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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF PAUL A. EVANS

1. My name is Paul A. Evans. I am currently employed by the Institute of Nuclear Power Operations as Assistant Manager, Design Evaluations, in the Construction Project Design Evaluation Division.
2. Immediately before taking this position, I was employed by Tennessee Valley Authority for approximately four months as Program Manager for the Bellefonte Nuclear Plant Project in the Office of Quality Assurance. Prior to that time, my position at TVA was Principal Mechanical Engineer in the Office of Engineering, Design and Construction. I held this position for approximately 12 years.
3. While employed by the Tennessee Valley Authority, I participated in Duke Power Company's "Construction Project Evaluation for Catawba Nuclear Station," commonly referred to as the "Self-Initiated Evaluation." My role in the Self-Initiated Evaluation

was the evaluation team manager. As team manager, my responsibilities included deciding upon the types of personnel needed to comprise the evaluation team, including specifying the desired experience levels and areas of expertise; and, once the team members were chosen, training them to perform evaluations. I also supervised the development and planning of the individual team members' evaluation activities and schedules. During the time that the Self-Initiated Evaluation was conducted, I managed and coordinated the overall effort of the evaluation team at Catawba, supervised the integration of data from various team members into the evaluation document, and worked closely with the team members in developing their various findings and in writing the Self-Initiated Evaluation Report.

4. The purpose of this affidavit is to respond to Palmetto Alliance's allegations that the Self-Initiated Evaluation identified problems which are "symptomatic" of systematic deficiencies in plant construction at Catawba. In particular, Palmetto Alliance contends that this study exposed problems in the areas of (1) hangers, (2) the auxiliary feedwater system, (3) the residual heat removal system, (4) the heating, ventilation and air-conditioning system, (5)

the area of design generally, and that these problems are sufficiently serious to warrant an expansion of Contention 6 to include their consideration.

5. In the area of hangers, I am aware that Palmetto Alliance has cited the evaluation team's observation that almost half of the pipe hangers then being installed in the reactor building were temporary hangers which would have to be replaced with permanent hangers once final information from Duke's design department became available.

This observation does not constitute a finding of a deficiency. On the contrary, the installation of temporary pipe hangers as support for the piping system in a plant until final design information on the permanent pipe hangers is available is common practice. This provides an expedient way of allowing installation of piping without waiting for finalized design information on supports. In this way, the final design of the pipe supports can, if necessary, be changed to accommodate changes in the piping as installed.

6. The practice of replacing temporary hangers with permanent ones has no bearing upon the safety of hanger construction at Catawba. Nor does it indicate the existence of "systematic deficiencies" in this

area. Moreover, I am not aware of any other significant problems in the area of hangers which were identified in the Self-Initiated Evaluation.

7. In the area of the Auxiliary Feedwater System, I am aware that Palmetto Alliance has cited the evaluation team's observation that some system descriptions were not updated regularly. This does not, in my opinion, constitute a serious problem. As explained in the text of the attached Appendix, system descriptions have a limited and preliminary use as guidelines for the development of flow diagrams and electrical elementary drawings. Thereafter, flow diagrams and electrical drawings are developed and they become the controlling documents. While Duke procedure calls for the system descriptions to be updated, and we found Duke had not done so in this area, such failure cannot be said to be significant in terms of the safety of the construction or functioning of the auxiliary feedwater system. This is because Duke has a process for assuring that the design of the Auxiliary Feedwater System is kept current. This process consists of updating flow diagrams and electrical drawings which reflect the current design. Moreover, this fact does not suggest the existence of "systematic deficiencies."

I am also aware that Palmetto Alliance cited the evaluation team's observation that certain calculations were found not to be in the Systems Group Document Storage File at the time of the review. This is a "housekeeping" matter. It does not indicate that these calculations had not been performed, but only that they were not in the files at a particular time and could not be provided to the evaluator. If proper corrective action is taken, this matter can not be viewed as significant in terms of the safety of the construction or the functioning of the Auxiliary Feedwater System. Furthermore, it does not indicate the existence of "systematic deficiencies" in this area.

Finally, I am aware of the evaluation team's observation, cited by Palmetto Alliance, that certain information provided to Westinghouse by Duke Power Company was based on calculations which had not, at that time, been verified, approved and documented in accordance with internal Duke procedures. This finding does not in and of itself lead to the conclusion that the plant has been constructed, or will operate, unsafely.

8. I am not aware of any other findings in the Self-Initiated Evaluation which would indicate the existence of significant problems in the Auxiliary Feedwater System.
9. In regard to the Residual Heat Removal System, I am aware that Palmetto Alliance has cited the evaluation team's observation that a review of the Mechanical and Electrical System descriptions showed an inconsistency between the system descriptions. This was deemed to result from the fact that these system descriptions had not been updated regularly.

As explained with respect to the Auxiliary Feedwater System, system descriptions play a limited and preliminary role in the Duke Power Company design process. From the general guidelines provided by these descriptions, diagrams and drawings are developed. While Duke procedure calls for the system descriptions to be updated, and we found Duke had not done so in this area, such failure cannot be said to be significant in terms of the safety of the construction or functioning of the Residual Heat Removal System. This is because Duke has a process for assuring that the design of the Residual Heat

Removal System is kept current. This process consists of updating diagrams and drawings which reflect the current design.

10. The observation which Palmetto Alliance identified with respect to the Residual Heat Removal System becomes insignificant in terms of the safety of the construction or the functioning of this system once proper corrective action is taken. Moreover, it does not indicate a "systematic deficiency."

In addition, I am not aware of any other findings relating to the Residual Heat Removal System which revealed the existence of significant problems in this area.

11. I am aware that Palmetto Alliance has referred to two observations in the Self-Initiated Evaluation relating to the Heating, Ventilation and Air-Conditioning System. These observations concerned (1) the transfer of color coded tagging on a piece of safety-related material after it had been sectionalized for fabrication; and (2) the failure of a procedure to indicate the exact disposition of unused welding filler material.

In my opinion, neither of these observations is significant in terms of the safety of the construction or functioning in the heating, ventilation and air-

conditioning system; nor do they suggest the existence of "systematic deficiencies." Finding (1) did not document a deficiency, since in that instance, the proper material was used for the item being fabricated and there was no suggestion that it had been confused with non-safety related material. Finding (2) pointed out a lack of detail in the procedure in question, not an improper disposition of filler material. (The evaluation team determined that the unused filler material was in fact being disposed of properly). Moreover, I am unaware of any other findings relating to the Heating, Ventilation and Air-Conditioning System which suggest the existence of significant problems in the construction or function of this system.

12. I am also aware of the Self-Initiated Evaluation's finding that "closer control and monitoring of activities conducted by the HVAC contractor is necessary." The various irregularities noted in the control of the HVAC contractor's welding program which formed the basis for this finding do not in and of themselves reflect the existence of a significant problem with this contractor's welding work, nor the existence of "systematic deficiencies" in this area. To explain, Items (a)-(c) and Item (f) pertain to the

state of knowledge of a welder. If it could be shown that the welder had been provided instruction by his supervisor these matters would not be significant. With respect to item (d) there is no indication that this action was widespread. Further, if appropriate corrective action is taken this matter would not be viewed as significant. Lastly, as to Item (e) this matter does not in and of itself lead to the conclusion that improper work was performed. Rather, the matter should be reviewed by appropriate engineer capabilities to determine its significance.

13. In the area of design generally, I am aware that Palmetto Alliance has cited four points raised by the evaluation team. I will address each below.

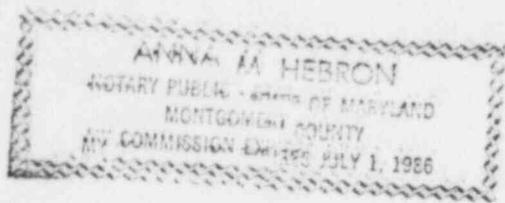
First, Palmetto Alliance references Item 1 on page 2a, Section C, of the Self-Initiated Evaluation. The item states that "procedure for the responsibility, issuance, and control of Design input needs to [be] formalized." Our group made five findings in this area which are set forth in Section C, page 7. These findings in and of themselves do not lead to the conclusion that the plant has been constructed or will operate unsafely. Indeed, if proper corrective action is taken this matter can not be viewed as significant.

Second, Palmetto Alliance references Item 2 on page 2a, Section C. The item states "Coordination on Design changes between the design disciplines should be improved." Our group made two findings in this area which are set forth in Section C, page 11. These findings in and of themselves do not lead to the conclusion that the plant has been constructed or will operate unsafely. Indeed, if proper corrective action is taken this matter cannot be viewed as significant.

Third, Palmetto Alliance references 2D on page 20 of Item C. This item states that in the above Unit 1 Auxiliary Building Penetration room at elevation 577, "Design changes on items already installed provide potential for extensive rework and/or modifications. Such rework and/or modifications may alter the quality of installed items previously accepted." This finding is really an observation of what might happen in the future. It does not address an actual problem. Accordingly, this item is not significant in terms of the safety of the construction for the functioning of the plant. Further, there is no evidence that Duke procedures concerning modifications will compromise the quality of installed items previously accepted.

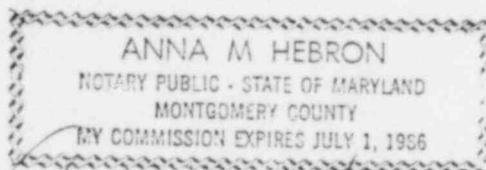
Fourth, Palmetto Alliance references item DC 5-1 at page 23 of Section C. This item states that "conflicts between system design documents exists for extended period of time, because system descriptions are not revised in a timely manner." This finding is representative of similar findings previously discussed in this affidavit in paragraphs 7 and 9. As was the case with the items discussed in those paragraphs, system descriptions have a limited and preliminary use as guidelines for development of flow diagrams and drawings. Thereafter, diagrams and drawings are developed and they become the controlling documents. While Duke's procedure calls for the system descriptions to be updated, and we found Duke had not done so in several areas, such failure cannot be said to be significant in terms of the safety of the construction or the functioning of these systems. This is because Duke has a process for assuring that the design of the subject system is kept current. This process consists of updating diagrams and drawings which reflect the current design.

I, Paul A. Evans, of lawful age, being first duly sworn, state that I have reviewed the foregoing affidavit and that the statements contained therein are true and correct to the best of my knowledge and belief.



Paul A. Evans

Paul A. Evans



Anna M. Hebron