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November 13, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY	)	Docket No. 50-400 OL
	)	
(Shearon Harris Nuclear Power Plant)	)	

APPLICANTS' RESPONSE TO LATE-FILED CONTENTIONS OF WELLS EDDLEMAN AND CONSERVATION COUNCIL OF NORTH CAROLINA BASED ON THE AFFIDAVIT OF MR. CHAN VAN VO

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Exhibits

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I. Introduction

During the course of the hearings held on safety contentions in the above captioned proceeding, on October 25, 1984, Mr. Wells Eddleman distributed to the parties present and the Board six proposed new contentions (proposed Eddleman 41C through 41H) based on the allegations contained in an Affidavit of Mr. Chan Van Vo, dated October 6, 1984 (hereinafter the "Van Vo Affidavit", attached hereto as Exhibit A).1/ Mr. Eddleman offered the proposed contentions as late-filed contentions and

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1/ A typed version of the handwritten proposed Eddleman contentions is attached hereto as Exhibit B.

addressed, on the record, the five lateness factors set forth in 10 C.F.R. § 2.714(a). Tr. 5730-45. At the hearing held on October 30, 1984, counsel for the Conservation Council of North Carolina ("CCNC") distributed two late-filed contentions (CCNC WB-1 and WB-2). CCNC adopted the earlier oral statement of Mr. Eddleman as its position on the five lateness factors. (A copy of the CCNC pleading which proffered the two proposed contentions is attached hereto as Exhibit C.) Pursuant to the schedule established by the Board for reply (Tr. 5750), Applicants Carolina Power & Light Company ("CP&L") and North Carolina Eastern Municipal Power Agency hereby respond in opposition to the admission of the late-filed contentions.

Applicants oppose admission of all of the late-filed contentions because:

(1) Each of the six proposed Eddleman contentions is overly-broad in its scope -- the far-reaching allegations are not supported by the specific concerns raised in the Van Vo Affidavit.

(2) The reliability of the Van Vo Affidavit has been seriously questioned and cannot serve as the basis of a contention.

(3) Both Mr. Eddleman and CCNC have failed to demonstrate good cause for raising these new issues at this late date and have failed to demonstrate that application of the five lateness factors weigh in favor of admission of the late contentions.

(4) Even assuming arguendo that the statements in the Van Vo Affidavit are factually correct, in the case of each proposed contention Mr. Eddleman and CCNC have failed to plead a litigable issue with adequate basis and specificity. Particularly, in this regard, many of the statements in the Van Vo Affidavit allege deficiencies in procedures that were in effect over

one year ago and that have been subsequently revised and any identified defects in work were corrected; to litigate such issues would be to litigate issues only of historical interest.

II. Background on the Van Vo Affidavit

The Board has previously considered the Van Vo Affidavit in this proceeding in some detail (Tr. 5315-63), having accepted the Van Vo Affidavit as a limited appearance statement. Tr. 5316. Furthermore, the Board ruled that the allegations in the Van Vo Affidavit were not relevant to Eddleman Contention 41. Tr. 5571-72. During the hearing, counsel for Applicants provided background with regard to the Van Vo Affidavit. The Affidavit was received by Applicant CP&L, in mid-October in response to an inquiry initiated by CP&L's Corporate Quality Assurance Department ("Corporate QA") under the Harris Plant Quality Check Program to obtain more information from Mr. Van Vo on the quality concerns he raised in a complaint to the Department of Labor. Tr. 5320. The Van Vo Affidavit was publicly released at a press conference called by the Government Accountability Project on October 22, 1984. Tr. 5360.

The allegations set forth in the Van Vo Affidavit first came to light as a result of a complaint dated August 28, 1984, from Mr. Van Vo to the Department of Labor charging CP&L with a violation of the employee protection provisions of the Energy Reorganization Act (a copy of the complaint is attached hereto

as Exhibit D). Mr. Van Vo alleged inter alia that he had "been subject to repeated harassment, intimidation, pressure and other discrimination because of [his] actions in performing [his] assigned duties which included the identification and documentation of design and construction deficiencies." See Exhibit D at 2. On October 12, 1984, the Department of Labor issued its findings and concluded that it could not substantiate Mr. Van Vo's allegations.2/

As indicated by counsel for Applicants during the hearing (Tr. 5322), an additional investigation of the quality concerns raised by Mr. Van Vo was initiated by the CP&L's Corporate QA. Further, an independent consultant, Mr. A. Parks Cobb, Jr., a Senior Manager at Duke Power Company, was retained to perform part of the Quality Assurance investigation. The results of Mr. Cobb's investigation are set forth in a report (the "Cobb Report") dated October 31, 1984 (attached to the Affidavit of A. Parks Cobb, Jr. -- Exhibit F hereto). Mr. Cobb has considerable training and experience to qualify him to perform such an investigation. See Affidavit of A. Parks Cobb, Jr., at ¶¶ 1, 2; Attachment 1. Mr. Cobb's independent investigation was also unable to substantiate the allegations set forth in the Van Vo Affidavit. Indeed, Mr. Cobb's report describes a

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2/ A copy of the letter setting forth the findings of the Department of Labor is attached hereto as Exhibit E.

number of inaccuracies that are found in the Van Vo Affidavit. Nevertheless, Corporate QA will issue a separate report on the technical concerns raised in the Van Vo Affidavit. In addition, the NRC's Office of Inspection and Enforcement and Office of Investigation are conducting their own independent investigations. Tr. 5333.

III. Standards Governing Late-Filed Contentions

The Commission's Rules of Practice, at 10 C.F.R. § 2.714, require that a petitioner set forth the basis for each contention with reasonable specificity. This standard requires that a contention state a cognizable issue with particularity, Alabama Power Company (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 A.E.C. 210, 216-17 (1974), and that a petitioner provide a "reason" for its concern. Houston Lighting and Power Company (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 N.R.C. 542, 548 (1980).

As a general proposition, a Licensing Board should not address the merits of a contention in determining admissibility. Id. However, a contention and its basis may be scrutinized to determine if a litigable issue has been pleaded. Two purposes of the basis with specificity requirement are "to help assure at the pleading stage that the hearing process is not improperly invoked," and "to assure that the proposed issues are proper for adjudication in that particular proceeding."

Philadelphia Electric Company (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 A.E.C. 13, 20-21 (1974). In this regard, a contention must be material to those findings which precede licensing, as set forth in 10 C.F.R. § 50.57. See Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-82-106, 16 N.R.C. 1649, 1654-55 (1982).3/ With respect to the specific issues raised by CCNC and Mr. Eddleman regarding QA/QC of certain aspects of construction, we note that error-free construction is not a precondition for an operating license under either the Atomic Energy Act or the Commission's regulations. What is required instead is a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 N.R.C. 1340, 1345 (1983); Union Electric Company (Callaway Plant, Unit

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3/ Not only must the contention be relevant to the Board's ultimate findings, but it must provide a foundation sufficient to warrant further exploration. Philadelphia Electric Company (Peach Bottom Atomic Station, Units 2 & 3), 8 A.E.C. 13, 21 (1974); Duquesne Light Company (Beaver Valley Power Station, Unit No. 1), ALAB-109, 6 A.E.C. 243, 246 (1973). See also Seabrook Station, supra, LBP-82-106, 16 N.R.C. 1649, 1655 (citing Consumers Power Company (Midland Plant, Units 1 and 2), CLI-74-5, 7 A.E.C. 19, 32 n.27 (1974), rev'd sub nom., Aeschliman v. NRC, 547 F.2d 622 (D.C. Cir. 1976), rev'd sub nom., Vermont Yankee Nuclear Corp. v. NRDC, 435 U.S. 519, 553-54 (1978)), for the proposition that a contention must be sufficient to require reasonable minds to inquire further.

1), ALAB-740, 18 N.R.C. 343, 346 (1983), reconsideration denied, ALAB-750, 18 N.R.C. 1205 (1983), as modified, ALAB-750A, 18 N.R.C. 1218 (1983). Accordingly, a QA/QC contention in an operating license proceeding is not litigable unless it would cast doubt on this finding.

Contentions may also be scrutinized to eliminate those that are based on factual inaccuracies or misrepresentations. This scrutiny is readily distinguishable from the proscription in Allens Creek, ALAB-590, supra. Allens Creek prohibited Licensing Boards from rebutting a source or reference proffered in support of a contention, but it did not prohibit rejecting a contention when such source material is ficticious or misrepresented. See Philadelphia Electric Company (Limerick Generating Station, Units 1 & 2), LBP-82-43A, 15 N.R.C. 1423, 1504-05 (1982), in which the Licensing Board rejected a contention because of factual inaccuracies in the allegations; Duke Power Company (Catawba Nuclear Station, Units 1 & 2), LBP-82-107A, 16 N.R.C. 1791, 1804 (1982), in which a Licensing Board rejected a contention because it seriously mischaracterized the draft environmental statement; Carolina Power & Light Company, et al. (Shearon Harris Nuclear Power Plant, Units 1 & 2), LBP-82-119A, 16 N.R.C. 2069, 2076 (1982), in which this Licensing Board rejected contentions which inaccurately described the applicants' proposals. Here, the sole asserted basis for the late contentions is an affidavit containing the allegations of a single

CP&L employee, whose employment was terminated some nine months ago -- which allegations independent investigations of the Department of Labor and CP&L's Corporate QA found to be unsubstantiated. Under these circumstances, Applicants submit that inquiry into the accuracy of the statements found in the Van Vo Affidavit is permissible because it is akin to determining if a reference cited as basis even exists, and not into whether the contentions have merit.

In addition to the normal pleading requirements, 10 C.F.R. § 2.714 sets out five factors that must be balanced in admitting a late-filed contention, and a contention is untimely if it is filed later than fifteen days prior to the 10 C.F.R. § 2.751a special prehearing conference. 10 C.F.R. § 2.714(b); Duke Power Company (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 N.R.C. 1041, 1043 n.2 (1983). The five factors are:

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 proceedings.

10 C.F.R. § 2.714(a)(1)(i)-(v).

In Catawba, supra, CLI-83-19, the Commission enunciated two fundamental principles underlying the five-factors analysis: First, a petitioner has the obligation of uncovering information in publicly available documentary material; and second, there is a substantial public interest in efficient and expeditious administrative proceedings. Id. at 1048 (citing WSTE-TV, Inc. v. FCC, 566 F.2d 333, 337 (D.C. Cir. 1977)). The Commission also adopted a three-part test for determining whether good cause exists. Good cause exists if a contention:

1. is wholly dependent upon the content of a particular document;

2. could not be advanced with any degree of specificity (if at all) in advance of the public availability of that document; and

3. is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination.

Id. at 1043-44. Although this test addresses documentary material, it should apply equally to any other source allegedly providing new information.

Unlike the assessment of basis in determining the admissibility of a contention, assessment of the five lateness factors entails a determination of the merits of the claims made. Florida Power & Light Company (St. Lucie Plant, Unit No. 2), CL1-78-12, 7 N.R.C. 939, 948-49 (1978). In St. Lucie, the Commission stated:

> In considering untimely petitions licensing boards are required to assess . . . whether the petitioner has "made a substantial showing of good cause for failure to file on time." In doing so, Boards must necessarily consider the merits of claims going to that issue.

Id. The Commission therefore upheld the consideration of affidavits.4/

Similarly, in Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-83-30, 17 N.R.C. 1132, 1141-42 (1983), a Licensing Board considered affidavits and held an on-the-record conference in assessing the lateness factors. With respect to factor (iii), the Board held: "the extent to which petitioner's participation may reasonably be expected to assist in developing a sound record is only meaningful when the proposed participation is on a significant, triable issue;" and with respect to factor (v), the Board held, "the extent to which petitioner's participation will broaden the issues or delay a proceeding is properly balanced against the significance of the issue."5/ Id. at 1143.6/

4/ This ruling parallels the customary practice of considering affidavits for and against motions to reopen a record. See, e.g., Diablo Canyon, supra, ALAB-756, 18 N.R.C. 1340, in which the Appeal Board considered affidavits on a motion to reopen the record on quality assurance. Furthermore, because of the importance of QA, the Appeal Board held a hearing on the motion and permitted cross examination of the affiants. Id. at 1343. The hearing revealed that intervenors were misrepresenting an employee's statement about a contractor's QA program. Id. at 1347-48.

5/ "If significance and triability of the issue were not inherently part of the overall balancing test for late-filed

(Continued Next Page)

IV. Application Of The Standards

A. THE EDDLEMAN LATE-FILED CONTENTIONS ARE OVERLY BROAD

The six late-filed contentions proposed by Mr. Eddleman are so expansively worded that Applicants can only speculate how Mr. Eddleman purports to relate specific referenced paragraphs in the Van Vo Affidavit to the broad sweeping allegations of the inadequacies of Applicants' Construction QA program. Indeed, Mr. Eddleman admitted as much in response to a question by the Board Chairman during his discussions of the new contentions:

> [T]he reason I drafted these contentions relatively broadly was that I don't know how much might be lurking out there. . . . I didn't want to be hung to a contention that just says specifically what Mr. Van Vo says. . . .

(Continued)

contentions, the illogical result would be that the significance of an issue could not weigh the balance in favor of admitting a late-filed contention before the close of the record, but could weigh in favor of admitting the same contention filed even later, after the close of the record." LBP-83-30, 17 N.R.C. at 1143-44.

6/ See also Detroit Edison Company (Enrico Fermi Atomic Power Plant, Unit 2, LBP-82-96, 16 N.R.C. 1408, 1429-35, aff'd, ALAB-707, 16 N.R.C. 1760, 1766 n.5 (1982). In this case, the Licensing Board resolved an untimely petition by making findings of fact with reference to a transcript of a public hearing. The transcript had been attached to applicants' answer to the petition. The Board criticized the petitioner for failing to offer factual support for its assertions and based its rejection of the petition in part on the "clear evidence" submitted by applicants. Id. at 1432-33.

> So that is why I drafted it that way. But, basically, what I am saying is now I think the kind of scoping of the contention depends a good bit on the schedule, it depends I think in part on the response of the Applicants and the Staff.
>
> Say, for example, the Staff says yes we think you ought to hear a specific part of this or one of them, than that would be a different situation.
>
> And, likewise, I can't predict what the Applicants are going to do, but I think that is open. I am just trying to address in a sort of general way.

Tr. 5739-5740. By his own admission, Mr. Eddleman's approach was to attempt to draft the broadest statements that he could possibly attempt to support with the allegations in the Van Vo Affidavit and then see "how much might be lurking out there." Such an approach to drafting contentions is clearly impermissible.

In contrast, the two contentions proposed by CCNC, while objectionable on other grounds, do put Applicants on notice specifically as to the allegations that CCNC would desire to litigate. Compare CCNC WB-1 with Eddleman 41C, 41D and 41E.

In dealing with the eight proposed contentions in this response, we have combined CCNC WB-1 and Eddleman 41C, 41D and 41E as constituting essentially the same allegation with regard to material traceability of pipe hangers. Thereafter, we will treat CCNC WB-2 and Eddleman 41F, 41G and 41H separately. However, as a threshold objection, Applicants submit that all six

of Mr. Eddleman's proposed contentions must be rejected because of the overly-broad statements, lacking clarity and precision, which fail to put Applicants on notice without considerable speculation as to specifically what issues Mr. Eddleman would seek to litigate.7/

B. THE VAN VO AFFIDAVIT HAS BEEN DEMONSTRATED TO BE FACTUALLY INACCURATE AND UNRELIABLE AND CANNOT SERVE AS THE BASIS FOR A CONTENTION

A threshold question that must be addressed is whether the statement of Mr. Van Vo should, without any other substantiation, serve as the basis for late-filed contentions.

The first public statement regarding Mr. Van Vo's alleged safety concerns was disclosed during a press conference orchestrated by the local representative of the Government Accountability Project on the eve of continuation of safety hearings. The tactics of the Government Accountability Project in raising last minute "safety concerns" regarding nuclear projects that are close to completion based on the statements of so-called whistle-blowers is well-known. Indeed, Mr. Van Vo's attorney, Mr. Guild, was present for part of the management capability hearings in September (where QA/QC programs were discussed

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7/ See Kansas Gas and Electric Company (Wolf Creek Generating Station, Unit No. 1), ALAB-279, 1 N.R.C. 559, 576-77 (1975). ("It should not be necessary to speculate about what a pleading is supposed to mean.")

during the testimony of Applicants' witnesses) and Mr. Guild apparently advised counsel for CCNC concerning certain lines of questioning. Tr. 5358-59. At that time, having previously filed the Department of Labor complaint on behalf of Mr. Van Vo, Mr. Guild certainly was aware of Mr. Van Vo's allegations. What information Mr. Guild then shared with Mr. Eddleman and Mr. Runkle, we do not know. What is clear, however, is that at least Mr. Guild waited until the safety hearings to publicly announce Mr. Van Vo's safety concerns. (Exhibit G is a copy of the press release provided by the Mr. Guild at the October 22, 1984 news conference.) We certainly question the fairness to Applicants of such transparent tactics.

More importantly, it is clear that the "new" information revealed in the Van Vo Affidavit cannot be substantiated and, at a minimum represents a distorted and inaccurate characterization of events that occurred over a year ago. The Department of Labor was not able to substantiate Mr. Van Vo's claims. See Exhibit E. An independent investigation initiated by CP&L's Corporate QA places the Van Vo allegations in an entirely different light. The report of the investigation of Mr. A. Parks Cobb, Jr. makes a number of important findings, including:

1. Mr. Van Vo's allegations of harassment were no more than frequent counseling sessions for poor job performance, which began formally in March 1983. Mr. Van Vo denied poor performance on his part and rather blamed his supervisors -- even in

interviews with senior CP&L management. Cobb Report at 3-8.

2. Mr. Van Vo's allegations of technical problems with the steam generator feedwater pump and lines and his allegations of material traceability problems with pipe hangers resulted from his relatively minor and isolated exposure to two complex situations about which he drew incorrect conclusions. Cobb Report at 4, 12-15.

3. In any event, Mr. Van Vo displayed his lack of familiarity with Harris Plant systems by characterizing the steam generator feedwater pump and piping as "Safety Category 4, Seismic Category 1," upon which "the integrity of rector temperature and pressure control is dependent" and therefore "nuclear safety significant." Van Vo Affidavit at ¶ 5. In fact, both the pump and piping are non-safety related. Cobb Report at 14, 16; see discussion of CCNC WB-2 infra.

4. Mr. Van Vo supports his allegations regarding material traceability with an instance where he found a Purchase Order ("PO") had been "voided." Van Vo Affidavit at ¶¶ 18-20. It simply turns out that the documentation was difficult to find and Mr. Van Vo assumed that it had been destroyed. Another engineer was assigned to review the problem identified by Mr. Van Vo and traced the material in question to another specific purchase order. This situation was later investigated by Dr. Elleman's Nuclear Safety Review Panel and found not to be a safety concern. Cobb Report at 17.

5. While Mr. Van Vo ends his monologue regarding material traceability for pipe hangers with a rhetorical question regarding the 300 pipe hangers that had successfully passed inspection prior to changes in procedure to provide for material verification (Van Vo Affidavit at ¶ 13), Revision 9 to WP-110 (referenced by Mr. Van Vo) provided that all of the hangers that had been previously installed and inspected under the

old Phase II program were to be reinspected to ensure the desired level of quality -- including material traceability. Cobb Report at 15; see WP-110 (attached hereto as Exhibit H).

6. While Mr. Van Vo alleges that he previously had brought safety concerns to management attention (Van Vo Affidavit at ¶ 1, 24), rather his interviews with senior management were directed to his proposals for reorganizing the Harris Project with Mr. Van Vo in a more prominent position of responsibility. Cobb Report at 5-10; see also "Nuclear Power Plant Construction Management -- Proposed: Proportional of Integral Derivative Controller Construction" prepapred by Chan Van Vo (Exhibit I hereto).

The Cobb Report directly refutes the principal allegations in the Van Vo Affidavit, which is proffered as the sole basis for these late-filed contentions. As we discussed in the preceding section on the applicable law, the Board may rely on affidavits to inquire into the accuracy of the information proffered as the basis for contentions. In so doing, the Board is not weighing the merits of the contentions themselves. Furthermore, while the Department of Labor did not detail its findings, it did conduct its own independent investigation and could not substantiate Mr. Van Vo's allegations. Thus, Applicants submit that the Van Vo Affidavit must be considered unreliable and cannot be used as the basis of a new contention. To accept such unsubstantiated allegations as fact and require Applicants to invest the substantial time and expense of discovery and litigation at this stage of the proceeding would be

an abuse of the administrative process.8/

C. MR. EDDLEMAN AND CCNC HAVE FAILED TO SUSTAIN THEIR BURDEN IN ADDRESSING THE FIVE LATENESS FACTORS

When an untimely motion to admit new contentions is filed on the eve of closing the record, "petitioner's burden on the Section 2.714(a) factors is a heavy one." Houston Lighting and Power Company (Allens Creek Nuclear Generating Station, Unit 1), ALAB-671, 15 N.R.C. 508, 511 (1982). Such is the case at hand, since the Harris safety hearings are scheduled for completion this week.

Factor (i): Good Cause For Failure to File on Time

Mr. Eddleman asserts as good cause for the lateness of his contentions the fact that the Van Vo Affidavit was not available to him until October 22, 1984 and did not even exist until October 6, 1984. Yet Mr. Eddleman admitted that he and Mr.

8/ Of course, if the NRC's independent investigations were to substantiate Mr. Van Vo's claims, this issue would be cast in a different posture. Applicants are confident that the results of the NRC's inquiries will be the same as the independent investigation performed by Mr. Cobb. At a minimum, it would be premature to give any credance to the allegations in the Van Vo Affidavit -- in light of the information presented here to the contrary and in light of the ongoing NRC investigations -- until such reports by the NRC investigatory arms were completed. Applicants, however, submit that the Board could at this time reject all eight contentions for no other reason than the unreliability of the Van Vo Affidavit -- without reaching the equally compelling arguments infra with respect to the five factors or the lack of basis and specificity.

Runkle knew at least of the substance of Mr. Van Vo's allegations in September and waited until late October to present this new information to the Board. Tr. 5578; 5736. The intervenors have an obligation to do more than wait for the information to fall into their laps.

More importantly, information putting the intervenors on notice of a potential concern regarding material traceability of pipe hangers (CCNC WB-1; Eddleman 41C, 41D and 41E) was publicly available in the form of NRC Inspection and Enforcement ("I&E") inspection reports that were available over a year ago. Similarly the questions of nonconformance reporting (Eddleman 41F) and Construction Inspection independence (Eddleman 41H) were also raised in I&E inspection reports over a year ago.9/ Therefore, the issues raised by these six contentions are not "wholly dependent upon" the content of the Van Vo Affidavit and could have been advanced with even a greater degree of specificity over a year ago based on concerns raised in I&E inspection reports.10/ Thus for these six contentions, Mr.

9/ The specific inspection reports are identified in Section IV.D infra, in discussing the lack of basis and specificity for the individual contentions.

10/ As will be discussed infra, the concerns raised in these I&E inspection reports have since been resolved to the satisfaction of I&E. The information in the Van Vo Affidavit is stale and often inaccurate; on the other hand, information that relates to at least the substance of certain of his concerns was publicly available in late 1983.

Eddleman and CCNC have failed to meet two parts of the three-part test for determining good cause as set forth in Catawba, supra, CLI-83-19, at 1043-44.

Factors (ii) and (iv): The Availability of Other Means Whereby Petitioner's Interest Will Be Protected; and the Extent to Which Petitioner's Interest Will Be Represented by Existing Parties

Mr. Eddleman, joined by CCNC, argue that there are no other means by which their interests may be affected:

> I certainly can't depend on the Applicants' investigation. I think the Staff is basically adverse to hearing these things, and cannot be counted on to protect my interest, and does say will be protected; it is not may be or likely to be.
>
> So, I think that is pretty straight forward. In other words, if I want to protect my interest on this, I have to go ahead and file contentions.

Tr. 5737. Accepting such an argument would always resolve factors (ii) and (iv) in favor of late contentions. Furthermore, the argument is circular and seeks to avoid the affirmative showing that the intervenors are required to make.

While the Board should not simply assume that the Staff will represent the intervenors' interests, Washington Public Power Supply System (WPPSS Nuclear Project No. 3), ALAB-747, 18 N.R.C. 1167, 1174-75 (1983), this case is different. The NRC is actively investigating the allegations recounted in the Van Vo Affidavit. In light of this activity, it is reasonable to conclude that the Staff will represent the intervenors'

interest in conducting an independent investigation.11/

Factor (iii): The Extent to Which the Peitioner's Participation May Reasonably Be Expected to Assist in Developing a Sound Record

With respect to this factor, Mr. Eddleman offered the following argument:

> At the risk of sounding like a broken record, the Board and parties know I think what I almost always say about this, if you don't have a record on a subject, you don't have a sound record. . . .
>
> I have some knowledge of welding and that sort of thing. I am able, I think, to conduct examinations. Since he [Van Vo] would be my witness, it doesn't depend much on my ability to cross, it just depends on my ability to put him on. . . .
>
> Anyway, he has a counsel who knows something about this sort of thing and is experienced in NRC proceedings, and I think would be able to assist him in that regard.
>
> And my participation then would be basically just to get him in here and make him available to bring out his information, and I am willing to do anything I can to assist in that, but I think the main thing is just to get it on the record.

Tr. 5743-44. This statement totally fails to satisfy the intervenors' burden of persuasion. The Appeal Board has stressed the importance of this factor, stating:

11/ Factors (ii) and (iv) are given less weight than the other factors. South Carolina Electric & Gas Company (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 N.R.C. 881, 895 (1981); Detroit Edison Company (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 N.R.C. 1760, 1767 (1982).

> When a petitioner addresses this criterion it should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony.

WPPSS No. 3, supra, ALAB-747, 18 N.R.C. at 1177 (citing Mississippi Power & Light Company (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 N.R.C. 1725, 1730 (1982); South Carolina Electric & Gas Company (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 N.R.C. 881, 894 (1981); Detroit Edison Company (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 N.R.C. 759, 764 (1978); Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), ALAB-743, 18 N.R.C. 387, 399-400 (1983)). In ALAB-747, the petitioner had described its experience in NRC proceedings and identified a witness, but the Appeal Board found such statements "manifestly inadequate." WPPS No. 3, supra, 18 N.R.C. at 1177.

Mr. Eddleman's offer regarding this factor is considerably less than that which the Appeal Board found inadequate in ALAB-747.12/ Indeed, Mr. Eddleman has never met Mr. Van Vo. There is certainly no assurance that Mr. Van Vo would be available for a hearing on any contention raised by his Affidavit at some later date, much less any assurance that he would be

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12/ Mr. Runkle's failure independently to make a showing of CCNC's plans to assist in the development of a sound record, is a default by CCNC in meeting its burden and must weigh heavily against CCNC in balancing the five factors.

available for depositions prior to such a hearing. Mr. Eddleman's offer "to get him in here and make him available to bring out his information" falls considerably short of the effort required to assist in developing a sound record.

Further, Applicants submit that the record that Mr. Eddleman and Mr. Runkle have assisted in developing during the last three weeks of hearings on safety issues speaks for itself and is the best evidence in controverting the intervenors' arguments in support of the third factor. While Mr. Eddleman suggests that developing a sound record on his proposed contentions here "doesn't depend much on my ability to cross, it just depends on my ability to put him [Van Vo] on," Applicants remind the Board of the state of the record with respect to the case presented by Mr. Eddleman's witness, Mr. Stokes. See Tr. 6037 et seq. The record on this issue can best be characterized as one of complete disarray. See Tr. 6049.

Mr. Eddleman has often complained about his work load; but it is certainly one of his choosing. We note that Mr. Eddleman has a significant number of emergency planning contentions already admitted. Experience to date in this proceeding, as the Board itself has acknowledged, strongly suggests that Mr. Eddleman is over extended already and is clearly not in a position to assist in a meaningful way in developing a sound record on additional QA/QC contentions. See Tr. 6280. Thus, the third factor weighs strongly against the intervenors here in admitting any late-filed contentions.

Factor (v): The Extent to Which the Petitioner's Participation Will Broaden the Issues or Delay the Proceeding

As he must, Mr. Eddleman concedes that admission of the late-filed contentions will broaden the issues:

> I think it does broaden the issues, but I think because the issues are important, and because Mr. Van Vo has direct experience of much of this, and says he believes there is more, to the extent we might get into further digging in it, that that shouldn't be a factor against these but rather should be a factor for them because they are so important.
>
> As to delaying the proceeding otherwise - what I am saying is, I am prepared to go forward with this in a couple of weeks, which is pretty much within the hearing schedule we have now.
>
> If it goes more than that, I think we have some leeway in that nine month slip in the fuel load date that was just announced, I believe, yesterday.

Tr. 5741-42. Not only does Mr. Eddleman admit that it will broaden the issues, he proposed "further digging."

Mr. Eddleman appears to believe that a delay in the proposed fuel load date for the Harris Plant sanctions any delay in the proceeding. The fifth factor refers to a delay of the proceeding, not to delay of the operation of the facility. Enrico Fermi, supra, ALAB-707, 16 N.R.C. 1760, 1766. In Fermi, the Licensing Board rejected an argument that there was no delay because fuel loading was not scheduled for a year. Admission of new contentions on the eve of closing the record on

on safety issues necessarily will extend the proceeding significantly. Mr. Eddleman's assertions that he is prepared to go forward on his new proposed contentions in a couple of weeks is totally unrealistic. At this late date, the introduction and litigation of new contentions threatens a substantial and unreasonable delay in the proceeding.

Accordingly, all five factors militate against admitting the intervenors' late-filed contentions.

D. THE LATE-FILED CONTENTIONS FAIL TO STATE LITIGABLE ISSUES WITH THE REQUISITE BASIS AND SPECIFICITY

Even if the Board were to reject Applicants' position regarding the unreliability of the Van Vo Affidavit and were to weigh the five lateness factors in the intervenors' favor, an analysis of each proposed late contention clearly demonstrates that the intervenors have failed to state a litigable issue with adequate basis and specificity. The intervenors have failed to advance a thesis that would link the isolated incidents described by Mr. Van Vo -- upon which the proposed contentions are solely based -- with the finding that the Harris Plant, as built, can and will be operated without endangering public health and safety. Indeed, Mr. Van Vo describes, in part, his supporting role in determining the quality of pipe hanger installations, noting that deficiencies were found but that procedures were modified to ensure quality construction --

including verification of materials used in the pipe hanger installations. Mr. Van Vo draws a number of unsupportable conclusions; many of his statements, however, confirm that the quality inspection program worked and that errors in construction are detected. The intervenors have utterly failed to address the program that presently exists at the Harris Plant for pipe hanger quality inspections, for nonconformance reporting, for Construction Inspection independence and for ensuring worker concerns will be dealt with.

CCNC WB-1; Eddleman 41C, 41D and 41E (Pipe Hanger Material Traceability)

CCNC WB-1 asserts that the QA program at the Harris Plant is deficient in that "nuclear safety material traceability documentation was falsified and other QA documents relating to safety were falsified or destroyed." See Exhibit C. Eddleman 41C repeats the same allegation. Eddleman 41D is a variation on this same theme, refering to "inadequate or nonexistent documentation of material used in safety related equipment." Eddleman 41E alleges "wholesale discarding of documents." See Exhibit B.

All but five paragraphs (¶¶ 5, 10, 11, 12 & 25) of the Van Vo Affidavit are cited by Mr. Eddleman in support of Eddleman 41C, 41D and 41E. CCNC simply cites to the Van Vo Affidavit for basis. Yet Mr. Eddleman has admitted he really does not know what the statements in the Van Vo Affidavit mean other

than what they appear to say. Tr. 5351-54.13/ It appears that the intervenors are principally relying on statements by Mr. Van Vo about "Speed Letters" that were allegedly discarded (which discussed the problem relating to the Steam Generator Feed Water Pump) and the saga of the voided Purchase Order as basis for these four contentions. See Van Vo Affidavit at ¶¶ 9, 18-20, 26.

With respect to use of "Speed Letters" to document QA problems, the only instance cited by Mr. Van Vo relates to the Steam Generator Feed Water Pump and piping which are non-nuclear safety and do not require QA documentation under 10 C.F.R. Part 50, Appendix B. Mr. Cobb could not substantiate any use of "Speed Letters" in lieu of the proper forms to report nonconformances. Cobb Report at 16-17. In any event, new procedures have been established to ensure consistency in non-conformance reporting. See discussion of Eddleman 41F infra.

The only specific instance of alleged "false documentation" of pipe hanger material was the voided Purchase Order -- P.O. #21022. Van Vo Affidavit at ¶ 20. DDR 1775 (Deficiency and Disposition Report) referenced by Mr. Van Vo does refer to

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13/ Mr. Eddleman even attempts to clarify one statement in the Van Vo Affidavit by reference to a telephone conversation with Van Vo's counsel -- thereby offering hearsay speculation as basis. See note at Eddleman 41E.

a voided P.O. #21022. (DDR 1775 is attached hereto as Exhibit J). As explained in the disposition of the DDR, the material which referenced P.O. #21022 was actually received on another Purchase Order (P.O. #19019). P.O. #21022 was administratively created to account for material stored in the fabrication shop. The material in question was released by the fabrication shop by reference to the "storage" P.O. #21022. The Purchase Order was subsequently voided in error. However, the material was still traceable to the origin P.O. #19019. See DDR 1775 (Exhibit J) at Page 2 of 17. As noted in the Cobb Report, another engineer was able to determine this information after Mr. Van Vo had jumped to the conclusion that QA documents were being falsified or destroyed. Cobb Report at 18.

What the Van Vo Affidavit itself demonstrates is that quality problems with material verification of pipe hangers were being identified and properly reported on nonconformance reports. Van Vo Affidavit at ¶ 20. When concerns were identified, a stop work order was issued; work and QA procedures were "substantially changed, including particularly WP-110, and TP-34, which provided for hanger installation and inspection." Id. at ¶ 22. Mr. Van Vo states that CP&L noted "that hanger documentation should be checked to insure 'that the surplus hanger number/purchase order number is legitimate.'" Id. Mr. Van Vo describes a situation which CP&L was at the time taking strong efforts to resolve.

While Mr. Van Vo expresses a concern about the 300 out of 18,000 seismic pipe hangers that had already successfully passed inspection prior to the issuance of the revised procedures, all hangers were reinspected. Cobb Report at 15-16. Thus the Van Vo Affidavit itself does not support the broad sweeping allegations of QA/QC deficiencies found in these four contentions.

Furthermore, I&E Inspection Reports, as early as 1981 reported concerns regarding verification of material in pipe hangers.14/ Thus the general issue of pipe hanger material control could have been raised much earlier. More recent I&E Inspection Reports detail the implementation of the revised procedures, which the intervenors have failed to address.15/

Accordingly, these contentions fail to state litigable issues with the requisite basis and specificity and must be rejected.

14/ See I&E Inspection Report 50-400, 401, 402, 403/81-19 dated October 2, 1981 (in which CP&L was cited for material substitutions in pipe hangers without documentation); I&E Inspection Report 50-400, 401/83-22 dated August 3, 1983 (in which CP&L was cited for installation of incorrect material in a pipe hanger); I&E Inspection Report 50-400, 401/83-25 dated October 19, 1983 (in which CP&L was cited for failure to provide documentation for material substitution).

15/ See I&E Inspection Report 50-400/84-25 dated August 22, 1984, and I&E Inspection Report 50-400/84-35 dated October 22, 1984 (which reported on the inspection of CP&L's pipe hanger installation program, closed-out previously noted deficiencies, reviewed the efficacy of revised procedures and found no violations or deviations).

CCNC WB-2 (Steam Generator Feed Water Pump 1A-NNS)

This Contention alleges the piping line to the discharge nozzle to Steam Generator Feed Water Pump 1A-NNS was improperly installed thus causing improper stresses to the pump. CCNC asserts "[t]he safety significance of this improper installation is that the integrity of the reactor temperature and pressure control is dependent upon the effective function of these pumps, valves, lines, etc." See Exhibit C.

CCNC WB-2 fails to raise a litigable safety issue. Steam Generator Feed Water Pump 1A-NNS and the suction and discharge lines thereto (as the designation "NNS" implies) are non-nuclear safety equipment and non-seismic category equipment, which perform no safety function. Harris FSAR Table 3.2.1-1 (at page 3.2.1-39); Cobb Report at 14, 17; Tr. 5325-27; 5365-66.

Furthermore, even if the allegations in the Van Vo Affidavit regarding the piping line to the Steam Generator Feed Water Pump were correct and even if the pump were safety-related, the contention would not raise a litigable issue absent evidence that the alleged misalignment had not been or was not being investigated and corrected.16/ As demonstrated by the Cobb

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16/ As was discussed in Section III, supra, error free construction is not a precondition for an operating license. A contention regarding construction activities must by its terms call into question a finding of reasonable assurance that the plant, as built, can and will be operated without endangering public health and safety.

Report at 14, Harris Plant quality inspection picked up the misalignment as a nonconformance. In fact, a Deficiency Notice (Exhibit K hereto) was written on the problem with the pump piping on July 30, 1982. Mr. Van Vo claims to have discovered this problem in mid-August 1982. Thus there is clearly no basis for a contention that would assert that the alleged improper installation went undetected or that Plant personnel ignored ligitimate safety concerns raised by Mr. Van Vo.

CCNC WB-2 must be rejected for failing to state a litigable contention.

Eddleman 41F (QA Concerns Not Documented Properly)

This contention broadly alleges that "QA concerns [are] not documented properly at Harris . . . ." Mr. Eddleman cites to twelve paragraphs from the Van Vo Affidavit for basis. See Exhibit B.

This contention is so broadly worded, Applicants must resort to speculation to determine what the principal concern is alleged to be. For that reason alone, it should be dismissed. See Section IV.A supra.

The first paragraph from the Van Vo Affidavit referenced in Eddleman 41F is ¶ 26 (which is also underlined), where Mr. Van Vo alleges CP&L employs a "confusing and ineffective array of different documenting systems for controlling nonconformances such as DR's, DDR's, NCR's and such commonly used

uncontrolled paperwork as Memos and 'Speed Letters.'"17/ Applicants assume that this statement summarizes the principal concern being raised by Eddleman 41F.

In I&E Inspection Report 50-400/83-25 and 50-401/83-25 dated October 19, 1983, "Inspector Follow-up Item 83-25-14" reads:

> Another offshoot of the multiple quality control type organizations at Harris is the number of different forms and methods to document conditions adverse to quality. Although having many forms is in itself not a problem, the potential to lose tracking control of identification and correction increases greatly with increased forms. The use of the DR, DDR, NCR and punchlists for documenting the same type of problems can eventually lead to missing items and inconsistent handling of problems.

In I&E Inspection Report 50-400/84-22, dated August 14, 1984, Inspector Follow-up Item 83-25-14 is "closed":

> Multiple Formats for Identification of Similar Problems. The inspector confirmed that CP&L procedure CQA-3, R3, has been issued to require a single NCR form for the Harris project. All disciplines must therefore report nonconformances on the same form.

Thus, it is clear from I&E Inspection Report 50-400/83-25, that this issue could have been raised over a year ago. See Section IV.C supra. Further, the concern identified in Eddleman 41F

17/ Mr. Cobb was unable to substantiate the allegation that speed letters are utilized in place of prescribed quality assurance documentation at the Harris Plant. Cobb Report at 17.

has been resolved. Mr. Eddleman fails to address the present system and procedures at the Harris Plant for reporting nonconformances. The information in the Van Vo Affidavit is stale, based on his experiences of a year ago and longer. For this reason, litigation of this issue would have no present meaning. Contention 41F must be rejected for failing to state a litigable issue.

Eddleman 41G (Employee Harassment)

This contention alleges "a pattern of harassment, intimidation, and failure to respond positively to employees bringing forward QA/QC concerns at the Harris Plant . . . ." Mr. Eddleman jumps to the conclusion that "[t]his prevents concerns from being brought forward and dealt with properly . . . ." See Exhibit B.

The only specific allegation of alleged harassment or intimidation is Mr. Van Vo's own description of being counseled and being placed on probation. Mr. Van Vo suggests that the reason for such dissatisfaction with his performance was because of his raising safety concerns (as opposed to his inadequate job performance). Accepted at face value, this allegation neither establishes a pattern nor provides a causal link with the safety of the plant as built. Further, Mr. Van Vo was neither a CI nor QA inspector.18/ As detailed in the Cobb

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18/ Mr. Eddleman questioned the subpoenaed CI concrete inspectors regarding any intimidation or harassment. They cate-

(Continued Next Page)

Report, there was good reason for counseling.

Yet, Mr. Van Vo's Affidavit on its face does not support the allegation that employees were discouraged from coming forward with safety concerns or any other concerns, even to senior management. Mr. Van Vo was able to make appointments to see the Plant General Manager, the Senior Vice-President for Construction and the Executive Vice-President.19/ His own actions certainly do not reflect intimidation.

Finally, since the time Van Vo was terminated, CP&L has instituted a Quality Check Program further to encourage employees to come forward with safety concerns. This program was discussed in some detail during the management capability proceedings. Tr. 2697-2713; 3004-06. Mr. Eddleman simply ignores this program in his sweeping allegations. Indeed, the Van Vo Affidavit itself is being investigated as part of the Quality Check Program. See Cobb Affidavit.

Thus, even the allegations in the Van Vo Affidavit fail to support or provide any basis for proposed Eddleman 41G. It must be rejected.

(Continued)

gorically denied being aware of such pressure or harassment. Tr. 6247.

19/ At the hearings held on management capability, Mr. McDuffie, Senior Vice-President for Construction, discussed his own accessibility to employees. Tr. 3064-69.

Eddleman 41H (Construction Inspection Independence)

This contention asserts that CP&L fails "to give sufficient independence to Construction Inspection (CI) and other QA personnel to perform their duties without pressure or harassment . . . ." See Exhibit B. It is supported by a brief paragraph in the Van Vo Affidavit which utterly lacks any specificity. Van Vo Affidavit at ¶ 25.

As early as 1977, I&E identified the need to ensure inspection personnel would have sufficient independence from cost and scheduling responsibilities to avoid compromise of quality. I&E Inspection Report 50-400, 401, 402, 403/77-3, dated November 2, 1977. In 1979 the organization of Harris site inspection personnel was again reviewed in detail by I&E. The inspector noted that CP&L is responsible for managing construction activities performed by the constructor, Daniel Construction Company, and for verifying (auditing, inspecting, and testing) the quality of construction. At that time the CP&L Construction Inspection Unit reported directly to the Senior Resident Engineer and was an autonomous organization, separate from the CP&L construction engineering unit disciplines. The CP&L site QA Unit monitored both Daniel and the CI Unit and reported to the Engineering and Construction QA Manager -- independent of site construction management. The inspector found "sufficient independence from cost and scheduling has been established for the CP&L Construction Inspection organization to

avoid compromise of quality." I&E Inspection Report 50-400, 401/79-15 and 50-402, 403/79-14 dated September 5, 1979.

In 1983 this same organization created concerns for an NRC inspector, who noted that having the responsibility for both engineering and quality control activities reporting to the Senior Resident Engineer "can create a conflict of interest." I&E Inspection Report 50-400, 401/83-25 dated October 19, 1983 (Inspector Follow-up Item 83-25-12).

In I&E Inspection Report 50-400/84-22 dated August 14, 1984, this Inspector Follow-up Item was closed:

> Potential for Inadequate QC Inspection. The inspector verified that the Construction Inspection (CI) group has been positioned directly under the Project General Manager as of October 10, 1983, thereby eliminating the CI group from reporting to engineering. This change allows more freedom for independent QC inspections.

Two points must be made. First, the concern was raised in considerably greater detail and much earlier than the Van Vo Affidavit. See Section IV.B., supra. Second, the NRC's concern was addressed by an organizational change whereby the CI group reported directly to the Project General Manager rather than the Senior Resident Engineer.20/ This change was effective some months before Mr. Van Vo was terminated although it

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20/ Even more recently, Mr. Roland Parsons was named Project General Manager of Completion Assurance with the CI Group continuing to report directly to him. This change moves in the direction of providing even greater independence for the CI Group. See Tr. 5754.

is not noted by Van Vo. In any event, Mr. Eddleman has failed to address the CI organization as it presently exists.

Contention 41H has no basis and must be rejected.

V. Conclusion

For all of the above reasons, proposed contentions CCNC WB-1 and WB-2 and Eddleman 41C through 41H should be rejected.

Respectfully submitted,

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Dated: November 13, 1984

AFFIDAVIT

My name is Chan Van Vo. I am also known as Van Vo Davis. I am giving this statement to Robert Guild, Attorney-at-Law, of Charleston, South Carolina, who has identified himself to me as a representative of the Government Accountability Project. I was employed for almost five years by Carolina Power & Light Company in the construction of the Shearon Harris Nuclear Power Plant near Raleigh, North Carolina, most recently in the position of Engineer where I was responsible for ensuring that the installation of pipe and pipe-hangers was in accordance with approved plans, specifications, codes, procedures and schedules. Although I am not opposed to nuclear power, my experience with CP&L causes me to have serious doubts about CP&L's commitment to nuclear safety and about the as-built quality of construction at the Shearon Harris Nuclear Power Plant. On many occasions I have brought safety concerns and construction deficiencies to the attention of my supervisors only to face lack of interest and hostility; and in one case only to find my documentation of a serious safety concern discarded in my supervisor's trash can the next day. I have taken these concerns up my chain of command to senior management at CP&L on several occasions only to be told that 'this is not Vietnam, here at CP&L you are only a soldier who must follow orders.' This lack of interest in my safety concerns was followed by a pattern of harassment, intimidation, pressure to resign, and ultimately my termination. I have filed a

complaint against CP&L with the U.S. Department of Labor for violation of the Employee Protection Provisions of The Energy Reorganization Act because of the Company's discrimination against me for raising safety concerns. I was only trying to do my job to the best of my ability according to my professional engineering training. I believed that the Quality Assurance regulations of the Nuclear Regulatory Commission, 10 CFR Part 50, Appendix B, and the Company's written policies and procedures meant what they said. However, I have learned that CP&L has very little interest in seeing that the Shearon Harris Nuclear Power Plant is built "by the book." Workers at the site are expected to "look the other way" when they see safety violations or risk losing their jobs. I hope that my concerns will be fully investigated and that effective action will be taken to ensure that the public health and safety is protected before the Harris plant is allowed to operate.

2. I was born in South Vietnam and became a U.S. citizen after I came to this country in 1975. I hold a degree in Math, Science and Physics from the French College and a Bachelor of Science degree in Mechanical Engineering with a specialty in Fluid Mechanics from Phutho Higher Technical University, Saigon, South Vietnam. In order to supplement my education for engineering certification in this country, I have taken courses in civil and mechanical engineering from Fayetteville Technical Institute and International Correspondence Schools. I am currently an MBA candidate at Campbell University, Buies Creek, North

Carolina; where I am concentrating in Production Management. I expect to receive my degree in May 1985. I am an Associate member of the American Society of Mechanical Engineers.

3. I was first employed by CP&L at the Harris site on April 10, 1979, as an Engineering Aide I, in the Mechanical Department under E.M. "Ed" McLean, where I was responsible for preparing requisitions for site material procurement and for performing inspections of mechanical installations in all parts of the plant. On October 10, 1979, I was promoted to Engineering Technician II where I was assigned responsibilities for piping and pipe-hangers. After I finished the ICS program for equivalence with a 4 year degree in mechanical engineering and based on my "outstanding" performance, I was promoted to Associate Engineer, effective October 4, 1980. In this position I performed material take-offs, prepared purchase specifications and material purchase orders for piping; and was in charge of field support for radwaste piping in the Waste Processing Building. In April, 1982, I was transferred to work for the Lead Hanger Engineer, A.G. "Alex" Fuller, where I was responsible for providing technical support to the hanger crafts including the preparation and interpretation of design documents and work procedures, investigation of field problems, preparation of field changes such as Field Change Requests/Permanent Waivers (FCR/PW), and the resolution of nonconformances.

4. Alex Fuller and his immediate superior, Resident Mechanical Engineer E.E. "Ed" Willett, particularly demonstrated a lack of commitment to nuclear safety and a general lack of knowledge and competence to perform their important engineering and management responsibilities. The Resident Engineering Unit carries responsibility for all site engineering functions at the Harris Plant, under the direction of a CP&L employee, the Senior Resident Engineer, a position held by A. Lucas until his removal for poor performance in early 1983. Under Lucas were the various engineering disciplines and the Construction Inspection (CI) organizations. Ed Willett took over the Mechanical Engineering group in 1980. He originally supervised activities in the piping, hangers, equipment and heating-ventilation-air conditioning (HVAC) areas; until equipment installation and HVAC were taken away from him in early 1983, and hanger work was taken away in October, 1983, because of mounting problems and growing recognition of Willett's lack of ability to effectively manage his work. Willett brought in his friend, Alex Fuller, to supervise the hanger program in late 1981, despite Fuller's lack of qualifications for this work. Fuller's training was in civil engineering and his only previous work experience was in dam construction with CP&L. As problems mounted in the hanger area, Al Rager was brought in over Alex Fuller. This did not help at all since Rager lacked any engineering experience. Rager has

since been placed in charge of the Construction Inspection program. This recent move will do nothing to improve the Quality Assurance program at the Harris Plant.

5. In mid-August 1982 I was performing my normal duties checking the installation of pipe-hangers in the Turbine Building. While doing so I observed several pipefitters attempting to fit a 24" carbon steel piping line to the discharge nozzle of Steam Generator Feed Water Pump 1A-NNS. This piping system is of large diameter pipe through which feedwater is pumped back from the turbine condensor to the steam generator which is located inside the Reactor Building containment. The system, including the piping and associated valves and pumps, is classified as Secondary System, Safety Category 4, Seismic Category 1. The integrity of reactor temperature and pressure control is dependent upon the effective functions of these pumps, valves and piping, which are, therefore, nuclear safety significant. The 24" carbon steel pipe in question extended on a horizontal run in the direction of the length of the Turbine Building until it reached a position above the discharge nozzle of the pump in question where it dropped vertically toward the pump. Since the pipe-to-pump flange connection was the last remaining fit-up to be made in the pipe run, I was particularly concerned that proper alignment of the pipe to the flange was maintained in order to assure that no improper stresses were imparted to the pump.

6. To assure proper fit-up, I identified the fitters' Foreman and requested that he ask his General Foreman, Danny McGhee, to request Millwright assistance in fitting this connection. Millwrights are responsible for the installation of mechanical equipment such as this SGFW pump. The Foreman did as I requested, but reported back that McGhee had said go ahead without the Millwrights. I returned to my office where I called Piping Engineer D.M. Dasburg to whom I related the problem.

7. Several days later I encountered the same crew of pipefitters in the Turbine Building in the process of actually fitting up this pipe to the pump nozzle. The fitters had rigged a horizontal "come-along" from the pipe to a nearby beam and were "cold pulling" the pipe using extreme force which I would estimate at several thousand pounds in order to force fit the connection. When I encountered them they had almost completed the entire weld. No Millwright was present, nor did I observe any Quality Control, Construction Inspector, or supervisory authority present to witness the "cold pull" fit-up of this pipe.

8. About one week later I observed two Millwrights, a Mr. Strickland, Company No. 50-185 and Mr. Bass, Company No. 50-105, performing an alignment test on the subject Feedwater Pump. One of them said to me, "Mr. Chan they really screwed up this pump!" The Millwrights were measuring the pump shaft alignment using an instrument called a "Dial Indicator" which measures in thousands of an inch. Procedure calls for an alignment tolerance of +/- .005. The Millwrights reported to

me the results of alignment measurements over a three-day period under hot and cold temperature conditions. Their notes reflected a severe misalignment measurement of as much as + .108", - .078" under hot conditions; and + .108", - .075" under cold conditions!

9. On August 25, 1982, I explained this problem to my Supervisor, Alex Fuller. I asked him how I should document and report this safety deficiency; and whether I should inform Resident Mechanical Engineer Ed Willett. Fuller told me to document the problem on a "Speed Letter" which he said he would route to Willett. "Speed Letters" are commonly used at the Harris site for not only routine internal communication, but also in place of prescribed Quality Assurance documentation. Use of "Speed Letters" is not prescribed in any procedures for the documentation of construction deficiencies, nor are "Speed Letters" controlled documents which are normally part of the Nuclear Plant's permanent quality records. I documented the cold pulling misalignment of the Steam Generator Feedwater Pump as I was instructed in such a "Speed Letter" to Alex Fuller, "Subject: Loads Imposed on the Steam Generator Feed Pump 1A-NNS," which detailed my observations and attached a diagram showing the Dial Indicator alignment readings and the Millwrights' names and Company numbers. I closed my message: "Please investigate." The very next day I happened to find my "Speed Letter" with attached diagram discarded in Fuller's trash can!

10. The following day I spoke with R.T. "Roy" Settle, a Daniel Construction employee who serves as Equipment Installation Supervisor. I told him of the problem and showed him my discarded "Speed Letter". Roy said that he had told Ed Willett of the problem three times. He quoted Willett as cursing him and adding: "I don't want to hear any more about that problem. If something happens I will fire you first!"

11. Several months later on October 14, 1982, I observed Millwrights re-checking the alignment of the subject pump. They gave me a note reflecting the results of their Dial Indicator readings: + .098", - .075". I showed this note to Alex Fuller. He said nothing. The following day I showed it to Ed Willett. He said tell Daren Dsaburg the Piping Engineer. I already had. I gave a copy of the note to Dasburg.

12. Since I first raised my concern regarding the cold pulling of this pipe and its effect on the feedwater pump, I became aware of increasing pressure from Fuller and Willett. I sought a transfer out from under Fuller and Willett thinking that a change in supervision would ease this retaliation. Willett refused to approve my transfer request. I pursued my concern regarding the mishandling of the pump deficiency and my request for transfer to avoid the mistreatment. Both Senior Resident Engineer A. Lucas and Harris Project Manager Parsons showed no interest and offered no help. They sent me back to Willett.

13. In November or December 1982 I went to see CP&L Vice President, M.A. McDuffie. I told him that I was just trying to serve my Company. I explained to him all about my report of the pump deficiency. I showed him my "Speed Letter" and diagram and the Millwrights' notes; I told him of Roy Settle's comments. He showed no reaction and asked no questions. I told him of the retaliation and pressure from Fuller and Willett. He told me that I was a good man, that the Company needed me. He said he would help and that I should go back and request a transfer. I did as he told me; but my transfer was refused. Mr. McDuffie did not help me, nor did he investigate my safety concerns.

14. In March, Alex Fuller increased the level of pressure on me and threatened me with termination of my job. He subjected me to "formal counseling" regarding my job performance, including a requirement that I impove my "understanding and explanation of problems." After I requested Project Manager Parsons' help in allowing me to rebut Fuller's allegations, Fuller and Willett backed down and dropped their charges.

15. In April, 1983, I went to see Vice President McDuffie again for help. This time he sent me back without any action or help. Mr. McDuffie said, "This is the U.S. This is CP&L, not Vietnam. Here Ed Willett is your Lieutenant and you are only a soldier. You must obey orders." During the Spring the pressure from Fuller continued to increase. I was assigned more and more work: hangers in the diesel generator building, the turbine

building, the reactor building, the auxiliary building and the waste processing buliding. Much more work than my fair share.

16. In June, 1983, the NRC began to identify serious problems in the hanger installation program at Harris. In a June 10, 1983, exit meeting with site management, NRC Senior Mechanical/Welding Engineer J.W. York noted problems in the hanger inspection area with particular regard to missed deficiencies and material control problems. Several weeks later Alex Fuller assigned me to work with the QA Surveillance Group under the direction of QA Engineer "Buck" Williams. Our task was to begin an evaluation of the adequacy of the existing pipe hanger installation program. Fuller instructed me to select, at random, about 50 hanger packages for review, with particular emphasis on material substitutions, use of surplus materials, and identification of Construction Material Requisitions (CMR's) that did not match the hanger materials actually installed. These areas represented significant problems which the NRC had observed and which indicated the potential need for costly and time consuming reinspection and rework.

17. At Buck Williams' request I pulled 50 hanger packages for seismic hangers on safety-related systems which were supposed to be Phase II complete: installed, inspected, and found acceptable for turn over to operations with only the final Phase III stress analysis yet to be performed. Of these, the QA Surveillance Group inspected 12 at random. In

the course of this review numerous serious deficiencies were noted which had not been identified, documented or corrected although these hangers had all received final approval by CI and CP&L QA/QC.

18. By "Speed Letter" of July 18, 1983, I transmitted to Alex Fuller and Ed Willett my completed "Hanger Phase II Verification Checklists" for these sample hanger packages. Fuller was very angry that such a large number of deficiencies had been identified, and he blamed me for documenting all of these problems. In particular he focused on the problem of material traceability which we had identified on many of these hangers. For example on pipe hanger A-2-236-1-CC-H-105, a "Speed Letter" of 4/25/80 indicates that a 1" x 10" x 10" plate was obtained from Purchase Order 21022 and installed as per drawing. PO 21022 was cited as the source for material in many of the hangers we examined. I explained to Fuller that I had researched this PO with QA inspector Jay Vincent and another man on the Surveillance team. We could find no documentation of this PO in the QA records vault. In the Purchasing Department, Robert Babb informed us that the Purchasing Log showed that PO 21022 had been voided and that no materials had ever been received through that order! We could not determine where these hanger materials had come from or document that such materials were of acceptable quality for nuclear safety application.

19. Later that afternoon Fuller called me into his office. He called me "a liar" and said that he had found documentation for PO 21022 in the warehouse. He accused me of not doing my job properly. I asked him to wait for the issuance of the Deficiency and Disposition Report (DDR) by the QA Surveillance Group which would confirm my report of material traceability problems and, in particular, the apparent falsification of documentation involved in the repeated use of void PO 21022 to supply traceability for hanger materials of unknown origin. I returned to my work.

20. DDR 1775 was issued by Buck Williams on July 26, 1983, documenting the QA Surveillance findings, as well as my report to Fuller and Willett regarding the void PO. That DDR states that "PO # 21022 was voided and no documentation exists that material was received." It also states: "A further investigation of PO # 21022 revealed that material from this PO was used on pipe hanger 1-CC-H-1242, 1-RH-H-183, and numerous other pipe hangers not listed here, although PO # 21022 was voided . . . " DDRs 1776, 1784, 1795 and Nonconformance Report (NCR) QA-255 also document problems we found in the hanger verification.

21. In response to my report to Fuller and Willett of QA failures, Willett issued a Memo July 29, 1983, "Subject: Shearon Harris Nuclear Power Plant - Compliance with Project QA Programs and Procedures", which emphasized that compliance with QA procedures is "mandatory" and provided examples of "DO's and Don't's".

22. On August 1, 1983, Assistant Project General Manager P.F. Foscolo responded to our Phase II hanger surveillance and the NRC concerns by providing for significant changes in the hanger program. A stop work order had been issued on July 29, 1983, halting all work and inspection on seismic hangers. Phases I and II were eliminated; work and QA procedures were substantially changed, including particularly WP-110, and TP-34, which provided for hanger installation and inspection. In particular, CP&L noted that hanger documentation should be checked to insure "that the surplus hangers number/purchase order number is legitimate". At that time only about 300 of the 18,000 seismic pipe hangers had successfully passed inspection. I remain concerned about the use of false documentation on such safety grade materials. Has any effort been made to investigate the cause or extent of this problem at the Harris Plant?

23. On August 22, 1983, Alex Fuller presented me with a Memo signed by himself and Ed Willett reflecting their decision to place me on probation due to what was described as a decline in my performance "over the past year and one half". Of course, Fuller himself had promoted me to Engineer less than a year earlier! I believe that this action was in retaliation for my expression of safety concerns. I refused to acknowledge Fuller's false charges, and, instead I wrote: "I do not agree with this statement", on the memo. Ironically one of the actions required of me over the next 6 months was: ". . . problems that are detected must be reported accurately and timely.". CP&L management

demonstrated time and time again that they wanted us to look the other way when we encountered deficiencies. "Problems" were the last thing they wanted reported.

24. In the Fall of 1983 I met with CP&L Executive Vice President E.E. Utley in Raleigh. I carried with me all my documentation of safety concerns and deficiencies, including those described here. I explained these concerns to Mr. Utley and the responses to them by my supervision. He showed little interest in anything I said or any document I showed him. He did not ask questions regarding my concerns or my treatment. He said I was a "good man" and that I should go back to work. He promised to help. He did not. I performed all work assigned to me over the next 6 months, and have retained documentation of my satisfactory performance under increasing pressure and intimidation by my supervisor, Alex Fuller. All my requests for transfer were refused. At the end of 6 months, I was called before Messers Foscolo, Rager, Ferguson and Fuller who told me that if I did not resign I would be terminated. They urged me to make it easier on myself by resigning; and said I would have a hard time getting another nuclear industry job if I did not resign. I told them I had done nothing wrong and would not resign. That afternoon, February 29, 1984, Fuller escorted me like a prisoner out the gate without even a chance to exchange farewells with my colleagues and friends.

25. I have very serious concerns regarding the breakdown of Quality Assurance at the Shearon Harris Nuclear Power Plant. There is a great deal of pressure on the Construction Inspection (CI) organization which lacks the freedom and independence from cost and scheduling considerations to effectively perform their QA duties of identifying and documenting deficiencies. As an Engineer I was always aware of the conflict between production and quality. Both CI and Construction Engineering reported to the Senior Resident Engineer.

26. CP&L and its prime contractor Daniel employ a confusing and ineffective array of different documenting systems for controlling nonconformances such as DR's, DDR's, NCR's FCR/PW's and such commonly used uncontrolled paperwork as Memos and "Speed Letters". Few of us were trained in which procedures were to be used when. Mostly we wrote things down informally. I doubt that the QA vault contains even a fraction of the deficiencies in safety systems which have been identified. In order to ensure that I communicated effectively in my work - particularly since English is my second language - I made it a practice to retain full documentation of work in my areas. I have "Speed Letters" reflecting numerous deficiencies which I am sure have been discarded by CP&L. I also have retained copies of many quality documents which I believe have not been properly controlled by CP&L.

I hope that someone will seriously investigate my safety concerns. I know that many other present and former Harris employees, including craft and other engineers, share my concerns. However, they are not eager to share my experience in order to voice those concerns, since they have every reason to fear the same kind of retaliation that I have experienced. I hope that this statement of mine will make it easier for the others to speak more freely.

I am willing to assist in identifying and correcting quality assurance and workmanship problems in any manner necessary to ensure that the Shearon Harris Nuclear Power Plant does not harm the public.

Chan Van Vo

CHAN VAN VO

Sworn to and subscribed before me
this the 6 day of Oct, 1984.

NOTARY PUBLIC

My Commission expires: 8/12/86

10/25/84 WE
Contentions
(based on Chan Van Vo affidavit made public 10/22/84)
(& NRC regulations/requirements)

41C - CP&L Quality Assurance procedures and records violate NRC requirements because falsification of Nuclear Safety Material traceability records has occurred and there is inadequate assurance it is not continuing (or undetected so far in Harris Plant QA records). This violates 10 CFR 50 Appendix B Criteria, e.g. #'s 17, 6, 1, 2, 7, & 15, 16, 8, 9. For initial basis, Refer, e.g. to Chan Van Vo affidavit (available to me as of 10/22/84), e.g. paragraphs 18, 17, 16, 3, 4, 22, 23, 24.

41-D The Harris plant is in violation of the material traceability requirements of 10 CFR 50 Appendix B Criteria 8, 4, 6, 7, 1, 2, 15, 16 & 17, because of inadequate or nonexistent documentation of material used in safety related equipment, e.g. as stated or described in Chan Van Vo affidavit (dated 10/06/84, first available to me 10-22-84) ¶'s 20, 16, 17, 3, 4, 13, 18, 19, 22, 24 & 26.

41-E There has been a breakdown in Harris QA/QC programs for safety-related pipe hanger recordkeeping, installations, and inspections, violating all 17 requirements of 10 CFR 50 Appendix B. Basis is as described in Chan Van Vo affidavit (1st available to me 10/22/84) ¶s 17, 18, 1, 3, 4, 14, 15, 16, 19, 20, 21-(past noncompliances not corrected*), 22, 23, 24 &

26) This also includes the wholesale discarding of documents including pipe hanger documentation or packages,* to Mr. Chan Van Vo's belief.

*These amplifications of CVV affidavit conveyed to me by his counsel by phone - 8 pm 10/24/84.

41-F: QA concerns not documented properly at Harris in violation of 10 CFR 50 APP. B Criteria 6, 7, 8, 17, 1, 2, 3, 10, 11, 13, 14, 15, 16 & 17. See Chan Van Vo affidavit of 10-6-84 at ¶s 26, 9, 10, 13, 15, 16, 17, 18, 20, 19, 22, 24. These violations mean that the safety & quality of Harris safety - related systems cannot be established

41-G. There exists a pattern of harassment, intimidation, & failure to respond positively to employees bringing forward QA/QC concerns at the Harris plant (see, e.g. Chan Van Vo affidavit of 10-06-84 e.g. ¶s 26, 25, 24, 23, 19, 15, 14, 13, 12, 11, 10, 9, 6, 4, 3, & 1. This prevents concerns from being brought forward & dealt with properly in compliance w/10 CFR 50 App B e.g. criteria 15, 16, 14, 1, 2, & 3

41-H CP&L's failure to give sufficient independence to Construction Inspection (CI) & other QA personnel to perform their duties without pressure or harassment, prevents proper QA/QC on the plant, particularly all parts/systems/items inspected by CI when it did not have sufficient independence of cost/schedule concerns, and other parts/systems inspected by QA/QC personnel w/o the independence required to comply w/10 CFR 50 App B. See e.g. Chan Van Vo affid. ¶ 25, 26, & as cited in 41E & G above

C

CONSERVATION COUNCIL'S LATE FILED CONTENTIONS BASED ON THE AFFIDAVIT OF CHAN VAN VO--October 30, 1984

WB-1 The Quality Assurance program at Shearon Harris is deficient in that the nuclear safety material traceability documentation was falsified and other QA documents relating to safety were falsified or destroyed. This is in violation of 10 CFR 50, Appendix B, Criteria II (the QA program "shall be documented by written policies...and shall be carried out...") (emphasis added), Criteria VI, Criteria VII, and Criteria VIII. Basis is provided for this contention by the affidavit of Chan Van Vo and other related documentation, as well as other similar material from other current or former workers at the Harris Plant.

WB-2 The piping line to the discharge nozzle to the Steam Generator Feed Water Pump 1A-NNS was improperly installed thus causing improper stresses to the pump (see Chan Van Vo Affidavit, page 5 et seq., for details). The safety significance of this improper installation is that the integrity of the reactor temperature and pressure control is dependent upon the effective function of these pumps, valves, lines, etc.

The five factors applying to late-filed contentions was supplied upon oral arguments by Wells Eddleman and John Runkle, Counsel for the Conservation Council, during the hearings on safety issues, October 25, 1984.

John Runkle

514 YORK Rd.
Fayetteville, N.C. 28303
Phone (919) 864-5471

August 28, 1984

ADMINISTRATOR
Wage and Hour Division
Employment Standard Administration
U.S. Department of Labor
200 Constitution Ave NW
Washington D.C. 20210

SUBJECT: Complaint of discrimination against Carolina Power & Light CO. under 29 CFR Part 24.

Dear Sir or Madam;

I believe that I have been discriminated again by my former employer, Carolina Power & Light C because of my actions in expressing concerns and documenting deficiencies in the design an construction of the Shearon Harris Nuclear Powe Plant where I worked as a Construction Field Engineer in the Mechanical Department until my termination about Feb. 29, 1984. I have be refused employment for which I am qualified by many Nuclear and other Firms because of CP&L's discriminatory treatment. I only learne of my rights under the employee protection provisions of the ENERGY REORGANIZATION ACT and Department of Labor Regulations within the las thirty days.

I request that you order CP&L to provide me relief for this discrimination including providing me back pay, compensation and other available relief.

I have been employed by CP&L at the

Shearon Harris Nuclear Power Plant under construction at New Hill, North Carolina since April 10, 1979. I have been promoted from Engineering Aide to Engineering Technician II, Associate Engineer, and finally Engineer in October, 1982 where I was assigned to work wi Alex Fuller, Principal Engineer - Hangers. I have been subject to repeated harassment, intimidat pressure and other discrimination because of my actions in performing my assigned duties which included the identification and documentation of design and construction deficiencies.

For example, in June, 1983, The Nuclear Regulato Commission listed deficiencies for our area and Mr. Fuller assigned me to inspect the hangers for further deficiencies along with the Quality Assurance Surveillance Group. After I submitted my report in July which listed a large number of deficienci Fuller told me I was a liar and did not know how to perform my job. Although the Quality Assurance reports supported my findings, I wa placed on six months Probation about August 2: 1983, due to my performance having "declined below the acceptable level for the classification of Engineer over the past year and one half."

I performed my duties while on probation and was not informed of any poor performance. I was repeatedly pressured to resign and was finally terminated about Feb. 29, 1984.

I repeatedly complained to my Superiors at CP&L about this discrimination including Senio management who promised to help me. They sent me back to work without any help. No one at CP&L informed me of my right to file this D.O.L discrimination complaint.

I have tried to get help many people and

Governmen[illegible] Agencies. None of them have informe me of my rights to file this complaint. In March, 1984 The Employment Security Commissio of North Carolina Representative told me that CP&L was allowed to terminate me under thes circumstances. In April and July, 1984 I asked For help at The U.S. Department of Labor office in Washington D.C. Although I explained my complaint I was sent away each time without help or information about my rights to file this complaint.

I have applied for and been turned down for many Nuclear and Non-Nuclear jobs for which I am qualified because of CP&L's discrimination. I am still unemployed.

About July 31, 1984, I was informed by a Representative of The Government Accountabilit Project of the employee Protection Provisions of the Law and since then of how to file this complaint.

I ask for your help in investigating my complaint and providing me any available relief for this discrimination. I will be happy to supply further information and documentation in support of my complaint.

Sincerely,

Chanvano

CHAN VAN VO
(Also known as VAN VO DAVIS)

OCT 15

U.S. Department of Labor

Employment Standards Administration
Wage and Hour Division

P. O. Box 27486
Raleigh, N. C. 27611

Telephone No. 919-755-4190

DATE: October 12, 1984

Reply to the Attention of: Wage-Hour
Chan Van Vo vs. CPL

Mr. Chan Van Vo
514 York Road
Fayetteville, N.C. 28303

Dear Mr. Van Vo:

This letter is to notify you of the results of our compliance action in the above case. A previous letter from this office advised you that your complaint was received on September 13, 1984, and enclosed a copy of Regulations, 29 CFR Part 24 and a copy of the pertinent section of the Energy Reorganization Act.

Our initial efforts to conciliate the matter revealed that the parties would not at that time reach a mutually agreeable settlement. An investigation was then conducted. Our investigation did not verify that discrimination was a factor in the actions comprising your complaint. Conversely, it is our conclusion that your allegations are unprovable for the following reasons:

In order to have a valid complaint the following factors must be met.

1. You must be employed by an employer subject to the Energy Reorganization Act.

2. You must have been discharged or otherwise discriminated against with respect to compensation, terms, conditions, or privileges of employment.

3. Finally, the alleged discrimination arose because the employee participated in a Nuclear Regulatory Commission Proceeding Under the Energy Reorganization Act of 1974.

We could not substantiate item 3 cited above.

Employer's records and interviews with supervisory employees reveal that you were placed on six months probation in August 1983, because of unsatisfactory work performance. You were terminated in February 1984, because your work performance had not improved.

This letter will notify you that if you wish to appeal the above findings you have a right to a formal hearing on the record. To exercise this right you must, within five (5) days of receipt of this letter, file your request for a hearing by telegram to:

The Chief Administrative Law Judge
U. S. Department of Labor
Suite 700, Vanguard Building
1111 - 20th Street, NW
Washington, D. C. 20036

Chan Van Vo
514 York Road
Fayetteville, N.C. 28303

Unless a telegram request is received by the Chief Administrative Law Judge within the five-day period, this notice of determination will become the final order of the Secretary of Labor dismissing your complaint. By copy of this letter I am advising Carolina Power & Light Company of the determination in this case and the right to a hearing. A copy of this letter has also been sent to the Chief Administrative Law Judge with your complaint. If you decide to request a hearing it will be necessary to send copies of the telegram to Carolina Power & Light Company and to me at U. S. Department of Labor, Wage and Hour Division, P. O. Box 27486, Raleigh, N. C. 27611. After I receive the copy of your request, appropriate preparations for the hearing can be made. If you have any questions do not hesitate to call me.

It should be made clear to all parties that the role of the Department of Labor is not to represent the parties in any hearing. The Department would be neutral in such a hearing which is simply part of the fact-development process, and only allows the parties an opportunity to present evidence for the record. If there is a hearing, an Order of the Secretary shall be based upon the records made at said hearing, and shall either provide appropriate relief or deny the complaint.

Sincerely,

James C. Stewart

James C. Stewart
Area Director

cc: Ms. Margaret Glass, Associate General Counsel
Carolina Power & Light Company
P. O. Box 1551, Raleigh, N. C. 27602

Nuclear Regulatory Commission
101 Marietta Street
Suite 3100
Atlanta, Georgia 30303

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
	)	
CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY	)	Docket No. 50-400 OL
	)	
	)	
(Shearon Harris Nuclear Power Plant)	)	

AFFIDAVIT OF A. PARKS COBB, JR.

County of Mecklenburg	)	
	)	ss.
State of North Carolina	)	

A. Parks Cobb, Jr., being duly sworn according to law, deposes and says as follows:

1. My name is A. Parks Cobb, Jr. and my business address is Duke Power Company, 422 South Church Street, Charlotte, North Carolina 28242. I am Manager, Project Management Division, of the Design Engineering Department at Duke Power Company. The Project Management Division is responsible for (1) engineering project management of all company in-house projects in which the Design Engineering Department has a role, (2) management and technical services activities for outside clients through the MATS (Management and Technical Services Program)

and, (3) departmental support in scheduling, budget and cost control, computer aided drafting, and computer applications and production support. Previously, I was Manager, MATS, which is a section within the Project Management Division of the Design Engineering Department which is responsible for business development and project management activities associated with providing Duke's services to outside clients. I have worked for Duke Power Company for eleven years and, in total, have over twenty years of professional experience in engineering, project management, and research and development. A detailed statement of my professional qualifications and experience are provided in a resume which is included as Attachment 1 hereto.

2. In October of 1983, I was retained by Carolina Power & Light Company ("CP&L") as a consultant to provide outside, third-party review of activities performed by a review panel, headed by Dr. T. S. Elleman, CP&L Vice President, Nuclear Safety, which was assigned to solicit and evaluate potential technical concerns raised by quality inspectors at the Shearon Harris Nuclear Power Plant construction site. This activity consisted of reviewing the collection and disposition of technical concerns, reviewing qualifications of the review panel members themselves and providing a final report of findings to CP&L management. As part of this program, CP&L requested that I review and comment on their newly formed Quality Check Program. In performing this activity, I reviewed in detail CP&L's

documentation which describes the operation of the Quality Check Program and selected Quality Check interview forms and logs being maintained at the Shearon Harris Nuclear Power Plant Site. I brought to this task my experience at Duke in serving as chairman of a Duke task force assigned to investigate technical concerns of welding inspectors at the Catawba Nuclear Station Construction Site.

3. On October 15, 1984, Mr. H. R. Banks, Manager, CP&L Corporate QA Department requested my assistance in reviewing, investigating and addressing concerns raised in an Affidavit they had received from a former employee, Mr. Chan Van Vo. In performing this activity, I first reviewed the Affidavit and identified items in the Affidavit I considered to be significant issues. I recommended to Mr. Banks that I focus my attention on concerns raised in the Affidavit related to management responsiveness, particularly those raised in paragraphs #12, #13, #15, #23, and #24. I also recommended a course of action on other issues. For the issues I was to focus on, I recommended an approach utilizing personal interviews with management personnel identified by Mr. Chan Van Vo as well as any other CP&L personnel likely to have knowledge relating to the inquiry. Mr Banks concurred with this approach.

I conducted interviews, and the information obtained from those interviews and my findings are documented in a report to CP&L which is provided as Attachment 2 hereto. This report contains my specific findings relative to the assigned paragraphs and additional information regarding other issues raised in the Affidavit which was obtained during these interviews.

A. Parks Cobb, Jr.

Sworn to all subscribed before me
this 9th day of November, 1984.

Edith B. Caldwell
Notary Public

My Commission Expires: My Commission Expires November 4, 1987

Attachment 1

RESUME

ALTON PARKS COBB, JR.

FORMAL EDUCATION:

University of Alabama - Huntsville: 1966-72 (33 hrs toward M.S. in Engineering Mechanics)
North Carolina State University: BSME 1964
Rocky Mount (NC) Senior High School: Diploma 1960

ADDITIONAL TRAINING:

TECHNICAL

Miscellaneous Technical Seminars (structural mechanics, analog computation, vibration analysis) (Boeing)
Miscellaneous Computer Program Usage Seminars (SUPERPIPE, ASTRA, NASTRAN, STRUDL) (Boeing, Duke)
Seismic Design of Nuclear Power Plant Facilities (University of Pittsburgh)
Time Series Analysis for Noise and Vibration (Structural Dynamics Research Corporation and Time Data)

SUPERVISORY/MANAGEMENT

Dynamics of Motivational Management (Success Motivation Institute)
Supervisory Training (Duke)
Effective Project Management (Center for Professional Advancement)
Management Development (Duke)
Effective Interviewing (The Psychological Corporation)
Boomerang II - A Management Training Program in EEO (Duke)
Persuasive Communications Seminar (Technologies)
Effective Management (Harbridge House)
Advanced Management Development (Duke)

PROFESSIONAL INVOLVEMENT:

Registered Professional Engineer - NC 6817, SC 5951
Member - ASME

WORK EXPERIENCE:

FROM	TO	TITLE	PROGRAM	COMPANY
10/84	Present	Manager, PMD	Project Management Division Design Engineering Department	Duke Power

In charge of Project Management Division of the Design Engineering Department which is responsible for (1) engineering project management of all company in-house projects in which the Design Engineering Department has a role - principally design in support of new and operating electricity generating facilities of nuclear, fossil, and hydroelectric types, (2) management and technical services activities for outside clients through the MATS program, and, (3) departmental support in scheduling, budget and cost control, computer-aided drafting (CAD), and computer applications and production support related to department usage of corporate mainframe computers and personal computers.

WORK
EXPERIENCE: (continued)

FROM	TO	TITLE	PROGRAM	COMPANY
9/82	10/84	Manager/ Section Head	Management and Technical Services (MATS)	Duke Power

In charge of new section in the Project Management Division of the Design Engineering Department which is responsible for business development and project management associated with providing Duke's services to outside clients.

6/81	9/82	Principal Engineer/ Section Head (6/81)	Nuclear and Conventional Power Plant Design	Duke Power

In charge of civil engineering section responsible for design support for all operating stations, including nuclear, fossil, hydro, and combustion turbine. Section work included periodic and emergency inspection and maintenance, upgrade, and addition to operating plants. Engineering scope included safety and non-safety related design in the areas of structural steel and concrete structures, pipe and equipment support/restraints, ash basins, and spillway structures. Served as chairman of a task force to investigate technical concerns of welding inspectors at Catawba Nuclear Station construction site. Provided testimony in support of this activity at Atomic Safety and Licensing Board (ASLB) hearings for an operating license for Unit 1.

4/80	6/81	Senior Engineer/ Group Head	Nuclear Power Plant Design	Duke Power

In charge of McGuire stress analysis and support restraint design group which was responsible for initial piping analysis and pipe, equipment, and ductwork support/restraint design for McGuire Nuclear Station, Units 1 and 2. Group Head duties included management of in-house engineering work performed by approximately eighty (80) Duke personnel and two hundred and forty (240) contract personnel, most of whom were engineers. Personnel were located in Construction Site offices (Group headquarters) and Charlotte area office. Duties also included management of out-of-house consultant-performed piping analysis analysis and restraint design of approximately seventy (70) personnel (EDS Nuclear). Group completed work to support McGuire Unit 1 fuel load in 1/81, including closeout of major USNRC Bulletins 79-02 and 79-14.

12/78	4/80	Senior Engineer/ Group Head (11/79)	Nuclear Power Plant Design	Duke Power

In charge of group responsible for computerized analysis of all designated piping outside containment for Project 81 Nuclear Stations (Cherokee Units 1, 2, and 3; Perkins Units 1, 2, and 3) encompassing ASME Class 2 and 3 and ANSI B31.1 piping. Duties included organization of group, establishing training programs, recruiting new employee engineers, technicians, and draftsmen, and recruiting temporary (job shop) engineering personnel.

WORK
EXPERIENCE: (continued)

FROM	TO	TITLE	PROGRAM	COMPANY
7/76	5/79	Design Engineer (8/76)	Nuclear Power Plant Design	Duke Power

In charge of group responsible for managing consultant contracts for performance of computerized piping analysis of designated piping inside and outside containment for McGuire and Catawba Nuclear Stations, including Nuclear Steam Supply System (NSSS) contractor analysis of Reactor Coolant Loop piping and consultant contractor analysis of piping. In charge of group responsible for special stress and vibration and analyses for all current projects, including analysis and criteria definition for welded attachments to piping, mechanical equipment anchor bolt analysis, containment piping penetration analysis, analysis and test development program for pipe whip energy absorbers, development and implementation of in-house program for vibration testing of non-rigid valves, and performance of troubleshooting test and analysis for mechanical equipment in operating plants.

9/73	7/76	Assistant Design Engineer	Nuclear Power Plant Design	Duke Power

In charge of group responsible for resolution of anchor installation problems with mechanical equipment, responsible for seismic design criteria development for mechanical equipment, and responsible for mechanical troubleshooting of vibration problems in operating plants.

6/64	9/73	Senior Engineer (4/73) Engineer (2/70) Associate Engineer (6/64)	Aerospace & Military	The Boeing Company

Performed structural dynamic, load, and stress analyses on a variety of contracted and company-sponsored projects. Projects included Saturn V recoverable booster study, Improved HAWK missile, Saturn V Integration, Multiple Artillary Rocket System (MARS), Lunar Roving Vehicle (proposal and development contract), Saturn V - Shuttle Impact Study, and U.S. Army Corps of Engineers Safeguard Program. Other duties included detailed involvement in development and use of large scale computer programs for performing structural analyses using finite element and matrix methods, implementation of computer graphics in digital computer solutions to time history dynamic analysis problems, and development of scale model testing of water impact dynamics of spent rocket boosters.

Attachment 2

REPORT OF RESULTS OF INTERVIEWS CONDUCTED WITH CP&L PERSONNEL RELATED TO SELECTED ASPECTS OF AN AFFIDAVIT SUBMITTED BY FORMER CP&L EMPLOYEE CHAN VAN VO

Prepared by: A P Cobb

A P Cobb, Jr.
Manager, Project Management Division
Design Engineering Department
Duke Power Company

October 31, 1984

Revised November 9, 1984

TABLE OF CONTENTS

1.0 Overview

This report documents results of discussions held with CP&L personnel related to statements contained in an Affidavit submitted by Chan Van Vo, a former CP&L employee in the construction organization at the Shearon Harris Nuclear Power Plant (SHNPP). The discussions pertained to the statements made in Paragraphs #12, 13, 14, 15, 23, and 24, which address CP&L management responsiveness to alleged safety concerns by Chan Van Vo. The purpose of the discussions with CP&L personnel was to ascertain facts related to CP&L involvement in the events cited in these paragraphs. Parties cited as contacts made by Chan Van Vo were interviewed, and others were interviewed who might have been in a position to confirm or contradict events recalled by those primary contacts. Personnel cited as contacts by Chan Van Vo and who were interviewed were Alex Fuller, Ed Willett, R M Parsons, M A McDuffie, and E E Utley. Others interviewed were John Ferguson, Dr. T S Elleman, and Darren Dasburg.

2.0 Background

Statements cited in Paragraphs #12, 13, 14, 15, 23, and 24 of the Affidavit were part of a sequence of events that occurred during Chan Van Vo's employment at SHNPP. Discussion with personnel involved, especially Alex Fuller and Ed Willett, provided a description of events related to Chan Van Vo's employment. This sequence of events is important to place statements made in the Affidavit in perspective.

1. Chan Van Vo was initially employed as an aide at SHNPP and was later promoted to technician.

2. Sometime later, in October 1980, Chan Van Vo was promoted to entry level engineer status after completing correspondence school training.

3. As an engineer, Chan Van Vo worked in the piping area under Ed Willett.

4. While working in the piping area, Chan Van Vo developed a history of problems associated with his work. There does not appear to be specific documentation available; however, Ed Willett was aware of problems, both in his individual performance and with his interface with others. Because it was not clear as to the source of the problem, it was deemed appropriate to move Chan Van Vo to another area of work and provide an opportunity for a fresh start.

5. In April 1982, Chan Van Vo was assigned to work under Alex Fuller in the area of pipe hangers. At the same time, Ed Willett contacted John Ferguson (CP&L Employee Relations) and arranged for Chan Van Vo to talk with Mr. Ferguson regarding concerns about his employment situation.

6. Chan Van Vo was promoted in October 1982 to the second level engineer classification at CP&L. This promotion was generally

in accordance with CP&L's promotion policy whereby an entry level engineer is promoted at the end of two years if performance is satisfactory.

7. Counseling for performance problems in Chan Van Vo's work under Alex Fuller began formally in March 1983. This counseling was received in a resentful hostile manner by Chan Van Vo, who denied any unsatisfactory performance even though he was presented with documented examples.

8. Counseling continued until August 1983, at which time Chan Van Vo was placed on probation and provided again with a clear statement of areas of his performance that were unsatisfactory.

9. Counseling continued from August 1983 until February 1984 without noticeable improvement in performance in the areas cited when Chan Van Vo was placed on probation.

10. In late February 1984, a final counseling session was held and Chan Van Vo was informed that progress on items requiring improvement in performance had not been satisfactory. He was given an opportunity to resign in order to prevent having a job termination on his record. He refused to resign and was terminated on that same day. He was escorted to the gate on that day in accordance with standard procedure.

Technical items cited in the Affidavit which relate to the fitup of piping to a steam generator feedwater pump and related to the Phase II hanger program occurred during the time frame that Chan Van Vo worked under Alex Fuller's supervision in the hanger area and was receiving counseling for unsatisfactory performance. Both the steam generator feedwater pump piping and the Phase II hanger program situations were complex and covered a substantial span of time (months). Chan Van Vo became involved in these situations either due to actions of his own or by virtue of assignment and worked on isolated aspects of each. He collected an isolated sample of data, drew his own conclusions, and may have pursued some actions on his own as he was prone to do. Since both situations were already being attended to by assigned CP&L personnel who had knowledge of the entire situations, Chan Van Vo's information provided little help and nothing new and was likely not given special attention. As can be ascertained from information later in this report, individuals who he supposedly contacted and provided specific information regarding these two situations have no recollection of any such contacts. To aid in understanding of events that actually transpired related to steam generator feedwater pump piping and the Phase II hanger program, individuals interviewed provided an overview which is documented later in this report.

3.0 Paragraph #12 Items

In Paragraph #12 of the Affidavit, Chan Van Vo made reference to "increasing pressure from Fuller and Willett." He stated that he sought a transfer which was refused by Willett. Based on the time frame he is

referring to, this was the time frame during which counseling for performance problems unrelated to the steam generator feedwater pump piping was taking place. He requested a transfer and the transfer was approved by all levels of supervision. He was interviewed once or twice for assignment to other areas, but other organizations were not interested. Willett had no other areas under his supervision available in which to transfer Chan Van Vo and, in fact, needed his assistance in the hanger area due to the magnitude of the hanger work. Chan Van Vo did not contact R M Parsons directly with respect to his request for transfer or concerns with Fuller and Willett. Although he saw him frequently, Parsons recalls only two contacts with Chan Van Vo, one related to organizational information which he provided and one contact made in the field where statements were made about the installability of diesel generator piping and pipe supports.

4.0 Paragraph #13 Items

Chan Van Vo relates incidents associated with a discussion he held with M A McDuffie in 1982. According to McDuffie, he talked with Chan Van Vo sometime in 1982, the exact date of which was not recorded. He recalls the discussion because Chan Van Vo requested to come talk with him on a Saturday morning, and McDuffie was particularly impressed that an employee would take his own time in the attempt to provide information which might improve the work situation at SHNPP. In that discussion, which lasted for a considerable time, Chan Van Vo complained about his work situation and expressed concern about not being fully utilized and work in general being done in an inefficient and costly manner. There

was no suggestion or discussion from Chan Van Vo indicating that work was being performed incorrectly from a technical point of view or that items were being completed in an improper manner. He produced a number of organization charts that he had personally prepared and explained how he felt the site should be organized, and in so doing, he could be more fully utilized. There was no mention of safety concerns during this conversation. McDuffie expressed to Chan Van Vo the need to demonstrate to his supervision that he was capable of handling additional or higher quality work and he would be given additional assignments. During the course of this conversation, Chan Van Vo criticized almost everyone above him in the management chain, but this criticism focused on their administrative capability and not their technical capability. As followup to this discussion with Chan Van Vo, McDuffie talked to R M Parsons by telephone and satisfied himself that personnel at the site were providing an audience to Chan Van Vo regarding his concerns with his job and that action that they deemed appropriate was being taken. No further followup was considered necessary or was made.

5.0 Paragraph #14 Items

In Paragraph #14, Chan Van Vo alleges that in March 1983 (assumed 1983), Alex Fuller increased pressure on him and threatened him with termination and subjected him to formal counseling regarding job performance. He noted that this counseling required that he improve his understanding and explanation of problems. This information coincides with the point in time at which formal counseling due to unsatisfactory job performance did in fact start. This counseling is documented thoroughly and spells out

specifically the job performance-related concerns supervision had with Chan Van Vo. In Paragraph #14, Chan Van Vo noted that he requested assistance from R M Parsons; however, to the contrary, Parsons has no recollection of any contact from Chan Van Vo related to concerns about this counseling. There were no instructions provided from Parsons to Fuller and Willett to alter their course of counseling with Chan Van Vo. Parsons confirmed that he stayed aware of the counseling that was being conducted as he did with counseling of any person in the construction organization.

6.0 Paragraph #15 Items

In Paragraph #15, Chan Van Vo refers to a second visit to M A McDuffie. McDuffie confirms that a second visit was held sometime in 1983, but events suggest this visit was held later than April. At this meeting, Chan Van Vo laid out a plan he had developed for the as-built program for piping and hangers at SHNPP. He provided a hand written document to McDuffie which consisted of a compilation of his ideas, along with information he had collected from sources at the site. Since this was the second proposition he had made to McDuffie regarding substantial reorganization of the operation at SHNPP, McDuffie was less interested and the conversation took less time. At no time in this conversation did Chan Van Vo raise concerns regarding the technical competence of work at the site or safety concerns in general. Mr. McDuffie has no recollection of making the quoted statement in the Affidavit which is attributed to him regarding Chan Van Vo being a soldier and Ed Willett being his lieutenant and that he should obey orders. As followup, McDuffie sent

the document provided to him by Chan Van Vo to R M Parsons via informal note for review and requested that they discuss the information with Chan Van Vo. The date on this note and McDuffie's recollection of when it was sent relative to the conversation he held with Chan Van Vo suggests that the meeting with Chan Van Vo actually was held in May or June 1983. The note to Parsons containing the package of information was dated in July. The response to McDuffie by Parsons indicates that discussion was held with Chan Van Vo by Ed Willett and Alex Fuller and that the package of information was reviewed in detail. Willett and Fuller pointed out that a number of items contained in that proposal were in fact included in the current hanger program at the site. Other items were not included and were not deemed appropriate to include. Parsons' response to McDuffie was dated in late July 1983 and a copy can be obtained from Parsons.

Chan Van Vo makes reference to pressure from Alex Fuller in the spring of 1983 and alleges that he was assigned more and more work and that this was more than his fair share. As noted earlier, in the spring of 1983, Chan Van Vo did receive formal counseling which started in March 1983 because of poor performance. The areas of poor performance were clearly cited in counseling documentation in March 1983. Subsequent counseling sessions monitored progress in areas cited as unsatisfactory. Fuller states that Chan Van Vo's assignment was changed during this period because work in this group was reorganized under lead personnel. Because he was experiencing performance problems, Fuller worked more closely with Chan Van Vo than others and utilized him in several activities in the attempt to find one he could handle satisfactorily. Assignment of Chan

Van Vo to the QA surveillance activity was one such attempt by Fuller. Chan Van Vo's assignments did not constitute a disproportionate amount of work compared to others in the group, according to Fuller.

7.0 Paragraph #23 Items

In Paragraph #23, Chan Van Vo states that he received a memo signed by Alex Fuller and Ed Willett in August 1983 that stated he was on probation due to performance problems of the past year and one-half. He makes reference to being promoted by Fuller less than a year earlier and notes that he believes that this probationary action was in retaliation for his expression of safety concerns. In October 1982, Chan Van Vo was promoted from entry level engineer to the next level. In March 1983, formal counseling on performance problems actually started. In August 1983, Chan Van Vo was placed on probation, and the basis for this probation is well documented. This was as a result of his failure to respond to unsatisfactory performance in areas documented earlier. Documentation related specifically to performance problems observed while working under Alex Fuller. Chan Van Vo was promoted based on CP&L's system which allows promotion from entry level engineer to the next level in two years if performance is at least satisfactory. At the time of the promotion, Fuller had concerns about Chan Van Vo's performance but they were not significant enough to block the promotion or to initiate formal counseling. By March 1983, the concerns reached a level to justify formal counseling and documentation. Chan Van Vo objected to the documentation that performance was unsatisfactory and refused to sign the

counseling memo. There was no information to suggest that CP&L demonstrated that they wanted personnel to look the other way when they encountered deficiencies as alleged in Paragraph #23.

8.0 Paragraph #24 Items

In Paragraph #24, Chan Van Vo refers to a meeting with E E Utley in the fall of 1983. He refers to documentation of safety concerns and deficiencies which he carried with him and alleges that he explained these concerns to Mr. Utley, including the responses he received from his supervision. He goes on to state that Mr. Utley did not ask questions regarding these concerns and that he promised to help him and did not. Contrary to the statements in the Affidavit, Chan Van Vo met with E E Utley on July 1983 as documented on Mr. Utley's calendar. He brought with him a package of information two to three inches thick. His discussion with Utley consisted of expressing his concern with the way CP&L was managing the job with respect to pipe hangers. He noted that he had reviewed his concerns with his management, with personnel at the site, and with M A McDuffie and that they had not accepted his proposal for the way the job should be conducted and he was concerned about that. He noted that he felt that he had a much better understanding of how this work should be conducted than they did and had a thorough knowledge of his particular job. There was no expression of concerns related to safety. In fact, the conversation did not at all involve the package of information that he had brought with him, although he left that information with Mr. Utley. Mr. Utley made no specific promises to Chan Van Vo other than to give his input consideration.

As followup to this meeting, E E Utley sent the package of information left with him by Chan Van Vo to Dr. T S Elleman, Vice President of Corporate Nuclear Safety, for his evaluation for potential safety concerns. At about this same time, Dr. Elleman had been made Chairman of a review panel to investigate potential concerns by personnel at SHNPP. Mr. Utley received no input from Chan Van Vo indicating that there were technical concerns contained in this package. Discussion with Dr. Elleman indicates that he reviewed the package and was unable to determine what Chan Van Vo was attempting to communicate. The package contained a collection of site procedures, non-conformance reports, and as he recalls, possibly some speed letters. There was no documentation as to what the compilation of information was intending to communicate. Dr. Elleman contacted Chan Van Vo by telephone and had a long and somewhat disjointed conversation. Chan Van Vo's main concerns expressed to Dr. Elleman related to his own job stability and the fairness of his supervision and the fact that people were not listening to his ideas about how the job should be conducted. Dr. Elleman tried to obtain specific concerns from him. After a lengthy conversation, Dr. Elleman obtained information from Chan Van Vo regarding concerns he had on the following items:

1) Q-List nut and bolt control (PO-40924)
2) Purchase orders for steel plates (PO-21022, PO-21021)
3) Vibration of installed air compressor

The first two of these items were converted to Review Panel Concern C-23, which was addressed by the Review Panel and resolved. The third item was

converted to Review Panel Concern C-24, which the Review Panel addressed and resolved. In none of these cases did information provided by Chan Van Vo constitute new information that had not been obtained previously by means of programs in place at SHNPP and solution paths had either been already taken or were in process.

After the Review Panel completed its work on these items, Dr. Elleman made repeated attempts to get back in contact with Chan Van Vo to relate the resolution of these items to him. After repeated attempts, he made contact and explained the resolutions. Chan Van Vo indicated that he was satisfied and had no further concerns with these items. At that time, Dr. Elleman inquired as to the basis of information Chan Van Vo had provided to E E Utley. Chan Van Vo related to Dr. Elleman that this information was brought to Mr. Utley to prove to him that Chan Van Vo was a capable performer and was doing his job satisfactorily. Following the completion of the Review Panel work, Dr. Elleman did not retain the package of information passed to him by Mr. Utley.

9.0 Events Related To Steam Generator Feedwater Pump Piping Installation

Based on discussions primarily with Willett and Dasburg, the situation that existed with regard to installation of the steam generator feedwater pump piping was as follows. Normal practice generally requires installation of piping such that the final closure weld does not occur at a piece of equipment such as a pump. Normally, piping is installed beginning with the connection at the pump and installed moving away from the pump, and a closure weld with other piping is made somewhere at a

distance remote from the equipment. The purpose of this is to ensure that any loading that may be necessarily applied to align the piping for the final closure weld is not transmitted to the nozzle of the equipment. In this particular case, craft personnel had requested approval to make the final closure weld at the pump. Because CP&L had concerns about potential loading on the pump, approval was granted with restrictions which included ensuring that hangers close by the pump were installed and would rigidly hold the pipe in place after it was aligned to the pump, and secondly, that movement of the pump be monitored carefully to ensure that the welding process itself did not create pipe movement which would provide loading on the pump. Actual construction of this particular closure weld was conducted utilizing continuous monitoring of pump movement by millwrights using dial indicators. During the process of welding, movement of the pump was monitored and if it moved in one particular direction, this could be corrected by welding on the opposite side of the piping and create a compensating movement. This iterative technique of welding, providing compensation for movement, would allow the welding to proceed in a manner not to create unacceptable pump loading and/or misalignment when welding was completed. During the course of this iterative technique, the two millwrights who had been monitoring movement were out of work one day, and two substitute millwrights were utilized. Craft personnel were reluctant to proceed with substitute millwrights, but decided to do so anyway in the interest of time. During the day when substitute millwrights were used, the iterative technique was continued and it was believed that no adverse alignment was created. On the day that followed, when the two original millwrights returned to work and made readings with dial indicators,

there was indication that adverse movement had in fact occurred and, because welding was virtually completed at that time, the misalignment could not be corrected by further iterative welding on one side or another. At this point, CI (Construction Inspection) Inspector Ed Williams wrote a non-safety nonconformance because the alignment was unsatisfactory. There were several options considered to correct or compensate for the unacceptable alignment. Two options considered were breaking the joint and rewelding or adjusting the motor installation position to compensate for the misalignment. Considerable amount of time passed while these options were being evaluated and work priorities in the field shifted such that the situation was not at that time resolved and had not as of the interview date been resolved. In the time that has passed since the welding to the pump, the pump vendor has visited the site and has observed that the barrel is out of round, which may now necessitate breaking the weld and rewelding. The nonconformance that was written at the time the misalignment was observed is apparently still open and will have to be resolved before the item can be considered closed. Based on the above sequence of events, it appears that CP&L was both knowledgeable and in control of events that occurred to the degree that could be reasonably expected. Although the pump welding did produce an unacceptable alignment, the program for inspection picked up the misalignment as a nonconformance. This particular event does not relate to safety since both the pump and piping in question are non-safety related.

10.0 Events Related to Phase II Hanger Program

Early in the program for installation of the pipe hangers, CP&L utilized a two phase hanger program. Phase I consisted of partial erection of hangers whereby some portion of the hangers was not installed or was left in an adjustable state to facilitate piping erection. The Phase II program was intended to complete the installation of partially installed hangers and to complete all necessary inspections. When the Phase II program was started, CP&L performed a number of routine checks to ensure that final inspections under Phase II were accomplishing the intended purpose. Most of these checks proved the opposite, and it was clear that they were not achieving the level of quality desired and required. The QA surveillance in which Chan Van Vo was involved was one such exercise initiated by CP&L that demonstrated to CP&L management that they were not achieving the desired level of quality in Phase II. This particular surveillance was one of the final events before CP&L stopped the inspection program and redesigned the entire hanger erection and inspection program. The program was redesigned to utilize a one step process whereby total hanger installation and inspection was performed at one time, as opposed to the original Phase I and Phase II approach. Results of the particular QA surveillance activity to which Chan Van Vo was assigned produced several nonconformance reports. These and others were written based on findings of surveillance activities. The stop work order referred to by Chan Van Vo was a stop work on inspection until a formal and detailed checklist could be developed to ensure that hanger inspections would achieve the level of quality required by CP&L's QA program. All of the hangers that had been installed and inspected under

the old Phase II program were reinspected under the new program to ensure that the desired level of quality was achieved. Since restart of the program, which occurred approximately December 1, 1983, the hanger program at SHNPP has proceeded satisfactorily according to Parsons.

11.0 Isolated Incorrect Statements in the Affidavit

Based on interviews with CP&L personnel and review of the Affidavit in general, there appear to be several incorrect statements in the Affidavit. Information related to these is provided below.

Affidavit Paragraph #	Information
6	Contrary to Chan Van Vo's claim that he contacted D M Dasburg regarding the steam generator feedwater pump piping, Dasburg has no recollection of ever being contacted by Chan Van Vo regarding concerns he had with this piping installation.
9	Alex Fuller has no recollection of ever being contacted by Chan Van Vo regarding concerns he had with the steam generator feedwater pump piping installation. Fuller has no recollection of receiving a speed letter or throwing a speed letter in the trash can. Fuller acknowledges that he may have been contacted on the item and, if so, would have in turn contacted the

responsible piping engineer, who would likely have confirmed that they were aware of the situation regarding the installation of this piping and had it under control. Having received this feedback, he would likely have discarded any information he had received such as a speed letter. Again, he has no recollection of being contacted at all by Chan Van Vo, either verbally or by speed letter regarding steam generator feedwater pump piping installation.

9 Chan Van Vo refers to his concern with steam generator feedwater pump piping as a safety deficiency. CP&L engineering should be able to confirm that neither the piping nor the pump are safety related items at SHNPP.

9 Chan Van Vo alleges that speed letters are utilized in place of prescribed quality assurance documentation. There is no information to support this allegation. R M Parsons and others interviewed confirmed that speed letters are used to transmit information from one party to another, and occasionally the information contained on the speed letter is converted to a nonconformance if deemed appropriate. The speed letter itself is not considered sufficient documentation for nonconformances and is not used for that.

19 Fuller denies ever calling Chan Van Vo a liar as alleged. Fuller confirmed that another engineer in his group was assigned to research the concern with PO-21022, that documentation associated with this PO (Purchase Order) was found, and there was no residual safety problem. The particular PO had been used in a manner different from a normal PO which did make the information in question difficult to find. This was one of the PO numbers provided to Dr. Elleman and was addressed in Review Panel Concern C-23.

21 Based on conversation with Ed Willett, Willett's memo of July 29, 1983 was stimulated by input received from INPO (Institute of Nuclear Power Operations) and not by input received by Chan Van Vo. Willett, in fact, did not receive information from Chan Van Vo as a result of his QA surveillance activity, and the memo was unrelated to information eminating from the QA surveillance in which Chan Van Vo was involved.

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For Immediate Release
October 22, 1984

SAFETY OF SHEARON HARRIS NUCLEAR POWER PLANT TO BE INVESTIGATED

An investigation into worker allegations of Quality Assurance deficiencies at the Shearon Harris Nuclear Power Plant was announced today by representatives of the Washington D.C.-based Government Accountability Project (GAP) and local citizens' organizations concerned about safety at the nuclear plant. The plant is now under construction about 17 miles south of Raleigh. The Nuclear Regulatory Commission's Atomic Safety and Licensing Board is conducting hearings on CP&L's request to operate the plant.

GAP lawyer Bob Guild released the sworn statement of former CP&L Engineer Chan Van Vo detailing concerns of safety deficiencies at Shearon Harris.

"Mr. Van Vo's experience reflects a callous disregard by high CP&L management for nuclear safety. Like many nuclear workers, Chan Van Vo faced harassment and retaliation instead of gratitude for identifying Quality Assurance problems. Such retaliation is not only unlawful, but its greatest harm is that is simply hides known safety defects," said Guild.

Former Harris Engineer Chan Van Vo's Affidavit details:

- falsification of nuclear safety material traceability documentation;

- breakdown in the Quality Assurance/Quality Control programs for safety related pipe-hanger installations and inspections;

- violation of Nuclear Regulatory Commission requirements for protecting freedom of Quality Assurance functions from project cost and scheduling pressure;

- destruction of Quality Assurance documents including his own documentation of safety concerns.

"Based on our review of the NRC record and the experience of workers including Chan Van Vo we see strong evidence of programmatic breakdown in the Quality Assurance system at the Shearon Harris Nuclear Power Plant," Guild concluded.

Attorney John Runkle, who represents the Conservation Council of North Carolina as intervenors in the NRC's licensing hearings stated:

"We welcome this investigation by GAP. We will ask the NRC Licensing Board to fully consider Chan Van Vo's testimony. Only last month CP&L executives E.E. Utley and M.A. McDuffie assured the Licensing Board that worker safety concerns are encouraged and all are fully investigated. Mr. Van Vo's experience directly contradicts this CP&L testimony."

The Government Accountability Project is a public interest organization which supports "whistleblowers" in the nuclear industry who have raised concerns regarding nuclear power plant construction quality.

For more information call Bob Guild at 803/254-8132 or 803/252-1419, or Betsy Levitas at 828-3403.

# # # #

CONSTRUCTION PROCEDURES MANUAL — SHNPP	PROCEDURE NO. WP-110	DATE As Approved
WORK PROCEDURE DESCRIPTION — INSTALLATION OF SEISMIC PIPE HANGERS AND SUPPORTS FOR SEISMICALLY ANALYZED PIPE	REVISION 9	
	PAGE 1 OF 18	

FOR INFORMATION ONLY

FEB 18 1981 Rev. 4
AUG 29 1980 Rev. 3
MAY 20 1980 Rev. 2
MAR 21 1979 Rev. 1

QA RECORDS
RECEIVED
APR 21 1984
SHNPP CONSTR. Q A UNIT

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE

WP-110

NOV 28 1983 Rev. 9
APR 22 1983 Rev. 8
NOV 15 1982 Rev. 7
DEC 4 1981 Rev. 6
JUN 3 1981 Rev. 5

DOCUMENT CONTROL
RECEIVED
MAR 1 1979
SHEARON HARRIS N. P. P.

* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3110 OF ARTICLE CA-3000 OF ASME/ACI 359, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
0	Issued for Use.	ORIGINATOR	Edward M. McLean	3-1-79
		CONSTRUCTOR	W. E. Goodman	3-1-79
		E & C Q.A.	N/A	
		CP&L	[illegible]	3-1-79
		DES. ENG. *	N/A	
1	Revised as Noted.	ORIGINATOR	Edward M. McLean	3-20-80
		CONSTRUCTOR	W. E. Goodman	3-20-80
		E & C Q.A.	N/A	
		CP&L	[illegible]	3-31-80
		DES. ENG. *	N/A	
2	Revised as Noted. Added Exhibit 1.	ORIGINATOR	[illegible]	5-13-80
		CONSTRUCTOR	W. E. Goodman	5-15-80
		E & C Q.A.	N/A	
		CP&L	[illegible]	
		DES. ENG. *	N/A	

C-1-3

FORM NO. 1779-A

CONSTRUCTION PROCEDURES MANUAL SHNPP	PROCEDURE NO. WP-110	DATE As Author
WORK PROCEDURE DESCRIPTION INSTALLATION OF SEISMIC PIPE HANGERS AND SUPPORTS FOR SEISMICALLY ANALYZED PIPE	REVISION	9
	PAGE 2 OF 18	

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE

WP-110

* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3300 OF ASME/ACI 359, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
3	Revised as Noted. Added Exhibits 2 and 3. Incorporated Procedure Deviation Notice #1.	ORIGINATOR		8-21-8
		CONSTRUCTOR	for WOL	8-21-78
		E & C Q.A.	N/A	
		CP&L	A.M.	9/22/
		DES. ENG. *	N/A	
4	Revised as Noted. Revised Exhibit 3. Incorporated. Deviation Notices 1 and 2.	ORIGINATOR		1-14-7
		CONSTRUCTOR		1-15-
		E & C Q.A.	N/A	
		CP&L		1-15-7
		DES. ENG. *	N/A	
5	Revised as Noted. Incorporated Deviation Notices 1 and 2. Revised Exhibit 2. Added Appendix A.	ORIGINATOR		6-3-7
		CONSTRUCTOR		6-23
		E & C Q.A.	N/A	
		CP&L		6-27
		DES. ENG. *	N/A	

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

NOV 28 1983 Rev. 9

APR 22 1983 Rev. 8

WORK PROCEDURE

WP-110

DOCUMENT CONTROL RECEIVED NOV 15 1982 SHEARON HARRIS N. P. P. Rev. 7

* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3300 OF ASME/ACI 359, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
6	Revised As Noted. Incorporated Deviation Notices 2 and 3. Revised Exhibit 1 and Appendix A. Added Exhibit 4.	ORIGINATOR	[signature]	12/4/81
		CONSTRUCTOR	[signature]	12/04
		E&C Q.A.	[signature]	
		CP&L	[signature]	12-4-81
		DES. ENG. *	[signature]	
7	Revised As Noted. Incorporated Deviation Notices As Applicable. Added Exhibit 5-8 and Appendices 3 through J.	ORIGINATOR	[signature]	11-11-82
		CONSTRUCTOR	[signature]	[illegible]
		E&C Q.A.	[signature]	
		CP&L	[signature]	11-12
		DES. ENG. *	[signature]	
8	Revised As Noted. Incorporated Deviation Notices As Applicable. Revised Exhibits and Appendices as Noted.	ORIGINATOR	[signature]	4-21-83
		CONSTRUCTOR	[signature]	4-21-
		E&C Q.A.	NA EEW	
		CP&L	E E Willcox for MFT	4-21-83
		DES. ENG. *	NA EEW	

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE

WP-110

* * REVIEWED BY QA/QC FOR COMPLIANCE WITH THE APPLICABLE QA AND CODE REQUIREMENTS

* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH QA-3310 OF ARTICLE QA-3100 OF ASME/ACI 359, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
9	Revised As Noted. Incorporated Deviation Notices As Applicable. Revised Exhibits And Appendices. Added New Exhibits Entirely For Exhibits 1, 2, and 4.	ORIGINATOR	[signature]	11/28/8
		CONSTRUCTOR	[signature]	11-28-
		QA/QC REVIEW * *	[signature]	11/28/8
		CP&L	[signature]	11/28/8
		DES. ENG. *	N/A [signature]	11/28/8
		ORIGINATOR		
		CONSTRUCTOR		
		QA/QC REVIEW * *		
		CP&L		
		DES. ENG. *		
		ORIGINATOR		
		CONSTRUCTOR		
		QA/QC REVIEW * *		
		CP&L		
		DES. ENG. *		

1.0 SCOPE

1.1 This procedure describes the steps to be followed for the installation of seismic pipe supports and spring hangers on seismically analyzed pipe.

1.2 For construction purposes, a pipe hanger can be identified to be in accordance with this procedure if it supports a Safety Class I, II, or III pipe or MS or FW pipe by means of a spring cannister except hangers east of the seismic break as defined by FCR-H-1145, or if the hanger sketch is stamped seismic, or if the format of the load sheet is in accordance with Exhibit 6 or if it is a Bergen-Paterson fire protection pipe hanger.

2.0 REFERENCES

2.1 MP-08, General Welding Procedure for Structural Steel and Hangers

2.2 TP-34, Inspection of the Installation of Safety Related (Seismic Class I) Hangers

2.3 WP-112, Control of Materials and Equipment That May Be Harmful to Stainless Steel R9

2.4 WP-48, Temporary Construction Loads Supported From Permanent Plant Equipment

2.5 WP-102, Installation of Piping

2.6 MP-06, General Welding Procedure for Carbon Steel Weldments

2.7 MP-07, General Welding Procedure for Stainless Steel Weldments

2.8 CAR 2165-G-801 Flow Diagram - Reactor Coolant System

2.9 TP-04 Calibration of Controlled Tools

2.10 WP-108, Protective Coatings - Service Level I Embedded Steel Plate, Service Level II Steel Surfaces and Balance-of-Plant Steel Surfaces

2.11 SD/C-A-1013, Identification of Bergen Paterson Hanger Parts

2.12 SD/C-A-1019, Neutral Axis of Odd-Shaped Structural Members

2.13 WP-25, Field Engineering

2.14 MP-05, Permanent Marking of Site Material and Components

2.15 WP-139, Pipe Hanger Work Package Preparation

2.16 WP-140, QA Records Review (Seismic Pipe Hangers and Supports for Seismically Analyzed Pipe)

2.17 CAR 2165-G-107S01, Field Installation Tolerances for Pipe Hangers

3.0 GENERAL

3.1 Introduction

Unless otherwise noted, the tolerances in the following sections may be used for construction of a pipe hanger. However, to exceed these tolerances, a Field Mod (Exhibit 1) must be obtained from the Hanger Engineer. These Mods will allow work and inspections to proceed to completion. The tolerances described herein may also be applied to the Mod requirements.

3.2 Location Tolerances

1. Hangers shall be installed within ± 1/2" of the design location (elevation and column line offsets). However, if the pipe is not installed, the box frame hanger should be left tacked to the embed until the pipe is in. (Tack welds should be large enough to ensure safety).
2. Hanger members should not be installed within 4" of an adjacent pipe or structure.
3. Hangers should not be located within 15" of a pipe (butt) weld if the hanger supports Class 1 or 2 pipe. R9
4. Hangers shall not be installed on a pipe elbow, fitting, butt weld, or ID tag.

3.3 Geometry Tolerance

1. Geometry may vary ± 1/2" from design. However, this tolerance shall not be used to reduce the clearance requirements around the pipe.
2. Slopes and angles may vary from design provided the location and geometry dimensions are maintained.
3. Sway supports must be within ± 3° of the design requirements.
4. The neutral axis of structural members shall be used as reference lines for geometric configurations (see SD/C-A-1019).
5. Strut lengths must be within 1/2" of design.
6. Filler plate sizes shall be ± 1/2", -0" from the Bill of Material requirements.

3.4 Steel Attachment Tolerances

1. Hangers are to be attached within ± 1/2" of the embed centerline(s).
2. Hangers are to be attached within ± 1/2" of a base plate scribed work point.
3. Hangers should attach to the correct embed type which is detailed on the hanger sketch. If the embed in the field is designated as a Dubose plate, reduced tolerances will be necessary and should be provided via a Hanger Mod.
4. Hangers must attach within ± 1/2" of the centerline of a structural steel member (existing steel) and may move ± 1/2" along the axis of the structural steel member. In the containment building the centerline of the structural steel member shall be assumed to be on the azimuth required by design.
5. Attachments to strip plates with threaded studs must be surrounded by acceptable studs. See Figures 1 and 2. A threaded stud is not acceptable if it is disengaged by more than 1/8" or if there is a weld within 1/2" of the stud. R9

If otherwise obtain a Hanger Mod from the Hanger Engineer if possible.

Figure 1:
All four must be acceptable.

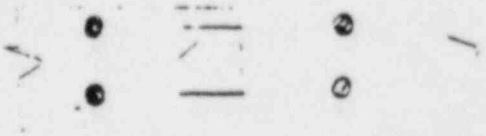
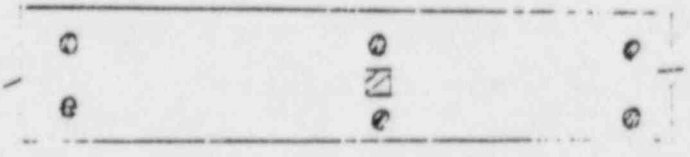


Figure 2:
All six must be acceptable.



3.5 Box Frame Hangers

1. Clearances

Clearances around the pipe in a box frame hanger must be achieved. However, the pipe can not be cold pulled (forced out of its relaxed position) in order to do so. If the clearance is specified as 1/16" by design, then the clearances must meet the criteria laid out in Appendix I. For one-way restraints, the Hanger Engineer must issue a Mod to detail the clearance requirements. The pipe and the hanger shall be visually square with respect to the other; however, shims used to obtain acceptable clearances shall meet the skewness requirements of Appendix I.

2. Shims

1. Shims shall be installed in accordance with the Field Mod around the pipe if clearances are not acceptable.
2. Shims called for by the design sketch may be deleted by a Field Mod if the pipe clearances are acceptable. R9
3. Shim material must be A-36 or A-569 carbon steel. If otherwise, a Field Mod must be obtained from the Hanger Engineer.
4. Shim plates and hanger members must be in contact and free of lubricant. Shim surfaces shall not be sandblasted.
5. The shim should overhang the hanger member approximately 1" on both sides in order to protect the pipe from arc strikes. A maximum overhang of 2" is permitted on either or both sides. If a weld, valve, branch line, or other projection will not allow 1" clearance from the end of the shim, contact the Discipline Mechanical Engineer for resolution via a Field Mod.
6. The centerlines of the shim and pipe shall be aligned within the $\pm$ 1/2" of each other.

7. The shim and shim weld details shall be provided on a Field Mod.
8. Weld length shall not exceed the length specified on the Mod.

3.6 Catalog Parts

1. Combinations of WBA, sway supports and/or pipe clamps must conform with the requirements of Appendix A unless noted otherwise.
2. All combinations must be aligned, in order to ensure the support does not bind and lock up. Part numbers 1000 and 1001 should be fitted to other items using the load pin as the neutral axis.
3. Catalog parts may be identified by a check against the dimensions provided in the Site Drawing (SD/C-A-1018). Also see Appendix E.
4. Care should be exercised to ensure load pins, bolts, nuts, washers, and pipe clamp halves for different hangers/or parts are not indescriminately exchanged. An inspector shall verify material grades for load pins, bolts and nuts prior to Final Acceptance. (See Appendix C). R9
5. If the load pin must be removed from the end attachment, a light lubricant and punch should be used to facilitate removal. Care must be taken to prevent the lubricant from contacting stainless steel pipe.
6. The holes in the ears of the WBA or pipe clamps shall not be ground in order to reinsert the load pin. However, the ends of the load pins may be lightly filed to remove mushrooming caused by forced installation. The shank of the load pin shall not be ground for any reason. Also, light tapping may be used to remove or install the load pins. If the end attachment ears are damaged in the process, the end attachment must be replaced. Cotter pins must be spread in opposite directions to prevent the load pin from slipping out.

7. Bearings should be tightly engaged between the ears of the WBA or pipe clamp. Any gaps should not exceed the clearances specified in Appendix B. Contact the Hanger Engineer if the clearance cannot be reduced with spacer washers per Appendix G.
8. When installing the struts, care must be taken to ensure that the pipe is not forced out of its relaxed position (this is called cold pull).
9. Tightening of bolts, studs, threaded rod, and U-bolts shall be in accordance with Appendix F. Nuts should be fully engaged on the threads and should not bear against the bolt shanks.
10. Instructions for tightening bolts and nuts in applications other than pipe clamps, U-bolts, threaded rod supports, and springs should be obtained from the Hanger Engineer.
11. To shorten or lengthen strut assemblies (outside built in adjustment), the Hanger Engineer must provide detailed instructions to the craft via a Field Mod. R9
12. For telescoping struts, there must be 1/4" minimum engagement between the strut and the shank prior to welding. (A 1/4" hole may have to be drilled 1/4" minimum from the end of the barrel to verify shank engagement.) The shank and pipe strut must be aligned. The weld size between the shank and tubing shall be provided on a Mod even if noted otherwise on the Bergen Paterson sketch.

3.7 General Guidelines

1. Lift Points

Installed pipe hangers shall not be used as lift points for loads other than the ones approved by WP-43. The welding of temporary attachments to hangers shall be in accordance with MP-08. All welded temporary attachments will be removed from the hanger prior to any inspections.

2. Pipe Cleanliness

The external surface of all stainless steel piping shall be cleaned of all contaminants (Reference WP-112) prior to the placing of a pipe clamp around the pipe or surrounding the pipe with a window hanger. Contact the Piping Superintendent or his designee if cleanliness has not been attained.

3. Hangers Near Penetrations, Sleeves or Equipment

Pipes are usually designed to run through the center of the sleeves in the walls and floors. Box frame hangers adjacent to these sleeves, penetrations, or equipment shall not be erected until the pipe is installed hard-point to hard-point.

4. Temporary Pipe Supports

a. Temporary hangers shall be erected to support the pipe in accordance with WP-102 Section 4.2.5.7. These supports should not be removed nor should permanent supports be reworked if the work would compromise the required spacings for the pipe supports. R9

b. Temporary hangers shall also be erected in lieu of permanent hangers when necessary to support RFTs. They shall not be erected (insofar as practicable) in the same location as the permanent support. These temporary hangers will be tagged and may only be removed after the permanent supports have been installed. A Work Directive is necessary for this effort.

5. Coating Requirements

Per WP-108, all steel going into the containment building shall be coated to Service Level I requirements; all stock steel going into areas outside the containment building shall be coated to Service Level II requirements. Prior to coating, hangers shall be hard marked for hanger and material identifications; stock steel shall be hard marked for material identification.

6. Material Marking

All steel for future installations shall be hard marked in accordance with MP-05 for material identification. This shall be witnessed by a QC Inspector. If markings will be removed or covered by a construction activity prior to a final QC signoff, the marking shall be transferred and witnessed by the QC Inspector. There shall be no unmarked steel in the field surplus room.

7. Snubber Substitutes

Since snubbers can't be installed until just prior to Hot Functional testing, a snubber substitute such as non-Q angle should be installed to preserve the space between the hanger structure and the pipe. The spacer should be painted red to identify it as a temporary structure. R9

8. Access Interferences

If the hanger creates an access interference in a doorway, aisle, or stairwell, etc., or if an interference prevents the hanger from performing its design function, the hanger should not be installed and the Hanger Engineer should be contacted.

9. Stainless Steel Straps

Stainless steel straps shall not be installed with the pipe hangers even if specified by design. Mods or design revisions are necessary to delete this item from the Bill of Materials.

10. Stiffener Plates

Stiffener plates may be coped or trimmed as necessary in order for the item to be fitted between the flanges of W-shapes.

11. Welded Pipe Attachments (WPA)

Although the installation of WPA's is in accordance with other procedures, it should be verified that all parts of the WPA are installed as designed. Box frame hangers that interface with the WPA should not be installed until the WPA is welded out.

12. Valve Hangers

Valve hangers should not be installed until after the valve has been welded out.

13. Voided Hangers

A Work Directive shall be issued with voided hangers to have them removed from the field. CI and QC must verify the work was accomplished and sign the Work Directive.

14. Spring Hangers and Fire Protection Hangers

All spring hangers and nonseismic fire protection hangers were within the scope of WP-109 (Installation of Nonseismic Hangers). As a result, fitup gaps were not recorded, hanger geometry and locations were not checked, and structural welds were not inspected by QC. Spring hangers on seismically analyzed pipe per Revision 7 and Bergen-Paterson fire protection hangers per Revision 8 are within the scope of WP-110. Although the inspector cannot go back and check fitup gaps or other in-process inspections, the inspectors can verify geometry and location and perform a final visual inspection of the welds. For hold points which cannot be met due to installation prior to this procedure, the inspector can so note on the Traveler and/or SWDR. R9

15. Material Requisitioning

1. Hangers may be requisitioned from the warehouse using the hanger numbers found on the hanger sketches. The material shall consist of all pieces received for the current drawing revision and, if necessary, those items taken from seismic surplus stock. For hangers utilizing snubbers, the warehouse will withhold the snubber and snubber extension if a separate requisition is made for specific parts needed. The parts being withheld can be requisitioned at a later date. At the time of requisitioning, the requisitioner should use the hanger sketch to inventory the materials for the hanger.
2. Hanger material shall be placed in a clean, dry area designated by the area superintendent and/or hanger supt.
3. All material superseded by later drawing revisions shall be removed from the field. Usable surplus material should be

returned to the warehouse in a timely manner. This should avoid work-area congestion and misuse of material.

4. Scrap material shall be sent to the designated scrap location.

3.8 Exhibit Instructions

Changes to the content of Work Directives, Travelers, and Hanger Mods must be initialed and dated. Signoff blocks on a Work Directive or the Traveler for a Hanger Mod should be dated on or after the change date.

1. Field Mods (Exhibit 1)

1. Field Mods shall be written and issued by the Resident Hanger Engineer or his designee.
2. Modifications to hangers on Class I lines must be limited to corrections in drafting errors, drawing clarifications, weld-symbols, and dimensional changes within the tolerances of Reference 2.17.
3. The field mod is comprised of two copies, one of which remains in the field for hanger installation, and the original which is routed to the work package group for assignment of FM# and routing to Document Control. (The FM# is a sequential tracking number). R9
4. If NDE requirement holdpoints or welding procedures are affected by the issuance of a Mod, the hanger package should be routed to Welding Engineering and QC Welding for the required changes to the SWDR.
5. The field copy of the Mod shall be considered active for ten calendar days. If a controlled (blue) copy has not been inserted in the hanger package within ten calendar days, all work on the hanger shall stop until a controlled copy is received.
6. Each Mod shall also have a unique number which shall consist of the Hanger Design revision, M for Mod, and an ascending number starting with 1 (Ex. 2/A M1). This numerical sequence starts over when a new design revision is received.
7. New design revisions shall supercede the previous design revisions and all Mods written against that revision.

8. Mods which affect an already active Mod shall not be issued until the active Mod has been voided. Voiding of Mods shall be accomplished as follows. The voided Mod shall be removed from the hanger package and routed to document control for distribution after the drawing has been stamped void, initialed, and dated by the Hanger Engineer.

2. HIC Sticker (Exhibit 2)

The HIC sticker shall be located and completed by the Field Engineers.

3. Traveler (Exhibit 3)

1. The Traveler shall be initiated by the Hanger Engineer in order to control the in-process installation and inspections of the pipe hanger.
2. Work Directives, DCN's, PW's, FCR's, and Hanger Mods should be referenced in the applicable blocks at the top of the Traveler. Mod numbers (i.e., 2S1 M1) are listed under the RCI heading. If any of these documents are voided, the entry should be lined through, initialed and dated by the Hanger Engineer. Superceded documents do not need to be crossed out. R9
3. Engineered plate thickness determinations should be listed after 7/22/81 by the Hanger or Area Engineer.
4. The phase of construction - Preliminary or Final should be appropriately denoted. Completion of either phase shall be to the latest design revision and/or Mod (Examples 2/A M1 or 1S1,M4).
5. For the PRELIMINARY phase of construction, the FIT-UP and WELDOUT signoff blocks shall be initialed and dated by the foreman, the CI block initialed and dated by the Hanger Engineer, and the QC block initialed and dated by the Welding Engineer. The QC block may be marked N/A initialed and dated by the Hanger Engineer.

6. For the Final phase of construction and inspection, the FIT-UP AND WELDOUT blocks may be initialed and dated by the foreman. The CI and QC blocks shall be initialed and dated by CI and QC inspectors respectively. The CI and QC signoffs are for final acceptance of the hanger, however the actual inspection records are on TP-34 and the SWDR respectively.
7. Upon receipt of a new design which does not affect the as-built configuration and location of the hanger, signoff blocks shall be N/A'd, initialed and dated and the Hanger Engineer shall make an entry for that revision and note "as-built" on the traveler.
8. If the new revision does affect work, the work package is re-issued to the field for completion to that later revision. R9

4. Material Verification (Exhibit 4)

The Material Verification sheet shall be completed by the Hanger Engineer per the instructions provided in Appendix J.

5. Work Directives (Exhibit 5)

1. Work Directives shall be issued to detail construction activities. This includes any work which will void out a previous inspection.
2. Work Directives shall be initiated, signed and dated by the Hanger Engineer.
3. Work Directive Numbers shall be sequential starting with one. The number shall be assigned by the Hanger Work Package Group.
4. Signoff blocks shall be completed by the appropriate persons unless N/A'd by the Hanger Engineer.

4.0 PROCEDURE

1. The Field Engineers shall identify interferences and provide control points for hanger installation and inspection as requested. The control points are laid out in accordance with Reference 2.13 and are easily

identified by the orange sticker (Exhibit 2). These activities are referred to as the HIC -Hanger Installation Checkout - Program in WP-109.

2. The Hanger Engineer should establish that the hanger is not on hold for construction, engineering or quality reasons prior to generating the work package. The work package should consist of but not be limited to the Hanger Design drawing, SWDR, and Traveler (Exhibit 3). In addition a Work Directive (Exhibit 5) detailing work instructions to the craft and inspectors shall be included. After the work package is made up in accordance with Reference 2.15 and its established that the hanger is ready for construction, it is issued to the Hanger Superintendent for installation.
3. The Hanger Engineer or Superintendent shall requisition the material from the warehouse. The material shall be tacked up per Reference 2.1 and the Hanger Engineer called for a preliminary examination. R9
4. The Resident Hanger Engineer or his designee shall issue Mods (Exhibit 1) for any problems encountered.
5. The Hanger Engineer shall then examine the hanger for completeness (including trunnion material where applicable) and correctness, and list the gap measurements (See Appendix K for criteria) on the SWDR.
6. The Craft Superintendent shall weld the hanger out per Reference 2.1 and call for a preliminary examination by Welding Engineering.
7. The Welding Engineer shall examine welds for quality and size as requested.
8. The Hanger Engineer shall verify material and complete Exhibit 4 prior to the final inspections.
9. CI and QC shall inspect following the weldout of the hanger.
10. The Craft Superintendent shall return the work package to the Hanger Engineer following the installation and inspection of the hanger.
11. The Hanger Engineer shall review the Q documents per Reference 2.16 and transmit them to QA Records Review Group after the hanger has been completed and inspected and an as-built of the hanger has been incorporated into the design drawing.

12. The Hanger Engineer shall put a CWRA in the work package when required. R9

5.0 EXHIBITS AND APPENDICES

5.1 Exhibit 1 - Field Modification (Rev. 0-11/83) R9

5.2 Exhibit 2 - HIC Sticker (Rev. 0-11/83)

5.3 Exhibit 3 - Seismic Hanger Installation and Inspection Traveler (Rev. 2-4/83)

5.4 Exhibit 4 - Material Verification Form (Rev. 0-11/83) R9

5.5 Exhibit 5 - Work Directive (Rev. 1-11/82)

5.6 Exhibit 6 - Seismic Load Sheet (Rev. 0-11/83)

5.7 Appendix A - Catalog Part Combinations (Rev. 2-11/83)

5.8 Appendix B - Gap Tolerances at Load Pins (Rev. 2-11/83)

5.9 Appendix C - Fastener Types (Rev. 2-11/83)

5.10 Appendix D - Flow Chart (Rev. 0-11/83) R9

5.11 Appendix E - Strut Identifications (Rev. 1-11/83)

5.12 Appendix F - Tightening Criteria (Rev. 1-11/83)

5.13 Appendix G - Flat and Tapered Washer Reference Table (Rev. 1-11/83)

5.14 Appendix H - Installation Procedure For Main Steam B-Wall Supports (Rev. 1-11/83)

5.15 Appendix I - Clearance Tolerances (Rev. 0-11/83)

5.16 Appendix J - Material Verification Program (Rev. 0-11/83)

5.17 Appendix K - Gap Measurement Criteria (Rev. 0-11/83)

MATERIAL VERIFICATION PROGRAM

The following instructions are to be used by the Hanger Engineer to complete Parts 1-7 on Exhibit 4.

Part 1

All material which was issued prior to 9-6-83 maintained identification via material control. To ensure the controls were implemented, the Hanger Engineer shall need to know what material was received and issued for construction. The Warehouse Engineer shall provide that information in Part 1 of Exhibit 4. He shall research receipt records and list items and the drawing revision for which the material was supplied. He shall sign and date the entry.

	Items			Rev.
Example:	1	2	7	3

Part 2

The Hanger Engineer shall verify the as-built steel is the as-received as-issued material for the pipe hanger. He must perform a field check on the items listed in Part 1 and compare the physical parameters, except length, of the as-built steel to the Bill of Materials of the drawing revision for which the material was supplied. In addition, the hanger material must:

1. Be coated with red oxide primer (except in the Containment Building) or,
2. Be coated with flat white primer (only in the Containment Building) or,
3. Be coated with gloss white paint and stamped with the hanger number or,
4. Be an uncoated structural shape less than 6" long or,
5. Be an uncoated plate which has an exposed area less than 3" from a weld
6. Not be marked with another hanger number or PO number
7. Not have documentation in the package to indicate the material was supplied from surplus or stock.

MATERIAL VERIFICATION PROGRAM

If the material has been determined to be the original issue, the Hanger Engineer shall list the item numbers in Part 2 of Exhibit 4.

Part 3

The Hanger Engineer shall list those items in Part 3 of Exhibit 4 whose source of material can be determined from Work Package documentation (i.e., Speed Letter, RCI or CMR). However the source must be legitimate with a Certificate of Comformance from a qualified vendor. This is evidenced by a stamp - "Source Accepted" - on the CMR, Speed Letter, or RCI.

Part 4 & 5

All material issued after 9/6/83 will be stamped or etched for positive identification. The following will be the acceptance criteria for this material.

- A-36 plate, channel, wide flange, and angle shall be stamped with the 36 symbol unless it is less than 3/16" thick.
- A-500 Grade B tube steel shall be stamped the 36 symbol.
- 10-guage and 16-guage shim stock will be stamped or etched with the material grade. (A-369 is acceptable.) FCR-H-1263 allows shim stock to be stamped (but not with the 36 symbol) even though it may be less than 3/16" thick.
- U bolts and threaded rod will be stamped or etched with the material grade.
- Stock pipe tubing for struts shall be etched with the material grade.
- Steel other than A-36 or A-500 Grade B shall be stamped with the purchase order number.

If the material is marked and is acceptable, the Hanger Engineer shall list the item numbers under Part 4 or 5 as appropriate.

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MATERIAL VERIFICATION PROGRAM

Part 6

Catalog parts shall be identified by the physical characteristics of the item or by the stamped catalog part number. The catalog part identity must be in accordance with The Bill of Materials. The Hanger Engineer shall list these item numbers in Part 6 of Exhibit 4 and not under Parts 2, 3, 4, 5, or 7.

Part 7

A sampling program is set up for structural shapes, plates, and shims which cannot be identified under part 2, 3, 4, or 5. The Hanger Engineer shall list these items in Part 7 of Exhibit 4.

General Notes:

If more than one of an item is to be considered, each piece shall be listed in the appropriate section. For example, if there are two piece 7's and both pieces are stamped, Item 7 should be listed twice in Part 4. After the form is completed, the Hanger Engineer shall sign, date, and enter the drawing revision the items were checked against. A copy of the form shall be removed from the Work Package and returned to the office to determine the scope of the sampling program and to initiate any material testing. Welded pipe attachments (trunnions, lugs, etc.), anchor bolts and cinch anchored plates shall not be listed on Exhibit 4.

NUCLEAR POWER PLANT
CONTRUCTION MANAGEMENT

PREPARED BY CHAN VAN VO

PURPOSED: PROPORTIONAL OF INTEGRAL DERIVATIVE CONTROLLER CONSTRUCTION

Ineffective construction management is the one of the most serious problems faced by U.S. industry. In particular the accident of T.M.I.2 causes concerns all over the world and led to a lowering of public confidence in U.S. Nuclear industry.

"THE PROBLEMS IN CONSTRUCTION ARE REAL" Stello said in a paper delivered by Region II Administrator James O. Reilly and citing examples such as improper welding, poor quality control and structural defects.

"I AM GRAVELY CONCERNED ABOUT SHODDY CONSTRUCTIC BECAUSE OF ITS POTENTIAL IMPACT ON PUBLIC HEALTH AND SAFETY."

To build a good plant, we must build a strong foundation. To have vigorous plants with safety, we must take good care of constructing the plant. Because construction is the foundation of the plant.

Therefore, to change attitudes dramatically toward safety, and to give optimism about Nuclear Power Plants; the Nuclear industry must establish a program that specifies appropriate effective construction and operation management of Nuclear Power Plants, including these for management of Q.A, Q.C, C.I, and others that conducts independent evaluations.

There are a myriad of excuses and reasons

...3.

why management fails. Others, such as attitudes and perceptions, are difficult to define.

Management ineffectiveness leads to physical defects that are built into a plant.

In the case of defects, the details may include as follows:

1- Inadequate staffing levels.
2- Inadequate organization
3- Inadequate corrective action systems
4- Inadequate analysis problems
5- Intimidation of Job security
6- Lack of training
7- Lack of authority
8- Lack of employees "Buddy. Buddy organization"
9- Lack of supervision
10- Lack of controlling & documenting
11- Poor or non. existing procedures
12- Falsified records.
13- Poor coordination.
14- Unqualified workers & inspectors etc....

The N.R.C cannot tolerate these defects because of the enormous impact in terms of public risks. Other impacts on the industry involve cost to build the plant, public attitudes toward Nuclear Power Plants in general, and perceptions of competence.

There are many problems facing Nuclear Power Plants construction at the present time. To solve them with less groping and fewer errors, we must learn from the experienced people, and apply them in a creative way.

To correct the situation, each Power

company must have an on site independent safety Engineering Group to perform independent reviews of plant designing, construction, operation and reports to high level management. Its assignment would be to evaluate regularly procedures and general plant designing, construction, and operations from a safety perspective; to assess quality assurance program, to develop continuing safety programs, to research and provide technical knowledge for solving any actual and potential problems before they occur..

Management deficiencies in construction relate entirely to plant operations, and jeopardize plant reliability.

What are management techniques?

Management techniques are ways of doing things in managing. They not only belong in a basic science of management but also are important to practicing managers in their design, construction, operations, and maintenance of the persons for whom they are responsible.

Managing is an art, like medecine and engineering, that should rely on an underlying sciences of concepts, theory, principles, and techniques.

By the age 32, a majority of Engineers are engaged in both the supervision, and the management of people; ranging from team leadership to general management.

But most of them generally do not

understand the importance of management positions. Little, if any, management material is covered in undergraduate course work in the humanities, social sciences, and economics areas. It is a shame because they would be such a vital part of Engineering curriculum-

For the reasons as noted above, this purpose is prepared with the objective to support a Power Company or Contractor to construct their plant; and also help Engineers choose principles and concepts about "CONSTRUCTION MANAGEMENT" as it applies to their job for increased effectiveness and controlled constructing implementation.

Experience has demonstrated that management is a key role in assuring the success of any project. Technical and Engineering services should provide a project framework which assures maximum control of the work performed for a plant.

The complexity of today's industrial, and Nuclear Power Project's require an organization with the flexibility to manage each project effectively and efficiently.

The "PROPORTIONAL OF INTEGRAL DERIVATIVE CONTROLLER CONSTRUCTION" program is structured to meet these needs.

Under this program, the major functional conceptual framework are as follows:

I.. PLANNING.

Planning is deciding in advance what to do, how to do it, when to do it, and who is

to do it.

To coordinate plans, the Engineer who supervises or manages must make sure that derivative plans are consistent with, and time properly to support objectives and other decisions involved in a Major plan. That must also set clear goals and clearly delegate authority.

People can perform only when they know what is expected of them and what their area of responsibility is.

Since managerial operations in organizing, staffing, directing and leading, controlling, and implementing (R.F.T) are designed to support the accomplishment of Nuclear Power Plants construction objectives necessary for all group effort.

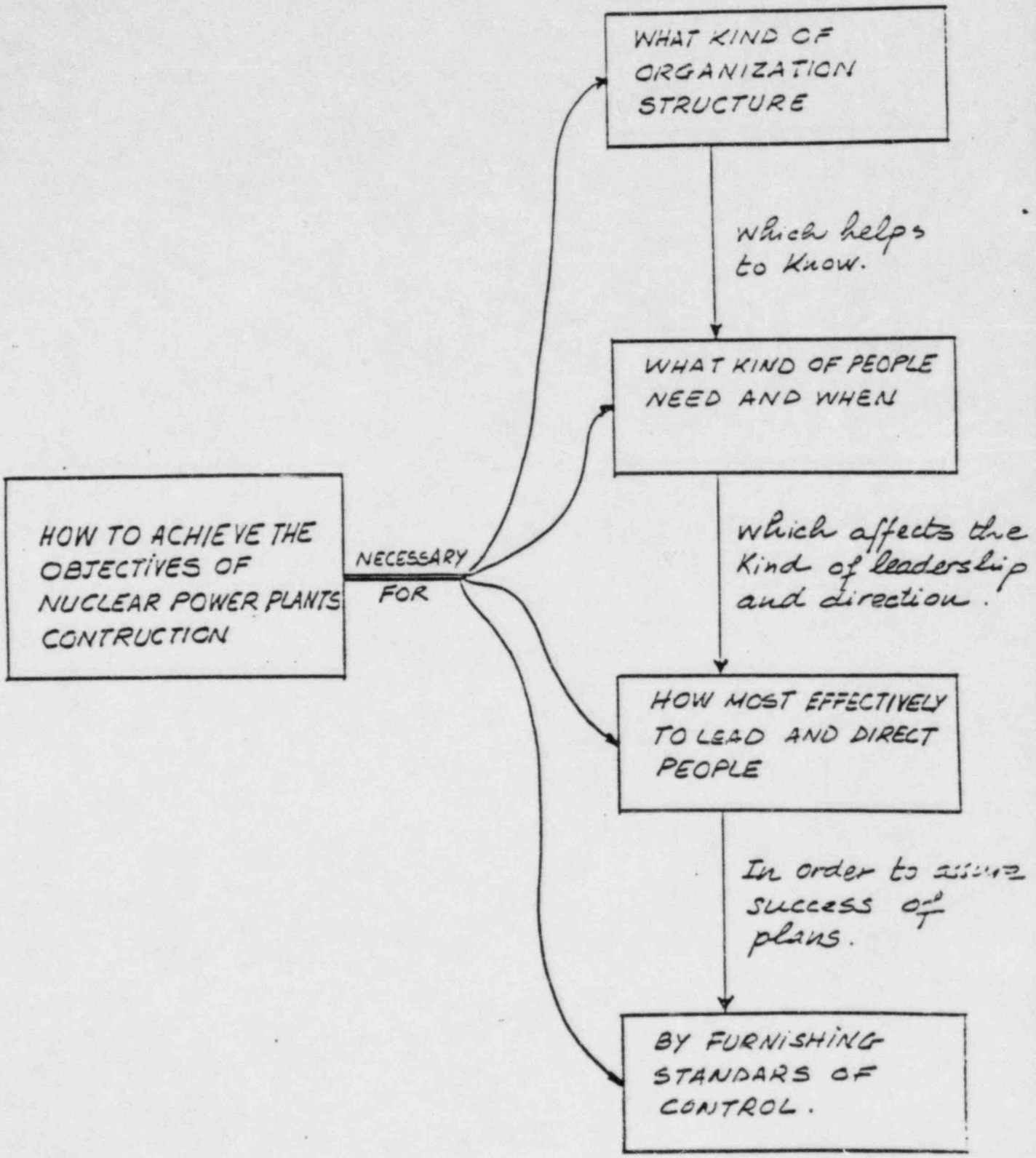
Because the planning process is a complex of many major and derivative plans and since Nuclear Power Construction plans are necessarily related from one department to another, it is important that they fit together, not only in terms of content and action, but in terms of timing.

The principle of timing, then, reflects the fundamental truth that "The more plans structured to provide an appropriately timed, intermeshed network of derivative and supporting programs, the more effectively and efficiently will contribute to the attainment of Power Construction objectives.

The best planning is done when supervisors are given an opportunity to contribute to plans affecting the areas over which they have authority.

In conclusion the efficiency of a plan is measured by the amount it contributes to purpose and objectives as offset by the costs and other unsought consequences required to formulate and operate it.

Planning is the foundation of management and the process can be illustrated as shown in the figure next pages


HOW TO ACHIEVE THE OBJECTIVES OF NUCLEAR POWER PLANTS CONTRUCTION
NECESSARY FOR
WHAT KIND OF ORGANIZATION STRUCTURE
Which helps to Know.
WHAT KIND OF PEOPLE NEED AND WHEN
which affects the Kind of leadership and direction.
HOW MOST EFFECTIVELY TO LEAD AND DIRECT PEOPLE
In order to assure success of plans.
BY FURNISHING STANDARDS OF CONTROL.

PLANNING / SCHEDULING
CONTROL LEVELS
LEVEL I
LEVEL II
LEVEL III
LEVEL IV
LEVEL V
BUDGET

ORGANIZATION AND ADMINISTRATION

PERFORMANCE AREA

OA.1 ORGANIZATION STRUCTURE

OA.2 MANAGEMENT INVOLVEMENT AND COMMITMENT TO QUALITY

OA.3 ROLE OF FIRST LINE MANAGERS AND SUPERVISORS

TOTAL

II. ORGANIZING

Organizing involes the establishment of an intentional structure of roles through determination of the activities required to achieve the goals of the project and each part of it. The grouping of the activities to a manager, the delegation of authority to carry them out, and provision for coordination horizontally and vertically in the organization structure.

One of the most interesting and increasing forms of organization to use in Nuclear Power Plants Construction is "MATRIX" or "GRID" organization.

The essence of "MATRIX" or "GRID" organization as one normally find it, is the combining of functional and product forms of departmentation in the same organization structure.

Under this system of classification, functional supervisors or managers are given authority over the people in their area and over integrity of engineering work done by them.

"MATRIX" or "GRID" organization really represents a compromise functional and product departmentation.

All organizations accomplish their goals through a net work of people, and the success of technical projects can often depend on how skillful supervisors or managers

are in dealing with the people side in their jobs.

Effectiveness and personal career development are frequently tied to how adept they are in managing human interactions and motivating people.

Because one of the most prominent areas of a management's environment, one which Power industry as well as other kinds of organizations has been justly criticized for being less alert to them than they should, is that of social attitudes, buddy-buddy organization, beliefs, and values are bound to create a conflict in loyalties for the invidivals.

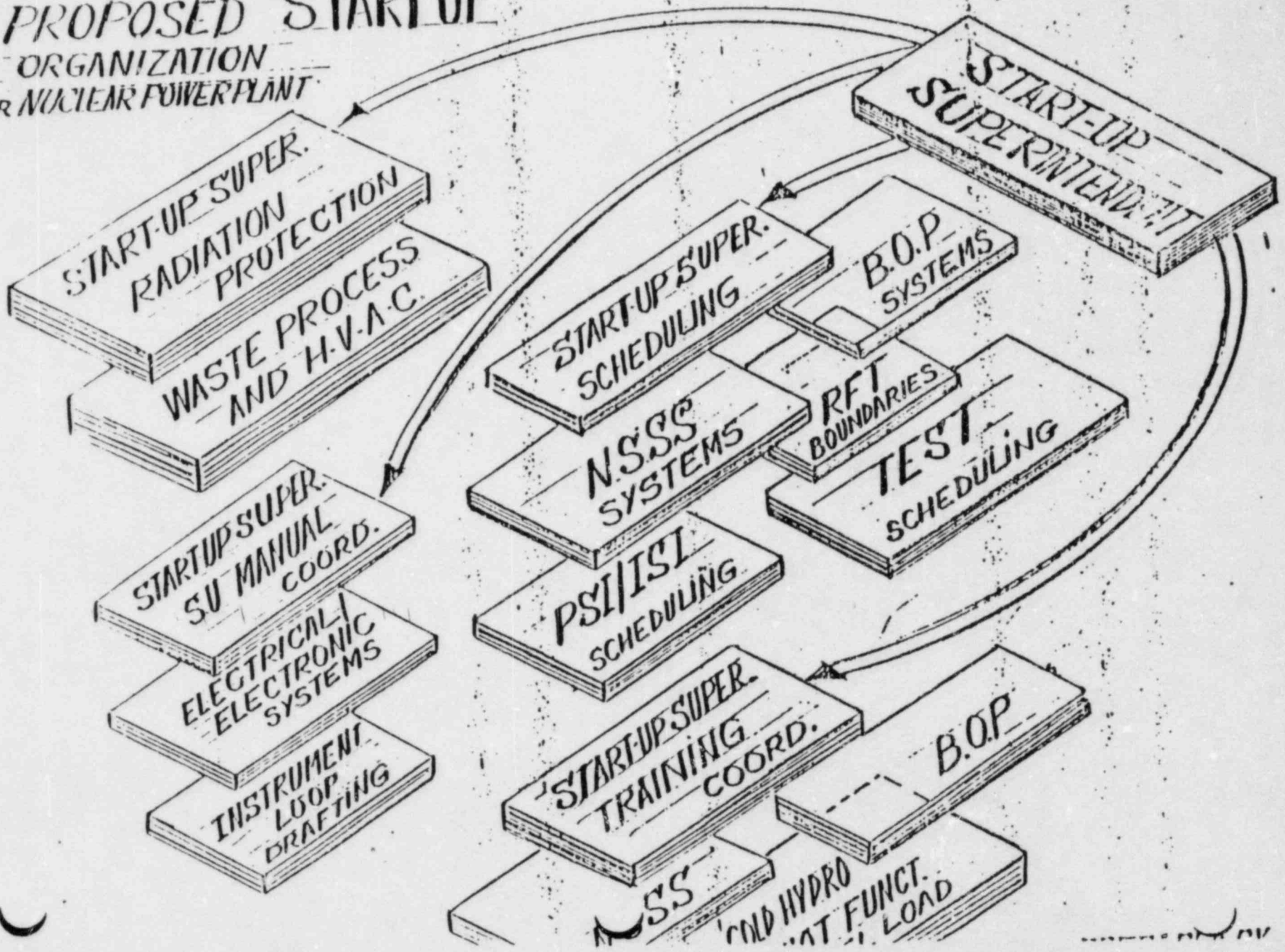
Therefore, the Engineer who supervises or manages other people, to meet the project objectives need to develop both understanding and skill in these essential areas as follows:

* How to identify invidual behavioral styles of self and others to help create the optimal work climate.

* How to identify the hidden needs that operate in invidivals and workgroups, and how to respond to them. This skill is the key to tapping into what motivates today's work force.

* How to deal effectively with problem behaviors in others. This skill can be used with subordinates, peers, and even with the Engineer's

PROPOSED START UP ORGANIZATION FOR NUCLEAR POWER PLANT



The START-UP and test technical Engineer is responsible for the Engineering support to insure that assigned plant equipment, systems are properly tested and placed in service to meet START-UP schedules and Regulatory requirements by the followings:

1.. During the construction phase the START-Up Engineer is responsible for the writing system descriptions.

2.. Laying out the "Release For Test" R.F.T Package:

a.- Defining R.F.T boundaries.
b.- Developing equipment, instrument and cable lists etc.----
c.- scheduling RFT's to support major project.

3.- Writing flush, hydrostatic test, and preoperational test procedures.

4.- Identifying potential design problems to supervisor and proposing design and/or engineering change to correct them.

5 Serving as test director and systems coordinator to assure correct and expeditious system testing.

6 Ensuring that all regulatory requirements pertaining to a system START-UP are satisfied.

7 Ensuring that assigned systems are functioning properly and safely before releasing to operations.

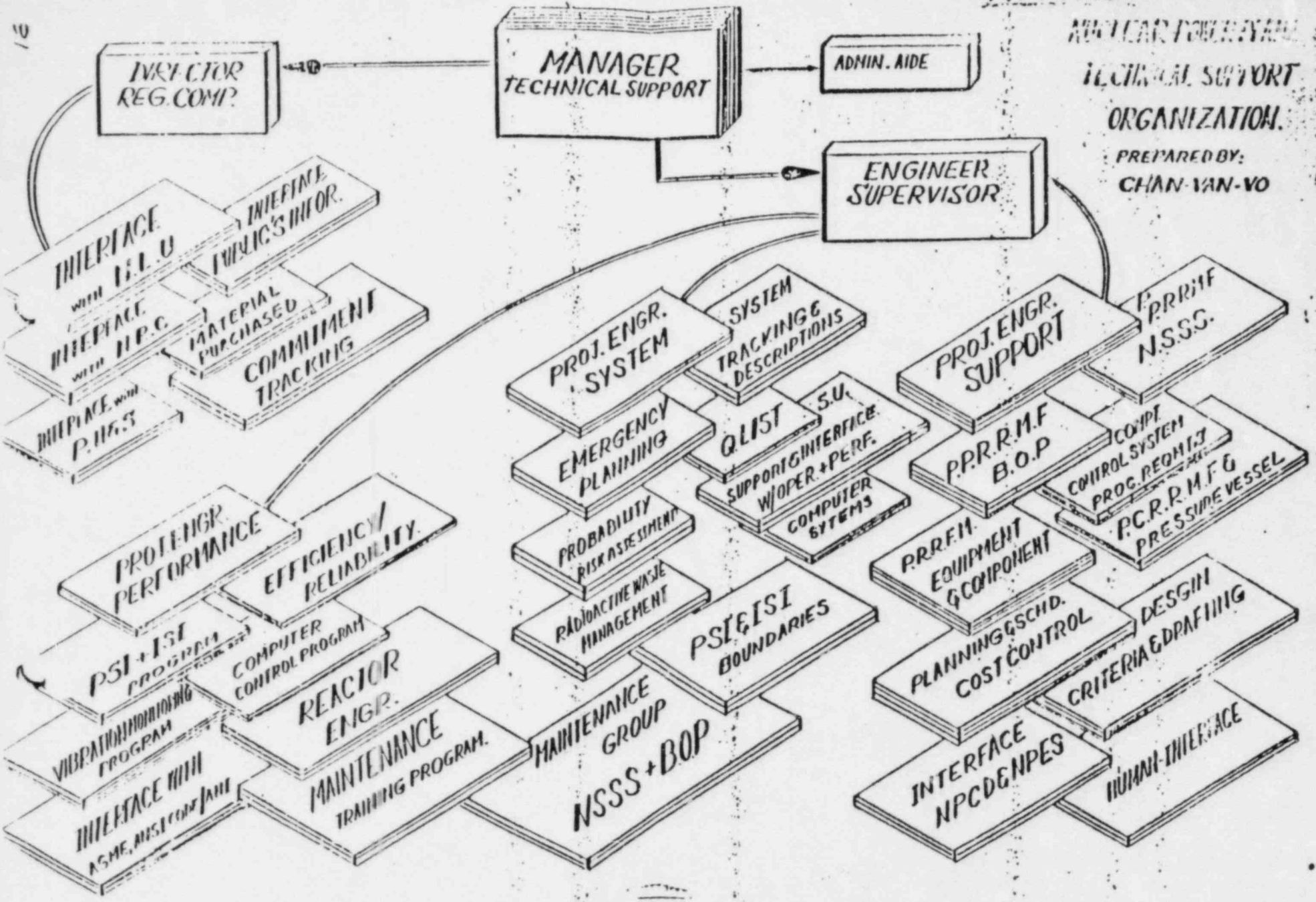
e Bringing design deficiencies and construction errors to the attention of the A/E and Construction Engineer, working with them to correct the problem, and checking out the resulting changes to the Systems.

g. Providing engineering support to the overall START UP and test program.

PROPOSED:

TECHNICAL SUPPORT ORGANIZATION.

PREPARED BY:
CHAN-VAN-VO



The Technical Support Engineer is accountable for acquiring sufficient knowledge of plant NSSS / B.O.P engineering, and is responsible for the followings:

1.- Evaluating plant problems identified by plant personnel or outside sources and making recommendations to resolve these problems in a safe, reliable and cost-effective manner.

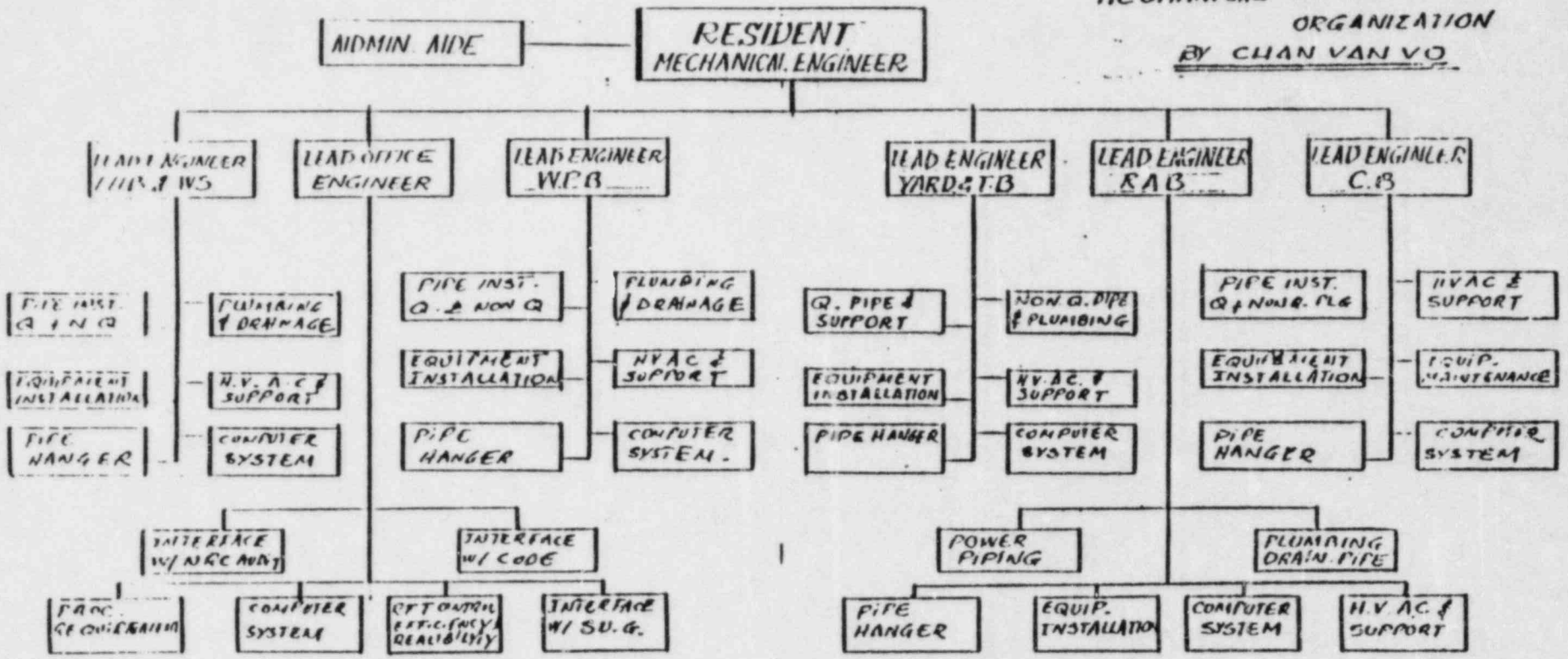
2.- Designing and budgeting of needed plant modifications required to support operating and regulatory requirements, in accordance with applicable codes,

3.- Providing technical direction and coordination in implementation of engineering projects major maintenance and modification activities including long-term outage planning -

4.- Providing engineering studies and report relating to plan design, operation, construction, and maintenance -

PURPOSED:

NUCLEAR POWER PLANT
MECHANICAL CONSTRUCTION
ORGANIZATION
BY CHAN VAN VO



II.. STAFFING

Staffing involves manning, and keeping manned, the positions provided for by the organization structure. It thus necessitates defining manpower requirements for the job to be done, and it includes inventorying, appraising, and selecting candidates and incumbents, to accomplish their tasks effectively.

Staffing is formulated by the concept relationships between line and staff, in which line functions have direct responsibility for accomplishing the objectives of the power plant's construction and staff refers to the elements of the organization that help the line to work most effectively in accomplishing the primary objectives of the plants construction.

It is stated in "Mechanical Construction Organization Chart" that Resident Mechanical Engineer is assigned an "Authority of ideas", "Mechanical Lead Building Engineer", and "Mechanical LEAD Office Engineer" are an "Authority to command" as illustrated as follows:

A.. MECHANICAL LEAD BUILDING ENGINEER

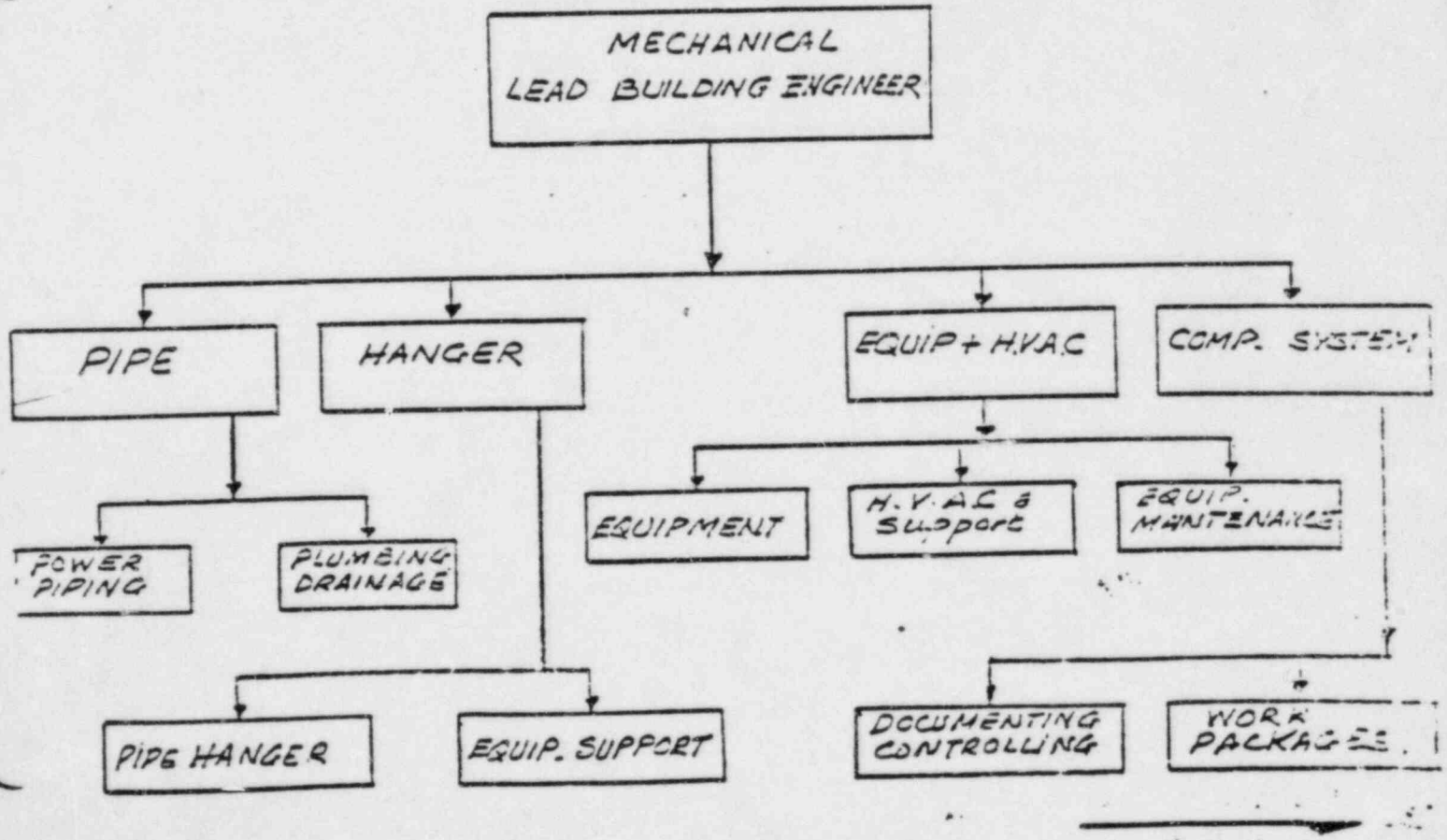
This group is supervised by a Project Engineer Mechanical or Senior Engineer Mechanical. The group is responsible for technical support to the Piping, Hangers, Equipment, and H.V.A.C installation crafts.

Technical support to crafts consists of

preparing and/or interpreting design document and work procedures, providing work packages, investigation of field problems, preparation of field changes "FCR/PN", pipe and hanger modification, and pipe hanger problems "P.H.P", resolution of non-conformances, and coordinating hydrostatic tests for burried or embedded pipe.

The group also integrates with Mechanical personnel, other N.P.C.D (Nuclear Power construction Department) disciplines, for preparation, control, and completion of work items.

Integration of responsibility at all levels of this group must be achieved consistently which assures maximum control of the work performed for a building.



3.. MECHANICAL LEAD OFFICE ENGINEER.

This group is supervised by a Senior Engineer Mechanical. This group is responsible for reviewing and interfacing with N.R.C Audits, A.S.M.E, A.N.S.I. B.31.1 Power Piping, A.S.T.M, A.I.S.C codes, and Mechanical work procedures.

The group is also responsible for preparing material requisitions and take-off's for site purchased material.

The group integrates with Mechanical personnel, and N.O.D "Nuclear Operation Department" S.U. Engineers for completion of Mechanical R.F.T's as follows:

* Coordinate Mechanical R.F.T. systems with N.P.C.D Turnover Group for pipe, hangers, Equipment; and H.V.A.C.

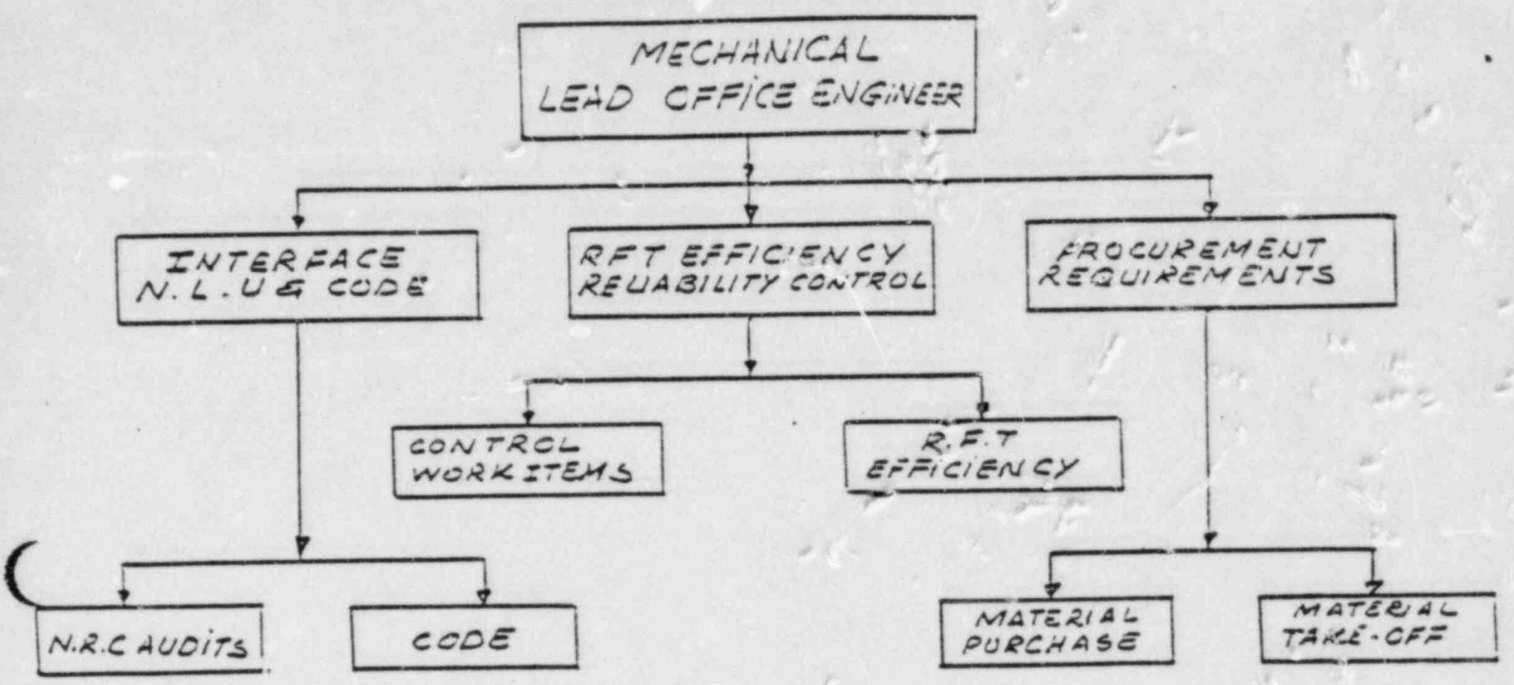
* Prepare detailed R.F.T. reports and boundaries that identify work activities and responsible organization for completion of work.

* Assist in the preparation and control of work items required for R.F.T completion such as:

    1.. PSM's,
    2.. Hanger modification
    3.. P.H.P
    4.. FCR/PW or R.C.I
    5.. Pipe cleanliness
    6.. Pipe hydros
    7.. Records Review.

* Attend the regularly scheduled R.F.T

meetings and report on action items to N.P.C.D Turnover Group. Provide feedback to the Resident Engineer Mechanical, and Mechanical Lead Building Engineer.



IV. - DIRECTING AND LEADING

Directing and leading are the interpersonal aspect of managing by which subordinates are led to understand and contribute effectively and efficiently to the attainment of Nuclear Power Construction department objectives.

People are an important factor of production, but they cannot be treated as if they were inanimate. Neither can they be treated solely as rational economic, social, or self-actualizing.

Engineer who supervises or manages

should surely take advantage of human nature in the work situation. Because subordinates want to be led, and led effectively. They will work just hard enough to get by if there is little or no leadership; with effective leadership they will work with zeal and confidence toward the peak of their capabilities.

In conclusion, the basis of directing and leading may be summarized by the principle that:

"The more effective the directing and leading process, the greater will be the contributions of subordinates to organizational goals."

V.. CONTROLLING

Controlling is the measurement and correction of the performance of activities of subordinates in order to make sure that Power Plant objectives and the plans devised to attain them are being accomplished.

Control of activities operates through people. But we cannot know where the responsibility for deviations and needed action are, unless organizational responsibility is clear and definite.

One of the most frustrating situations managers can find themselves in is knowing that something is going wrong in their department and not knowing exactly where the responsibility for the trouble lies.

In recent years many Nuclear Power Plants Construction were used indirected-control and milestone budgeting systems to break a project down into controllable piece and then follow them.

But these systems just allows supervisors or managers to see a complex program in its simpler parts, the-by giving them some estimating completion time, with planned inputs of manpower and materials, run into the difficulty that, although accurate records of personnel and material costs can be kept, estimates of percentage of completion tend to reach 70 or 75 percent and stay there, when time and costs continue.

The best way to plan and control an engineering project is to break it down into a number of determinable events by using directed-control systems

The desirability of direct control rests upon four valid assumptions:

1. That qualified managers make a minimum of errors

2. That managerial performance can be measured

3. That management concepts, principles and techniques are useful diagnostic standards in measuring management performance; and

4. That the application of management fundamentals can be evaluated.

Feedforward is the one of the best techniques of directed-control in use to control of Network planning.

In engineering, feedforward is accomplished by analyzing the inputs to a process, seeing how they interact, and monitoring the inputs so that adjustment can be made in them or in the process before output from the system occurs.

In a sense, we could say that a feedforward control system is really one of feedback.

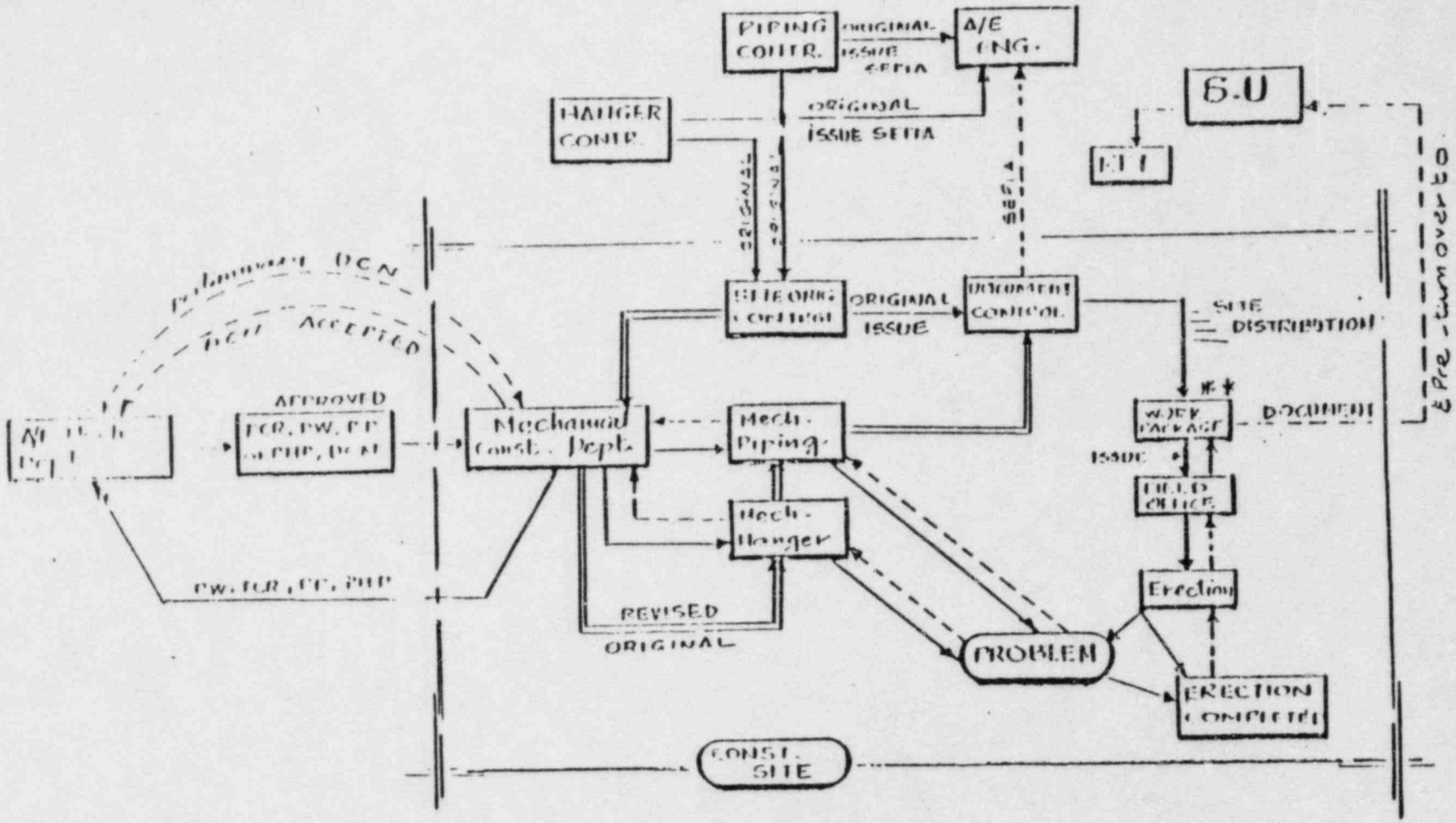
This is true, but the information feedback is at the input side of the system so that corrections can be made before the system output is affected. Also, no one would deny that, even with a feedforward system, a supervisor or manager would still want to measure final system output since nothing can be expected to work perfectly enough to give confidence that the final output will always be exactly what is desired.

Therefore, with this purpose that each Nuclear/or fossil plants construction use the flow diagramming method (F.D.M) for planning and controlling activities of Mechanical, Civil, or electrical construction networks.

F.D.M is a system similar in concept to critical path method (C.P.M) planning that it is activity oriented.

The reason for choice of (F.D.M.) networking is that it was considered by all to be easier to use at the Nuclear/or fossil plants construction working for both planning and controlling.

To give an idea of what feedforward and Flow diagramming Method in Mechanical construction management for planning and controlling pipe, pipe-hanger installation can be illustrated in "PIPE HANGER FLOW DIAGRAM" as shown in the next page.



** Documenting & Preparing Packages includes walk down inspection, and any necessary documentation to turnover to S-U.

PROPOSED

PIPING & HANGER

CONSTRUCTION FLOW CHART FOR NUCLEAR POWER PLANT

Management necessarily contains many subjective elements, but whether a subordinate is doing a good job should ideally not be a matter for subjective determination. Where controls are subjective, a supervisor's or subordinate's personality may influence judgments of performance inaccurately; but people have difficulty in explaining away objective control of their performance particularly if the standards and measurements are kept up-to-day through periodic review.

Objective standards of Nuclear Power Plants construction can be quantitative, such as costs or man-hours per work packages or date of job completion; they can also be qualitative, as in the case of a training program that has specific characteristics or is designed to accomplish a specific kind of upgrading of the quality of the plans and personnel.

It may be concluded that an organizational structure is clear, complete, and integrated, and the more that controls are designed to reflect the place in the organization structure where responsibility for action lies, the more they will facilitate correction of deviations from plans.

The control techniques are applying for Mechanical N.P.C.D can be illustrated by several forms attachment.

* Presently some of these forms are in use at SHEARON HARRIS NUCLEAR POWER PLANT, especially the "HANGER OF THE WEEK" Programs which was review by I.N.P.O during their recent visit to Harris Site, and it was very well received.

DESIGN CONTROL

PERFORMANCE AREA

DC.1 DESIGN INPUTS

DC.2 DESIGN INTERFACES

DC.3 DESIGN PROCESS

DC.4 DESIGN OUTPUT

DC.5 DESIGN CHANGES

TOTAL

TEST CONTROL

PERFORMANCE AREA

10.1 TEST PROGRAM

10.2 TEST GROUP
ORGANIZATION AND STAFFING

10.3 TEST PLAN

10.4 SYSTEM TURNOVER FOR TEST

10.5 TEST PROCEDURES
AND TEST DOCUMENTS

10.6 SYSTEM STATUS CONTROLS

TOTAL

CONSTRUCTION CONTROL

PERFORMANCE AREA

CC.1 CONSTRUCTION ENGINEERING

CC.2 CONSTRUCTION FACILITIES AND EQUIPMENT

CC.3 MATERIAL CONTROL

CC.4 CONTROL OF CONSTRUCTION PROCESSES

CC.5 CONSTRUCTION QUALITY INSPECTIONS

CC.6 CONSTRUCTION CORRECTIVE ACTION

CC.7 TEST EQUIPMENT CONTROL

TOTAL

32

Company :
Project :
Department :

Turnover No :
Location :
Zone : Elev :
Design dwg :

Date : / /

PIPE & HANGER INSTALLATION DAILY CONTROL

HOUR	LOCATION	NAME & BADGE No	ISO NUMBER	ISO/SPOOL COMPLETE	NUMBER OF WELD	FOOTAGE	ENGINEERING PROBLEM	REPORT TO
/	1/ FITTER 1/ WELDER							
/	1/ FITTER 1/ WELDER							
/	1/ FITTER 1/ WELDER							
/	1/ FITTER 1/ WELDER							
		TOTAL						

FOREMAN NAME:

COMMENT

Unit:
Zone & elev:
RFT:

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

Line No:
Design dwg:
Flow diagram:

PIPING WALKDOWN SYSTEM CHECK LIST

ISO & SPOOL NO.	DATA PACKAGE AND DOCUMENTATION	PIPE MOD. FABRICATION RECORD. WP-116	BOLT & TORQUE DATA WP-129	CLEANNESS INSPECTION CHECKLIST WP-113	FCR or DCN CLOSED	NON-CONFORMANCE CLOSED	HYDRO TEST RECORD	COMMENTS

PIPE'S PROBLEMS

R.F.T:
ZONE:
BUILDING:

DATE	ISO'S	ASME or SAF. CLASS	B.O.P	PROBLEM DESCRIPTIONS	PIPE MODI-FICATION	FCR OP. / CLOSED	DDR OP / CLOSED	NCR OP DR OP / CLOSED	COMMENTS
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	
						/	/	/	

Building:

HANGER'S PROBLEMS

ZONE:

DATE	HANGER No:	SEIS. MIC	NON SEIS. MIC	PROBLEM DESCRIPTIONS	PHP OR / CLOSE	FCR OR. / APR.	PDR / DR	MOD /	COMMENTS
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	
					/	/	/	/	

* EBASCO PROBLEMS: EB/DT HOLDS included incorrect dwg, material not onsite or unworkable s. [illegible]
* CP&L PROBLEMS: Materials missing CP&L is responsible for supplying

HANGER'S STATUS.

* Eng. Problems [illegible] outstanding [illegible]

Hanger No:	ENGINEERING PROBLEM / CP&L MATERIAL PROBLEM	EBASCO PROBLEM / FIELD HOLD	ACTIVE / COMPL.	COMMENTS.

FIELD HOLD - [illegible] , concrete not [illegible] , scaffold in the way, pipe with trunnions not ins[illegible] etc.

SUBJECT: PILOT EVALUATIONS

PROJECT EVALUATION PROGRAM HAS COMPLETED TWO PILOT EVALUATIONS. THE PURPOSE OF THE PILOTS HAS BEEN TO VERIFY AND UPGRADE THE

THE PROCESS. A NUMBER OF "GOOD PRACTICES" HAVE BEEN NOTED THAT ENHANCE QUALITY IN CONSTRUCTION. THOSE THAT WERE CONSIDERED

ONE UTILITY USES FLEXIGLASS IN FORMS FOR PLACING

WALLS, ONE FOOT THICK AND UP. IN CONGESTED AREAS AND AROUND BLOCKOUTS WHERE THERE IS A HIGH PROBABILITY OF VOIDS. ONE-

FOUR TIMES AND CAN BE REUSED MORE TIMES IF CLEANED AFTER EACH FOUR. PURCHASING FORM MATERIAL IN RANDOM LENGTHS HAS

IN ADDITION TO REDUCING VOIDS, THE PLEXIGLASS FORMS ARE EASILY FABRICATED AND REASONABLY DURABLE.

DISADVANTAGES ARE THAT THE PLEXIGLASS WILL USUALLY CRACK WHEN CONTACTED WITH A VIBRATOR, IS MORE EXPENSIVE THAN WOOD

TO BE DIFFICULT

2. HANGER-OF-THE-WEEK PROGRAM

THE UTILITY HAS IMPLEMENTED A HANGER-OF-THE-WEEK PROGRAM AS A VEHICLE TO UPGRADE THE QUALITY OF CONSTRUCTION WORK. EACH ENGINEER RESPONSIBLE FOR HANGER INSTALLATION SELECTS

ENGINEER CHECKS THE INSTALLATION FOR CORRECT MATERIALS, LOCATION, WELDS, INTERFERENCES AND RELATED INSPECTION SIGN-

THE HEAD OF THE HANGER DEPARTMENT, WHO SUBSEQUENTLY

USED TO EVALUATE THE OVERALL EFFECTIVENESS OF THE TRAINING

INSPECTORS AND TO POINT OUT TRAINING NEEDS OR SPECIFIC

AREAS. IT HAS THE ADDED ADVANTAGE OF KEEPING THE

Hanger of the Week. Page 9

Hanger No:

1 INSP. FITUP GAP & INCREASED FILLET WELD SIZE. COMMENT initial Date	2 INSP. DOCUMENT Rev. VS PACKAGE Rev. COMMENT initial Date
3 VERIFY EMBED THICKNESS. COMMENT initial Date	4 VERIFY PHASE I INPECTION COMMENT initial Date
5 VERIFY INSP. DATE FOLLOW LOGICAL ORDER & MATCH DOCUMENT ATTINE COMMENT initial Date	6 VERIFY FITUP GAPS LIST BY CI/FE ARE CLEARLY UNDERSTANDABLE COMMENT initial Date
7 VERIFY CI/FE LIST GAP ON ALL INSP. AFTER 10-21-81 COMMENT initial Date	8 VERIFY LATEST Rev. IS PLACED BY INSP. & DATE ON WDR COMMENT initial Date

Page 2

Hanger No:

9 VERIFY WDR REFLECTS AS WELDED CONDITION COMMENT initial date	10 VERIFY WELD SYMBOLS ARE ON WDR COMMENT initial date
11 VERIFY NO IMPROPER DRAWN INCORRECT OR MISSING WELD SYMBOLS COMMENT initial date	12 VERIFY OFFICE & FIELD COPY OF WDR IS SAME INFORMATION COMMENT initial date
13 VERIFY HANGER REINSP. CLOSEOUT PACKAGES ARE CLEAR RELATIVE TO WELDING STATUS. COMMENT initial date	14 VERIFY SECTION III OF WDR IS COMPLETELY FILLED OUT. COMMENT initial date
15 VERIFY WDR IS PROPERLY ASSIGNED VS SISPEC. 034 COMMENT initial date	16 VERIFY WELDS ON SKEWED TEE JOINTS ARE NOT UNDERSIZE. COMMENT initial date

Page of

Hanger No.

17 VERIFY SW ON DWG WERE MADE IN THE SHOP COMMENT initial date	18 VERIFY GEOMETRY, LOCATION IN SPACE & EMBED VS TOLERANCE WP-11C COMMENT initial date
19 VERIFY MATERIAL SUBST. ARE DOCUMENT COMMENT initial date	20 VERIFY FW ACCEPTANCE CRITERIA PER CGC.19 & AWS D1.1 COMMENT initial date
21 VERIFY BILL OF MATERIAL MATCH THE INSTALLED MEMBERS. COMMENT initial date	22 VERIFY PREHEAT WAS DOCUMENTED IF HANGER MEMBERS THICKER THAN 1½" COMMENT initial date
23 VERIFY FW LENGTHS ARE EQUAL TO LENGTH ON HANGER SKETCH COMMENT initial date	24 VERIFY FLEXIBLE CONNECTIONS ARE RECOGNIZED & PROPER INSP. COMMENT initial date

Page 2 of

Hanger No: 2

25 VERIFY HANGER NOT ATTACHED EMBED W/ THREAD STUD UNTIL CIVIL INSP. OF EMBED IS VERIFIED COMMENT initial date	26 VERIFY SW ON DNG ARE INSP. IF THEY ARE ACTUALLY IN & PROPER NOTE ON TRAVELER & WDR COMMENT initial date
27 VERIFY THE JOINTS LISTED ON WDR ARE UNIQUE. COMMENT initial date	28 VERIFY GENERIC FCR'S ARE USED APPROPRIATELY. COMMENT initial date
29 CHECK & VERIFY SW & THEIR EXISTANCE. COMMENT initial date	30 VERIFY D/C HAS THE REV. MENTIONED ON COMPUTER PRINTOUT COMMENT initial date
31 DOES THE TERMINAL ACCURATED SHOW STATUS OF HANGER COMMENT initial date	32 VERIFY CUT MEMOS OR WORK DIRECTIVES IN THE QA/QC OFFICE FILES COMMENT initial date

RFT

EWR NUMBER _____ 42

ENGINEERING WORK REQUEST

1. INITIATION

TITLE _____

UNIT ___ SYSTEM _____ EQUIPMENT CODE _____ SPECIFIC I.D. _____ TAG NO. _____

EQUIPMENT DESCRIPTION _____

LOCATION _____

REFERENCES _____

IS THIS A REGULATORY COMPLIANCE EWR? YES ___ NO ___, COMMITMENT NO. _____

DETAILED STATEMENT OF PROBLEM: (LIST RESTRICTIONS OR SPECIAL REQUIREMENTS) _____

PROPOSED SOLUTION: (IF ANY) _____

RESOLUTION NEEDED: (SPECIFY) _____

ORIGINATOR _____ POSITION _____ DATE _____

IMMEDIATE SUPERVISOR _____ POSITION _____ DATE _____

FORWARD TO ENGINEERING CLERK

2. REVIEWS

PROJECT ENGINEER REVIEW: COMMENTS _____

EWR APPROVED? YES ____ NO ____

EWR ASSIGNED TO PLANT ENGINEER _____

PLANNED RESOLUTION DATE _____

PROJECT ENGINEER _____ DATE _____

FORWARD TO ENGINEERING SUPERVISOR

ENGINEERING SUPERVISOR REVIEW: COMMENTS _____

EWR APPROVED? YES ____ NO ____

ENGINEERING SUPERVISOR _____ DATE _____

FORWARD TO ENGINEERING

There are four main reasons why direct control system is needed for Nuclear Power Plant construction.

* First, greater accuracy is achieved in assigning personal responsibility.

* The second, direct control hastens corrective action and makes it more effective.

* The third reason of direct control is potentiality for lightening the burden now caused by indirect-control.

* The fourth is psychological reason, because subordinate supervisors or managers know what is expected of them, understanding the nature of managing, and feel a close relationship between performance and measurement. Intelligent superior supervisors or managers will reciprocate this feeling because they will know what they are expected to evaluate in subordinates and will have a technique for doing so.

II. NUCLEAR POWER PLANT CONSTRUCTION FILING AND RECORDS CONTROL.

Considering all the attention that has been given to the preservation and construction control records to be applied for A Nuclear Power Plant, we might wonder why so much concern with these matters is necessary.

The construction control Record is an integrated computerized tracking tool that provides material and construction installation

status continuously through all phases of construction, and provides an early warning system for potential R.F.T schedule problems. The construction control Records assists the N.P.C.D and S.G (start-up Group, in the efficient and orderly turnover of system jurisdiction.

The construction control record is also given to record keeping in order to provide a verifiable and traceable process meeting principal plant design.
This type verification would be required by the N.R.C before any attempt at Acquiring an operating license could be made.

Therefore, these construction control records must be preserved and controlled in such a way that they can be found when they are needed. And the systems and procedures of filling are designed to perform this function for individuals as well as for N.P.C.D.

Filling is the process of arranging and storing materials safely and systematically so that they can be located easily and quickly when they are needed.

There are three main purposes of the various systems of filing are as follows:

1.. To make records readily available when they are needed, whether for reference or evidence.

2.. To keep all related informations and materials together so that the history of

the all work performed by N.P.C.D on system/ equipment will be available in one place for R.F.T.

3. To provide a permanent and safe place for construction and personal records during the time they are not in use.

As stated earlier, records should be stored in such a manner that they can be located easily and quickly when they are needed.

Specially, for Nuclear Power Plant Construction the number of files is large, and beside all systems were assigned and breakdown to a group of number such as "applications" for controlling.

Example: 2000 = Core cooling and supports system

This kind of group of number for P.W.R are decpicted in the page 45, 46, 47, 48, 49 and 50.

In conclusion to have an effective filing system is applied for Nuclear Power Construction we must use of color in numeric filing.

Color coding is frequently used in numeric filing systems as an aid in quick identification of groups of numbers and in identification of misfiled folders.

A color-accented filing system is planned so that the use of particular color for a particular group; each of a series of numbers is identified with a particular coloric section in the system, thus giving it a positive color code by which identification of a given numeric system can be made more easily than otherwise would be possible.

TABLE 6.1
PWR SYSTEM LIST

1000 HEAT SOURCE

1005	Reactor Vessel and Internals System
1045	Excore Nuclear Instrument System
1050	Incore Nuclear Instrument System
1060	Axial Power Distribution Monitoring System
1065	Rod Control System
1075	Rod Position Indication System
1080	Reactor Protection System
1090	Engineered Safety Features Actuation (Controls)
1095	Metal Impact Monitoring System
1100	Containment Isolation System
1900	NSSS Process Instrumentation Control System

2000 CORE COOLING AND SUPPORT SYSTEMS

2005	Reactor Coolant System
2025	Reactor Coolant Pump and Motor
2030	Reactor Coolant Pump Vibration Monitoring
2050	Pressurizer
2060	Chemical and Volume Control System
2065	Boron Thermal Regeneration System
2070	Containment Spray System
2075	H_2 Purge System
2080	High Head Safety Injection System
2085	Low Head Safety Injection and RHR
2090	Passive Safety Injection System
2105	Gross Failed Fuel Detection System
2110	Reactor Coolant Make-up Water
2115	Reactor Coolant Sampling System
2160	Process Control System
2175	Hydrogen Recombiner

3000 STEAM CYCLE

3005	✓ Steam Generator
3010	✓ Steam Generator Blowdown System
3015	✓ Steam Generator Chemical Addition System
3020	✓ Main Steam
3025	✓ Extraction Steam
3030	Moisture Separator/Reheater
3035	Steam Dump System
3040	Auxiliary Steam
3050	✓ Feedwater
3055	Feedwater Heater
3060	Heater Vents, Drains, and Level Control
3065	Auxiliary Feedwater
3067	Auxiliary Condensate

3070	Condensate System
3075	Condensate Polishing Demineralizer System
3080	Condensate Make-up System
3100	Steam Cycle Sampling
3115	Steam Generator Wet Lay-up System
3120	Auxiliary Boiler Fuel Oil
3324	Instrument Installation

4000 HEAT SINK

4005	Condenser
4010	Condenser Vacuum System
4015	Circulating Water System
4020	Circulating Water Treatment System
4025	Cooling Towers System
4030	Cooling Towers Make-up System
4035	Cooling Tower Blowdown System
4040	Traveling Screens & Screen Wash
4045	Reservoir
4047	Reservoir (Aux)
4055	Reservoir Blowdown System
4060	Normal Service Water System
4065	Emergency Service Water System ✓
4080	Component Cooling Water System
4082	Waste Processing Building Component Cooling Water System
4085	Essential Chilled Water System
4086	Non-Essential Chilled Water System
4115	Emergency Screen Wash

5000 ELECTRICAL CONVERSION AND DISTRIBUTION SYSTEMS

5005	Turbine System
5015	Electro-Hydraulic Control System
5020	Turbine-Generator Lube Oil System
5025	Gland Seal System
5030	Exhaust Hood Spray System
5040	Generator System
5045	Generator Exciter System
5050	Generator Gas System
5060	Seal Oil System
5065	Generator Isolated Phase Bus System
5070	Load Frequency Control System
5095	Diesel Generator System
5100	Diesel Fuel Oil System
5105	Diesel Lube Oil System
5110	Diesel Jacket Water System
5112	Diesel Starting Air
5135	230 KV Switchyard System
5145	Startup and Auxiliary Transformer System
5155	Transformer Fire Protection System
5165	6.9 KV AC Distribution System
5170	4 KV AC Distribution System

5175	480 V AC Distribution System
5185	208/120 V AC Distribution System
5195	Uninterruptable AC System (ICP)
5196	Uninterruptible AC System (Class IE)
5205	Normal AC Lighting System
5210	Emergency AC Lighting System
5215	Emergency DC Lighting System
5220	250 V DC Distribution System
5232	125 V DC System A-SA (Class IE)
5234	48 V DC Reservoir Make-up System
5236	125 V DC Security System
5245	125 V DC System A (Non-Class IE)
5250	Lightning Protection System
5255	Cathodic Protection System
5260	Site Grounding System
5265	Heat Tracing and Freeze Protection System
5270	Building Electric Unit Heater System

6000 INTEGRATED PLANT AND SITE SYSTEMS

6005	Process Computer/SPDS
6008	Balance of Plant Process Instrumentation Control System
6010	Main Control Board
6015	Annunciator Systems
6016	Isolation Cabinets
6020	Auxiliary Control Board
6030	PA System
6035	PABX System
6040	Sound Powered Telephone System
6055	Portable Radios (FCC Licensed)
6060	Microwave System
6070	Meteorological and Environmental Systems
6075	Seismic Monitoring System
6080	Defensive Security Equipment
6085	Security Computer System
6090	Personnel Radiation Computer System
6095	Card Reader/Access Control System
6100	Surveillance/Alarm Assessment System
6105	Intrusion Detection System
6110	Security Illumination System
6115	Security Fencing and Gates
6120	Special Purpose Detectors
6125	Key Control and Hardware (Security, Radiation, and Safety Related)
6130	Security Communication System
6135	Instrument Air System
6140	Service Air System
6150	Nitrogen Supply System
6160	Hydrogen Supply System
6162	Oxygen Supply System
6165	Carbon-Dioxide Supply System
6175	Site Fire Protection System
6180	Site Fire Detection System

6185	Emergency Diesel Generator CAR DOX System
6190	Air Compressors
6200	Lube Oil Storage and Transfer System
6210	Sewage Treatment System
6215	Sewage Drains Systems
6220	Storm Drains System
6225	Oil Drains System
6230	Chemical Drains System
6235	Radioactive Floor Drains System
6240	Radioactive Equipment Drains System
6242	Secondary System Drain System
6245	Laundry and Hot Showers System
6260	Water Treatment System
6262	Upflow Filter
6265	Potable Water System
6270	Demineralized Water System
6272	Acid & Caustic System
6285	Filter Backwash Storage and Transfer System
6310	Waste Neutralization
6840	Waste Process Computer
6850	Sample System

7000 RADWASTE

7005	Process Radiation Monitoring System
7045	Solid Waste Processing System
7055	Oily Waste and Collection Separator System
7060	Liquid Waste Processing System
7062	Secondary Waste Treatment System
7065	Boron Recovery System
7070	Gaseous Waste Processing System
7075	Radwaste Sampling System
7095	Refueling System
7100	New Fuel System
7105	Spent Fuel System
7110	Spent Fuel Pool Cooling System
7115	Spent Fuel Pool Cleanup System
7122	Spent Fuel Cask Decontamination and Spray
7125	Spent Fuel Cask
7130	Spent Resin and Concentrates Storage and Treatment System
7135	Waste Processing Annunciators
7140	Waste Processing Analog Control System

8000 STRUCTURE AND GROUND SYSTEMS

8001	Site Plot Plan
8002	Plant Model
8010	Containment System
8015	Contaminated Storage Building
8020	Containment Liner and Penetration System
8025	Security Building
8045	Grounds Maintenance/Landscaping
8050	Containment Pressure Relief System

8055	Monorail Hoists
8060	Containment Vacuum Breaker System
8065	Bridge Cranes
8070	Containment Pressurization System (ILRT)
8085	Machine Shop & Storeroom
8100	Penetration Pressurization
8115	Chemical Storage Building
8150	HVAC Containment Building System
8152	Containment Cooling
8160	Containment Radioactivity Removal System
8165	Compressed Gas Storage
8170	Containment Purge System
8180	Rod Drive Cooling System
8200	Spent Fuel Cask Handling Crane
8210	HVAC Auxiliary Building
8220	HVAC Control Room Area
8231	HVAC Emergency Service Water Intake Structure
8250	HVAC Service Building
8260	HVAC Turbine Building
8280	HVAC Waste Processing Building
8285	Microwave Building
8291	Operations Office
8300	Administrative Building
8301	Records Storage Vault
8302	HVAC Administrative Building
8303	Plant Library
8310	Auxiliary Boiler House
8320	Auxiliary Building
8330	Control Room Area
8340	Diesel Building
8342	HVAC Diesel Building
8343	HVAC Diesel Fuel Oil Transfer Pump
8350	Fuel Handling Building
8352	HVAC Fuel Handling Building
8360	Service Building
8370	Turbine Building
8371	Turbine - Health Physics Building
8372	Turbine Lunchroom
8380	Warehouse
8382	HVAC Warehouse
8390	Waste Processing Building
8400	Water Treatment Building
8450	Polar Crane System
8460	T-G Gantry Crane System
8470	T-G Maintenance Canopy System
8490	Chlorine Storage Shed
8500	Elevator System
8510	Site Roads and Parking Lots
8515	Site Railroad Spurs
8520	Outside Storage
8530	Plant Dams/Dikes/Spillways
8535	Paint/Contaminated Equipment/Chemical Storage Building
8540	Stores Receiving Building

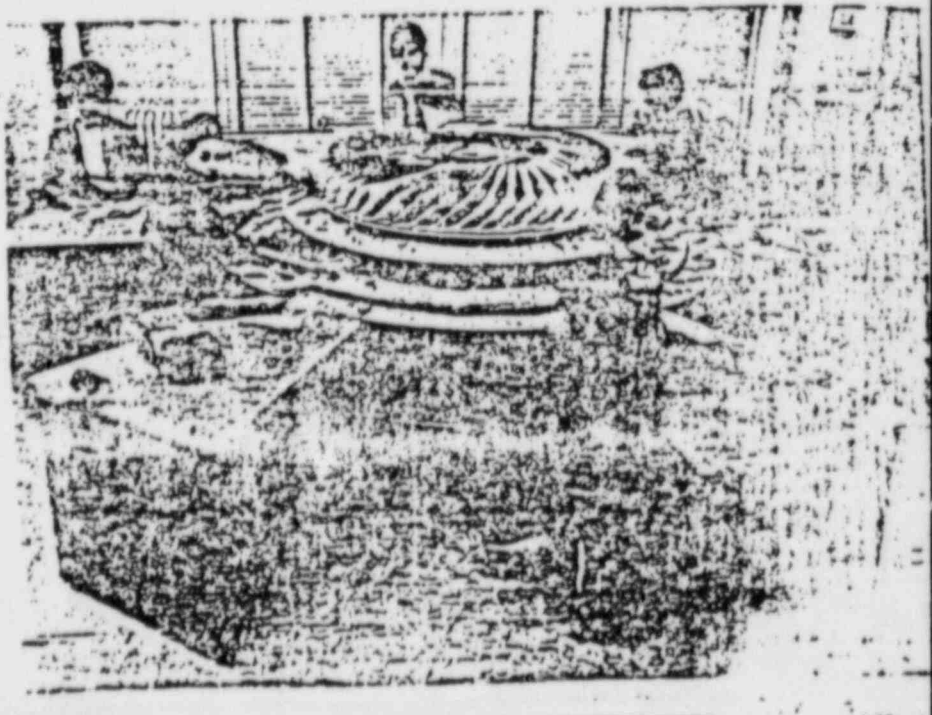
8545	Paint Shop/Mobile Equipment Shop
8550	Fire House
8555	Hot Machine Shop Building
8560	Outage Support Building
8565	Technical Support Center

Finally, is evaluating equipment for correspondence filing.

The use of any particular type of equipment depend primarily upon the kind of records being held and the frequency of reference to them.

As stated earlier, in Nuclear Power Plant Construction the number of file is large, therefore to provide greater accessibility to a large volume of records, and material held in the system is much more visible, the ROTARY EQUIPMENT should be used.

The CENTRAC ROTARY EQUIPMENT as shown in picture below, includes four circular sections or tiers and six work stations. Within the framework of this rotary unit, each tier moves independently; and thus each operator at a work station has access to the records being held in any part of any tier. Work stations are equipped with telephone connections enabling operators to communicate directly with persons requesting information.



III .. R.F.T "Release for test" or IMPLEMENTING

Mechanical Lead Office Engineer is responsible for the following R.F.T activities are as follows:

* Scheduling and expediting completion of system/ equipment, pipe, hanger, installation to meet R.F.T priorities.

* Verifying construction completion and coordinating R.F.T exeption list inspections.

* Recording R.F.T exeptions -

* Assembling, reviewing and transmitting R.F.T packages

* Identifying and updates the status of major Mechanical.

* Preparing release for test acceptance forms (see the following pages.)

Company _____

Project _____

Unit _____

Page 1 of _____

Turnover No. _____

Flow Diagram Drg No. _____

PIPING CONSTRUCTION CHECK LIST AND PRE-RFT.

LOCATION			ZONE					SYSTEM				LINE No.				DESIGN DWG NO				
ISO/ SPOOL No.	DOCUMENTATION DATA PACKAGE	PIPE SPOOL FAB/INSP RECORD WP116 EX.1&2	WELDING INSP. FORM TP 24 EX.1	BURIED PIPE INST. FORM WP102 EX.1/WP104 EX.1	EMBEDDED PIPE INSP. FORM TP 24 EX. 2	BOLT TORQUE DATA CARD WP129 EX.1	HYDRO TEST RECORD O OR NON O	PIPE BENDING RECORD WP118 EX.1	COLD PULL RECORD FORM WP102 EX.2	CLEANLINESS INSP. CHECKLIST WP113 EX.3	PROTECTIVE COATINGS INSP. TP229 EX.1, 2&3.	INSULATION	NON CONFORMANCE CLOSED	FCR OR DCN CLOSED	OVERPRESSURE PROTECTION REPORT/ANALYSIS	SEISMIC REPORTS	DOCUMENTATION COMPLETE	READY FOR TURNOVER	

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Complex _____

Projects _____

Unit _____

Page 1 of _____

Turnover No. _____

Flow diagram Dwg _____

H.V.A.C CONSTRUCTION CHECKLIST AND PRE RFT

LOCATION	ZONE	FAN SYSTEM						DESIGN DWG NO						
		DOCUMENTATION DATA PACKAGES	INST & INSP. SEISMIC HVAC W. PIPING EXT.	INST. & INSP. SEISMIC HVAC DUCT EXT.	INST. SAFETY RESTRAINED SEISMIC GLASS HVAC DUCT EXT.	INST. NON-SEISMIC SAFETY HVAC DUCT NO 402 EXT.	INSULATION	HYDRO. TEST RECORD	NONCONFORMANCE CLOSED	PER. OR DCN CLOSED	SEISMIC REPORT	DOCUMENTATION COMPLETE	READY FOR TURNOVER
HVAC PIPE HVP	HVAC DUCT SUPPORT													

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Company

Project

Unit

Page ___ of ___

Turnover No. ___

Flow diagram dwg No. ___

PERMANENT EQUIPMENT CONSTRUCTION CHECKLIST AND PRE RFT

LOCATION		ZONE				SYSTEM							DESIGN DWG.						
EQUIPMENT NAME AND TAG No.	SERIAL NO. & P.O. NO.	DOCUMENTATION DATA PACKAGE	EQUIP. INSP. FORM TP-29 SH. 1 & 2	EQUIP. INSTALL. TRAVELER W.P. 105 EX. 4	BOLT TORQUE DATA CARD W.P. 129 EX. 1	FINAL COUPLING ALIGN. DATA W.P. 105 EX. 2	CLEANLINESS INSPEC. CHECKLIST W.P. 113 EX. 3	PERMANENT EQUIP. TRANSFER DATA TP-07 EX. 1	PROTECTIVE COATINGS INSP. TP-29 EX. 1, 2 & 3	HYDRO. TESTS RECORD	SPECIAL INSTALL. DOCUMENTATION	NONCONFORMANCE CLOSED	OVERPRESSURE PROTECT. REPORT/ANALYSIS	FCR OR DCN CLOSED	SEISMIC REPORT	DOCUMENTATION COMPLETE	READY FOR TURNOVER	
	SN																	
	PO																	

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Company ________ Page ____ of ____

Project ________ Turnover No. ________

Unit ________ Flow diagram Dwg No. ________

VALVE & SPECIALITY CONSTRUCTION CHECKLIST AND PRE - RFT

LOCATION		ZONE			SYSTEM				LINE NO				DESIGN DWG NO			
VALVE & SPECIALITY ITEM & TAG No.	SERIAL No & P.O No.	DOCUMENTATION DATA PACKAGE	INSTALLATION INST. WP-128 EX.1	BOLT TORQUE DATA CARD WP.129 EX.1	CLEANNESS INSP. CHECKLIST WP.113-E3	VALVE/SPEC. INSP. FORM TP-45 EX.1	VALVE/SPEC. ITEM INSP. QA 38	PERMANENT EQUIP. TRANS. TP-02 EX.1	PROTECTIVE COATING TP.22 EX.1,2,3	NONCONFORMANCE CLOSED.	FCR OR DCN CLOSED	HYDRO TESTS RECORD	OVER PRESSURE PROTECT. REP/ANALYSIS	SEISMIC REPORT	DOCUMENTATION COMPLETE	READY FOR TURNOVER
	SN PO															

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Company ________________

Project ________________

Unit ________________

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Turnover No. ________

Flow diagram Dwg No. ________

HANGER / RESTRAINT CONSTRUCTION CHECKLIST & PRERIT

LOCATION		ZONE		SYSTEM						DESIGN DWG NO.					
HANGER / RESTRAINT No & REV.	LINE No	DOCUMENTATION DATA PACKAGE	SEISMIC HANGER INSTALLATION WP110	NON SEISMIC HANGER INSTALLATION WP109	BOLT & TORQUE DATA CARD WP	PROTECTIVE COATING WP.108 & TP.29	HANGER INSP. FORM TP34EX-1	EHP OR RCI CLOSED	ECR CP ECN CLOSED	NONCONFORMANCE CLOSED	HANGER PHASE I INSP.	HANGER PHASE II INSP.	HANGER PHASE III INSP.	DOCUMENTATION COMPLETE	READY FOR TURNOVER

RFT No _____
RFT Name _____

NUCLEAR POWER PLANT
UNIT _____
RELEASE FOR TEST ACCEPTANCE FORM

To: Superintendent Start-Up.

Subject: Package Transmittal

Attached is a list of mechanical documents on RFT _____ are for your review and approval.

All construction, inspection and testing within the RFT boundary is complete and documentation is approved and on file.

Please let us know if we can be of further assistance.

_____ _____
Resident Mechanical Engineer date

RECOMMENDATIONS:

Recommend that each Nuclear or fossil Power Plant Construction have a separate organization and coordination Group on site. Each discipline elect., Mech., civil of this Group should obtained experience people with the expertise to take responsibility for the following goals:

1.. Examination and evaluation of overall plan design and performance.

2.. Bringing design deficiencies, and construction interferences to the attention of the A/E and construction Engineers, and making recommendations to resolve the problems in a safe, reliable and cost effective manner.

3.- Providing construction Engineering studies, technical direction, and coordination with construction site disciplines elect., Mech., civil in an effort to assure that systems are designed properly and safely before releasing for construction.

4.- Substantially more attention and care must be devoted to the writing, reviewing, and monitoring of plant construction procedures:

* The wording of procedures must be clear and concise.
* The content of procedures must be reflect both engineering thinking and construction practicalities.
* The format procedures, particularly those that deal with seismic, and safety class conditions, must be especially clear, including clear diagnostic instructions for identifying the particular conditions confronting the construction crafts.

5.. Contracting for a "Turn-Key" plant in which the Vendor or A/E contracts to supply a fully construction plant and provides all planning construction and modification, or

6.. Assembling expertise capable of integrating the design process.

In either case, it is critical that the knowledge and expertise gained during design and construction of the plant be effectively transfered to those responsible for operating the plant, and reliability of plant.

CQA-1 ...
7/30/82
Rev. 10

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT

DDR No. 1775
Page 1 of 2
RFT No. 1-4065 / 1-4080 2-4065

DEFICIENCY AND DISPOSITION REPORT

(Procedure CQC-2)

Item/Activity Name or Description	Shop Order	~~Code Class~~ Seismic I	Quantity	Unit	Quality Assurance No (PO & Item No.)
PIPE HANGER INSTALLATION	NA	SEISMIC I	SEE DETAIL	1+2	QA- NA

Material, Heat or Other Identification No.	Supplier or Manufacturer	Type of Procurement
SEE DETAIL	N/A	☐ CP&L PO ☐ Transfer ☐ A-E PO NA ☐ NSSS PO

Violation (Specification, Drawing, Procedure or Other)	NCR No.	Reporting Inspector
WP-110	NA	JAY VINCENT 7-25-83

Deficiency Details: A QA SURVEILLANCE OF TWELVE (12) PIPE HANGERS THAT HAVE BEEN INSPECTED AND ACCEPTED BY CI FOR PHASE II REVEALED THE FOLLOWING MATERIAL SUBSTITUTION / CONTROL PROBLEMS ON FIVE (5) OF THE HANGERS. ONE ADDITIONAL PROBLEM WAS NOTED DURING THE SURVEILLANCE PERTAINING TO MATERIAL CONTROL. THE PROBLEMS ARE LISTED BELOW.

1. NON SEISMIC MATERIAL WAS ISSUED FOR A SEISMIC PIPE HANGER (1-SW-H-1570) ON CONSTRUCTION MATERIAL REQUISION (CMR) # 087571 ITEM # 3 AND # 9
2. A SPEED LETTER DATED 4-25-80 ISSUED ITEM # 6 (PL 1"x7"x9½") FOR PIPE HANGER 1-CC-H-105 FROM PURCHASE ORDER (P.O.) # 21022, ~~ALTHOUGH~~ P.O. # 21022 WAS VOIDED AND NO DOCUMENTATION ~~EXISTS~~ THAT MATERIAL WAS RECEIVED. EXISTS 7-25-83

DDR Evaluation

- ✓ Construction Phase
- Engineering Phase
- QA Program Violation
- Specification Deviation
- ✓ Procedural Deviation
- Unacceptable Workmanship
- Damage/Defect
- Other
- ✓ Not Reportable *

	Site QA/QC	QA Engr.	HPES	NPCD
Eval. By -	GLF			EEW

Date 8-9-83

* DETERMINED NOT TO BE REPORTABLE UNDER 10CFR21 AND 10CFR50-55(e)

[signature] 7/26/83
QA/QC Specialist/Engineer — Date

Final Disposition: Verified ☒ Hold Tags Removed N/A NO HOLD TAGS APPLIED

KAO 10-9-84

Remarks:

Christopher M Care 10-9-84
QA/QC Inspector — Date

Accepted by:
10/12/84 [signature] 10-9-84
QA/QC Specialist/Engineer — Date

Distribution:
Orig: Director - QA/QC - SHNPP
CC: Proj. Gen. Mgr./Sr. Res. Engr.
Gen. Mgr. (SU/Operations)
Reg. Comp. Unit (SU/Operations)
Initiating QA/QC Specialist
Accounting
Mgr. - E&C QA/QC
☐ Mgr. - HPES
☒ Start-Up ☒ Ed WILLETT (CAR)
☐ NSSS Site Rep.
☐ ANI

ANI Concurrence (ASME Code Section III Items Only):
N/A —
Authorized Nuclear Inspector — Date

Report Closed:
[signature] for GLF 10-15-84
Director - QA/QC - SHNPP — Date

QA-13
2/81
Rev. 0

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT

QA/QC REPORT CONTINUATION SHEET

DDR.
Report No. 1775
Page 2 of 2

3) A FURTHER INVESTIGATION OF P.O. # 21022 REVEALED THAT MATERIAL FROM THIS P.O. WAS USED ON PIPE HANGER 1-CC-H-1242, 1-RH-H-183 AND NUMEROUS OTHER PIPE HANGERS NOT LISTED HERE, ALTHOUGH P.O # 21022 WAS VOIDED AS PREVIOUSLY STATED IN (2) ABOVE.

4) CMR # 105087 INDICATED THAT ITEM #3 (END ATTACHMENTS) WERE ISSUED FROM SURPLUS PIPE HANGER 2-WG-H-1264 AND USED ON PIPE HANGER 1-SW-H-2339. HOWEVER, 2-WG-H-1264 HAS NO END ATTACHMENTS

5) CMR # 66234 AND CMR # 66126 BOTH ISSUED 1/8" R FOR PIPE HANGER 1-SW-H-410. HOWEVER, NO 1/8" R WAS ORDERED OR RECEIVED ON THE P.O (# 41558) REFERANCED ON THE CMR,

6) CMR # 53789 ISSUED ITEM # 2 (R 1½" x 6" x 6") FROM P.O # 435076 FOR PIPE HANGER 1-SW-H-625. HOWEVER THERE IS NO ½" R ON P.O # 435076

7) CMR # 53833 ISSUED ITEM # 2 (R 1½" x 8" x 6") AGAIN FROM P.O # 435076 FOR PIPE HANGER 1-SW-H-625. WHICH MATERIAL WAS USED ON PIPE HANGER 1-SW-H-625 COULD NOT BE DETERMINED

8) CMR # 106839 AND CMR # 087571 BOTH ISSUED ITEMS #1, 2 AND 3, CONSTITUTING (2) TWO SETS OF MATERIAL FOR PIPE HANGER 1-SW-H-1570. WHICH ITEMS WERE USED ON PIPE HANGER 1-SW-H-1570 IS INDETERMINATE.

9) CMR # 087571 ISSUED ITEM #9 (R 3/4" x 4" x 5") FOR PIPE HANGER 1-SW-H-1570 FROM PIPE HANGER 1-CE-H-166, HOWEVER, THE ONLY 3/4" R AVAILABLE FROM PIPE HANGER 1-CE-H-166 IS 3/4" x 3" x 5" WHICH IS TOO SMALL

10) CMR # 50574 ISSUED ITEM # 3 (2100-12 RIGID TELESCOPING STRUT ASSY.) FOR PIPE HANGER 1-SW-H-625 FROM PIPE HANGER 1-CC-H-941, HOWEVER THE ITEM # 3 INSTALLED IS MARKED 1-CC-H-99 AND 1-CC-H-910.

11) CMR # 090726 ISSUED 16 GAUGE SHIM MATERIAL FOR PIPE HANGER 2-SW-H-915. HOWEVER, MATERIAL WAS MEASURED AT .105" WHICH IS APPROXIMATELY 10 GAUGE.

ALL "SW" PIPE HANGERS ARE IN RFT 4065.
ALL "CC" PIPE HANGERS ARE IN RFT 4080.

NOTE: EXCEPT FOR ITEM 11, THE ACTUAL MATERIALS USED COMPLY WITH THE DIMENSIONAL REQUIREMENTS

QA-2-?
8/20/82
Rev. 6

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT

DDR No. 1775
Issue Date 7/26/84
Page 1 of ~~16~~ 17 MHF 9-26-84

CORRECTIVE ACTION REPORT
(Procedure CQC-2)

Proposed Disposition:

☐ Repair ☐ Rework ☐ Reject (Return to Vendor) ☐ Reject (Scrap) ☐ Permanent Waiver (Accept-as-is)

☐ Upgrade Code Certification ☐ Downgrade Item ☒ Other (describe below)

Details:

UPGRADE MATERIAL DEFICIENCIES LISTED ON THE REFERENCED DDR TO ACCEPTABLE STATUS.

Recommended By: MHF P W Howard 9/26/84
Discipline Engineer/ Responsible Supervisor — Date

Approved By: [signature] for RMP 9/26/84 RCM 10-5-84
Proj. Gen'l Mgr./Sr. Res. Engr./ Mgr. HPES/ General Mgr. — Date

Corrective Action and Final Disposition:

Documented Cause & Preventive Measures required: ☒ Yes ☐ No [initials] G. L. Forehand 7/26/84
Signature — Date

Details:

SEE ATTACHED PAGES 2,3,4 OF ~~16~~ 17 MHF 9-26-84 FOR DETAILS.

Cause:

THE PIPE HANGER DEPARTMENT HAD AN PWH 9/26/84 ~~INADEQUATE~~ MATERIAL PROGRAM – WITHOUT SUFFICIENT CHECKS & BALANCES.

Preventive Measures:

A MATERIAL CONTROL PROGRAM HAS BEEN ESTABLISHED ACCORDING TO WORK PROCEDURE #110, REV 11. TRAINING CLASSES HAVE BEEN HELD TO INSTRUCT HANGER PERSONNEL CONCERNING IMPLEMENTATION OF THE PROGRAM.

PWH 10/5/84 MHF P W Howard 9/26/84
Discipline Engineer / Responsible Supervisor — Date

Approved By: [signature] for RMP 9/26/84 RCM 10.5.84
Proj. Gen'l Mgr./Sr Res. Engineer/ Mgr. HPES/ General Mgr. — Date

CORRECTIVE DETAILS

(1) 1-SW-H-1570 NON-SEISMIC MATERIAL SUPPLIED FOR THIS HANGER WAS REMOVED AND SCRAPPED PER WORK DIRECTIVE #180260. (SEE ATTACHED COPY PAGE 5 OF)

(2) RESEARCH HAS SHOWN THAT THE 1" PLATE ISSUED FROM PO #21022 WAS ACTUALLY RECEIVED ON PURCHASE ORDER #19019. THE PLATE WAS REQUISITIONED FROM PO #19019 ON A WP-18 FORM (IE. #C-131Q) TO BE USED AT THE SITE FABRICATION SHOP.

PURCHASE ORDER #21022 WAS ASSIGNED TO THE SITE FABRICATION SHOP FOR STORAGE PURPOSES. THE PLATE WAS RELEASED FROM THE WP-18 FORM AND PLACED IN STORAGE UNDER PURCHASE ORDER #21022 BY CP&L PURCHASE RELEASE NUMBER 1 OF PO-H-21022. (SEE ATTACHED)

THE PLATE WAS THEN RELEASED TO THE FIELD UNDER THE STORAGE PURCHASE ORDER #21022 FOR INSTALLATION.

THE PURCHASE ORDER #21022 WAS VOIDED IN ERROR BY PURCHASING. THE P.O. WAS WRITTEN AFTER THE NUMBER WAS ASSIGNED, BUT WAS NOT RETURNED TO PURCHASING TO BE FILED.

CONTINUE

CONT (2) FOR ADDITIONAL ASSURANCE, THE PLATES IDENTIFIED AS COMING FROM PURCHASE ORDER # 21022 WILL BE PLACED IN THE SAMPLING PROGRAM.

(3) SEE RESPONSE # (6)

(4) THE END ATTACHMENTS ARE ACCEPTABLE AS IS ACCORDING TO THEIR PHYSICAL DIMENSIONS.

(5) 10 GAGE SHEET STEEL WAS RECEIVED ON PURCHASE ORDER # 41558. IT IS A STANDARD PRACTICE TO USE 10 GAGE SHEET STEEL WHERE 1/8" NONSTRUCTURAL SHIM STEEL IS REQUIRED ON HANGERS, SINCE THE THICKNESSES ARE APPROXIMATELY EQUAL. 10 GA. ≈ 0.134
1/8" ≈ 0.125

(6) PLATE 1/2" THICK WAS ORDERED AND RECEIVED ON PURCHASE ORDER # 435076 ON MRR # 14092. (SEE ATTACHED)

(7) SEE RESPONSE # (6)

(8) MATERIAL WAS RECEIVED ON CMR # 087571 AND CMR # 106839 WAS VOIDED.

(9) SEE RESPONSE #(1)

(10) THE STRUT ISSUED FOR THIS HANGER WAS RECEIVED FROM BERGEN-PATERSON FOR 1-CC-H-941. IT IS ACCEPTABLE ACCORDING TO ITS PHYSICAL DIMENSIONS.

(11) THE MATERIAL INSTALLED IN THE FIELD WAS MEASURED BY ENGINEERING AND FOUND TO BE ≈ 0.078" THICK, WHICH IS APPROXIMATELY 16 GAGE MATERIAL. SHIM MATERIAL IS NON-STRUCTURAL AND IS ACCEPTABLE AS IS.

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PAGE 5 OF 7

FORM NO. 80124
REV. 1
11/82

EXHIBIT 5
WP-110

NO - 12026

WORK DIRECTIVE

PIPE HANGER No AB-236-1-SW-H-1570 REV. 2S1 M1

DDR # 1775

SINCE THE MATERIAL FOR ITEMS # 3 AND # 9 WERE SUPPLIED FROM A NONSEISMIC HANGER, IT MUST BE REMOVED. CUT FIELD JOINTS # 7, # 8, # 9, # 13, # 10, ~~# 14~~ & # 15. SCRAP ITEMS # 9, # 5 AND BOTH # 3's. HAVE QC VERIFY THE ITEMS ARE SCRAPPED. MHF 9.20.84

NOTE: FOREMEN TO REVISE EXHIBIT # 4 TO WP 139, IN PACKAGE, TO SHOW A REQUIREMENT FOR NEW MATERIAL.

COMPLETED (HANGER FOREMAN)	DATE	ACKNOWLEDGED (C.I.)	DATE	ACKNOWLEDGED (Q.C.)	DATE
[signature]	9.25.84	N/A	9.20.84	Phil Allison	9.25.84

ACKNOWLEDGED (WELDING SUPV. FOR NON-Q)	DATE
N/A	9.20.84

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3/77
Rev. 4

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

RECEIVING INSPECTION REPORT

Date Received 7-26-79

Quality Release No. N/A

Item Name/Description	Shop Order	Code Class	Quantity	Unit	Quality Assurance Number (Purchase Order & Item No)
PLATE	N/A	Q	2	N/A	QA-H-19019-1

Serial Heat or Other Identification No. (Specify)	Supplier or Manufacturer	Type of Procurement
SEE REMARKS	CARBON STEEL PROD	☒ CP&L PO ☐ Transfer ☐ A-E PO ☐ NSSS PO

Base PO and CN's N/A

Project PO and CN's YES

Base E-Spec. and Rev. N/A

Project E-Spec./Dwg. and Rev. YES

Storage Level D

Special Handling/Inspections NONE

Physical Damage NONE

Identification and Marking SAT

Cleanness SAT

Protective Covers and Seals N/A

Coatings and Preservatives N/A

Inert Gas Blanket N/A

Desiccant and Indicator N/A

Lubricants N/A

Electrical Insulation N/A

User's Test N/A

*Material Certification YES

*Manufacturing Documentation YES

*Dimensions ~~and Weld Preps~~ SAT

*Workmanship SAT

*Inspection of these items not mandatory when Quality Release is received with shipment.

Remarks

ITEM	DESCRIPTION	QTY
1	1"x4'x8' PLATE H-19019 HT. 8934525	2

ORDER COMPLETE

SHIPPING AND HANDLING NOT SPECIFIED BY PO/SPEC

Inspected By: Robert Cates 7-26-79 — QC Inspector, Date

Reviewed By: David Whitehead 8/7/79 — QA Specialist, Date

White-RIR Package   Canary-Accounting   Pink-RIR Package (Temporary)

QA-H 19019-1

J 4 3 1 0 2 2

QA-6
2/20/79
Rev. 3

DDL #1775
PAGE 7 of 17

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

RECORDS REVIEW AND ACKNOWLEDGEMENT

Transmittal Letter No. N/A

QA-Quality Release No. H-90194 1 6

Item Name/Description	Shop Order	Code Class	Quantity	Unit	PO Number	Item No.
PLATE	N/A	Q	2	N/A	H-190..	

Serial Heat or Other Identification No. (Specify)	Supplier or Manufacturer	Type of Procurement
SEE REMARKS	CARBON STEEL PROD.	☒ CP&L PO ☐ Transfer ☐ A-E PO ☐ NSSS PO

Type of Documents Included

1	—	Document Index Sheet
2	—	Quality Releases and Supplements
3	—	Deviation Notices
4	—	Manufacturer's Data Report (Code Form)
5	—	Material Test Reports
6	—	Material Certificates of Compliance
7	—	Milestone Reports
8	—	Welding Data
9	—	Repair Records
10	—	Identification (Nameplate rubbing)
11	—	Heat Treatment Charts/Records
12	—	Ultrasonic Examination Reports
13	—	Magnetic Particle Examination Reports
14	—	Liquid Penetrant Examination Reports
15	—	Radiographic Examination Reports
16	—	Radiograph Film
17	—	Leak Test Reports
18	—	Hydrostatic Test Reports
19	—	Valve Minimum Wall Thickness Reports
20	—	Dimensional Reports
21	—	Performance Test Reports
22	—	Seismic Calculations or Test Reports
23	—	Certification of Compliance to Seismic Requirements
24	—	Cleaning, Painting and Packaging Reports
25	—	
26	—	
27	—	
28	—	
29	—	

A-E & NSSS PROCURED ITEMS

Records are Complete and Accepted

Reviewer's Signature _____ Date _____

SITE PROCURED ITEMS

Records are Complete and Accepted

BH

Reviewer's Signature _____ Date _____

REMARKS

[illegible] x 5'

For Information Only

KAD 10-9-84

QA RECORDS

Records Received and Filed in QA Records

(Signature) _____ Date _____

White-QA Records QR H-19019-1 Canary-Reviewer Pink-Tickler File

PHOENIX STEEL CORPORATION
CLAYMONT, DELAWARE 19703
MATERIAL TEST REPORT

SPECIFICATION ASME SA 36 ____ Doc.

Structural Steel ____ CUSTOMER ORDER NO.

SOLD TO Carbon Steel Products Corp.
88B Julia St.
Elizabeth, N.J. 07207

MILL ORDER NO. 1

CAR NO. TRUCK

HEAT NO.	SLAB NO.	C	MN	P	S	SI.	CU.	NI.	CR.	MO.				YIELD STRENGTH P.S.I.
80345-25		.12	1.08	.010	.019									46400

Carolina Power & Light
2 pcs 1" x 42 x 96"

DATE 7-26-79
P.O. # N-15079
VENDOR
CARRIER Smith
CHECKER NAME J. Woolard
MATERIAL LOCATION

SUBSCRIBED AND SWORN TO BEFORE ME

THIS ____ DAY OF ____

NOTARY PUBLIC

5/79 4

Exhibit 4
WP-18

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

MISCELLANEOUS STEEL FABRICATION REQUEST

DATE: 8-15-79

1. Requested by:	Date:	2. Cost Code:	3. Department	4. Request No.
Wayne T. Harris	8-15-79	218440 UC1653	Civil (Mech) Elect.	C-131Q REPAINT FOR TIME

5. Item No.	6. Qty.	7. Mark No.	8. Reference Documents	9. Forward To Field	Warehouse	10. Heat No.	11. Inspection Hold Points Material Inspector/Date	Fabrication Inspector/Date
1	15	1"x5"x5"	P.O.# 1909	Warehouse		89345-25		
2	15	1"x6"x6"	↓	↓		↓		
3	15	1"x7"x7"	↓	↓		↓		
4	~~10~~ 15	1"x8"x8"	↓	↓		↓		
5	~~10~~ 20	1"x10"x10"	↓	↓		↓		
6	10	1"x12"x12"	↓	↓		↓		

Remarks (By Item) Please fabricate these plates from the steel on P.O.# 1909. Edges of plate should be square and ready for fillet welding. Each plate should be marked with Heat number ~~and P.O. number~~ in permanent yellow paint. Remainder of steel should also be marked and returned to warehouse with these plates. Each plate should ~~be~~ have the HEAT NUMBER STAMPED with the Low-stress stamp. WTH 8/15/79

Construction Manager [signature] 8/15/79 Metallurgy/Welding Engineer Welding QA Specialist

Date ____________

For Information Only
KAD 10-9-84

[redacted]

SEE NOTE ATTACHED

CP&L

(12-F-18)

SHEARON HARRIS NUCLEAR POWER PLANT

PURCHASE RELEASE

RELEASE NUMBER	PURCHASE ORDER NO
1	H-21022

USED FOR	COST CODE	ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE
PLATE FOR PEE HANGERS			[illegible] STAINLESS PLATE [illegible] [illegible] CHECKING [illegible]				
		1	1" x 5" x 5"	32			
		2	1" x 6" x 6	15.			
		3	1" x 7" x 7	15			
		4	1" x 8" x 8"	14 [illegible]			
		5	1" x 10" x 10"	[illegible]			
		6	1" x 12" x 12"	12			

REQUISITION
DATE 9 18 74
[illegible] H21022
[illegible] Site Fab Shop
[illegible] Same
[illegible] NOTE Clayton [illegible]
MATERIAL LOCATION 12F18

REQUISITIONER: [illegible] [illegible] — [illegible]

PURCHASING APPROVAL

[redacted]

Request No. C-131Q
KAD 9-27-84

[redacted]

DDR # 7575
PAGE 10 of 17

PURCHASE REQUISITION

CAROLINA POWER & LIGHT COMPANY
POWER PLANT CONSTRUCTION DEPARTMENT
SHEARON HARRIS NUCLEAR POWER PLANT
P.O. BOX 101
NEW HILL, N. C. 27562

PAGE ____ OF ____

REQUISITION NUMBER	REQ. DATE	DATE MAT'L REQUIRED	PROMISED DEL	SHIP VIA	F.O.B.	TERMS	PURCHASE ORDER NUMBER	C / O
21022	8/29/79	N.A.						

REQUESTED BY	SUGGESTED SOURCES OR REMARKS
B. HAYNES	PLEASE MAKE AN EFFORT TO STORE MATERIAL ON RELEASES IN CLOSE PROXIMITY TO EACH OTHER IN THE WAREHOUSE

VENDOR
SHNPP SITE FAB SHOP

☐ CONFIRMING TELEPHONE ORDER BY ____
TO ____ ON ____
☐ ORIGINAL NOTIFICATION

USED FOR	COST CODE	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
PERMANENT PLANT EMBEDS FROM FAB SHOP	SEE INDIVIDUAL RELEASES		THE PURPOSE OF THIS ORDER IS TO ESTABLISH A BLANKET ORDER TO STORE MATERIAL WHICH HAS BEEN FABRICATED AT THE SITE FAB SHOP. ALL RELEASES WILL BE ACCOMPANIED BY A FIELD FAB REQUEST AND ANY APPLICABLE DRAWINGS. MATERIAL WILL BE TAGGED/BUNDLED AND TAGGED WITH ITEM NUMBER AND RELEASE NUMBER			1	

QUALITY ASSURANCE				DISCIPLINE ENG.	APPROVAL	BUYER CODE
INSPECTION ☐ REQUIRED	DOCUMENTATION ☐ REQUIRED	SUPPLIER APPROVAL ☐ REQUIRED	APPROVAL			

NO 150 (REV. 3/77)

CAROLINA POWER & LIGHT CO.

WAREHOUSE REQUISITION

DATE 5-19-80

QUANTITY	DESCRIPTION OF MATERIAL & TAG NUMBER	P. O. No.	Q/C
1	1" X 10" X 10" plate	21022	11 12118

INTENDED USE Hanger A-2-236-1-CC-H-105 (Deliver To McLEOD N-E CORNER OF R.A.B. #1

RECEIVED E.T. Hoffman 66/807 NAME and BADGE NO.

AUTHORITY: 6691 [illegible] FOREMAN OR SUPT.

ISSUED: 2-11-80 WAREHOUSEMAN

White: WAREHOUSE Gold: Q.A. Pink: ENGINEERING Green: STAGING Yellow: ORIGINATOR

PDIL #1775
PAGE 18 of 17

SHEARON HARRIS NUCLEAR POWER PLANT
P.O. BOX 101 · S.R. #1134
NEW HILL, N.C. 27562-0101

PURCHASE ORDER NO.
S-41558

DOIL#1775
PAGE 13 OF 17

NOTE: ORDER NUMBER MUST APPEAR ON ALL INVOICES, CORRESPONDENCE, SHIPPING PAPERS AND CARTONS.

ORDER DATE	SHIPMENT PROMISED BY	SHIP VIA	FOB	TERMS	REQ. NO.	BUYER COD
10/5/82	10/15/82	BW	JB	N/30	41558	WB

SUPPLIER

Peden Steel
P.O. Drawer 26208
Raleigh, N. C. 27611

IMPORTANT INSTRUCTIONS

1. ADDRESS ORIGINAL & (2) COPIES OF YOUR ITEMIZED INVOICE TO THE ABOVE ADDRESS ATTENTION ACCOUNTS PAYABLE DEPARTMENT.
2. ATTACH ORIGINAL BILL OF LADING SHIPPING RECEIPT TO INVOICE.
3. INVOICE MUST SHOW ITEM NUM SHOWN ON PURCHASE ORDER.
4. WHEN PREPAID ATTACH ORIGIN TRANSPORTATION RECEIPT.
5. EACH DISCOUNT PERIOD WILL B FROM RECEIPT OF INVOICE CORREC EXECUTED.

ITEM	DESCRIPTION		QUANTITY	UNIT		2	3	STORE
	Confirming telephone order to Ron Cover on 10/5/82. DO NOT DUPLICATE							
	Furnish the following:							12-F-6
1.	16 ga sheet steel (ASTM-A-569)	6" x 4'-0"	24	ea	57/ea			
2.	10 ga sheet steel (ASTM-A-569)	6" x 4'-0"	18	ea	1/8 ea			
3.	3/16" Tk plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
4.	1/4 TK Plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
5.	5/16" TK plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
6.	3/8" Tk plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
7.	1/2" Tk Plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
8.	5/8" Tk Plate (ASTM-A-36)	6" x 8'-0"	20	ea	20 ea			
9.	3/16" Tk plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea			
10.	1/4" TK Plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea			
11.	5/16" Plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea			
12.	3/8" Tk Plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea			

OCT 1982
S. H. N. P. P.
SITE WAREHOUSE

Shipper #1	Shipper #2	Shipper #3
Peden Steel		
Shipped from: Raleigh, N.C.	Shipped from	Shipped from
Car/Pro #: 0 Date Rec.: 10-14-82	Car/Pro # Date Rec.	Car/Pro # Date Rec.
Received by: Robert Spencer JH	Received by	Received by
Shippers order # Weight	Shippers order # Weight	Shippers order # Weight
Carrier: Lendor Prepaid/Collect	Carrier Prepaid/Collect	Carrier Prepaid/Collect

10-18-82

RECEIVING

POWER PLANT CONSTRUCTION DEPARTMENT

New Hill, N.C. 27562-0101

CONTINUATION S

PURCHASE ORDER NO.

N-41558

DDIL #1775
PAGE 4 OF 17

ITEM	DESCRIPTION		QUANTITY	UNIT	1	2	3 / 7	STOR
13.	1/2" Tk Plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea		10-9	12-C-
14.	5/8" Tk. Plate (ASTM-A-36)	8" x 8'-0"	20	ea	20 ea			

Material test reports required with shipment for items 3-14.

Certificate of Conformance to ASTM-A-569 for items 1 and 2.

Etch items # 1 & #2 using 1/4" min letters stating: (N-41558, Ga.).

(Low Stress) stamp items #3-14 using 1/4" min. letters stating: (N-41558, Thickness, and vendor heat #'s.).

TOTAL ORDER MAY VARY +/- 10%.

Acknowledge receipt and acceptance of this purchase order by return mail.

All Documentation required by this purchase order must be furnished in accordance with Attachment I of this purchase order, entitled "Certification Requirements", dated 1/30/81.

ATTACHMENT: Certification Requirements

OCT 1982
S. H. N. P. P.
SITE
WAREHOUSE

Anthony Vann

QA INSPECTION AND DOCUMENTATION REQUIRED

Shipper #1	Shipper #2	Shipper #3
Peden Steel		
Shipped from: Raleigh, N.C.	Shipped from	Shipped from
Car/Pro # — Date Rec. 10-14-82	Car/Pro # — Date Rec.	Car/Pro # — Date Rec.
Received by: Robert Spence Jr.	Received by	Received by
Shippers order # — Weight	Shippers order # — Weight	Shippers order # — Weight
Carrier: Vendor — Prepaid/Collect	Carrier — Prepaid/Collect	Carrier — Prepaid/Collect

10-18-82

RECEIVING

7/11/79 1

[illegible]DEN STEEL COMPANY

AREA CODE 919 PHONE 832-2081
P.O.DRAWER 26208 RALEIGH NC 27611

SHIPPING TICKET

LOAD NO........ 121
TRAILER NO..... 30
DATE SHIPPED... 6-13-79
SHIPPED VIA.... OT

[illegible] EBASCO SERVICES INC
[illegible] C2485P
[illegible]CATION OF JOB SHEARON HARRIS NUCLEAR
NEW HILL, N. C.
[illegible] 30

MRR 14092

DATE 6-13-79
P. O. # NY435076
VENDOR Peden Steel Co.
CARRIER Same
CHECKER NAME Manes
MATERIAL LOCATION L-20 E12
L20E-12

QUANTITY	S/Z	DIV.	SHIP-MARK	LOC.	DESCRIPTION		LENGTH	WEIGHT	BATCH
1	0	2	91F2	W	[illegible]		6- 4 1/4	155	B2101
1	0	2	91F5	W	14 X 30		5- 4	185	B2101
1	0	2	243F1	W	10 X 66	OBS	38- 6	4,349	B2101
2	0	2	359S2	C	8 X 11.5		8- 4 1/2	306	B2101
1	0	2	359S5	J	8 X 17	OBS	8- 4 1/2	150	B2101
1	0	2	359S9	C	8 X 11.5		4- 8	75	B2101
1	0	2	361S1	C	8 X 11.5		8- 4 1/2	157	B2101
1	0	2	361S3	C	8 X 11.5		4- 7 3/4	97	B2101
1	0	2	361P4	W	10 X 15		10-10 3/4	207	B2101
1	0	2	365S1	WT	4 X 8.5	OBS	39- 3	427	M2119
1	0	2	365P4	L	3 X 3 X 1/4		6-10	71	M2119
1	0	2	365P5	L	3 X 3 X 1/4		5- 6	55	M2119
1	0	2	366P1	L	3 X 3 X 1/4		8- 5	74	M2119
1	0	2	366P2	L	3 X 3 X 1/4		6- 4 1/2	71	M2119
1	0	2	366P3	L	3 X 3 X 1/4		3- 7	102	M2119
1	0	2	373P5	L	4 X 4 X 3/8		14- 9 1/4	148	M2119
1	0	2	388P2	C	10 X 15.3		7-11	135	B2101
1	0	2	389P13	W	10 X 15		6-10 1/2	120	B2101
1	0	2	393S1	L	3 1/2 X 3 1/2 X 3/8		7- 8 1/4	73	M2119
1	0	2	393S2	L	3 1/2 X 3 1/2 X 3/8		7- 8 1/4	73	M2119
2	0	2	393S3	L	5 X 5 X 5/16		11- 9 1/2	129	M2119
1	0	2	393S4	L	3 1/2 X 3 1/2 X 3/8		7- 8 1/4	73	M2119
1	0	2	393S5	L	3 1/2 X 3 1/2 X 3/8		7- 8 1/4	73	M2119
1	0	2	393S6	L	3 X 3 X 1/4		6-10	41	M2119
1	0	2	393S7R	L	3 1/2 X 3 1/2 X 3/8		9-11	92	M2119
1	0	2	393S7L	L	3 1/2 X 3 1/2 X 3/8		9-11	92	M2119
4	0	2	393S8	L	5 X 5 X 5/16		13-11 3/4	608	M2119
1	0	2	418D2	WT	5 X 16.5		6- 2 3/8	131	M2119
1	0	2	418D3	WT	5 X 16.5		6- 7 1/4	138	M2119
1	0	2	418D6	WT	5 X 16.5		6- 6 1/4	137	M2119
1	0	2	35D4	W	21 X 44		7-10 1/4	395	B2201

For Information Only
KAO
10-9-84

over 276D2 W

?11/7? PAGE 2 PEDEN STEEL COMPANY SHIPPING TICKET

CUSTOMER NAME EBASCO SERVICES INC

CUSTOMER I.D.

JOB NUMBER C348EP

LOCATION OF JOB SHEARON HARRIS NUCLEAR

NEW HILL, N. C.

[illegible] 30

DATE SHIPPED............

SHIPPED VIA............

MRR14892

DATE 6-13-79

P. O. # NY435076

VENDOR Peden Steel Co.

CARRIER Same

CHECKER NAME Manes

MATERIAL LOCATION L20 F12

QUANTITY	S/S	DIV.	SHIP-MARK	LOC.	DESCRIPTION		LENGTH	WEIGHT	BATCH
[illegible]	0	2	35D6	W	[illegible]		?-10 1/4	790	B2201
[illegible]	0	2	35D10	W	24 X 55		?-10 1/2	318	B2201
1	0	2	36D8	W	[illegible]		2- 7	179	B2201
1	0	2	37D10	W	10 X 21	OBS	5- 4	128	B2201
1	0	2	38D5	W	8 X 31		2- 7	113	B2201
1	0	2	39D7	W	8 X 17	OBS	3-10 1/4	145	B2201
1	0	2	39D12	W	8 X 17	OBS	3-10 1/4	209	B2201
[illegible]	0	2	89D1	W	8 X 17	OBS	5-10 1/4	232	B2201
1	0	2	89D6	C	9 X 13.4		1- 5 1/2	53	B2201
1	0	2	96V1	L	2 1/2 X 2 1/2 X 1/4		3- 7	32	M2119
1	0	2	96V3	L	2 1/2 X 2 1/2 X 1/4		3- 4	31	M2119
1	0	2	96V4	L	3 X 3 X 3/8		3- 2	24	M2119
1	0	2	96P5	L	3 X 3 X 1/4		3- 1 3/4	17	M2119
1	0	2	Loc 20 E12 223D1	W	8 X 35		38- 9	1,896	F2102
1	0	2	Loc 20-E12 226D1R	W	8 X 31		39- 1/2	1,664	F2102
1	0	2	277D1	W	8 X 31		7- 3	302	F2102
1	0	2	295D1	W	8 X 31		8- 1	564	F2102
1	0	2	297D2	W	8 X 31		9-	523	F2102
1	0	2	321D1	W	8 X 31		7- 7 1/2	583	F2102
1	0	2	343W11	WT	6 X 13.5	OBS	9- 7	153	M2119
[illegible]	0	[illegible]	343W12	L	3 1/2 X 3 1/2 X 3/8		9- 9 1/2	83	M2119
[illegible]	0	2	343W13	L	3 1/2 X 3 1/2 X 3/8		8- 4 1/2	71	M2119
[illegible]	0	2	344W2	C	12 X 20.7		18- 4 3/4	424	M2102
1	0	2	370W5	C	10 X 15.3		8- 8 1/2	197	M2102
1	0	2	370W6	C	10 X 15.3		8- 8 3/4	198	M2102
1	0	2	371W2	C	12 X 20.7		8- 5/8	197	M2102
1	0	2	371W3	C	12 X 20.7		8- 8 1/2	211	M2102
1	0	2	371W7	C	8 X 11.5		8- 1/2	125	M2102
1	0	2	507D1	W	12 X 27	OBS	4- 8 1/2	450	B2201
1	0	2	507W2	L	2 1/2 X 2 1/2 X 1/4		2-11 1/4	34	B2201
2	0	1	131F3	PL	18 X 1/2		3- 8 1/2	228	G0114
1	0	1	131F4	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1	131F5	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1	131F6	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1	131F7	PL	18 X 1/2		3- 8 1/2	114	G0114

[illegible] OK 10-9-84

NCR# 1995 PAGE [illegible]

/11/79 PAGE 2

PEDEN STEEL COMPANY

SHIPPING TICKET

DATE SHIPPED........

SHIPPED VIA........

CUSTOMER NAME EBASCO SERVICES INC

CUSTOMER I.D.

JOB NUMBER C748EP

LOCATION OF JOB SHEARON HARRIS NUCLEAR
NEW HILL, N. C.

TRIC NUMBER 36

QUANTITY	S/S	DIV.		SHIP-MARK	LOC.	DESCRIPTION		LENGTH	WEIGHT	BATCH
[illegible]	0	2		35D8 ✓	W	[illegible]		7-10 1/4	790	B2201
[illegible]	0	2		35D16 ✓	W	24 X 55		3-10 1/2	318	B2201
1	0	2		36D8 ✓	W	[illegible]		2- 7	178	B2201
1	0	2		37D10 ✓	W	10 X [illegible]	OBS	5- 4	128	B2201
1	0	2		38D5 ✓	W	8 X 31		2- 7	113	B2201
1	0	2		39D7 ✓	W	8 X 17	OBS	3-10 1/4	145	B2201
1	0	2		39D12 ✓	W	8 X 17	OBS	3-10 1/4	209	B2201
[illegible]	0	2		89D1 ✓	W	8 X 17	OBS	5-10 1/4	232	B2201
1	0	2		89D6 ✓	C	9 X 13.4		1- 5 1/2	53	B2201
1	0	2		96V1 ✓	L	2 1/2 X 2 1/2 X 1/4		3- 7	32	M2119
1	0	2		96V3 ✓	L	2 1/2 X 2 1/2 X 1/4		3- 4	31	M2119
1	0	2		96V4 ✓	L	3 X 3 X 3/8		3- 2	24	M2119
1	0	2		96P5 ✓	L	3 X 3 X 1/4		3- 1 3/4	17	M2119
1	0	2	Loc L20 E12	223D1 ✓	W	8 X 35		38- 9	1,896	F2102
1	0	2	Loc L20-E12	226D1R ✓	W	8 X 31		39- 1/2	1,664	F2102
1	0	2		277D1 ✓	W	8 X 31		7- 3	302	F2102
1	0	2		295D1 ✓	W	8 X 31		8- 1	564	F2102
[illegible]	0	2		297D2 ✓	W	8 X 31		9-	523	F2102
[illegible]	0	2		321D1 ✓	W	8 X 31		7- 7 1/2	583	F2102
1	0	2		343W11 ✓	WT	6 X 13.5	OBS	9- 7	153	H2119
[illegible]	0	[illegible]		343W12 ✓	L	3 1/2 X 3 1/2 X 3/8		9- 9 1/2	83	M2119
[illegible]	0	2		343W13 ✓	L	3 1/2 X 3 1/2 X 3/8		8- 4 1/2	71	M2119
[illegible]	0	2		344W2 ✓	C	12 X 20.7		18- 4 3/4	424	M2102
1	0	2		370W5 ✓	C	10 X 15.3		8- 8 1/2	197	M2102
[illegible]	0	2		370W6 ✓	C	10 X 15.3		8- 8 3/4	198	M2102
1	0	2		371W2 ✓	C	12 X 20.7		8- 5/8	197	M2102
1	0	2		371W3 ✓	C	12 X 20.7		8- 8 1/2	211	M2102
1	0	2		371W7 ✓	C	8 X 11.5		8- 1/2	125	M2102
1	0	2		507D1 ✓	W	12 X 27	OBS	4- 8 1/2	450	B2201
1	0	2		507W2 ✓	L	2 1/2 X 2 1/2 X 1/4		2-11 1/4	34	B2201
2	0	1		131F3 ✓	PL	18 X 1/2		3- 8 1/2	228	G0114
1	0	1		131F4 ✓	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1		131F5 ✓	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1		131F6 ✓	PL	18 X 1/2		3- 8 1/2	114	G0114
1	0	1		131F7 ✓	PL	18 X 1/2		3- 8 1/2	114	G0114

MRR 14892

DATE 6-13-79
P. O. # N7436076
VENDOR Peden Steel Co.
CARRIER Same
CHECKER NAME Mance
MATERIAL LOCATION L20 F12 / L20 E12

For Information Only
KPD 10-9-84

FOIL #1775 PAGE 17 OF 17

Rev. 2
10/81

Exhibit 1
TP-49

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

DEFICIENCY NOTICE

No. DN-010

Item/Activity Description	Unit	Location or Placement No.
4FW20-1-1 (DISCHARGE LINE FOR STEAM GENERATOR FEED PUMP 1A-NNS)	1	TURBINE ℄ 270

Violated Section of Specification, Drawing, Procedure or Other	DN Issuer
CWP-103, WP-105 & 2165-G-107502	ED WILLIAMS

Nonconformance Details: THE WELDING SEQUENCE (DESCRIBED ON PAGES 2 & 3) IN CONJUNCTION WITH THE COUPLING FACE READINGS (PAGE 4) AND THE LACK OF SUFFICIENT RIGID RESTRAINTS (HANGERS/SUPPORTS SHOWN ON PAGES 5 & 6) INDICATE SEVERE NOZZLE LOADS HAVE BEEN IMPOSED ON THE DISCHARGE NOZZLE OF THE STEAM GENERATOR FEED PUMP 1A-NNS.

Page 1 of 6

Item Evaluation Needed Per AP-LX-16:

☐ NO
☑ YES

[signature] 7-30-81
DN Issuer's Supervisor — Date

Corrective Action & Resolution Details: (Attach supporting documentation.)

Attached Documents (Specify)

Prim. Disc. Eng./Sr. Res. Eng. — Date

Distribution:

Original E.E. WILLETT
Principal Discipline Engineer

cc: Site Manager
Senior Resident Engineer
CI Unit Supervisor
QA/QC Unit Supervisor

ED WILLIAMS

Resolution Verified and Accepted:

DN Issuer — Date

Resolution Acknowledged:

DN Issuer's Supervisor — Date

FORM 1922

W/R 7-30-82
~~PAGE 1 OF 3~~
PAGE 2 OF 6
AN-M-010

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105

Location TURBINE BUILDING Inspector ED WILLIAMS

Elevation 261 ~~Shift~~

~~Weather~~

COMMENT

ON JULY 9, 1982, AN ALIGNMENT READING WAS TAKEN ON STEAM GENERATOR FEED WATER PUMP (1A-NNS) BEFORE ANY FIELD WELDS WERE MADE ON 4-FW 20-1-1. ALIGNMENT READING IS SHOWN BY FIGURE "A" ON ACCOMPANYING SKETCH.

ON JULY 14, 1982 FIELD WELD #222 WAS MADE ON 4FW 20-1-1, BUT NO ALIGNMENT READINGS ARE AVAILABLE ON THIS DATE.

ON 7-15-82, FIELD WELD #220 WAS STARTED AND ALIGNMENT READING IS SHOWN BY FIGURE "B" ON ATTACHED SKETCH. PRIOR TO FIELD WELD #220, ROOT PASS HAD BEEN MADE ON FIELD WELD #214. THE NEXT DAY, 7-16-82, FIELD WELD #220 WAS COMPLETED AND ALIGNMENT READING IS SHOWN BY FIGURE "C." AFTER PIPE WAS ALLOWED TO COOL OVER THE WEEKEND, AN ALIGNMENT READING WAS TAKEN ON 7-19-82 (CONT)

INSPECTOR Ed Williams

Q A REVIEW

FORM 1922

~~PAGE 2 OF 3~~

PAGE 3 OF 6
DN-11-010

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105

Location TURBINE BUILDING Inspector ED WILLIAMS

Elevation 261 ~~Shift~~

~~Weather~~

COMMENT

AND IS SHOWN BY FIGURE "D" ON ATTACHED SKETCH.

DURING JULY 20, 21, 22, & 23, 1982 THE CLOSURE WELD WAS MADE AT FIELD WELD #21 WHICH ALIGNMENT READINGS ARE SHOWN BY FIGURES "E," "F," "G," & "H" RESPECTIVELY. DURING THIS TIME, THE TEMPORARY WELDS ON KEY BLOCK WERE BROKEN, WHICH WERE MADE AFTER PRELIMINARY ALIGNMENT.

~~PRIOR TO~~ ANCHOR BOLTS HAD BEEN SNUGGED DOWN DURING PHASE II INSPECTION IN FEBRUARY 1982.

ALL READINGS SHOWN ARE CONCENTRICITY ALIGNMENTS, EXCEPT IN FIGURES "E," "F," "G," & "H" THE PARALLELITY READINGS ARE SHOWN INSIDE THE CIRCLE.

INSPECTOR Ed Williams

Q A REVIEW

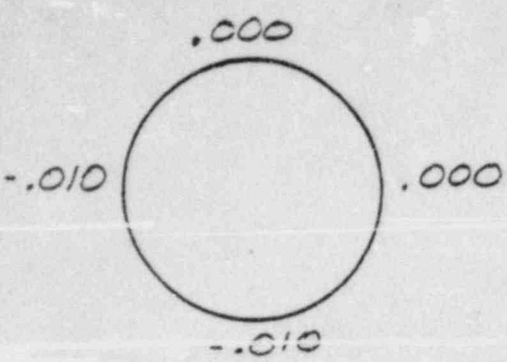


FIGURE "A"

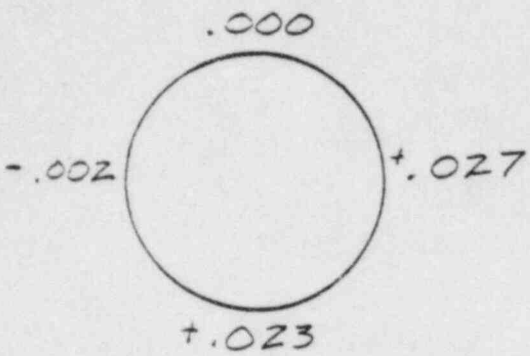


FIGURE "B"

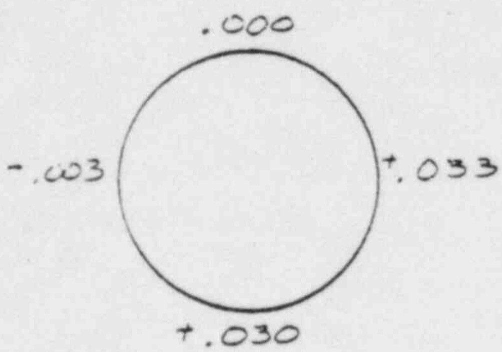


FIGURE "C"

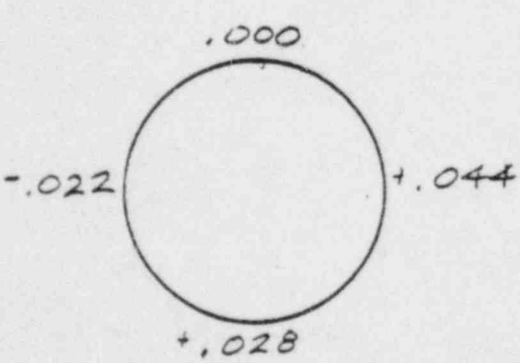


FIGURE "D"

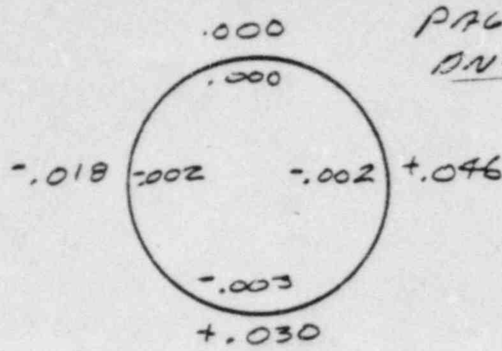


FIGURE "E"

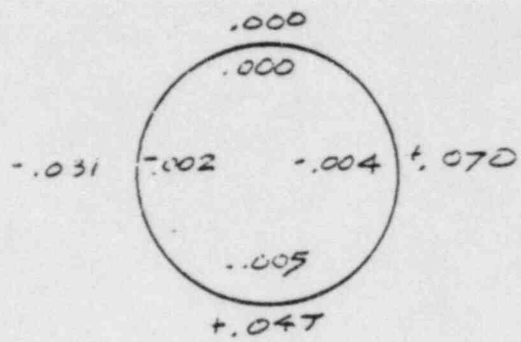


FIGURE "F"

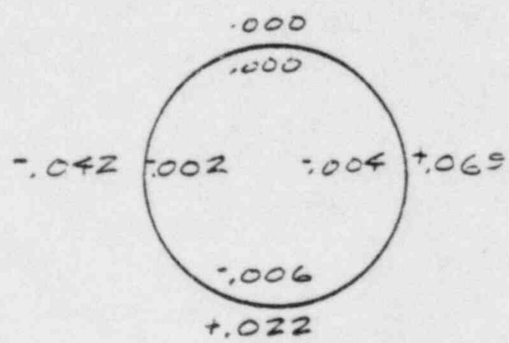


FIGURE "G"

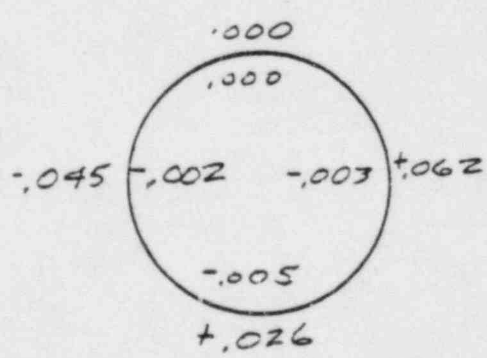
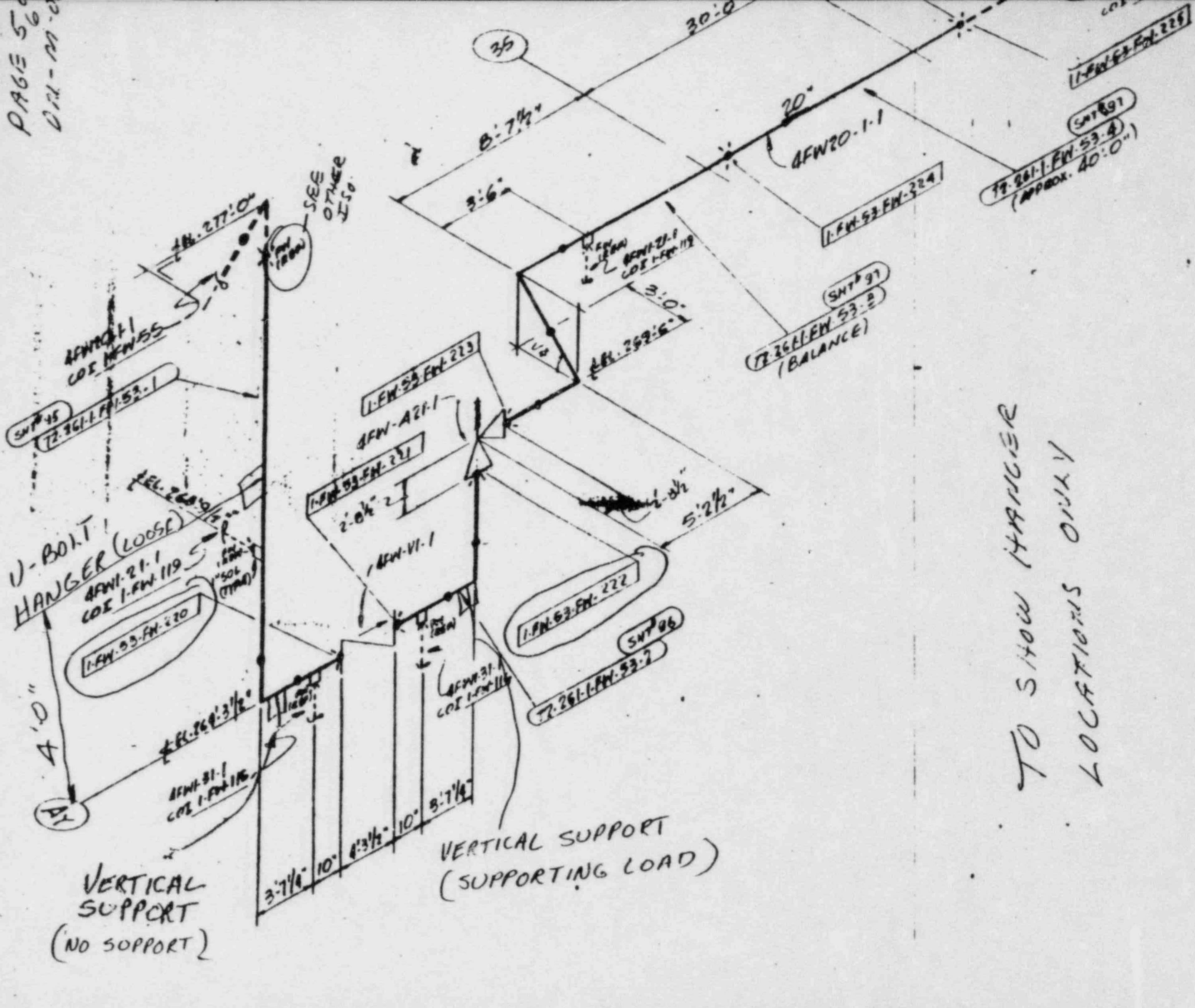
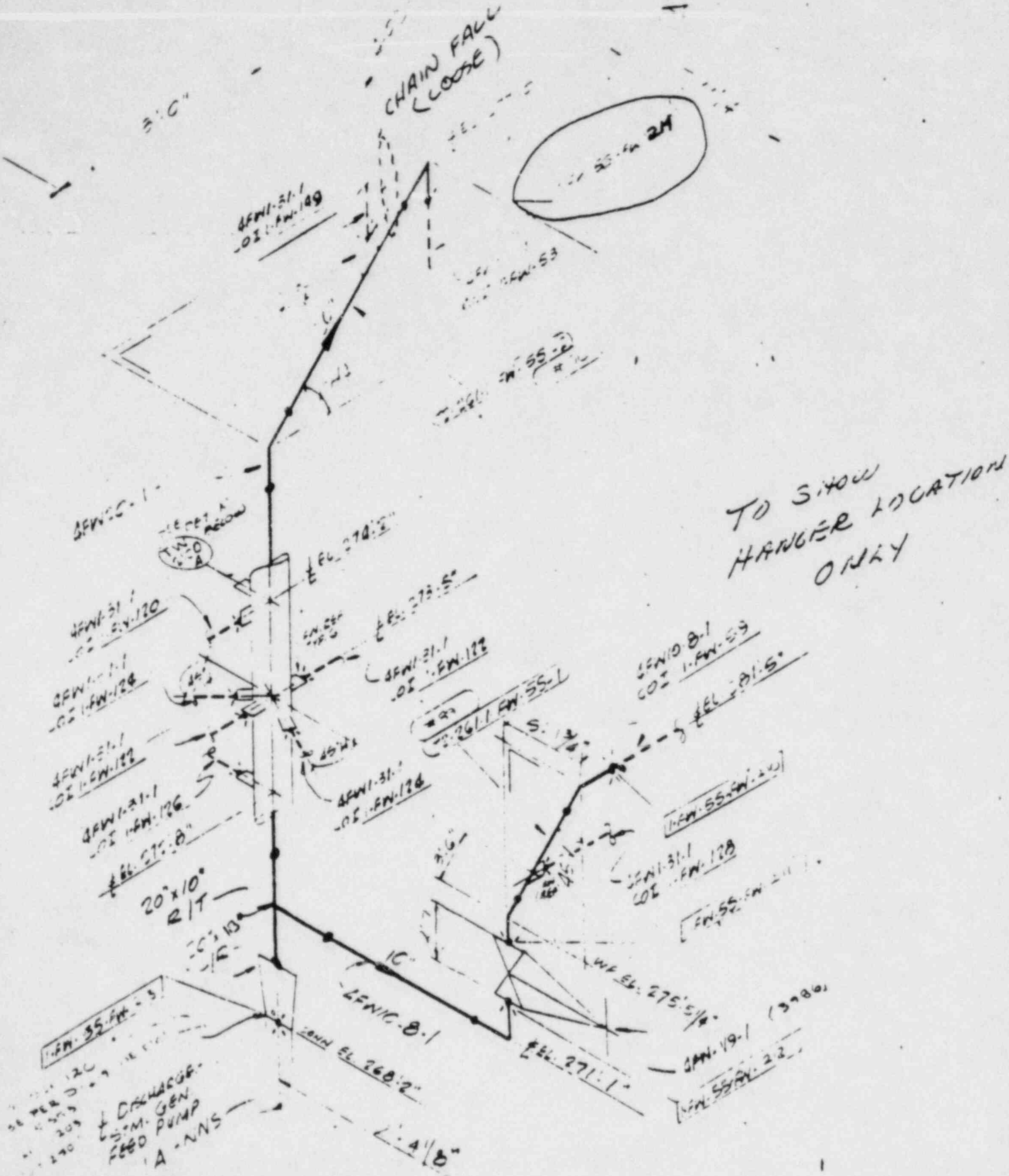


FIGURE "H"



30'-0"
35
8'-7½"
20"
4FW20-1-1
3'-6"
1-FW-53-FW-224
1-FW-53-FW-225
SNT#97
T7-261-1-FW-53-4
(APPROX. 40'-0")
3'-0"
SNT#97
T7-261-1-FW-53-2
(BALANCE)
EL. 269'-6"
1-FW-53-FW-223
4FW-A21-1
1-FW-53-FW-221
2'-0¼"
4FW-V1-1
5'-2½"
1-FW-53-FW-222
SNT#96
T7-261-1-FW-53-2
EL. 277'-0"
SEE OTHER ISO
4FW1-1
COI HFW-55
SNT#95
T7-261-1-FW-53-1
EL. 268'-0½"
U-BOLT
HANGER (LOOSE)
4FW1-21-1
COI 1-FW-119
1-FW-53-FW-220
EL. 264'-3½"
4'-0"
4FW1-31-1
COI 1-FW-116
4FW-31-1
COI 1-FW-116
3'-7¼"
10"
4'-3½"
10"
3'-7¼"
VERTICAL SUPPORT
(SUPPORTING LOAD)
VERTICAL SUPPORT
(NO SUPPORT)
TO SHOW HANGER LOCATIONS ONLY


CHAIN FALL
(LOOSE)
3'-0"
4FW1-31-1
-01 1-FW-129
4FW1C-1
4FW1-31-1
-01 1-FW-120
℄ EL. 278'-5"
4FW1-31-1
-01 1-FW-122
4FW1-31-1
-01 1-FW-126
℄ EL. 275'-8"
20"x10"
R/T
10"
4FW1C-8-1
CONN EL 268'-2"
℄ EL. 271'-1"
2'-4 1/8"
℄ DISCHARGE
STM. GEN
FEED PUMP
A-NNS
4FW10-8-1
-01 1-FW-59
℄ EL. 281'-5"
1-FW-55-1
1-FW-55-FW-3
4FW1-31-1
-01 1-FW-128
W.P. EL. 275'-5 1/8"
TO SHOW
HANGER LOCATION
ONLY

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY and NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY	)	Docket No. 50-400 OL
	)	
(Shearon Harris Nuclear Power Plant)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Response to Late-Filed Contentions of Wells Eddleman and Conservation Council of North Carolina Based on the Affidavit of Mr. Chan Van Vo" were served this 13th day of November, 1984, by deposit in the U.S. mail, first class, postage prepaid, upon the parties listed on the attached Service List, except for those parties upon whom a copy was personally served at the hearings held in Apex, North Carolina.

John H. O'Neill, Jr.

Dated: November 13, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-400 OL
and NORTH CAROLINA EASTERN	)	
MUNICIPAL POWER AGENCY	)	
	)	
(Shearon Harris Nuclear Power	)	
Plant)	)	

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