees at the Harris site are subjected to preemployment background verification, including confirmation of the dates of previous employment, job classification, performance rating, and the reason(s) for termination. Any criminal records listed on the employment application are reviewed, and incidents involving drug-related activity in the applicant's background are viewed as grounds for denial of employment. Bensinger *et al.* at 13-14; Appl. PF 16.

87. "Daniel's drug policy at the Shearon Harris site provides that employees are forbidden to use, sell, possess, or be under the influence of illegal drugs while on Daniel or CP&L property and that violation of this prohibition is cause for immediate discharge. The implementing procedures provide that Daniel may take any of the following steps while employees are on Daniel/CP&L property: observe actions of employees; counsel employees; search employees' personal items, automobiles, or persons; require searches with canines; require drug screen urinalysis testing. If the employee refuses a search or test, he/she is immediately discharged. Bensinger *et al.* at 14; Appl. Exhs. 36-38." Appl. PF 17.

88. All new Daniel employees and all employees transferring from other Daniel work sites undergo an employee orientation, which includes a review of the policy, a video program, and an employee handbook describing the policy. Each employee must complete an affidavit, retained in the site personnel file, certifying that the handbook was received and

read, and that the employee will abide by its rules. Bensinger *et al.* at 15-16; Appl. RF 18.

89. In February 1985, Daniel began supervisory training concerning drug abuse at the Harris facility. Tr. 8386 (Flowers). CCNC alleges that prior to early 1985 Daniel relied on its routine orientation for workers, only a part of which included drug education and the company policy. CCNC PF 30. Tr. 8417 (Pannill). Applicants reply that several elements of the drug control program existed prior to 1985, including (1) a firm policy of prohibition which was clearly communicated to all employees; (2) an extensive orientation program to explain the policy and to educate employees about drugs; (3) supervisory orientation during safety meetings on how to identify and address drug abuse; (4) supervision monitoring employees entering and leaving the workplace; (5) random searches; (6) active surveillance in the field by Industrial Relations; and (7) a program for employees to communicate violations. Tr. 8417-18 (Pannill); Appl. RF 8. Measures added to the program in 1985 no doubt increased its effectiveness. However, we are concerned here with whether adequate steps are taken to control drug activity, not with penalizing the Applicants for improving their programs as experience dictates.

4. Supervisor Drug Awareness Training

90. "CP&L has a drug awareness training program for CP&L managers and supervisors (including first-line supervisors, i.e., foremen) at the Harris site designed to prepare them to recognize drugs and drug-related behavior, and to understand their responsibilities when such substances or behaviors are observed or reported on the job. The supervisor is responsible for reporting any information on suspected drug activity, for removing from the job any employee having possession of or under the influence of drugs, and for initiating disciplinary action in accordance with the provisions of the Company's Drug and Alcohol Abuse Statement of Practice. The drug awareness training program enables supervision to carry out these responsibilities effectively. In developing its drug and alcohol abuse education efforts, CP&L utilized the expertise and guidance of numerous individuals and organizations with experience, including other utility companies, federal and local law enforcement personnel, the academic community, and consulting firms with national experience in the prevention of drug and alcohol abuse. Bensinger *et al.* at 11-12." Appl. PF 19.

91. CP&L supervisors and managers at the Harris Plant have attended a "Drug and Alcohol Workshop for Supervisors." Through this program participants learn the skills necessary to implement the Practices

and Procedures. "Each manager and supervisor receives . . . the CP&L Supervisor's Reference Manual, Drug and Alcohol Abuse (Appl. Exh. 33), which illustrates the scope and content of the training provided. In addition to the Practices and Procedures, the manual describes drugs of common abuse (including identification of the drug, methods of use, and signs/symptoms of use), guidance on observing and documenting changes in employee behavior, guidelines for administering CP&L's policy on drug abuse, behavior and job performance warning signs, a checklist for observing employee behavior, and guidelines for conducting a disciplinary interview. Bensinger *et al.* at 12; Appl. Exh. 33; Long *et al.* at 8. In actual practice, CP&L supervisors have identified employees involved in drug activity. Tr. 8411 (Ferguson)." Appl. PF 20.

92. CCNC notes that CP&L's Supervisor's Reference Manual on Drug and Alcohol Abuse was revised on February 15, 1985, to add three new sections which reflect training material provided to the supervisors by Bensinger, DuPont and Associates in August 1984. Tr. 8379-81 (Ferguson, Bensinger); CCNC PF 30. CCNC claims that prior to August 1984 "there was little supervisory training on the drug abuse detection." CCNC PF 30. CCNC does not offer, nor can we find, any support in the record for this assertion. Applicants' witnesses testified that supervisor drug awareness training had been presented earlier, and that similar information (reflected in the new training material) had been provided, but not in the same format. Tr. 8382 (Ferguson, Bensinger); Appl. RF 8. Applicants state that the Supervisor's Reference Manual prepared in early 1983 was not significantly modified by the February 1985 revision, which added nine pages of text to a Manual which had been thirty-one pages long, and had already included the Company Drug and Alcohol Statement of Practice and Interdepartmental Procedure; ten pages describing Drugs of Abuse; Observation and Documentation of Changes in Employee Behavior; Supervisor's Checklist in Observing Behavior; and Guidelines for Conducting a Disciplinary Interview. Appl. Exh. 33; Appl. RF 8, n. 3. While it is true that Applicants have improved their supervisor drug awareness training program, the Board finds no merit to CCNC's claim that prior to August 1984 there was little supervisor training on drug abuse detection.

93. In 1984, CP&L increased its drug abuse control efforts. On August 1, 1984, Mr. Peter B. Bensinger briefed CP&L management on drug and alcohol abuse control. Subsequently, refresher training on drug and alcohol abuse was conducted by Mr. Bensinger's associates and CP&L personnel at the Harris site. Bensinger *et al.* at 2, 12-13; Appl. Exh. 34. In addition, CP&L employees at the Harris site, as well as contractor employees who attend the routine safety meetings, received a

videotape "Drug and Alcohol Abuse Refresher Training" session presented by CP&L's Executive Vice President. Bensinger *et al.* at 13; Appl. Exh. 35; Appl. PF 21.

94. Daniel's supervisors also receive special training on drug awareness and Daniel's policy. Supervisors receive the written drug policy which appears in a Supervisor's Handbook. The supervisors are taught to recognize drugs with high abuse rates (e.g., marijuana, cocaine, and different forms of speed), to recognize drug abuse symptoms in an employee, and the supervisor's role in carrying out the policy. This training program was developed from information provided by federal and local law enforcement agencies, medical doctors, and pathologists, and the training content has been reviewed for accuracy by law enforcement experts and medical doctors. Bensinger *et al.* at 16-17; Appl. Exhs. 39 and 40; Tr. 8413-14 (Flowers); Appl. PF 22.

5. CP&L Consultants' Evaluation of Applicants' Program

95. "Bensinger, DuPont and Associates has provided policy consultation to CP&L and supervisory training to all CP&L management and supervisory personnel at its nuclear facilities and headquarters locations. After CCNC filed Contention WB-3, Mr. Bensinger met with CP&L Security and Harris Project management personnel to review the current status of efforts by CP&L and its contractors to control drug use at the site. In addition to reviewing documentation on the Harris site drug abuse control program, Mr. Bensinger had the manager of his firm's Rockville, Maryland office visit the site in order to advise him on the actual implementation by CP&L and Daniel of their drug abuse control policies, procedures and programs." Consequently, Mr. Bensinger's assessment of the Harris site drug abuse control program is based on his familiarity with the development of the program, as well as a special review conducted for this proceeding. Bensinger *et al.* at 18-19; Appl. PF 25.

96. Mr. Bensinger outlined the key elements of an effective drug abuse control program. Bensinger *et al.* at 19-20. The elements are based upon the Edison Electric Institute's (EEI) "Guide to Effective Drug and Alcohol/Fitness for Duty Policy Development" (August 1985). (Mr. Bensinger was a consultant to the EEI Task Force which developed the Guide. Tr. 8329-30.) According to NRC Staff witness Loren Bush, this industry-developed standard, while not intended to be mandatory or prescriptive, will be used voluntarily at both operating power reactors and those under construction to meet "fitness for duty" objectives. Testimony of Loren L. Bush, Jr., ff. Tr. 8653 (hereafter "Bush") at 6; Appl.

PF 26. The EEI Guide describes the key elements of a drug fitness for duty program which include a written policy, top management support, effective policy communication, behavioral observation training for supervisors, implementation training for supervisors, union briefing, contractor notification, law enforcement liaison, chemical testing of body fluids, and employee assistance programs. Bush at 6-9.

97. Mr. Bensinger concluded that CP&L has undertaken all of the principal initiatives recommended by the EEI Guide for an effective drug abuse control program. His assessment of the supervisor training program at Harris is that it meets or exceeds prevailing industry standards and meets the threat of drug abuse at the Harris site. In particular, Bensinger testified that the training provided to the supervisors on identification of the symptoms of drug abuse enables the supervisors to recognize unusual behavior and to initiate intervention prior to the worker becoming so impaired that he or she would compromise safety-related work. Bensinger *et al.* at 20-22; Tr. 8333, 8412-13, 8415-16 (Bensinger).

6. *NRC Staff Review of Applicants' Program*

98. Based on his document review of Applicants' program, Staff witness Bush also concluded that CP&L meets or exceeds all key elements of the EEI Guide and that drug programs at the Harris site, including those of Daniel Construction Company, are effective. Bush at 14. The NRC Staff would have this Board conclude, on the basis of the Staff's review, that the "various drug programs in place at the Shearon Harris site are comprehensive and adequate and that they exceed the standards recommended to the industry by the Edison Electric Institute." NRC PF 35. However, the Staff findings fail to address the testimony of Staff witness Tobin who stated that the Staff "can't make any conclusion that this [the Harris] program has not been effective." Tr. 8715 (Tobin). At the hearing, the Board found this statement unclear and further questioned Tobin, who concluded that the Staff did not have the "specific knowledge" to conclude that the program is in fact effective to prevent drug abuse. Tr. 8717 (Tobin). The Staff performed a document review of CP&L's program, but did not review or express any opinion on actual program implementation.[21] We therefore rely on Bush's conclusion only

[21] The Board would expect the Staff to have noted this testimony in its proposed findings. However, other parties were more remiss in failing to address unclear or contradictory statements of their own and other parties' witnesses. NCAG addressed almost exclusively the testimony of its own witnesses — *(Continued)*

on the matter of the theoretical adequacy of the Applicants' drug control program, and not on the implementation and results of the program.

7. Means for Identifying Drug Activity

99. CP&L employs several means for identifying violations of the drug abuse control procedures at the Harris site. In addition to pre-employment screening, these means include security measures, urinalysis drug screen testing, and the observations of managers, supervisors, and employees. Applicants' Assessment Testimony at 3; Appl. PF 31.

100. To coordinate effectively the information obtained by these various means, CP&L has designated William J. Hindman, Jr., as project-level coordinator of all information pertaining to illegal drug use on the Harris Project. Hindman is to be informed of all allegations of, or other information developed with respect to, potential drug use or other drug-related activity among project employees. Hindman and other appropriate personnel assess information and plan actions to resolve each situation, either through further investigation or immediate personnel action. If sufficient information is developed to confirm, or suspect on reasonable cause, a violation of site drug abuse policies, the employee either is required to submit to the urinalysis drug screen, or is terminated or removed from the site via CP&L's contractual right to direct contractors to remove any of their employees at CP&L's discretion. When an employee is terminated or removed for drug-related reasons, the relevant quality organization is informed so that any necessary action concerning the employee's previous work may be identified and undertaken. Applicants' Assessment Testimony at 9-10; Appl. PF 32.

a. Security Measures

101. Undercover operations, such as that conducted in late 1984, serve not only to identify employees involved in drug activity, but also to deter others contemplating such involvement. The 1984 undercover operation was not the first conducted on site by law enforcement officers in cooperation with CP&L. CP&L intends to to use such investigative techniques in the future whenever the situation warrants. Applicants'

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never acknowledging the conflicting testimony of other witnesses at the hearing. Likewise, CCNC often failed to acknowledge any of the testimony adverse to its own position. Findings which ignore large portions of contrary testimony are not very useful to the Board. Furthermore, both CCNC and the NCAG have submitted findings which are not supported by references to the record, in contravention of 10 C.F.R. § 2.754(c). While we have nevertheless attempted to take such findings into account, we are under no obligation to comb the record for support of such unsupported findings.

Assessment Testimony at 4; Long *et al.* at 8; Appl. PF 33. SBI Supervisor Burch testified that there was still a spirit of cooperation between the SBI and CP&L. Tr. 9307 (Burch).

102. In addition to *ad hoc* efforts with law enforcement personnel, the full-time security force at the construction site acts to identify and discourage drug activity. Applicants' Assessment Testimony at 4. D. Glenn Joyner, CP&L's Construction Security Agent and a commissioned law enforcement officer, supervises security at Harris. Joyner has been employed in security positions at the Harris site since September 1979. He has 9 years of experience as an Investigator with the Raleigh Police Department, and he has received narcotics investigation training, as well as a B.S. degree in Police Science. Applicants' Investigation Testimony at 4-5; Appl. PF 34.

103. "Approximately 2600 man-hours per week are authorized for the contract security organizations at the Harris site. These hours and the post assignments allow around-the-clock patrol of the entire job site by foot and vehicle patrols. Through their contact with and observation of employees, the security personnel are able to provide management with intelligence information on drug activity at the plant. In addition, they pursue information received on possible drug activity in an attempt to confirm the accuracy of the information and to pursue additional sources of information. Applicants' Assessment Testimony at 4-5." Appl. PF 35.

104. Contract security personnel are stationed at the entrances to the site where they observe incoming and outgoing employees and watch for physical signs of incapacity such as staggering, falling, weaving, lack of coordination, and odors. Timekeeping and supervisory personnel assigned to monitor the entrance and exit of workers also observe employees. Random searches of employees' belongings are conducted as employees leave the site during shift changes. Construction personnel are allowed only in designated areas when on the job site. Applicants' Assessment Testimony at 5; Long *et al.* at 8.

105. CCNC alleges that Mr. Joyner is the only security person on site with training in drug detection, and that the primary purpose of the contract security force is not drug detection. CCNC PF 35; Tr. 8825, 8904 (Joyner). Applicants reply that Joyner was referring to the contract security force when he testified that other people do not undergo drug detection training. Appl. RF 13. Joyner is not the only noncontract security person at the site, and as previously discussed (*see* Board Findings 89-94), others have received drug awareness training concerning the signs of drug use. Tr. 8632 (King). Although CP&L does not offer formal training on drug detection to the contract security employees, it

is the practice of most security companies to provide such training. In addition, a large percentage of CP&L contract security personnel have had military experience which includes such training. Appl. RF 13; Tr. 8631-32 (King, Bensinger). (Mr. Bensinger testified to the practice of the security companies and the training they provide to their officers, but not from personal knowledge concerning the specific officers at the Harris site.) CCNC also alleges that "the program relies on any detection of drug involvement on the worker's immediate supervisor." CCNC PF 35. It is unclear what CCNC means by this proposed finding. Supervisors are just one part of the Applicants' program — a program comprised of many components which relies on supervisors as well as other means for identifying drug activity. In any event, the Board believes supervisors are in a good position to observe the signs of drug activity because of their ongoing close contact with employees. The Board finds no merit in CCNC's proposed finding on this matter.

106. CP&L witness Joyner testified that contract security's primary concern is not to detect drug use. Tr. 8825 (Joyner). Their primary concern is to control the entry and exit of personnel and to conduct foot patrols, gate patrols, and mobile patrols in vehicles to protect the security of the site. CCNC alleges that contract security personnel only infrequently detect drugs, *citing* Tr. 8825, 8904. CCNC PF 35. However, Mr. Joyner testified that the *operations* security contractor infrequently turns over to him *construction* personnel who violate site drug policies. Tr. 8826 (Joyner). Since it is not the operation security's primary task to detect drugs, the Board finds it reasonable that operations security would only infrequently discover construction personnel violating site drug policies.

b. Dog Searches

107. Beginning in February 1985, under the direction of CP&L's Construction Security Unit, a narcotic detection dog has been on the Harris site twice a month, on an unannounced schedule, to search a random sampling of site areas. If specific requests are made or information is available relative to particular areas on site, those areas are given priority for search by the narcotic detection dog. Applicants' Assessment Testimony at 5-6; Long *et al.* at 8.

108. The dogs employed at the Harris site are trained, at a minimum, to identify marijuana/hashish, cocaine, heroin, and methaqualone. Mackonis and Mathias at 7-8. The drug detection reliability of a well-trained dog is in excess of 95%. *Id.* at 7; Tr. 9009 (Mathias). We under-

stand this to mean that if drugs are present in a particular area, a dog will successfully locate the drugs 95% of the time.

109. During the hearing, Applicants presented a live demonstration of the capabilities of one of the dogs used for searches at the Harris site. While the dog handler was not present, the Board's Law Clerk hid in the hearing room a bag of marijuana and a bag of cocaine provided by Officer Mathias (one of the handlers) of the Raleigh Police Department. Following the handler's lead in a controlled search of the hearing room, the dog located the two bags in approximately 2 minutes. Tr. 9059-62. The Board was favorably impressed with the dog's ability to detect the drugs.

110. CCNC witness Patty Miriello testified that the dogs are not effective on site because no attempt is made to hide the presence of the dog and handler when they are performing the search. Miriello at 5. Thus, she contends news of the dog on site can spread rapidly by word of mouth.

111. Neither Ms. Miriello nor CCNC have explained how the presence of drug dogs on site could do anything but decrease drug activity. Certainly, the employees' knowledge that detection dogs might come on site unannounced at any time would have some deterrent effect on the stashing of drugs on site. Furthermore, quantities of drugs that might be hastily disposed of — for example, by flushing down a toilet — are, *ipso facto*, removed from circulation and can represent a substantial economic loss to the owner. If Ms. Miriello meant to imply that an employee might take rapid action to avoid the dog's detection of the employee's stash area we find no evidence in the record that this is so, nor do we find it a very plausible hypothesis. Applicants point out that employees observing the dog when it arrives still do not know the areas on site that will be searched that day. Tr. 8937-38 (Joyner); Tr. 9018-19 (Mathias and Mackonis). The dog handler testified that searches include potential hiding locations such as designated eating areas, lunch boxes, articles of clothing not being worn, bathrooms, trash containers, and far reaches of the site. Tr. 9034-35, 9042 (Mackonis). Officer Mathias testified that in the Harris situation — where different areas are searched at different times on a random basis and knowledge of the search is at best relatively sudden — the likelihood is very slim that people with stashed drugs could dispose of them quickly and escape detection. Tr. 9038 (Mathias). Ms. Miriello does not have any expertise in the use of drug detection dogs and we therefore give her testimony less weight than that of the dog handlers.

c. Searches of Employees

112. In addition to the exiting and random searches and the use of narcotic detection dogs, identified employees may be directed to submit to a search because of information obtained on potential or confirmed drug activity. Security, Employee Relations, and Industrial Relations personnel conduct the searches. Searches of employees include a detailed inspection of the individual's clothing, work area, and any tools, equipment, or personal property. Any vehicle within the construction security fence is also subject to search. Applicants' Assessment Testimony at 6.

113. The consent to search is a precondition of employment with CP&L or Daniel Construction. *See* Board Finding 84. Applicants may conduct unannounced searches for illegal drugs and controlled substances, and the results of these searches may be used as the basis for disciplinary action, including possible dismissal. The Board believes that subjecting employees to the possibility of search at any time is a strong deterrent to bringing or consuming drugs on site.

d. Urinalysis Drug Screen Testing

114. "Urinalysis drug screen testing is used by CP&L and Daniel as one means of determining whether an employee suspected of drug activity is consuming drugs. When information becomes available which provides good cause for reasonable suspicion that an employee is involved in drug activity, management and security personnel determine if a drug screen urinalysis test should be required. In the case of site employees involved in quality confirmation roles (Quality Assurance, Quality Control, Construction Inspection), however, the drug screen test is administered to the employee even where there is no independent evidence to confirm drug involvement (for example, on the basis of an anonymous allegation alone.) Applicants' Assessment Testimony at 6-7; Bensinger *et al.* at 18." Appl. PF 40.

115. The urine specimen is collected and, pursuant to a written procedure to assure sample authenticity, is delivered to CompuChem Laboratories, Research Triangle Park, North Carolina. The drug classes included in the CompuChem analysis are amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, methadone, methaqualone, opiates, and phencyclidine. Each urine sample submitted to CompuChem first undergoes an Enzyme Multiplied Immunoassay Technique (EMIT) qualitative analysis. All positive EMIT analyses are confirmed by Gas Chromatography/Mass Spectroscopy (GC/MS) quantitative analysis. This test program ensures that if a drug is present it will be detected by the EMIT test, and the quantity confirmed through the GC/MS analysis.

According to Mr. Bensinger, the testing techniques used at the Compu-Chem Laboratories are considered to be the most sophisticated available. Bensinger *et al.* at 11-12, 18. In addition, a nanogram level is applied which is considerably tighter than is used in the public utility industry and in industry in general. Tr. 8331 (Bensinger); Appl. PF 41.

116. CCNC challenges the effectiveness of Applicants' urinalysis program on the basis that tests are not performed quickly enough to detect drugs in an employee's system, since many drugs are detectable for only a short time. This time period normally is 6-18 hours for amphetamines, barbiturates, valium, cocaine, methadone, and opiates. Tr. 8362-65 (Ferguson). Mr. Ferguson testified that marijuana may remain in an individual's system for up to 30 days. Tr. 8363. Mr. Bensinger asserted that the time period for marijuana would be 2-3 weeks. Tr. 8365 (Bensinger).

117. While it is true that employees with less than 3 years service who are transferring to the Harris site can schedule an appointment for a urinalysis at their convenience (Tr. 8362 (Ferguson)), CP&L claims that since there are no reasons to suspect drug involvement by these employees, no special precaution need be taken with respect to the authenticity of the test. The Board recognizes that there is an opportunity for an employee to abstain from illegal drug use for a period of time before undergoing such a urinalysis. However, since there is no reason to suspect employees who are merely transferring, the Board does not find fault with Applicants' procedure. We expect the test would detect those who most need detecting, i.e., those who are addicted to such an extent that they could not forgo drugs long enough to escape detection.

118. For our purposes, the more important urine test is the one performed when Applicants suspect an employee is involved with drugs. CCNC claims that the decision to require a urinalysis takes overnight. CCNC PF 33; Tr. 8833 (Hindman). Applicants' witness, Mr. Hindman, stated that these urinalyses can be done fairly rapidly, and in fact they can be accomplished within 1 day, but occasionally take overnight. Tr. 8832. The Applicants can detain an employee after his or her shift or can wait to obtain further information. Once a urinalysis is deemed necessary and the employee is informed, the employee is escorted by another CP&L employee until the urine sample is rendered. Tr. 8359-60 (Ferguson). Although we find there may be occasions when an employee may use a drug and fall under suspicion, but not be required to submit to a urinalysis before the drug dissipates, on balance we believe CP&L's procedures for urinalysis are adequate. First, the employees' knowledge that they may be required at any time to undergo urinalysis will have a deterrent effect on the consumption of drugs. Second, an employee who

escapes detection once will probably not be able to do so for any length of time if the offense is repeated. Once the supervisor and security personnel have reason to suspect an individual, he or she should be subject to close scrutiny.

119. CCNC apparently finds fault with the Daniel Construction Company urinalysis program. CCNC recites several facts concerning when Daniel instituted a program for drug screening and detection at the Harris site. However, CCNC again fails to draw a conclusion or to state the finding it expects will result from the asserted facts. CCNC PF 40. CCNC states that prior to January 1, 1985, Daniel did not have a urinalysis program for the purpose of drug screening and detection and an amendment adding the consent-to-search provision to include urinalysis was added to the Daniel contract with CP&L in February 1985. Tr. 8374-77 (Flowers). The Board does not view this as a serious defect in the Applicants' program. As noted above, Daniel had several other measures in effect prior to initiation of the urinalysis drug screen test. *See* Board Finding 89.

e. Observations by Supervisors, Managers, and Other Employees

120. Construction site employees do not work in isolation. Site management and security personnel learn about drug activity from information reported by managers, supervisors, and co-workers of those involved. As described above, supervisors have been trained to identify illegal drugs and the signs/symptoms of abuse and to report such information. Daniel site Industrial Relations representatives conduct active surveillance for visible drug activity, and receive reports from employees on known or suspected drug activity. Anonymous reports have been made directly to security personnel and site management, and others willing to identify themselves have provided information on a confidential basis. Applicants' Assessment Testimony at 7-8; Bensinger *et al.* at 17; Long *et al.* at 8. Construction workers have reported fellow members of their crew out of concern for their own personal safety on the job. Tr. 8411-12 (Flowers); Appl. PF 43.

121. "CP&L and Daniel employees have been instructed on the use and availability of the Quality Check program as an avenue for reporting any alleged problem on a confidential, or even an anonymous, basis. This program has been a source of information on alleged drug activity

among site employees.[22] CP&L implemented the Quality Check program at the Harris Plant in order to provide an additional opportunity for site personnel to express concerns to management and to receive feedback on their concerns. Under this program, numbered forms are available throughout the site for completion by any employee having a safety concern he or she wishes to bring to the attention of management. Each such concern is investigated by a group of QA specialists and engineers, and the results of the investigation are then reported back to the employee." Applicants' Investigation Testimony at 8. If employees wish to remain anonymous, they can determine the action taken on their concerns by telephoning the Quality Check program office and providing the form number. In addition, each employee working in a safety area who leaves employment at the site (whether by resignation, termination, or reassignment) is scheduled to be interviewed by the Quality Check group in order to identify potential safety concerns. The Quality Check group also conducts interviews of randomly selected site employees to uncover safety concerns. Any concerns identified through these interviews are fully investigated by the Quality Check group. The most recent NRC Construction Appraisal Team inspection found the Quality Check program to be an effective and viable method of addressing employee concerns.[23] Applicants' Assessment Testimony at 8-9; Bensinger *et al.* at 17; Appl. PF 44.

122. CCNC alleges that the Employee Assistance Program is not an effective part of the Applicants' drug program. To support this proposition CCNC recites the fact that since April 1982 only two workers have participated in the program. Tr. 8367, 8369-72 (Ferguson). The two employees who used the program were experiencing family drug and alcohol abuse problems. Tr. 8872 (Ferguson). If an employee voluntarily asks to participate in the program before exhibiting performance indicators of drug and alcohol abuse, the company will allow the employee to participate. CP&L concedes that joining the program does not guarantee continued employment, and once an employee shows signs of involvement with drugs it is too late to join the program. Tr. 8371 (Ferguson).

123. CCNC states that "there is no rehabilitation component to the program." CCNC PF 34. Yet CCNC fails to explain what inference is to

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[22] Of 6169 total Quality Check Program communications, 46 have involved alleged drug activity. Tr. 8805 (Hindman). Out of 46 reports of alleged drug activity, 20 employees were terminated for drug involvement. Tr. 8839 (Hindman).

[23] Daniel employees are also encouraged to use the Daniel Open Door Policy, which is discussed with each new hire and is the subject of posters throughout the project, to raise problems with their supervision and, if not satisfied, to contact further levels of management. Bensinger *et al.* at 17.

be drawn from this allegation. CP&L is not under any obligation to provide a rehabilitation program. Furthermore, the Board believes it necessary that CP&L retain the authority to dismiss those who may enter the Employee Assistance Program and fail to perform satisfactorily. CP&L has apparently chosen to place primary emphasis on prevention and enforcement rather than assistance and rehabilitation for drug users. While it might be argued as a matter of social policy that greater emphasis should be placed on the latter, CP&L can hardly be faulted for its relatively hard-line approach in the context of this contention, an approach calculated to minimize drug use at the Harris site.

I. Board Conclusions Concerning Extent of Drug Use at Shearon Harris

124. The extent of drug use at the Harris site during the course of construction must be inferred from the broad range of evidence, direct and indirect, discussed in the preceding sections. As we have indicated, certain parts of that evidence are weightier than others. We turn now to an overall assessment of that evidence and reach our conclusions about alleged widespread drug use.

125. The most direct evidence of the extent of drug use at the Harris site are the statistics on numbers of employees terminated for drug activity.[24] However, these statistics must be used in context. In that regard, we reject the Applicants' contention that total terminations over the period of construction (218) should be considered in relation to the total work force (26,000) to show that, over time, less than 1% of the work force was using drugs. Among other things, as the Applicants themselves point out, a small number of terminations — such as occurred during the years 1979-1983 at Shearon Harris — may indicate significant drug activity and a less-than-vigorous antidrug program. In addition, termination statistics, *ipso facto*, do not include users who escape detection, a significant percentage even under a vigorous antidrug program.

126. As baseline data for estimating the extent of drug use at the Harris site, we focus on the number of terminations in 1985 in relation

[24] Use of total termination statistics is conservative in the sense that, under the Applicants' program, a termination may be based on suspicion alone, and certainly on less than probable cause to arrest. Of the 218 employee terminations at Harris between 1979 and October 1985, about one-third were categorized as "suspicion, based on less than search or testing." *See* Board Finding 54, above. We assume that some small number of these employees (but not enough to affect our assessments) may not have been involved in drugs. On the other hand, we do not think it realistic that any large number of those employees would have been dismissed for drug use on the basis of mere rumor or hunch. Accordingly, we adopt the conservative approach of counting all drug-related terminations in assessing extent of drug use.

to the site work force at that time — about 6000. We focus on 1985 because the intensity of CP&L's antidrug program reached its present high level at that time. For example, the undercover investigation was conducted at the end of 1984 and produced substantial terminations in 1985. Drug dog searches began in February 1985 and have continued. Programs for training of supervisors in drug abuse were intensified. Daniel Construction Company, the principal contractor, began urinalysis testing in January 1985. In sum, the presence of these intensified efforts should have produced a high level of enforcement effectiveness and therefore a reasonably good indication of the extent of drug use in 1985.

127. Between January 1 and October 15, 1985, 163 employees were terminated for drug-related reasons — an average of about 17 terminations per month. Extrapolating at that average rate to December 31, 1985, we assume that about 205 employees were terminated in 1985 — a figure representing about 3.4% of the total site work force of 6000. In addition, we must attempt to approximate the number of drug-using employees who escaped detection, notwithstanding a vigorous antidrug program. Simply because such employees do not get caught, there is no firm basis for such an approximation. The only directly pertinent testimony is from Applicants' witness Bensinger, who estimated that the persons identified in 1985 represented "within twenty to thirty percent of the total possible users," acknowledging, however, that "I don't think anyone really has that ability to predict." Tr. 8967. Because of our confidence in CP&L's antidrug program, particularly as enhanced in 1985, we believe that Mr. Bensinger's estimate of numbers of users who escape detection is reasonable. Applying that estimate, we find that the total number of users on site, based on 1985 terminations, ranged from 4 to 4.5%.[25]

128. The termination data for 1985 is, we believe, about equally applicable to 1984 as a basis for estimating levels of drug usage, although 1984 terminations totaled only twenty-seven. We say this primarily because, notwithstanding high turnover rates,[26] it seems reasonable to assume that many of the same people who were terminated in 1985 were working on the site and using drugs in 1984. In any event, if the termination statistics for 1984 and 1985 are combined and a total work force of, say, 9000, is assumed, the percentage of detected drug users for that combined period is about 2.6%. The CP&L antidrug program

[25] Using terminations as a base, an increase of 20% (representing undetected employee users) results in 246 users (4.1%) and an increase of 30% results in 266 users (4.4%), which we round upward to 4.5%.

[26] Mr. Bensinger testified that the site turnover rate was about 300 people per month, meaning, we assume, 150 new employees and 150 employees leaving per month. Tr. 8964-65.

was somewhat less comprehensive in 1984, leading us to assume that more drug users (perhaps 50%) were escaping detection in 1984. Under that assumption, we estimate a drug use level of 3.5% of site employees during 1984-1985.

129. The evidence with respect to the years 1979-1983 was less extensive. On the one hand, we do not think that the termination statistics for those years —

1979	1980	1981	1982	1983
1	2	9	8	8

are at all indicative of likely levels of drug use. Assuming site populations of about 3000 in those years, these statistics, standing alone, would indicate unrealistically low drug use levels of 0.3% and less. Also the CP&L antidrug program was much less comprehensive during those years. On the other hand, general levels of drug use in society were lower than they are now. For example, the use of cocaine has doubled in the past 2 years. Applicants' Assessment Testimony at 17. (Bensinger). We find it likely that levels of drug use at the Harris site in the years 1979-1983 were at least no higher than the levels in 1984-1985, and may have been closer to 3%.

130. Finally, we find it probable that drug use levels peaked in 1984-1985 and that they may well have declined toward the end of that period. The combination of an undercover operation (later widely publicized), large numbers of drug-related terminations, drug dogs, and a generally intensified antidrug program should have had a substantially chilling effect on drug use at the Harris site.

131. Our analysis of levels of drug use based on termination statistics is supported by, or at least consistent with, other persuasive evidence on levels of use. Thus, the undercover investigation resulted in arrests of eight employees and positive identification of fifty-three others. Deputy Hensley testified that he had seen about forty other employees engaged in drug activity whom he could not identify. In addition, he testified that, based on intelligence he had gathered while on site, perhaps another 100 employees were involved with drugs. Combining the 61 employees identified or arrested, the 40 observed with drugs but not identified, and the estimate of another 100 suspected of drug activity, we arrive at about 200 employees engaged in drug activity among a shift population of 5000. This produces an estimated use level of 4% among employees in late 1984 when Hensley was on site. That estimate is consistent with our termination statistics estimate of 4-4.5% for the same period.

Deputy Hensley was on site for 2 months, devoting his time exclusively to detecting drug activity, with the assistance of a well-connected informer. Although under the circumstances, his experience would not have given him the complete picture, we consider that experience to be a helpful snapshot of drug activity on the site at that time.

132. The great weight of the indirect evidence supports the conclusion that drug use at the Harris site has been at what we consider to be low levels — i.e., below 5%.

133. We have discussed in detail CP&L's policies and programs to detect and prevent drug activity at the Harris site. In summary, the present program is clear, detailed, multifaceted, well-implemented and tough. The program includes (1) a clear policy on drug use which is communicated to all site employees; (2) supervisor drug awareness training and reliance on observations of supervisors to detect drug use; (3) security measures, including random and exiting searches, undercover investigations, searches of employees suspected of drug involvement, searches of employees' vehicles parked within the construction security fence, routine drug detection dog searches, and drug detection urinalysis tests for employees suspected of drug involvement; and (4) a Quality Check program whereby employees can make their concerns known, anonymously if desired. Collectively, these measures send a simple message to the employees: if you use drugs at Shearon Harris you will probably get caught and, if caught, you will be fired. This program gives us confidence that drug use at Shearon Harris is being held to a minimum.

134. That conclusion is supported by other indirect evidence. For example, amounts of drugs confiscated over time have been small. The WCSD spent only $1725 to purchase drugs during the 2-month undercover operation. The drug detection dogs had completed sixteen searches at the time of hearing and had found only small quantities of drugs. In addition, the Board is impressed with the low rate of accidents at the site. If there were widespread drug use and the concomitant physical and mental impairment described by Dr. DuPont in Board Findings 144-149, we would expect a higher accident rate. Finally, less than 15% of the site work force falls within the 18- to 25-year-old age group which exhibits the highest rate of drug use in the United States.

135. The weight of the testimony concerning direct observations of drug activity on site (apart from Deputy Hensley's testimony, discussed above) is also consistent with our termination-based estimates. Most significantly, in our view, the NRC Resident Inspector for the Harris site testified that he had not detected employees exhibiting noticeable signs of drug use. Indeed, there is no evidence that any specific employee was

ever actually impaired by drugs while at work. While this does not, of course, prove that impairment never occurred, it does confirm our findings of low use levels and also suggests that uses tended to be in small doses.

136. There remains the question whether drug use at Harris, in the words of the contention, has been "widespread." That term is not defined in the contention nor was it further specified in prehearing procedures. Therefore the Board must make a judgment about alleged widespread use in light of the hearing record. Our judgment is that drug use at Harris has not been widespread, for several reasons.

137. We need not resort to a dictionary to conclude that "widespread" does not normally describe a situation where less than 5% of a group are engaging in an activity. Thus, we would have to bend the ordinary meaning of "widespread" to apply it to this record.

138. More important, since there is some level of current drug use virtually everywhere in our society, one would like to make meaningful comparisons — "widespread" in relation to what? There are no available statistics on levels of drug use at other nuclear power plant construction sites; the SALP evaluation process does not separately grade licensees for controlling drug use. The only relevant statistics in the record were provided by Mr. Bensinger, who testified that levels of drug use in the national work force ranged from 5 to 12% and that, in his view, "a figure in the upper limits of 10% of all employees at a job site would represent to me widespread use." Tr. 8339. This suggests that the use levels at Shearon Harris — under 5% — are low. However, we question whether the Bensinger 5-12% and 10% estimates are fully analogous. Those estimates include all offsite "recreational" use — e.g., Saturday night marijuana. Tr. 8341. Furthermore, Dr. Dupont testified that most drug use occurs in a social setting. On the other hand, the evidence underlying the termination statistics primarily grows out of onsite activity (e.g., possession on site) or possibly offsite uses that would have some impact on site (e.g., a dose on the way to work). To put it another way, the evidence in this record generally would not include offsite social uses where the user took precautions not to exhibit effects of use at the site. In light of this factor, we conclude that the Harris use levels probably are below national work force averages, but we cannot say by how much.

139. Most important, the "widespread" allegation in the contention implies that such use has resulted in faulty work and safety concerns. That, after all, is the ultimate reason for this Board's concern about drug use. As the following discussion demonstrates, the Applicants have con-

vincingly shown that their QA program has not been compromised by drug use.

J. Implications of Employee Drug Activity on Harris Plant Construction Quality

1. Introduction

140. Of the 218 employees terminated for possible involvement in drug activity from 1979 to the 1985 hearing, 146 were craft workers and another 27 were quality inspectors. Appl. Exh. 51, Chart II-2. CP&L did not reinspect all work performed by these workers, for several reasons. Instead, CP&L relies primarily on its QA program to detect any errors which may be generated by employees involved in drug activity. CP&L did perform random reinspections of work performed by terminated inspectors.

141. CCNC offered no proof that a breakdown of CP&L's QA program had occurred due to drug use by quality inspectors, nor did CCNC allege any specific construction deficiencies. Indeed, the record is devoid of proof of any deficiency in construction caused by drug use. However, in its proposed findings CCNC asserts: "Applicants' rationale for not reinspecting work done by workers or inspectors known or suspected to be involved in drugs that their QA and inspection programs will pick up any mistakes made by these workers . . . is unrealistic." CCNC PF 45. As we next explain, we disagree.

142. Applicants sought to prove "that a well-conceived, properly implemented and monitored QA program is capable of detecting errors from any source, including drug use [and that] Applicants have such a construction QA program at the Harris Plant site." Tr. 9989 (Applicants' Opening Statement); Appl. PF 87. Applicants presented testimony concerning (1) whether errors committed by employees impaired by drug use would be different in kind from those made by other employees and which are identified by QA personnel; (2) the lack of need for reinspection of safety-related work performed by craft workers; and (3) surveillance and audits of QA inspectors' work and the reevaluation or physical reinspection which takes place if an inspector is implicated in drug activity.

2. Errors Caused by Workers Impaired by Drug Use

143. Applicants' witness Dr. Robert L. Dupont, Jr., testified concerning the effects of drug use on work performance. Applicants' Tes-

timony of Dr. Robert L. Dupont, Jr., on the Effects of Employee Drug Use, ff. Tr. 9994 (hereafter "Dupont"). Dr. Dupont is a Board-certified psychiatrist who served for 5 years as the Director of the National Institute on Drug Abuse and was Chief White House advisor on drug abuse from 1973 to 1975. From 1982 to the present, Dr. DuPont has been Vice-President of Bensinger, Dupont and Associates. DuPont at 3. Dr. DuPont estimated that he has personally treated 200-300 people for drug problems and has supervised the treatment of thousands of drug abusers. Tr. 10,066 (DuPont). Dr. DuPont is Clinical Professor of Psychiatry at the Georgetown Medical School and Visiting Clinical Professor of Psychiatry at the Harvard Medical School. DuPont at 3. The Board was impressed by Dr. DuPont's experience and credentials and by his performance as a witness.

144. Dr. DuPont's testimony is largely undisputed in this record. He testified that

> marijuana and cocaine are by far the most frequently abused drugs in American society, and also the drugs most often identified as involved in drug use by Harris employees. DuPont at 4; Tr. 10,036-39 (DuPont). Most drug use occurs in a social setting, usually in the evening or on weekends. Drug use on the job site is much less frequent. This is especially true in an environment like the Harris Plant where the employer has an active ongoing program to control drug use. The same is true for drug sales. This does not imply that drug use (and sales) do not occur on the job, only that, among those who use drugs, they are much more likely to occur off the job than on the job. DuPont at 5-6.

Appl. PF 89.

145. Dr. DuPont explained that marijuana produces an intoxicated state marked by altered time sense, euphoria, and — at high doses — hallucinations. Higher doses produce more profound (powerful) effects. DuPont at 6. The most notable effects of marijuana on work performance come from the reduction in motivation and memory (in contrast to the more commonly observed effects of alcohol intoxication of poor coordination and aggressiveness). Marijuana's effects are likely to mimic the effects of lack of sleep or exhaustion and low morale, commonly leading to low output and sloppy performance. DuPont at 7-8.

146. Cocaine is a stimulant drug. These drugs stimulate the central nervous system, producing euphoria, hypersensitivity, insomnia, and appetite suppression. Common work-related problems are overtalkativeness and poor concentration on the task because of easy distractability or, paradoxically, inappropriate preoccupation with a particular detail of the task to the neglect of the complete picture. When used at work cocaine tends to give users the feeling that they are working faster or better; though this is an illusion. When the user comes off a

cocaine dose he or she is exhausted and depressed, so work performance suffers much as it would for someone with a serious illness who has been unable to sleep adequately. DuPont at 8.

147. Methamphetamine has also been found at Shearon Harris. Dr. DuPont testified that methamphetamine produces effects similar to cocaine, though a single dose of methamphetamine lasts longer than a single dose of cocaine, and unlike cocaine, methamphetamine can be taken orally. DuPont at 9.

148. Dr. DuPont stated that

> based upon our understanding of typical patterns of drug use . . . it is fair to conclude that many of the identified employees only consumed drugs off the job and were not impaired at work, and that because of low-dosage consumption and tolerance levels, some consumers on the job (depending on the complexity of the tasks involved) would not be impaired such that work results would be affected.

Drug use causes an increase in many common work-related problems, all of which can occur in the absence of drug use. Therefore, it is reasonable to expect that routine supervisory practices and QA measures will identify drug caused failures at about the same rate as other similar errors are identified. DuPont at 13. Neither CCNC nor the NCAG question this conclusion.

149. Drugs affect work performance primarily by decreasing the functioning of the central nervous system. The negative effects of drug use on work output include reduced productivity, increased errors, increased accidents, and a variety of safety problems (such as dangerous driving and operation of equipment). It cannot be stated with certainty that these effects are caused by drug use (that is, they may all be caused by drug use or something else). Casual low-dose drug use can cause impairment, but it is far less likely to do so than is use on the job site. Although the greater the intoxication, the greater the risk of work impairment and work performance decrement, some drug-caused work impairment can occur at low doses of use and some impairment may occur even hours after use. DuPont at 10.

150. If drug-impaired employees work in isolation and their work is not checked by others, it is more likely to be affected by drug abuse (and other performance impairments) than is work done in crews and work that is systematically checked by co-workers. In crews, the nonimpaired workers often do the work of the impaired so that negative effects of their impairment are reduced or even eliminated. DuPont at 11. Noninvolved workers do this because of their concern for both the impaired worker and integrity of the work. *Id.* The majority of craft work at the Harris site is performed in teams where one worker's performance is

subject to the scrutiny of fellow workers. Applicants' Testimony of Harold R. Banks and Roland M. Parsons on the Construction Quality Assurance Program, ff. Tr. 10,077 (hereafter "Banks/Parsons") at 6.

151. CCNC speculates that checking by fellow workers would not occur if the entire crew were under the influence of drugs. CCNC PF 48. There is no evidence in the record to indicate such a situation has ever occurred at the Harris site.[27] Therefore, our findings on the extent of use at the site (4.5% of employees or less) virtually preclude this "what if" hypothesis.

152. Dr. DuPont testified that even if a worker uses drugs such as marijuana or cocaine on the job site, it is not certain that the worker will be impaired or that his or her work will be flawed on any given day. Nevertheless, any drug use, off site or on site, will increase the risk of job-related errors. DuPont at 11.

153. According to Dr. DuPont, drug abuse does not cause unique kinds of work-related problems. Aside from the sale of drugs (which does not have direct effects on work quality) and overdose reactions (which are easily detected because the user is usually unconscious or acting bizarrely) the effects of drug use are of the same kind as are produced by a wide variety of other causes, ranging from alcohol intoxication to fatigue, from mental illness to conflicts with supervisors and coworkers. DuPont at 12. CCNC recites this statement in its findings but fails to state the conclusion to be drawn from this testimony. CCNC PF 46. CCNC goes on to criticize Dr. DuPont for reaching his conclusion based on an analogy between alcohol and drug abuse and on an examination of the physical effects of drug abuse, rather than the illegal aspects of purchase and sale of the drugs. Tr. 10,000 (DuPont). CCNC PF 46. First, Dr. DuPont's conclusions are not based merely upon an analogy between alcohol and drug abuse, but are based upon his personal experience in the treatment of drug abusers. DuPont at 12; Tr. 10,013-14, 10,066-67 (DuPont). Second, if CCNC believes there is some relevant inference to be drawn from the illegality of drug use, CCNC should have informed the Board of this inference. We can only guess that CCNC meant to imply that drug users are more likely to ignore other rules and procedures, and in some unspecified way this has an adverse effect on safety at the Harris Plant. However, there is no evidence in the

[27] Dr. DuPont did testify that there are social situations where drug use is accepted, although they are relatively isolated in American society. Tr. 10,007 (DuPont). The Board finds no evidence to support a finding that the Harris site is such a social situation. CCNC misstates the record by indicating that Dr. DuPont included work situations at this point in his testimony. *Compare* CCNC PF 48 with Tr. 10,007 (DuPont).

record to support such a finding, and, in fact, the record contains evidence to the contrary. It is Dr. DuPont's opinion that drug users would not, for example, be more likely than other workers to attempt to sabotage their work or conceal errors so that the QA program would be less likely to identify them. DuPont at 12. When a drug user makes an error, the same adverse effect on the quality of thinking that led to the creation of the error in the first place will lead to a decreased incentive to cover up the error in the second place. Tr. 10,018 (DuPont). In other words, a person who has made an error is less likely to realize that he or she made an error, and therefore, less likely to cover it up. Tr. 10,019 (DuPont).

154. As to other effects of drug activity, Dr. DuPont testified that a potential consequence of drug sales on site could be a disregard for official duties on the part of the seller who is occupied with sales efforts. The seller would also have a disruptive effect on the work of buyers who would be distracted from their regular work during transactions. Finally, Dr. DuPont testified that drug users are more likely than non-users to be involved in income-generating theft. Tr. 10,028. In our view, however, none of these effects would have a significant effect on safety.

155. Wells Eddleman, a *pro se* intervenor, was allowed under the *Prairie Island* doctrine to cross-examine witnesses on Contention WB-3. *See Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-75-1, 1 NRC 1 (1975). In an attempt to expose a pro-nuclear bias, Mr. Eddleman cross-examined Dr. DuPont on his publications concerning public fear of nuclear power plants. Dr. DuPont has had a contract with the U.S. Department of Energy which has published a number of his papers on that subject. Tr. 10,057 (DuPont). However, as Dr. DuPont noted, and as is demonstrated by the large number of publications listed in his *curriculum vitae*, his publications concerning public fear of nuclear power are a very small part of his professional activity, and indeed are a small part of his professional activity in the area of phobias. *Id.* The Board finds Dr. DuPont to be a credible witness and we give substantial weight to his opinions concerning use of drugs in American society and on the effects of drug use. In particular, we find persuasive Dr. DuPont's analysis and conclusion that errors made by employees involved in drug activity are not likely to differ from employee errors resulting from other causes.

3. *Assurance of the Quality of Work Performed by Craft Workers Implicated in Drug Activity*

156. Of the five witnesses presented by CP&L to describe its QA program at Shearon Harris, four were CP&L employees: Harold R. Banks, Manager – CP&L Corporate Quality Assurance; Roland M. Parsons, Harris Project General Manager for Completion Assurance Activities; George L. Forehand, Director of Quality Assurance/Quality Control at the Harris Plant; and Thomas W. Brombach, a Project Specialist for Plant Inservice Inspections. Tr. 10,077. Eugene F. Trainor, a consultant and Senior Vice President of Cygna Energy Services, Inc., also testified for Applicants. Tr. 10,077(B). NRC Staff witnesses included Paul Fredrickson and Richard L. Prevatte. Tr. 10,166.

157. CCNC alleges that "Applicants' management . . . has failed to reinspect all safety-related work done by known drug abusers." Contention WB-3. NCAG alleges that "Applicant [sic] has not reinspected the work of 218 craft workers it has terminated for suspected or confirmed drug use." NCAG PF 17. NCAG's claim is factually incorrect. Although the number of employees terminated for alleged involvement with drugs was 218, the number of craft workers terminated was 146. *See* Appl. Exh. 51, Charts II-1 and II-2.

158. Applicants concede that they "did not reinspect safety-related work performed by craft workers known to have used drugs or implicated in drug activity." Appl. PF 95. CP&L's witnesses testified that as a practical matter it is impossible to determine with certainty all work or even all systems or components on which work was performed by a particular craft worker. Applicants' Testimony of Harold R. Banks, Roland M. Parsons, George L. Forehand, and Thomas W. Brombach on Evaluation and Reinspection of Work Performed by Employees Implicated in Possible Drug Activity, ff. Tr. 10,077 (hereafter "QA Panel") at 5-6. CP&L did, however, attempt to evaluate the work of all craft personnel implicated in possible drug activity without inspecting individual pieces of hardware. The evaluation was performed by four Harris site employees: the Manager QA/QC-Harris Plant; the Manager-Harris Project Administration; the Project General Manager; and a representative of the contractor (for non-CP&L employees). QA Panel at 7; Tr. 10,096-99, 10,105-08 (Parsons). The individual's job description and a supervisor's description of the employee's work assignments were considered. The employee's work was evaluated to verify that it was subjected to one or more quality inspections and that the employee's performance alone was not relied on for assuring the quality of the work. CP&L determined that all safety-related craft work performed by employees im-

plicated in drug activity was subject to independent inspections,[28] and therefore that reinspection — even if feasible — was not necessary. QA Panel at 7; Tr. 10,099 (Parsons); Testimony of Paul Fredrickson and Richard L. Prevatte for the NRC Staff Regarding Contention WB-3's Allegation Concerning Reinspection of Work Performed by Persons Suspected of Drug Abuse, ff. Tr. 10,166 (hereafter "Fredrickson/Prevatte") at 6-7; Appl. PF 95. We accept that complete reinspection of all work performed by the employees involved was impossible because some such work would not be identified. Apart from that, the Board accepts CP&L's rationale for not reinspecting work performed by craft workers, to the extent that it can be shown that CP&L's reliance on the QA program to detect errors made by craft workers is well founded.

159. CP&L's QA program was

> approved by the NRC prior to its implementation, [and] that approval included a finding that the program complies with 10 C.F.R. Part 50, Appendix B, Criterion XVI, which requires that "[m]easures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected." *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), LBP-78-4, 7 NRC 92, 107-09 (1978).

Appl. PF 96, n.38. The NRC Staff endorsed the effectiveness of Applicants' QA Program at the Harris Plant. NRC Staff witness Prevatte, Senior Resident Inspector for Construction at the Harris site for 2½ years, stated his belief that the inspection program at Harris is one of Applicants' strengths, and the program has the ability to identify safety-related hardware deficiencies regardless of the cause of the deficiency. Fredrickson/Prevatte at 8; Appl. PF 105.

160. CP&L's witness Trainor conceded that no QA program can ensure 100% confidence that construction work is 100% free of discrepancies. Such a program relies to some extent on the human element which, irrespective of the checking process with its built-in redundancies, allows for error. Applicants' Testimony of Eugene F. Trainor, ff. Tr. 10,077-B (hereafter "Trainor") at 10. Appendix B to 10 C.F.R. Part 50 does not require perfection; rather, the QA program must ensure "adequate confidence" that the plant will perform satisfactorily. In order to accommodate undetected deficiencies in construction, systems and components essential to ensure public health and safety are designed

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[28] The inspection activities for craft work are summarized in § III of Applicants' Exhibit 51. Applicants' bases for determining that employees' work was subjected to inspections is summarized in Chart II-1 of Applicants' Exhibit 51.

with a high safety factor (or conservative design margin) and with system redundancy to compensate for any deficiencies in construction. Trainor at 11-12. As noted below, none of the deficiencies uncovered during reinspections were of nuclear safety significance. Banks/Parsons at 24.

161. The Board did not review CP&L's entire QA program in the context of this contention, for several reasons: (1) the QA program had been previously approved by the NRC Staff; (2) errors committed by employees under the influence of drugs are not likely to be different in kind from other employee errors; thus they do not present new or unusual problems for the QA program; and (3) neither CCNC nor the NCAG presented any basis for questioning the efficacy of the QA program in any broad sense. Indeed, CCNC appeared to concede that the general program effectiveness was not in dispute, stating that: "We are not here to really look at the Applicants' total QA program" and "[w]e are not going to dwell that much on whether their quality assurance program can take care of all the problems at the site." Tr. 9990 (Runkle). Thus, we examine only those aspects of the QA program that bear directly on the work of the terminated employees, particularly inspectors.

a. Attribute Surveillance Program

162. The dispute between CCNC and the NCAG on the one hand, and CP&L on the other, focused on CP&L's "attribute surveillance program" which began in June 1984. We therefore give particular attention to this facet of CP&L's QA program.

163. Attribute surveillances are performed in accordance with Harris Plant Procedure CQA-7, "Evaluation of Program Effectiveness" (Appl. Exh. 50). CQA-7 is used to calculate the amount of reinspection required to determine the acceptable quality of an inspector's work and, in this context, whether the inspector's suspected drug involvement reduced his or her inspection effectiveness. Application of this procedure could result in a 100% reinspection or the use of a statistical standard developed by the Department of Defense, Military Standard 105-D.[29] Quality attributes are reinspected for each component and any deficiencies are reported as nonconformances for engineering evaluation and disposition. *Id.; see* Appl. Exh. 51, § III, for a description of quality attributes for each component; Appl. PF 101.

[29] Military Standard 105-D is a sampling system that has acceptability and widespread usage in both the defense and nuclear industries. Trainor at 15.

164. In *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), LBP-84-41, 20 NRC 1203, 1220-33, *aff'd,* ALAB-793, 20 NRC 1591, 1598-99, 1607 (1984), the Licensing Board approved acceptance criteria for evaluation of inspectors' performance. The applicant had divided the reinspection of QC inspections into two attribute categories: objective and subjective. An attribute is "subjective" if its inspection requires qualitative interpretation by the inspector. An attribute is classified as "objective" if its inspection is not significantly affected by qualitative interpretation. *Byron, supra,* LBP-84-41, 20 NRC at 1232. The Licensing Board approved an acceptance rate of 95% for objective attributes, meaning that the reinspection agrees with the original inspector's findings in 95% of the reinspected attributes. For inspections involving subjective attributes, the acceptance level was set at 90%. This level recognizes the likelihood for reasonable disagreement between inspectors and reinspectors where judgmental decision making is involved. *Id.* Minimum acceptable inspection effectiveness levels of 95% for objective inspection attributes and 90% for subjective inspection attributes were established in Harris Plant Procedure CQA-7, based on the Byron reinspection plan. The 95%/90% acceptance criteria do not include defects which have nuclear safety significance. Banks/Parsons at 23-24. A deficiency with nuclear safety significance is "a deficiency found in design and construction, which, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear plant at any time throughout the expected lifetime of the plant." 10 C.F.R. § 50.55; Appl. PF 102.

165. Although CCNC implies that CP&L's QA attribute surveillance program only reinspects work that has been performed in the last 18 months, the testimony indicates that the reinspections include samples of all of the safety-related work done at the Harris site from the early phases of construction, with the exception of certain work — such as concrete placement — that cannot be reinspected. Tr. 10,095-96 (Parsons).

> In the one and one-half year period that the QA attribute surveillance program has been in effect, 3,183 components, out of a total selected sample of 4,269[30] components, have been reinspected as of October 1, 1985. The components reinspected thus far encompass 54,560 attributes, of which only 269 were found to be deficient.

[30] We note that the testimony states the selected sample consisted of 4,269 components. However, the table in Banks/Parsons Attachment 3 states 4,249.

This indicates an overall effectiveness rate of 99.5%. The lowest individual component (structural steel installation inspection) effectiveness was 95.3%. Banks/Parsons at 24 and Attach. 3. No deficiency with safety significance has been identified. Banks/Parsons at 24.

166. CP&L witness Trainor performed a statistical engineering evaluation of the data from the QA attribute surveillance program. He plotted the inspection proficiency per surveillance activity and determined the mean inspection proficiency to be 99.5%. He observed that the mean exceeds the specified proficiency for objective attributes of 95.0% by 4.5%. Mr. Trainor further concluded that there is a 99% confidence that the range of inspector proficiency at the Harris Plant will lie between 99.9% and 97.7%.[31] Trainor at 16-18; Appl. PF 103; Staff PF 77. The Applicants' attribute surveillance program is convincing evidence that the Shearon Harris overall quality assurance program is effective and has not been undermined by drug use.

167. CCNC contends that when the 4,249 components in the reinspection sample are compared to the number of observed deficient attributes (269) the reinspection proficiency is a "substantially lower number." CCNC PF 54. This number is 82.5%. CCNC calculates component inspection proficiencies from 82.4% to 91.5% for the QA attribute surveillance program (CCNC PF 54) and 90 to 97.6% for certain inspectors (CCNC PF 56). CCNC arrives at these figures by comparing the number of defective attributes to the total number of components reinspected, rather than comparing the number of defective attributes to the total number of attributes reinspected. In order to make these calculations, CCNC hypothesized that no more than one defective attribute would occur in any component. CCNC PF 54. That is, defective attributes would be distributed evenly throughout the components.

168. We find several flaws in CCNC's reasoning. First, the purpose of reinspection is to determine the proficiency of the original inspector. The question is not whether particular components may be defective because they contain defective attributes, but whether the original inspector performed adequately, attribute by attribute. Second, although Mr. Forehand testified that in at least one case (piping installation) it would be possible for each deficient attribute to be in a separate component (Tr. 10,103 (Forehand)) there is no evidence in the record to indicate that this is always or usually the case. CCNC concedes that it is possible that two or more defective attributes could be found in one separate component. Tr. 10,102 (Parsons); CCNC PF 54. We find very little sup-

[31] Reinspections at Commonwealth Edison Company's Byron Plant showed a range of 96.3% to 99.6% for inspector proficiency based on the results of "objective" inspections. Trainor at 18.

port in the record for CCNC's "substantially lower numbers," which in fact are not dramatically lower than CP&L's figures. Third, the mere presence of a defective attribute would not render an entire component defective. Indeed, none of the defective attributes were found to have safety significance. Banks/Parsons at 24.

b. NRC Staff Evaluation of Craft Worker Quality Assurance

169. NRC Resident Inspector Prevatte reviewed the information and work history data compiled by CP&L on the eight workers arrested as a result of the undercover operation. He also selected ten individuals from the September 19, 1985 matrix of terminated employees and requested that the details of the Applicants' review of their work be made available to him. The ten individuals included a painter, ironworker, pipefitter, field engineer, carpenter, electrician, utility worker, instrument fitter, rebar iron worker, sheetmetal worker, and a truck driver.[32] Mr. Prevatte reviewed the Applicants' information, including a listing of each individual's work locations, types of work done during their employment period, and in some cases, the specific components on which they worked. This information also contained the employment history and evaluations still available on site for selected individuals. Fredrickson/Prevatte at 6. Based on his review of this information and his personal knowledge of the applicable work procedures, the type of work performed by these individuals, and the inspection requirements for these types of work, Mr. Prevatte concurred with Applicants' decision not to reinspect the work performed by these eighteen individuals. Mr. Prevatte also testified that he considered this across-the-board sample and his knowledge of the work and applicable inspection requirements for the other affected workers to be adequate to establish that reinspection is not required for the other craft personnel listed in the September 19, 1985 matrix. Fredrickson/Prevatte at 7; Staff PF 62.

170. Mr. Prevatte testified that Applicants' Systematic Assessment of Licensee Performance (SALP) ratings in the QA areas have been category 2 since 1984. *See generally* this Board's discussion of SALP results in LBP-85-28, 22 NRC 232, 246-55 (1985). Prevatte stated that Applicants' QA performance has been consistently satisfactory or better, and shows an improving trend, which could result in a category 1 rating. Fredrickson/Prevatte at 7.

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[32] We note however that this list includes 11 occupations, though Mr. Prevatte only examined the work of 10.

171. The Board finds Applicants' QA program adequate to cope with the errors likely to be caused by employees involved in drug activity.

4. Assurance of Proficiency of Quality Inspectors Implicated in Drug Activity

172. As previously noted, CP&L has terminated twenty-seven QA personnel for suspected or confirmed drug use. Appl. Exh. 51, Chart II-2. At the time of the hearing there were on site over 500 quality inspection personnel to carry out quality inspections on construction and startup activities. Banks/Parsons at 6. To ensure the quality of the inspections performed by QA personnel implicated in possible drug activity, CP&L evaluated the inspections performed by the terminated QA personnel and, where appropriate, reinspected a sample of the work. QA Panel at 12. The NCAG argues that the "Applicants' reinspection of drug abusing QA personnel was spotty at best," NCAG PF 19, citing alleged examples of inadequate reinspection. These claims will be dealt with below.

a. Nondestructive Examination Inspectors

173. Of the five nondestructive examination (NDE) inspectors terminated for involvement with drug activity, three had positive drug screen test results and two were terminated for refusing to take the test. These inspectors perform liquid penetrant and magnetic particle examinations. The work of these NDE inspectors was reinspected in accordance with Harris Plant Procedure CQA-7. QA Panel at 9. A sample, the size of which was determined by Harris Plant Procedure CQA-7, of the examinations performed by these NDE inspectors was reinspected. Of the 284 items reinspected, only four minor deficiencies — all corrected by minor buffing — were found. Applicants assert, and we agree, that the results of these reinspections confirmed the reliability of the NDE inspectors' work. QA Panel at 9-10.

174. The NCAG claims that "the work of three of these [five NDE] QA personnel which related to Radiographic Examination (RT) was not reinspected." NCAG PF 19.A. In fact, as Applicants note, the RT (Radiographic Test) work done by four of these inspectors was not reinspected. Applicants did not reinspect that work because each of these four inspectors participated as a member of a two-person team in making radiographic setups and film exposures; they did not perform interpretation of RT film for final acceptance or rejection of the items radiographed. RT film is subject to two independent reviews/interpretations

by other personnel qualified for film interpretation. QA Panel at 9-10; Appl. Exh. 51 at 49-50; Appl. PF 117. The NCAG also complains that the sample size was too small since "only 284 items of their work on liquid penetrant and magnetic particle examinations were reinspected." NCAG PF 19.A. However, as noted above, the sample size was based on Military Standard 105-D – a sampling system that has acceptability and widespread usage in both the defense and nuclear industries. Trainor at 15. Therefore, in the absence of any specific criticism, we accept that standard.

b. Construction Inspectors

175. Seven of the twenty-seven terminated QA inspectors were Construction Inspection (CI) Inspectors – six certified in cable pulls and/or cable terminations, and one certified in drilled-in expansion anchors. They had been terminated and/or removed from the job for positive drug screen test results (two), refusal to take the test (four), and suspected drug activity based on information from a reliable source (one). A sample of the work of these inspectors was reinspected pursuant to CQA-7. The result was an overall acceptance rate for the seven inspectors of 99.3%. QA Panel at 10; Appl. Exh. 51 at 50-51. NCAG argues that this high rate of acceptance "suggests that the reinspection sample size was too small, or the reinspection was faulty, or the reinspectors were drug users themselves." NCAG PF 19.B. NCAG points to nothing in the record to support these "suggestions." NCAG fails to consider the one other inference to be drawn from the high rate of acceptance: the work was not defective. This is the inference supported by the weight of the evidence.

c. Other Inspectors

176. The twenty-seven terminated inspectors included fourteen Quality Control (QC) inspectors and one inspector-in-training who were terminated because of a positive drug screen test or refusal to take the test. Since the inspector-in-training was never certified, no reinspection was required. The work of eight of these QC inspectors was reinspected pursuant to Harris Plant Procedure CQA-7. The reinspection indicated that the overall inspector proficiency rate was 99.7%. QA Panel at 10; Appl. Exh. 51 at 51-52; Appl. PF 119.

177. NCAG states "[n]o explanation has been given why none of the work of six [of the fourteen terminated QC inspectors] was reinspect-

ed." NCAG PF 19.C. This statement reflects a cursory reading of the record. As discussed below, the evidence on this point is quite clear.

178. One of these six QC inspectors field-tested concrete and performed sieve analysis, grout testing, and cadweld inspections; this inspector was terminated for positive drug screen test results. There are no safety concerns with this employee's assignments in field-testing concrete, grout testing, or sieve analysis because final acceptance of concrete and grout is based on meeting the required design strength as determined by later testing. QA Panel at 10-11. Furthermore, the reinspection results for cadwelds in concrete reinforcing steel bars are impressive: only 8 of 2764 splices tested under the assessment program failed to meet minimum tensile requirements. QA Panel at 10-11; Appl. PF 120. According to CP&L, these test results exceed design requirements by a large margin, and thus independently confirm the quality of cadweld splicing and cadweld inspections. Consequently, no reinspection was performed for this inspector. QA Panel at 10-11; Appl. Exh. 51 at 52-53; Appl. PF 120.

179. Another of the six QC employees was a field concrete tester who also performed rebar and cadweld tensile testing, sieve analysis, and grout testing; this inspector was removed from the job for suspected drug use based on information provided by a reliable source. This employee's work was not reinspected for the reasons noted in Board Finding 178. In addition, Applicants state

> [w]hile this employee actually performed tensile testing, the results of this employee's tests are consistent with the results of tesile tests performed by others, as determined by a comparison of a statistical distribution of his test data with that of the remaining inspectors. Because of the uniformly high success rates of such tests performed by all such testers and in light of the satisfactory 30 supervisory audits of this inspector's work, Applicants concluded that there was no reason to doubt the validity of this inspector's test results. QA Panel at 11-12; Appl. Exh. 51 at 53.

Appl. PF 121.

d. Expansion Anchors

180. Three other QC inspectors had performed inspections on the installation of expansion anchors. A sample of the inspections was selected pursuant to Harris Plant Procedure CQA-7 and the work was reinspected to the extent possible. Certain of the inspection attributes are imbedded in concrete and are no longer accessible. The following table illustrates the inspection proficiency for these three inspectors:

Inspector	Expansion Anchors Reinspected	Expansion Anchors Originally Inspected	Attributes Inspected	Deficiencies Noted	Inspector Proficiency
1	80	982	1493	5	99.7%
2	50	356	1057	5	99.5%
3	125	1257	2445	3	99.9%

None of the thirteen deficiencies noted were safety significant. Tr. 10,074-75 (Forehand); Appl. PF 122. Applicants' witness Forehand testified that all were minor deficiencies. Tr. 10,074-75.

181. The first and the third of these QC inspectors also inspected concrete and grout placements and installation of embedded items and reinforcing bars in concrete. CP&L states that reinspection of these items is impossible. However, CP&L claims that

> because of the extraordinarily high inspector proficiencies shown by these two inspectors, and because the work during concrete and grout placements inspected by these inspectors is also subject to verification by both a construction supervisor and an area engineer on the same concrete placement card as the inspectors' results are recorded, CP&L had no reason to question the proficiency of the inspections performed by these inspectors on concrete. Tr. 10,075 (Forehand).

Appl. PF 123.

182. CCNC PF 56 claims that "[t]here are serious reasons to doubt the validity of the inspection activities of [three inspectors who performed inspections on expansion anchors] especially as two of them did substantial inspection work on concrete and grout placements and installation of embedded and reinforcing bars in concrete." The Board finds nothing in the record to support this conclusion. At the cited transcript page (Tr. 10,073-75) Applicants' witness Forehand discusses the reinspection results and evaluation of the work of these three inspectors. NRC Staff witness Prevatte's testimony indicates that concrete and rebar placements and other civil engineering aspects of the construction project at the Harris Plant "has been a strong point." Tr. 10,174 (Prevatte). Mr. Prevatte also testified that the NRC has found very few deficiencies in inspections of the civil engineering program at Harris. Tr. 10,175 (Prevatte).

183. The NCAG states that "[v]ery small samples were reinspected of the work of these three 'drug-terminated' QC personnel who inspected expansion anchors . . . 8%, 14%, and 10%," and that reinspection indicates an extremely high proficiency rate of 99.9%, "suggesting a sample size that was too small or a flawed reinspection program."

NCAG PF 19.E. Again, the NCAG overlooks the obvious inference that the work was simply not defective.

184. The final quality inspector in this group was assigned to perform final system walkdowns with representatives from the system turnover group, construction engineering, and startup personnel. The NCAG states "the work of a 'drug-terminated' final quality inspector who performed final system walkdowns was not reinspected." NCAG PF 19.F. CP&L replies that this assignment did not require the individual to review documentation or inspect systems to determine quality or acceptability. In addition, this inspector was not solely responsible for any aspect of his assignment, and the turnover documentation packages were reviewed by a supervisor. QA Panel at 12; Appl. Exh. 51 at 53. The Board agrees with Applicants that the above reasons are sufficient to find that reinspection or reverification of this inspector's work was not required. Appl. PF 124.

185. CCNC PF 55 and NRC Staff PF 70 imply that evaluation or reinspection of the work of certain of the twenty-seven QA personnel implicated in possible drug activity was still in progress as of the date of the November 12, 1985 hearing. However, at the hearing, CP&L witness Forehand testified to the completion of the evaluation and reinspection of the three QC inspectors whose reinspection results had not been available at the time written testimony was filed. Tr. 10,072-75 (Forehand).

186. Staff witness Prevatte testified that he had reviewed the results of reinspections of work performed by QA/QC and CI inspectors and that he had reviewed procedure CQA-7. Prevatte testified that the application of procedure CQA-7 resulted in some reinspection of 100% of the involved inspectors' work, but in most cases CP&L chose a statistical sample of less than 100%, based on the Mil-Std 105-D. Prevatte verified that the Applicants applied CQA-7 and Mil-Std 105-D to the areas of work inspected by each of the inspectors identified in the matrix and that the reinspections verify that the work of the inspectors suspected of involvement with drugs was acceptable. Frederickson/Prevatte at 4-5.

187. NCAG PF 20 alleges "[a] search of the NRC's own records of inspections done throughout the history of this construction project will reveal that Applicant [sic] has had persistent problems with QA." The NCAG then refers to two incidents concerning Harris Plant QA. However, NCAG offers no explanation of how the two alleged incidents support a finding of "persistent problems with QA." Furthermore, as stated earlier, the contention focuses on a narrow aspect of QA at Harris, not the whole program or its entire history.

188. The work of QA personnel implicated in drug activity has been evaluated. Where necessary, this work has been reinspected pursuant to Harris Plant Procedure CQA-7. The results of the reinspections establish an overall proficiency of 99.6% for inspectors who were implicated in drug activity. This procedure provides reasonable assurance that the original work of those inspectors was adequate.

5. Conclusion

189. Drug use has not had any discernible effect on the QA program or on the quality of work, as accepted under that program, at Shearon Harris. There is a reasonable assurance that defective work, arising out of drug use or any other cause, will be detected by the QA program.

II. NIGHTTIME EMERGENCY NOTIFICATION

A. Introduction and Regulatory Framework

1. Eddleman Contention 57-C-3, as admitted by the Board, reads as follows:

> The plan does not have provisions for notification at night, e.g. in the hours between 1 a.m. and 6 a.m. when most people living near the plant would normally be asleep, nor does the plan assure that they would be timely awakened to take sheltering action, as e.g. on a summer night when many might have windows open[33] or air conditioners on. The plan should provide automatic phone dialing equipment to transmit an emergency message to all households in the EPZ for Harris, asking people to alert their phoneless neighbors.

Subsequently, in denying the Applicants' Motion for Summary Disposition, the Board framed the basic issue raised by the contention as follows:

> At the evidentiary hearing, the Applicants should address whether the sirens can wake up virtually all the people sleeping in the EPZ between 1 a.m. and 6 a.m. particularly those with windows closed and air conditioners running. The Applicants should address whether the presently planned means of back-up mobile notification could and should be augmented to meet the "about" 15 minute standard in Appendix E, if necessary.

2. The regulatory framework for resolving Eddleman Contention 57-C-3 is primarily derived from the Commission's emergency planning

[33] The contention as framed and admitted speaks of "open" windows. The Board and parties have assumed that "closed" windows were intended, the only reasonable assumption in this context.

rule, an implementing Appendix to the rule, a guidance document issued jointly by the NRC and the Federal Emergency Management Agency (FEMA) staffs, and a Commission interpretative statement. We discuss each element of that framework below.

The Emergency Planning Regulation

3. The pertinent part of the Commission's emergency planning regulation requires that

> means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

10 C.F.R. § 50.47(b)(5). In view of FEMA's participation in this contention, that portion of the rule concerning the legal effect of its positions in licensing cases is also pertinent. The rule provides in that regard that:

> In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability.

10 C.F.R. § 50.47(a)(2). This means that a FEMA position on an issue — e.g., an expert's testimony whether the siren system for a facility will produce certain sound levels or arouse certain numbers of sleeping people — may be accepted by a licensing board if that issue is uncontested. But if an intervenor contests such an issue, the rebuttable presumption "dissolves" and the FEMA testimony is given no special weight "beyond that to which [it] would be entitled by virtue of the expertise of the witnesses and the bases presented for their views." *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298 (1982), *aff'g* LBP-81-59, 14 NRC 1211, 1460-66 (1981). *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1213 (1982).

Appendix E

4. The Commission has adopted an extensive Appendix to its emergency planning rule which elaborates upon its basic provisions. *See* Appendix E to Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities." Appendix E is cast in mandatory terms. It was duly published for public comment and thereafter formally adopted by the Commission in accordance with the Atomic Energy Act and applicable provisions of the Administrative Procedure Act (5 U.S.C. §§ 552, 553). 44 Fed. Reg. 75,167, 75,171 (1979); 45 Fed. Reg. 55,402,

55,408, 55,410 (1980). It therefore has the force of law. Appendix E provides in relevant part that:

> The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes.

Id. § IV.D.3.

NUREG-0654

5. Contemporaneous with the development and adoption of § 50.47 and Appendix E, the staffs of the NRC and FEMA developed a guidance document entitled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," and usually referred to as "NUREG-0654." The guidance in NUREG-0654 spells out in varying detail Staff technical positions on how applicants can satisfy the substantive standards contained in the rule and Appendix E, in the same manner as a Staff Regulatory Guide. In addition, FEMA has developed a more detailed separate guidance document entitled "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," usually referred to as "FEMA 43." This is the standard guidance document applied in FEMA field reviews of the adequacy of siren systems, such as that proposed for Shearon Harris.

6. NUREG-0654 contains an Appendix 3 — "Means of Providing Prompt Alerting and Notification of Response Organizations and the Population." Two guidelines in this Appendix are particularly significant to an understanding of the regulatory framework issues that arose in this case. First, Appendix 3 states a guideline for acceptable siren sound levels, based on average summer daytime conditions. For rural areas like the Shearon Harris EPZ (2000 or fewer people per square mile) the sirens must provide sound level coverage of 60 decibels (dB), or 10 decibels above ambient noise levels, whichever is higher. Appendix at 3-8 to 3-11. Second, with regard to numbers of people to be alerted within specified times, Appendix 3 provides that:

> The minimum acceptable design objectives for coverage by the systems are:
>
> a) Capability for providing both an alert signal and an informational or instructional message to the population on an area wide basis throughout the 10 mile EPZ, within 15 minutes.
>
> b) The initial notification system will assure direct coverage of essentially 100% of the population within 5 miles of the site.

c) Special arrangements will be made to assure 100% coverage within 45 minutes of the population who may not have received notification within the entire plume exposure EPZ.

Id. at 3-3.

7. At the summary disposition stage, the Applicants, supported in principle by the Staff, took the position that the Shearon Harris sirens had been satisfactorily reviewed pursuant to the NUREG-0654, Appendix 3, and FEMA 43 criteria, that those criteria are binding on licensing boards, and that Mr. Eddleman's nighttime alerting contention should be summarily dismissed without any showing that the Shearon Harris sirens would actually wake people up at night. We rejected that position, holding that the NUREG-0654, Appendix 3 and FEMA-43 criteria were not binding against a contrary contention. Memorandum and Order of February 27, 1985 (unpublished), at 3-4. The contention was then heard on its merits, with both the Applicants and the Staff presenting detailed analyses of nighttime siren sound propagation and arousal probabilities.

8. In their proposed findings following the reopened hearing, the Applicants continue to "maintain that — where fixed sirens are selected . . . the numerical acceptance criteria are quite clear: under average summer daytime conditions, the siren level must exceed 60 dB." Appl. PF 6. We understand the quoted statement to reaffirm the Applicants' earlier position that, as to required sound intensity, a siren system need only meet the 60-decibel criterion, daytime or nighttime. *See* Tr. 10,458-59. The Staff position on this legal point is unclear. On the one hand, the Staff does not go so far as to claim that the NUREG-0654 numerical criteria have the force of law, only that they should be given "considerable weight." Staff PF 9. On the other hand, the Staff sets forth at length proposed findings based on the 60-decibel criterion (Staff PF 26-43) and asks us to find that, based on that criterion, "in the Shearon Harris EPZ almost 60 percent of the residences are exposed to ten times the sound pressure level [60 decibels] considered by FEMA and NRC to be adequate." Staff PF 127. In light of these statements, we reiterate our position that this nighttime alerting case was properly heard on the merits, without regard to the "summer daytime" 60-decibel criterion urged by the Applicants and the Staff. The Board's position on this threshold legal question is as follows.

9. Apart from the effect of an interpretative statement by the Commission (discussed below), the argument that the NUREG-0654 and FEMA numerical criteria are binding on licensing boards and bar contentions as attacks on a rule is unsound in law and (at least as to the 60-

decibel criterion) in fact. An Appeal Board decision in the *Three Mile Island* litigation, cited above, decisively rejects that argument:

> We agree that documents such as the FEMA findings and determinations, NUREG-0654, and FEMA-REP-2, somewhat like the Regulatory Guides, do not rise to the level of regulatory requirements. Neither do they constitute the only method of meeting applicable regulatory requirements. *Cf. Fire Protection for Operating Nuclear Power Plants (10 CFR 50.48)*, CLI-81-11, 13 NRC 778, 782 n.2 (1981); *Gulf States Utilities Company* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 772-773 (1977). In the absence of other evidence, adherence to regulatory guidance may be sufficient to demonstrate compliance with regulatory requirements. *Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400, 406-407 (1978). Generally speaking, however, such guidance is treated simply as evidence of legitimate means for complying with regulatory requirements, and the staff is required to demonstrate the validity of its guidance if it is called into question during the course of litigation. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-74-40, 8 AEC 809, 811 (1974).

ALAB-698, *supra*, 16 NRC at 1298-99. This Board, of course, is bound by the Appeal Board's decision. We note, in addition, that the Applicants' argument is foreclosed by the Administrative Procedure Act. Neither NUREG-0654, Appendix 3, nor "FEMA-43" has ever been proposed as a rule for public comment in a rulemaking proceeding. *See* 44 Fed. Reg. 75,167. The same is true, specifically, of those portions of NUREG-0654 to which the Applicants would have us attribute binding effect — particularly the 60-decibel acceptance criterion. Nor do these regulatory guides come within any exception to the Administrative Procedure Act's requirement for prior notice and opportunity for public comment before a rule can become effective. *Compare Union of Concerned Scientists v. NRC*, 711 F.2d 370 (D.C. Cir. 1983). Therefore, they are not binding rules.

10. Any claim that the 60-decibel standard is a binding rule for judging the adequacy of a nuclear power plant's alerting capability under nighttime conditions is unsound in fact, as demonstrated by the record on this contention. As the record shows, a 60-decibel siren sound level at about 2 a.m. would arouse only about one-third of the residents sleeping alone in houses with the windows closed, or one-half of the residents in households with two adults. *See* Figure 2 and Finding 56 below. Two-thirds to one-half of those residents would sleep through the sirens. Assuming that half of those alerted would then engage in "informal alerting," some 25 to 50% of the sleeping residents still might not receive a timely alert, if they are in a 60-decibel area and their windows are closed. Whatever flexibility may inhere in the "essentially complete"

or "essentially 100 percent" criterion for numbers of persons to be alerted, that concept must mean something considerably higher than 50 to 75% in some parts of the EPZ. Given the well-known facts that people go to sleep at night and that it is more difficult to arouse people than to get their attention while awake, we find it surprising that FEMA has adopted an around-the-clock acceptance criterion (60 decibels) based exclusively on daytime conditions. Tr. 9916-17; FEMA Testimony of Carter at 13.[34]

Commission Interpretive Statement

11. Certain provisions of NUREG-0654, Appendix 3 (quoted above) differentiate, in terms of numbers of people to be alerted and alerting times, between the center 5 miles of an EPZ and the outside 5- to 10-mile ring. Following the initial hearing on this contention, a Commission interpretive statement concerning those provisions first came to our attention. In our Order reopening for a further hearing, the Board discussed its tentative views on the legal effect of the Commission's statement as follows.

12. "The Board believes that it should make separate findings on the arousal capabilities of the Harris siren system within (1) a 5-mile radius of the plant and (2) the area between 5 and 10 miles of the plant. Our primary reason for focusing separately on the first 5 miles is the Commission's endorsement of that distinction in a 1980 ruling rejecting a petition for reconsideration of the 15-minute notification requirement. *See Final Rule on Emergency Planning*, CLI-80-40, 12 NRC 636 (1980). Among other matters, the petitioners had relied on certain August 1980 testimony of a FEMA official that full compliance with the 15-minute requirement throughout the entire 10-mile EPZ was impossible. In rejecting that argument as a basis for relaxing the rule, the Commission noted with apparent approval that

> subsequent to the August 18 testimony, FEMA agreed with the NRC that there ought to be a design objective for the 15-minute rule out to 10 miles and agreed to the design objectives described in NUREG-0654, Revision 1. In the January, 1980 version of NUREG-0654, FEMA and NRC described the design objective for the notification system as assuring that 100 percent of the population within 5 miles of

[34] The Board finds Mr. Carter to be a particularly authoritative witness since he was the author of FEMA-43. In response to Board questions, he testified that, in preparing FEMA-43, "I did not assess the validity of the requirements" and "I did not consider the question of nighttime/early alerting of people." Tr. 9917. The Board believes, therefore, that conformity with the FEMA-43 guidance still leaves the issue of compliance with the Commission's regulations as an open question when alerting sleeping people is considered.

the plant and 90 percent of the population within 5 and 10 miles of the plant could receive notice in 15 minutes. In the November revision, FEMA and NRC modified that guidance to be essentially 100 percent of the population within 5 miles of the plant and no specified percentage out to 10 miles. The NRC and FEMA still insist, however, that a system be designed to provide both an alert signal and an instructional or informational message to the population within the 10-mile EPZ within 15 minutes. The lack of a specified percentage from 5 to 10 miles is to allow planners the flexibility to design the most cost-effective system to meet this general objective.

Id. at 638. As we read it, the quoted Commission statement constitutes an endorsement of a distance distinction within the 10-mile EPZ — that the rigorous 'essentially 100 percent' standard should apply only in the first 5 miles. Furthermore, by its apparently approving recognition that the FEMA/NRC staffs in NUREG-0654, Rev. 1 had abandoned a 90% alerting requirement for the 5- to 10-mile area, the Commission, at least by inference, has indicated that a 15-minute arousal rate of less than 90% in that area might be acceptable."

13. "The legal effect of these Commission statements is unclear. It can be argued that they are mere *dicta* because no changes were made in the basic notification rule (§ 50.47(b)(5)) or in the more detailed implementing provisions of Appendix E. Moreover, the Commission stated that the relief requested by the petitioners was being denied. The fact that Appendix 3 of NUREG-0654, Rev. 1, differentiates between notification levels in the 0-5-mile area and the 5-10-mile area has no binding legal significance (apart from the effect of the Commission's endorsement). That guidance document does not have the force of law. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298-99 (1982). Finally, no party has argued to us and the case was not heard on the theory that different standards might apply in different parts of the EPZ."

14. "On the other hand, as a matter of legal analysis the quoted Commission statement can be regarded as an interpretation of this rule. As such, it would be binding on licensing boards. Apart from legal analysis, we think it makes good practical sense to distinguish between the 5- and 10-mile areas. The people in the first 5 miles are closer to the hazard and would be likely to need more rapid notification in order to take effective protective actions. Moreover, it appears to us that if we are to give credit for the phenomenon of 'informal notification,' in the circumstances presented here it is likely to be more effective in the more heavily populated areas outside 5 miles, e.g., the town of Apex, than in the sparsely populated areas in the first 5 miles. Furthermore, the quoted Commission Statement contemplates consideration of cost-effectiveness in choosing among alerting systems. It seems probable that

the cost of augmenting the Applicants' proposed system only within the 5-mile area (about 600 houses) would be a small fraction of the cost of augmenting that system for the entire EPZ (about 7000 houses)."

15. "For the foregoing reasons, we propose to make separate findings for the 0-5-mile and the 5-10-mile areas, as well as for the EPZ as a whole." Unpublished Memorandum and Order of January 16, 1986, at 2-5.

16. Thereafter, the Applicants brought to our attention a *per curiam* Order of the U.S. Court of Appeals for the D.C. Circuit, dismissing as moot an appeal by the Duke Power Company from the Commission's *Final Rule on Emergency Planning* quoted above. The Order states that

> ORDERED, by the Court, that the petition be dismissed, since there is no live controversy before the Court at this time. At oral argument Respondent's counsel gave unequivocal assurance that Respondent will judge Petitioner's compliance with the rule according to the standard of performance criteria promulgated in November 1980 jointly by Respondent and the Federal Emergency Management Agency, and Petitioner's counsel stated that this would be entirely satisfactory.

Duke Power Co. v. NRC, No. 80-2253, unpublished Order dated September 29, 1981. As we read it, this Order lends further support to our conclusion (no longer our tentative view) that the provisions of NUREG-0654 concerning numbers of people to be alerted and times for alerting in the 0-5- and 5-10-mile zones have the legal status of a Commission interpretation of 10 C.F.R. § 50.47(b)(5) and Appendix E to Part 50, and thus are binding on this Board. This legal status does not, however, extend to other provisions of NUREG-0654, Appendix 3 — and specifically not to the 60-decibel summer daytime criterion — which were not before the Commission or the court.[35]

17. There remain the narrow questions of just how high a percentage of residents of the EPZ must be alerted in 15 minutes — within 5 miles of the plant and in the 5- to 10-mile outer ring. The Commission made it clear in adopting the rule that not every person must be alerted. 45 Fed. Reg. at 55,402, 55,407. Appendix E states as a "design objective" that notification must be "essentially complete." Similarly, Appendix 3

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[35] It might be suggested that the Court's reference to "the standard of performance criteria promulgated in November 1980" implied a judicial endorsement of NUREG-0654 in its entirety. Such a reading would carry this unpublished Order far beyond the scope of the narrow issues then before the Commission and the Court. The Commission's opinion does not discuss the FEMA 60-decibel standard except to note that a 68-decibel system is more expensive than a 60-decibel system. CLI-80-40, *supra*, 12 NRC at 639 n.3. It is scarcely conceivable that the Commission would have intended to endorse 60 decibels as a uniform sound-level criterion, had it been aware of the gross inadequacy of that criterion for nighttime alerting. The hearing on Eddleman Contention 57-C-3 apparently represented the first hard look the NRC or FEMA had taken at the special problems presented by nighttime alerting.

of NUREG-0654 (as endorsed by the Commission) calls for a "design objective" of "essentially 100%" in the first 5 miles and no fixed percentage (but inferentially less than 90%) in the 5- to 10-mile ring. The reference to "design objective" apparently means that a system must be designed to achieve the "essentially 100%" criterion but that, in actual practice, local conditions, for example, might have some adverse affect on performance. The decided cases (not involving nighttime alerting) hold, without specificity, that not all persons need be alerted in 15 minutes.[36] In these circumstances, this Board believes that reasonable assurance of an alerting rate *higher than* 95% is acceptable in the first 5 miles. As to the 5- to 10-mile zone, where greater flexibility is allowed, we think it unnecessary to state a minimum criterion. However, we hold that the level shown by the record to be expected of the Shearon Harris system — about 90% — is clearly acceptable.

B. The Witnesses

18. Applicants presented the testimony[37] of Mr. David N. Keast, Dr. Dennis S. Mileti, and Mr. Alvin H. Joyner on this contention. Mr. Keast is Vice President and Senior Project Manager with HMM Associates, Inc. Mr. Keast has an M.S. in Electrical Engineering and specializes in public warning system studies in his role as Project Manager for HMM Associates. Mr. Keast was retained by the Applicants to analyze the alert and notification system in response to Eddleman Contention 57-C-3. Dr. Mileti, Professor in the Department of Sociology and Director of the Hazards Assessment Laboratory at Colorado State University addressed the informal notification process that occurs in the event of an emergency. Mr. Joyner is the lead planner for fixed nuclear facilities within the Division of Emergency Management (DEM) of the North Carolina Department of Crime Control and Public Safety. Mr. Joyner's testimony addressed the mobile alerting that takes place in addition to the fixed siren system in the event of an emergency at Shearon Harris. Applicants' Prefiled Testimony of Keast, Mileti, and Joyner, ff. Tr. 9375.

19. The Federal Emergency Management Agency (FEMA) called a panel of four experts under contract to FEMA (T. F. Carter, V. M. Lee,

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[36] *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 77 (1985); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-82-70, 16 NRC 756, 774 (1982).

[37] The Board has received Applicants' "Proposed Transcript Corrections" (December 9, 1985), "Supplemental Proposed Transcript Corrections" (January 2, 1986), and "Proposed Transcript Corrections" (April 4, 1986). These corrections were unopposed and we grant Applicants' request that the corrections be incorporated into the evidentiary record.

K. D. Kryter, and J. Nehnevajsa) to present testimony on this contention. Mr. Carter is Vice-President, Consulting Services Group, International Energy Associates Limited (IEAL). Mr. Carter held various management positions with the NRC from 1975 to 1982. In his last position (Deputy Director, Division of Fuel Cycle and Material Safety), he had the responsibility for formulating the emergency planning policy for all fuel cycle facilities. He was also Chairman of NRC's "Three Mile Island" Task Force on Emergency Planning. Under subcontract to Argonne National Laboratory, Mr. Carter was the principal author of FEMA-43, "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants." He is currently Manager of IEAL's project to support FEMA in the evaluation of alert and notification systems at nuclear power plants. Under FEMA contract, Mr. Carter convened this panel of experts to prepare testimony in response to this contention. FEMA's Testimony of T. F. Carter, ff. Tr. 9690.

20. Dr. Lee, who has a Ph.D. in Noise and Acoustics (with a minor in Applied Mathematics) is President and principal consultant of Analysis & Computing, Inc., specializing in noise assessment and acoustical design, communication and warning system design and evaluation, and computer modeling. Since June 1983, Dr. Lee has been retained by IEAL as an acoustics consultant dealing specifically with the sound-level coverage evaluation of nuclear power plant fixed siren systems. Dr. Lee's prepared testimony presented his predictions of the acoustical performance of the Harris siren system. FEMA's Testimony of V. M. Lee, ff. Tr. 9690.

21. The third member of the NRC Staff/FEMA panel was Dr. Kryter, who has a Ph.D. in Psychology (with a minor in Physiology). An eminent expert in the field of psychoacoustics, Dr. Kryter most recently served for 11 years as the Director of the Sensory Sciences Research Center of the Stanford Research Institute, and since 1976 has served as Staff Scientist with that organization. He also presently is President of the Acousis Company. He has conducted research on and developed procedures and models for the assessment of the effects of sound and noise on sleep and annoyance. Recently, he prepared an "Analysis of Laboratory and Field Data on Awakening from Noise" (NASA, 1984), and — under sponsorship of NASA, EPA, and U.S. Department of Transportation — authored "The Effects of Noise on Man," 2nd Edition, Academic Press (1985). Dr. Kryter's prepared testimony addressed the arousal of people from sleep in response to the operation of the Harris siren system. FEMA's Testimony of K. D. Kryter, ff. Tr. 9690.

22. The final member of the NRC Staff/FEMA panel was Dr. Nehnevajsa, who has a Ph.D. in Sociology (with minors in Mathematical

Logic and Journalism). Dr. Nehnevajsa has been affiliated with the University of Pittsburgh for nearly 25 years, and presently serves as Professor of Sociology at that institution. For the past 25 years, he has conducted research on emergency preparedness problems, including consideration of attitudes and behavior related to mass emergencies (both natural and technological hazards). FEMA's Testimony of J. Nehnevajsa, ff. Tr. 9690.

C. Harris EPZ Siren Sound Levels

23. Both Applicants and FEMA presented testimony on the siren sound-level coverage of the Harris EPZ with a system of sixty-eight sirens under nighttime conditions.[38] Applicants' witness, Mr. Keast, presented the results of his calculations in the form of sound-level contours drawn on a map of the Harris EPZ. Appl. Exh. 46. Mr. Keast's computational algorithms took into account the several factors that affect sound propagation; namely, spherical divergence, atmospheric absorption, attenuation by forests, ground absorption, refraction caused by vertical windspeed and temperature gradients, scattering by buildings in built-up areas, and shielding by hills. Keast at 10. The results of such computations have been compared with field measurements at locales other than Harris, with the results showing an average deviation of about 0.9 decibel and a standard deviation of 4.4 decibels. The computational results are conservative in that predicted sound levels were lower than the field observations. Tr. 9561. We find the methods and results of Mr. Keast's work uncontroverted at the hearing and accept Applicants' Exhibit 46 as reliable.

24. The FEMA witness on sound levels, Dr. Lee, considered the same sound propagation factors as did Mr. Keast and went through analogous computations. Lee at 21-22. The resulting contour map is not in the same format as Applicants' in that the contours indicate the maximum siren sound level from the one predominant siren in any area. We find the FEMA testimony to be unrealistic since it ignores the fact that sleeping residents at locations approximately equidistant from two or three sirens would receive the cumulative effect of acoustic stimulation (sounds) from each of the sirens and not only one, as FEMA assumes.

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[38] We note that among the documents that Mr. Carter provided to the FEMA panel, Carter at 5, was the "Evaluation of the Prompt Alerting Systems at Four Nuclear Power Stations," NUREG/CR-2655, PNL-4226, USNRC, September 1982, in which nighttime alerting was considered. However, this document did not come into evidence and we do not consider it here.

Tr. 9918. Neglect of this concurrent stimulation may amount to 4 decibels' underestimation or roughly 5% decrease in calculated arousal probability.

25. Comparison of the sound propagation contours in areas under the influence of only one siren shows that Applicants and FEMA are in reasonable agreement, with differences in the distance from the sirens to the 70-decibel contours of less than 10%. The Board finds general agreement on the physics of sound propagation and no real issue in this area.

26. Figure 1 is a Board tracing of a portion of Applicants' Exhibit 46 to illustrate the sound coverage of Applicants' siren system. In order to estimate the probability of household arousal when the inhabitants are asleep, the distribution of houses by sound levels must be found by counting the houses at the various sound levels and, then, those sound levels must be translated into household arousal probabilities. Applicants have carried out the house counting with the results shown in Appendix A to this decision (*see* pp. 411-413, *infra*).

D. Outdoor-Indoor Sound Attenuation

27. Applicants' witness Keast testified that different houses have different sound attenuation characteristics that are attributable almost entirely to whether the windows are open or closed and whether storm windows are in use. On the basis of acoustic measurements and demographic data from a survey of Harris EPZ, Mr. Keast prepared a table (Attachment 6, *see* pp. 411-412, *infra*) showing the fractions of the houses in the Harris EPZ having particular sound attenuation values and the indoor background noise levels to be expected in those houses. The Board finds Mr. Keast's table appropriately detailed and probative on this issue and we include Attachment 6 in Appendix A to this decision (pp. 411-412, *infra*). Keast at 6. The Board notes that with the nineteen different sound levels and eight different housing groups, the computation of the sound levels in the Harris EPZ bedrooms is straightforward, but more than a little tedious.

28. The FEMA witness, Dr. Nehnevajsa, testified that he simply assumed that 50% of the Harris EPZ houses would have windows open. Nehnevajsa at 15. Mr. Keast's empirically based testimony, based on actual field observations, refutes that assumption, and the Board finds that little or no weight should be given to Dr. Nehnevajsa's specific calculations of alerting to be expected in the Harris EPZ.

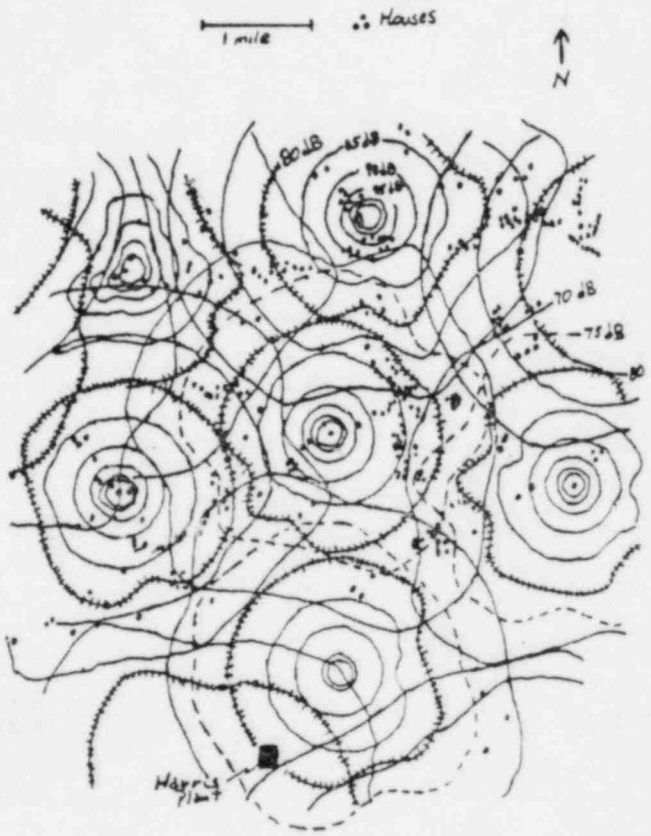

Figure 1. Siren sound-level contours for part of the Harris EPZ.

E. Probability of Alerting with Sirens

29. The next step in an analysis is estimation of how many people would be awakened by each particular bedroom siren sound level. Applicants' witness Keast utilized a report by J. S. Lukas of the Stanford Research Institute, which was published by the U.S. EPA in February 1977, as a basis for estimating arousal probabilities as a function of sound levels. This report, which was identified as Applicants' Exhibit 48, is entitled "Measures of Noise Levels: Their Relative Accuracy in Predicting Objective and Subjective Responses to Noise During Sleep" and is numbered EPA-600/1-77-010. Keast at 16-17.

30. The Board finds that the Lukas report is not an appropriate basis for predicting awakening responses to siren sounds. The research reports that Lukas compiled were mostly studies of responses of sleeping people to transportation noises (aircraft, trucks, and trains). The heterogeneousness of this data grouping is reflected in the low correlation coefficient (0.5) between the various sound levels and the resulting awakenings. Since the variance in the noise levels only accounts for 25% of the variance in the awakenings, it is obvious that other factors that influence responses to noises (impulsive versus nonimpulsive, frequency spectra, etc.) are not adequately represented in the simple data treatment used by Lukas. The FEMA witness, Dr. Kryter, shared this view that "the Lukas work is merely the best fit to a hodge-podge of data, much of it having little or no relationship to siren sounds." Tr. 10,557.

31. In the January 16, 1986 Order concerning the limited reopening of the record, the Board expressed the tentative view that the data base for the Lukas report did not include sounds with frequency spectra that resemble the frequency spectrum of the Federal Signal Thunderbolt Model 1000 sirens to be used in the Harris EPZ. In response to our request for comments, Mr. Keast responded for Applicants in testimony dated February 21, 1986. ff. Tr. 10,471. Mr. Keast states "Lukas used the EPNdB rating scale in reporting his results," Keast at 4, and

> [y]ears of research have gone into the development of the EPNdB rating scale. To the extent that research has been successful, it is not pertinent whether or not the actual spectra of sounds used for the Lukas study resemble those of sirens because the EPNdB scale provides adjustments for spectral differences.

Keast at 5. The Board cannot find that the "research has been successful" in view of the 0.5 correlation coefficient reported by Lukas.

32. Mr. Keast testifies further that "there are at least 3, and possibly as many as 6, studies included in Lukas that were based upon sleep

awakening by tonal sounds." Keast at 5. We accept Mr. Keast's observation, but he is only making the point that 3 to 6 out of the 22 studies in Lukas might be pertinent to siren sounds. If there were no other evidence before us on this issue, an appropriate strategy might be to consider only the few studies in the Lukas compilation that Mr. Keast identifies as possibly applicable to the Harris siren sounds. However, we find that other available studies more directly pertinent to the Shearon Harris siren sounds obviate the need to selectively analyze the Lukas compilation. We find no need to consider the Lukas report further.

33. The FEMA/NRC testimony on probability of awakening caused by siren sounds was presented by Dr. Karl D. Kryter. ff. Tr. 9690. The Board finds Dr. Kryter to be eminently qualified to address the issue, as described in his resume at the beginning of his testimony. Kryter at 1-3. We note in particular his authorship of the book "The Effects of Noise on Man," 1st Edition, 1970, and 2nd Edition, 1985, which has been widely quoted and referenced.

34. Dr. Kryter's testimony gives a useful perspective on the state of knowledge concerning siren-caused awakenings.

> A relatively large number of research studies of sleep have been conducted. Because of the many variables involved it is difficult to interpret most of the results as being directly relatable to the problem at hand. However, a study by Horonjeff *et al.*[39] (hereafter "Horonjeff") has considerable face validity with respect to sleep arousal by sound under real-life conditions and provides fundamental data suitable as a basis for predicting sleep arousal by siren alerting signals as used in the Shearon Harris EPZ.

Kryter at 9.

35. In the Horonjeff study, six females and eight males (ages 20-59, average age 42 years) were exposed to four different steady-state and transient noises when sleeping in their homes. The sounds were presented via loudspeaker, remotely controlled by telephone circuits, and the subjects when awakened pressed a button-switch next to their beds. The subject's responses were also transmitted by telephone circuits back to a central laboratory location. Each of the subjects participated in the study for twenty-one consecutive nights. All subjects resided in single-family residences. Kryter at 9-10.

36. Three of the noises used by Horonjeff were predominately low-frequency "hum" type of noises (from distant road traffic, an air condi-

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[39] R.D. Horonjeff, S. Fidell, S.R. Teffeteller, and D.M. Green, "Behavioral Awakening as Functions of Duration and Detectability of Noise Intrusions in the Home," *J. Sound & Vib.*, 84(3), (1982), pp. 327-336.

tioner, and a simulated electrical power transformer). These noises have most of their energy in the 125-Hz band and little energy in the 500-Hz band where the peak of the siren sound occurs. Kryter at 10-15. The Board agrees with Dr. Kryter's rejection of the data for those low-frequency noises as not an appropriate basis for anticipating responses of sleeping people to siren sounds.

37. Only the transmission line (a "frying" corona discharge) noise had a spectrum with some similarity to the siren signal in the mid- to high-frequency region. Dr. Kryter points out that prior research results would lead to the expectation of greater response of humans to sounds in the higher frequency range and that this expectation is borne out by the results in the Horonjeff sleep arousal data in that the three low-frequency noises were substantially less arousing than the transmission-line corona noise. Kryter at 16.

38. A salient aspect of the Horonjeff study is the clear demonstration of the effect of sound duration, as well as intensity, on arousal probabilities. For example, exposure to the transmission-line corona noise for 15 minutes at 60 dBA caused 50% arousal in contrast to 33% arousal at 60 dBA max for the transient with a rise/decay rate of 2 dB/sec. Thus, a most useful measure of the sound stimulus would reflect the combined effect of sound level and time duration. In Dr. Kryter's view, the appropriate measure is the single-event level (SEL).

$$SEL = dBA + 10 \log \text{time in seconds.}$$

Kryter at 19.

39. The sound levels computed by Applicants and FEMA are presented as C-weighted sound levels (dBC). The Horonjeff data are presented as A-weighted sound levels (dBA), which reflects the ear's variable response as a function of sound frequency. For siren sounds,

$$dBA = dBC - 3$$

Lee at 24.

40. In Figure 2, the Board has plotted the data points from Figure 5A of the Kryter testimony. We find that the data can be fitted with a straight line if the ordinate scale is the normal or Gaussian probability scale, as did the Horonjeff study. This is in contrast to the linear scale in the Kryter Figure 5A, which requires a free-hand curve to approximate the locus of the data points.

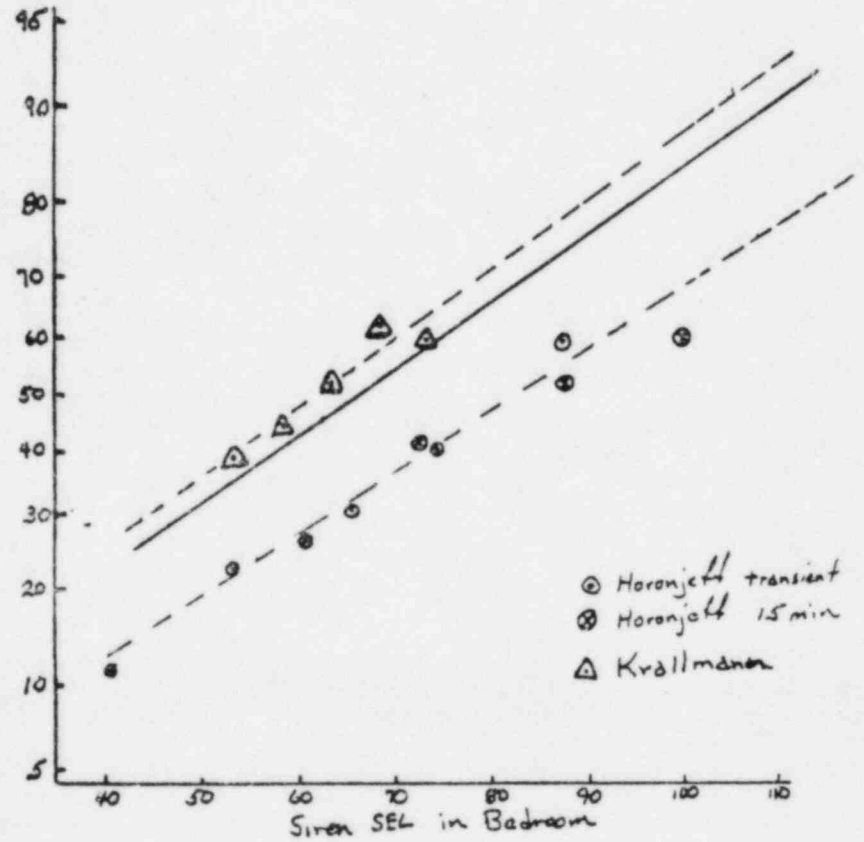

Figure 2. Arousal probability versus siren SEL. Solid line is Board estimate of arousal probability in Harris EPZ. *See* Findings 40, 43, 46.

F. Arousal Probability: The Krallmann Data

41. During the November 4-5, 1985 initial hearing, Applicants' arousal estimates were based on the Lukas report and FEMA's estimates were based on the Horonjeff data. During the hearing, Intervenor Eddleman was instrumental in bringing to the attention of the Board and parties the existence of a 1962 German study of the effectiveness of sirens in awakening sleeping people. The NRC Staff counsel subsequently had this research report translated into English and served on the Board and parties. By stipulation, this report entitled "Final Report: Studies of the Effects of Waking Signals on Sleepers with Different Depths of Sleep and Dispositions" (Institute for Phonetics and Communications, Research University of Bonn, 1962), authored by Dr. Dieter Krallmann,[40] was admitted into evidence and is identified as Eddleman Exhibit 74.[41] Since the Krallmann report had the potential of a major contribution to the record on this contention, the Board requested that the NRC/FEMA staffs have the Krallmann research report reviewed by a suitable professional expert in psychoacoustics. Memorandum and Order, January 16, 1986. Dr. Kryter, the FEMA witness above, carried out the requested review (ff. Tr. 10,479) and cross-examination of his testimony formed a substantial part of the March 4-5, 1986 hearings.

42. The subjects in the Krallmann study came from a wide variety of work backgrounds, and were male attendees at a 1-week course at an air raid protection school in Germany. The subjects slept in individual bedrooms, with provisions for the simultaneous testing of up to twenty-four persons. Krallmann presented a siren signal for 45 seconds once per night — for 98 test nights — at a preselected steady level (40, 45, 50, 55, or 60 dBC) and time (midnight to 5:00 a.m., divided into 15-minute

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[40] D. Krallmann, "Untersuchungen uber die Wirkung von Wecksignalen auf Schlafer verschiedener Schlaftiefen und Dispositionen," University of Bonn (1962).

[41] Following the initial hearing, there was a dispute among the parties over the admission into evidence without hearing or cross-examination of three documents: (1) a review of the prefiled testimony on nighttime alerting, including critical comments on informal alerting; (2) an article in *Power Engineering* about informal alerting by the author of the review; and (3) the German (Krallmann) study. The Board initially resolved the dispute by admitting all three documents, subject to possible objections from Mr. Eddleman, who was given the opportunity to participate in discussion of the dispute. Memorandum of December 27, 1985. Mr. Eddleman subsequently pressed objections to admission of the *Power Engineering* article. At the reopened hearing, no dispute remained over admission of the German study, which was the subject of extensive cross-examination. The Board proposed a stipulation that both the *Power Engineering* article and the portion of the review concerning informal alerting be excluded from the record. The Applicants agreed with this proposal, but FEMA and Mr. Eddleman objected to it. Tr. 10,847-50. The Board finds these objections insubstantial in light of the developed record. FEMA does not need the *Power Engineering* article to impeach the review, on which we have not relied in any event. For his part, Mr. Eddleman is trying to have it both ways by relying on critical comments on informal alerting and seeking to exclude the *Power Engineering* article to prevent fuller scrutiny of those comments. Either both or neither of these documents should be admitted. In the absence of opportunity to cross-examine their author, both are excluded.

segments). The subjects were instructed to get up and push a switch near the bed when awakened. The number (617) and age range (16-71 years, average age 43.88 years) of subjects in the Krallmann study is much greater than in other research studies on sleep. ff. Tr. 10,479 at 4-5.

Depth of Sleep

43. It is known that the ease with which people are aroused from sleep is dependent upon the stage of sleep and, although these stages are somewhat cyclic throughout the sleep night, most of the deepest sleep periods occur within the first hours of sleep. However, these variables have not generally been controlled or systematically investigated in most sleep studies. For example, Horonjeff presented arousing signals scattered throughout the night but averaged the response data over the entire night. A significant feature of Krallmann's study is that the percentages of sleep arousal from the siren are reported for different clock hours during the night, from midnight to 5 a.m. The data show that the time period from midnight to 1:15 a.m. is one of minimum arousal compared to 1:30 a.m. to 5 a.m. ff. Tr. 10,479. The Board has plotted the Krallmann data for this time period of deep sleep and minimum arousal in Figure 2. Since the rest of the time period showed greater arousal, the use of this data would be conservative for the other time periods.

44. As may be seen in Figure 2, there is a substantial difference between the Krallmann and Horonjeff data, with the Krallmann data indicating about 17 decibels greater arousability. It is Dr. Kryter's view that this difference is attributable to fundamental psychoacoustic perceptual and physiological factors. First, the siren signal is more "salient" or noticeable (and sleep arousing) than the broader-spectrum test transmission line noise, even when equally loud. This is consistent with other research findings that the presence of some pure-tone frequency components in a broad-band noise caused that noise to be judged significantly more objectionable or noisy than broad-band noises of the same loudness; that is, a pure tone of a given level sounds "noisier" than a broad band sound having the same general center frequency and the same level. Research further indicates that an adjustment of approximately 9 decibels should be added to the dBA level of a 500-Hz siren signal in order to properly predict its judged "noisiness" as compared to that of a broad-band noise of the same dBA or PNdB level. The pure-tone components in the 400-500-Hz frequency region of the siren signal thus account for approximately 9 decibels of the difference between the

results of the Krallmann tests and those of the Horonjeff tests for a given SEL. ff. Tr. 10,479 at 8-11, 15; Tr. 10,504-05 (Kryter).

45. The remainder of the difference between the results of the two tests is attributable to the phenomenon of "habituation"; that is, when exposed over a number of test nights, subjects may become less likely to be awakened by a given sound level — they become "habituated" to it. As noted above, in the Horonjeff study, subjects were tested for 21 consecutive nights, whereas in the Krallmann experiment, each subject only participated for up to 4 consecutive nights of sleep (averaged to 2 nights). Research[42] indicates that, had the Krallmann study continued for at least 14 nights (averaged to the seventh night), the arousability percentages would have dropped by approximately 10 percentage points, equivalent to about 8 decibels difference in SEL. Thus, when adjusted for both habituation and the saliency of the siren signal, the Horonjeff data are not inconsistent with the Krallmann data. Tr. 10,552-53, 10,561-62 (Kryter).

46. The Board takes the view that habituation as observed in studies (*see* note 42) where people slept in laboratory environments with EEG electrodes taped to their heads may be interpreted as arising from two commingled factors — that the subjects become used to the sound and also that the subjects become used to the strange sleeping conditions. We of course agree with Dr. Kryter's view that habituation of Harris EPZ residents because of exposure to the sound stimulus on many successive nights is not to be expected. However, the Krallmann subjects were not sleeping at home and might be expected to be somewhat more arousable in their test environment than people sleeping at home in the EPZ. Given the estimate above of an overall habituation effect equivalent to 10 percentage points, we ascribe the effect equally to both factors and conclude that the Krallmann data, when reduced by 5% in arousal probability, provides a conservative and realistic basis for anticipating arousal responses for sleeping residents of the Harris EPZ. This best estimate of the arousal function is shown as the solid line in Figure 2.

G. Effect of Age on Arousal Probability

47. Applicants' witness Keast testified that "the age of the sleeper is believed to be pertinent to probability of arousal from sleep. The tendency of people to be awakened by a sound increases with the age." Keast

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[42] B. Griefahn, and G. Jansen, "EEG-Responses Caused by Environmental Noise During Sleep — Their Relationships to Exogenic and Endogenic Influences," *Sci. Total Environ.*, 84(3), (1982), pp. 327-336.

at 17. However, Mr. Keast did not take any account of this factor in his computations of arousal for the Harris EPZ. The FEMA witness, Dr. Kryter, also testified that age is an important factor in that "it has been consistently found that younger people are more resistant to being awakened by sounds or noise than are older persons." Dr. Kryter references a paper by Griefahn and Jansen (*see* note 42, *supra*) that reported the number of EEG reactions (as percentages) varied with the age of the subjects as follows:

$$R(\%) = -7.3 + 1.43\ \text{Age} - 0.028\ \text{Age}^2 + 0.0002\ \text{Age}^3\ (\text{years})$$

48. The first term on the right hand side of this equation reflects the fact that no or zero reactions were observed for children aged 0 to 7.3 years. As noted above, the average age of the subjects in the Horonjeff study was 42 years and Dr. Kryter suggests accepting these data to represent the 35-54-year age group and adjusting those data downward by 5 percentage points to represent the 18-38-year age group and upwards by 10 percentage points to represent the 45-75-year age group. Kryter at 20. This approach results in three different curves of arousal probability versus siren sound level in Kryter's Figure 7A. Moreover, we note that the FEMA witness, Dr. Nehnevajsa, did not utilize all of these curves in his computations. He did assume that only individuals 18 years of age or older contribute to the alerting potential; however, he states "this is not merely conservative, but somewhat unreasonable: certainly, young people who are 13 years of age or older would be, for the most part, in a position to interpret an alerting message, if aroused, so as to make sure that other family members are awakened as well." Nehnevajsa at 24.

49. The Board agrees with Dr. Nehnevajsa that his assumption that only 18-year-old or older people can be "alerted" is unreasonable. The Board feels that 12 years of age is a more realistic view of the age by which responsibility for alerting the household might be expected. Returning to the issue of the effect of age on probability of arousal, the Board takes the view that the following considerations are realistic but conservative. Using the equation from the Griefahn and Jansen reference, one can compute that the 12-34-year age group has a reaction or alerting tendency that is 0.71 times the alerting tendency of the 35-54-year age group. Similarly, the 55-75-year age group can be calculated as 1.73 times as likely to respond as the 35-54-year group.

50. The effect of the age differential response depends on the relative numbers of people at different ages in the population. The Board takes official notice of the 1980 Census of Population, General Population Characteristics, North Carolina. U.S. Department of Commerce,

PC80-1-B35, issued June 1982. According to Table 18, there are approximately twice as many people in the 12–34-year age group as there are in the 55–75-year age group. The Board finds that the factor of 2 greater relative abundance in the younger group approximately balances the greater responsiveness to be expected in the older age group. Therefore, the data for the 35–54-year age group, derived from studies with average subject ages of approximately 44 years, may be used to estimate the average arousal probabilities for the population aged 12 to 75 without significant error.

51. Age is an important consideration in evaluating arousal by households. Both Applicants and FEMA take the realistic view that, if one person in a household is aroused by the siren soundings, that person would alert all members of the household. Keast at 22-23; Nehnevajsa at 8. However, the Board cannot agree with Applicants' witness, Mr. Keast, that very young children will contribute to the household alerting. First, there is weak or near-zero response of the young to sounds while they are asleep. Secondly, the Board agrees with Dr. Nehnevajsa's view that "no one can assume that a 2-year-old or a 6-year-old or even maybe a 10-year-old if awakened from sleep by the alerting signal, could properly interpret the meaning of the signal and thus recognize that a threatening situation/an emergency is in the making." Nehnevajsa at 8. The Board finds Mr. Keast's calculations of probable alerting not to be realistic or conservative because of his persistent assumption that very young children are arousable and cognitive to the same extent as adults.

52. The quantitative effects of the Applicants' assumption may be seen from the following numerically simplified example:

(1) According to Attachment C (*see* p. 413, *infra*) of Mr. Keast's February 21, 1986 testimony, ff. Tr. 10,471, the median outdoor sound-level coverage in the Harris EPZ is 82 dBC.

(2) 82 dBC = 79 dBA.

(3) According to Attachment 6 see pp. 411-412, *infra*) of Mr. Keast's October 18, 1985 testimony, ff. Tr. 9375, the weighted average sound attenuation for the Harris EPZ houses amounts to a 22.5-decibel loss from outdoors to the bedrooms. Median sound level in bedroom equals 56.5 dBA.

(4) Assume four 3-minute periods of siren soundings. Keast *et al.*, at 24.

SEL = dBA + 20
SEL = 56.5 + 20 = 76.5 in bedroom

(5) From Figure 2 (solid line), the probability of arousal of one person at 76.5 SEL is 62%.

(6) Consider 1000 houses, all with P(arousal) = 62% for one alertee.

(7) Depending on what ages are considered as contributing to the household arousal potential, the following distributions of alertees by household would exist:[43]

Household Size (alertees)	Applicant (all ages), %	FEMA (over 18 years), %	Board (over 12 years), %
1	18.5	22	22
2	29.5	59	50.1
3	19.6	19	24.3
4	32.4		3.6

Household Size (alertees)	Alert Probability, %	Number of Houses Alerted		
1	62	115	136	136
2	85.6	253	505	429
3	94.5	185	180	230
4	97.9	317		35
	Total	870	821	830
		87%	or 82.1%	83%

[43] In Applicants' Proposed Finding 24 in the March 18, 1986 filing, there is some misunderstanding of our January 16 Order and of the FEMA testimony. Nehnevajsa at 4 and 31. Dr. Nehnevajsa accepted the Donnelley Marketing Information Services data on the household sizes in the Harris EPZ as does the Board. Then Dr. Nehnevajsa used his own research results as a basis for estimating the age structure in the households and the Board accepts and utilizes those data. However, we combined the one person "alertee" data for each of the various household sizes; i.e., 18.5% households with one alertee plus 1.8% of the two-person households with only one alertee (over 18 years) and 2% of the three-person households with only one alertee sums to approximately 22% of the total households having one alertee.

Here we go further and estimate the percentage of households having one, two, three, or four alertees by assuming the three-person households that Nehnevajsa shows as 11.3% at two alertees should be increased by one-third or 3.8% to reflect that one child out of three can be expected in the 12-18-year age range. For the four-person households, we derive the distribution of alertees by treating these households as having two persons over 18 years and two children under 18 and that the probability that both children are 12 years or older is 1/9, one child is 12 or older is 4/9 and that both children are under 12 is also 4/9.

53. The differences in calculated household alertings with the different assumptions are not fixed quantities, but become larger as the probability of alerting becomes smaller and they become smaller as the probability of alerting becomes larger. For example, with a one alertee probability of 50% instead of 62%, the Applicants' assumption produces an estimated household alerting of 78.8% versus 71.8% with FEMA's assumption. Also, we note that FEMA's consideration of only those 18 years or older yields a lower estimate than the Board's approach with the 12-year-old or older persons, but the difference is not large and, for this example, amounts to 0.9%.

H. Resulting Estimate of Siren Alerting

54. As described above, the Commission has endorsed different standards for the first 5 miles of an EPZ and the 5-10-mile part of an EPZ. At the Board's request, Applicants' witness, Mr. Keast, carried out computations of households awakened by sirens in these two regions of the Harris EPZ. ff. Tr. 10,471, Attachs. A, B, and E. Mr. Keast found that "awakening percentages inside of 5 miles, outside of 5 miles and for the entire EPZ are all within about 1% of each other when the same computational methods and assumptions are applied." *Id.* at 11. The Board accepts this conclusion for the Harris EPZ.

55. Mr. Keast calculated that 82.5% of the households within 5 miles of the Harris plant would be awakened by the sirens, using the Krallmann arousal probabilities and the Board's tentative assumption that was predicated on the FEMA household alerting potential, which assumed only 18-year-old or older persons would contribute to the alerting potential. ff. Tr. 10,471, Attach. E. As described above, we believe that the FEMA assumption is unrealistic. However, the quantitative effect of assuming, more realistically, that 12-year-old or older persons would contribute increases the estimate only by approximately a 1% increment. We therefore find the probable arousal in the Harris EPZ caused by sirens under summer nighttime conditions to be 83.5%.

56. Both Applicants and FEMA testified that some people are awake during the midnight to 6 a.m. hours and would hear the sirens. We find Mr. Keast's testimony, based on a survey by the Arbitron Rating Service, to be more credible for the Harris EPZ than the University of Michigan study used by FEMA based on a national sample. Keast at 9; Nehnevajsa at 11. Mr. Keast testified that 3% of the people in the Harris EPZ can be expected to be awake between 1 a.m and 6 a.m. Assuming that the people who are awake are distributed one to a house and that the

average number of people in the Harris EPZ houses is two, the existence of 3% of the people awake corresponds to 6% of the households having a person awake. The unaroused households amount to roughly 20%, so that 6% of this group amounts to approximately 1% additional households that would be alerted in response to the sirens. Thus, 83.5% plus 1% amounts to 84.5% of the households alerted by the sirens. This represents the Board's estimate of siren arousal on this record.

I. Informal Alerting

57. Both Applicants and FEMA presented testimony on "informal alerting," which is a term used to connote the arousal of those households not alerted by the sirens but alerted through phone calls or direct personal contact with those who have been alerted by the sirens. Applicants' witness, Dr. Mileti, testified that informal notification is a very typical public response to emergency information and warnings and it is a phenomenon that is well documented by social science research. Keast *et al.*, at 28. Dr. Mileti refers to two studies that provided quantitative estimates of "informal alerting." The first of these reports[44] states that, for the 1981 Mt. Saint Helens volcanic eruption, approximately 30% of the residents closest to the volcano first learned of the eruption from personal observation and they alerted an additional 38% within 15 minutes. The second incident was "the 1972 Rapid City, South Dakota flood, which occurred at night when many people were asleep; 75% of the population receiving a first warning or alert responded by engaging in additional communication; over half of these (some 40%) engaged in activities that would translate into informal notification." Mileti at 35-36. Dr. Mileti assumed that 30% of those formally alerted "naturally" would engage in informal notification. Mileti at 34.

58. Dr. Mileti testified further that the rate of informal alerting could be "facilitated" by incorporating into the emergency broadcast system (EBS) messages some simple words to the effect that "if your neighbors' house is dark, wake them." Mileti at 38. Mr. Joyner of the North Carolina Division of Emergency Management testified that the initial EBS messages for broadcast in the event of a nighttime emergency at Harris will include such an instruction. Joyner at 41. Dr. Mileti, on the basis of this commitment, assumes that 80% of those directly alerted would participate in informal alerting. Mileti at 39-40.

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[44] M. Lindell *et al.*, quoted in *Planning Concepts and Decision Criteria for Sheltering and Evacuation in a Nuclear Power Plant Emergency*, Washington, D.C.: Atomic Industrial Forum, 1985, at 5-16.

59. The FEMA witness, Dr. Nehnevajsa, testified that he had conducted a survey in the Pittsburgh area following a June 1985 tornado and that "87.5% of survey respondents expect that people in their area would be contacting others to make them aware of an impending danger and just as many respondents claim that they would expect that someone would try to contact them under such circumstances." Dr. Nehnevajsa assumes that 50% of the alerted households would contact others. Nehnevajsa at 16-17.

60. The Board recognizes that the data base that the witnesses submit is largely anecdotal and not very robust. The South Dakota flood at night is the most pertinent to the issue before us. The Pittsburgh study is not persuasive because it involved an abstract question about what people expected in an emergency, not what they had actually done. In those circumstances, we would expect virtually everyone to say "Yes, I will warn my neighbor in an emergency." None of these studies provide any hard data on how quickly informal notification takes place at night when people are asleep. In that regard, the EBS message to encourage informal alerting seems helpful, but, within the context of a 15-minute time period, some of the people who are aroused may be sluggish and activities such as putting on clothing, visiting the bathroom, etc., can be expected to produce some delay. Any estimate of the extent of informal alerting has substantial uncertainty. However, the Board finds the assumption that 50% of the alerted households would engage in such activities is a reasonable and, perhaps, conservative estimate.

J. Effect of Sirens and Informal Alerting

61. With a direct siren alerting of 84.5% and 50% participation in informal alerting, 42.3% of the households would be engaged in awakening others. This 42.3% might successfully alert a nonalerted household 15.5% of the time (84.5% of the time an already-alerted household would be contacted), thus, alerting 6.7% more of the households. The resulting total alerting in 15 minutes would be approximately 91%, if no other alerting mechanisms were operative.

K. Mobile or Route Alerting

62. In addition to the fixed siren system, emergency response officials would provide additional public notification of an emergency through an extensive system of mobile alerting throughout the entire EPZ. Thus, in all four counties within the EPZ, vehicles with flashing

lights, sirens and/or public address systems would be dispatched to provide additional public warning by driving predesignated routes within the EPZ. Keast *et al.*, at 26.

63. Based on experience, the State of North Carolina is confident that the flashing lights, sirens, and/or PA systems of mobile alerting vehicles passing throughout the EPZ would alert most households which might not have heard the fixed sirens. A specific illustration of the use of mobile alerting is the November 1977 evacuation of between 400 and 500 people in Clyde, North Carolina, due to a flash flood. Beginning at about 2:00 a.m., using two police cars and a fire truck, emergency officials completed public notification within approximately 30 minutes. Keast *et al.*, at 27.

64. Applicants' witness Joyner testified that there are not sufficient resources available to complete mobile alerting within 15 minutes and that the times for completion of route alerting would range from approximately 20 to 45 minutes, depending on the subzone. (These times include the time needed for emergency personnel to reach their duty posts to begin the notification process). Joyner *et al.*, at 26-27. Because many of the routes commence in populated areas (where the mobile alerting vehicles are routinely stationed and therefore readily available), 30 to 40% of the households in the EPZ could be covered via route alerting within 15 minutes in the 5-10-mile area. Tr. 9583 (Joyner). We believe that these time estimates may be somewhat optimistic for nighttime alerting, should it be necessary to arouse some fire and police personnel. In any event, Applicants concede that, due to resource limitations, mobile alerting is not a means by which they seek to comply with the 15-minute requirements. Appl. PF 39, n.24.

65. Following the initial fixed-siren and mobile-alerting warnings, mobile-alerting personnel would drive back over their routes to confirm public notification, stopping to give personal notification at houses which are still dark. In addition, law enforcement and other official vehicles would be in the area to ensure complete evacuation or other protective action, and to provide security. They will be instructed to check premises where no protective action activity is evident. Keast *et al.*, at 41; Tr. 9596-97 (Joyner).

L. Tone Alert System Within the First 5 Miles of the EPZ[45]

66. In our Order of January 16, 1986, the Board requested that the Applicants provide information on a system which might supplement the siren system within the first 5 miles of the EPZ. Memorandum and Order at 10-11. At that time Applicants had not proposed any system in addition to the sirens in that area. During a conference call the Applicants informed the Board that they intend to supplement the siren system within a 5-mile radius of the plant with tone-alert radios for each household. Tr. 10,269.

67. Applicants and Intervenor Eddleman offered testimony on this issue. The Applicants presented the testimony of Mr. H. Ralph Goodwin, Mr. Alvin H. Joyner, Mr. David N. Keast, and Mr. Dewey B. Overman II, on this matter. "Testimony of H. Ralph Goodwin, Alvin H. Joyner, David N. Keast, and Dewey B. Overman II on Eddleman Contention 57-C-3 (Nighttime Notification)," ff. Tr. 10,723 (hereinafter Goodwin *et al.*). Intervenor Eddleman offered the testimony of Mr. Jesse Riley. Eddleman Exh. 75. The majority of Mr. Riley's testimony was stricken. However, one paragraph was admitted without cross-examination. Tr. 10,708-09.

68. Mr. Goodwin is employed by Applicant Carolina Power and Light Company as a Senior Specialist, Emergency Preparedness. Goodwin *et al.*, at 2. In connection with this issue, Mr. Goodwin was responsible for coordinating the development of information concerning means to supplement the public notification provided by the existing siren system in the Harris EPZ, including the tone-alert radio system proposed by Applicants. *Id.* Mr. Overman is employed by Carolina Power and Light Company as a Principal Engineer-Telecommunications Engineering. *Id.* at 3. He is responsible for, among other things, reviewing vendor proposals for communications systems, preparing specifications, and planning, scheduling, and procuring the systems. *Id.*

69. After conducting an evaluation of the possibility of distributing tone-alert radios to all households within a 5-mile radius of the Harris Plant, Applicants have concluded that such a system would be a practical means to provide timely notification to the targeted households, and that such a system would provide excellent coverage in order to alert people in this area at night. Goodwin *et al.*, at 4-8.

70. The factors Applicants considered in their evaluation were the ability of the system to provide broad, rapid coverage; public reaction to

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[45] The Board finds many of NRC Staff/FEMA proposed findings on this part of the record to be accurate and succinct and we have adopted many of them.

the proposed system, its technical feasibility; the time required for installing such a system, and its cost. Goodwin *et al.*, at 4.

71. In determining whether it would be feasible to distribute tone-alert radios within a 5-mile radius of Harris, Applicants found that the area is within the primary coverage of two transmitters already maintained by the National Weather Service (NWS) for use in transmitting routine weather forecasts and alert signals in the event of an emergency weather condition. *Id.* at 6. Applicants also found that there were receivers commercially available which were capable of receiving the NWS alert signals. *Id.* The National Weather Service, which is an agency of the National Oceanic and Atmospheric Administration (NOAA), provides continuous weather forecasts from facilities at the Raleigh-Durham Airport which control transmitters in Durham and Fayetteville, North Carolina. Goodwin *et al.*, at 15. The NWS has agreed to broadcast an alert signal from these transmitters which would activate the tone-alert radios in the event of an emergency at Harris requiring public notification. *Id.*

72. Applicants have performed tests and measurements to determine whether the signals from these transmitters would be adequate to activate the tone of the radio. Goodwin *et al.*, at 15. They employed several of the receivers they have chosen to use for the program to determine through a receiver sensitivity test the minimum amount of signal which would be required to set off the alarm. *Id.* Field strength measurements were taken to determine the amount of radio signal present at a given location. These measurements were taken of signals from both transmitters. Numerous locations considered to be representative of the propagation conditions in the 5-mile radius were selected for the taking of measurements. These measurements were taken during the day and at night between the hours of 1:00 a.m. and 6:00 a.m. They were taken at low ground elevations where homes are located. Measurements were also taken inside homes during the day. *Id.* at 16. These measurements were compared with the frequency strength, and it was found that the signal strength at every location exceeded the level necessary to set off the alarm by a considerable margin. *Id.*

73. The radio chosen for use by Applicants is the Realistic Weatheradio Alert III Model No. 12-140, manufactured for Radio Shack, a division of Tandy Corporation, or one with comparable features. Goodwin *et al.*, at 10. This receiver is capable of operating on house current or on a 9-volt battery as a backup. If power to the radio is interrupted, it automatically switches to the battery and continues to operate. *Id.* When in an alert standby position, the receiver is capable of automatically sounding an alarm tone and voice message upon receipt of the radio signal

from the NWS. *Id.* The receiver can operate on any of three frequencies which the NWS uses. *Id.* at 10-11. The alarm on the receiver operates at full volume regardless of the volume setting for the voice message. *Id.* at 11. The receiver has an alert lock feature which causes the alarm to sound continuously until manually reset. There is a test button on the receiver to allow the owner to check for proper operation of the alarm at any time. *Id.* Applicants have determined that the receiver they have chosen is available in sufficient quantities and within the time frame needed to implement the program. *Id.* at 6. Applicants' witness estimated that the radios could be procured within about 30 days, thus allowing the implementation of the program before the Harris fuel load date. *Id.* at 8.

74. Applicants testified that the use of a system relying on the NWS system would be advantageous, because the NWS system has already received wide public acceptance. In addition, many individuals will already be familiar with the system in connection with weather alerts. Goodwin *et al.*, at 9. The NWS system has been in use across the country for approximately a decade, and is a proven technology. *Id.* Applicants' witness testified that as of 1983, 46 million radio receivers had been sold since 1978, and that NWS continues to report high levels of public support. *Id.* at 10. Applicants expect this system to be popular with Harris area residents because of its utility on a routine basis in connection with the agricultural and recreational activities within the EPZ. *Id.*

75. In evaluating the cost of such a program, Applicants determined that it would cost approximately $28,000 to purchase radio receivers for all households within a 5-mile radius of Harris and an adequate number of spares. Although Applicants have not calculated the precise costs associated with the distribution of radios and the development of a public information program to educate the residents, they estimate that the initial distribution would cost about $27,000, and the development of the public education program would cost about $25,000. Therefore, the establishment of the system would cost approximately $80,000. Goodwin *et al.*, at 7. This cost estimate does not include the costs of maintaining and repairing the receivers, replacing them, and maintaining an ongoing public education program. *Id.*[46]

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[46] The Board initially called for cost information on a proposed supplemental system because the Commission's interpretive statement discussed above appears to make "cost-effectiveness" potentially relevant. In the circumstances of this case, however, we ruled at the supplemental hearing that cost-effectiveness and comparisons to other possible systems (e.g. telephone alert systems) are irrelevant, and excluded then from the hearing. Tr. 10,440-62. As a general proposition, a license applicant is entitled to choose among systems to meet Commission requirements, including emergency planning notification requirements. If an Applicants' proposals clearly meet Commission requirements, there is simply no reason to consider the comparative cost-effectiveness of other systems. We understand the Commis-

(Continued)

76. During the hearing, Intervenor Eddleman had questions concerning Applicants' ability to ensure operability of the receivers over time, and the speed with which problems with the radios would be detected. Applicants' witnesses first discussed the maintenance program CP&L intends to institute. All receivers will be tested before distribution to make sure they meet sensitivity specifications and that they are in good working order. Goodwin *et al.*, at 21. If upon receipt the receiver does not appear to work, the resident will be able to call the company. A company representative will talk with the resident to determine whether the radio is properly situated and adjusted. If it is determined that the radio is not working, it will be replaced promptly. *Id.* The receivers will be tested at least annually. NWS will send a signal at a designated time, and residents will be asked to monitor their receivers. If they are inoperable, residents will be able to get them replaced or repaired by dialing a designated phone number. *Id.* at 20. Batteries will also be mailed to residents annually with instructions on how to replace the old battery. *Id.* at 21. In response to a comment by the Board during the hearing, Counsel for Applicants committed to maintain a list of those persons whose radios are being repaired or replaced, and notify them by telephone in the event of an emergency. Tr. 10,874 (Hollar).

77. Applicants' witness testified he did not believe problems with radios would go undetected for long periods of time for several reasons. First, there is a red light denoting the radio is operating properly and awaiting the alert tone. Also, Applicants' witness noted the existence of the self-test feature. A resident can also depress the weather bar to obtain a broadcast. Tr. 10,875-76 (Overman). In addition, NWS has 20 to 25 alerts per year during which it broadcasts an alert tone. Finally, NWS sends out a test tone weekly between the hours of 11:00 a.m. and noon. Tr. 10,876-77 (Overman).

78. Applicants also described in detail their proposal for distribution of the receivers and the public education program they intend to institute. Applicants will use maps to establish the 5-mile-area boundary. Lists of customers will be developed and verified by a field survey. Each account in the area will be given a code which will be entered into the Applicants' computer. The code will appear on meter-reading documents which will enable readers to confirm that each residence in the 5-mile area has been identified. Goodwin *et al.*, at 17. Electrical inspectors and

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sion's "cost-effectiveness" reference to refer to a situation, for example, where a proposed notification system might be considered only marginally satisfactory (e.g., 80% alerting on the 5- to 10-mile zone, where no fixed percentage has been specified) and some more expensive system might substantially increase alerting. That is not this case. We include the cost data in the text as a matter of general interest.

field engineering work required for the establishment of electrical service will allow the early identification of new dwellings. *Id.* When a customer disconnects his or her service the code will remain on the account record. When another customer applies for service, a message will appear on the computer and a receiver will be made available to that customer. *Id.* at 17-18. Records will be maintained to show the date of distribution of a receiver, the date of issuance of the last replacement battery and how many batteries have been used. *Id.*

79. Contact will be made with a responsible adult by a company representative trained to explain operation of the receiver, to suggest the best location for it, and to answer questions about operation of the program. Goodwin *et al.*, at 18. Public information about operating location and maintenance instructions will also be in materials distributed to the residents. *Id.*

80. As an ongoing public information method, operational pamphlets will be distributed to residents annually. Goodwin *et al.*, at 19. The safety Information Calendar and the Children's Brochure will be revised to contain information about the radios. The Harris newsletter distributed about the time of distribution of the radios will contain information about the tone-alert radio program, and the newsletter will periodically remind people of important information about the program. *Id.* at 19-20. Before distribution there will be a release to the news media. *Id.* at 20.

81. Applicants have measured the sound pressure level produced by the tone-alert radios and reported 79 dBA for the continuous tone at a distance of 42 inches. ff. Tr. 10,723, Attach. C. Operation of the receiver for 15 minutes would produce an SEL of 109 decibels. Using the arousal probability shown in Figure 2 and the household structure above (Board Finding 52), the Board calculates that 97.3% of the households would be alerted by the tone-alert radios alone.

82. In a FEMA-sponsored telephone survey of the population within the Fort St. Vrain EPZ, it was found that 13.6% of the survey respondents were not using their tone-alert radios properly. Keast at 14. In view of the Applicants' public education and information program, we find no basis for anticipating that use failure at Harris would be greater than at Fort St. Vrain. This 13.6% might reduce radio alerting to approximately 83%. However, 91% of the 17% not alerted by the radios would be expected to be alerted independently by the sirens and "informal" alerting. That 91% multiplied by 17% increases the percentage of persons alerted by 15.5%, so that the overall alerting level would be 98.5%. The Board concludes that the independence and partial redundancy of the siren and

radio systems demonstrate compliance with the requirement of "essentially 100%" alerting in 15 minutes in the first 5 miles of the EPZ.

M. Proposed Findings of Intervenors

83. The Attorney General of North Carolina filed proposed findings of fact on December 16, 1985, and supplemental findings on the reopened record on March 19, 1986. We have considered those proposed findings and perceive that the bulk of the issues raised are fairly covered in the Board's findings. The only point meriting comment is in Proposed Finding 22 that reads "[w]e do find deficiencies in nighttime notification and hereby conclude that neither Applicants' modified plan nor the FEMA 43 criteria give proper assurance of the achievement of a satisfactory level of nighttime alerting," as a conclusory statement. The standard for alerting has been described in our regulatory framework summary. We find the Applicants' provision of sirens and tone-alert radios meets the Commission's requirements and, thus, does "give proper assurance." The Attorney General's office should be aware that this licensing proceeding is not a forum for challenging the Commission's rules.

84. Intervenor Eddleman's proposed findings have a similar thrust but, also, are lacking in analysis of the record to document noncompliance with the regulatory framework. His concern, as stated most clearly in Proposed Finding 8, is with "the 5 to 10 mile doughnut around the plant, where tone-alert radios or other primary alerting systems will not be used." The siren and informal alerting will alert about 90% of this area in 15 minutes. Furthermore, he neglects to consider that this zone is well covered by route alerting which can alert some unaroused households within 15 minutes and virtually all households within 45 minutes.

N. Summary of Conclusions

Based on the record as finally developed, the Board finds that direct alerting by the siren system can be expected to be approximately 84% of the EPZ households and that, with consideration of "informal" alerting, siren-induced alerting would total approximately 91% throughout the Harris EPZ in 15 minutes. That 91% figure clearly satisfies the 15-minute notification requirement for the 5- to 10-mile outer area of the EPZ. In addition, route alerting with police and fire vehicles is an integral part of the Harris emergency plan. It would cover 30 to 40% of the Harris EPZ population in 15 minutes (most of whom would already be alerted) and can be completed in about 45 minutes. With the route alerting and con-

tinued "informal alerting," we find that the required "essentially 100%" coverage of the entire EPZ can be completed in 45 minutes.

With respect to the first 5 miles of the Harris EPZ, the Board finds that the combined effect of sirens and informal alerting — 91% — does not satisfy the required "essentially 100%," which we equate with greater than 95%.[47] However, as described above, Applicants' proposed use of tone-alert radios in combination with the siren system and, with consideration of the effects of "informal alerting," should result in an aggregate alerting level of 98.5%. The Board concludes that the independence and partial redundancy of the siren and radio systems demonstrate compliance with the requirement of "essentially 100%" alerting in 15 minutes in the first 5 miles of the Harris EPZ.

III. SUMMARY DISPOSITION RULINGS ON EDDLEMAN EPX-2 AND EPX-8

The history of Intervenor Wells Eddleman's EPX contentions is set forth in detail in the Board's Partial Initial Decision on Emergency Planning and Safety Contentions, LBP-85-49, 22 NRC 899, 908-10 (1985). Suffice it to say herein that twelve contentions concerning the full-participation emergency plan exercise conducted May 17-18 for the Harris facility were submitted by Mr. Eddleman. Of these, two, EPX-2 and EPX-8, were judged possibly to indicate a "fundamental flaw" in the plan, and were admitted into litigation.

On January 13, 1986, the Applicants, Carolina Power and Light Company, *et al.*, moved for summary disposition of both contentions. The motions were supported by the Staff/FEMA. Mr. Eddleman replied to the motions on February 18, 1986, and later on March 12, 1986. The latter reply was agreed to by the parties and approved by the Board.

The Board granted the Applicants' motions in a Summary Order dated March 19, 1986, stating that our reasons would be given in this decision. The Board reviewed these presentations and found that no "fundamental flaw" in these parts of the emergency exercise was exposed. The exercise did serve to point out that problems did exist, but the steps which have

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[47] While Applicants maintain that the Harris siren system is all that is necessary for regulatory compliance, we note that we would be unable to blink the issue, not encompassed within Eddleman Contention 57-C-3, concerning 15-minute alerting within 5 miles during nighttime *in the winter* when essentially all windows might be closed and direct siren alerting might be less than 80%, if the independent and effective tone-alert radio system were not planned for the Harris EPZ. Absent that supplemental system, we might have raised a winter nighttime issue on our own motion. *See* 10 C.F.R. § 2.760a.

been and will be taken by the Applicants and the various agencies involved provide reasonable assurance that adequate measures can be taken in the respects raised by the contentions to protect the public health and safety in the event of a radiological emergency at the Harris Plant. We therefore granted the motions for summary disposition. Our discussion follows.

A. Eddleman Contention EPX-2

Contention EPX-2, as admitted by the Board, is as follows:[48]

> Communications deficiencies revealed in the exercise could have severe bad effects in a real emergency, including lack of effective communications and radiation monitoring results, lack of contact with field and ground units, etc. Specifically:
>
> (1) The emergency inter-system mutual aid frequency was so overloaded the state's communications evaluator stated it was "proved there could be absolutely no communication with ground units on this frequency due to constant misuse."
>
> Other examples:
>
> (2) The Highway Patrol evaluator found "communication inadequacies; equipment . . . is not yet capable of adequately handling the impact of so many units responding to an emergency of this type";
>
> (3) Harnett County had "insufficient telephones";
>
> (4) "[E]xtra radio traffic overloaded personnel on duty" in Chatham County;
>
> (5) "excessive delays" in Emergency Medical services office receiving messages from SERT (State Emergency Response Team);
>
> (6) Communications from the mobile radiation lab had to be relayed to base station at times, which "always introduced the possibility of delayed and/or incorrect information" according to the State Radiation Protection Section Evaluator.

Applicants' motion was supported by affidavits by Dayne H. Brown, Chief of the Radiation Protection Section of the Division of Facility Services, Department of Human Resources of the State of North Carolina; William Ethridge, a Captain of the North Carolina Highway Patrol and Director of the Research and Planning Section; Alvin H. Joyner, Lead Planner for Fixed Nuclear Facilities for the North Carolina Department of Crime Control and Public Safety, Division of Emergency

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[48] For clarity, we follow the Applicants' form of presentation; the wording is essentially identical to the original.

Management (DEM); and Mark Scott, Coordinator of Emergency Management in the Chatham County Office of Emergency Services.

Subpart 1

> The emergency inter-system mutual aid frequency was so overloaded that the State's communications evaluators stated it was "proved that there could be absolutely no communications with ground units on this frequency due to constant misuse."

The problem encountered here was caused by the use of a radio frequency of 155.280 MHz for all radio traffic directly related to the Harris exercise. This Special Emergency frequency is also used in North Carolina by rescue squads. Joyner Affidavit, ¶ 4. It also appears that the evaluation of this part of the exercise was being conducted in a helicopter in flight over the EPZ. The helicopter, due to its altitude, most probably was picking up many transmissions which would not have been received on the ground. The emergency personnel were also using tone-encoded radios; the helicopter was not. Tone-encoded radio equipment prevents interference from unwanted signals by blocking signals from radios other than those used by a particular response agency. Joyner Affidavit, ¶¶ 5-6. Additionally, all the public services in the Harris EPZ have multiple frequencies which can be used. If necessary, the State or any of the counties concerned could come on the 155.280 MHz channel and direct traffic to move to other channels. Joyner Affidavit, ¶ 7.

It appears to the Board that the evaluator was placed in a situation where a realistic evaluation of the radio traffic perceived by emergency exercise personnel on the ground was not possible. In any event, we find that the use of tone-encoded radio equipment and the ability to clear the 155.280 MHz channel if necessary obviates any difficulty due to message traffic density in radio communications during a radiological emergency.

Subpart 2

> The Highway Patrol evaluator found "communications inadequacies: equipment . . . is not yet capable of adequately handling the impact of so many units responding to an emergency of this type."

The specific difficultics encountered by the Highway Patrol were delays in communication through Raleigh Radio and difficulties encountered by the Highway Patrol representative in the Harnett County Emergency Operations Center (EOC). Ethridge Affidavit, ¶ 2. Captain Ethridge explains that Raleigh Radio, which is the Highway Patrol base

station, handles traffic from other state and federal agencies which deal in law enforcement matters. The total traffic is handled by two telecommunicators. Ethridge Affidavit, ¶ 3.

Two frequencies in addition to the normal four frequencies used by Raleigh Radio were added to handle the exercise traffic. However, some minor delays in exercise messages were experienced because the telecommunicators gave priority to actual situations and emergency messages rather than exercise messages. They were also handling messages from some 450-500 vehicles, approximately 100 more than the normal contingent, which also contributed to minor delays. Ethridge Affidavit, ¶¶ 4-5. Had there been a real radiological emergency, there would have been no difficulty in adding more radio channels and telecommunicators to handle increased radio traffic. Ethridge Affidavit, ¶ 5.

The difficulties encountered at the temporary Harnett County EOC resulted from inadequate telephone capacity. This required the Highway Patrol representative to use radio to receive and transmit information. Ethridge Affidavit, ¶ 6. Harnett County is currently developing a permanent EOC which will have improved telephone capability, and it is expected that the facility and its equipment will resolve any problems which were experienced during the exercise. Ethridge Affidavit, ¶ 7.

Captain Ethridge found no other problems during the exercise which would interfere with the ability of the Highway Patrol to function properly during an emergency. Ethridge Affidavit, ¶ 8. Given this assurance, and in view of the upgrading of the communications capability discussed above, the Board finds there is reasonable assurance that the Highway Patrol will be able to carry out its duties in an emergency.

Subpart 3

Harnett County had "insufficient telephones."

As we noted in our discussion of Subpart 2, difficulties were experienced at the Harnett County EOC. The problem arose because of the temporary EOC which was set up for the exercise; only three telephone lines were available to emergency workers. It is agreed that these were insufficient. Joyner Affidavit, ¶ 11.

Harnett County, with the cooperation of DEM, is developing a permanent EOC. DEM is studying the telephone needs of the permanent EOC, and it is currently envisioned that eleven telephone lines will provide adequate service. CP&L is providing financial support for the additional lines, and the permanent EOC will be in operation prior to full-power operation of the Harris Plant. Joyner Affidavit, ¶ 12.

The Board finds that this action should correct the telephone problem in Harnett County.

Subpart 4

"[E]xtra radio traffic overloaded personnel on duty" in Chatham County.

This problem arose at the start of the exercise. Only one radio dispatcher (the normal staffing level) was on duty at the time. When the radio dispatcher on duty was notified that the exercise had started, he correctly followed a call-in procedure to obtain help. The call-in personnel arrived within about 10 minutes. The staffing level was then two radio dispatchers and two other dispatchers to handle telephone communications. This level of staff adequately handled all the traffic which took place over the 2-day exercise. The traffic overload was thus for only approximately 10 minutes. Scott Affidavit, ¶ 4.

As a result of the exercise, Chatham County has augmented its dispatching staff. At those times when traffic is normally the heaviest, there will now be two full-time radio dispatchers on duty. This should preclude the necessity of the immediate call-in of additional personnel, although the County will still maintain a call-in list in case such personnel are needed. The County has also installed a repeater station to handle fire dispatching, thus removing some emergency traffic from the load carried at the dispatch center. Scott Affidavit, ¶ 6.

The Board concludes that the measures taken by Chatham County will assure the timely handling of radio traffic in their part of the EPZ.

Subpart 5

"Excessive Delays" in Emergency Medical services office receiving messages from SERT (State Emergency Response Team).

The evaluation which is the basis for this subpart of the contention resulted from a single, albeit very important, message. The OEMS representatives at the State EOC were not informed of a briefing to be held in which the announcement of a radiological release from the Harris Plant was to be simulated. Under real conditions this would be very important information for OEMS. Joyner Affidavit, ¶ 8.

The central room at the State EOC is surrounded by a ring of offices occupied by the State agencies making up the SERT. Communications between the EOC and the State agencies is by means of a public address system for general announcements and EOC personnel who act as "message runners" for special or important messages. Somehow, this

system failed to alert the OEMS representatives to the briefing which was to be held. Joyner Affidavit, ¶ 9.

To avoid the recurrence of this situation, DEM is instituting new procedures for message runners which will require a direct acknowledgment in writing (signatures or initials) from the recipients. The acknowledgment will then be reviewed by the message control office. Joyner Affidavit, ¶ 10.

Although superficially the message-runner method of communication might seem somewhat anachronistic in today's high-technology world, the Board finds that in this particular situation, and with the verification of receipt which is being implemented, the requisite assurance that there is adequate communication between SERT members will be achieved.

Subpart 6

Communications from the mobile radiation lab had to be relayed to base station at times, which "always introduces the possibility of delayed and/or incorrect information" according to the State Radiation Protection Section Evaluator.

The Radiation Protection Section employs field teams which collect radiation data and transmit it by radio to the mobile radiological laboratory for processing. Brown Affidavit, ¶ 2. These field teams are located throughout the EPZ. Since communication by radio depends upon a number of factors, such as power level, topography, atmospheric conditions, etc., there were some field teams who were not able to transmit directly to the mobile laboratory. The use of a relay procedure was then necessary to send the data to the laboratory. Brown Affidavit, ¶¶ 3-4.

While there is some delay inherent in the relay procedure, it is short and is not considered to be significant. Where direct communication between the field team and the mobile laboratory cannot be maintained, it clearly saves time. Brown Affidavit, ¶ 6. There is no significant chance of error in the procedure, as the message from the field to the relay station is received, and then read back to the field team to check for accuracy. This procedure is repeated in the message from the relay station to the mobile laboratory. Brown Affidavit, ¶ 5.

The Board finds that no significant delay or probability of error is introduced when the use of the message relay procedure is necessary. The Board finds that the issues discussed reveal no fundamental flaw in the emergency plan, but are minor and readily correctable problems not unexpected in a first-time test exercise.

B. Eddleman Contention EPX-8

As admitted by the Board, the contention reads:

> Emergency Broadcast System use was incomplete and ineffectively managed (FEMA, 2.3.1. (2), page 13; see p. 12 discussion). Inadequacies include procedures for activation and use of the EBS (before the State assumes control); inadequate coverage of the emergency area and emergency response area, incomplete messages and instructions to the public. (Ref: FEMA report received 8/30/85 Board Notification 85-078.) Numerous problems with EBS activation mentioned on pp. 17-18 of the same report also need to be identified and rectified. All these problems must be resolved to ensure timely and effective notice to the public about nuclear/radiation emergencies so that the public can be protected in such emergencies.

Applicants' Motion for Summary Disposition was supported by affidavits of Russell Capps, the Director of the Wake County Emergency Management Agency, and of Alvin H. Joyner, the Lead Planner for Fixed Nuclear Facilities for the State of North Carolina.

Under the general heading of unsatisfactory management of the EBS, Mr. Eddleman named two specific shortcomings. We discuss these *seriatim*. A third concern designated "numerous problems identified on pp. 17-18 . . ." of the FEMA Report was reviewed by the Board, and was found to identify no significant problems not considered in the specific items.

Subpart 1

> Inadequacies include procedures for activation and use of the EBS (before the State assumes control),

The exercise begins with notification of Wake County authorities that a radiological accident has occurred. If plant conditions warrant, Wake County is then to prepare an appropriate EBS message and to coordinate system activation with Chatham, Lee, and Harnett counties, as well as the State. Capps Affidavit, ¶ 4. However, there was some confusion as to who had the responsibility for the preparation of the message. As a result, no message was prepared and there were no follow-up messages throughout the exercise. It should be noted, however, that a previously prepared message was broadcast advising the public as to what was occurring (the exercise) and to assure them that there was no cause for alarm. Capps Affidavit, ¶ 5.

The coordinating conference call was set up early in the exercise. As soon as coordination of the timing of sirens, etc., was accomplished, the lead EBS station and the Wake County Sheriff's Department Dispatcher

were to be added to the call. Mr. Capps mistakenly thought that the conference call had to be terminated and reestablished to add these two parties. In trying to reestablish the conference call, problems with wrong numbers and busy signals delayed the process an estimated 3 or 4 minutes. Capps Affidavit, ¶ 6.

In order to prevent these problems from occurring in the future, Wake County, in coordination with DEM, is conducting a thorough review and revision of its EBS procedures. Special attention will be given to responsibility for message preparation, the use of new equipment which will provide enhanced conferencing ability, and ensuring that information in the procedures (e.g., telephone numbers) is accurate. Additionally, further training which includes going through the entire exercise using actual equipment and personnel will be conducted. Capps Affidavit, ¶¶ 8-11.

It is evident, given Mr. Capps' description of the events occurring at the outset of the exercise, that steps need to be taken to improve Wake County's performance. We find Mr. Capps' recognition of this fact to be reassuring, and further find that the steps he has proposed will be adequate to bring the County's performance up to an acceptable level.

Subpart 2

> inadequate coverage of the emergency area and emergency response area, incomplete messages and instructions to the public;

The particular evaluation report (from the FEMA Exercise Report at 12) which forms the basis for this part of the contention is as follows:

> Even after the SERT [State Emergency Response Team] assumed control, the initial instructions to evacuate certain zones and take shelter in others were incomplete; subsequent use of the system to provide adequate coverage of the area was never realized. Instructions to the public were prepared for only two of the three siren activations, and one of these messages was incomplete.

The exercise scenario required the State to take over direction of the exercise after the plan was initiated by Wake and the other counties. The State did so, and believes that, generally, implementation of the EBS plan went smoothly. However, a need for some changes in the EBS procedures was perceived by the State to impr the use of pre-scripted messages and to assure tha he messages would be released on a continuing basis. Joyner Affidavit, ¶¶ 3-4.

Specifically, the State did not simulate followup messages to the EBS. This is illustrated by the omission of the location of pickup points for evacuees without access to transportation. While it was indicated that

the information would be supplied in a later message, no such message was prepared. Joyner Affidavit, ¶¶ 6-7.

To prevent the occurrence of such omissions in the future, procedures will be changed such that the appropriate Public Information Officer will have the responsibility for the preparation and broadcasting of such messages, and will also be responsible for the continuing release of such information until the protective action is completed. Appropriate State personnel will also receive further training on the procedures, including instruction on the preparation of EBS messages. The State is also expanding its program of tabletop exercises to include practice in EBS activation. DEM is taking steps to replace the telephone conferencing system used for the exercise with new equipment to allow Wake County access to the State-reserved 733 exchange. All of these commitments will be completed prior to full-power operation of the Harris Plant. Joyner Affidavit, ¶¶ 6-10.

The steps being implemented by the State to strengthen its operation with regard to the EBS are satisfactory to the Board. We find that it can work adequately, and that there is reasonable assurance that it will. As we determined in our discussion of EPX-2, we find no fundamental flaw in the State operation of the EBS that cannot be cured by the steps to be taken by the State.

C. Mr. Eddleman's Responses to Summary Disposition Motions

Mr. Eddleman replied to Applicants' motions for summary disposition with Wells Eddleman's Response to Summary Disposition on EPX-2 (Emergency Communication) and 8 (Emergency Broadcast System), dated February 18, 1986, and a Supplement dated March 12, 1986. In it, he raises no concerns with the means which Applicants, the State, and the counties will use to correct difficulties encountered during the exercise. Instead, his objections center on two legal points. First, he contends that the Board cannot accept a commitment by the Applicants that the proposed actions will be carried out in a timely fashion. Second, he maintains that until FEMA has made a formal review and findings on the corrections the Board cannot rule on the contention.

In support of his thesis that the Board cannot accept commitments, Mr. Eddleman cites what he describes as well-established case law, ALAB-788.[49] The Board has reviewed the decision, and finds only one item therein which might be in any way pertinent to this subject. In

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[49] The full citation from Mr. Eddleman is given as LILCO, ALAB-788, 20 NRC 1531. If Mr. Eddleman means to cite ALAB-788, as the Board assumes, the correct citation is 20 NRC 1102 (1984).

ALAB-788, the Appeal Board noted that LILCO (Long Island Lighting Co.), had, over a long period of time, made several commitments to improve the housekeeping in safety-related areas but had neglected to do so. The Appeal Board remanded this item to the Licensing Board to obtain and approve a certification from the Staff that the housekeeping matter had been resolved. The Licensing Board did so. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-84-53, 20 NRC 1531, 1534 (1984).

The Board finds no parallel situation here. Before the exercise, Applicants had made only the general commitment to prepare an emergency plan for review and approval by Staff/FEMA. The exercise demonstrated that, in general, the plan was adequate but that some specific changes were warranted. The Applicants have committed to implement these changes before operation at full power. In this case the Board has no reason to doubt that the Applicants and the other parties concerned will honor their commitments, which was not the case in ALAB-788. We therefore reject Mr. Eddleman's opposing argument.

In considering Mr. Eddleman's second objection about the adequacy of the FEMA review of the Applicants' corrective actions, we note the affidavit of Thomas I. Hawkins in support of NRC Staff/FEMA's Response to Applicants' Motions for Disposition of Eddleman Contentions EPX-2 and EPX-8 [sic] which, in concluding parts, states:

> The establishment of the Harnett County EOC in the County Office Building, with the concomitant improvement of the communications system proposed, will correct the communications deficiency identified in the FEMA Plant Harris exercise report. p. 3.
>
> The Meyers to Woodard letter, dated November 26, 1985, and the "Affidavit of Alvin H. Joyner on Eddleman EPX-8" clearly indicate that all identified problems associated with EBS will be resolved prior to full power licensing of Plant Harris. FEMA staff considers the corrective actions outlined in the two above-referenced documents to be fully adequate. p. 4.

If, in calling for "formal review and finding" by FEMA, Mr. Eddleman seeks something more than was done here, we reject that request. FEMA having already determined that there were no fundamental flaws arising out of the exercise, we question whether any further FEMA review was required. In any event, the review reflected in the Hawkins affidavit was plainly sufficient.

Mr. Eddleman's responses paraphrase portions of telephone conversations he had with several FEMA employees and consultants, pursuant to certain "informal" discovery granted by the Board pursuant to *Shoreham*. *See* Tr. 10,850-57. These paraphrased conversations do not affect

our conclusions. They do not indicate the existence of fundamental flaws in planning, nor do they appear to conflict with Mr. Hawkin's affidavit, which is the formal expression of FEMA's views.

D. Conclusion

In conclusion, the Board finds that no issue of material fact exists and that the Applicants are entitled to summary disposition of Eddleman Contentions EPX-2 and EPX-8 as a matter of law.

IV. EDDLEMAN MOTION FOR RECONSIDERATION OF REJECTION OF EPX-5

Included in Mr. Eddleman's Response to Summary Disposition on Contentions EPX-2 (Emergency Communications) and EPX-8 (Emergency Broadcast System) was a paragraph which was called "motion for reconsideration of rejection of EPX-5." In its entirety, it reads:

> For the Board's information, FEMA – C. Stovall, 2-11-86 – confirmed a delay in siren sounding from receipt of site emergency declaration at 1450 hours (5-17-85) until 1537 hours, a delay of 47 minutes. This is newly received information on which I respectfully request the Board reconsider its denial of admission of contention EPX-5.

The Board's comments on the rejection of Eddleman EPX-5 (Partial Initial Decision on Emergency Planning and Safety Contentions, LBP-85-49, *supra*, 22 NRC at 913, are as follows:

> *Contention 5.* This contention lists a number of problems with the sirens. Installation of the sirens has not been completed and, as noted in the FEMA findings, at 8, "the official FEMA testing of the alert and notification system has not yet been conducted." Accordingly, any contentions based on installed siren performance are premature. We note, however, that the problems cited in this contention, should they arise in further testing, appear to be straightforward and correctable.

Assuming the accuracy of Mr. Stovall's statement, the Board does not find it a matter of sufficient significance to change the Board's previous ruling on EPX-5. Additionally, the Board notes that the information presented by Mr. Eddleman appears on page 3 of the FEMA Exercise Report as of June 28, 1985. Therefore, his asserted ground for this motion – that it presents new information – is unsound. The motion is therefore denied.

Conclusions of Law and Order

This is a contested proceeding on an application for an operating license for a utilization facility. In issuing this Decision, the Board has now made findings of fact and conclusions of law on all matters put into controversy by the parties to the proceeding.[50] The Board has not determined that a serious safety, environmental, or common defense and security matter exists. *See* 10 C.F.R. § 2.760a. Other findings required to be made prior to the issuance of an operating license are to be made by the Director of Nuclear Reactor Regulation. *See id.* and 10 C.F.R. § 50.57.

In reaching this Decision, the Board has considered all the evidence submitted by the parties and the entire record of this proceeding. All issues and proposed findings presented by the parties, and not addressed in the Board's decision, are deemed to be without merit or unnecessary to the decision. The Board's findings of fact are supported by probative and substantial evidence in the record. As reflected in the foregoing decision and in the other partial initial decisions issued by this Board, the Board has resolved all contested matters in favor of the Staff and the Applicants and against the Intervenors. The Board concludes, as to the contentions addressed herein, that there is reasonable assurance that, if an operating license is subsequently granted for the Harris facility, the activities authorized hereby can be conducted without endangering the health or safety of the public and that such activities will be conducted in compliance with applicable NRC regulations.

IT IS HEREBY ORDERED, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's rules, that the Director of Nuclear Reactor Regulation is authorized, upon making the findings on

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[50] There is one unresolved matter in this case. In our Memorandum and Order of January 14, 1985, at 1-6, we narrowed and admitted a harassment contention which has since been disposed of. At the same time, however, we directed the Applicants to post a notice on the site inviting present or former employees having personal knowledge of incidents of harassment to contact the Board, on a confidential basis, if desired. We said that we would consider admission of a broader harassment contention if warranted by responses to the notice. Subsequently, two former employees did respond by writing to the Board, one on a confidential basis. We then referred both letters to the Office of Investigation (OI) requesting an investigation. Unpublished Memorandum and Order of March 13, 1985, at 11. As this Decision issues, we have not received OI's final report, which we are advised has been delayed most recently by the confidential informant's reluctance to allow anyone but OI personnel to see it. In any event, OI advises us that their report should be available in the near future, edited to conceal the informant's identity. When that happens, we will circulate the report for comment by the parties on whether a new harassment contention should be admitted, subject to the "five factors." We are advised informally by OI that the matters described by the two former employees do not appear to raise safety concerns. We are retaining jurisdiction for the limited purpose of addressing this matter. All other issues are ripe for appeal. The pendency of this matter does not bar our authorization of operating licenses because there is no contested issue before the Board, only the possibility of one.

all applicable matters specified in 10 C.F.R. § 50.57(a), to issue to Applicants Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency a license to authorize low-power testing (up to 5% of rated power) and, upon completion of such testing, a license to authorize full-power operation of the Shearon Harris Nuclear Power Plant.

In accordance with 10 C.F.R. §§ 2.760(a) and 2.762, this Final Licensing Board Decision shall constitute the final action of the Commission forty-five (45) days after the date of its issuance, unless (1) an appeal is taken in accordance with § 2.762 or (2) a stay is obtained in accordance with § 2.788, or (3) the Commission directs that the record be certified to it for final decision. Any Notice of Appeal from the decision must be filed within ten (10) days after service of the decision. A brief in support of the appeal must be filed within thirty (30) days (forty (40) days in the case of the NRC Staff) after filing the Notice of Appeal. Any party which is not an appellant may file a brief in support of or in opposition to the appeal within thirty (30) days (forty (40) days in the case of the NRC Staff) after the period has expired for the filing and service of the briefs of all appellants.

In addition to the appeal and stay remedies just noted, the parties should be aware that the Commission will be conducting an "immediate effectiveness" review of this and our earlier decisions pursuant to 10 C.F.R. § 2.764(f). As to timing, that provision states in part that:

> The Commission intends to issue a stay decision within 30 days of receipt of the Licensing Board's decision. The Licensing Board's initial decision will be considered stayed pending the Commission's decision insofar as it may authorize operations other than fuel loading and low power (up to 5 percent of rated power) testing.

10 C.F.R. § 2.764(f)(2)(iii). Thus, the rule provides a temporary automatic stay as to our authorization of full-power operations. However, you should also be aware of a related provision which states that:

> For operating license decisions other than those authorizing only fuel loading and low power testing consistent with the target schedule set forth below, the parties may file brief comments with the Commission pointing out matters which, in their view, pertain to the immediate effectiveness issue. To be considered, such comments must be received within 10 days of the Board decision. However, the Commission may dispense with comments by so advising the parties. No extensive stay shall be issued without giving the affected parties an opportunity to be heard.

§ 2.764(f)(2)(ii). In view of the facts that (1) fuel loading for Shearon Harris has not begun, (2) operations above low power may be several months away, and (3) our decisions in the aggregate are lengthy and

complex, parties seeking to file comments under the quoted provision might seek an extension of time from the General Counsel.

THE ATOMIC SAFETY AND
LICENSING BOARD*

James L. Kelley, Chairman
ADMINISTRATIVE JUDGE

Dr. James H. Carpenter
ADMINISTRATIVE JUDGE

Glenn O. Bright
ADMINISTRATIVE JUDGE

Bethesda, Maryland

*The Board expresses its appreciation to its Law Clerk, Donna Duer, for her able assistance in the preparation of this opinion.

APPENDIX A

Attachment 6

FRACTIONS OF HOMES WITH VARIOUS OUTDOOR-TO-INDOOR SOUND ATTENUATIONS AND INDOOR BACKGROUND NOISE LEVELS

Subgroup	Description	Fractions	Attenuation Outdoors-to-Indoors,[6] dB	Background Noise at Bed
1.	Homes with no air conditioning; windows open and fan operating	0.356[1]	12	40[7]
	Homes with window air conditioning (A/C) and all windows closed (total 0.302)[1]			
	A/C in bedroom (0.16)[2]			
2.	Bedroom storms open or absent, 1.0 x 0.16[3]	0.16	26	49[8]
	Bedroom storms closed, 0[3]		—	—
	A/C in adjacent room (0.142)[2]			
3.	Bedroom storms open or absent, 0.142 x 0.25[4]	0.036	26	39[9]
4.	Bedroom storms closed, 0.142 x 0.75[4]	0.106	30	39[9]
	Homes with central air conditioning and all windows closed (total 0.342)[1]			

Subgroup	Description	Fractions	Attenuation Outdoors-to-Indoors,[6] dB	Background Noise at Bed
	A/C cycled on (0.106)[5]			
5.	**Bedroom storms open or absent, 0.106 x 0.25[4]**	0.026	26	28[7]
6.	Bedroom storms closed, 0.106 x 0.75[4]	0.08	30	28[7]
	A/C cycled off (0.236)[5]			
7.	Bedroom storms opened, 0.236 x 0.25[4]	0.059	26	13[7]
8.	Bedroom storms closed, 0.236 x 0.75[4]	0.177	30	13[7]

[1] U.S. Census of Population and Housing, 1980: Summary Tape File 3, North Carolina, for Enumeration Districts and Census Tracts within Shearon Harris EPZ, Table 120.

[2] *Ibid.*, Envirosphere telephone communications with air conditioner manufacturers and regional distributors, August 1985.

[3] Installation of the A/C in the window precludes the closure of the storm windows, if any.

[4] Observations at the houses in which measurements were made in the Harris EPZ (*see* note 6), plus available information (Envirosphere telephone communications with storm window retailers and energy conservation consultants in the Raleigh, N.C. area, August 1985), indicate that, on average, about 25% of the houses with storm windows have a bedroom storm window open all summer.

[5] CP&L analyses of air-conditioner operation as a function of time of day (June 1985).

[6] Measurements obtained by HMM in 13 homes within the Harris EPZ, plus published data in:

a. Anon., "Noise Environment in Urban and Suburban Areas," Report FT/TS-26, Federal Housing Administration, Department of Housing and Urban Development, March 1968.

b. Anon., "House Noise Reduction Measurements for use in Studies of Aircraft Flyover Noise," SAE Aerospace Information Report AIR 1081, Society of Automotive Engineers, 2 Pennsylvania Plaza, New York, NY 10001, October 1971.

c. D. A., Driscoll, J. P. Dulin, Jr., and D. N. Keast, "Attenuation of Northern Dwellings to a Linear Source of Noise," an oral paper presented at the 95th Congress of The Acoustical Society of of America, Providence, R.I., May 1978.

[7] Measurements made by HMM at houses in the Harris EPZ.

[8] Measurements made by HMM at houses in the Boston area.

[9] Measurements (note 8) less 10 decibels for typical loss from one room to an adjacent room in residential buildings.

Attachment C

COUNTS OF HOUSES WITHIN THE SHEARON HARRIS EPZ
(from large maps)

Sound Level Zones	Nominal Siren Sound Level Outdoors, dB	Houses in EPZ	Houses Within 5 mi.	Houses Outside 5 mi.
>105 dB	112	206	23	183
100-105	102	178	24	154
95-100	97	337	27	310
90-95	92	800	58	742
2 x 85-90	90	8	0	8
80-85 + 85-90; 2 x 75-80 + 85-90	88	199	2	197
85-90	87	1256	79	1177
2 x 80-85	85	120	3	117
2 x 75-80 + 80-85	84	10	0	10
75-80 + 80-85; 3 x 70-75 + 80-85	83	221	40	181
80-85; 3 x 75-80	82	1826	154	1672
2 x 70-75 + 2 x 75-80	81	5	0	5
2 x 75-80; 3 x 70-75 + 75-80	80	376	21	355
2 x 70-75 + 75-80	79	79	24	55
70-75 + 75-80	78	454	93	361
75-80; 3 x 70-75	77	411	32	379
2 x 70-75	75	146	8	138
70-75	72	233	1	232
<70	67	62	0	62
TOTALS		6927	589	6338

Cite as 23 NRC 414 (1986) LBP-86-12

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman
Richard F. Cole
A. Dixon Callihan

In the Matter of **Docket Nos. 50-456-OL**
50-457-OL
(ASLBP No. 79-410-03-OL)

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station, Units 1 and 2)

April 21, 1986

In an operating license proceeding, the Licensing Board rules on Applicant's motion for partial summary disposition by dismissing some of the Intervenors' subcontentions and by adopting a number of material facts on the subcontentions not dismissed.

RULES OF PRACTICE: SUMMARY DISPOSITION

The Commission's rules governing summary disposition are analogous to Rule 56 of the Federal Rules of Civil Procedure. *Alabama Power Co.* (Joseph M. Farley Nuclear Power Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974).

RULES OF PRACTICE: SUMMARY DISPOSITION

In operating license proceedings, the burden of proof with respect to summary disposition is upon the applicant-movant, who must demon-

strate the absence of any genuine issue of material fact. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753 (1977).

RULES OF PRACTICE: SUMMARY DISPOSITION

In determining whether a motion for summary disposition should be granted, the record must be viewed in the light most favorable to the opponent of such a motion. *Dairyland Power Cooperative* (LaCrosse Boiling Water Reactor), LBP-82-58, 16 NRC 512, 519 (1982).

RULES OF PRACTICE: SUMMARY DISPOSITION

Where the proponent of a motion for summary disposition has met his burden, his opponent must set forth specific facts to demonstrate that there exists a genuine issue of material fact for trial. Mere allegations and denials are not sufficient to overcome an otherwise persuasive summary disposition request. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-584, 11 NRC 451, 453 (1980); *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-562, 10 NRC 437, 444 (1979).

RULES OF PRACTICE: SUMMARY DISPOSITION

On motion for summary disposition, the opposing party need not show that he would prevail on the issues but only that there are genuine issues to be tried. *Pacific Gas and Electric Co.* (Stanislaus Nuclear Project, Unit 1), LBP-77-45, 6 NRC 159, 163 (1977), *citing Poller v. CBS, Inc.*, 368 U.S. 464, 473 (1962); *American Manufacturers Mutual Ins. Co. v. American Broadcasting-Paramount Theatres, Inc.*, 388 F.2d 272, 280 (2d Cir. 1967).

RULES OF PRACTICE: SUMMARY DISPOSITION

In deciding a motion for summary disposition, the presiding officer has some leeway, under 10 C.F.R. § 2.749, in accepting affidavits based in part on reliable hearsay.

EVIDENCE: HEARSAY

In administrative proceedings, the presiding officer has some leeway in accepting hearsay testimony, if reliable, to shortcut what might otherwise be a laborious procedure in establishing the facts.

RULES OF PRACTICE: SUMMARY DISPOSITION

On summary disposition, 10 C.F.R. § 2.749(b)'s requirement that an affiant be "competent to testify to the matters," relates both to competence as an expert witness and competence as a fact witness.

RULES OF PRACTICE: WITNESSES

In general, a fact witness is competent only if he has personal knowledge of the facts.

EVIDENCE: HEARSAY

Although an administrative board can accept some hearsay to expedite and facilitate the adjudicatory process, it should not exclude fair opportunity for rebuttal of the evidence.

RULES OF PRACTICE: EVIDENCE

Where material facts appear legitimately in dispute and a witness with personal knowledge, or a document relied upon, is readily available, the witness and document should be presented.

EVIDENCE: EXPERT TESTIMONY

The leeway given an expert witness to base his testimony upon hearsay, if of the type reasonably relied upon by experts in that field, does not permit the expert to establish material facts of which he lacks personal knowledge.

RULES OF PRACTICE: EXPERT WITNESS

A witness, if he is competent as an expert, may base his opinions on hearsay if of the type reasonably relied upon by experts in that field, but he cannot establish material facts about which he lacks competence as a fact witness.

MEMORANDUM AND ORDER
(Ruling on Summary Disposition)

Memorandum

On December 20, 1985, Applicant filed a motion for summary disposition of portions of the amended quality assurance contention of Intervenors Bridget Little Rorem *et al.* Specifically, Applicant seeks summary disposition of the following portions of Intervenors' amended quality assurance contention:

		9.C	12.F	14.B.2
3.C	6.F	9.D	12.J	14.B.3
5.A	6.G	10.F	13.B	14.B.4
5.B	6.I	12.E	14.B.1	
5.C	9.A(partial)			

On February 18, 1986, within the time set by the Board for responding to the motion, Intervenors filed their opposition to the motion and Staff filed its response, which supported Applicant's motion with regard to each of the subparts. On March 5, 1986, within the time limit prescribed by 10 C.F.R. § 2.749(a), Intervenors filed their response to the NRC Staff filing in support of Applicant's motion.

In the basic filings, the parties appeared in substantial agreement on the standards for summary disposition, and we will not dwell on this subject at any great length. The Commission's rules governing summary disposition are analogous to Rule 56 of the Federal Rules of Civil Procedure. *Alabama Power Co.* (Joseph M. Farley Nuclear Power Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974). In operating license proceedings, the burden of proof with respect to summary disposition is upon the applicant-movant, who must demonstrate the absence of any genuine issue of material fact. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753 (1977). And, in determining whether a motion for summary disposition should be granted, the record must be viewed in the light most favorable to the opponent of such a motion. *Dairyland Power Cooperative* (La Crosse Boiling Water Reactor), LBP-82-58, 16 NRC 512, 519 (1982).

On the other hand, where the proponent has met his burden, his opponent must set forth specific facts to demonstrate that there exists a genuine issue of material fact for trial. Mere allegations and denials are not sufficient to overcome an otherwise persuasive summary disposition request. *Virginia Electric and Power Co.* (North Anna Power Station,

Units 1 and 2), ALAB-584, 11 NRC 451, 453 (1980); *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-562, 10 NRC 437, 444 (1979). The opposing party need not show that he would prevail on the issues but only that there are genuine issues to be tried. *Pacific Gas and Electric Co.* (Stanislaus Nuclear Project, Unit 1), LBP-77-45, 6 NRC 159, 163 (1977), *citing Poller v. CBS, Inc.*, 368 U.S. 464, 473 (1962); *American Manufacturers Mutual Ins. Co. v. American Broadcasting-Paramount Theatres, Inc.*, 388 F.2d 272, 280 (2d Cir. 1967).

In their response to Applicant (at 2-3), Intervenors allege that Applicant seeks to have the Board summarily dispose of each contention subitem to erase each such historical flaw from the Braidwood QA records "with no subsequent opportunity for Intervenors to use [each of these flaws] to demonstrate patterns of inadequacies."

Furthermore, in this response to Applicant and in its later response to Staff, Intervenors oppose many of the material facts alleged by Applicant and supported by Staff as being founded upon affidavits of witnesses who do not speak from personal knowledge, and who rely on hearsay and express opinions. As stated by Intervenors (Answer to Applicant at 6):

> Accordingly, because the affidavits offered by Edison are not based on affiant's personal knowledge of specific facts, but are conclusory in nature, and because competency to testify is not affirmatively demonstrated from the face of the affidavits, those affidavits should be found unreliable and disregarded as supporting a "material fact."

Applicant filed a motion for leave to file a response to Intervenor's answer opposing summary disposition, and Intervenors filed an answer thereto, both of which were accepted by the Board as motion papers in the pending motion for summary disposition. In its motion for leave to file (at 3-4), Applicant makes it clear that, except with respect to Subcontention items 5.A, 5.B, and 5.C, which challenge design quality assurance, Applicant still would bear the burden of proof at the evidentiary hearing to demonstrate that each of the subcontention items does not represent a pattern of quality assurance deficiencies, even if summary disposition were to be granted. The exception for Subcontention items 5.A, 5.B, and 5.C is based upon NRC case law distinguishing between design quality assurance and construction quality assurance. We accept Applicant's representation without further discussion.

With regard to the nature of the evidence presented by Applicant in support of its motion for summary disposition, further discussion is necessary. We agree in general with Applicant (Motion for Leave to File

Response at 5) that 10 C.F.R. § 2.749(b), which does not expressly require affidavits "made on personal knowledge," differs from Rule 56(a) of the Federal Rules of Civil Procedure, containing that provision, in order to reflect the difference between administrative practice and court practice. In administrative proceedings, the presiding officer does have more leeway than a judicial officer in accepting hearsay testimony, if reliable, to shortcut what might otherwise be a laborious procedure in establishing the facts. *But see also* Rule 803 of the Federal Rules of Evidence, item (24), which permits the admission of otherwise excludable hearsay in court proceedings if it is trustworthy and offered under certain conditions.

We do not agree, however, with Applicant's further elaboration on 10 C.F.R. § 2.749(b)'s requirement that an affiant supporting summary disposition be "competent to testify to the matters," as relating only to expert competence. With regard to statements of contested material fact, the witness must be competent as a fact witness, and we understand that, in general, to require personal knowledge. As an administrative board, we can dispense with the personal knowledge requirement with less constraints than a judicial court, to expedite and facilitate the adjudicatory process, but not to the exclusion of a fair opportunity for the opponent of the proffered evidence to rebut it. Where material facts appear legitimately in dispute and a witness with personal knowledge is readily available, that witness should be offered. Similarly, when a document is relied upon that is readily available, that too should be presented.

Nor do we agree with Applicant's further implication (Motion for Leave to File Response at 5-7) that the leeway given an expert witness (in both court litigation and administrative proceedings) to base his testimony upon hearsay, if of the type reasonably relied upon by experts in the field, permits him to establish the material facts in dispute although he is lacking in personal knowledge. His *opinions* may be arrived at upon information that may not be admissible in evidence, and they will be accepted as expert opinions if reasonably qualified, but those expert opinions cannot substitute for, or establish, the material facts about which the expert witness may lack competence as a fact witness, i.e., have personal knowledge.

Turning now to the material submitted to us, we observe that Applicant has chosen to rely to a great extent on affidavits of persons without direct knowledge of basic material facts. To the extent that some of these facts are not actually in dispute, we would not require that either an affiant in summary disposition, or a witness at hearing, have personal knowledge of the facts asserted. We would rely upon our authority as an

administrative tribunal and under the Commission's rules to consider hearsay as competent evidence, taking into account Intervenors' failure to contradict directly the assertions in judging their reliability. Those facts that Intervenors genuinely dispute, however, should be supported by persons with firsthand knowledge, if possible.

Intervenors, on the other hand, have not made our task easy, having declined to specify which of the material facts asserted by Applicant they dispute. However, they have technically complied with § 2.749(a) by submitting short and concise statements of material facts in which they contend that there exist genuine issues to be heard, albeit unreferenced to the numbered statements put forth by Applicant. While they have specified in detail the portions of Applicant's affidavits they contend are incompetent, they leave it up to the Board to reference those portions back to Applicant's statements of material facts containing those record citations and decide whether, in light of Intervenors' statement of disputed facts, those particular material facts asserted by Applicant are genuinely in dispute.

Furthermore, to a large extent, Intervenors rest their opposition on general denials of Applicant's and Staff's assertions. At this point in time, after extensive discovery, Intervenors should be in a position either to accept or specifically contradict many of these assertions with affirmative evidence on their part. If they cannot do so now, they stand little hope of doing so at a full-fledged evidentiary hearing, and we should not have to waste the resources of the parties and Board in offering one. Were the hearing (already set to begin during the week of May 5, 1986) not impending, we would have Intervenors file a further document pinpointing each of Applicant's stated material facts which they genuinely dispute and setting forth the basis for their belief that the facts are not as stated. Under the circumstances, we have done the best we can in determining which material facts are genuinely in dispute because they are realistically opposed by Intervenors and have not been reasonably established through reliable evidence.

We have *granted* summary disposition on Subcontentions 5.A, 5.C, 6.G, 6.I, 9.D, 10.F, 12.E, 13.B, and 14.B.4. On some of these subcontentions, we have stated our grounds for granting the motion. On the others that we have granted, we will issue our full written decision at a later date. On the remaining issues, although we have denied summary disposition, we have determined which of the material facts stated by Applicant are not genuinely in dispute and need not be further established at the forthcoming evidentiary hearing.

ROREM SUBCONTENTION ITEM 3.C

3. Contrary to Criterion II, "Quality Assurance Program," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to established a quality assurance program which complies with the requirements of Appendix B and which is documented by written policies, procedures and instructions and is carried out in accordance with those instructions. Edison has failed to assure that its QA program provides controls over activities affecting quality and that such activities are accomplished under suitably controlled conditions and are appropriately verified for quality by inspection.

   C. The Applicant's electrical contractor (Comstock) utilized Level I Quality Control Inspectors for inspection and acceptance of electrical welds. This involved 14 different Level I inspections over four years. (Inspection Report 85-06 Exh. 11.)

Board's Ruling on Summary Disposition (3.C)

The Board *denies* summary disposition and accepts certain material facts, as modified, as to which there is no genuine issue to be heard.

Certain of the contractors at the Braidwood site authorized the use of unqualified Level I Quality Control Inspectors in the performance of visual weld inspections as required of Level II Inspectors. In the place of a 100% reinspection program, Applicant has developed the "Level I Reverification Program" (LRP). The LRP is designed to demonstrate on a sampling basis that the welds in question contained no design-significant discrepancies. Applicant urges the Board to accept its claim that the LRP will assure that the quality of the weld inspections did not compromise the safe construction of the plant or significantly invalidate the effectiveness of the quality assurance program. From this position, Applicant argues that Staff should be designated to review the results of the LRP to ensure that the program's results prove what Applicant claims.

Intervenors oppose a grant of summary disposition on the grounds that it is inappropriate to delegate this authority to the NRC Staff. In addition, Intervenors have put in issue the adequacy of the design, organization, methodology, implementation, and the results of the LRP. In doing so, Intervenors refer specifically to discovery depositions that allegedly establish specific defects in the program.

Considering the prospective nature of the LRP and the necessity for us to pass judgment upon the methodology and design of this program, we would be remiss in passing this issue on to Staff. *See Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-770, 19 NRC 1163, 1175 (1984), and *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103

(1983), in which the Appeal Board ruled against delegating similar responsibilities to Staff. In our opinion, Intervenors must be given the opportunity to question Applicant's program at a full evidentiary hearing, and the Board be given opportunity to determine the merits of that program after the evidentiary record is complete.

Material Facts as to Which There Is No Genuine Issue to Be Heard (3.C)

1. As a result of inspection activities related to the Braidwood Construction Assessment Program (BCAP), the NRC Staff assessed an item of noncompliance with respect to L.K. Comstock's (LKC) use of Level I inspectors to perform visual weld inspections, as well as another item of noncompliance (later withdrawn) relating to the BCAP Task Force's apparent failure to document this LKC practice as a BCAP observation. (Affidavit of George Orlov on Rorem QA Subcontention 12.E (hereinafter, "Orlov Affidavit") at 3-12; Deposition of Ronald N. Gardner, dated October 31, 1985, at Tr. 55-72.)

2. Review of LKC and E.C. Ernst records establishes that a total of thirteen or fourteen Level I inspectors performed visual weld inspections over a period from March 1977 to April 1984. After April 1984, LKC only used Level II inspectors to perform visual weld inspections. (E.C. Ernst was the original electrical contractor at Braidwood. In the Spring of 1979, LKC took over the responsibilities for the electrical installation.) (Gieseker Affidavit on Rorem QA Subcontention 3.C (hereinafter, "Gieseker Affidavit") at 2-3.)

3. To address the concern regarding the LKC's and E.C. Ernst's use of Level I weld inspectors, CECo has developed the "Level I Reverification Program" (LRP). The LRP is designed to demonstrate on a sampling basis that the welds inspected by LKC and E.C. Ernst Level I inspectors contain no design-significant discrepancies. (Gieseker Affidavit at 4.)

4. The total population of inspection reports generated by LKC and E.C. Ernst Level I inspectors is approximately 9000. A random probability sample of 475 inspection reports will be selected and all the welds of interest covered by these selected inspection reports will be reinspected. According to Applicant, this sample size is sufficient to allow one to conclude with at least 99% reliability at a 99% confidence level that, if there are not design-significant weld discrepancies in the sample, there are none in the entire population. (Gieseker Affidavit at 5-6; Frankel Affidavit on Subcontention Item 3.C at 8-10.)

5. If necessary, a supplementary sample will be selected to ensure that a minimum of five inspection reports are selected for each of the thirteen inspectors. (Gieseker Affidavit at 6; Frankel Affidavit on Subcontention Item 3.C at 9.)

6. LRP reinspections will be performed by currently certified LKC Level II inspectors, with overview by a Level III inspector. No reinspector will reinspect welds which he or she initially inspected or approved. The identities of the original inspectors and the original inspection results will be withheld from the reinspectors. The reinspectors will use currently approved LKC visual weld inspection procedures, which incorporate acceptance criteria that have been reviewed and approved by the NRC Staff. (Gieseker Affidavit at 7-8.)

7. Engineering evaluation will be performed to determine the design significance of each identified weld discrepancies. These evaluations will be performed in the same way as for the Byron Quality Control Inspector Reinspection Program. (Kostal Affidavit on Rorem QA Subcontention 3.C.)

8. If any design-significant discrepancies are identified in the original sample, they will be repaired or otherwise appropriately resolved. According to Applicant, the sample will be expanded to a size sufficient to establish again with 99% reliability at a 99% confidence level that, if there are not design-significant weld discrepancies in the sample, there are none in the entire population. If the number of design-significant discrepancies found precludes obtaining an expanded sample size that is less than the entire population of Level I inspection reports, then the entire population will be reinspected. (Gieseker Affidavit at 8-9.)

ROREM SUBCONTENTION ITEM 5

5. Contrary to Criterion III, "Design Control," of 10 C.F.R. Part 50, Appendix B, Commonwealth Edison Company has failed to established measures to assure that applicable regulatory requirements and design bases are correctly translated into specifications, drawings, procedures, and instructions including provisions to assure that appropriate quality standards are specified in design documents and the deviations from such standards are controlled. Applicant has also failed to require that measures are established for the identification and control of design interfaces and for the coordination among participating design organizations, that the measures include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revisions of documents involving design interfaces and that the design control measures provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Subcontentions 5.A, 5.B, and 5.C individually allegedly assert, with greater particularity, specific instances of nonconformity.

Board's Ruling for Summary Disposition (5.A)

Subcontention 5.A states:

> 5.A. The NRC CAT inspection concluded that in the area of [sic]* the most significant finding was the failure to annotate unincorporated design changes on controlled design documents. The most significant finding in the area of design change control was design change documents written against superseded revisions of the approved design drawings. In at least one instance, this deficiency resulted in a pipe support being installed and inspected to other than the latest approved design. (CAT Inspection Report 84-44/40, Exh. 10.)

We *grant* summary disposition to Applicant on Subcontention 5.A. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

Board's Ruling on Summary Disposition (5.B)

> 5.B. Repairs to coating by Midway Industrials in the Unit 1 and 2 containments were performed utilizing a coating system not qualified for the Design Basis Accident in accordance with Section 5 of ANSI N101.2 (1972). (Inspection Report 85-15, Exh. 17.)

We *deny* summary disposition on this subcontention. On the facts given, there is some question in our minds as to how the discrepant inspection could have occurred if the proper procedures were in place, based upon a simple error in judgment by the Quality Control Inspector. Further testimony on this subject should be illuminating.

Furthermore, while we are not concerned with the exact amount of affected area since our focus is on overall quality assurance, we are not at all certain that the significance of the quality assurance failure in this matter has been fully delineated. Intervenors have raised some apparently legitimate questions regarding the scope of the problem and, consequently, whether the proper corrective action was taken. Further testimony would be desirable.

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*Both the Applicant and the NRC Staff remedied a deficiency in the statement of Subcontention 5.A with slightly different combinations of words. The Applicant addressed the "control of design documentation . . ."; the Staff addressed "design control . . . ."

Material Facts as to Which There Is No Genuine Issue to Be Heard (5.B)

1. Portions of the steel containment liners and related auxiliary items such as equipment hatches on the insides of the Braidwood Units 1 and 2 containments are coated with safety-grade coating systems. Midway Industrial Contractor, Inc. (MIC) was responsible for installing the coating system. The original coating installation took place in 1978. (Leigh Affidavit at 2.)

2. Two distinct but related coating systems are used in different areas of each containment. The most extensive area is covered with a single coating system consisting of a layer of inorganic carbolere-zinc primer (CZ-11) applied over bare metal. The less extensive coating consisted of a dual coating system utilizing a layer of CZ-11 primer over bare metal plus a layer of organic (epoxy-like) phenoline finish coat applied on top of the primer. (Kostal Affidavit at 3-4.)

3. The total amount of coated area in each containment, counting both single coating and dual coating systems, is about 100,000 square feet. The total amount of coated area covered by the dual coating system is about 26,000 square feet per containment. (Kostal at 5, 7.)

4. Under NRC regulatory requirements, coating systems must be designed to withstand the conditions of a design basis accident (DBA) without unduly degrading the performance of plant fluid systems. It is sufficient for this purpose if a coating system meets the requirements of ANSI Standard N101.2. (Kostal at 2-3.)

5. ANSI N101.2 requires that each coating system be qualified to the DBA. In practice, qualification is achieved by testing "coupons," i.e., sample metal substrates with the coating system applied as it will be in the field, to DBA ambient conditions. The coating system passes if the test coupon after exposure is compared to certain photographs of coating degradation in the applicable ASTM standard and shows degradation no more severe than that in a particular photograph. (Kostal at 2.)

6. Metal surface preparation is an important element of a coating system. Each coating method must be requalified for different metal preparation methods. The single coating system consisting of CZ-11 primer alone over bare metal was qualified over a metal surface prepared by sandblasting and over a metal surface prepared by power-tool grinding. The dual coating system consisting of a CZ-11 primer coat covered with a phenoline-305 top coat was qualified in accordance with ANSI N101.2 only over a sandblasted metal surface. (Leigh Affidavit at 2; Kostal Affidavit at 3-4.)

7. The applicable procedure for the application of coating systems was MIC Procedure QCP-3. This procedure fully carried into effect the

requirements of N101.2 by requiring that the dual coating system, CZ-11/Phenoline-305, be applied only over sandblasted metal surfaces. (Leigh Affidavit at 2.)

8. Containment liners were installed by first erecting 30′ x 10′ segments of liner plate into place, then welding them together. The 30′ x 10′ plates were sandblasted and coated with CZ-11 primer in the fabrication shop prior to erection, except that a narrow strip along each edge was left free of primer for welding. The plates were then welded together. (Leigh Affidavit at 2-3.)

9. After welding, the narrow, uncoated strips along each weld had to be coated with primer. However, by this time the weld strips had spots of weld spatter, small rust blooms, and occasional sharp edges. MIC personnel used a power tool to grind off these minor imperfections before applying the CZ-11 but did not re-sandblast the affected areas. (Leigh Affidavit at 2-3.)

10. Because the areas in question were to have a finish coat of Phenoline-305, the grinding of the affected areas without re-sandblasting created a situation in which the spots over which the dual coating system was applied on ground surfaces were not properly qualified in accordance with ANSI N101.2 (Kostal Affidavit at 3-4.)

11. ANSI N101.4 deals with quality assurance requirements for the application of coating systems in accordance with N101.2. N101.4 requires, *inter alia*, that surface preparation methods be properly inspected for conformity with the requirements specified in the application procedure. (Kostal Affidavit at 2-3.)

12. Applicable regulatory requirements allow for the existence of some unqualified coatings in containment. Perfection is not required. In particular, ANSI N101.4 provides for documentation for compiling a coatings exception list. The coatings exception list permits the totality of unqualified coatings in containment to be evaluated for acceptability in the light of the purposes of qualification. Edison has developed a coatings exception list and the areas relevant to this issue are on it. (Kostal at 7-8.)

13. The NRC Staff has accepted placement of the affected areas on the coatings exception list as adequate corrective action for this problem. (Kostal Affidavit at 8.)

14. The purpose of qualifying the coating system with a particular surface preparation method is to control adhesion and prevent delamination. If a coating were to delaminate in large pieces or sheets in large quantities after exposure to DBA conditions, it could clog the strainers of fluid systems necessary to control post-accident conditions in the

plant. Proper surface preparation controls adhesion of the coating and prevents delamination. (Kostal at 5-6.)

Disposition of Intervenors' Subcontention 5.C

The generic statement of Intervenors' Subcontention 5 appears at the outset of this section. Subcontention 5.C states:

> 5.C. Edison employed designs for safety-related HVAC duct supports based on Chapter E36.0 of S&L's Structural Standard Document which did not limit the slenderness ratio for ceiling-mounted duct supports. (Inspection Report 85-43/39, Exh. 19.)

Board's Ruling on Summary Disposition (5.C)

We *grant* summary disposition to Applicant on Subcontention 5.C. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

ROREM SUBCONTENTION ITEM 6.F

> 6. Contrary to Criterion V, "Instruction, Procedure and Drawings," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that activities affecting quality are prescribed by documented instructions, procedures, or drawings, and are accomplished in accordance with these instructions, procedures, or drawings.
>
> F. In June 1984, Phillips Getschow, piping contractor, found piping that violated minimum wall requirements. This defect was not reported to owner in accordance with 10 C.F.R. 21.21. (Inspection Report 84-21/20, Exhibit 20.)

On June 1, 1984, during a receipt inspection, Phillips Getschow Company identified a 10-foot section of pipe, 2 feet of which did not conform to the minimum thickness requirement of the materials specifications used for purchase of the pipe. The minimum wall requirement was 0.629 inch. Two feet of the 10-foot length were found to be 0.620 inch by digital ultrasonic measurement. (Staff Exh. 6.F-2 at 6.) This pipe was regarded as "customer-supplied material" by Phillips Getschow. Phillips Getschow identified and documented this deficiency on PGCo (Phillips Getschow Company) NCR 1615 which was initiated on June 13, 1984. The disposition of NCR 1615 was to scrap the 2 feet of pipe containing the nonconforming section. This was the only length of pipe of this heat number ever received at the Braidwood site. (Affidavit of

David A. Boone at 3-4.) None of the nonconforming pipe was ever installed in the Braidwood facility. In its motion for summary disposition, CECo states that when Phillips Getschow identified the nonconforming pipe, Phillips Getschow performed an undocumented review for 10 C.F.R. Part 21 reportability. This review determined that the deficiency was not reportable under Part 21. Later reviews of this deficiency by Commonwealth Edison reached the same conclusion. Phillips Getschow procedure QAP-110, a procedure designed to facilitate compliance with 10 C.F.R. Part 21, required Phillips Getschow to notify Commonwealth Edison of the deficiencies such as those identified on NCR 1615. Phillips Getschow failed to report this deficiency pursuant to QAP-110. Applicant acknowledges this failure but argues that the deficiency which Phillips Getschow failed to report under QAP-110 was of a limited nature and that the incident has no significant implications for the quality of the Braidwood facility and concludes that the item of noncompliance, the failure to report, was an isolated occurrence.

Phillips Getschow's failure to submit NCR 1615 to Commonwealth Edison was identified through Phillips Getschow's corrective action in response to a Phillips Getschow corporate audit. This audit reviewed in part Phillips Getschow's compliance with the requirements of Procedure QAP-12 which required submission of NCRs to Commonwealth Edison. As part of their response to the corporate audit, Phillips Getschow documented the failure to submit NCR 1615 to Commonwealth Edison on Phillips Getschow NCR 2027, issued on September 4, 1984. (Boone Affidavit 6.F at 7-8). Phillips Getschow submitted NCR 2027 to Commonwealth Edison for review. Commonwealth Edison personnel documented its determination that NCR 2027 to which NCR 1615 was attached was not reportable under 10 C.F.R. Part 21. Mr. Boone, a Construction Field Engineer employed by Daniel Construction Co. on contract to Commonwealth Edison's Project Construction Department at Braidwood, has a specific recollection of reviewing NCR 1615 for reportability under Part 21 as a part of the review of NCR 2027. (Boone Affidavit at 8.) Commonwealth Edison approved NCR 2027 on September 12, 1984. This was several days before the NRC inspector discussed Phillips Getschow's failure to notify Commonwealth Edison of the deficiency documented on NCR 1615 with Phillips Getschow's QC Manager.

As a result of the NRC inspector's concerns, Phillips Getschow and Commonwealth Edison undertook additional corrective actions which CECo contends adequately resolve Phillips Getschow's failure to notify Commonwealth Edison of the deficiency identified by NCR 1615. Phillips Getschow issued a report of noncompliance in accordance with QAP-110. Commonwealth Edison informed the material supplier of the

deficiency and once again determined that the deficiency was not reportable under 10 C.F.R. Part 21. To ensure that Phillips Getschow personnel observed appropriate reporting procedures, Commonwealth Edison discussed this item with appropriate Phillips Getschow personnel. The corrective actions taken were acceptable to the NRC Staff and they closed this item. NRC Inspection Reports No. 50-456/85007 and 50-457/85007.

NRC Staff agrees with the Applicant that the incident described in Subcontention 6.F was an isolated incident of failure of one contractor to report a single deficiency pursuant to procedures and does not represent a pervasive breakdown in the Applicant's QA program. None of the information available to the Staff indicates any subsequent failure to comply with 10 C.F.R. Part 21 reporting requirements. Staff argues that Intervenor has not provided any information during discovery which supports a contrary view and because there are no genuine issues of material fact to be heard regarding this subcontention, Applicant appears to be entitled to a favorable decision on this subcontention as a matter of law.

Intervenor argues that there are still facts in dispute; that Phillips Getschow Company failed to report to Edison its identification of piping which violated minimum wall thickness specifications; and, that Commonwealth Edison, once it learned of the defects, failed to promptly inform the material supplier of the defect. The matter was brought to the attention of the NRC inspector by an anonymous tip that a safety concern existed and that the defect should have been reported to Edison management, pursuant to 10 C.F.R. Part 21. Ultimately, Edison informed the supplier of the defect but only after the NRC expressed concern about the matter to Phillips Getschow. In their response, Intervenors raise several questions, e.g.: Why didn't Phillips Getschow's NCR procedure require a Part 21 evaluation? Why didn't Edison, itself, report the defect to the supplier when it learned of the problem instead of waiting for the NRC action? Intervenors also question the competence of Mr. Boone to sponsor the testimony on this issue, stating that Mr. Boone appears to be a licensing and compliance man with no stated personal knowledge of the matters in issue with the exception of the specific action referred to. Intervenors also state that they requested production of Phillips Getschow Company's review of closed NCRs. This information has not yet been made available to Intervenors. Intervenors also object to portions of the affidavit of NRC Inspector Schulz (items 5, 6, 7, and first sentence of item 8) as being simple hearsay or opinion as to the ultimate factual issues.

Board's Ruling on Summary Disposition (6.F)

The Board *denies* the motion on this issue. While the Board accepts most of the Applicant's proposed material facts, the questions raised by Intervenor in its response require an answer through competent testimony.

Material Facts as to Which There Is No Genuine Issue to Be Heard (6.F)

1. On June 1, 1984, during a receipt inspection, Phillips Getschow Company identified 2 feet out of a 10-foot length of pipe which did not conform to the minimum thickness requirements of the material specification used for purchase of the pipe. This pipe was regarded as "customer-supplied material" by Phillips Getschow. Phillips Getschow identified and documented this deficiency on PGCo NCR 1615. The disposition of NCR 1615 was to scrap the 2 feet of pipe containing the nonconforming section. This was the only length of pipe of this heat number ever received at the Braidwood site. (Affidavit of David A. Boone at 3-4.) ("Boone Affidavit 6.F.")

2. Phillips Getschow Procedure QAP-110 required Phillips Getschow to notify Commonwealth Edison of the deficiencies such as those identified on NCR 1615. QAP-110 proceduralizes Phillips Getschow's obligations under 10 C.F.R. § 21.21. Phillips Getschow failed to report this deficiency pursuant to QAP-110. (Boone Affidavit 6.F at 5-6.)

3. Phillips Getschow Procedure QAP-12 required submittal of NCR 1615 to Commonwealth Edison for review. Commonwealth Edison's review of this NCR would have included a review of the failure of the 2-foot length of pipe to meet the wall-thickness specification for reportability under 10 C.F.R. Part 21. (Boone Affidavit 6.F at 6-7.)

4. Phillips Getschow failed to submit NCR 1615 to Commonwealth Edison. Phillips Getschow's failure to submit NCR 1615 to Commonwealth Edison was identified through Phillips Getschow's corrective action in response to a Phillips Getschow corporate audit. This audit reviewed, in part, Phillips Getschow's compliance with the requirements of QAP-12, which required submission of NCRs to Commonwealth Edison. As a part of their response to the corporate audit, Phillips Getschow documented the failure to submit NCR 1615 to Commonwealth Edison on Phillips Getschow NCR 2027 issued on September 4, 1984. (Boone Affidavit 6.F at 7-8.)

5. Phillips Getschow submitted NCR 2027 to Commonwealth Edison for review. Commonwealth Edison Project Construction documented its determination that NCR 2027, to which NCR 1615 was at-

tached, was not reportable before it approved NCR 2027 on September 12, 1984. Mr. Boone has a specific recollection of reviewing NCR 1615 for reportability under Part 21 as a part of the review of NCR 2027. (Boone Affidavit 6.F at 8.)

6. Phillips Getschow personnel responsible for submitting NCRs written against customer-supplied material or items to Commonwealth Edison were given training on the PGCo QA Manual and implementing procedure QAP-12 on September 12, 1984. (Boone Affidavit for 6.F at 8.)

7. The NRC identified Phillips Getschow's failure to notify Commonwealth Edison of the deficiency identified in NCR 1615 under QAP-110 as item 2 in Inspection Report 50-456/84-21, 50-457/84-20. The NRC inspector discussed this concern with Phillips Getschow on September 17, 1984. (Boone Affidavit 6.F at 3, 9.)

8. As a result of the NRC's concerns, on September 19, 1984, Phillips Getschow issued a Report of Noncompliance to Commonwealth Edison pursuant to QAP-110 notifying Commonwealth Edison of the deficiency identified on NCR 1615. A Report of Noncompliance is the formal method prescribed by QAP-110 for initiating a Part 21 review by Commonwealth Edison. Upon notification, Commonwealth Edison informed the material supplier of the deficiency in the material and determined that the deficiency was not reportable under 10 C.F.R. Part 21. (Boone Affidavit 6.F at 9-10.)

9. As part of its response to the NRC's concern, Commonwealth Edison discussed this item with appropriate Phillips Getschow personnel to enhance awareness of the reporting requirements of QAP-110. (Boone Affidavit 6.F at 10-11.)

10. The NRC found Commonwealth Edison's corrective action acceptable and closed the item of noncompliance. (Boone Affidavit 6.F at 11.)

11. Phillips Getschow has initiated changes to its QA Manual. QAP/B-12 (formerly QAP-12) and to QAP/BR-110 (formerly QAP-110) and has developed QAP/BR-12.3 to enhance reporting. Under current procedure, Phillips Getschow performs a documented review of all NCRs for reportability under 10 C.F.R. Part 21. Only those NCRs which Phillips Getschow deems reportable are reported under QAP-110. (Boone Affidavit 6.F at 12-13.)

12. Phillips Getschow has evaluated all closed PGCo NCRs generated on or before May 4, 1984, for potential reportability under 10 C.F.R. Part 21. Phillips Getschow determined that none of these NCRs were reportable. Phillips Getschow also evaluated a random sample of NCRs generated between May 4, 1984, and April 3, 1985, and determined that

none of these NCRs were reportable. Commonwealth Edison has evaluated those NCRs in this population which were not contemporaneously submitted for its review as required by Phillips Getschow's procedure and has concurred with Phillips Getschow's reportability reviews in all cases. (Boone Affidavit 6.F at 12-13.)

13. Phillips Getschow is in the process of implementing revisions to QAP-110 which will provide more specific criteria for evaluation and reporting of NCRs under 10 C.F.R. Part 21. (Boone Affidavit 6.F at 12-14.)

ROREM SUBCONTENTION ITEM 6.G

6.G. Applicant placed purchase orders with an unapproved bidder, H.H. Howard Corporation of Chicago, that did not have an approved QA program. Purchase orders were for cleaning of 206,744 feet of safety-related piping. (Inspection Report 84-17, Exhibit 12.)

In 1981, Edison decided to have a large amount of SA 106 Grade B carbon steel piping chemically cleaned because rust and corrosion had formed on the inside and outside surfaces of the pipe from exposure to the elements.

H.H. Howard documented the chemical cleaning methods that would be used, in a letter to Braidwood Project Construction. This list of methods was forwarded to Sargent & Lundy for review of technical adequacy prior to approval by Edison. A Field Change Request allowing the cleaning was then approved.

Edison did not detect this error because at the time Edison's procedure controlling the purchase of services did not require review by Edison's Quality Assurance Department of all purchase orders relating to safety-related equipment.

Applicant acknowledges that having the pipe cleaned by a non-safety-related vendor was an error and constituted a noncompliance with the requirements of Criterion V, "Instructions, Procedures, and Drawings" of Appendix B to 10 C.F.R. Part 50. Applicant concedes that its QA Manual at QP 4-1 requires that vendors of safety-related services be listed in an approved bidders list and that purchase orders for such services be reviewed and accepted by Applicant's Quality Assurance Department to assure that the necessary technical and quality requirements are included in the procurement documents and that the procurement is made from the plant location for which the vendor's quality assurance program is approved. Applicant contends that this noncompliance was

an isolated incident and Edison has taken effective corrective action to prevent recurrence.

Edison decided in 1981 to have chemical cleaning performed on a quantity of safety-related carbon steel small-bore pipe because rust and corrosion had formed on the pipe from exposure to the elements. Edison issued two purchase orders to the H.H. Howard Company for the cleaning process. These methods of cleaning were considered by CECo to be standard commercial methods and Edison believed they would not adversely affect the pipe. Edison erroneously concluded that the cleaning process itself was not safety-related and, accordingly, issued the purchase orders to H.H. Howard, a non-safety-related vendor. As a non-safety-related vendor, H.H. Howard was not required to have an approved QA program and was not on the approved bidders list. Edison now recognizes that sending the pipe to a non-safety-related vendor for cleaning was an error in judgment. This error went undetected because at that time Edison's procedure controlling the purchase of services did not require that Edison's Quality Assurance Department review all purchase orders related to safety-related equipment. To determine whether similar errors had occurred in other purchases affecting safety-related pipe, Edison reviewed other purchases of this type of service. No other purchases affecting safety-related pipe were found.

To prevent recurrence of this type of noncompliance, Commonwealth Edison revised Braidwood procedure PCD-07, "Site Purchasing Instructions." The revised procedure requires all purchases of services relating to safety-related equipment to be reviewed by the QA department. It also requires that Construction Supervisors review purchase requests to ensure proper inclusion of quality assurance requirements. When a procurement document designates a service relating to safety-related equipment as non-safety-related it must also designate the organization directing the work, the applicable QA program, required procedures, and any necessary procedure training. Thus, even non-safety-related services performed in connection with safety-related equipment must be performed in accordance with an approved QA program. The NRC Staff reviewed this corrective action and found it acceptable. The issue was closed in NRC Inspection Report 84-42.

The acceptability of the pipe that was chemically cleaned by H.H. Howard Company is the subject of Subcontention 11.C of Intervenors' QA Contention. Applicant and NRC Staff both argue that there appear to be no genuine issues of material fact to be heard regarding this subcontention as a matter of law. Intervenors disagree. Intervenors state that there are unanswered questions concerning this matter. For example: Why did Edison store this safety-related pipe outdoors in an

uncovered condition? Why did it decide to employ a chemical cleaning process in order to install this corroded pipe in the plant? And: Why did Edison employ an unapproved vendor without a quality assurance program to perform this critical task on a safety-related component? Intervenors also question whether Applicant's affiant Michael A. Gorski has personal knowledge of any of the matters stated in his affidavit and further states that neither Edison nor NRC looked into the question of the root cause of this item of noncompliance, stating that the cause, significance, and implication of Edison's handling of a vast quantity of safety-related material must be addressed on the merits and that summary disposition is inappropriate.

Board's Ruling on Summary Disposition (6.G)

The Board *grants* the motion. Although Intervenors raise some questions concerning the root cause of the noncompliance and the issue of direct knowledge as to matters stated in the affidavit, the matter was a one-time mistake, acknowledged as such by Applicant, with very little impact on the overall quality assurance program. There would be little value in holding an evidentiary hearing on this matter.

Board's Findings of Fact (6.G)

1. In 1981, Edison decided to have a large amount of SA 106 Grade B carbon steel piping chemically cleaned because rust and corrosion had formed on the inside and outside surfaces of the pipe from exposure to the elements. (Gorski Affidavit at 1.)

2. H.H. Howard documented, in a letter to Braidwood Project Construction, the chemical cleaning methods that would be used. This list of methods was forwarded to Sargent & Lundy for review of technical adequacy prior to approval by Edison. A Field Change Request allowing the cleaning was then approved. (Gorski Affidavit at 2.)

3. Edison did not detect this error because at the time Edison's procedure controlling the purchase of services did not require review by Edison's Quality Assurance Department of all purchase orders relating to safety-related equipment. (Gorski Affidavit at 2-3.)

4. Edison performed a review of other purchases of this type of service and found no other purchases affecting safety-related pipe. (Gorski Affidavit at 3.)

5. Edison revised its procedure controlling the purchase of services to prevent recurrence of this type of noncompliance. The revised procedure requires all purchases of services relating to safety-related equip-

ment to include reviews by the QA Department. The procedure also requires that Construction Supervisors review purchase requests to assure that QA requirements are included. The procedure also requires that when a procurement document designates a service for safety-related equipment as non-safety-related, the document also designates the organization directing the work, the applicable QA program, required procedures and any necessary procedure training. Thus, even non-safety-related services performed in connection with safety-related equipment must be performed in accordance with an approved QA program. (Gorski Affidavit at 3-4.)

6. The NRC Staff reviewed the corrective action taken by Edison and found it acceptable. This issue was closed in NRC Inspection Report No. 84-42. (Gorski Affidavit at 4.)

7. The issue whether the pipe cleaned by H.H. Howard Company is acceptable for use in safety-related applications is raised by Item 11.C of Intervenors' QA Subcontention. Edison has performed a detailed analysis of this issue and will present that analysis in response to Subcontention Item 11.C. (Gorski Affidavit at 4.)

ROREM SUBCONTENTION ITEM 6.I

6.I. Material installed for the pipe whip restraint plate was not of proper specifications. (Inspection Report 84-09, Exhibit 22.)

Board's Ruling on Summary Disposition (6.I)

We *grant* summary disposition to Applicant on Subcontention 6.I. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

ROREM SUBCONTENTION ITEM 9.A

Rorem Subcontention 9.A states in pertinent part:

9. Contrary to Criterion IX, "Control of Special Processes," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that measures are established to assure that special processes, including welding are controlled and accomplished in accordance with applicable codes, standards, specifications, criteria and other special requirements.

   A. 127 safety-related structural steel fillet welds were painted prior to acceptance of the work and the welds were subsequently visually inspected for acceptance, with 79 accepted in the painted condition. In addition, visual weld inspections were not performed on safety-related full penetration welds

completed under the jurisdiction of Structural Specifications R/L-2735 and F/L-2722 prior to May 1, 1984. The welds were accepted based on other methods of nondestructive examination, but were not accepted in accordance with the requirements of Section 8.15, Quality of Welds, Visual Inspection.

Subcontention 9.A encompasses two separate events. Event I involves alleged inspection of fillet welds through paint. Event II involves an alleged failure to perform visual weld inspections on certain full-penetration welds. Only Event I was addressed in Applicant's Motion for Summary Disposition.

Board's Ruling on Summary Disposition (9.A)

The Board *denies* summary disposition and accepts certain material facts, as modified, as to which there is no genuine issue to be heard.

This issue arose through discovery by an NRC inspector in 1984 of a visual weld inspection report of Pittsburgh Testing Laboratories (PTL), Applicant's independent testing contractor, indicating that certain fillet welds had been inspected through paint. This was contrary to Braidwood Quality Procedures.

Upon learning of this problem, PTL reviewed the approximately 4000 visual inspection reports which had been completed up to that point in 1984 to determine if there were other instances where fillet welds had been inspected through paint. PTL discovered five other reports notating an inspection through paint. Altogether, the reports reflected the inspection of 127 welds in painted condition.

Applicant offers that it has taken measures to ensure that inspections, after the problem was identified, have been conducted in accordance with requirements, and has inspected and dispositioned the 127 identified welds to assure that the violation of procedures did not result in any hardware problems in the field.

As Intervenors point out, however, no explanation whatever is provided for the apparent assumption that in all instances where the welds were inspected through paint, the improper inspections were documented on the inspection reports themselves. Intervenors suggest that the two inspectors who documented this practice may have done so to evidence their protest of such obviously faulty inspection procedures or because they were especially diligent. Intervenors ask how many other welds might have been inspected through paint but not documented as such. Intervenors question why the faulty inspection procedure was adopted in the first instance and, secondly, why an effectively qualified

and trained PTL weld inspector would follow such an improper procedure, whether documented or not.

We agree with Intervenors that these matters must be explored at a full evidentiary hearing.

Material Facts as to Which There Is No Genuine Issue to Be Heard (9.A)

1. In May 1984, while conducting a review of Pittsburgh Testing Laboratories (PTL) documents in connection with an unrelated matter, an NRC inspector found one visual weld inspection report which indicated that certain fillet welds had been inspected through paint. This inspection report had been prepared in 1980. The inspection report related to an inspection of structural steel fillet welds installed by Napoleon Construction Company (NCC). (Fred D. Forrest Affidavit at 3.)

2. The NRC inspector brought this visual weld inspection report to the attention of PTL's site manager. PTL's site manager acknowledged that an inspection of fillet welds through paint was contrary to PTL procedures. (Fred D. Forrest Affidavit at 3.) The NRC issued an item of noncompliance, severity level IV as a result of these improper inspections.

3. To determine whether there were further visual weld inspections which had been done through paint, the PTL site manager ordered a review of all PTL visual weld inspection reports which totaled approximately 4000 at that time. (Fred D. Forrest Affidavit at 3.)

4. Five additional visual weld inspection reports were found which contained a similar notation indicating that visual weld inspections had been done after the welds were painted. The six visual weld inspection reports involved were reports numbered 561, 709, 711, 713, 716, and 717. PTL found no other weld inspection reports indicating that inspections had been conducted of painted welds. (Fred D. Forrest Affidavit at 3-4.)

5. The welds covered by Report 561 had been visually inspected through paint, but Edison QA had also directed that the welds be subjected to magnetic particle inspection. Despite the prior successful magnetic particle inspection, Edison instituted an NCR to disposition the breach of visual weld examination procedures reflected in Report 561. The subject welds were reinspected visually and by use of magnetic particle examination in an unpainted condition pursuant to this NCR. (Fred D. Forrest Affidavit at 3-4.)

6. The other five visual weld inspection reports identified were all completed by a single PTL inspector in a 9-day period in 1980. The five

reports encompassed approximately 125 fillet welds. (Fred D. Forrest Affidavit at 4.)

7. PTL instituted an NCR to investigate and correct the problem represented by these five visual weld inspection reports. The method chosen by PTL to disposition this problem was to have the paint removed from the subject welds and to conduct a reinspection of each weld. (Fred D. Forrest Affidavit at 4.)

8. Upon further investigation, it was determined that certain of the original welds had been deleted in work done subsequent to 1980. It was also determined that certain of the welds were currently inaccessible because of work done subsequent to 1980. For all welds which were still in existence and accessible, Gust K. Newberg Construction Company ("Newberg"), the structural steel welding contractor at Braidwood in 1984, removed the paint from each weld. Within approximately 1 week of the discovery of the problem, PTL had conducted a reinspection of all of the welds which were still in existence and accessible. (Fred D. Forrest Affidavit at 4.)

9. Upon reinspection, PTL accepted some of the welds and did not accept others. Most of the welds which were not accepted by PTL upon reinspection were reworked by Newberg. These reworked welds were subsequently inspected and accepted by PTL. (Fred D. Forrest Affidavit at 4-5.)

10. It was determined upon reinspection that certain of the fillet welds that had been placed in 1980 were shorter than what was called for.

11. In addition, three of the welds encompassed by the subject reports were dispositioned pursuant to Edison NCRs. Two of these welds were inaccessible because of work done in 1980. These were analyzed by Sargent & Lundy. One of the inaccessible welds was found not to require analysis because subsequent work had made it redundant. The other was accepted by Sargent & Lundy after reviewing the results of PTL's reinspection of the other welds included in the subject inspection reports. Sargent & Lundy found that the design margin for the inaccessible weld was high compared to the type of weld deficiencies found in similar welds, concluding the weld could be accepted "as is." The third weld which was the subject of an Edison NCR was a fillet weld which was shorter than called for by the design drawings and for which there was insufficient room to place a longer weld. Sargent & Lundy found that the weld was of sufficient length. (Fred D. Forrest Affidavit at 5.)

12. By January 1985, all of the welds which had not been deleted had been inspected and accepted or dispositioned pursuant to Newberg and Edison NCRs. (Fred D. Forrest Affidavit at 6.)

13. All of the welds which were included in visual weld inspection report numbers 561, 709, 711, 713, 716, and 719 have now been reinspected in an unpainted condition and accepted or have been dispositioned pursuant to Newberg and Edison NCRs. (Fred D. Forrest Affidavit at 6.)

14. After discovery of this problem in May 1984, Edison issued a letter to PTL directing that all future visual weld inspections shall be done while welds are in an unpainted condition to prevent recurrence of the problem. PTL's site manager has also instructed his inspectors that all inspections shall be done in accordance with procedures. (Fred D. Forrest Affidavit at 6-7.)

15. NRC has closed out this item of noncompliance after review of the corrective action taken by the Licensee and its contractors. (NRC Inspection Reports No. 50-456/85-40 and 50-457/85-39.)

ROREM SUBCONTENTION ITEM 9.C

Rorem Subcontention 9.C states in pertinent part:

> 9.C. Nine L.K. Comstock filler metal withdrawal authorization forms documented the release of E-7018 weld rod for cable pan welds between May 25, 1982, and July 28, 1985 (Inspection Report 84-13, Exhibit 24).

Board's Ruling on Summary Disposition (9.C)

The Board *denies* summary disposition and accepts certain material facts, as modified, as to which there is no genuine issue to be heard.

During a routine safety inspection in 1984, NRC resident inspectors reviewing over 300 filler metal withdrawal authorization forms at L.K. Comstock (LKC) found that nine of them documented the release of E-70 series electrodes for use in cable pan welding, when LKC procedures had specified the use of E-60 series of electrodes. Five of the nine forms indicated that E-60 weld drives had been used, although their heat numbers corresponded to E-70 electrodes. Thus, the accuracy of the filler metal withdrawal authorization forms was in doubt. To disposition this discrepant condition, LKC revised its procedures in order to improve control of the filler metal and committed itself to a review of all filler metal withdrawal forms issued since the start of the project. Subsequently, it did not complete the review, but, on an engineering evaluation, determined that there was no design significance to interchanging the two types of weld rods. NRC accepted this disposition.

Intervenors point out that no effort was made to determine the root cause of the document discrepancy problems that resulted in the wrong heat numbers or rod-type specifications being listed on the quality documents. Furthermore, they challenge the engineering judgment that there was no design significance to interchanging the two types of weld rods, on the basis of deposition testimony that the workability of the two types of rods was different, which could result in welds with subsurface porosity or cracking that might be undetectable even upon visual inspection.

While this Board is not concerned, in general, with the "hardware" issues, i.e., the safety effects of each of the identified quality assurance discrepant conditions, we have a concern about the validity of an engineering judgment that dispositions the entire issue so that the root cause and the extent of the document discrepancy problems have not been examined.

We believe an evidentiary hearing on this matter is necessary.

Material Facts as to Which There Is No Genuine Issue to Be Heard (9.C)

1. Filler material withdrawal authorization forms at L.K. Comstock (LKC) document the release of electrodes to welders. During a routine safety inspection from June 5 through July 6, 1984, NRC resident inspectors reviewed over 300 such forms and found that nine of them documented the release of #7018 weld rod, an E-70 series electrode, for use in cable pan welding. The NRC Staff assessed a severity level IV item of noncompliance as a result of this finding. Sargent & Lundy drawings and LKC procedures had specified use of E-60 series electrodes for cable pan welding. Although five of the nine forms indicated that E-6013 weld rods had been used, their heat numbers corresponded to E-7018 weld rods. Thus, the accuracy of the metal withdrawal authorization forms (identification of weld rods as E-60 or E-70 series) was indeterminate. (Affidavit of James W. Gieseker at 2, 3 (hereinafter "Gieseker Affidavit").)

2. Cable pans are thin-gauge carbon steel channels supported by hangers at regular intervals. The cable pan welds for which E-60 series had been specified, but E-70 series weld rods may have been used, are those which attach a cable pan to its support. Nonconformance Report (NCR) 3275 was issued by LKC to track and disposition the discrepancy. (Gieseker Affidavit at 3-4.)

3. LKC took the following steps to disposition NCR 3275. First, LKC Procedure 4.3.10 Rev. D was revised in order to improve control

of filler metal. Additionally, appropriate personnel involved in issuance and control of filler metal received training in the applicable procedure. Finally, LKC committed itself to a review of all filler metal withdrawal forms issued since the start of the project to identify any additional document discrepancies in which actual heat numbers might not match the type of electrode withdrawn, as was the case with five of nine withdrawal forms discussed above. The NRC closed this item on March 12, 1985, in Inspection Reports No. 50-456/85-005(DRS) and 50-457/85-005(DRS). (Gieseker Affidavit at 4.)

4. LKC did not complete a review of all such forms; instead, it dispositioned the discrepancy by an engineering analysis that concluded that there was no design significance to interchanging E-60 weld rods with E-70, or vice-versa.

5. A subsequent NRC inspection found that no significant deficiency exists in either LKC's control of filler metal withdrawal or in its documentation. Inspection Reports No. 50-456/85-009(DRS) and 50-457/85-009(DRS). A random sample of LKC filler metal withdrawal forms covering a 3-year period by the NRC inspector identified one typographical error and one misfiling. No other deficiencies were found. The report also concluded that LKC had in place adequate weld filler material controls, in light of the corrective action LKC had taken in NCR 3275 to improve control of filler metal. (Gieseker Affidavit at 6.)

ROREM SUBCONTENTION ITEM 9.D

> 9. Contrary to Criterion IX, "Control of Special Processes," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that measures are established to assure that special processes, including welding are controlled and accomplished in accordance with applicable codes, standards, specifications, criteria and other special requirements.
>
> D. [A] quality [structural steel, flux core welding procedure,] was not approved for use by the Architect-Engineer, Sargent & Lundy, but was released for use in installation by the structural steel contractor and documented as being used for cover plate welds. Furthermore, the welder documented as performing the welding was not qualified. In addition, RPS Division loop B, reactor records identifying the welder or welder filler metal utilized. (The words in brackets represent corrections to Intervenors' statement of the NRC item of noncompliance set forth in Subcontention 9.D.)

Subcontention 9.D encompasses two separate events. Event I involves alleged use of an unapproved structural steel welding procedure by an allegedly unqualified welder. Event II involves the absence of complete documentation for a socket weld joint for instrumentation piping. A

separate statement of material facts as to which there is no genuine issue to be heard is provided for each event. The two events are discussed together, since they were characterized as separate examples of one severity level V item of noncompliance by the NRC Staff.

Board's Ruling on Summary Disposition (9.D)

We *grant* summary disposition to Applicant on Subcontention 9.D. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

ROREM SUBCONTENTION ITEM 10.F

10. Contrary to Criterion X, "Inspection," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that a program for inspection of activities affecting quality was established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures and drawings for accomplishing the activity.

    F. Electrical contractor, Comstock, inspected and accepted a junction box which was later determined to have deficiencies in the location of the anchors used for mounting of the junction box. Anchors were accepted even though they were 3" from the required location specified by Sargent & Lundy Drawing 20E-1-3571.

Board's Ruling on Summary Disposition (10.F)

We *grant* summary disposition to Applicant on Subcontention 10.F. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

ROREM SUBCONTENTION ITEM 12.E

12. Contrary to Criterion XVI, "Corrective Action," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that measures were established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. And in the case of significant conditions adverse to quality, Applicant failed to ensure that the cause of the condition is determined and corrective action taken to preclude repetition.

    E. Although BCAP had identified that Level I QA inspectors had inspected and accepted construction activities, this nonconforming condition was not documented as a BCAP observation. (Inspection Report 85-06, Exhibit II.)

This subcontention asserts that the BCAP (Braidwood Construction Assessment Program) Task Force identified a nonconforming condition but failed to document it as a BCAP observation. The alleged nonconforming condition relates to Comstock use of Level I inspectors for visual weld inspections. Applicant states that the BCAP Task Force did, in fact, issue an observation documenting Comstock's practice. The NRC Staff has withdrawn the item of noncompliance upon which this subcontention is based. Applicant contends that there was no violation of Criterion XVI of 10 C.F.R. Part 50, Appendix B. Applicant argues that, while it is true that there was a failure of communication between the BCAP Task Force and the NRC Staff inspector, it is also apparent from the circumstances that the proposed item of noncompliance would never have been issued had the NRC Staff inspector not been monitoring the activities of the BCAP Task Force exceptionally closely and had the Assistant Director of BCAP not been open and candid in advising the NRC Staff inspector of the task force's deliberations concerning whether the identified Comstock practice was or was not a violation of the applicable requirements of ANSI Standard N45.2.6-1978. Applicant contends that Subcontention Item 12.E is based on a factual error and asserts that the BCAP Task Force failed to document something which, in fact, it did document. The steps Commonwealth Edison is taking to resolve the NRC Staff's concern regarding Comstock's use of Level I inspectors are described in the affidavit submitted in response to Subcontention Item 3.C. These actions are not material with respect to this Subcontention Item 12.E. Even if the Licensing Board were to conclude there is a genuine issue of material fact as to Subcontention Item 3.C, Applicant contends that the Licensing Board can grant summary disposition on Subcontention 12.E.

Staff agrees with Applicant that Rorem Subcontention 12.E is premised on a factual error and shares the Applicant's view that there is no genuine issue as to any material fact regarding this subcontention. The fact is that BCAP personnel did not fail to identify instances in which Level I QC inspectors were used to inspect and accept construction activities. Consequently, the facts underlying Rorem Subcontention 12.E do not indicate that Applicant has violated 10 C.F.R. Part 50, Appendix B, Criterion XVI by failing to assure that conditions adverse to quality were "promptly identified and corrected." Accordingly, both Applicant and Staff submit that there is no genuine issue as to any material fact to be heard and Applicant is entitled to a favorable decision on this subcontention as a matter of law.

Intervenors do not agree, stating that Edison's Braidwood Construction Assessment Program (BCAP) has been presented to the NRC and

the public as a comprehensive assessment of a quality of construction of the Braidwood facility. Intervenors allege that BCAP refused to acknowledge the serious programmatic QA deficiencies represented by the practice of utilizing Level I QC inspectors to perform the visual inspection of welds and that this casts serious doubt on the integrity and reliability of the BCAP effort. Intervenors state that documenting the Level I concern as an observation was initiated only after NRC Inspector Ron Gardner had identified his dissatisfaction with BCAP's failure to do so. Far from demonstrating a conservative, cautious approach to a significant question implicating quality and safety of construction, Intervenors allege that BCAP's treatment of the Level I QC inspector issue evidences a false and overly technical defense of a flaw in the inspection practice. Intervenors contend that Subcontention Item 12.E must be considered together with Subcontention 3.C which raises the substance of the improper use of Level I QC inspectors.

Board's Ruling on Summary Disposition (12.E)

The motion for summary disposition is *granted.* The Board agrees with Applicant and Staff that there are no genuine issues of material fact to be heard concerning this contention, and Applicant is entitled to a favorable decision on its motion. Any concerns about the improper use of Level I inspectors can be ventilated during the litigation of Rorem Subcontention 12.E.

Board's Findings of Fact (12.E)

1. In late 1984, the Braidwood Construction Assessment Program (BCAP) Task Force noted that Comstock's procedures for visual inspections of welds required that the inspectors who performed the inspection be certified to at least Level I, and also required that each inspection report be reviewed and approved by a Level II inspector. (Affidavit of George Orlov on Rorem QA Subcontention 12.E (hereinafter, "Orlov Affidavit") at 5.) The question arose within the BCAP Task Force whether this practice was consistent with the requirements of the applicable standard, ANSI N45.2.6-1978 (*Id.*).

2. ANSI N45.2.6-1978 is ambiguous as to what methods Level II inspectors must use to establish the acceptability of Level I inspectors' visual weld inspection results, and the degree of responsibility which may be given to Level I inspectors performing such visual weld inspections. (Orlov Affidavit at 4-5; Deposition of Ronald N. Gardner, dated October 31, 1985, at Tr. 66-71.)

3. In late 1984, the Assistant Director of BCAP, George Orlov, told NRC Project Inspector Ron Gardner that the BCAP Task Force would document this concern with respect to Comstock's practice by issuing an observation. However, in February 1985, Mr. Orlov told Mr. Gardner that the BCAP Task Force would not issue such an observation because Comstock's practice did not depart from the requirements of ANSI N45.2.6-1978. (Orlov Affidavit at 6-9; Gardner Deposition at Tr. 57-58, 62-63.)

4. After this conversation, Mr. Orlov sensed that he had failed to convince Mr. Gardner that Comstock's practice was acceptable. Accordingly, he discussed Mr. Gardner's concern with the BCAP Task Force Director, who directed him to document the question concerning Comstock's practice by issuing an observation. (Orlov Affidavit at 10). This observation was in fact issued on February 27, 1985. (Orlov Affidavit at 10, and Exh. A.)

5. Prior to the completion of Mr. Gardner's inspection on March 1, 1985, the BCAP Task Force failed to communicate effectively to Mr. Gardner the fact that this observation had been issued. (Orlov Affidavit at 10.)

6. On March 8, 1985, the NRC Staff issued Inspection Reports No. 50-456/85-006 and 50-457/85-006 which included as an item of noncompliance the following statement:

> Although the Braidwood Construction Assessment Program (BCAP) had identified that Level I QA inspectors had inspected and accepted construction activities, in violation of the requirements delineated in ANSI N45.2.6, this nonconforming condition was not documented as a BCAP observation.

(Orlov Affidavit at 3.)

7. CECo responded to this Inspection Report on May 6, 1985, and showed Mr. Gardner the BCAP observation written on February 27, 1985. (Orlov Affidavit at 10, and Exh. B.) On June 27, 1985, the NRC Staff agreed that this was not an item of noncompliance. The NRC Staff stated that the information presented in CECo's response was not known to the NRC inspector at the time of the inspection. (Orlov Affidavit, Exh. C.)

ROREM SUBCONTENTION ITEM 12.F

12.F. In addition, 37 BCAP observations were invalidated by S&L even though the documented basis for the invalidations of the observations did not support the invalidations. (Inspection Report 85-06, Exh. 11.)

A "Red Line Drawing" is a blueprint of a piping isometric drawing on which field changes to piping dimensions or routing are recorded, typically using a red pen. The purpose of a Red Line Drawing is to document any potential differences between the piping configuration in the architect/engineer's initial design and that which is eventually installed.

QC verification of the information contained in Red Line Drawings is required by 10 C.F.R. Part 50, Appendix B, and relevant CECo and Phillips Getschow Company (PGCo) procedures.

In its motion for summary disposition, Applicant states that Subcontention 12.F asserts that thirty-seven BCAP observations were invalidated by S&L (Sargent & Lundy). Applicant states that is not true. S&L recommended that thirty-seven BCAP observations relating to the lack of QC signatures on "Red Line Drawings" be invalidated but that recommendation was never accepted. The thirty-seven Red Line observations never were invalidated. (Orlov Affidavit at 11.) Applicant states that the BCAP task force at one time intended to invalidate the thirty-seven Red Line observations, but on a different basis from that suggested by Sargent & Lundy; namely, that the QC signatures on Phillips Getschow Company's Stop Work Order (SWO) forms were an acceptable substitute for the missing QC signatures on the Red Line Drawings. However, subsequent investigation by the BCAP Task Force and site QA personnel showed that the SWO forms were not acceptable alternative documentation, so the thirty-seven observations remain valid. The thirty-seven observations are being resolved by site QA. (Hunsader Affidavit at 1-3.) In its motion, Applicant states that the facts relating to this contention item illustrate the extremely strict scrutiny to which the BCAP Task Force was subjected. The Independent Expert Overview Group (IEOG) issued an observation relating not to a BCAP Task Force action, but to a Sargent & Lundy recommendation. Similarly, the NRC Staff issued an item of noncompliance to the BCAP Task Force for proposing to invalidate the thirty-seven observations (without, in the NRC Staff judgment, sufficient prior inquiry into the basis for the proposed invalidation). The NRC Staff maintained that this was an item of noncompliance even after being informed that the BCAP Task Force was awaiting the results of a QA surveillance prior to actual invalidation of the thirty-seven observations. Subsequently, in response to a recommendation from an NRC Staff, BCAP QA committed to review 100% of all invalidated BCAP observations and discrepancies to ensure that sufficient justification for such invalidation exists.

Applicant maintains that not only is Subcontention Item 12.F based on a misstatement of fact but the circumstances surrounding the issue

increase rather than diminish confidence that all conditions adverse to quality identified by the BCAP have been appropriately addressed.

NRC Staff generally agrees with Applicant and believes that the motion for summary disposition should be granted. The NRC Staff apparently did not recognize that Sargent & Lundy's action with respect to these thirty-seven BCAP observations was a recommendation for an invalidation rather than an outright invalidation. In evaluating Sargent & Lundy's justification, NRC Inspector Gardner learned that the QC inspector who signed the Stop Work Order (SWO) was not always the same QC inspector who actually performed the inspection in the field. Because of this, the existence of a signed SWO form was not an acceptable substitute for the lack of a QC signature on the verification drawing. It was on this basis that the Staff determined that the invalidation of the thirty-seven BCAP observations was an example of noncompliance with 10 C.F.R. Part 50, Appendix B, Criterion XVI, which requires Applicant "to assure that conditions adverse to quality . . . are properly identified and corrected."

While Applicant disagreed that the item at issue constituted an example of noncompliance, nevertheless, to address the Staff's concern, Applicant took two corrective actions. First, BCAP quality assurance personnel established mandatory hold points during the processing of invalidated observations or discrepancies to allow quality assurance personnel to review the justification for validation. Second, BCAP quality assurance personnel reviewed observations and discrepancies previously invalidated to ensure that sufficient justification for the invalidation existed.

The NRC Staff opines that there is no evidence indicating that the violation giving rise to Rorem Subcontention 12.F is not an isolated occurrence. The Staff feels that adequate measures have been taken by Applicant to remedy that violation, and the Staff's concerns have been resolved. Both Applicant and Staff say there is no genuine issue as to any material fact that needs to be heard, and Applicant is entitled to a favorable decision on its motion for summary disposition on Rorem Subcontention 12.F.

Intervenors disagree, stating that BCAP observations on this matter were improperly invalidated by Sargent & Lundy. BCAP failed to document any disagreement with the Sargent & Lundy invalidation until after the NRC inspection and admission of an amended quality assurance contention. Intervenors state that a series of decisions reflected in this item of noncompliance further evidence the overly narrow apologist approach taken by BCAP management toward serious and blatant quality assurance flaws. Intervenors also state that BCAP continued to defend

the improper practice of failing to require quality control field verification of the accuracy of as-constructed piping drawings in the face of an obviously vague and imprecise procedure and in the absence of any initiative to determine and evaluate actual practice. Intervenors argue also that, in substance, Sargent & Lundy did, in fact, invalidate the thirty-seven BCAP observations without the least objection from BCAP, at least, not until Edison's May 6, 1985 response to the NRC items of noncompliance. (Orlov Affidavit, Exh. B.) Intervenors state that Edison's argument rests on its interpretation of the BCAP procedure requiring BCAP to make the final determination of validity. The Independent Expert Overview Group (IEOG), the Evaluation Research Corporation (ERC), seems to have gotten it clear in the minds of the Intervenors where they stated "S&L has responded to several BCAP observations . . . declaring them to be invalid." Intervenors also state that no documentation whatever was filed with Applicant's motion for summary disposition evidencing BCAP disagreement with Sargent & Lundy's invalidation recommendation and none was produced upon request at or during Mr. Orlov's deposition. Mr. Orlov explained that the relative portions of the observation form were in the QA vault. When asked to specify when BCAP documented its disagreement with Sargent & Lundy's invalidation recommendation of December 27, 1984, Mr. Orlov identified the date as July 1985, more than 6 months after the NRC identified the noncompliance after Edison responded to the noncompliance and even after the admission of Intervenors' amended quality assurance contention raising this issue. Intervenors contend that important issues remain for resolution regarding the reasons for such actions by BCAP and particularly the implications of such actions for the integrity of the BCAP program and that summary disposition is inappropriate and should be denied.

Board's Ruling on Summary Disposition (12.F)

Applicant's motion is *denied.* Questions raised by Intervenors concerning the documentation of BCAP's disagreement with S&L's recommendation on the thirty-seven Red Line observations have not been fully answered and remain for hearing.

Material Facts as to Which There Is No Genuine Issue to Be Heard (12.F)

1. A "Red Line Drawing" is a blueprint of a piping isometric drawing on which field changes to piping dimensions or routing are recorded,

typically using a red pen. The purpose of a Red Line Drawing is to document any potential differences between the piping configuration in the architect/engineer's initial design and that which is eventually installed. (Affidavit of George Orlov on Rorem QA Subcontention 12F (hereinafter "Orlov Affidavit" at 3-4).)

2. QC verification of the information contained in Red Line Drawings is required by 10 C.F.R. Part 50, Appendix B, and relevant CECo and Phillips Getschow Company (PGCo) procedures. (Orlov Affidavit at 4.)

3. The BCAP Task Force initially interpreted the relevant PGCo procedure to require that there be a QA signature on each Red Line Drawing, indicating that QC verification had taken place. (Orlov Affidavit at 5-6.) The BCAP Task Force document reviewers quickly found thirty-seven Red Line Drawings for small-bore piping with no such QC signature, and accordingly the BCAP Task Force issued thirty-seven observations. (*Id.*)

4. In accordance with BCAP procedures, the architect/engineer Sargent & Lundy (S&L) reviewed the thirty-seven BCAP observations. At the end of December 1984 S&L recommended that all these observations be invalidated on the basis that the Red Line Drawings reviewed by the BCAP Task Force (which were called "re-lined record copy isometrics") were not required by the applicable S&L specifications or by the applicable PGCo procedures. (Orlov Affidavit at 5-7.)

5. On January 14, 1985, the Independent Expert Overview Group (IEOG) identified a concern regarding this S&L recommendation. IEOG indicated that the S&L recommendation was based on a technicality as to some of the Red Line Drawings, and that the thirty-seven observations were not invalid. (Orlov Affidavit at 7, and Exh. B.)

6. The IEOG concurred with the BCAP Task Force's proposed corrective actions. IEOG indicated that its observation would remain open until the BCAP's corrective actions were completed and subsequently verified by IEOG. (Orlov Affidavit at 9.)

7. In February 1985, the results of the BCAP re-review and the site Quality Assurance surveillance indicated that the SWO forms were not acceptable alternative documentation of QC verification of piping configurations and dimensions, because the signatures on the SWO forms were those of office QC technicians rather than field QC inspectors who performed the piping inspections. (Orlov Affidavit at 11.)

8. Also in February 1985, NRC Project Inspector Ron Gardner performed a followup review of the BCAP's response to the IEOG observation relating to the thirty-seven Red Line Drawings. At PGCo, he determined that the SWO forms were not acceptable alternative documenta-

tion. He later informed BCAP Task Force personnel that the BCAP Task Force should have done this research prior to submitting its January 25, 1985 response to the IEOG observation, indicating that the thirty-seven Red Line observations were invalid. (Orlov Affidavit at 12.) On March 8, 1985, the NRC Staff documented this inspection finding as an item of noncompliance. (*Id.*)

9. In response to an NRC Staff recommendation, on March 22, 1985, BCAP QA established mandatory hold points which prohibited the BCAP Task Force from invalidating any BCAP observations or discrepancies without BCAP QA review and concurrence. In addition, BCAP QA reviewed previously invalidated BCAP observations and discrepancies to ensure that sufficient justification for the invalidations exists. (Affidavit of Neil P. Smith on Rorem QA Subcontention 12.F (hereinafter "Smith Affidavit").)

ROREM SUBCONTENTION ITEM 12.J

12.J. In two areas, supports/restraints and piping runs, deficiencies were identified by the NRC CAT that were not identified by the BCAP inspectors. On the basis of the limited sample overinspected, it appears that BCAP inspection effort needs to be improved in areas of supports/restraints and piping runs.

Subcontention 12.J is based on the results of an NRC Construction Assessment Team (CAT) finding. The CAT inspection took place in December 1984 and January 1985, early in the period of the BCAP Task Force inspections when only a limited number of hardware items had been inspected by the BCAP Task Force. In four of the six areas overinspected by the CAT, there was general agreement between BCAP and CAT findings. Deficiencies in piping runs and pipe support/restraints were found by the CAT but were not identified by the BCAP Task Force inspectors working in those areas. The affidavit of Ed Shevlin, the BCAP Task Force Lead Mechanical/Welding Inspector, states that by his (Shevlin) count, three mistakes were made by a BCAP Task Force inspector in inspecting pipe runs and two BCAP Task Force inspector mistakes were made in inspecting supports/restraints. Other differences between the BCAP Task Force and the CAT were attributable to the instructions given to the BCAP Task Force inspectors or a different inspection technique. In its motion for summary disposition, Applicant concedes that in the two areas, piping runs and supports/restraints, deficiencies not identified by BCAP inspectors were found by the NRC Construction Appraisal Team (CAT) but argues that even the best inspectors make mistakes occasionally. It is unrealistic to expect perfection in QC

inspection activities anymore than in any other field of human endeavor. Applicant also implies that because BCAP inspections were just beginning in these areas, BCAP QA overinspections of BCAP Task Force inspection work had not begun and would likely have uncovered the same deficiencies identified by the NRC Construction Assessment Team.

In the area of pipe supports/restraints, the BCAP Task Force reverified all attributes called into question by the CAT findings on all previously inspected pipe supports/restraints. In the reverification program, no BCAP task force inspector reinspected his own work. The reverification program for supports/restraints resulted in only twenty new observations of which only eight were attributable to inspector error. Based on this reverification program, the initial BCAP task force inspections for these attributes were determined to be greater than 98% accurate. (Shevlin Affidavit at 26-27.)

In addition to the actions taken by the BCAP Task Force in response to the CAT findings, BCAP QA carried out an overinspection program in which from 16 to 23% of the BCAP Task Force inspections in the pipe run and pipe supports/restraint construction categories were overinspected by BCAP QA inspectors. The acceptance criteria for agreement between BCAP Task Force inspections and BCAP QA inspections was set at 95% for objective attributes, and 90% for subjective attributes. The BCAP Task Force inspections exceeded these acceptance criteria in each piping run and pipe supports/restraint construction category. (Smith Affidavit at 15.) Applicant argues that the affidavit submitted in support of this motion shows that there is no genuine issue of material fact to be heard with respect to the adequacy of BCAP Task Force inspections of pipe runs and pipe supports/restraints. Applicant contends that its inspection activities for piping runs and pipe supports/restraints complies with Criterion XVI of 10 C.F.R., Part 50, Appendix B. The NRC Staff agrees. As a result of the CAT inspection, in addition to a partial repeat inspection of 160 previously reinspected mechanical pipe supports, Applicant revised BCAP instructions for inspectors and additional training was provided to BCAP inspectors. (Gardner Affidavit 12.J, Item 11, at 133.) Staff affiant, Gardner, opined that these corrective actions adequately address the CAT findings and subsequent inspections of BCAP inspector performance in these areas provide further assurance that the BCAP inspection effort has been satisfactory. In his affidavit he reports that this item will be closed in the final BCAP inspection report expected to be issued in February 1986.

Intervenors disagree with both Applicant and Staff and contend that Edison and its Braidwood Construction Assessment Program (BCAP) have failed to ensure that conditions adverse to quality are identified

and corrected in a timely manner. Intervenors contend that the Construction Sampling Reinspections (CSR) are at the core of the BCAP effort to assess and establish the quality of construction at Braidwood. Serious questions exist as to the effectiveness of the CSR inspection effort. In their answer to Applicant's motion for summary disposition on Subcontention 12.J, Intervenors cite additional construction deficiencies which, they state, reinforce the CAT findings. Intervenors cite Inspection Report 85-02 of February 13, 1985, where an NRC inspector witnessed overinspections of a concrete placement and noted four deficiency items not found by BCAP inspectors and an overinspection of electrical concrete hangers where additional items, again not found by BCAP inspectors were noted. Intervenors contend that certain portions of Mr. Gardner's affidavit are unreliable based on (1) failure to affirmatively demonstrate competence to testify on the matters based on personal knowledge; and (2) impermissible expressions of opinion as to the ultimate facts. Intervenors allege that ¶ 7 of Mr. Gardner's affidavit regarding the CAT inspection is hearsay and not founded upon personal knowledge and Mr. Gardner's statements in ¶ 12 are opinion as to the ultimate facts and are, therefore, unreliable, stating that in his opinion that Item 12.J will be closed in the final BCAP inspection report is mere speculation. The item remains open. Applicant and Staff both state that with regard to Subcontention 12.J BCAP inspection efforts were, in fact, improved in the areas of pipe supports/restraints and pipe runs and that Intervenors have not presented any information during discovery to controvert Mr. Gardner's or Applicant's assertions.

Board's Ruling on Summary Disposition (12.J)

The Board *denies* the motion for summary disposition. The issues are apparently still open with respect to the NRC Staff's and the BCAP's final inspection reports either not yet completed and/or not part of the motion submitted. Staff's and Applicant's experts should be subject to questioning on their conclusions at an evidentiary hearing.

Material Facts as to Which There Is No Genuine Issue to Be Heard (12.J)

1. As documented in Inspection Reports 50-456/84-44 and 50-457/84-40, an NRC Construction Assessment Team (CAT) inspection was performed on December 10-20, 1984, and January 7-18, 1985, at the Braidwood site. The schedule for the Braidwood Construction Assessment Program (BCAP) inspections was such that only limited hardware

samples were available for NRC CAT overinspection. It was possible to overinspect a very small sample of hardware in the areas of pipe supports/restraints, piping runs, HVAC supports and ducts for welding, HVAC ducts for configuration, and conduit runs. In four of the six areas that were overinspected there was general agreement between BCAP and NRC CAT findings: in two areas, pipe supports/restraints and piping runs, deficiencies were identified by the NRC CAT that were not identified by the BCAP inspectors. (*Id.* at A-1.)

2. The BCAP Task Force inspectors who performed inspections of piping runs and pipe supports/restraints were all certified to ANSI N45.2.6-1978, Level II or Level III. Their average quality control experience was approximately 9 years. None of them had any prior involvement with Braidwood. (Shevlin Affidavit at 3-6.)

3. With respect to piping runs, the BCAP inspections overinspected by the NRC CAT were associated with four isometric drawings. Two differences in findings were identified, both involving the same isometric drawing and the same BCAP Task Force inspector. In one case, the BCAP inspector had failed to add to her measurement a "take-out" dimension (a dimension taken from a table when measuring a curved section of pipe). In the other case, a mistake in the isometric drawing contributed to the BCAP inspector's error. (Shevlin Affidavit at 10-13.)

4. The BCAP Task Force Lead Mechanical/Welding Inspector, Ed Shevlin (who is certified to ANSI N45.2.6-1978 Level III) discussed these errors in detail with the BCAP Task Force inspector involved and with all of the BCAP Task Force inspectors, reviewing measurement techniques and the use of "take-out" dimensions, as well as reminding them to take the time necessary to do each inspection correctly. He also directed two BCAP Certified Lead Inspectors separately to overinspect portions of the work of the BCAP Task Force inspector who made the errors. These overinspections identified no further problems. Based on his evaluation of the circumstances, Mr. Shevlin advised the BCAP Task Force Director that the errors were an isolated incident, and that no further reverification of piping run inspections was necessary. (Shevlin Affidavit at 14-15.) The BCAP Task Force Director accepted this advice and allowed BCAP Task Force piping run inspections to continue. (Kaushal Affidavit at 4.)

5. The NRC CAT overinspected six pipe supports and restraints which had undergone previous inspections by the BCAP Task Force. The NRC CAT found that three of the pipe supports or restraints had discrepant conditions not identified by the BCAP Task Force inspectors. (Shevlin Affidavit at 17-19.)

6. Upon investigation of the CAT findings, the BCAP Task Force Lead Mechanical/Welding Inspector, Mr Shevlin, found two items which he attributed to inspector errors. He also found one item (relating to attachment location along supplementary steel) where the instructions given to BCAP Task Force inspectors required clarification. Finally, one item (relating to verification of vendor fabrication dimensions) had not hitherto been treated as within the scope of the BCAP Task Force inspections. (*Id.* at 19-22.)

7. In January 1985, soon after learning of the CAT findings, the BCAP Task Force Director suspended BCAP Task Force inspection activities for pipe supports/restraints and initiated a plan to reverify those aspects of previous BCAP Task Force pipe support/restraint inspections called into question by the CAT findings. (Kaushal Affidavit at 2, 5-6.)

8. The reverification program covered all 160 BCAP Task Force pipe support/restraint inspections which had been performed through January 18, 1985. The BCAP Task Force inspectors who performed the reverification were not aware of the identities of the original BCAP Task Force inspectors or the results of the original BCAP Task Force inspections. No BCAP Task Force inspector reinspected his own work. The reverification program resulted in only twenty new observations. (*Id.* at 6; Shevlin Affidavit at 26-27.)

9. Following evaluation of the new observations and "feedback" training sessions with the BCAP Task Force inspectors, inspections of supports/restraints resumed on February 1, 1985. (Kaushal Affidavit at 6.)

10. After the CAT inspection, the Independent Overview Group and the NRC Staff performed numerous reviews and overinspections of BCAP Task Force inspections in the mechanical/welding area. Neither IEOG nor the NRC Staff ever issued any other observation or item of noncompliance with respect to BCAP Task Force inspections of pipe runs or of pipe supports or restraints. (Kaushal Affidavit at 7; Shevlin Affidavit at 28.)

11. In addition to reviewing the qualifications, the training of the BCAP Task Force inspectors, and the instructions and checklists which they followed, BCAP QA also performed overinspections of the BCAP Task Force inspections. Those BCAP QA overinspections were just beginning at the time of the NRC CAT inspection and had not taken place with respect to any of the items overinspected by the CAT. (Smith Affidavit at 7-11; Kaushal Affidavit at 2.)

12. For the five pipe run and pipe support/restraint construction categories, the percentage of BCAP Task Force inspections overinspected by BCAP QA ranged from 16% to 23%. The acceptance criteria for

agreement between the BCAP QA overinspectors and the BCAP Task Force inspectors were established at 95% for objective attributes and 90% for subjective attributes. For each pipe run and support/restraint construction category, the BCAP Task Force inspections met these acceptance criteria. (Smith Affidavit at 12-15.)

ROREM SUBCONTENTION ITEM 13.B

13. Contrary to Criterion XVII, "Quality Assurance Records," of 10 C.F.R Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that sufficient records were maintained to furnish evidence of activities affecting quality. The records are to include at least the following: results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses. Applicant has failed to make such records identifiable and retrievable.

    B. Sargent & Lundy Engineers calculations which provided the original justification for the factor design methodology and magnitude were not retrievable. (Inspection Report 84-43/39, Exh. 19.)

Board's Ruling on Summary Disposition (13.B)

We *grant* summary disposition to Applicant on Subcontention 13.B. To facilitate preparation for hearing on the other issues, we will issue our full decision on this issue at some later date.

ROREM SUBCONTENTION ITEM 14.B

14. Contrary to Criterion XVIII, "Audits," of 10 CFR Part 50, Appendix B, Commonwealth Edison Company has failed to ensure that a comprehensive system of planned and periodic audits is carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The Applicant also failed to ensure followup action, including reaudit of deficient areas.

    B. A special NRC QA inspection report May 7, 1984 that:

    - Mechanical contractor Phillips, Getschow, Co. has not established and executed a plan for auditing the implementing procedures of the quality assurance program on a period [sic] basis to determine the effectiveness of the program in accordance with the Phillips, Getschow, QA Manual.
    - Electrical contractor L.K. Comstock Co./L.K. Comstock Engineering Company auditing activities neither conformed with the comprehensive annual schedule of planned and periodic audits established as required by QA Program Manual Section 4.14.1, nor did they verify compliance with all aspects of the Quality Assurance Program.

- HVAC contractor Pullman Construction Industries, Inc. did not meet their yearly schedule for audit activities required by their QA Manual, Section 18, in that the following implementing procedure[s] were not audited:

  - B 3.a.F, Design Control
  - B 5.1.F, HVAC Repair Adjustment
  - B 9.3.F, Expansion Anchor Installation
  - B 10.2.F, Visual Weld Inspection

- Edison's audits of the installation of small-bore instrumentation and process piping were inadequate in that contractor hanger design calculation problems were not identified for more than two years.

(Inspection Report 83-09, Exh. 5.)

Subcontention 14.B lists four separate examples of a single item of noncompliance which was identified by the NRC Staff. These four instances are alleged to demonstrate collectively a failure on the part of Commonwealth Edison Company to comply with the requirements of Criterion XVIII of Appendix B to 10 C.F.R. Part 50 which requires that a comprehensive system of planned and periodic audits be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program.

Applicant concedes that the first three examples of noncompliance listed in Subcontention 14.B represent a violation of Criterion XVIII of 10 C.F.R. Part 50, Appendix B, but argues that the examples of noncompliance properly constitute only one violation of Criterion XVIII and that the noncompliance occurred because of a differing interpretation of Regulatory Guide 1.144-1980, the Regulatory Guide which provides guidance on how to achieve compliance with Criterion XVIII. Applicant states that the contractors involved here have undertaken effective corrective actions as independently verified by both Commonwealth Edison and the NRC Staff to resolve the noncompliance and to prevent recurrence of similar noncompliance. With regard to Subcontention part 4, Applicant argues that this item is not a bona fide item of noncompliance but rather simply a mistake by the NRC inspector as to the dates on which Applicant's audit activities were required. NRC Staff agrees with the Applicant's arguments and supports the motion for summary disposition.

On t e first three items of noncompliance, Intervenors argue that Applicant's attempt to achieve summary disposition must fail for three reasons. First, Intervenors state that Applicant is attempting to rewrite history to make it now appear that the violations of Criterion XVIII were merely the result of differing interpretations by the NRC and Edison,

but that this is inconsistent with the evidence. Secondly, Intervenors allege that Applicant does not provide competent evidence to sustain its allegations of material fact. And lastly, Intervenors claim that important discovery is still ongoing with respect to this contention. In summing up their arguments, Intervenors state that Edison's motion is inconsistent with the evidence revealed to date; its material facts and supporting testimony are not competent or reliable; and, there is still much discovery to be had and questions to be answered before any of this subcontention is ripe for decision.

We agree with Intervenors on the lack of competent evidence to support the allegations of material fact. For that reason, we have not accepted any facts as not being genuinely in dispute.

About the only matter which does not appear to be hotly contested relates to item four, concerning the mistake by an NRC inspector on the dates that certain work was performed and audits were required. Intervenors appear only to question whether these audits identified contractor hanger design calculation problems, as required. We find Applicant's and Staff's affidavits to establish convincingly that substantial audits were performed on a timely basis and that no further matters need be heard at an evidentiary hearing on item four.

Board's Ruling on Summary Disposition (14.B)

The Board *denies* summary disposition on the first three items of noncompliance and declines to accept any material facts in advance of the evidentiary hearing. The Board *grants* summary disposition on item four and will issue its opinion at a later date.

Order

For all of the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 21st day of April 1986, ORDERED

1. That Applicant's motion for summary disposition on issues 5.A, 5.C, 6.G, 6.I, 9.D, 10.F, 12.E, 13.B, and 14.B.4 is *granted*; and

2. That Applicant's motion with regard to the other issues is *denied* but the Board *accepts* certain material facts on these issues on which no

further evidence will be taken at hearing, as detailed in the body of the Memorandum, above.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

Administrative Law Judge

ADMINISTRATIVE LAW JUDGE

Cite as 23 NRC 459 (1986) ALJ-86-2

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ADMINISTRATIVE LAW JUDGE

Ivan W. Smith

In the Matter of

Docket No. 30-20982
License No. 37-23370-01
EA 85-01
(ASLBP No. 86-516-01-OT)

NORTH AMERICAN INSPECTION, INC.
P.O. Box 88
Laurys Station, Pennsylvania 18059

April 15, 1986

MEMORANDUM AND ORDER TERMINATING PROCEEDING

On January 9, 1986, the Licensee, North American Inspection, Inc., and Counsel for the NRC Staff submitted a joint motion to terminate this civil penalty proceeding. The motion is supported by an agreement between the President of the licensee corporation and the Director of Inspection and Enforcement. It contains several stipulations and commitments by the Licensee.

A stipulation for the settlement of a civil penalty proceeding must be approved by the presiding officer if one has been designated in a notice of hearing. The presiding officer must accord due weight to the position of the Staff in considering settlement agreements. He may, on the other hand, order an adjudication of the issues if it is required in the public interest. 10 C.F.R. § 2.203. I was unable to make a finding that the proposed settlement is in the public interest solely from the papers before me. Therefore the parties joined me in a transcribed telephone conference call on April 10, 1986, to explain certain aspects of the agreement. The Staff has assured me that the settlement agreement resolves the

Staff's concern as expressed in the Notice of Violation. Tr. 25 (Chidakel). The parties have agreed that the settlement agreement may be construed in light of the transcript of the conference call of April 10. Tr. 24 (Chidakel, Shumway).

I am satisfied that the settlement is in the public interest. It is approved. The settlement agreement is attached hereto and its terms, as construed by the transcript of the conference call,* are embodied in this order. The proceeding is terminated.

Ivan W. Smith
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland
April 15, 1986

ATTACHMENT: Agreement Between the Staff and Licensee Concerning Settlement of Civil Penalty Proceeding, 1/9/86

[The attachment has been omitted from this publication but can be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.]

*The NRC Staff's Proposed Transcript Corrections submitted today are approved subject to reconsideration if the Licensee comments on transcript corrections by April 25, 1986.

Denials of Petitions for Rulemaking

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF THE EXECUTIVE DIRECTOR FOR OPERATIONS

Victor Stello, Jr., Executive Director for Operations

In the Matter of **Docket No. PRM-20-16**

A.N. TSCHAECHE **April 23, 1986**

The Nuclear Regulatory Commission is denying a petition for rulemaking submitted by A.N. Tschaeche. The petitioner requested that the Commission amend its regulations to state that full compliance with the Commission's regulations is evidence acceptable in a court of law that the licensee was not negligent, and that the Commission's regulations must be violated before a *prima facie* case is pleaded on the issues of negligence and causation in any action to recover for injuries claimed to have resulted from exposure to ionizing radiation. The Commission is denying the petition because it is inconsistent with the intent of the Commission's regulations and because the Commission lacks the legal authority to grant the petitioner's request.

NUCLEAR REGULATORY COMMISSION: RULEMAKING AUTHORITY

The Commission has no legal authority to promulgate rules of evidence for the courts.

REGULATIONS: EVIDENCE OF NEGLIGENCE

Evidence of compliance with the Commission's nuclear safety regulations constitutes evidence of a person's having acted reasonably but is not conclusive proof of the absence of negligence. *Silkwood v. Kerr-McGee Corp.*, 485 F. Supp. 566, 577-79 (W.D. Okla. 1979), *aff'd in part and rev'd in part*, 667 F.2d 908 (10th Cir. 1981), *rev'd and remanded*, 464 U.S. 238 (1984), *on remand*, 769 F.2d 1451, 1457-58 (1985).

REGULATIONS: INTERPRETATION (RADIATION PROTECTION STANDARDS)

The Commission's radiation protection standards are not intended to establish absolute safe levels of exposure below which it can be conclusively presumed that no injury could occur. Rather, in view of scientific uncertainty about radiation exposure, the Commission requires its licensees to ensure that radiation exposures are kept "as low as is reasonably achievable."

RULES OF PRACTICE: PETITIONS FOR RULEMAKING (DENIAL)

Pursuant to 10 C.F.R. § 2.802(e), the Commission may seek public comments prior to denying a petition for rulemaking; however, it is not required to do so.

DENIAL OF PETITION FOR RULEMAKING

I. THE PETITION

On October 28, 1985, the Commission received a petition for rulemaking from A.N. Tschaeche. The petitioner requested that the NRC amend its regulations to state that a licensee's full compliance with the Commission's regulations, and particularly with the regulations set forth in 10 C.F.R. Part 20, is evidence acceptable in a court of law that the licensee was not negligent, and that the Commission's regulations must be violated before a *prima facie* case is pleaded on the issues of negligence and causation in any action based on injuries claimed to have resulted from exposure to ionizing radiation. The petitioner further requested that the amended regulations clearly state that noncompliance with the Commission's regulations, and in particular, exceeding the standards set forth in 10 C.F.R. Part 20, does not in and of itself confer negligence on the licensee. Finally, the petitioner requested that, if the Commission determines that it does not have the authority to comply with the petition, the Commission seek the requisite authority from the Congress.

The petitioner asserts that resources are being "recklessly, wantonly, and uselessly squandered on radiation injury claims cases, both Workman's compensation and in tort, that are brought against NRC licensees who have demonstrably complied with the Commission's regulations."

He cites the *Silkwood* case as a well-known example, and questions the reasonableness of allowing a jury of laypersons to determine whether the Commission's regulations result in safety.

According to the petitioner, the specific issue is whether a licensee who complies with the Commission's regulations can be considered to have met its obligation to provide an adequately safe working environment for conducting its licensed activities. The petition encompasses all NRC regulations, but emphasizes those set forth in 10 C.F.R. Part 20, particularly the external occupational dose limits in § 20.101 and the limits for intake of radionuclides in air and water in § 20.103. The petitioner argues that there is no evidence based on observation of humans that demonstrates any harm to an individual or group from NRC-licensed activities performed in accordance with NRC regulations. In addition, he states that there is no evidence from animal or other studies that demonstrates any harm or risk of harm to workers or the general public from such activities.

The petitioner urges that his proposal would save money, alleviate public fear of radiation, protect licensees against claims of negligence, and clarify the intent of NRC regulations. He therefore requests that the Commission affirmatively state that compliance with its regulations is sufficient to demonstrate the absence of negligence. If the Commission considers that statement overly broad, the petitioner requests that the Commission apply it to all of Part 20 and to Appendix I of Part 50. If the Commission finds even that statement too broad, the petitioner requests that the Commission apply it to §§ 20.101 and 20.103. According to the petitioner, this could be easily accomplished if the Commission were to adopt the point of view that activities performed in accordance with its regulations are safe unless and until experience demonstrates differently.

II. REASONS FOR DENIAL

As the petitioner anticipated, the Commission has no legal authority to grant the petitioner's request. In essence, the petitioner would have the Commission promulgate rules of evidence for the courts. This would clearly exceed the Commission's rulemaking authority. Rules of evidence are derived from statutes, case law, and court rules.

In addition, the petitioner's request is contrary to judicial precedent. In general, compliance with government safety regulations is accepted as evidence of a person's having acted reasonably but is not considered conclusive proof of the absence of negligence. In its *Silkwood* decision, the District Court examined a number of cases in various contexts and reaffirmed that general rule. *Silkwood v. Kerr-McGee Corp.*, 485 F. Supp.

566, 577-79 (W.D. Okla. 1979), *aff'd in part and rev'd in part,* 667 F.2d 908 (10th Cir. 1981), *rev'd and remanded,* 464 U.S. 238 (1984), *on remand,* 769 F.2d 1451 (1985). The court found no authority for the proposition that a different rule should apply to nuclear safety regulations. Accordingly, the court held that evidence of Kerr-McGee's compliance with the Commission's regulations was not conclusive proof of the absence of negligence. Subsequent decisions in the case did not disturb that holding. Thus, *Silkwood* is controlling on this point.

As the petitioner pointed out, the District Court considered the intent of the Atomic Energy Commission (AEC) in promulgating its radiation protection standards. Because the AEC did not intend the standards to establish absolute safe levels of exposure below which no injury could occur, the court concluded that the standards were not dispositive of the issues of negligence or causation. The petitioner urges that the NRC change the intent of its regulations to establish such absolute levels and thereby preclude a finding of negligence if a licensee complies with NRC standards. However, the Commission has never taken the position that there is a level of radiation exposure below which one can conclusively presume that no injury will result. Rather, in view of scientific uncertainty about radiation exposure, the Commission has required its licensees to ensure that radiation exposures are kept "as low as is reasonably achievable." In short, the Commission lacks the technical basis to make the finding that the petitioner requests.

For this reason, it would be pointless for the Commission to ask Congress to give it the necessary legal authority to promulgate the requested rules. Similarly, it would serve no purpose to seek public comments on this petition for rulemaking, as is the Commission's usual practice. *See* 10 C.F.R. § 2.802(e). Accordingly, the Commission denies the petition.

For the Nuclear Regulatory Commission

Jack W. Roe
Acting Executive Director for Operations

Dated at Bethesda, Maryland,
this 23rd day of April 1986.

*U.S. GOVERNMENT PRINTING OFFICE: 1986-491-615/40004