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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges
James L. Kelley, Esq., Chairman
Dr. Richard F. Foster
Dr. Paul W. Purdom

In the Matter of	)	
	)	
DUKE POWER COMANY, et al.	)	Docket Nos. 50-413
	)	50-414
(Catawba Nuclear Station, Units 1 and 2)	)	
	)	

SUPPLEMENTAL PARTIAL INITIAL DECISION

J. Michael McGarry, III
Anne W. Cottingham
Mark S. Calvert
BISHOP, LIBERMAN, COOK, PURCELL & REYNOLDS
1200 Seventeenth Street, N.W.
Washington, D.C. 20036
(202) 857-9833

Albert V. Carr, Jr.
DUKE POWER COMPANY
P.O. Box 33189
Charlotte, North Carolina 28242
(704) 373-2570

Attorneys for Duke Power Company, et al.

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SUPPLEMENTAL PARTIAL INITIAL DECISION

I. SCOPE OF DECISION

In this Supplemental Partial Initial Decision, we rule on the "foreman override" concerns. We have defined "foreman override" as actions by supervision to meet production schedules resulting in a situation wherein "an employee is directed, either explicitly or implicitly, to violate established procedures" (Tr. 13,159, Kelley), which "result[s] in defective work or a violation of QA procedures." Duke Power Co. (Catawba Nuclear Station, Units 1 & 2), LBP-84-24, 19 NRC 1418, 1566 (1984). While we recognize that such a directive can be implicit,[1/] we also emphasize that "the mere fact that a foreman might have applied pressure for production and the employee then decides to bend to that pressure" by violating procedures is not what we consider foreman override (Tr. 13,160). Production pressure is a fact of life in the construction world (Apps. Exh. 116, pp. 12-13), and does not in itself indicate that quality is being sacrificed (see Tr. 13,876-77, Uryc). It is only when such pressure results in a supervisor directing or intimating that a procedure must be violated, and when such instructions result in defective work, that foreman override occurs. Further, as we have made clear, such potential defective work or violation of QA procedures must involve work on safety-related systems to fall within our definition of foreman override (Tr. 13,070-71, 14,081).

Our focus in assessing foreman override allegations has been on whether such occurrences are indicative of a pervasive "pattern

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1/ The evidence (Apps. Exh. 118) reveals that the overwhelming majority of foreman override concerns investigated involved implicit or oblique directions by a foreman.

of foreman pressure to 'get the job done' without regard to quality" (19 NRC at 1566); on whether this problem was widespread at Catawba and, if so, whether it affected the safety of the plant (Tr. 12,916-17, 13,162). Only evidence of a "significant pattern" of foreman override can affect our decision on this issue (Tr. 13,015).

No such pattern can be found here. Duke's investigation revealed isolated instances in which a few supervisors' words or actions were perceived by some workers as applying excessive production pressure inconsistent with the company's commitment to quality work. However, such incidents were isolated in the number of occurrences, and in the number of foremen implicated; in many instances they did not involve safety-related systems; and in no instance did defective work result. Consequently, they do not indicate widespread attitudes or practices by supervisory personnel, particularly when viewed in light of the hundreds of thousands of foremen-craft exchanges that have taken place on the site (see Tr. 14,304-05, Hunter). Nor do they reflect a Duke policy that work quality is less important than quantity, or that deficient work should be approved in order to meet construction deadlines. Accordingly, the Board concludes that "foreman override" is not a widespread or pervasive problem at the Catawba facility, and that it does not constitute a significant breakdown in the QA Program at Catawba.

II. BACKGROUND

The background of the foreman override allegations and subsequent investigations by Duke and by the NRC is set forth in

detail in Duke's August 3, 1984 report (Apps. Exh. 116)(the "Duke Report"). In January 1984, NRC Region II investigated allegations of foreman override. (See Staff Exh. 26 and 27). Numerous Duke employees were interviewed to determine whether foreman override was a pervasive problem at Catawba. The Staff concluded that it was not. (Staff Exh. 27, p. 2; see also, Staff Exh. 26, p. 5). However, during these interviews an individual referred to as "Welder B" indicated possible irregularities involving one particular foreman. The Staff determined to pursue this matter further. Staff Exh. 27, p. 2.

Region II's focus on "Welder B" involved forty-one additional interviews of welding and non-welding craft and led the Staff to conclude that the allegations raised by Welder B were isolated (Tr. 13,911, Uryc; Staff Exh. 31, pp. 3-4). On March 13, 1984, a meeting was held in at Region II to inform Duke management of the allegations (only some of which involved foreman override) raised during the Staff's inquiry. (Staff Exh. 31, p. 2; Apps. Exh. 116, p. 6). The NRC directed Duke to begin an immediate inquiry to assess and resolve the matter (Staff Exh. 31, p. 2; see also Tr. 13,178, Dick). Duke promptly began its investigation. The NRC performed a detailed review function throughout Duke's investigation (Staff Exh. 31, p. 2; Staff Exh. 33, pp. 3-5; Tr. 13,650, 13,678-80, Hollins; Tr. 13,847-50, 13,865-66, Blake, Uryc).

III. THE DUKE INVESTIGATION AND THE NRC STAFF REVIEW

Duke determined that its investigation should include interviews with craft and supervisory personnel associated with the crew of the foreman in question, interviews with a sampling of

other selected craft personnel to determine whether foreman override concerns extended to other crews and crafts, a technical review of concerns raised, and an evaluation of findings and implementation of any corrective action necessary to address any technical or personnel problems. An internal Duke Review Board was appointed to review and monitor the investigation (Apps. Exh. 113, Att. B and C; Apps. Exh. 114, Grier, p. 1).

Some 217 persons were interviewed (many more than once) in a manner which would allow interviewees to express all their concerns (Tr. 13,639, Hollins) and interviewers to obtain as much specific information as possible regarding those concerns. To evaluate the various concerns raised during the interviews, all allegations were assumed to be true, whether or not they could be substantiated. The concerns were divided into categories and each category was assigned to a competent technical individual for investigation and resolution. (Apps. Exh. 116, pp. 7-12).

While Duke conducted its investigation, Region II Staff visited Catawba in May, June, and July (Staff Exh. 33, p. 4; Apps. Exh. 113, Dick, p. 7; Tr. 13,848-49, 13,865-66, Uryc and Blake). In its May site visits, Region II Staff examined the "general adequacy of the investigative process;" read the affidavits that had been prepared; and, interviewed the Duke employees selected to conduct the initial interviews to determine the adequacy of their preparation, their ability to conduct interviews, and their ability to create a proper atmosphere during the interviews (Staff Exhs. 33, p. 4; 36, p. 1). The Staff found the Duke interviewers to be well qualified (Staff Exh. 33, p. 4; Tr. 13,848-49, Uryc, Blake),

and that the interview environment was conducive to interviewees "baring their souls" and expressing not only their own concerns but also those of which they had only hearsay knowledge (Tr. 13,853-56, Uryc). The Staff also contacted several employees who had been interviewed, and reported that they were satisfied with the process (Staff Exh. 33, p. 4; Tr. 13,849-50, Uryc). Region II Staff reviewed Duke's investigation plan and proposal for resolution of the concerns expressed and found it to be "a valid and logical approach" (Staff Exh. 33, p. 4). In its June site visit, the Region II Staff met with both the Investigation Director and the Duke employees appointed to lead the technical concern resolution groups, and concluded they were well prepared to perform their roles. The affidavits were deemed to be "thorough and well written" (Staff Exh. 33, p. 4; see also Tr. 13,865-66, Uryc).[2/] In its July site visit, the Region II Staff reviewed the proposed resolution of technical concerns, the methodology being used to provide feedback to employees, and the proposed corrective personnel actions (id. at 5). In sum, its site visits satisfied the Staff that Duke's investigation was thorough (Tr. 13,913-14, Blake).

On August 3, 1984, Duke completed its Report. The Report makes clear that foreman override was not and is not a pervasive problem at Catawba (Apps. Exhs. 115, Hollins, p. 4; 116, pp. 1-3, 12-16). Of the 217 persons interviewed, fewer than 12 specific instances of foreman override were mentioned and fewer

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2/ With respect to the company's investigation of the interpass temperature issue, the NRC contracted with Carl Czajkowski of Brookhaven Laboratories to ensure that Duke's metallography was satisfactory (Tr. 13,866, Blake). Mr. Czajkowski also was present during the June site visit. Staff Exh. 32.

than 6 of those allegations could be even partially substantiated. Of those, it is significant to note that they involve a limited number of supervisors and fit into no pattern of regularity or repetition (Apps. Exh. 116, pp. 1-3, 14). When these few isolated allegations of foreman override -- none of which led to any defective work (Apps. Exh. 116, p. 25; Tr. 13,691, Hollins; Tr. 13,864, Blake) -- are measured against the thousands of foreman-craft interactions, it is clear that foreman override is not a problem at Catawba. However, because some employees, in isolated instances, had perceived situations which might involve foreman override, Duke took appropriate personnel action with respect to certain supervisors. (Apps. Exh. 116, pp. 25-27).3/

The Staff summarized the results of Duke's investigation in its August 31, 1984 inspection report (Staff Exh. 33). Therein the Staff also concluded that foreman override was not a pervasive problem at Catawba. (Tr. 13,881-83, Uryc and Blake; see also Tr. 13,860-63; 13,869-70, 13,910-12, Uryc and Blake). This report closed out those unresolved items identified in previous inspection reports. It was accompanied by a Notice of Violation of 10 CFR 50, Appendix B.4/ Region II officials also contacted 27 of the 37

3/ As to personnel actions, examination focused upon Individuals, 184 and 142. Applicants discussed each individual (Tr. 13,205-08, 13,382, 13,636-38, 13,674, Dick). For example, an alleged threatening statement of Individual 142 was put into perspective by Individual 32 (see Apps. Exh. 118 Affidavit of Ind. 32); the "birddogging" of Individual 184 was shown not to be a matter of safety significance (Tr. 13,674, Dick; see also, i.e., IC Tr. 2089, 2094, Ind. 196). Applicants also adequately explained the action taken (Apps. Exh. 116, pp. 25-27; Tr. 13,215, 13,380, Dick).

4/ The severity level, based upon the extensive record developed
(footnote continued)

individuals who had expressed concerns during the investigation (the remaining individuals could not be reached). All of those contacted indicated that they were satisfied with the results of Duke's investigation and that they felt their concerns were appropriately addressed[5/] (id., p. 6; Tr. 13,914, Uryc).

IV. ADEQUACY OF THE DUKE REPORT

The thrust of Intervenors' case was to challenge the adequacy of Applicants' Report on six basic grounds: (1) inadequate sample size; (2) inadequate interviewing process; (3) incomplete affidavits not fully reflective of the concerns raised; (4) incomplete Duke Report not reflective of the concerns contained in the affidavits; (5) erroneous technical resolution of specific issues; and (6) employee testimony which reflects a pervasive pattern of foreman override. The Board finds these

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on this matter, reflected that the Staff did not view the Welder B issue "as a terribly serious matter in terms of safety significance" (Tr. 13,885, Blake). The Staff also explained that, based upon its own reviews and the Duke Report (Tr. 13,750, Uryc), the violation was reflective of a breakdown in a part of the QA program, viz., the Construction Department (Tr. 13,729-30, 13,751, Blake). The violation "had nothing to do with the operation of the organization called Quality Assurance/Quality Control" (Tr. 13,858, Blake).

5/ The Board inquired as to why the matters set forth in the Duke Report had not surfaced earlier (Tr. 13,640). Applicants explained that they had mechanisms in place whereby these matters could be raised, but such were not utilized (Tr. 13,640, Dick). The NRC confirmed that adequate systems were in place (Tr. 13,856, Uryc, Blake). The record reflects that Applicants are taking additional steps in this regard (Tr. 13,222-24, 13,640-42, 13,677-78, Dick). The record further reflects that if employees had felt their concerns were significant they would have raised them earlier; to the Board if necessary (see, e.g., IC Tr. 2093, Ind. 196; see also Tr. 13,780, Uryc) but that those who testified did not feel their concerns were of such significance (see, e.g., IC Tr. 2096, Ind. 196; Tr. 14,147, McCall).

allegations without merit and Applicants' report to be a complete, fair, and accurate reflection of the investigation and resolution of the foreman override issue.

A. Sample Adequacy

The sampling methodology used in Duke's investigation is described in Apps. Exh. 115, pp. 2-3; Apps. Exh. 116, pp. 7-12; and Tr. 13,226-33, 13,243-50, Hollins). Duke did not attempt to obtain a scientifically representative sample of welders or other craftsmen; rather, Duke set out to determine whether problems existed on a particular welding foreman's crew and whether such problems extended beyond this crew (Tr. 13,638-39, Hollins). To accomplish this, Hollins testified that he exercised his best judgment as to how large the sample size should be (Tr. 13,246-51, Hollins; Tr. 13,646-49, Hollins and Dick). A total of 217 individuals were interviewed, many of them more than once. The methodology developed by Mr. Hollins was reviewed and approved by a member of Duke's Review Board who has experience in investigating and auditing (Apps. Exh. 114, p. 4; Tr. 13,681, Grier). Moreover, the NRC Region II officials who possessed extensive investigating backgrounds (Tr. 13,850-853, Uryc, Blake, Economos) concluded the sample was sufficient to address the concerns raised by the NRC and to support the conclusions set forth in Duke's report (Tr. 13,850-53, Uryc and Blake; see also Tr. 13,680-81, Hollins).6/

6/ It should be noted that the NRC Staff interviewed as many as 80 individuals (Tr. 13,913, Uryc). Given the fact that the NRC also concluded that foreman override was not pervasive (Tr. 13,860-63, 13,881-83, Uryc), this additional number of

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Finally, Dr. Hunter, refuted Dr. Michalowski's criticism of the sample (Ints. Exh. 147, Michalowski, p. 2; Tr. 13,940-45, Michalowski), testifiying that the "snowball" sampling used by Duke was more appropriate for use in Duke's investigation than the random sample urged by Dr. Michalowski. Moreover, contrary to Dr. Michalowski's assertion, Duke did use random sampling for part of its investigation. Dr. Hunter testified that even if one excluded the "snowball" (non-random) data the conclusions of the report would remain unchanged (Apps. Exh. 120, Hunter, pp. 7-9; Tr. 14,337-38, 14,356-57, Hunter). The Board concludes that the sample of employees interviewed was adequate to support the conclusions set forth in the Duke report (Apps. Exh. 116).

B. Adequacy of the Interviewing Process

Intervenors sought to call Applicants' interviewing process (Apps. Exh. 116, pp. 10-12; Apps. Exh. 113, Att. 3, pp. 2-6) into question through the testimony of Dr. Michalowski, and the testimony of various Catawba employees. Dr. Michalowski maintains the interviewing process is inadequate because of

a. "failure to specify exact parameters of the dependent variable(s)"[7/] (Ints. Exh. 147, Michalowski, p. 1; Tr. 13,936, Michalowski);

b. "failure to operationalize key variables and concepts" (Ints. Exh. 147, Michalowski, p. 1), such as what constitutes "pressure" and what constitutes an "isolated" event versus a "pattern." (Tr. 13,936-40, Michalowski;

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interviews enhances the Board's confidence in Applicants' sample.

7/ Dr. Hunter defined a dependent variable as "a variable whose values are being looked at as a function of something else" (Tr. 14,292, Hunter).

c. "interview schedule problems," such as the "behaviorally unspecific nature of the majority of interview questions," reliance upon "highly subjective concepts and phraseology," and the "contingent ordering of questions." (Ints. Exh. 147, Michalowski, p. 2; Tr. 13,945-47, Michalowski);

d. "interview environment problems" (Ints. Exh. 147, Michalowski, p. 2; Tr. 13,947-52, Michalowski).

Dr. Hunter rebutted each of these assertions:

a. the key "parameter" of Duke's investigation was the number of instances of foreman override. Information on foreman override was elicited by several questions. Hunter also disagreed with Michalowski's implicit premise that the presence of more than one dependent variable was a flaw. The fact that Duke's investigation considered more than one dependent variable does not invalidate the results found for any one variable (Apps. Exh. 120, Hunter, p. 7).

b. the key variables of foreman override and foreman pressure were "operationalized" by the questions asked during the interviews (Apps. Exh. 120, Hunter, p. 2; Tr. 14,309-18, Hunter).

c. it would not have been efficient for all of the questions asked to have been behaviorally specific; general questions were appropriately asked to elicit as much information as possible. In regard to the interviews' alleged focus upon "highly subjective" concepts, Dr. Hunter pointed out that subjective language was used only in those questions where it was appropriate, such as the term "pressure," which allowed interviewees to report any actions that they perceived as pressure. Other questions were clearly objective. Dr. Hunter also disagreed with Dr. Michalowski's assertion regarding the contingent ordering of questions. He testified that the format used by Duke's interviewers -- which was to begin with broad, open-ended questions to encourage anticipated answers and then follow up with specific questions -- was effective in eliciting information on foreman override behavior (Apps. Exh. 120, Hunter, pp. 3-6; Tr. 14,332, Hunter).

d. Dr. Hunter disagreed with Michalowski's assertion that there was a "power differential" between interviewers and interviewees, pointing out that the interviewers were employee relations personnel not in the craftsmen's chain of command. The fact that the welding superintendent gave an introductory talk before the interviews would in Dr. Hunter's view tend to reinforce the employees' belief that they were to take the interview seriously and provide all the information they could. [The Staff agreed. (Tr. 13,850, Uryc)]. In response to Dr. Michalowski's concern that interviewees would have been hesitant to reveal "high risk" information, Dr. Hunter pointed out that this concern is belied by the affidavits themselves, many of which contain extremely derogratory remarks about particular

foremen. Moreover, the interviewees were assured that their responses would be confidential. (Apps. Exh. 120, Hunter, pp. 4-5; Tr. 14,332-037, 14,360-61, Hunter).

In addition, the cross-examination of Dr. Michalowski pointed up additional facts which suggest that his arguments merit little weight.[8/] The testimony of the Catawba employees also supports the adequacy of the interviewing process. All the workers who testified stated that they were not intimidated by the interviewing process and felt free to raise all their concerns (Tr. 14,142-43, McCall; Tr. 14,187-88, Braswell; Tr. 14,222-23, Carpenter; IC Tr. 2069, Ind. 196; IC Tr. 2131, Ind. 31).

C. Completeness of Affidavits

Intervenors alleged that the affidavits do not reflect all the matters raised during the interviews (see, e.g., Tr. 13,148). This allegation was not substantiated by the testimony. Of the five Catawba employees called by Intervenors, four stated that the affidavits fully reflected their concerns (Tr. 14,142-43,

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8/ The Board notes that: Dr. Michalowski had not read any of the affidavits (Tr. 13,930); he admitted that asking questions, as Applicants did, directed to specific violations is helpful (Tr. 13,963); he admitted that subjective questions, as Applicants asked, are good in seeking perceptions (Tr. 13,965); he admitted that focusing, as Applicants did, on a pressured group will not give inaccurate results (Tr. 13,973); he admitted the entire Report is not invalid, (Tr. 13976); he was unable to say if foreman override was pervasive (Tr. 13977); he had no quarrel with some of the investigative techniques employed (Tr. 13982); he agreed with Dr. Purdom that it is appropriate to seek, as Applicants did, additional information regarding the concerns raised (Tr. 13983-84); he exhibited, in response to questioning by Dr. Purdom, a fundamental misconception of the purpose of the report, apparently assuming that it was to determine whether violations of QA procedures existed across crew and craft (Tr. 13,990); he agreed with Judge Kelley that if foreman override is the focus of the report, the types of questions asked are "on target" (Tr. 13,993).

McCall; Tr. 14,188-89, Braswell; Tr. 14,222-24, Carpenter; IC Tr. 2068-69, Ind. 196). Individual 31 did have two concerns which were not reflected on either of his affidavits, but this was only because he forgot to mention them in that he was a nervous individual and his mind would go blank at times (IC Tr. 2103, 2105, 2118-19, 2130-31 Ind. 31). He stated he was not intimidated by the interviewer, Mr. Bolin (id.). His claim that the interviewer told him "I don't want to hear about harassment" (IC Tr. 2105, Ind. 31) was denied; the interviewer testified that the affidavits of Individual 31 contained all the statements he made (Tr. 14,273-76, Bolin). This Board, having observed the demeanor of these witnesses appearing before it, credits Mr. Bolin's testimony. In any event, Individual 31 said he did not have anything to say about harassment (IC Tr. 2105, Ind. 31), and he had never seen anything involving a foreman that he thought would adversely affect the safe operation of the plant (IC Tr. 2135-36, Ind. 31).

The Board concludes that these affidavits, which were relied upon by Applicants during their investigation, fully reflect the concerns that the employees raised during their interviews. This conclusion is particularly reasonable in light of the fact that the employees themselves read and signed these affidavits and presumably would note inaccuracies (see Apps. Exh. 118).

D. Completeness of the Duke Report

Intervenors alleged that the Duke Report does not fully address the concerns raised in the affidavits. However, the testimony of record does not support this assertion. Intervenors sought to challenge the completeness of the report by reading excerpts from affidavits to Applicants' witnesses to demonstrate matters contained therein were not properly characterized by Applicants.9/ However, these witnesses provided a reasonable and convincing response for each such incident, indicating why a particular concern or fact situation was, or was not, included in the Duke Report as foreman override (see Tr. 13,271-75, Hollins; Tr. 13,688, Llewellyn; Ints. Exh. 166; Tr. 13,688-69, Llewellyn; Tr. 13,565-74, Mills, Hollins, Llewellyn). This Board presumes that, had the Intervenors continued to pursue this line of questioning, the Applicants' investigators would have had similar, equally justifiable reasons for their treatment of particular allegations. Because the Intervenors, as parties adverse to the Applicants, were not able to confront the investigators with a single incident in an affidavit that was inappropriately classified or omitted from the Duke Report, this Board has reasonable assurance that the Applicants' report is complete in its treatment of foreman override allegations.

9/ Intervenors introduced into evidence a portion of Mr. Grier's Review Board Report. (Ints. Exh. 160). All of the incidents related in that portion of the Review Board Report appear in the Duke Report discussion of interpass temperature (see Apps. Exh. 116, Att. A, pp. I-1 to I-2; Tr. 13,689, Llewellyn) or backing rings (see Apps. Exh. 116, Att. B, pp. X-2, X-3 to X-4). The backing ring allegations did not involve foreman override. (See Tr. 13,268, Hollins).

Accordingly, any isolated incidents drawn from the affidavits without the benefit of a clarifying explanation from the investigators, interviewers, or employees involved do not alter this Board's reasonable assurance of the completeness of the Duke Report. Although one may take isolated portions of affidavits out of the context, when the evidence is considered in the correct perspective, this Board is confident of the completeness of Duke's treatment of the employee concerns. This confidence is further justified in light of the NRC's close monitoring of Applicants' investigation (see Staff Exh. 33, p. 5).

E. Adequacy of Technical Resolutions

Intervenors sought unsuccessfully to discredit the technical resolution of several issues contained in the Duke Report.10/

10/ In addition to items contained in Duke's Report, Intervenors examination focused on the effectiveness of QC inspectors. Intervenors assert foremen override was not detected or corrected earlier at Catawba because the QC inspectors were harassed, intimidated, and not supported by supervision (Tr. 13,660-61, Garde). There is no evidence to support this novel proposition. The only evidence even tangentially related to this proposition is contained in an affidavit of one QC inspector, Individual 32, wherein that inspector expressed some concern over the adequacy of inspector staffing on the second shift (Apps. Exh. 118, Ind. 32). Harassment of any sort was not mentioned. The adequacy of second-shift inspection is clearly reflected in the evidence (see id.; Tr. 14,242-44, Davison). Individual 32 read the document addressing the situation (Ints. Exh. 151) and stated "I have never felt that this problem was serious enough to affect the quality of the plant and I am completely satisfied with the action that has been taken." (Apps. Exh. 118, Ind. 32). As explained by an ex-employee who welded on the second shift, the times when there was not a QC inspector immediately available, quality was not adversely affected; it simply meant the work could not be signed off until the next shift (Tr. 14,196-97, Carpenter). Another welder who worked for Arlon Moore testified that random inspections were in fact being done on the second shift (IC Tr. 2030, Ind. 196).

(footnote continued)

Each issue is discussed below.

1. Interpass Temperature[11]/

Applicants tested, inspected, and researched the effect of possible interpass temperature violations due to alleged incidents of foreman override. Applicants and Staff concluded that even if such occurred, there was no adverse impact on the safety and integrity of the welds (see Apps. Exh. 116, pp. 16-17; id., Att. A, pp. I-1 to I-8; Staff Exh. 33, p. 2). Palmetto alleged that Applicants tried to conceal field testing of actual welds in the plant made by welders under the supervision of Arlon Moore and that some of those welds did not meet certain standards. These allegations are unsubstantiated.

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Indeed, the affidavits taken by Applicants during their investigation, as well as the statements made to the NRC, clearly reflect the fact that the workers are impressed by the thoroughness and effectiveness of the QC inspectors (Tr. 13,859, Uryc; Tr. 13,645, Grier; see, e.g., Apps. Exh. 118, Inds. 22, 46, 104, 134, 140, 186, 214). A number of the workers called as witnesses by the Intervenors also shared the view that the QA program and the QC inspectors were effective (see Tr. 14,142, McCall; Tr. 14,187, Braswell; IC Tr. 2068, Ind. 196). Finally, the Board emphasizes that the Quality Assurance Department and the QC Inspectors were not implicated in any way by the Notice of Violation issued to Applicants as a result of the investigation; rather, this violation was based on a problem of perceptions of some craft supervision by the craftsmen they supervised (Tr. 13,858-59, Blake and Uryc; Tr. 14,239-41, Davison; Tr. 13,643-46, Dick and Grier).

11/ The term is defined in Apps. Exh. 113, Att. C, p. 5. Applicants have established 350°F as the interpass temperature. 350°F is an industry-accepted standard (Tr. 13,538, Kruse; Tr. 13,871, Czajkowsi).

The record demonstrates that, when beginning their technical investigation of possible interpass temperature violations, Applicants and NRC Staff hoped to find a field test that would detect, after the fact, whether interpass temperature had been violated on any given weld (Tr. 13,900-01, Blake; Tr. 13,444, Kruse). To this end, ASTM A-262 Practice A ("Practice A") was employed, a Practice which is not a part of Applicants' QA procedure (Tr. 13,444, 13,633-34, Kruse; see Ints. Exh. 165). Practice A could not identify whether interpass temperature had been violated (Tr. 13,444, 13,505, Kruse; Tr. 13,868-69, 13,895-96, 13,901, Blake; Tr. 13,880, 13,90[illegible] Czajkowski, Economos). Thus the results of Practice A field tests were irrelevant to that issue (Tr. 13,901, Blake; see also Tr. 13,506, 13,685, Kruse). Accordingly, a discussion of the specifics of the field testing of welds was unnecessary in the Duke Report and the NRC Report (Tr. 13,902, Blake; Tr. 13,506, 13,685, Kruse).12/ In any event, field testing is reflected in Duke's Report and the record reflects that not only was the NRC Staff aware of such testing, they actually sent a representative to the site to observe it (Tr. 13,695-696, 13,700-701, Dick, Hollins). Significantly, an NRC inspection report fully discussing the use of Practice A on 27 field welds was served on the Board and all the parties on July 18, 1984 (see Staff Exh. 32). Indeed, even some of the

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12/ Discussion concerning the adequacy of the sample size of the 27 field welds examined by using Practice A is irrelevant (see, e.g., Tr. 13,450-56, Llewellyn, Hollins, and Kruse). In any event, testimony reflects the adequacy of the sample size (Tr. 13,454, Hollins; Tr. 13,627-28, Kruse; Tr. 13,867, Economos).

welders who had raised interpass temperature concerns remembered being told about the testing and the fact that several of the field welds did not meet the acceptance criterion of Practice A (see, e.g., Tr. 14,037, 14,041, Carpenter). The NRC Staff was also told that there were field welds that did not meet the acceptance standard of Practice A (Tr. 13,476-79, Llewellyn, Kruse, Hollins; Tr. 13,509, Llewellyn; Tr. 13,678-80, 13,529-30, 13,693-99, Dick, 13,701, Hollins; Tr. 13,868-69, 13,865-13,866, Uryc, Blake; see also Tr. 13,473, Kruse). Because the results of these field tests did not alter the ultimate conclusion that Intergranular Stress Corrosion Cracking ("IGSCC") would not be a problem at Catawba, the specific results of the field testing are irrelevant to the conclusions drawn in the Duke Report and the Staff Report, and thus there was no need to discuss them therein (Tr. 13,529, Dick; Tr. 13,902, Blake; Tr. 13,685, Kruse). On the basis of the record, Intervenors' allegation that the licensee attempted to "cover up" the field weld testing and results has no merit.

Intervenors also sought to show that the presence of sensitized welds indicates that these welds are somehow unsafe. The metallurgical experts called by the Applicants and Staff emphasized repeatedly, however, that Practice A is only an acceptance standard and failure to meet its criteria does not mean that a weld is rejectable or defective, or will fail in service or be unsafe (Tr. 13,470, 13,505, 13,534, Kruse; Tr. 13,867, 13,890, 13,898, 13,900, Czajkowski). Sensization could lead to IGSCC if stress and a sufficiently corrosive environment

also exist (Tr. 13,534-35, Kruse; Tr. 13,867, 13,892, 13,907 Czajkowski). If any one of these three factors is absent, there will be no IGSCC (Tr. 13,534-35, Kruse).13/ The record demonstrates that at Catawba the water chemistry will be controlled so that a sufficiently corrosive environment is absent; thus no IGSCC will occur, regardless of the presence of sensitized welds (Tr. 13,535, Kruse; Tr. 13,632-33, Ferdon; Apps. Exh. 116, Att. A, pp. I-6 to I-7; Tr. 13,907-08; Czajkowski).14/

The eight or so rare incidents of IGSCC in PWRs occurred in systems which were unlike those involved at Catawba because they either were made of metals other than 304 stainless steel, or contained corrodents that are not present at Catawba (Tr. 13,612-13, Ferdon; Tr. 13,846-47, 13,891, 13,908-09, 13,918-21, Czajkowski; Tr. 13,924-25, Blake).15/ The metallurgical experts who testified on behalf of Applicants and NRC Staff concluded that the questioned welds will not fail in service and IGSCC will not be a problem at Catawba (Apps. Exh. 116, Att. A, pp. I-5 to

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13/ Intervenors attempted to establish that the relationship among the three factors was uncertain, suggesting that a very weak corrosive environment might cause IGSCC (see Tr. 13,550-53). This was refuted by Applicants (Tr. 13,631-32, Ferdon).

14/ It is thus irrelevant that a slightly higher carbon content in carbon stainless steel makes that steel possibly more succeptible to sensitization (see Tr. 13,474-75, Ferdon and Kruse; Tr. 13,496-97, Ferdon; Tr. 13,519, Kruse; Tr. 13,832, 13,898, 13,910, Czajkowski). The type of stainless steel pipe at Catawba is within relevant carbon-content specifications and is consistent with that used successfully at other PWRs (Tr. 13,847, Czajkowski; Tr. 13,689-90, Kruse).

15/ The IGSCC experience in BWRs about which Intervenors inquired is not transferable to Catawba (Tr. 13,908, Czajkowski).

I-8; Tr. 13,610, 13,632, 13,690, Ferdon; Tr. 13,636, Kruse; Tr. 13,868, 13,846, 13,880-81, 13,909, Czajkowski).[16] Accordingly, this Board has reasonable assurance that even if a few alleged violations of interpass temperature did occur, the resulting welds are safe and fully acceptable.

2. Cold Springing[17]

Duke's Report addresses all of the alleged cold springing incidents which were raised during the interviews; none of these constitutes foreman override (Apps. Exh. 116, Att. B, Section III, see Tr. 13,565-75, Mills, Hollins, and Llewellyn). The only undocumented instance of cold springing[18] involved the RN system which was subsequently detected and nonconformed as a result of Duke's investigation (id.).[19]

The pipe fitter who made the cold-sprung fit on the RN system testified that the personnel involved in this incident (craftsmen, foreman, and QC and ANI inspectors) all concluded

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16/ None of the other potential problems due to interpass temperature violations (shrinkage and hot cracking, see Tr. 13,539-41, Kruse) were present at Catawba; they would have been detected through normal inspections (Tr. 13,628-31, 13,686, Kruse, Llewellyn, and Van Malssen). In the event of IGSCC, if a leak were to occur, it would be detected before break (Apps. Exh. 116, Att. A, p. I-7).

17/ The term is defined in 19 NRC at 1552. Applicants' procedure CP-483 allows cold springing (Tr. 13,563, Mills).

18/ Two other instances of cold springing were raised during the investigation; both of these had already been detected, nonconformed, and corrected under the QA program (Apps. Exh. 116, Att. B, pp. III-1 to III-2; Tr. 13,564, Hollins; Tr. 13,561-63, Mills, Lewis, and Bolin).

19/ Although an analysis conducted by Design Engineering determined that the RN system was acceptable as-is, Applicants reworked the fit as a conservative measure to make system maintenance easier (Tr. 13,581-83, Mills, Hollins).

(erroneously) that the particular cold spring was permitted (Apps. Exh. 116, Att. B, p. III-1; Tr. 14,110-11, 14,114, 14,140, McCall; Tr. 13,580, 13,687, Mills). He stated that this was not foreman override; rather it was a mistake by all involved parties (Tr. 14,140, 14,143, McCall). The fitter testified that his foreman did not want to "cut corners," but had simply misinterpreted the procedures (Tr. 14,145-46, McCall; see also Tr. 13,580, Mills). We concur that this incident does not represent an instance of foreman override.

3. Arc Strikes[20]

A second technical issue which the Applicants classified as not involving foreman override is the alleged unauthorized removal of arc strikes (see Apps. Exh. 116, p. 17; id., Att. B, pp. I-1 to I-5). This Board finds that, as described in the Duke Report, removal of arc strikes is not foreman override since the instructions by the foreman concerning arc strikes were correct and in accordance with procedures (id.).[21] Intervenors' suggestion that one of the welders disagreed with Applicants' resolution of the arc strike issue was clearly refuted by the welder's affidavits and by the testimony of the technical interviewers who had interviewed him (see Tr. 13,596-98, Kruse;

20/ The term is defined in Apps. Exh. 113, Attachment C, p. 6.

21/ The in camera testimony of individual 196, who had looked at a valve with surface indications that he thought were file marks, is not to the contrary. 196 did not observe the foreman remove any arc strikes improperly (IC Tr. 2038-40, Ind. 196). Applicants' experts examined this same valve (and others) closely and saw no surface indications outside of the weld zone other than grinding done by the manufacturer (Apps. Exh. 116, Att. B, pp. I-1 to I-3; Tr. 13,597-98, Kruse).

Apps. Exh. 118, Ind. 109, 6/19/84 and 9/27/84). This Board concludes that this is a technical concern, unrelated to foreman overide, which is adequately resolved by the Duke Report and the Staff Report and is without safety significance (see App. Exh. 116, p. 17; id., Att. B, pp. I-1 to I-5; Staff Exh. 33, p. 3).

F. Testimony of Present and Former Catawba Employees

In an attempt to show that foreman override was pervasive, Intervenors called seven witnesses. As the Board stated, these individuals were likely to be most damaging to Applicants (Tr. 13,086, Kelley). However, aside from Mr. Nunn none of the witnesses' testimony supported Intervenors' thesis. The Board finds this a most significant fact, weighing heavily in Applicants' favor.

The testimony of the witnesses called by Intervenors demonstrated that, after examination, such as performed by Applicants in their investigation, what may appear in an affidavit to constitute a serious concern is not. An example was presented by Individual 196 who speculated that another welder, Mr. Carpenter, must have violated interpass temperature requirements in order to have completed the number of fab shop welds that he did in the amount of time he had (see Apps. Exh. 118, Ind. 196, 2/4/84 at p. 3 and 6/15/84 at p. 2).22/ Individual 196 testified, however, that he had not observed

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22/ It should be noted that Individual 196 apparently had a misconception of the nature of the 350 degree interpass requirement and used a very conservative 100 degree "hand touch" standard, as indicated in his affidavit and quoted in the Duke Report (see Apps. Exh. 116, Att. A, pp. I-2, I-3, I-4 to I-5; IC Tr. 2083-84, Ind. 196).

Carpenter at work and he was only speculating that Carpenter violated interpass temperature (IC Tr. 2028-29, 2072, Ind. 196). He stated that, he had no personal knowledge that Carpenter had violated any procedures (IC Tr. 2032-34, 2072-73, Ind. 196). Mr. Carpenter, testified at the hearings. He explained that he had violated no procedures, but instead, had simply set up a sort of "assembly line" of fab welds where he would weld the root pass on the first weld, set it aside, weld the root pass on the second weld, set it aside, and so on. When he had completed the root pass on the last weld, he would return to the first weld (now cooled) and weld the next pass (Tr. 14,212-14, Carpenter). This violated no procedure and was simply a more efficient way to work (Tr. 14,211-14, Carpenter). Thus this situation, which appeared initially to involve a violation of procedures, in fact, was completely within the procedural requirements.

A discussion of the testimony of the employee witnesses follows. Of the remaining employees who did not testify, all who had expressed concerns involving safety-related hardware signed "close-out" affidavits attesting that their concerns were resolved to their satisfaction[23/] (see Apps. Exh. 118).

1. William Marion Carpenter

Intervenors called Mr. Carpenter (Individual 36), a former employee. Three specific incidents were raised, each of which was treated in the Duke Report: (1) interpass on two-inch socket

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23/ The one person who did not sign a "close-out" affidavit - Individual 162 had no technical concerns. Indeed, this Board ruled that all of Individual 162's concerns were non-safety related and thus not within the socpe of the hearing (Tr. 14,081, Kelley; Apps. Exh. 118, Ind. 162).

welds (compare Tr. 14,015-18, Carpenter with Apps. Exh. 116, Att. A, pp. I-1 (incident (a)), I-3 to I-5); (2) excess penetration on RT weld (compare Tr. 14,202-08, 14,220-21, Carpenter with Apps. Exh. 116, Att. B, pp. XIII-1 to XIII-2); (3) interpass on Class E stainless socket welds (as related by Individual 196)(compare Tr. 14,210-15, Carpenter with Apps. Exh. 116, Att. A, p. I-2 ("assembly line" incident (c)) see Section IV.F., supra). Intervenors also examined Carpenter about a fourth incident, involving "sugaring" of welds (Tr. 14,023-35, Carpenter). This incident was not included in Duke's Report because Mr. Carpenter did not raise it until September 26th (Tr. 14,032, Carpenter). Applicants investigated and resolved this concern to Carpenter's satisfaction (Tr. 14,223) demonstrating that the welds were acceptable and that the foreman's instructions were appropriate. (see Apps. Exh. 118, Ind. 36, 10/1/84 and 10/5/84 (memo to file); Tr. 14,218-19, 14,226, Carpenter).

Out of the thousands of activities Carpenter during the six years at Catawba under five different foremen, he experienced only one incident which he considered to be foreman override -- the interpass on two-inch socket welds (Tr. 14,221-22, Carpenter). This incident was properly resolved in the Duke report (see Apps. Exh. 116, Att. A, pp. I-1 (incident (a)), I-3 to I-5). Mr. Carpenter's testimony supports the fact that foreman override was not pervasive.

2. Individual 196

Individual 196 was questioned about Individual 225's, welding several blackened sockets, which might imply excess

interpass temperature (IC Tr. 2021-27, Ind. 196). He did not know if this was safety-related work (IC Tr. 2026-27, Ind. 196). When questioned, Individual 225 agreed that the welds were hot but stated that Arlon Moore had told him to complete them that night (IC Tr. 2022, Ind. 196). Individual 196 testified, however, that 225 did not say that he had been directed, either implicitly or explicitly, to violate interpass temperature (IC Tr. 2071-72, Ind. 196). Individual 225's affidavit denies any knowledge of foreman override (Apps. Exh. 118, Ind. 225).

Individual 196 was also concerned that Arlon Moore replaced him and another welder with two other welders (Individuals 18 and 94) who were able to complete the task before the end of the shift. Individual 196 felt that he could not have done the work in this amount of time without violating interpass temperature. (IC Tr. 2074-77, Ind. 196). However, Individual 196 acknowledged that he was a less-experienced welder than the welders who replaced him and moreover had no direct knowledge that interpass temperature had been violated. The welders who completed the job indicated that the foreman had not directed or intimated that they should violate interpass temperature requirements (Apps. Exh. 118, Inds. 18 and 94; IC Tr. 2077, Ind. 196). Individual 196 testified that while foreman Moore did apply "production pressure," he had no knowledge that Moore had ever applied this pressure to his crew to the extent someone would violate procedures or perform substandard work (IC Tr. 2073-74, Ind. 196).

Individual 109 told Individual 196 that Arlon Moore told him to weld while Moore looked for the process control paperwork (IC Tr. 2034-35, Ind. 196). This general subject is addressed in Apps. Exh. 116, Att. A, Section III. Individual 196 stated that he had no knowledge that Moore actually made this request or whether the work was performed without process control in hand (IC Tr. 2035, Ind. 196). The matter was not raised by Individual 109.

Individual 109 also told 196 that Arlon Moore had filed on a valve (IC Tr. 2034-40, Ind. 196). Individual 196 examined the valve but could not tell the difference between file marks made recently and those that could have been made several years earlier by the manufacturer (IC Tr. 2059-60, Ind. 196). In sum, Individual 196 did not view this incident as an example of foreman override (IC Tr. 2067, Ind. 196; see also n.21 supra.)

Individual 196 has been employed at Catawba for over five years and has worked under six foremen. All of his concerns are set forth in his affidavits (IC Tr. 2068-69, Ind. 196). His only foreman override concern is when Moore replaced him and another welder with two other, more experienced welders. As noted, Individual 196 was unable to substantiate that any foreman override had occurred (IC Tr. 2067, 2075-77, Ind. 196). He stated that none of his concerns would be detrimental to the safe operation of the plant (IC Tr. 2095-96, Ind. 196).

3. Individual 31

Intervenors questioned Individual 31 about the instruction

from his foreman (Individual 223) concerning a weld repair the ANI had inquired about (compare IC Tr. 2107-13, 2132-33, Ind. 31 with Apps. Exh. 116, Att. A, pp. V-1 to V-2, V-3 (incident 2)). Individual 31 had two other concerns which he did not raise until after the Duke Report was issued because they had slipped his mind (as described in Section IV.C., supra): (1) his foreman asked him to remove a red tag from a weld after showing him the resolution (IC Tr. 2116-19, 2133-34, 2136-39, Ind. 31); (2) he questioned the quality of a weld on top of the reactor head (IC Tr. 2121-26, Ind. 31). Neither of these additional concerns have any safety significance. It is not necessarily improper nor uncommon for a foreman to direct a craftsman to remove a red tag and give it to the foreman (Tr. 14,247-48, Davison). The NCI would then be signed and receive final QA review before being placed in the vault (Tr. 14,248, Davison). The weld on the reactor head had been radiographed and approved (IC Tr. 2124, 2133, Ind. 31).

Individual 31 has worked at Catawba for six years, under four different foremen, these three incidents were the only concerns that he had. (IC Tr. 2131-32, 2126, 2135, Ind. 31). He stated that he never saw anyone violate QA procedures (IC Tr. 2107, Ind. 31), he never saw a foreman act to affect adversely the safe operation of the plant (IC Tr. 2135-36, Ind. 31) and that he felt the quality of Catawba was very good (IC Tr. 2104, Ind. 31). Individual 31's testimony supports the fact that foreman override was not pervasive.

4. Testimony of Boyd McCall

Boyd McCall, a powerhouse mechanic at Catawba, was questioned about a cold springing incident which is discussed in Section IV.E.2 supra. Mr. McCall was also asked about a particular weld (which he was unable to locate) which did not seem to him to have cooled between passes (Tr. 14,122-26, McCall). Mr. McCall acknowledged that he was not a welder and that he did not actually know that interpass temperature had been violated (Tr. 14,141, McCall). There is no indication that a foreman was involved in this incident.

Mr. McCall was also asked about arc strikes outside the weld zone that had been removed without paperwork (Tr. 14,126-32, McCall). McCall testified that these were superficial arc strikes (removable with a wire brush); he did not know if process control was required (Tr. 14,131-32, McCall). He was unable to give any additional details on this matter (Tr. 14,132-34, McCall). Mr. McCall had no knowledge of any foreman directing welders to remove arc strikes (Tr. 14,141, McCall).

Out of all of the work McCall performed for 5 or 6 foreman during his six years at Catawba, his only concerns were those mentioned in his affidavit (Tr. 14,142-43, McCall); none of his concerns involved foreman override (Tr. 14,143, McCall). This supports the conclusion that foreman override is not pervasive.

5. Testimony of Charles Braswell

Charles Braswell, a powerhouse mechanic, was asked about his concern that he had been directed by his foreman, Ken Dodd, not to install some expansion coils in the turbine building (Tr.

14,166-72, Braswell). This matter does not involve a safety-related system, but is addressed in Duke's Report. (see Apps. Exh. 116, p. 24; Tr. 14,170-72, 14,188-86, Braswell). Braswell stated that Dodd directed his crew to omit the expansion coils since he thought they were unnecessary (Tr. 14,169-72, Braswell). Mr. Braswell characterized this incident as one in which the quality of the work was acceptable and which did not constitute foreman override (Tr. 14,172, 14,185-86, Braswell). He further stated that the quality of Dodd's crew's work was acceptable and that Dodd had never told him to violate procedures (Tr. 14,163, 14,186, Braswell).

Mr. Braswell was asked about the installation of concrete expansion anchors (see Apps. Exh. 116, Att. A, Section V; see also Tr. 14,176, 14,186, Braswell). Mr. Braswell stated that, aside from this incident, the implicated foreman never directed him to violate procedures; that he was not certain the foreman had meant to do so in this case, and that, this situation did not involve foreman override (Tr. 14,186, Braswell). Mr. Braswell also spoke about an allegation that base plates were painted to close an excessive gap (Tr. 14,178-81, Braswell). (See Apps. Exh. 116, Att. B, Section XII). No foreman was involved in this incident (Tr. 14,180-81, Braswell), nor did Braswell ever hear the foreman of the crew involved direct anyone to violate procedures (Tr. 14,187, Braswell). Finally, Mr. Braswell was questioned about his observation of one QA inspector standing watch while an inspector welded (Tr. 14,181-83, Braswell). This allegation did not involve a safety-related system, but is

discussed in Apps. Exh. 116, p. 24. Braswell testified that he was not aware of any foreman directing (or allowing) their craftsman to watch for QA inspectors nor had he heard rumors of this practice (Tr. 14,1820-83, Braswell).

Mr. Braswell has worked at Catawba for over five years, under four foremen; the only concerns he had were those set forth in his affidvits. None of these concerns involve foreman override (Tr. 14,185-89, Braswell). This further supports the conclusion that foreman override is not pervasive.

6. C. J. Parker

The Intervenors called as a witness Mr. Parker (Individual 162), a powerhouse mechanic (instruments) at Catawba. Because none of Mr. Parker's concerns involved work on safety-related systems (Tr. 14,072, 14,079-81, Parker), the Board excused Mr. Parker from testifying (Tr. 14,081, Kelley).

7. Howard Samuel Nunn, Jr.

Intervenors recalled Mr. Nunn. Mr. Nunn had no new incidents of alleged foreman override (Tr. 14,266-67, Nunn).[24/] Mr. Nunn challenged the NRC Staff investigation, relying upon hearsay statements by a former welder on Arlon Moore's crew. Intervenors did not attempt to subpoena that former welder (which they could have done) to probe the allegations first-hand. Hearsay of this sort is inherently unreliable and entitled to

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24/ Mr. Nunn testified that he worked for Arlon Moore during a time when Moore was not supervised by Billy Smith. Nunn characterized Moore as a fine supervisor (Tr. 14,264, Nunn). This further supports Applicants and Staff's conclusion that Arlon Moore's problem, if any, was limited to the times he was supervised by Billy Smith.

little weight (see 10 C.F.R. §2.743(c); see also Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-367, 5 NRC 92, 121-22 (1977)). Further, the story related by Mr. Nunn is so inherently incredible that this Board can place little weight on it (see Tr. 14,260-63, Nunn 10/12/84). Even Mr. Nunn said "I found this pretty incredible to believe." (Tr. 14,263, Nunn). In any event, Mr. Nunn's attack is rebutted by Mr. Uryc, who testified that all allegations of procedure violations that were raised by NRC interviewees are contained in the NRC reports and interview summaries (Tr. 13,811, Uryc). Accordingly, Mr. Nunn's testimony is not supportive of a pervasive pattern of foreman override at Catawba.

V. Conclusion of Law

Upon consideration of the evidentiary record and in light of the foregoing findings of fact, the Board concludes that foreman override is not a pervasive problem at Catawba. Indeed, the Board finds that it is extremely isolated.

VI. Order

It Is Hereby Ordered, that inasmuch as the emergency planning contentions have been resolved in Applicants favor and inasmuch as conditions 2 and 3 of our June 22, 1984 Partial Initial Decision have been met, the Director of Nuclear Reactor Regulation is authorized to issue licenses for full-power operation for Catawba Units 1 and 2, subject to his satisfaction that Condition 1 of our June 22 Decision is fulfilled.

EXHIBIT LIST - FOREMAN OVERRIDE HEARINGS

Applicants' Exhibits

113 - Testimony of R.L. Dick

114 - Testimony of G.W. Grier

115 - Testimony of A.R. Hollins, Jr.

116 - August 3, 1984 Report

117 - August 13, 1984 correction letter

118 - Approximately 331 Affidavits from approximately 223 individuals

119 - Resumes of Applicants' panel members

120 - Testimony of Dr. John E. Hunter with 3 page resume and 41 page vitae

NRC Staff's Exhibits

28 - IE Notice 84-18 (3/7/84)

29 - IE Notice 84-49 (6/18/84)

30 - 7/16/84 Steve Ferdon Memo

31 - April 23, 1984 Inspection Report Nos. 50-413/84-31 and 50-414/84-17

32 - July 11, 1984 Inspection Report Nos. 50-413/84-73 and 50-414/84-32

33 - August 31, 1984 Inspection Report Nos. 50-413/84-88 and 50-414/84-39

34 - Draft Report "Catawba Socket Weld Evaluation" dated July 11, 1984

35 - Affidavit of Jerome J. Blake, dated 9/12/84

36 - Affidavit of Bruno Uryc, dated 9/11/84

Intervenors' Exhibits

144 - Ferdon analysis of Arlon Moore's welds - 3 pp.

145 - Kruse, Welds Requiring Metallurgical Evaluation and photomicrographs - 13 pp.

146 - FOIA 84-722, NRC RII "welder B" case file.

147 - Michalowski Summary and Vita- 7 pp.

148 - Offer of Proof - Lewis, Memo 9/11/84, CJ Parker concerns about Dodd- 1 p.

149 - Offer of Proof - Coble, Item 26- Concern 15 - 4 pp.

150 - Offer of Proof - Coble, Item 24 - Concern 5 - 4 pp.

151 - Davison, Memo 8/2/84, Second Shift Welding Inspection - 3 pp.

152 - Billy Smith, 7/26/84, Employee Report - 1 p.

153 - Arlon Moore, 7/26/84, Employee Report - 1 p.

154 - Employee Relations Concerns Action Plan - 3 pp.

155 - Johnson, 8/8/84, Memo re: counseling for W.E. Rogers - 1 p.

156 - Summary of Concerns From Interviews, 4/17/84 - 3 pp.

157 - Tabulation of Concerns From Screening Interviews, 5/22/84 - 2 pp.

158 - Assignment Sheet - 1 p.

159 - Inv./Res. of Concerns - Interpass Temperature, 8/10/84 - 11 pp.

160 - Inv./Res. of Concerns - Quality of Work Affected By Production Pressure, 8/9/84 - 2 pp.

161 - Kruse, Violation of Interpass Temperature - draft - 5 pp.

162 - Generation of Computer Weld List - 1 p.

163 - "Critical" Welds Identified by Construction Iso, 6/15/84 - 2 pp.

164 - Reg. Guide 1.44, Control of the Use of Stainless Steel - 3 pp.

165 - ANSI/ASTM A 262 Detecting Susceptibility to Intergranular Attack in Stainless Steels - 27 pp.

166 - Llewellyn, 8/15/84 Memo, re: Individual 148's concern - 1 p.

167 - Inv./Res. of Concerns - Removal of Arc Strikes, 8/9/84 - 3pp.

168 - Inv./Res. of Concerns - Cold Springing, 8/10/84 - 2 pp.

169 - Sutton, 3/16/84 Memo, foremen who worked for Smith - 13 pp.

170 - Miller, 8/3/84 Memo, violation of interpass temperature comment on disposition - 2 pp.

171 - Ferdon, 7/19/84 Memo, Minutes of 6/20/84 Meeting - 5 pp.

172 - Welding Craft organization chart - 1 p.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY, et al.	)	Docket Nos. 50-413
	)	50-414
(Catawba Nuclear Station, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of Applicants' "Supplemental Partial Initial Decision" in the above captioned matter have been served upon the following by deposit in the United States mail this 26th day of October, 1984.

*James L. Kelley, Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

**Dr. Paul W. Purdom
235 Columbia Drive
Decatur, Georgia 30030

**Dr. Richard F. Foster
7 Stag Lane
Sunriver, Oregon 97702

Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Chairman
Atomic Safety and Licensing Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

*George E. Johnson, Esq.
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Albert V. Carr, Jr., Esq.
Duke Power Company
P.O. Box 33189
Charlotte, North Carolina 28242

Richard P. Wilson, Esq.
Assistant Attorney General
State of South Carolina
P.O. Box 11549
Columbia, South Carolina 29211

Robert Guild, Esq.
Attorney-at-Law
P.O. Box 12097
Charleston, South Carolina 29412

Palmetto Alliance
2135 1/2 Devine Street
Columbia, South Carolina 29205

Jesse L. Riley
854 Henley Place
Charlotte, North Carolina 28207

Karen E. Long, Esq.
Assistant Attorney General
N.C. Department of Justice
Post Office Box 629
Raleigh, North Carolina 27602

John Clewett, Esq.
236 Tenth Street, S.E.
Washington, D.C. 20003

Bradley Jones, Esq.
Regional Counsel,
Region II
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Don R. Willard
Mecklenburg County
Department of Environmental
Health
1200 Blythe Boulevard
Charlotte, North Carolina 28203

Docketing and Service Section
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

J. Michael McGarry, III

* Designates hand delivery.
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