



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA ST., N.W., SUITE 3100  
 ATLANTA, GEORGIA 30303

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DEC 5 1980

In Reply Refer To:  
 RII:LDZ  
 50-518/80-17  
 50-520/80-17

Tennessee Valley Authority  
 ATTN: H. G. Parris  
 Manager of Power  
 500A Chestnut Street Tower II  
 Chattanooga, TN 37401

Gentlemen:

Thank you for your letters of September 22, and October 27, 1980, informing us of steps you have taken to correct the items of noncompliance concerning activities under NRC Construction Permit Nos. CPPR-150 and CPPR-152 brought to your attention in our letter of August 28, 1980.

We have examined your corrective actions and plans as detailed in your letter of response. As a result of this review, the following comments are made:

1. We do not concur with your response to infraction 518, 529/80-17-01, "Inadequate Magnetic Particle Examination Program," for the following reasons:
  - a. (Re: TVA letter dated October 27) Both the NRC inspector and the TVA level III examiner witnessed the magnetic particle examination (MT) of the anchor bolt chair weld. After the MT was completed, the NRC inspector identified three major discrepancies in the examination and discussed these with the TVA level III examiner. The three major discrepancies discussed were: (1) not observing the powder formation during application; (2) vigorous blowing to remove excess powder; and (3) inadequate overlap of the test prods. At the time of this discussion, the TVA level III examiner concurred with the NRC inspector.
  - b. (Re: TVA letter dated October 27) Regarding the authorized Nuclear Inspector's position, it should be noted that during the MT the Authorized Nuclear Inspector (ANI) assisted the MT examiner in performing the examination. The ANI held the light source for the examiner and assisted in the evaluation of the test results. It is, therefore, questionable how the ANI can form an objective opinion of the examination when he had a part in performing the examination.

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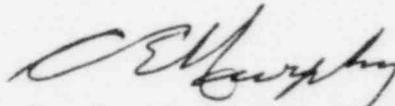
- c. (Re: TVA letter dated October 27 and TVA letter dated September 22) With regard to the MT written procedure, it is agreed that the training function is of utmost importance and that examiner candidates learn such things as applying and removing MT powder and the amount of overlap required for 100 percent coverage of the test surface. However, pertinent information, such as the methods of applying and removing the MT powder, needs to be part of the written procedure in order to reinforce the training aspects and to make the specified methods mandatory. In addition, examination procedures should include all steps necessary for the accomplishment of the examination, not just those items specified by the applicable code. The need for additional steps is evidenced by the failure to properly accomplish the test. The same can be said of prod overlap. Different size pipe welds, weld preps, fittings, fillet welds, fasteners, etc., all require a somewhat different grid pattern to ensure 100 percent coverage. Detailed procedures are required to eliminate the need for an examiner to remember all this from training, particularly when some items may not be examined very often. The use of a field indicator to assure coverage is good practice, however, this does not necessarily identify the dead zone near the prods, nor is it practical to expect the examiner to use it in the field for every prod position on complex shapes to ensure coverage. This sort of testing is normally done in a laboratory and the results plotted graphically and made part of the written procedure for the examiner to follow in the field.
- d. (Re: TVA letter dated September 22) With regard to the lighting of the test surface, NRC agrees that ASME does not specifically require a "beam of light" to always be directed on the test surface during testing. However, ASME does specify observation of the test surface during application of the MT powder and it does require adequate lighting for this observation. Since it is difficult, if not impossible, to observe the test surface in a darkened environment, the source of light should be directed in a manner that would permit observation of the test surface. During the MT of the subject welds, the light source at times was directed on top of the yoke holders hand and did not illuminate the test surface.
- e. (Re: TVA letter dated September 22) Regarding the tests by manometer of powder blowers used by TVA, the NRC inspector advised the level III examiner that the test setup did not comply with that recommended in SE-109 of ASME, Section V. NRC agrees that the test conducted by TVA on the manometer produced an air pressure less than that specified as a maximum in ASME. However, using TVA's setup with an even larger funnel, even less air pressure would be produced, and if the funnel was made large enough, the air pressure from the MT bulb would have no effect at all on the water column. Yet the same MT bulb would be used and it would discharge the same air pressure. Therefore, TVA's argument that their sample tests by manometer proved the MT bulbs produced less air pressure than that specified in ASME is invalid.

- f. (Re: TVA letter dated September 22) With regard to the overlap being sufficient because only an excavation of a weld repair was being examined, no disagreement exists for coverage of the excavation. However, the excavation was on one side of the tee weld, while the other side of the tee weld had what appeared to be a completed weld for the entire length of the vertical member. Furthermore, more than just one excavation was examined; both sides of the weld joining the member in the horizontal position were examined in addition to the opposite side of the vertical member.
2. We do not concur with your response to Infraction 518, 520/80-17-02, "Inadequate qualification requirements for visual examiners," for the following reasons:
  - a. (Re: TVA letter dated September 22) With regard to the three year requalification for visual examiners, the NRC inspector asked the TVA level III examiner whether his program required a three year requalification and he said no.
  - b. (Re: TVA letter dated September 22) With regard to the minimum of ten check points specified for the practical examination, the NRC inspector was advised that numerous checkpoints were used but were not formally documented. In your response you indicate that the checkpoints were not formally documented. Unless formal documentation exists, accomplishment of the program cannot be verified.
  - c. (Re: TVA letter dated October 27 and TVA letter dated September 22) With regard to workmanship samples and training/qualification samples, information in your response is not in agreement with that provided the NRC inspector at the time of the inspection. There were no samples available at the time of the NRC inspection that represented acceptable/unacceptable surface conditions of coarse ripples, grooves, abrupt ridges and valleys. Furthermore, during the inspection, the NRC inspector asked whether the taper at the end of a counterbore was discussed in training and if samples were available that depicted acceptable/unacceptable transitions. The inspector raised this question while reviewing a pipe sample with an unacceptable taper condition at the end of a counterbore. The TVA level III examiner advised the NRC inspector that this condition had not been considered in training or qualification and that he had no samples specifically depicting the condition. However, in your response dated October 27, you state that there are three examples of 3-1 transitions that are used in the training program.

It is pointed out that the NRC inspector described each of the infractions in detail during the exit interview. No discussion or rebuttal of the discrepancies described was made by TVA attendees. In view of the above, the Notice of Violation transmitted to you on August 28, 1980, remains unchanged. Section 2.201 requires you to submit to this office a written statement or explanation in reply including: (1) corrective steps which have been taken by you and the results achieved; (2) corrective steps which will be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

We appreciate your cooperation with us.

Sincerely,



Charles E. Murphy, Chief  
Reactor Construction and  
Engineering Support Branch

cc: R. T. Hathcote, Project Manager  
J. F. Cox, Supervisor, Nuclear  
Licensing Section  
J. E. Wills, Project Engineer  
H. N. Culver, Chief, Nuclear  
Safety Review Staff