

VIRGINIA ELECTRIC AND POWER COMPANY

RICHMOND, VIRGINIA 23261

October 2, 1980

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Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Serial No. 771
NO/RMT/RKM:ms
Docket No. 50-280


License No. DPR-32

Dear Mr. O'Reilly:

We have reviewed your letter of September 10, 1980 in reference to the inspection conducted at Surry Power Station on August 5-6, 1980 and reported in IE Inspection Report No. 50-280/80-31. Our response to the specific infraction is attached.

We have determined that no proprietary information is contained in the report. Accordingly, the Virginia Electric and Power Company has no objection to this inspection report being made a matter of public disclosure.

Very truly yours,


B. R. Sylvia
Manager - Nuclear
Operations and Maintenance

Attachment

cc: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Mr. Victor Stello, Director
Office of Inspection and Enforcement

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RESPONSE TO SEPTEMBER 10, 1980 NOTICE OF VIOLATION 280/80-31-01
SURRY POWER STATION UNIT 1

NRC Concern

Based on the NRC inspection August 5-6, 1980, certain of your activities were apparently not conducted in full compliance with NRC requirements as indicated below. These items have been categorized as described in correspondence to you dated December 31, 1974.

As required by Criterion V of Appendix B to 10 CFR 50, as implemented by Virginia Electric and Power Company Topical Report VEP-1-3A, "Quality Assurance Program-Operations Phase," Section 17.2.5, "Activities affecting quality shall be described by documented instructions, procedures, . . ." IE Bulletin 79-14 "Seismic Analysis for As-Built Safety Related Piping Systems," specifies that the licensee should assure that he is promptly notified when the Architect/Engineer identifies a nonconformance and that the significance of nonconformances with respect to system operability be evaluated by engineering judgement within two days of identification and by analysis within 30 days of identification.

Contrary to the above, procedures issued to accomplish IE Bulletin 79-14 do not properly address the timely evaluation and analysis of identified nonconformances or the prompt notification of Vepco of these items. Stress problem 3033 illustrates the results of these inadequate procedures in that significant overstresses identified by the initial analysis on December 1, 1979 were not examined by an independent reviewer until February 19, 1980. On that date Vepco shut the unit down due to containment integrity questions resulting from this problem.

This is an infraction.

VEPCO Response

The above infraction is incorrect as stated.

Specifically, pursuant to Section 2.201 of the NRC's "Rules of Practice" Part 2, Title 10, Code of Federal Regulations, the following information is submitted:

Vepco instructed Stone and Webster to respond to the requirements of IE Bulletin No. 79-14 in a continuation of a reanalysis effort previously begun on Surry Power Station Unit 1 for the Show Cause Order of March 13, 1979. To reiterate your letter (September 10, 1980, Notice of Violation 280/80-31-01) to us, the methodology used to perform pipe stress evaluation required by IE Bulletin No. 79-14 for Surry Power Station Unit 1 was to obtain as-built piping information and perform a new stress analysis, rather than compare as-built data with original design which is not well documented. This methodology was described in our 60 day response (Serial No. 552B/070279) to

you dated August 31, 1979 and was discussed in the VEPCO/NRC meeting held in your Atlanta, Georgia office on August 28, 1979. The stress evaluation included the performance of a preliminary stress analysis, the design of potential modifications indicated by that preliminary analysis, and finally the performance of a more detailed stress analysis review to confirm or negate the need for any modifications identified from the preliminary analysis. Again, this methodology was described in our letter (Serial No. 972) to you dated November 28, 1979, and also acknowledged in your September 10, 1980, letter to us, noted above. Preliminary stress analysis was performed on most problems before a detailed stress review could be initiated. The NRC's Supplement to IE Bulletin No. 79-14 dated August 15, 1979, and Supplement 2 to IE Bulletin No. 79-14 dated December 7, 1979, considered nonconformances as deviations of as-built piping from original design documents and required that the licensee assure that he be promptly notified when the A/E identifies a nonconformance, that the initial engineering judgement be completed in two days and that the analytical engineering evaluation be completed in 30 days. However, for Surry Power Station, as we have already noted, nonconformances were identified when results from final stress analysis, following a thorough review by the Stone and Webster Project Engineer or his designee, indicated that stress in a pipe exceeded ANSI B31.1, 1967 Edition allowables which are very conservative. This approach was documented in project procedures that were evaluated and approved by Vepco. In addition, this approach was adopted to expedite the IE Bulletin No. 79-14 evaluation process and complete the evaluation of approximately 116 stress problems and 1400 supports within a five month period. The five-month period was proposed in our letter (Serial No. 817) to you on October 4, 1979, and agreed upon by you in your letter of concurrence on October 5, 1979, to us. During the past year, Vepco has held regular biweekly meetings with the Stone and Webster management and maintained a constant monitoring of the reanalysis effort thru on-site inspections, verbal communication, and weekly status reports. Therefore, we are confident that Stone and Webster acted in an expeditious manner in the handling of all nonconformances.

Since all as-built piping problems were reanalyzed, rather than comparing the as-built information with the original design documents, the two day and the 30 day nonconformance reporting requirements, as described in the Supplement to IE Bulletin No. 79-14 dated August 15, 1979, and Supplement 2 to IE Bulletin No. 79-14 dated September 7, 1979, are not appropriate for Surry Power Station. In our letter (SVS-1025) to Stone and Webster dated March 7, 1980, we described our interpretation of the two day and 30 day reporting periods as documented with the NRC through past correspondence. In our letter (Serial No. 552B/070279) to you on August 31, 1979, we defined the two day evaluation period as the period in which a nonconformance's significance is determined, so that the station can respond according to the Surry Power Station Technical Specifications. The reference in the August 31, 1979 letter above to a full analytical engineering evaluation of the nonconformance refers to the design of a modification to relieve the overstressed condition. In our letter (Serial No. 972) to you dated November 28, 1979, we later qualified the statement regarding the 30 day period by noting that the design of a modification may be postponed, if permitted by the plant Technical Specifications. Because of the iterative nature of the pipe stress analysis and the large number of conservative piping modeling assumptions made by the analyst, the

checking, independent review, and refinement of analysis to reduce conservatism take a considerable amount of time. In most instances, the refinement of stress analysis reduces the calculated stresses; however, where this extensive review process does not change the original preliminary determination that piping stress is over allowable and some modification is required, the preliminary stress analysis becomes the run of record and the previously designed modifications associated with that analysis are implemented. The computer runs made during the review process are then not retained as part of the final calculation package.

The final calculation packages for problems reviewed by you, problems 3033, 3028, and 3015, did not contain all the review runs that might have been made. For the purpose of your inspection, Stone and Webster was able to retrieve from their document retention center only one review run dated February 19, 1980, for problem 3033. For problems 3028 and 3015, however, Stone and Webster was able to retrieve and show you several of the review computer runs. Furthermore, computer reviews are not the only items that constitute the detailed review. System design, pipe supports, and seismic modeling assumptions are also reviewed. A review of the system design for problem 3033 indicates that the system is required to operate only during refueling. The preliminary stress analysis which revealed high stresses was based on the consideration that the piping was full of water. In actuality, under normal plant operating conditions, the system is empty. Therefore, the A/E considers the stress to be below a modern code faulted allowable value of $2.4 S_h$. It is not at all unusual for a detailed stress review to exceed 30 days, especially when a large volume of problems are being analyzed within a short time period. This situation was the case during the period of December, 1979 and January, 1980, when we were under the additional constraint of NRC imposed deadlines on the Show Cause analysis. In addition, the situation was further complicated by the impact of IE Bulletin Nos. 79-02 and 79-14 on industry resources as noted in your September 10, 1980, letter to us. The primary objective was to evaluate and update the plant within the five-month period, and this was accomplished.

We believe that we have acted in the most reasonable fashion considering the manpower and schedule constraints in our IE Bulletin No. 79-14 evaluation of the Surry Power Station Unit 1, have kept you informed of our approach, and have met the requirements of Criterion V of Appendix B to 10 CFR 50.

In recognition of your concern indicated in the Notice of Violation, Stone and Webster will revise their procedures by October 1, 1980, to require that for any remaining IE Bulletin No. 79-14 evaluations, the detailed review process shall be expedited in an effort to accomplish the review within 30 days subsequent to identification of a potential overstress condition for piping related to an operating unit.