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November 23, 1984

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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

SUPPLEMENTAL APPEAL BRIEF
OF
COMMONWEALTH EDISON COMPANY

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November 23, 1984

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OF COMMONWEALTH EDISON COMPANY

In accordance with the Appeal Board's Orders of October 19 and November 2, 1984, Commonwealth Edison Company ("Applicant" or "CECo") files this brief in response to the Intervenor's Supplemental Brief on Appeal dated November 6, 1984 and in support of the Supplemental Initial Decision of the Atomic Safety and Licensing Board dated October 16, 1984 ("SID"). The SID authorized the Director of Nuclear Reactor Regulation to issue operating licenses for Units 1 and 2 of CECo's Byron Nuclear Power Station ("Byron"), setting aside its denial of CECo's application for operating licenses embodied in the Licensing Board's January 13, 1984 Initial Decision.

I. INTRODUCTION AND SUMMARY OF ARGUMENT

Intervenors assert that the Licensing Board "failed to focus" on the central issue before it and thereby erred in limiting the scope of the remanded proceedings. According to the Intervenor, that issue is "whether quality control inspectors overlooked defects of safety significance" (Int. Brief,

p. 2) Intervenors further assert that the Licensing Board erroneously excluded direct testimony pertinent to that issue submitted by several witnesses sponsored by Intervenors and made other erroneous evidentiary rulings.

The predicate for Intervenors' argument is their characterization of the central issue in the remanded proceeding. However, it is the Intervenors who have grossly misperceived the issue before the Licensing Board in the remanded hearings in at least two respects.

First, the basic issue before the Licensing Board was whether the Byron Quality Control Inspector Reinspection Program ("BRP") demonstrated that quality control inspectors employed by Hatfield Electric Company ("Hatfield"), Hunter Corporation ("Hunter") and Pittsburg Testing Laboratories ("PTL") were qualified to perform inspections at Byron.^{1/} The results of the BRP were not known when the Licensing Board issued its Initial Decision in January, 1984; the Licensing Board's failure to await those results before closing the evidentiary record on which the Initial Decision was based constituted the error which led the Appeal Board to remand the Byron record for further hearings. While the data collected

^{1/} The scope of the remanded hearings insofar as it addressed the qualifications of Hatfield and Hunter inspectors was explicitly directed by the Appeal Board in ALAB 770. Evidence regarding PTL was presented as a result of the Licensing Board's June 8, 1984 order. See *infra*, pp. 35-37.

during the course of the BRP was used to reach certain conclusions regarding the quality of Hatfield and Hunter work, there was other substantial evidence adduced in both the initial and remanded hearings which bore on that issue. The pertinence of the BRP in assessing work quality was described by the Appeal Board as raising a presumption that inspectors found qualified by the BRP did not overlook safety significant construction deficiencies.

Second, Intervenor's approach to a determination of whether there is reasonable assurance that the Byron plant has been constructed so that the health and safety of the public is not endangered is wholly out of step with the basis on which the NRC determines that there is "reasonable assurance" that a power plant has been constructed in accordance with regulatory requirements. A deterministic rather than a probabilistic approach to resolving safety issues is the foundation for the entire NRC regulatory process. Two of the witnesses sponsored by the Intervenor suggested that only a reinspection program which emphasized reinspection of what are described variously as the "most safety significant inspection attributes" or "safety significant hardware" would have permitted a valid inference of acceptable work quality to be drawn. (Int. Brief p. 10). However, there are no gradations of safety-related hardware established by the NRC. Structures, components and

equipment are either safety related or they are not. The BRP only reinspected safety related inspections. Moreover, "safety significant hardware" is almost invariably the joint work product of more than one contractor (including off-site vendors) and numerous inspectors.

Since the Intervenors misunderstood both the scope of the remanded proceeding and the nature of the NRC licensing process, it follows that their arguments regarding the exclusion of testimony of their witnesses by the Licensing Board are ill-founded. The Licensing Board did not abuse its discretion in declining to receive the proffered testimony since it was either irrelevant or cumulative.

II. ARGUMENT

- A. The scope of the remanded proceeding was properly established by the Licensing Board.

Intervenors ascribe to the Appeal Board a direction that the remanded hearings "focus on the 'possible safety consequences' of any defects overlooked by inspectors." (Int. Brief, p. 3). The words "possible safety consequences" are found in a quotation from ALAB-770 reproduced in Intervenors' brief. However, Intervenors' emphasis on that phrase is mistaken. Immediately preceding those words is the statement that "the focus of the inquiry should be upon whether ... the reinspection program has provided ... confidence that the Hatfield and Hunter quality assurance inspectors were competent and, thus, can be presumed to have uncovered any construction

defects of possible safety significance." In context, the Appeal Board's direction to the Licensing Board indicated that the basic issue on remand was the outcome of the BRP insofar as it provided confidence that Hatfield and Hunter quality control inspectors were competent and that the work quality issue in the remanded proceeding was subsidiary.

The emphasis on inspector competence in ALAB-770 followed from the initial scope of the quality assurance issue as litigated before the Licensing Board. The evidence before the Licensing Board regarding quality assurance in the initial set of hearings involved items of noncompliance selected from NRC inspection reports and a variety of allegations from ex-employees of contractors at the Byron site. (See Generally Initial Decision at ¶ D-17-43, D-120-305.) Each of the items of noncompliance was shown to have been resolved to the satisfaction of the NRC Staff and virtually all of the allegations were shown to lack substance. There was no evidence, nor did the Licensing Board find in its Initial Decision, that there were uncorrected construction defects at Byron.

One of the NRC Inspection Reports which was introduced in the initial hearings reported the findings of the Construction Assessment Team ("CAT") inspection in 1982 (App. Ex. 8). As explained by James Keppler, the Director of NRC's regional office of inspection and enforcement responsible for Byron, the CAT inspections were instituted for all plants in Region 3

under construction because of the detection of significant construction deficiencies at a number of plants in the Region. (Keppler Tr. 10,141). The CAT inspection at Byron lasted 13 days, involved 662 inspector manhours and was a comprehensive review of all safety related construction (See App. Ex. 8 at pp. 1-2). No significant construction deficiencies were detected during this inspection which added to the NRC Staff's confidence that the quality of construction at Byron was good (Keppler Tr. p. 10,141).

A number of items of noncompliance were identified during the CAT inspection, however, including one involving the failure of site contractors to certify quality control inspectors in accordance with the requirements of the applicable ANSI standard, N45.2.6. The corrective action proposed by CECO for this item of noncompliance and accepted by the NRC Staff was the recertification of all quality control inspectors then on the Byron site and a sample reinspection of the work of inspectors employed by contractors whose compliance with ANSI N.45.2.6 had been found by the NRC Staff to be inadequate.

While this item of noncompliance and the proposed corrective action were briefly discussed in the initial quality assurance hearings before the Licensing Board in March and April, 1983, the Licensing Board did not devote significant attention to the issue until after a motion to reopen the quality assurance record was presented by the Intervenors in

May, 1983. (I.D., ¶ D-322). That motion was based on allegations by an ex-PTL employee assigned to Hatfield that there were irregularities in the training and certification practices for Hatfield quality control inspectors. (I.D., ¶ D-328-334). Most of the allegations were rejected by the Licensing Board as insubstantial and not warranting a reopened hearing. Two allegations involving Hatfield testing procedures were ordered to be the subject of reopened hearings. (I.D. ¶ D-324). In addition, the Licensing Board stated that it wished further evidence regarding the recertification and reinspection programs. (Memorandum and Order Reopening Evidentiary Record, June 21, 1983, at 4.)

The reopened hearings took place in August, 1983 and primarily concerned the recertification and reinspection programs which were responsive to the items of noncompliance in the CAT inspection. The Licensing Board's Initial Decision in January 1984 denied Ceco's application for operating licenses, citing continuing documentation deficiencies on the part of Hatfield and perceived failures by Ceco to exercise appropriate quality assurance oversight of its site contractors. The Board's concern about adequate documentation extended to apparent deficiencies in recording discrepancies in the BRP which was then underway. The Licensing Board conceded that there was no evidence of construction deficiencies (See ALAB-770 at p. 1168), but observed that its concerns about

documentation practices eroded its confidence that such deficiencies would have been found. (I.D., ¶ D-169, 313-314.) The Licensing Board observed that a reinspection program could resolve its concerns, but expressed some misgivings about the structure of the BRP and its implementation. These misgivings arose, at least in part, because of the equivocal Staff position regarding the BRP which was expressed in the August, 1983 hearings. (I.D. ¶ D-409, 435.) The Appeal Board remanded the record to the Licensing Board so that its findings and decision could take account of the results of the BRP in determining whether contractor quality control inspectors were competent. In this connection, the Appeal Board observed that "one of the principal deficiencies with regard to both Hatfield and Hunter related to the absence of adequate certification procedures for quality assurance personnel" (ALAB 770 at p. 1175).

Given the history of the quality assurance issue and the explicit direction of the Appeal Board, Intervenor's misstatement of the issue in the remanded proceeding is extremely puzzling.^{2/} Indeed, if the Licensing Board had limited the

^{2/} It should be observed that the Staff formulated the purpose of the BRP as determining whether quality control inspectors had overlooked significant safety-related hardware. (Little, ff. Tr. 9510, p. 4; Tr. 9577). Staff witnesses agreed, however, that this statement of purpose was equivalent to CECO's statement of purpose of the BRP: to demonstrate the qualification or competency of the inspectors. The Licensing Board found that there was no dispute between CECO and the Staff concerning the problem to be addressed by the BRP or its results (SID ¶ 24).

evidentiary hearing to a discussion of possible safety consequences of construction defects overlooked by quality control inspectors, the remanded hearings would have been very short. The Licensing Board found, on the basis of the uncontradicted evidence, that there were no overlooked defects of design significance, let alone safety significance, discovered during the BRP (S.I.D. ¶ 230), Del George ff. Tr. 8406, pp. 47-53, McLaughlin ff. Tr. 9047, p. 17).

In short, the focus of the remanded hearings was limited by the Appeal Board to a consideration of the results of the BRP and what those results disclosed about the qualifications of quality control inspectors and hence the quality of the work they inspected. The Licensing Board was faithful to this limitation. Intervenors' misinterpretation of the scope of the remanded proceeding is not a basis for reversal of the Supplemental Initial Decision.

- B. Intervenors' interpretation of the purpose of the BRP is at odds with the basic regulatory scheme of the Atomic Energy Act and 10 CFR Part 50.

Intervenors assert that in order to reach any conclusion regarding inspector competence or quality of work of Hatfield and Hunter, "one must consider not only the safety significance of any discrepancies detected in the sample, but also the 'possible safety consequence' of the sample itself." (Int. Brief, p. 9, emphasis in original). The phrase "possible safety consequence of the sample itself" is essentially meaningless. However, it appears, by reference to the rejected

testimony of Dr. Bleuel and Dr. Ericksen, that Intervenors are asserting that only a reinspection program which organized all the "inspections and attributes performed by Hunter, Hatfield and PTL" in a hierarchy of safety significance would be acceptable for determining the validity of the quality of the work of these three contractors (Int. Brief, p. 9).

In a succeeding section of the brief, we deal with the lack of relevant expertise of Dr. Bleuel and Dr. Ericksen which properly led to the rejection of their testimony. There are, however, more broadly based objections to the issue raised by the Intervenors and the rejected testimony of those two witnesses. CECo's witness, Mr. Tuetken had ranked Hatfield, Hunter and PTL inspection attributes and inspection elements in four categories of most important to safety to least important to safety (Tuetken, Tr. 8539-45). This categorization was concurred in generally by CECo witness Mr. Del George (Del George, Tr. 8545). But the ranking of attributes and elements only ranked categories of inspections without differentiating between various safety systems. For example, Mr. Tuetken and Mr. Del George both ranked visual weld inspections for Hatfield and Hunter as an inspection activity that was most important to safety. Yet, there are a variety of safety-related systems which are dependent on acceptable welding by those contractors, some of which are related to safe-shutdown systems for the reactor while others may involve routine monitoring functions during normal operation. (Klopp. Aff., ¶ 5). There is no

evidence that the BRP failed to focus on safety-related systems, nor could there be. The BRP reinspected only those activities identified by the NRC regulations as important to safety. 10 CFR Part 50 App. A.

It is worth observing that the BRP in fact collected a great deal of data regarding those inspection activities identified as most important to safety by Mr. Tuetken and Mr. Del George. For example, over 26,000 Hatfield welds were reinspected out of a total number of 80,000 reinspections (Del George, ff Tr. 8406, p. 38.) As previously stated, however, the primary purpose of the BRP was to determine the competence of quality control inspectors. To emphasize instead reinspection of those systems and components designated as more important to safety would have drastically altered the BRP and subverted its original purpose. The affidavit of CECO employee Mr. Klopp, submitted in opposition to Intervenors' motion to admit the testimony of Dr. Bleuel establishes that safety related components and systems are outside the scope of any one contractor's scope of supply and involve evaluation of manufactured components and equipment as well (Klopp. aff.; ¶ 6). Moreover, in order to establish a hierarchy of safety-related components and equipment, a probabilistic risk assessment using event tree and fault tree methodology would be required. (Klopp. aff. ¶ 3). Yet the Commission has specifically directed that such probabilistic risk assessments not replace the present deterministic

safety analyses which are used in the licensing process. (48 Fed. Reg. 10772, March 14, 1982).^{3/}

In their assertion that the BRP did not demonstrate the quality of safety-related work at Byron (Int. Brief p. 2), Intervenors both broaden the scope of the remanded proceeding beyond the specific site contractors identified in ALAB-770 and ignore the other evidence regarding work quality which was before the Licensing Board. For example, Intervenors are correct that CE expert witness Mr. Laney was unable to infer that the quality of Hatfield and Hunter work was acceptable based on the BRP and its supplement. (Int. brief, p. 8). Mr. Laney also relied on CECo's overall quality assurance program and his own familiarity with the Byron plant and the Sargent & Lundy resolution of discrepancies discovered during the BRP. (Laney ff. Tr. 9339, pp. 9-11; SID ¶ 207). Other CECo witnesses established bases for inferring work quality, apart from the results of the BRP (Del George, ff. Tr. 8406, pp. 48-9; Behnke ff. Tr. 9336, pp. 13-14; SID ¶ 278-285). Similarly, the NRC Staff expressed its confidence in the adequacy of construction at Byron which was confirmed by, but did not necessarily rest on, the BRP. As stated by Mr. Keppler, "[t]his confidence is based on our overall inspection effort

^{3/} In fact, there has been a probabilistic risk assessment created for Byron which was referred to in testimony regarding other contentions and made available to Intervenors (See Tr. pp. 1928-2085).

and was reinforced by the special team inspection conducted in early 1982." (Keppler ff. Tr. 10,135 at p.2). Other Staff witnesses testified to the same conclusion. (Forney, Tr. 10,064-65; Ward, Tr. 9872; Muffett Tr. 9872; Little, Tr. 9872-73).

The Board properly took cognizance of these bases other than the results of the BRP in determining the adequacy of Hatfield and Hunter work (SID, ¶ 232) and concluded that the use of the BRP data for a work-quality inference was "somewhat handicapped" since it had been collected in order to determine inspector qualification (SID, ¶ 230). Intervenors have failed to recognize the limited role of the BRP results in determining work quality and the other substantial bases for establishing that work quality is acceptable.

- C. The Licensing Board did not abuse its discretion in declining to admit portions of Intervenors' direct testimony.

The balance of intervenors' arguments rest on asserted errors by the Licensing Board in its rulings on the admissibility of the direct testimony of Dr. Bleuel, Dr. Ericksen, Mr. Podworny and Mr. Stokes, all of whom were sponsored by the Intervenors. Intervenors' misstatement of the scope of the issues in the remanded proceeding provides the basis for their arguments regarding the testimony of Dr. Bleuel and Dr. Ericksen. When viewed in the proper context of the issues actually before the Licensing Board, the rulings were clearly

correct. Moreover, given the limited expertise of Dr. Bleuel and Dr. Ericksen, the Licensing Board's exclusion of their testimony was not an abuse of discretion. Similarly, the exclusion of the testimony of Mr. Podworny and portions of Mr. Stoke's testimony was also proper.

1. The Licensing Board did not err in declining to receive the testimony of Dr. Bleuel

Intervenors argue that the Board erred in declining to receive the late-offered testimony of Dr. William Bleuel. Their argument is flawed in three respects. First, Intervenors omit important facts from their discussion and mischaracterize others. Second, they do not even attempt a reasoned discussion of the rules and regulations applicable to the Board's decision whether or not to receive Dr. Bleuel's testimony. Third, Intervenors fail to acknowledge the comprehensive oral arguments had before the Board on this issue, the extensive questioning by the Board, and the Board's painstaking application of the applicable rules and regulations to the facts presented.

- a. Procedural Background

The Board's decision not to accept Dr. Bleuel's testimony is best understood in its full factual context. On May 19, 1984, twelve days after this matter was remanded to the Licensing Board for further proceedings, Applicant served written interrogatories on the Intervenors asking that they identify each witness they intended to call at the reopened hearing. This was done with the expectation that at some point prior to

hearing there would be an identification of witnesses who would be presented by Intervenors as part of their direct case. The reasonableness of this expectation notwithstanding, on July 24, after hearings had resumed, counsel for Intervenors announced that Intervenors would be offering Dr. William Bleuel as an additional expert witness. (Tr. 8532.) At this time the Board and the parties were informed simply that Dr. Bleuel's testimony would supplement and reinforce the testimony of Intervenor expert witnesses Dr. Ericksen and Dr. Kochhar. (Tr. 8534.) Intervenors did not elaborate further as to the substance of Dr. Bleuel's forthcoming testimony.

On August 13, following the conclusion of Applicant's case in chief, Intervenors presented a written motion to admit the testimony of Dr. Bleuel. The motion was accompanied by Dr. Bleuel's proposed testimony. In his testimony, Dr. Bleuel made three points: (1) Applicant, as part of the Reinspection Program, should have included a failure modes and effects analysis ("FMEA"), (2) Applicant should have retained an independent firm, with no stake in the outcome, to perform engineering evaluations of discrepancies, and (3) Applicant, in designing the Reinspection Program, had incorrectly assumed that inspectors would perform least well during their initial three months on the job.

On August 16, Applicant filed its Memorandum in Opposition to Intervenor's Motion on the grounds that Dr. Bleuel's

testimony was irrelevant, cumulative, beyond his expertise and beyond the scope of the reopened hearing. On August 20, the Board entertained extensive oral argument on the matter. (Tr. 10364-10458.)

On August 21, the Board ruled that no part of Dr. Bleuel's testimony would be received into evidence. In reaching its decision, the Board applied the five part standard set forth in 10 C.F.R. § 2.714. With reference to this standard, the Board provided extensive reasons for its decision not to receive Dr. Bleuel's testimony, among them that Intervenors had failed to show good cause for the untimely disclosure of Dr. Bleuel as a witness (Tr. 10744), and that if admitted his testimony would greatly broaden the scope of the hearing. (Tr. 10745.) As to the specific points made by Dr. Bleuel, the Board found that his testimony suggesting a failure modes and effects analysis misconceived the very purpose of the BRP (Tr. 10750); that by his own admission he lacked sufficient knowledge to comment on the sufficiency of the criteria used by Sargent and Lundy and its engineering analyses of discrepancies (Tr. 10757); and that his testimony relating to inspector performance during the first 90 days was cumulative of the testimony of Dr. Kochhar and that the record on this issue was as complete as it could be. (Tr. 10759-60.) Finally, the Board found that Dr. Bleuel had very little knowledge about Byron or about the nuclear industry so as to greatly weaken the value of

his testimony. The Licensing Board concluded that overall his testimony would simply not be helpful to the Board in resolving the factual issues before it. (Tr. 10748, 10752.)

- b. The Board applied the proper legal standard in ruling on Bleuel's testimony.

Under 10 C.F.R. § 2.718, the presiding officer of the licensing board is granted "all powers necessary" to regulate the course of the hearing and the conduct of the participants, to avoid delay and to maintain order. As the Board stated, "we will have to decide [the issue of Dr. Bleuel's testimony] based upon our concepts of how a hearing should be run fairly and what the burdens of the parties are and what the rules of the cases are." (Tr. 10744.) In exercising its powers under § 2.718, the Board applied the criteria of 10 C.F.R. § 2.714 to the admissibility of Dr. Bleuel's testimony. The application of these criteria is a proper exercise of discretion under § 2.718.

10 C.F.R. § 2.714 states, in pertinent part, that late-filed petitions to intervene will be accepted only after a balancing of the following factors:

- (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.

While the language of § 2.714 refers only to intervention, the five part standard commonly has been applied as well to late-filed evidentiary contentions. Duke Power Co. (Catawba Nuclear Station, Units 1 and 20, CLI-83-10), 17 NRC 1041 (1983). Although Dr. Bleuel's testimony was not an evidentiary "contention", extension of the application of the principles underlying § 2.714 to these facts is clearly appropriate.

An analogous situation is found in the federal courts, where the trial judge has the authority to preclude the admission of late-offered evidence or to prevent a late-identified witness from testifying. United States v. Koziy, 728 F.2d 1314, 1320-21 (11th Cir. 1984); Spray-Rite Service Corp. v. Monsanto Co., 684 F.2d 1226, 1245-46 (7th Cir. 1982). Moreover, the trial judge is required to consider essentially the same factors as those listed in 10 C.F.R. § 2.714: the bad faith of the party in failing to comply with the court's pre-trial order (analogous to good cause); the potential disruption and delay in the trial; the importance of the evidence excluded; the prejudice or surprise to the party against which the evidence or witness is offered; and the ability of the party to cure that prejudice. Spray-Rite Service Corp. v. Monsanto Co., 684 F.2d 1226, 1245-46 (7th Cir. 1982). The trial judge is given broad discretion in applying these factors and the judge's rulings will not be overturned on appeal unless

there is a clear abuse of discretion. Id. A similar "abuse of discretion" standard is applied by the Appeal Board in reviewing the application of § 2.714 by licensing boards. South Carolina Electric and Gas Co. (Virgil C. Summer Nuclear Station, Unit 1) ALAB-642, 13 NRC 881, 885 (1981).

In their brief Intervenors assert that the § 2.714 factors apply only to petitions for leave to intervene.^{4/} Intervenors' current position is of course directly contrary to NRC decisions which have applied § 2.714 to late-filed contentions by parties already granted intervention. Duke Power, supra. Intervenors argue that the Board should have considered itself bound by the "less restrictive" procedure it employed in April, 1983, when called upon to decide whether to admit any part of the testimony of John Hughes, an occurrence witness sponsored by Intervenors after the initial close of the quality assurance record. However, Intervenors provide no elaboration beyond their assertion that the procedure employed in Mr. Hughes' case was less restrictive. In fact, that procedure was in its application as restrictive as the standard set forth

^{4/} Intervenors' position on this issue has not been consistent. At the hearing, lead counsel for Intervenors agreed with the Board's suggestion that the five part standard of § 2.714 was applicable, stating as follows:

MR. CASSEL: I meant to suggest at the outset of my argument that I thought those five elements would apply to the extent you regard Dr. Bleuel's testimony or the profer of it as new direct testimony, and I think that's a fair characterization. (Tr. 10413.)

in § 2.714. Before any testimony by John Hughes was admitted, he was deposed under oath, twice, once in the presence of the Board. The Board then carefully scrutinized the deposition transcripts to determine whether certain questions and answers had particular importance. Only those portions were admitted into evidence and served as the basis for cross-examination by Applicant and the Staff. (Memorandum and Order Ruling on Intervenors' Motion to Admit Testimony of John Hughes, June 21, 1983, at 18-19.)

Looking back, it is plain that the Board's decision to admit portions of John Hughes' testimony was based in part on its own independent belief that the record as it then existed was in certain respects inadequate. (See Memorandum and Order Reopening Evidentiary Record, June 21, 1983, at 1; Initial Decision, ¶ D-325, 326). In admitting Mr. Hughes' testimony, and thus triggering the submission of additional testimony by Applicant, the Board had implicitly considered the third factor in § 2.714, i.e., the extent to which John Hughes' testimony might reasonably have been expected to assist in developing a sound record. While that factor weighed in favor of accepting portions of Mr. Hughes' testimony, the Board felt quite differently about Dr. Bleuel's ability to make a contribution to the record. Most importantly, the Board was apparently satisfied with the state of the record following completion of Applicant's case in chief in August, 1984. This time there was no need to let in new Intervenor testimony in order to trigger yet

another expansion of Applicant's evidentiary presentation. Instead, the Board viewed Dr. Bleuel's testimony as exactly what it was, an attempt by Intervenors either to raise new issues at the eleventh hour or to duplicate arguments which had already been made by their other experts. On this basis the Board declined to accept any part of Dr. Bleuel's testimony. Yet the Board was careful to stress that "no matter what the formalities," no matter what the potential for delay, had Dr. Bleuel's testimony raised a matter of serious safety significance, the Board would have accepted the testimony. (Tr. 10747.) In this regard, the Board perceived a difference in the importance to it, as the finder of fact, between a witness coming forward with new factual allegations, as Mr. Hughes had, and a so-called expert witness, like Dr. Bleuel, who in the Board's judgment offered no expertise in matters pertinent to its decision. (Tr. 10744.)

c. The Board Reached the Correct Decision
Regarding Dr. Bleuel's Testimony

Following extensive oral argument, during which the Board asked many questions, the Board declined to receive into evidence any portion of Dr. Bleuel's testimony. In general, the Board found that Intervenors had failed to show good cause for the untimely identification of Dr. Bleuel as a witness. Intervenors argue that good cause did exist, since Dr. Bleuel came forward as a volunteer on the first day of hearings after Intervenors had themselves conducted a diligent search. But

Intervenors miss the Board's point. As the Board observed on July 24, the first day Dr. Bleuel was brought to the attention of the Board and the parties, the late discovery of Dr. Bleuel by Intervenors, even following a diligent search, has little relevance to the good cause question. What is relevant is the fact that the issues on which Dr. Bleuel proposed to testify had been known since the date of the remand. (Tr. 8579.)

Intervenors had months to locate and identify expert witnesses, and in fact expert witnesses who did take the stand for Intervenors presented testimony similar to two of the three points raised by Dr. Bleuel.^{5/} This is simply not a case where new factual or scientific evidence has come to light, or where an issue was raised late to which Intervenors were forced to respond. Indeed, the substance of Dr. Bleuel's proposed testimony makes this plain. As the Board observed:

There is nothing about Dr. Bleuel's testimony that reveals to the Board new science, newly discovered scientific philosophy, new scientific rules or principles. His statements are -- you know, he is an articulate person and he's an interesting person. . . .

But he is not bringing, or you are not seeking to bring to us novel ideas, unknown by people in this business before.

^{5/} Mr. Stokes' prepared direct testimony at pp. 6-8 is a virtual duplicate of Dr. Bleuel's observations regarding Sargent & Lundy's claimed lack of objectivity in evaluating discrepancies. Similarly, Dr. Bleuel's statements regarding the validity of a sample based on the first three months of an inspector's work was one of the main topics of Dr. Kochhar's prepared testimony. (See also Staff argument at Tr. 10366.)

(Tr. 10744.) Compare South Carolina Electric and Gas Co.,
supra, 13 NRC at pp. 887-889.*/

The Board also found that admission of Dr. Bleuel's testimony would delay the proceeding and significantly expand its scope. (Tr. 10745.) Intervenors challenge this finding by characterizing the issues raised by Dr. Bleuel as direct criticisms of the BRP, and therefore plainly within the existing scope of the proceeding. This characterization by Intervenors is misleading. First, with respect to all of Dr. Bleuel's testimony, the Board found that his admitted lack of knowledge concerning Byron and the nuclear industry effectively precluded him from being able to meaningfully criticize the reliability of inferences drawn from the Reinspection Program. In addition, as the Board and the parties pointed out several times, a fundamental problem with Dr. Bleuel's testimony is that it

*/ Intervenors' assert that Dr. Bleuel's credentials are similar to those of Applicant's witness John Hansel and that there should have been parity in the Board's treatment of the two witnesses. As Intervenors admit, Dr. Bleuel has no nuclear experience. Mr. Hansel, on the other hand, served as a consultant to the Kemeny Commission in its investigation of the Three Mile Island accident. He was also asked to compare TMI with the aerospace industry to determine whether certain advanced technologies in the assurance sciences were being used at TMI, e.g., reliability methods/tools, sneak circuit analysis, transient analysis, fault trees, etc. In 1983, he was selected by the U.S. Nuclear Regulatory Commission to serve on an independent review panel, which was established to provide an overview of a study conducted by the NRC and consultants to evaluate NRC's approach to quality and to recommend improvements. (Hansel, prepared testimony at 2, 3, ff. Tr. 8901.) Significantly, Intervenors offered no challenge to Mr. Hansel's credentials at the time his testimony was offered. (Tr. 8901.)

misconceives the purpose of the Reinspection Program and the manner in which information gathered by the Reinspection Program was used. (Tr. 10367-68, 10405-07, 10750.) Intervenors conceded at oral argument that had Dr. Bleuel viewed the purpose of the Reinspection Program as being only to determine the qualifications of inspectors, he might well have designed it as Applicant had, with the exception of reinspecting, inspections conducted during the first three months of an inspector's employment. (Tr. 10420.) Counsel for Intervenors went on to state, however, that Dr. Bleuel considered work quality validation to be a second "purpose" of the Program. (Tr. 10420.) This being the case, Dr. Bleuel's testimony asserts that the Program should have been structured around an FMEA, focusing resources and applying stricter standards in the more safety significant areas. (Tr. 10421) However, as observed earlier, validation of work quality was never a "purpose" of the Reinspection Program. The Reinspection Program was created solely to assess the qualifications of inspectors. At the completion of the program, Applicant appropriately analyzed the data to determine whether the data would also support "inferences" of work quality. Dr. Bleuel's testimony did no more than suggest an alternative method of analyzing work quality which was always a byproduct of the BRP conclusion regarding inspector qualification. Of equal importance, Dr. Bleuel's lack of familiarity with the overall licensing process and the other bases on which the Staff concluded that there was "reasonable

assurance" that Byron could operate with due regard for the public health and safety virtually assured that he would not make a meaningful contribution to the evidentiary record.

Intervenors argue finally that the Board erred in declining to accept Dr. Bleuel's testimony as rebuttal testimony. Here the Intervenors again mischaracterize the record. First, they incorrectly state that the Board passage quoted from Tr. 10756 refers to all three points raised by Dr. Bleuel, when in fact the Board was only discussing the second point, that dealing with the Sargent & Lundy discrepancy evaluations. Moreover, the Board's finding that Dr. Bleuel was not able to make a contribution to the record on this point was not as conclusory as the Intervenors' brief suggests. The Board's language is as follows:

[H]e simply isn't able to make a contribution to this record on that point. He says that he is not capable, nor does he know what Sargent and Lundy did. Let me get his exact language. He says:

"I have not analyzed the specific engineering criteria and methods utilized by Sargent & Lundy to evaluate the Byron reinspection program, nor would I be competent to do so."

Rather, he says:

"I am making a universal point based on extensive business experience in design assurance and quality assurance that criteria for evaluations of success or failure, no matter who conducts the evaluations should be clearly defined at the

outset that the evaluations are to be deemed reliable."

. . . We again go not to his expertise, but to his own statement that he just simply doesn't know what they did.

(Tr. 10757-58.) See Duke Power Co. (William B. McGuire Nuclear Station, Units 1 and 2) ALAB-669, 15 NRC 453, 473-75 (1982).*/

2. Dr. Ericksen's lack of relevant expertise properly led to the exclusion of portions of his testimony.

Portions of the testimony of Dr. Ericksen, an expert statistician, were excluded by the Licensing Board on motion of Applicant and Staff after an extensive voir dire. Those portions of Dr. Ericksen's testimony which were excluded comprised his opinion that inspection elements which had been characterized as "most important to safety" should have received a

*/ Dr. Bleuel's principal point, the need for an FMEA, is clearly part of Intervenor's case in chief, since no witness sponsored by Applicant or the Staff has previously discussed this method of analysis. Indeed, counsel for Intervenor conceded during oral argument that Intervenor was "principally offering that issue as direct testimony." (Tr. 10419.) Beyond this, the lack of importance to the record of this aspect of Dr. Bleuel's testimony has already been discussed at length. It is sufficient to note that the Board based its decision, not on a technical ruling regarding a definition of rebuttal testimony, but on its overall determination that Dr. Bleuel's testimony simply would not contribute to the record.

The final issue raised by Dr. Bleuel concerns the propriety of focusing on the first three months of Inspectors' work. The Board correctly found that this issue had been fully addressed in the testimony of Intervenor witness Dr. Kochhar. (Tr. 10759-60.) To this extent, Dr. Bleuel's testimony is cumulative and not rebuttal. The Board also found, as it had with Dr. Bleuel's other points, that his testimony would not be useful. (Tr. 10760.)

greater emphasis in the BRP and that varying statistical criteria should have been established for the reinspection of certain components, depending on their safety significance. Dr. Ericksen offered his opinion that a "reasonable reinspection program might have required the following reliabilities and confidence levels. . . ."

<u>Type of Element</u>	<u>Reliability</u>	<u>Confidence Level</u>
Critical to safety	100%	100%
Very important to safety	99.9%	99%
Somewhat important to safety	99%	95%
Least important to safety	90%	95%

In order to establish a 100% reliability at a 100% confidence level a 100% reinspection would be required (Ericksen Tr. 10,992).

Dr. Ericksen's criticism of the BRP for its failure to establish a hierarchy of safety-related inspections was simply a rehash of Dr. Bleuel's rejected testimony. They both evidenced a complete misapprehension of the purpose of the BRP. Moreover, Dr. Ericksen demonstrated total confusion between a hierarchy of safety-related inspection attributes (such as visual welding examination) and a hierarchy of safety related systems and components (See Ericksen, ff. Tr. 11,045 at p. 6; Tr. 10971-73). In fact, Dr. Ericksen had no knowledge of the systems within a nuclear power plant which are designed to mitigate the effects of an accident (Tr. 10984) (nor did he exhibit any understanding of the design basis accident) and he had no knowledge of the scope of Matfield and Hunter work on

those systems (Tr. 10985). He was unable to point to any portion of the Code of Federal Regulations which establishes gradation of safety-related equipment and components (Tr. 10991) or which establishes a quantification of the words "reasonable assurance" in terms of a reliability statistic at a certain confidence interval (Tr. 10,990) Dr. Ericksen has no training as an engineer, is unfamiliar with quality assurance in the nuclear industry and had never had any prior consulting assignment in connection with nuclear power plants (Tr. 10,965-68).

The rejected portion of Dr. Ericksen's testimony would have added nothing material to the record. Intervenors characterize Dr. Ericksen's rejected testimony as a permissible criticism of the design of the BRP and hence within the scope of the remanded proceeding. That testimony, however, rested on a misconception of both the overall NRC licensing process and the purpose of the BRP and is therefore almost wholly irrelevant. Dr. Ericksen's testimony proceeded from uninformed assumptions about the applicable regulatory standards and the scope of the BRP. His testimony was properly rejected. See Commonwealth Edison Co. (Zion Station Units 1 and 2) ALAB-616, 12 NRC 419, (1983)

3. The Licensing Board properly excluded the testimony of the Authorized Nuclear Inspector.

Intervenors make a half-hearted assertion that the Licensing Board erred in excluding the testimony of Sargeant

Podworny. Mr. Podworny was an employee of Hartford Steam Boiler Inspection and Insurance Co., the Authorized Nuclear Inspector ("ANI") for ASME code compliance at Byron. Intervenor's brief makes no effort at establishing the relevance of Mr. Podworny's allegations to the issues in the remanded proceeding. In fact, there was none. During the oral argument before the Licensing Board on this issue, counsel for the Intervenor identified only two issues of possible safety significance arising out of Mr. Podworny's allegations and having some bearing on the issues in the remanded hearings. (Tr. 9921-22). Those issues as well as others identified by Mr. Podworny were also being investigated by an audit team from the National Board of Boiler and Pressure Vessel Inspectors ("Boiler Board") and the NRC Staff at the time the Licensing Board was considering Intervenor's motion.^{6/}

The first issue dealt with certain interpretations of radiographs by PTL employees acting on behalf of Hunter and CECO personnel (Tr. p. 9922; July 16, 1984 letter of Boiler Board to CECO at p. 6). Inspectors conducting radiographic examination of welds are not qualified to ANSI N.45.2.6 and hence those inspections were not within the scope of the BRP. In any event, only 22 radiographs were within the scope of the

^{6/} For the convenience of the Appeal Board, the correspondence between the Boiler Board and CECO which was before the Licensing Board when it ruled on the admissibility of Mr. Podworny's allegations is as attachments 1 and 2.

allegation. These radiographs were resubmitted for interpretation to the cognizant Level III inspector employed by Hunter who found them to be acceptable. This resolution was documented in CECO's July 31, 1984 response to the National Boiler Board.

The second issue specifically referred to by the Intervenors involved the method by which Hunter accepted the certifications of NDE personnel (Tr. 9923). However, a review of the correspondence relating to this issue revealed that the actual qualifications and certifications of the NDE examiners were not in question. The concern of the Boiler Board was rather which ASME certificate holder, CECO or Hunter, accepted the NDE personnel certification. To resolve this concern, CECO agreed to defer to Hunter in accepting these certifications, thereby resolving the Boiler Board's findings. Again, there was absolutely no safety significance to this issue. The remainder of Mr. Podworny's allegations were vague. In fact, it is not certain that any of the remaining allegations involved Hunter, since Hartford acted as ANI for other ASME contractors on the Byron site. As observed by the Licensing Board, the allegations of the ANI "had, at best, a tenuous relationship to the identified issues for the remanded hearing." (Tr. 10, 149). Moreover, the allegations of Mr. Podworny were being investigated by the Boiler Board which had the appropriate expertise to disposition these allegations (Tr. 10, 150).

4. The exclusion of portions of Mr. Stokes' testimony was not error.

The Licensing Board, after considering a written motion by CECO and conducting extensive oral argument determined that certain portions of the direct testimony of Intervenor witness Mr. Stokes should be stricken. Intervenors attempt to portray these evidentiary rulings as portentous: that they constituted a deprivation of Intervenors' "constitutional, statutory and regulatory rights to a fair hearing" (Int. Brief at p. 24). This occurred, according to the Intervenors, because they were precluded from introducing any evidence regarding design defects while the Board relied on CECO and Staff testimony regarding the significance of design margins in evaluating discrepancies found in the BRP. Given the limited scope of the remanded hearing, there was no inconsistency or unfairness in the Board's rulings. The Licensing Board did not inhibit Intervenors from presenting testimony regarding Sargent & Lundy's use of design margin and other matters which went to the evaluation of Hunter and Hatfield discrepancies. Similarly, Sargent & Lundy and other witnesses sponsored by CECO and the Staff limited their discussion to design margins and other design assumptions to their use in evaluating Hunter and Hatfield discrepancies.

Instead of challenging the discrepancy evaluations at issue in the remanded proceedings, Intervenors sponsored testimony by Mr. Stokes which attempted to put in issue Sargent &

Lundy's design approach for non-safety related equipment, for discrepancy evaluations which were not included in the scope of the remanded proceeding and on subjects, such as seismology, which are not within Mr. Stokes' expertise. Indeed, Intervenor stipulated that specific Hunter and Hatfield discrepancy evaluations were not subject to criticism because of Sargent & Lundy design margin calculation techniques. (Tr. 10936) The specific examples of assertedly erroneous rulings regarding Mr. Stokes' testimony found in the Intervenor's brief were well within the Licensing Board's discretion.

- a. The Licensing Board's review of the Byron design was limited to the effect of that design on the Hatfield and Hunter discrepancy evaluations.

Intervenor broadly assert that "the Board relied heavily on the design of the Byron plant" in order to reach conclusions on the quality of the work at Byron (Int. Brief p. 24). Keeping in mind that only the work of two contractors, Hatfield and Hunter, was at issue, it is clear that the Licensing Board limited its evaluation of the Byron design insofar as it was applied in the evaluation of discrepancies attributable to Hatfield and Hunter inspectors found in the ERP. (See e.g. SID ¶ 150-51 (Hatfield objective discrepancies); SID ¶ 160-61 (Hunter objective discrepancies); SID ¶ 164 (Hatfield AWS weld discrepancies); SID ¶ 180 (Hunter ASME weld discrepancies). In an effort to expedite Mr. Stokes' review of the Sargent & Lundy discrepancy evaluations, the Licensing Board

encouraged informal meetings between Mr. Stokes and Sargent & Lundy engineers. Moreover, Mr. Stokes was given access to Sargent & Lundy calculation books, computer codes and discrepancy evaluations (See Tr. 10,736). Thus, Mr. Stokes was given every opportunity to relate alleged design deficiencies to specific Hatfield and Hunter discrepancy evaluations.

Intervenors now concede that "the general design of the Byron plant was not an issue in the remanded hearings." They assert, however, that the Board "erred in not analyzing at least those defects which related to the BRP" (Int. Brief at p. 26). When the excluded testimony of Mr. Stokes is analyzed, however, it is clear that only the testimony which constituted a general attack on the Byron design or was outside Mr. Stokes' expertise was excluded. For example, no motion to exclude was made, and the Licensing Board considered, Mr. Stokes' testimony regarding the discrepancy evaluation of Hunter ASME flare-bevel welds captured in the BRP (Stokes, ff. Tr. 10,770 at p. 16; SID ¶ 185-86). In contrast, the Licensing Board struck testimony which related to the design of the reinforced concrete foundation constructed by Blount Bros. for the turbine building. (Stokes ff. Tr. 10,770 at p. 10; Tr. 10,706-08). There was no unfairness to the Intervenors in the exclusion of irrelevant testimony.

The two examples referred to in the Intervenors' brief demonstrate the rational basis on which the Licensing Board decided the scope of the design issue in the remanded proceed-

ing. Question and answer 19 from Mr. Stokes' testimony is reproduced at pages 26-27 of Intervenors' brief. It deals with asserted disregard of design effects such as torsional stresses in Hunter pipe supports by Sargent & Lundy. No specific Hunter discrepancy evaluation was claimed to be affected by this design approach and it is properly characterized as a general attack on Sargent & Lundy's design practices. The Licensing Board conscientiously attempted to discern the relevance of that question and answer to the issues and examined both Mr. Stokes and CECO witness Mr. Kostal in a voir dire procedure for that purpose (See. Tr. 10,715-23). During that examination, Mr. Stokes stated that the torsional forces he was referring to would be caused by, inter alia, seismic loads (Tr. 10,717). Yet Mr. Stokes had testified at his deposition that he was generally unfamiliar with the NRC Regulatory Guide which relates to seismic analysis and the specific seismic features of the Byron site (Attach. B to Motion to exclude testimony of Mr. Charles C. Stokes, August 19, 1984 at pp. 59-61). Mr. Stokes' lack of expertise on seismic issues was confirmed by counsel for the Intervenors (Tr. 10,653). Accordingly, the Licensing Board properly excluded the testimony (Tr. 10,714-15, 10,761).

The second example of assertedly erroneously excluded testimony related to the evaluation of certain discrepancies in welds which were inspected by PTL. The Licensing Board excluded questions and answers 29-33 because the PTL inspections at

issue involved the evaluation of welds performed by Blount Bros. (Attachment A to Motion to exclude testimony of Mr. Charles C. Stokes, August 19, 1984 at ¶ 9.) The Licensing Board's decision to exclude this testimony was not an abuse of discretion. In its June 8, 1984 Memorandum and Order following prehearing conference, the Licensing Board stated that "we expect a general showing of the scope of Pittsburgh's work and a discussion of whether the reinspection program has provided reasonable assurances that Pittsburgh's work presents no safety problem.: (June 8, 1984 order at pp. 12-13) The Board explicitly stated that it was the Intervenors who were to provide CECO "advance notice" of the "particular concerns" they had regarding PTL (June 8, 1984 order at p. 13).^{7/} It was not until Intervenors served Mr. Stokes' prepared direct testimony on August 13, 1984 that it became known that PTL inspections of Blount Brothers work were proposed as a subject for litigation. It should also be observed that if Intervenors had properly responded to CECO's written interrogatories regarding the identity of Intervenors' witnesses and the subject matter of their testimony, there would also have been adequate notice of this issue. Intervenors never fulfilled this obligation either. It is ironic that it is the Intervenors who now assert

^{7/} The Licensing Board paraphrased this order when ruling on Mr. Stokes' questions and answers 29-33 at Tr. 10,727. The quotation from the transcript at page 28 of the Intervenors' brief omits the Licensing Board's reference to the Intervenors' obligation to specify the issues regarding PTL which they wished to litigate in advance of the hearing.

that the Licensing Board's ruling should be reversed "as a matter of fairness".

CECo elected to present testimony regarding the results of the BRP regarding PTL with respect to Sargent & Lundy discrepancy evaluations only insofar as PTL quality control inspectors had inspected the work of Hatfield and Hunter. (See French, prepared testimony ff. Tr. 9044 at p. 5). The other results of the BRP regarding PTL were presented in full. (Del George ff. Tr. 8406 at p. 32-33). There was sufficient evidence presented regarding Sargent & Lundy's discrepancy evaluations so that the Licensing Board's conclusions regarding the adequacy of the discrepancy evaluations are well-supported in the evidentiary record. Intervenors' stipulation that none of the Hunter or Hatfield discrepancy evaluations were subject to criticism because of Sargent & Lundy design margin calculation techniques demonstrates the lack of prejudice to the Intervenors' from the Licensing Board's rulings and the hollowness of their claim that the evidence should have admitted to impeach the "credibility" of the Sargent & Lundy evidence.

5. The exclusion of Dr. Bleuel's testimony regarding an independent design review was correct.


Intervenors' final argument rests on an asserted lack of independence on the part of Sargent & Lundy which compromised the objectivity of their discrepancy evaluations. The argument consists almost entirely of a quotation from the

excluded testimony of Dr. Bleuel. In the very quotation relied on, Dr. Bleuel disclaims any knowledge of the Sargent & Lundy discrepancy evaluation techniques, denies any accusation of bad faith on the part of Sargent & Lundy and asserts that he is not competent to judge the engineering criteria and methods used by Sargent & Lundy. It was on this basis that Dr. Bleuel's testimony was rejected. Moreover, the same point was made by Mr. Stokes at Tr. 10,885-904 and explicitly considered by the Licensing Board which held that there was simply no evidence which demonstrated the lack of objectivity and impartiality (SID ¶ 194). It is particularly disingenuous for Intervenors to even raise this point, when they proposed a finding which stated that there was "no evidence in this record to support the need for an independent review based upon any alleged lack of objectivity or impartiality on the part of Sargent & Lundy (Int. proposed finding 165).

III. CONCLUSION

For all the foregoing reasons, the Supplemental Initial Decision of the Licensing Board should be affirmed.

Respectfully submitted



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CERTIFICATE OF SERVICE

The undersigned, an attorney, hereby certifies that he caused a copy of the attached Supplemental Appeal Brief of Commonwealth Edison Company to be served upon the individuals listed on the attached service list by Federal Express to Judges Alan S. Rosenthal, Reginald L. Gotchy and Howard A. Wilbur, Mr. Steve Lewis, Region III, by messenger to Mr. Douglas W. Cassel, Jr. and to all other parties of record by mailing copies to each in a properly addressed envelope, first class, postage prepaid in the United States mails on this 21st day of November, 1984.

Mark Furrer

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COMMONWEALTH EDISON COMPANY -- BYRON STATION
Docket Nos. 50-454 and 50-455

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The National Board of Boiler and Pressure Vessel Inspectors

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July 16, 1984

Mr. Cordell Reed, Vice President
Commonwealth Edison Company
PO Box 767
Chicago, Illinois 60690

SUBJECT: National Board Audit of the Byron Nuclear Station
Units 1 & 2; Byron, Illinois

Dear Mr. Reed:

Commonwealth Edison, in a letter dated April 25, 1984, to Mr. S. F. Harrison, Executive Director, The National Board of Boiler and Pressure Vessel Inspectors, requested the National Board to perform an independent audit of the Byron Nuclear Station. The purpose of this audit was to determine the confidence in the quality of work at the Byron station.

As a result of this request, a meeting was held in the National Board of Boiler and Pressure Vessel Inspectors' offices in Columbus, Ohio, on May 21, 1984, with representatives of Commonwealth Edison Company, where arrangements were made to begin the audit.

On June 11, 1984, the National Board audit team consisting of Charles W. Allsion, team leader, Robert P. Holt, team member and Michael F. Sullivan, team member, met with the following personnel at the Byron Nuclear Power Station:

G. Sorensen	Construction Superintendent Commonwealth Edison Company
M. E. Lohmann	Assistant Construction Superintendent Commonwealth Edison Company
V. Schlosser	Project Manager/Byron Commonwealth Edison Company
P. R. Donavin	Field Engineering Coordinator Commonwealth Edison Company
R. J. Moravec	Mechanical Supervisor Commonwealth Edison Company
G. F. Marcus	Director of Quality Assurance Commonwealth Edison Company

Mr. Cordell Reed, Vice President
Commonwealth Edison Company
July 16, 1984
page 2

W. J. Shewski	Manager, Quality Assurance Commonwealth Edison Company
J. L. Woldridge	Quality Assurance Supervisor Commonwealth Edison Company
K. J. Hansing	Quality Assurance Superintendent Commonwealth Edison Company
B. Krasawski	Project Manager Hunter Corporation
M. L. Somsag	Quality Assurance Supervisor Hunter Corporation
Kenneth V. Jackson	Lead Engineer Nuclear Installation Services Company
Paul Deeds, Jr.	Quality Assurance Manager Nuclear Installation Services Company
R. P. Larkin	Quality Assurance Manager Powers Asco Pope J.V.
R. T. Rainey	Assistant Regional Manager Hartford Steam Boiler Inspection & Insurance Company
J. L. Hendricks	Authorized Nuclear Inspector Hartford Steam Boiler Inspection & Insurance Company
David M. Reynolds	Authorized Nuclear Inspector Hartford Steam Boiler Inspection & Insurance Company
David A. Tarkowski	Authorized Nuclear Inspector Hartford Steam Boiler Inspection & Insurance Company
Leonard McGregor	Senior Resident Inspector U.S. Nuclear Regulatory Commission

Mr. Allison stated that the National Board audit was being conducted at the request of Commonwealth Edison Company. The audit is to be a comprehensive and complete independent audit of ASME Code construction and related activities of Commonwealth Edison and their subcontractors to demonstrate the quality of the construction as related to ASME Code requirements.

Commonwealth Edison and its subcontractors were advised that the audit team would review the QA programs and QA/QC activities of all site certificate holders with special emphasis on the following areas:

Mr. Cordell Reed, Vice President
Commonwealth Edison Company
July 16, 1984
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1. Authorized Nuclear Inspector, Authorized Nuclear Inspector Supervisor and Authorized Nuclear Inspection Agency activities.
2. Documentation review and data reports.
3. Control of processes and inspection.
4. Special processes, procedures and qualification of personnel.

The audit team informed Commonwealth Edison and its subcontractors that although the audit was being categorized into four general areas, that if, in the investigation of findings or concerns the team was led to other areas not specifically within the scope of the audit, they would be pursued to determine if there was an impact upon the quality of the hardware.

Commonwealth Edison was also advised that monthly reports would be issued to the following organizations:

1. Commonwealth Edison Company
2. U.S. Nuclear Regulatory Commission
3. Chief Boiler Inspector, State of Illinois

The team advised Commonwealth Edison and its subcontractors that all findings would be reported. If a finding was closed prior to the issuance of the monthly report, the finding would be reported and identified as closed. The National Board audit team will verify the closure of all findings.

1.0 Introduction

- 1.1 Commonwealth Edison Company is the owner of the Byron Nuclear Power Station Units 1 & 2. Commonwealth Edison Company is in possession of ASME Owners Certificate of Authorization Owners 115 and Owners 116 for the Byron Nuclear Power Station Units 1 & 2. Both certificates were issued on April 21, 1982, and are due to expire on April 21, 1985. ASME Owners certificates were originally issued for Units 1 & 2 on April 21, 1976.

Commonwealth Edison is also in possession of the following ASME Certificates of Authorization:

"N"	N-2020	issued 12/30/83	expires 02/03/87
"NPT"	N-1072-5	issued 07/23/82	expires 07/23/85
"NA"	N-1073-5	issued 07/23/82	expires 07/23/85

- 1.2 The Architect Engineer (AE) and subcontractors at this site are:

- 1.2.1 A/E Sargent & Lundy Engineers; Chicago, Illinois

- 1.2.2 Hunter Corporation; Hammond, Indiana, is the prime contractor. Hunter Corporation is the holder of "NA" Certificate of Authorization N-2268-1 and "NPT" Certificate of Authorization N-2269-1, both due to expire January 5, 1985. These certificates are issued for the Byron Nuclear Station Units 1 & 2 only.
- 1.2.3 Nuclear Installation Services Company; Nitro, West Virginia, holds "NA" Certificate of Authorization N-2159-2, Class 1, 2 & 3, installation of parts, appurtenances, piping subassemblies and component supports; Class 1 installation of control rod drive housings and CS installation of core support structures at the Byron Nuclear Station Units 1 & 2; Byron, Illinois only.
- 1.2.4 Powers Azco Pope, an unincorporated joint venture, holds "NA" Certificate of Authorization N-2571, Class 1, 2 & 3 installation of components, penetration assemblies and component supports at the Byron Nuclear Station Units 1 & 2; Byron, Illinois only.
- 1.2.5 Chicago Bridge and Iron Company; Oak Brook, Illinois. Fabricated and erected the containment vessels. The containment vessels are built to the draft rules of ASME Section III, Division II and were not inspected or stamped ASME Code.
- 1.2.6 Hartford Steam Boiler Inspection and Insurance Company is the Authorized Inspection Agency for the owner and all certificate holders at the Byron site. As such, they provide the Authorized Nuclear Inspectors for the site.
- 1.3 Based on the information from Commonwealth Edison, the ASME Code of record is ASME Section III 1974 Edition with addenda summer 1975.
- 1.4 Charles W. Allison, Robert P. Holt and Michael F. Sullivan were the National Board audit team members on site for this report period of June 11 through July 6, 1984.
- 1.5 The following lists the organizations audited or scheduled to be audited and the findings or concerns to date.
- 1.6 This report will identify six (6) findings and two (2) concerns.

2.0 Commonwealth Edison Company

2.1 As of this date, the audit team has not audited the activities performed by Commonwealth Edison. These activities are scheduled to be audited during the next report period and will be reported in this section (2.0).

3.0 Hunter Corporation

NA-4210
NA-5241 3.1 There appears to be a conflict between the requirements of the Hunter QA manual and the requirements of the site implementation procedures (SIP's) which implement the manual.

Paragraph 4.3(b) of the Quality Assurance manual requires continuation sheets which are generated in the field to be presented to the ANI for review prior to issuance to the field.

Paragraph 8.2 and 8.3 of the SIP 4000 allows the production supervisor to initiate continuation sheets and distribute to production workers without ANI or Hunter QC review.

3.1.1 The National Board audit team is of the opinion that the development of a continuation sheet is a revision to the process sheet and must be presented to the ANI for review prior to issuance. This is considered a finding.

NX-5520 3.2 Hunter Corporation SIP 6.501, paragraph 6.4 addresses the certification of personnel of the NDE subcontractor. The subject procedure allows Hunter Corporation to approve and use subcontractor NDE personnel based on a review and acceptance by the Owners Level III of the NDE personnel certifications.

3.2.1 The audit team is of the opinion that this method of accepting NDE personnel certifications is at variance with the requirements of ASME Section III, paragraph NX-5520. This is considered a finding.

A-3400
CA-3700
nterp.
II-1-83-107R 3.3 The team reviewed the nondestructive examination interface "agreement" between Hunter Corporation and Pittsburgh Testing Laboratories, dated 4/27/77. Of prime concern to the National Board audit team is the contents of paragraph 9 titled, "Arbitration". This paragraph states,

"in the event there is a disagreement in the application of the governing Code, and associated standards or on the interpretation of any examination or test results, the NDE contractor and installer agree to submit the details of the disagreement to Commonwealth Edison Company. The installer shall abide by the decision of Commonwealth Edison Company."

3.3.1 It is the opinion of the National Board audit team that this portion of the agreement does not meet the requirements of ASME Section III, subarticle NA-3400/NCA-3700. The team is further concerned that there appears to be a number of instances where Commonwealth Edison's Level III examiner reversed interpretations of PTL's Level II examiner from "reject" to "accept". These reversals were done without concurrence or acceptance of either PTL's Level III or Hunter Corporation Level III examiners. This is considered a finding.

NX-4231.1 3.4
Interp.
II-80-213

The National Board audit team noted that Hunter Corporation did not document visual examinations of tack welds on small bore piping or component supports.

3.4.1 The National Board audit team is of the opinion that tack welds which are to be incorporated into the final weld shall be prepared and examined in accordance with the requirements of the appropriate subsection of ASME Section III. The team is further of the opinion that these examinations must be documented. This is considered a finding.

3.5 Hunter Corporation issued letter HC-QA-170 which invalidated hold points established by Hunter Corporation's quality assurance and the Hartford Steam Boiler Inspection and Insurance Company's Authorized Nuclear Inspectors. The letter invalidated established hold points on final visual inspection of welds. The intent of this letter was to delay these inspections until the hydrostatic or pneumatic tests were performed, not to invalidate or waive the hold points as indicated on the process sheets.

3.5.1 The use of this letter and its reference on process sheets is that it does not verify that

these delayed inspections have been performed at hydrostatic or pneumatic tests as the letter intended. This is a concern.

3.5.1.1 Additionally, the use of letters from the certificate holder invalidating or waiving ANI established hold points is a concern of the National Board audit team.

4.0 Nuclear Installation Services Company (NISCO)

4.1 As of this report period, the activities of NISCO have not been audited. Audit results of NISCO will be reported in this section.

5.0 Powers Azco Pope J.V. (PAP)

5.1 As of this report period, the activities of PAP have not been audited. Audit results of PAP will be reported in this section.

6.0 Hartford Steam Boiler Inspection & Insurance Company (HSB)

NA-5241
HSB SIS
Inspection
Handbook

Sec. 7410
par. 3.4.3

6.1 Authorized Nuclear Inspectors at the Byron site waived review of process sheets for ASME Section III, Class 1, 2 & 3 pipe hangers and component supports from a period starting in November of 1979 until May of 1984.

The HSB's ANI's also waived review of process sheets for small bore piping from May of 1980 to November, 1980.

6.1.1 The National Board audit team is of the opinion that review of process sheets prior to issuance to production is a Code requirement and that the ANI's and their supervisors deviated from the requirements of ASME Code Section III and the HSB SIS Inspection Handbook requirements by permitting this practice. This is considered a finding.

HSB SIS
Inspection
Handbook
Sec. 7410
par. 3.4.3

6.2 HSB's ANI's signed letter HC-QA-170 (reference paragraph 3.5, Section 3 of this report). As stated earlier, the intent of this letter was to postpone the established hold point until final pressure test. The process sheets however, indicate waiver of the hold points. The HSB inspectors who witnessed final pressure tests have not documented on the process sheets or associated documents the completion of the final inspection required by these hold points.

- 6.2.1 The National Board audit team is of the opinion that when the final visual inspection was performed, the established hold points should have been signed off. This is considered a finding.
- 6.3 HSB's Authorized Nuclear Inspectors instituted a system in which a red star was used to indicate ANI review of specific documents. The star was uncontrolled and not uniquely identified to an individual ANI.
- 6.3.1 The National Board audit team is concerned about the use of this system and the possibility of abuse by individuals other than HSB who may have had access to these symbols. The National Board audit team is further of the opinion that the red star is a status indicator and should be used and controlled as such. This is a concern.

SUMMARY

During this report period, the National Board audit team has focused all of its attention on the activities of the Hunter Corporation and the activities of the Authorized Nuclear Inspectors, the Authorized Nuclear Inspector Supervisor and the Authorized Inspection Agency.

Commonwealth Edison activities and those of its subcontractors, NISCO and PAP, are scheduled to be reviewed and audited during the next report period.

The National Board audit team requests that all findings and concerns identified be responded in writing. The responses shall propose the corrective action that will be taken to resolve these findings or concerns. These responses shall be presented to the National Board audit team within thirty (30) days of the date of this report. (July 16, 1984).

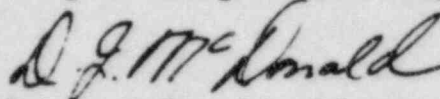
It is the opinion of the National Board audit team that to date, with the exception of findings 3.2 and 3.3, there appears to be no findings which will impact on the hardware.

The National Board audit team is further of the opinion that both Hunter Corporation and the Authorized Inspection Agency have deviated from ASME Code requirements in some instances. These deviations appear to be programmatic in nature; however, the National Board audit team is of the opinion that these deviations must be corrected to preclude the possibility of ASME Code violations.

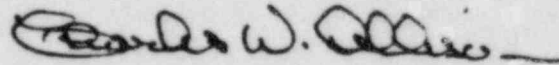
The National Board audit team appreciates the cooperation of all persons contacted during this audit.

Mr. Cordell Reed, Vice President
Commonwealth Edison Company
July 16, 1984
page 9

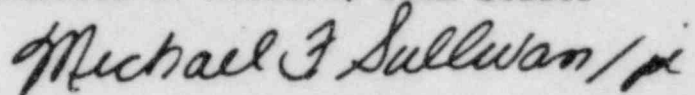
Respectfully submitted,



D. J. McDonald, Director of Inspections



Charles W. Allison, Team Leader



Michael F. Sullivan, Team Member



Robert P. Holt, Team Member

/jd

cc: J. F. Streeter, USNRC
J. G. Keppler, USNRC
D. Gallup, State of Illinois



Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

July 31, 1984

LTR: PM-84-49

Mr. D. J. McDonald
Director of Inspections
National Board of Boiler and
Pressure Vessel Inspectors
1044 Chupper Avenue
Columbus, Ohio 43220

SUBJECT: National Board Audit of the Byron Nuclear Station
Units 1 and 2

REFERENCE: (i) Commonwealth Edison (C. Reed) Letter dated
April 25, 1984, to National Board of Boiler and
Pressure Vessel Inspectors (S. F. Harrison)

(ii) National Board of Boiler and Pressure Vessel
Inspectors (D. J. McDonald) Letter dated July 16, 1984
to Commonwealth Edison Company (C. Reed)

Dear Mr. McDonald:

As a result of reference item (i), the National Board has been conducting the subject audit. The scope of the audit as identified in reference item (ii) is the audit team is conducting a review of the QA programs and QA/QC activities of all site certificate holders with special emphasis on the following areas:

1. Authorized Nuclear Inspector, Authorized Nuclear Inspector Supervisor, and Authorized Nuclear Inspection Agency activities.
2. Documentation review and data reports.
3. Control of processes and inspection.
4. Special processes, procedures, and qualification of personnel.

The first monthly report for the period of June 11 through July 6, 1984 was documented by reference (ii) above and identified six findings and two concerns. In conjunction with Hunter Corporation (HC) and Hartford Steam Boiler Inspection and Insurance Company (HSB), Commonwealth Edison (CE) hereby provides the response to these identified findings and concerns. The findings and concerns are identified to article number presented in reference (ii) above.

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ARTICLE 3.1

There appears to be a conflict between the requirements of the Hunter QA manual and the requirements of the site implementation procedures (SIP's) which implement the manual.

Paragraph 4.3(b) of the Quality Assurance manual requires continuation sheets which are generated in the field to be presented to the ANI for review prior to issuance to the field.

Paragraph 8.2 and 8.3 of the SIP 4.000 allows the production supervisor to initiate continuation sheets and distribute to production workers without ANI or Hunter QC review.

FINDING 3.1.1

The National Board audit team is of the opinion that the development of a continuation sheet is a revision to the process sheet and must be presented to the ANI for review prior to issuance. This is considered a finding.

DISCUSSION 3.1

ASME III Subsection NA-4210 and NA-5241 establish requirements for "Process Control Checklists" and "Stipulation of Inspections Prior to Issuance of Process Sheets or Controls". Hunter Corporation SIP 4.000 and 4.201 implemented our interpretation of these requirements by the development of isometrics and process sheets, collectively known as the process plan. These developed process plans were made available to the ANI for review. As conditions of installation required modification of configuration of assembly, additions were made to the process plan under the programmatic feature of a continuation process sheet. In that these additions were associated with quantity changes as a result of dimensional conditions, the established special processes, materials, and associated inspections which were established in the original process plan were expanded by the continuation process sheets. The procedure(s) which programmatically established this practice had been accepted by the ANI.

The procedurally conducted inspections and reviews of the completed process plans assured that the correct materials, special processes, examinations and inspections were included in the work associated with the continuation process sheets. This assurance is provided by 100% in process and final inspection by Hunter Quality Control inspections, essentially 100% final inspection by Hartford ANI's, and 100% review of developed documentation by Hunter Quality Control and Hartford ANI's.

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Page 3

RESPONSE 3.1.1

In response to the concerns raised by the finding, the appropriate procedures will be revised to require that continuation process sheets be made available to the ANI for review prior to implementation. It is our intent to initiate an inquiry with ASME III to address the specific requirements with regard to requiring the ANI to review process plans, including revisions thereto.

In order to address the effects of the practice of utilizing process continuation sheets in the past, an audit of twenty process plans which contain continuation sheets will be performed by Commonwealth Edison Quality Assurance to verify that the continuation work was performed utilizing correct materials, special processes, examinations, and inspections. The audit will be conducted and completed by August 31, 1984.

The revision, approval for use, and implementation of the revised procedure(s) is expected to be complete by November 16, 1984.

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ARTICLE 3.2

Hunter Corporation 6.501, paragraph 6.4 addresses the certification of personnel of the NDE subcontractor. The subject procedure allows Hunter Corporation to approve and use subcontractor NDE personnel based on a review and acceptance by the Owners Level III of the NDE personnel certifications.

FINDING 3.2.1

The audit team is of the opinion that this method of accepting NDE personnel certifications is at variance with the requirements of ASME Section III, paragraph NX-5520. This is considered a finding.

DISCUSSION 3.2

ASME III as delineated in the specific guidance of ASME Interpretation III-1-77-183 establishes that the N Certificate Holder (in this case Commonwealth Edison) may contract for the nondestructive examination services to be used by the Installer (in this case Hunter Corporation). This has been implemented at Byron and as a function of implementation the Commonwealth Edison Quality Assurance Department has performed reviews of personnel certifications of the NDE contractor personnel prior to performance of examinations. This has been documented to the Installer (Hunter Corporation) as an interim acceptance contingent upon Installer Level III review and acceptance of certification.

RESPONSE 3.2.1

Hunter Corporation SIP 6.501 is being revised to eliminate the allowance for acceptance of NDE personnel certification based on review and acceptance of Owners Level III. All NDE personnel certifications have been reviewed and accepted by Hunter Corporation's Level III and, therefore, this finding does not impact the hardware. The revision and approval for use of Procedure 6.5 is expected to be complete by August 31, 1984.

ARTICLE 3.3

The team reviewed the nondestructive examination interface "agreement" between Hunter Corporation and Pittsburgh Testing Laboratories, dated 4/27/77. Of prime concern to the National Board audit team is the contents of paragraph 9 titled, "Arbitration". This paragraph states, "in the event there is a disagreement in the application of the governing Code, and associated standard or on the interpretation of any examination or test results, the NDE contractor and installer agree to submit the details of the disagreement to Commonwealth Edison Company. The installer shall abide by the decision of Commonwealth Edison Company.

FINDING 3.3.1

It is the opinion of the National Board audit team that this portion of the agreement does not meet the requirements of ASME Section III, subarticle NA-3400/NCA-3700. The team is further concerned that there appears to be a number of instances where Commonwealth Edison's Level III examiner reversed interpretations of PTL's Level II examiner from "reject" to "accept". These reversals were done without concurrence or acceptance of either PTL's Level III or Hunter Corporation Level III examiners. This is considered a finding.

DISCUSSION 3.3

It was our interpretation that NA-3400/NCA-3700 did not preclude the allowance of the Owner's Level III examiner from performing an arbitration function when disagreements existed between NDE contractor and Installer.

RESPONSE 3.3.1

Irrespective of our interpretation, the subject Interface Agreement is being revised to eliminate the arbitration clause. All of the examinations affected by the arbitration clause have been reviewed or have been re-examined and found acceptable by Hunter Corporation's Level III and, therefore, this finding does not impact the hardware. The revision and approval for use of the Interface Agreement is expected to be complete by August 31, 1984.

ARTICLE 3.4

The National Board audit team noted that Hunter Corporation did not document visual examinations of tack welds on small bore piping or component supports.

FINDING 3.4.1

The National Board audit team is of the opinion that tack welds which are to be incorporated into the final weld shall be prepared and examined in accordance with the requirements of the appropriate subsection of ASME Section III. The team is further of the opinion that these examinations must be documented. This is considered a finding.

DISCUSSION 3.4

ASME III as delineated in the specific guidance of ASME Code Case N-302 and ASME Interpretation III-80-19 discusses welder involvement in tack welds and implied examinations of NX-4000, respectively. The practices which have been employed are as follows. The tack welds associated with full penetration piping welds and socket welds have been inspected and documented by Quality Control inspectors. For tack welds associated with fillet weld operations of component supports the individual welders have been charged with the task of tack weld examination and evaluation. All welders have been trained to the welding procedure criteria, and this training has been documented. These examinations and evaluations have not, however, been specifically documented.

RESPONSE 3.4.1

In response to the concerns raised by the finding, the appropriate procedures will be revised to require documented inspection of ASME Code tack welds on component supports. In developing the revisions to the procedures, we will use the specific guidance of ASME III Interpretation III-80-189. The revision, approval for use, and implementation of the revised procedure(s) is expected to be complete by November 16, 1984.

It is our intent to initiate an inquiry with ASME III to address the specific requirements with regard to examination of tack welds which will be incorporated into fillet welds. Should the response be favorable to the practices which have been previously employed, we will change our practices to revert back to the present methods.

ARTICLE 3.5

Hunter Corporation issued letter HC-QA-170 which invalidated hold points established by Hunter Corporation's Quality Assurance and the Hartford Steam Boiler Inspection and Insurance Company's Authorized Nuclear Inspectors. The letter invalidated established hold points on final visual inspection of welds. The intent of this letter was to delay these inspections until the hydrostatic or pneumatic tests were performed, not to invalidate or waive the hold points as indicated on the process sheets.

CONCERN 3.5.1

The use of this letter and its reference on process sheets is that it does not verify that these delayed inspections have been performed at hydrostatic or pneumatic tests as the letter intended. This is a concern.

RESPONSE 3.5.1

As identified on process control sheets, two specific visual examinations of welds were identified; one being "finished weld inspection", the other being "final visual inspection". The "finished weld inspections" involved completed weld quality inspections which have been performed and documented on process control sheets by Hunter Quality Control Inspectors and by Hartford Steam Boiler ANI's, where applicable, and are not a subject of HC-QA-170. The "final visual inspection" was checkpoint for performing and notating acceptance of welds at time of hydrostatic or pneumatic testing. At the point in time that HC-QA-170 was written, it was recognized and agreed to that the pressure testing procedure scenario identified the scope of the tests adequately so that sign off on the process sheets would have been a redundant activity. Any welds with the hold points established in the process sheets would be captured by the pressure test scenario. Therefore, the purpose of HC-QA-170 was to remove the inspection and documentation from the process control sheets and recognize it would be included in pressure test packages.

CONCERN 3.5.1.1

Additionally, the use of letters from the certificate holder invalidating or waiving ANI established hold points is a concern of the National Board audit team.

DISCUSSION 3.5.1.1

As evidenced by letter HC-QA-170, the ANI documented concurrence of invalidating and eliminating ANI established hold points. HC-QA-170 was directed to the production and quality control personnel in order to eliminate requirement for notification. At the point in time the decision was mutually agreed upon by Hartford and Hunter it was not considered that a one-letter approach would be a sensitive issue. In the future, if a similar circumstance arises, a letter from each organization will be developed to demonstrate agreement of the parties.

ARTICLE 6.1

Authorized Nuclear Inspectors at the Byron site waived a review of process sheets for ASME Section III, Class 1, 2, & 3 pipe hangers and component supports from a period starting in November of 1979 until May of 1984.

The HSB's ANI's also waived review of process sheets for small bore piping from May of 1980 to September, 1980.

FINDING 6.1.1

The National Board audit team is of the opinion that review of process sheet prior to issuance to production is a Code requirement and that the ANI's and their supervisors deviated from the requirements of ASME Code Section III and the HSB SIS Inspection Handbook requirements by permitting this practice. This is considered a finding.

RESPONSE 6.1.1

We believe an error exists in the audit report of July 16, pertaining to lack of review of Class 1 component support packages prior to release to production. In fact, 100% review of Class 1 packages was accomplished.

Review of Class 2 and 3 component support drawings and process sheets was stopped on November of 1979. This action was due to the ANI's misunderstanding of NA-5241.

There was no intent to circumvent code requirements. This is evidenced in the open manner that this action was documented by the ANI.

We are sure these actions created no impact on the installation processes because of the activities of the ANI prior to and after stopping the aforementioned review.

Prior to November of 1979, all component support drawings and process control sheets were reviewed by the ANI. Hold points were set and satisfied.

There was one standard drawing used on all types of supports. There was one type process sheet for welded supports and another for bolted supports. Any welded attachments to pressure boundaries were done on piping process sheets.

There are five basic types of hangers:

1. Anchors
2. Snubbers
3. Rigid Struts
4. Spring
5. Rigid Component Standards Supports

RESPONSE 6.1.1 (continued)

These are all bolted or fillet welded. Rather than setting hold points, the ANI determined he could do his verifications through Hunter QC inspection, his observation of the support program, and randomly selected inspections. Due to this, the ANI determined that review of tens of thousands of essentially duplicate hanger Process Control Sheets (PCS) and drawings was not necessary.

The procedures (SIP's) that controlled the various functions (i.e., document control, design change control, material control, and process control) were in effect and had been reviewed and accepted by the ANI. All changes to procedures, drawing format and PCS format were presented to the ANI for review and acceptance prior to implementation. Any programmatic changes would have been noted by the ANI and appropriate action taken.

The ANI's review of all Class 1 support drawings and PCS helped to assure him that no changes were made in the programs.

The following actions were taken by the ANI to assure compliance to the QA/QC program and to assure that code requirements were met.

- 100% review of Welding Procedures and Qualifications
- 100% review of Welder Qualifications
- 100% review of N.D.E. Procedures and all procedures demonstrated to the ANI's satisfaction.
- 100% review of material certification
- 100% review of N.D.E. reports
- 100% review and acceptance of nonconformance reports

A surveillance of component support system covering Purchase Order (P.O.) initiation, receiving inspection, hanger laydown areas, hanger warehouse and field orders.

Monitoring of Q.A. Manual.

Surveillance of various procedures (SIP's).

Review of all rework requests prior to issuance.

N.F. weld inspections during hydro test walkdowns.

100% review of all component support drawings and process control sheets was reinstated on 5/17/84.

NOTE: A detailed listing of the ANI activities mentioned above can be provided to the audit team.

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RESPONSE 6.1.1 (continued)

The concern is that the ANI did not review isometric drawings and process sheets for 2" and under Code piping during the period between 5/1/80 and 9/23/80.

The circumstances that led to the memo of 5/1/80 are as follows:

Hunter Corporation's work load gradually increased and the ANI's work load increased correspondingly.

The ANI determined that he could better keep up with his inspection activities by adjusting his work habits. The order of the priorities were hardware inspection and review of CMTR's, WPS, WPQ, NDE reports and review of radiographs. He went to the review of randomly selected isometric drawings and process sheets on 2" and under piping. The records (see Attachment A) indicate that he did approximately 10% review of the aforementioned documents prior to issuance. Review of 100% of 2" and under isometric drawings and process sheets was resumed on 9/23/80.

The quality of the 2" and under piping systems for which isometric drawings and process control sheets were not reviewed was not compromised. The ANI activities listed below helped him assure himself that the Hunter Corporation programs were being properly followed. The randomly selected review of drawings and process control sheets assured that the program for organization, Q.A. review and distribution was properly implemented. Inspections were made on 2" and under to assure continued quality of work and inspection (see Attachment B and process control sheets). Hunter Corporation Q.C. also completed their inspection activities.

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RESPONSE 6.1.1 (continued)

The Quality Assurance Program was being monitored as required, including referenced procedures.

- 10% of Process Control Sheets were reviewed prior to issuance for Construction.
- 100% of Code related Welding Procedure Specifications were reviewed.
- 100% of Welder Performance Qualification Records were reviewed.
- 100% of Certified Material Test Reports were reviewed.
- 100% of NDE Reports were reviewed.
- 100% of Visual Weld Inspection during Hydro/Pneumatic Tests were accomplished.
- 100% of Job Traveler Packages were reviewed prior to signing the data reports.

The actions of the ANI were calculated to accomplish his duties as he believed was proper. His documenting of this decision and of his actions show that there was no intent to circumvent the Code requirements. It was an error in judgment that existed for approximately five months.

NOTE: The referenced attachments A and B and the process control sheets have been presented to the audit team and are not attached to this reply.

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ARTICLE 6.2

HSB's ANI's signed letter HC-QA-170 (reference paragraph 3.5, Section 3 of this report). As stated earlier the intent of this letter was to postpone the established hold point until final pressure test. The process sheets however, indicate waiver of the hold points. The HSB inspectors who witnessed final pressure tests have not documented on the process sheets or associated documents the completion of the final inspection required by these hold points.

FINDING 6.2.1

The National Board Audit team is of the opinion that when the final visual inspection was performed, the established hold points should have been signed off. This is considered a finding.

RESPONSE 6.2.1

See Attached Lists.

The concern is that the ANI waived hold points on process sheets due to the wording of HC-QA-170. NOTE: The word waived is a misnomer and the word postponed should have been used.

The determination that final weld inspections could be accomplished more practically during the pressure tests than on a hold point basis. The intent of HC-QA-170 was to allow the Hunter QA/QC administrative process to continue past what appeared to be a bypassed ANI hold point.

The apparently bypassed inspection hold points were in fact satisfied during the pressure testing. This is substantiated by entries in the ANI's log showing weld examination pressure during the test. It is also substantiated by ANI initials and date on the "Pressure Test Directive and Report" in area #6 stating "The Weld examination pressure was attained and held for weld examination."

Standard operating procedure for pressure test was a QC Welding Inspector and the ANI to visually examine each weld during a pressure test. This ANI inspection had a twofold purpose: to check for leaks and to assure that the weld met Code requirements.

A pipe-fitter accompanied them at all times and was occasionally used to file or wirebrush a weld, when necessary, to accomplish a proper inspection.

It is estimated that the ANI group accomplished 95% final inspection. The 5% exception being when he and the Q.C.W.I. would split, for some logistical reason, and then the ANI observed the inspections being accomplished by the Q.C.W.I.

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RESPONSE 6.2.1 (continued)

The attached list was compiled from the ANI's logs and reflects the following:

1. Log Book Number.
2. Date of entry and test.
3. Either Hydro or Pneumatic test.
4. That the welds were inspected.
5. Pressure Test Directive number.

The test directive I.D. number is traceable to the individual directive. The directive is traceable to the P&ID (Piping and Identification Drawing). Through the P&ID, the Iso drawings, which list the individual welds, can be traced.

We realize now that this is a cumbersome and relatively unauditible method of tracing those particular inspection activities. We are collaborating with Hunter QA personnel to proceduralize a more definitive method of documenting final weld inspections. An outline of these methods will be presented to the audit team in the near future.

NOTE: The referenced attached lists have been presented to the audit team and are not attached to this reply.

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ARTICLE 6.3

HSB's Authorized Nuclear Inspectors instituted a system in which a red star was used to indicate ANI review of specific documents. The star was uncontrolled and not uniquely identified to an individual ANI.

CONCERN 6.3.1

The National Board audit team is concerned about the use of this system and the possibility of abuse by individuals other than HSB who may have had access to these symbols. The National Board audit team is further of the opinion that the red star is a status indicator and should be used and controlled as such. This is a concern.

RESPONSE 6.3.1

The control and use of the Red Star is a concern of the audit group. More specifically, the concern is that the use of the red star indicates final ANI review and acceptance of a Hunter Document in the Job Traveler Package (JTP).

The red star, used by the ANI's at Hunter, is an internal method of expediting review of documents. The red star is meaningless unless a corresponding ANI initial and date is placed on the Final Inspection Report (FIR) or a tabulation sheet (essentially accomplishes the same purpose). The red star, stamped on a document, is not a proof of acceptance that can be used by any organization. The proof of final acceptance is the ANI's initials and date on the FIR.

Any revisions to a JTP would call for an additional FIR or tabulation sheet and review of revised documents would be shown on the new FIR or tabulation sheet.

We have decided to discontinue the use of the red star. This decision is based on the fact that there are other methods of accomplishing this task that are more acceptable from an audit standpoint. In addition, an audit of randomly selected document packages will be accomplished by the ANI to assure that the red star was not improperly used. The following stamp shall be used to show review of individual documents by the ANI's.

A. N. I. REVIEW DATE

<input type="checkbox"/> ACCEPT	<input type="checkbox"/> SEE COMMENT
<input type="checkbox"/> PRELIMINARY	<input type="checkbox"/> FINAL ✓

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SUMMARY

In the summary of reference (ii), two findings, 3.2 and 3.3, were identified with potential hardware impact. The actions taken and information developed subsequent to July 16th have demonstrated that there are no hardware concerns as a result of these issues.

The summary also identified that the audit team was of the opinion that Hunter Corporation and the Authorized Inspection Agency had deviated in some instances from ASME Code requirements. In that the findings and concerns identified are of a nature which result from the variances of interpretation of requirements, we do not believe that these items are significant deviations. The actions being undertaken are responsive to the audit team's opinion that these must be corrected to preclude the possibility of ASME Code violations. In certain cases we possess a strong enough dissenting opinion to initiate a formal inquiry to ASME III for establishment of specific guidance. In the interim we will implement practices which we believe will align with the audit team's opinion(s).

We trust that the information provided in the response, and directly to the audit team during the course of their audit has been responsive.

V. I. Schlosser 7/31/84
V. I. Schlosser
Project Manager
Byron Station

VIS/RPT/sg/0081k

cc: V. Schlosser
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