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BUCKET NUMBER 50-400 - DIS.
PROD. & UTIL. FAG. (2.206)

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USNRC

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
BEFORE THE DIRECTOR
OF
REACTOR REGULATION

October 17, 1986

In the Matter of)
)
CAROLINA POWER AND LIGHT CO.)
and NORTH CAROLINA EASTERN)
MUNICIPAL POWER AGENCY)
)
(Shearon Harris Nuclear Power)
Plant))

(2.206)

Docket Number 50-400
10 C.F.R. 2.206

Wells Eddleman and
Coalition for Alternatives
to Shearon Harris
Petition Pursuant to 10 C.F.R. 2.206

Introduction

Now comes the Coalition for Alternatives to Shearon Harris (CASH), and Wells Eddleman, pursuant to 10 CFR 2.206, seeking to revoke, suspend or modify the Construction Permit held by Carolina Power and Light Company for the Building of the Shearon Harris Nuclear Power Plant (SHNPP).

Petitioners respectfully request that pursuant to 10 CFR 2.202, the Director of Reactor Regulation require CP&L to Show Cause why their Construction Permit should not be revoked, suspended or modified, where:

- I. A systematic breakdown occurred in Applicant's Quality Assurance Program, in the areas of electrical safety related components, evidenced by patterns of violations, and failed implementation of Applicant's QA Program. A systematic breakdown in QA violates NRC regulations and negatively impacts the probability of safe operation at the SHNPP.
- II. Applicant has failed to demonstrate to the NRC, or the people, that it possesses the requisite character, and technical capability required to operate the SHNPP. Recent Department of Labor decisions, in September, 1986, where a DOL complaintant, responsible for design characteristics of safety-related cables, repeatedly brought to Applicant's attention that regulations were not being met; CP&L fired that engineer. The DOL determined that management was harrassing and coercing engineers to gloss-over obvious design errors in order to maintain schedule, and that firing was wrongful because such activities are protected under the Atomic Energy Act. Another DOL complaintant was concerned with his health and safety when forced by CP&L management

to perform inspections during Hot Functional Testing. DOL determined that complaintant's fear was grounded in fact, and was reasonable due to documented examples of excessive pipe movement, leaks and component failures. Complaintant was granted reinstatement to his position because refusal to work during dangerous conditions is a protected activity under 42 U.S.C. § 5851. Note the connection between the arguments concerning Quality Assurance and the nature of the complaintant's DOL claims (particularly QA breakdowns and firing of Electrical Engineers and Inspectors).

III. Information, from a confidential informant, concerning systematic falsification of documentation by Applicant's employees, improper performance of construction procedures, and improper document signing-off by unqualified employees, calls into question the Applicant's QA program, and whether the SHNPP can be licensed with the required assurances for safety, without a complete reinspection of primary and secondary safety components.

The Applicant should be required to demonstrate to the satisfaction of the Director and the Commission that construction is complete and all questions concerning allegations raised herein have been answered.

I.

On July 30, 1986, a meeting was held at NRC Region II Office in Atlanta to review ongoing remedial activities by the Applicant involving electrical cable separation requirements. (SEE: Regulatory Guide 1.75, Physical Interdependency of Electronic Systems). The Applicant has committed to following this RG.* Conversation during the meeting involved "interaction points"

which violate the RG and are evidenced by the cables installed at the SHNPP.
 7-1-74 "CP&L's position vs position of Reg. Guides", confirmed
 4-21-75 in letter to NRC

This meeting represents the culmination of a consistent pattern of violations and deviations from NRC regulations which continue to impact the electrical components and cables at the SHNPP, and further evidence a systematic breakdown in Applicant's QA program. Clearly, the evolution of the problem with electrical cables and components demonstrates that the Applicant is unable to remedy defects and implement a successful QA program.

Four years ago, in 1982, Mr. G.F. Maxwell conducted a routine inspection of the plant. Mr. Maxwell's inspection resulted in inspector-discovered violations of 10 CFR 50.55 (e). That Quality Control Regulation provides in pertinent part that:

"...the holder of a (construction) permit shall notify the Commission of each deficiency found in design and construction, and which represents:

1. a significant breakdown in any portion of the Quality Assurance

(1) A significant breakdown in any portion of the Quality Assurance program conducted in accordance with the requirements of Appendix B.

The standard in 10 CFR 50 Appendix B. provides that the Applicant shall:

"...implement a program assuring that activities affecting quality be accomplished in accordance with prescribed procedures; and that conditions adverse to quality be promptly identified and corrected..."

Items discussed in Mr. F. J. Long's letter dated April 14, 1982, focused on Applicant's "...failure to identify and correct nonconforming conditions in electrical cable supports (400-81-25-01). Petitioners leave aside the question of whether the Applicant responded in a timely manner--there was no formal evaluation of the item for over 48 days from notification that construction difficulties may exist.

The NRC inspectors concluded that:

1. Only deficiencies identified by the NRC Region II inspectors were uncovered; and,

2. Inspectors noted numerous examples of breakdowns in Applicant's QA Program which amount to potentially non-confirming conditions, including problems with two installed Heating Air Conditioning and Ventilation seismic supports, which share common vertical supports with seismic support electrical tray members. Region II identified improperly applied fillet welds, and; adjacent hangers which did not have welds applied in the location prescribed on the applicable drawings.

Applicant continued to have significant problems with electric cables and supports. In September of 1983, Applicant compounded the welding and QA problems when Mr. P.E. Frederickson, NRC Region II, examined activities related to installation of seismic cable tray supports. "...it was found that certain activities appear to violate NRC requirements." (Letter to E.E. Utley from R.C. Lewis. Subject: Report Nos. 50-400/83/24, and 50-401/83-24). Again, as in 1982, 10 CFR 50 Appendix B (Quality Assurance) was cited as the basis under which the Applicant violated NRC regulations.

"...Applicant's failure to establish measures to assure that conditions adverse to quality are promptly identified and corrected...because the Quality Assurance program, as implemented, provides for (1) multiple inadequate control interfaces; (2) voiding and cancellation of quality documents which are inadequately controlled; (3) trending of nonconformancies does not include all types of nonconformancies at the site."

In addition to systematic problems with QA--Applicant violated NRC regulations where construction inspectors signed off on cable tray supports. In this Report, three violations were noted. Cable trays were not inspected by Applicant for conformance to drawing requirements, and two examples of improper fabrication not discovered during inspection.

The Region II inspector determined that the Applicant's QA program was weak, it did not address significant procedures required of a minimally adequate program, and the QA program, as it existed in 1983, was in violation

of 10 CFR 50, Appendix B. (SEE: Letter, Report Details, supra, at p. 9).

In a September 29, 1983 letter responding to the September 1, 1983 violations, Mr. R.M. Parsons, Project General Manager (SHNPP), admitted that 10 CFR 50 Appendix B was indeed a severity level IV violation and expected compliance with the regulations by February 1, 1984; however, such was not the case.

On March 12, 1985, Mr. D.M. Verrelli issued a Notice of Violation (Report No. 50-400/85-04) the third violation of 10 CFR 50.55 issued within three years. More significantly, the component involved in the QA violation was "...an electrical separation problem between electrical safety-related conduit 1610v-SA, and non-safety related conduit X1700 and X1701 (Plant Points 3042 and 3044 in the Reactor Auxiliary Building at 286).

Although cable trays had been previously inspected and accepted by C&I personnel--the problem was not identified during that inspection.

The second QA violation involved the Applicant's failure to identify, during their inspection and QA process, the existence of undersized electrical cable in the D.C. panel DP-IASA.

Subsequent violations of 10 CFR 50 Appendix B and 10 CFR 50.55 demonstrate that the Applicant's QA program failed to function in the intended manner. The program systematically broke down in the areas of electrical cables and related safety components.

In a May 29, 1985 letter from R.M. Parson to Dr. J.N. Grace, re: fire barriers-tack welds reportable under 10 CFR 50.55(e), Applicant's failure to inspect tack welds resulted in the possibility that panels could drop onto safety related cable and equipment, particularly the auxiliary central panel (the anticipated date of completion was January 1986).

In a July 1, 1986 letter from Mr. R.A. Watson to Dr. N.J. Grace re: fire barriers (as above), Applicant conceded that "...tack welds are required for structural support of the fire barrier panels--but were not inspected." Applicant proposed to remedy the problem by installing a cover over the safety related sections (i.e., the cable spread room, the Auxiliary Control Panel Room, and the Auxiliary Control Panel).

The electrical cable separation issue has been an issue of continuous controversy and relates to inspection procedures and the Applicant's chronic inability to comply with the requirements of 10 CFR 50 Appendix B and 50.55.

In an August 11, 1986 letter from Mr. P.E. Fredrickson, the focal issue concerned the Reactor Auxiliary Building: CP&L had previously reviewed two rooms in the RAB; subsequently the NRC during inspections identified new violations. These violations were not previously identified by QA personnel. After repeated violations, CP&L "...planned to increase QA surveillance manpower...to achieve more consistent results and continue training of supervisory and inspection personnel." During the August 11 discussion, the Regional Administrator expressed concern that Applicant was changing their program based upon NRC concern, when problems should have been recognized and changed independently by CP&L.

Mr. Fredrickson, in the same letter, referred to a telephone conversation on July 31, 1986 (A. Herdt and D. Verrelli, NRC, and; M. McDuffy and A. Watson, CP&L). Apparently, CP&L planned to perform "...100% surveillance of all electrical cable and equipment within an area." (Fredrickson letter, 8/11/86, @ p.2). Clarification and apparent agreement reached was understood to mean that Applicant would "...as a minimum, CP&L will do 100% reinspection of all engineered safety feature (ESF) systems for compliance with

RG 1.75 as modified (SEE: Wyle Laboratory Analysis). (Fredrickson Letter, id.).

Petitioners respectfully request that the Director require Applicant to complete and document that 100% reinspection of all ESF systems have been completed; that NRC Region II has independently reinspected all ESF systems; and, that Applicant fully complies with the requirements found in RG 1.75.

Mr. D. Verrelli sent Mr. E.E. Utley a Notice of Violation on July 15, 1986 (50-400/85-48) concerning Applicant's violation of data control procedure, "technical entries or evaluations would change with no explanation or evidence of additional investigation." This violation was in reference to Non-destructive Examination of Data Sheets (50-400/85-84-03).

Another "unresolved" item concerned a diagram which outlined assignments for the flow of inspection data, and allowed the lead examiner to review examination data sheets for technical and administrative accuracy, ...and then a subsequent step allowed the same individual to sign off the data as the technical reviewer." (50-400/85-48-04). This is clearly a violation of 10 CFR 50 Appendix B, I, III, XIV.

Petitioners have demonstrated that there is a direct correlation between the consistent pattern of breakdowns in Quality Assurance and the chronic problems CP&L are presently experiencing regarding the cable separation issues. It is significant that the Applicant's SALP (January, 1986) identified numerous weaknesses in inspection, and lack of management attention to detail. For instance, where EBASCO's verification process was determined to be ineffectual, due to the numbers of deficiencies found during NRC inspection--numerous design-related violations were reported (including slender struts not designed to address excitation or eccentricities; and piping equipment and components, which could affect seismic safety equipment, inadequately analyzed in terms of design). Petitioners will amend this 2.206 as needed to more fully develop the factual basis for the QA argument.

II.

In addition to the systematic breakdown in CP&L's Quality Assurance Program, Applicant, or its agent, in September of 1986, in a contested Department of Labor claim, was required to rehire two employees who were wrongfully discharged. Both individuals had raised issues to CP&L management concerning safety issues and both were fired as a result of asserting rights which the DOL determined were protected under 42 USC § 5851. A short summary of each case will demonstrate the lengths to which the Applicant, in an effort to maintain its construction and completion schedule, without regard for the safety of employees or plant design, endangered inspection employees and quashed internal complaints concerning design specifications.

In *McWeeney v CP&L*, DOL stated the applicable standard: "discrimination, based on competent and aggressive work in the area of safety is forbidden. Employees engaged in protected activities cannot be discriminated against because they did their job too well." (Letter from Mr. James C. Stewart (DOL) to Mr. Dale Hollar (CP&L) 9/18/86). McWeeney raised safety concerns regarding engineering calculations performed on electrical cable tray supports, asserting that such trays may not be adequate for the intended purpose; Work Package EN 26627T-A4, Support 627 T, Generic Detail G (drawing 2168-G-251 S01) is cited as a common example. McWeeney stated that there was encouragement by management during the substantiation of inspection deficiency reports of the use of phrases such as: "acceptable by engineering judgement" and "considered adequate by engineering judgement".

Mr. McWeeney's concerns were documented by Mr. Bruno Uryc, E&I, Region II,

in a letter to McWeeney dated August 21, 1986 (SUBJECT: RII-86-A-0218-Termination for Reporting Safety Concerns), underlie the DOL's decision, and presumably are the basis for an ongoing investigation by NRC Region II. Whatever the outcome in Region II, the implication is clear--CP&L practiced intimidation and harassment of workers in positions to make engineering decisions concerning safety related components (in this case the electrical components and their supports) and to gloss over critical safety related calculations.

Mr. Marvin Lloyd Van Beck, an Electrical Raceway Inspector (ERI) was fired by Daniels Construction Co. for refusing an assignment to do inspection work during Hot Functional Testing (HFT). The complainant's fear was based upon the possibility of ruptured pipe or of a hanger breaking loose. The ERI's were forced to accept assignments or be fired, notwithstanding the prior prohibition by management of entering the HFT area during tests (entrance to area was controlled by plant security). The concern was held to be grounded in fact and reasonable in light of leaks which had developed during prior testing and the existence of an undated "Problem List" which identified: excessive pipe movement, leaks, spray valves not seated properly, malfunctioning Safety Injector Accumulator Safety Valve. (SEE: DOL Recommended Recision and Order - case no. 86-ERA-26, dated September 18, 1986).

We will forego an extended discussion at this point, but assert that any NRC regulatee, which violates the terms of the A.E.A. and 42 U.S.C. 5851 (prohibiting an NRC licensee from discriminating against an employee engaging in protected activities), utterly fails to demonstrate the requisite character

and competency required to operate a nuclear plant--particularly in light of arguments concerning Quality Assurance/Electrical Cable and the firing of a designer in cable trays and an inspector of the very components which have been of such concern for the past 4 years. Arguably, CP&L's practice of harassment and intimidation lead to deficiencies which QA employees fail to discover. (NOTE: Van Beck stated that "We (ERI's) may not be able to perform our inspection duties, having the burden that is placed upon us, at a 100% effective manner." This concern is substantiated by testimony of ERI's. SEE: Van Beck Order, 9/18/86 @ p. 8.; where, ERI Forbis voiced the concern about, "inadequate concentration to do the work." McWeeney and Van Veck's DOL claims raise a substantial issue concerning CP&L's:

- Quality Assurance Program and whether testing/inspection during HFT was adequate--at the very least a complete re-inspection is required in light of employee concern and Applicant's obvious bad faith.
- Harassment and intimidation of employees during the final stages of inspection during 1986. There is no assurance that other employees did not bend and write: "best engineering judgement" on calculations; or, perform less than adequate inspections of ER's during HFT.

III.

Within the past week intervenors have received information from a confidential informant, employed during the construction of the SHNPP. This information concerns Applicant's:

1. Improper sign-off procedures involving unqualified craft personnel;
2. inadequate inspection procedures for concrete anchor bolts and placements;
3. unauthorized material substitutions;
4. document control procedures.

The information involves construction methods and components in three buildings: Diesel Generator Building (DGB); Reactor Auxiliary Building (RAB); Feed Water Intake Structure (FWIS).

1. Sign-offs: The Shear Plates for Traveling Screens in the Emergency Water Intake - Due to deadline systems construction completion requirements, round the clock, 7 day per week work effort resulted in breakdown of the required design approval sign-off procedures. This was a structural item, however, design approval was given on documents by

- a. CP&L Electrical Manager, Mr. T. Cockerill. SEE: 1 IS 190 038, 042, 045, and 046 placements;
- b. CP&L Pipe Manager, Mr. E. Willet. SEE: placements: 1 IS 190 016, 019, 024.

Design approval should have been by the area engineer, the only one qualified to verify complete design inclusion in work packages.

2. Anchor Bolts: In the RAB the integrity of Phillips Expansion Anchors was compromised by "sandbagging" in order to achieve minimum required

torque values. Where holes were erroneously drilled oversize, fine sandblasting sand was poured in along side the body of the anchor. When the anchor was tightened it would bind against the sand and torque up to minimum values. SEE 1 RA 305 003, 006, 007 (Motor Control Center).

3. Material Substitution: WP-18 governed the on site fabrication of "Q" material. It was very easy in the early stages of the anchor program to swap plates for various items and needs. It would be very hard to track the material on any surface mounted plate. Swapping "Q" material for "Q" material is probably not a problem other than a blatant procedural violation. The real problem was created in 1983 and 1984 with the use of the A-36 material stamp. It was accepted practice to "buy off" material by having it stamped by a Q.A. inspector. These stamps were not available to anyone other than the inspection groups. The anchor general foreman and at least two other general foremen on site had stamps made by a company in Richmond, Va. With these stamps you could create "Q" material instantly without the WP-18 process.
4. Document Control: During 1982 and 1983 the craft supplied all applicable design documents to the inspection groups to inspect the work by, all of which were listed in section B of design approval documents. Document substitutions and falsification by craft of blue colored approved design documents occurred in some cases when pushed to the limit for time in order to turn systems over on time. The craft would:
 - a. obtain blank blue paper from document control, easy if you had friends;

- b. take the referenced FCR or PW and put the correct revision on it;
- c. fill in the information wanted--cut rebar, move anchors, alter plate size, etc.;
- d. insert altered copy into field work package;
- e. construction inspector would see referenced revision number on card along with "approved" drawing bearing the same number with the pertinent information; placement would be completed with the fake drawing destroyed and the correct drawing substituted.

Additional compromises to quality control procedures in the Emergency Service Water Intake structure include:

- A. Failure to check undercut tolerances for holes drilled to receive "maxi-bolt" anchor bolts.
- B. Rampant material substitution based on the generally held belief by craft that underwater placements were unverifiable.
- C. Alteration of Surveyed Field Location Reference lines. Elevation and location of shear plates were changed by craft. Practically all sign-offs for field location verification were by-passed by craft supervisors.

Petitioners have also been informed of other substantial deficiencies in plant component design involving Base Plate Grout material:

Recent procedural changes allowed the use of concrete 1411 epoxy grout material to be used as full bearing under base plates. These

plates would have extensive welding of attachments to them. Field testing by craft personnel revealed that material under plates would not stand up to heat generated by welding. Failure of this bearing material would destroy the integrity of anchor bolts which depend on maintenance of minimum torque. Specific placements occur in the Diesel Generator Building. SEE 1 DG 261 0136 through 0166.

Petitioners demonstrate that: (1) Quality Assurance during construction of the DGB, RAB, and WIS failed to perform the intended purpose because it did not uncover the construction flaws and deviations outlined herein; (2) Applicant's QA program was undermined by falsification of documents, substitution of materials and less than vigorous inspections, and improper construction performed with other disregard for documentation requirements. Applicant placed the interest of the construction schedule over the interest of safety; (3) Without resolution of these issues--by re-inspection of documentation against the actual physical placement--there is absolutely no guarantee that critical safety-related components were built according to design specifications and NRC regulations.

Summary

Petitioners, pursuant to 10 CFR § 2.206 (a), respectfully request that the Director of Reactor Regulation, pursuant to 10 CFR § 2.202, institute a proceeding to modify, suspend or revoke CP&L's construction permit for the SHNPP.

The arguments stated herein have demonstrated:

- A. That CP&L's Quality Assurance Program, in the area of electrical cables and components, fails to comply with 10 CFR 50.55 (e) and

10 CFR 50 App. B;

- B. That substantial rework, inspection, and NRC supervision is necessary prior to an affirmative statement by the Director that SHNPP is substantially completed.
- C. That Notice of Violation on March 12, 1985 (50-400/85-04 (Cable Separation) and documentation of the CP&L NRC Region II meeting (Problems Associated With Electrical Cable Separation) documents the concern that applicant modify its QA program when violations are discovered, and not, "...when problems in the program should have been recognized and changed independently by CP&L." (Letter, 8/11/86).

The Applicant, in over 8 years of construction, has been unable to conform with required criteria for Quality Assurance.

- D. Petitioners question Applicant's commitment to improve the program; CP&L stated that they planned to "increase QA surveillance, reorganize the inspection force to achieve more consistent results and continue training..." (Enclosure 2. Meeting Summary, August 11, 1986, supra). Although not QA personnel, the DOL claimants (Van Beck, McWeeney) were intricately involved with construction and design of Electrical Components and particularly the Electrical Raceway cables and supports. Petitioners present, for the record, the violations of NRC Regulation arguments concerning QA, in conjunction with the wrongful discharge of inspection and design employees, which leave serious doubts concerning Applicant's technical ability, character and good faith.

- E. Simply stated, Applicant has never demonstrated that an adequate QA program has been implemented. It is obvious that the Applicant's QA program has not performed its intended purpose, given the number of QA violations, and the fact that NRC has discovered a number of violations, notwithstanding Applicant's QA inspections.
- F. Petitioners therefore request that Applicant's construction permit be:
1. revoked because there can be no assurances that construction to date has been completed in conformity with NRC regulations (SEE: newly discovered evidence);
 2. suspended, prior to the complete reinspection of all safety related systems in order to determine whether the Applicant's inherently flawed QA program discovered inconsistencies, defects, and violations of NRC regulations in safety-related components or structures;
 3. modified to include the requirement of reinspection of all safety related fixtures in the DGB, RAB and FWIS, prior to issuance of low power permit or operating license.

Wells Eddleman and CASH submit that the resolution of these factual issues is a precondition to any determination by the NRC that construction of the SHNPP is complete. Petitioners respectfully request a thorough analysis of these issues and that the Director issue a Show Cause Petition to the Applicants framed in the manner set out above. Petitioners reserve the right to modify this Petition.

Respectfully submitted this the 17th day of October, 1986.

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United States of America
Nuclear Regulatory Commission
Before the Director

In the Matter of:

Carolina Power and Light Co
and North Carolina Eastern Municipal
Power Agency

Docket No. 50-400
(10CFR2.206)

(Shearon Harris Nuclear Power
Plant)

Certificate of Service

On this date copies of the Eddleman/CASH 2.206 Petition was served on the Director by courier and hand delivered to the Directors office(NRR). Copies were sent, first class, postage pre-paid, in the U.S. Mail to:

Mr. Thomas Baxter
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and to:

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