

Docket Nos.: 50-327  
and 50-328

10 JUN 1986

Mr. S. A. White  
Manager of Nuclear Power  
Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

Subject: Request for Additional Information - Sequoyah Nuclear Plant  
Phase II Welding Project Reports

The NRC staff has been reviewing your Sequoyah Nuclear Plant Phase II  
Welding Project reports. The reports need further amplification and clari-  
fication on some technical aspects before we can complete our review.  
Attachment 1 contains our questions on these technical aspects. We request  
that you provide your reply by June 16, 1986. We will provide you with  
additional questions after we complete our review of the 19 WP-XX-SQN reports.

Sincerely,

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B. J. Youngblood, Director  
PWR Project Directorate #4  
Division of PWR Licensing-A

Enclosure: As stated

cc: See next page

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**Docket File**

NRC PDR  
Local PDR  
PRC System  
NSIC  
PWR#4 Rdg (3)  
MDuncan  
BJYoungblood Rdg  
CStahle

OELD  
JPartlow  
BGrimes  
EJordan  
HThompson  
WLong  
Crossi  
RBallard  
CCzajkowski

DDoty  
PMasters  
CHartbower  
WMunse  
RStout  
ESullivan  
TKenyon  
BDLiaw  
DESmith

SEE ATTACHED FOR PREVIOUS CONC\*

EB/DPWR-A\*  
DSmith/mac  
06/ /86

EB/DPWR-A\*  
ESullivan  
06/ /86

BWR#2/DBWR  
WLong  
06/ /86

EB/DBWR  
BDLiaw  
06/ /86

PWR#4/DPWR-A  
BJYoungblood  
06/ /86

8606120915 860610  
PDR ADOCK 05000327  
P PDR

Mr. S. A. White  
Tennessee Valley Authority

Sequoyah Nuclear Plant

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U.S. Nuclear Regulatory Commission,  
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Atlanta, Georgia 30323

ATTACHMENT 1

DOCKET NUMBERS 50-328/327

SEQUOYAH NUCLEAR PLANT WELDING PROJECT REPORTS

1. In 2.0 APTECH ENGINEERING REPORT (Supplemental Information), Page 3, 8th line, it is stated that "In the case of the feedwater lug, no engineering evaluation was requested by the plant." Why was installing the missing welds to drawing requirements chosen as the means of resolving a missing weld problem rather than performing an engineering evaluation as had been done with a very similar problem? Demonstrate that code requirements were met without installing the missing welds.
2. The term "separated weld" is used in 2.0 APTECH ENGINEERING REPORT (Supplemental Information), Page 3, 12th line. Define the basis for your assessment of this weld failure as being due to operating transients and not having been due to poor weld quality or cracking during fabrication.
3. In the APTECH ENGINEERING REPORT, the Table titled, "NOI DESCRIPTIONS - SEQUOYAH NUCLEAR PLANT UNIT 1", NOI Number SQ0201, under Disposition and Additional Comments it is stated; "...clean weld area per SQM-17, paint and reexamine." Explain how code requirements were met with the examination following painting.
4. In the APTECH ENGINEERING REPORT, Table 4-1 lists 5 Licensing Event Reports concerned with welds. Provide the number of LERs evaluated in this search. Were any failure analyses conducted of the welds covered by these LERs? If so, please provide them.
5. Were there ever other than E7018 carbon/low alloy steel shielded metal arc welding electrodes on the Sequoyah site, such as E8018C3? Demonstrate that incorrect electrodes were not used on any weldment.
6. For the Bechtel Audit, what were the total number of welders and inspectors in the populations from which the audit samples were taken? Provide separate totals for the Office of Construction and Nuclear Operations.
7. The TVA Reinspection checked the relative magnetism for all welds, austenitic and ferritic. What was the procedure for this inspection method? Provide justification for different levels of magnetism and their acceptance criteria, particularly "weakly magnetic".
8. Cracks were not listed as one of the attributes in the tables of the TVA Reinspection Report. Were any cracks found during the TVA Reinspection? Also, porosity was not an attribute listed in the STRUCTURAL WELDS table. What was the rejection rate for porosity in the structural welds in the TVA Reinspection?
9. In 4.4.1, page 8, line 21, of the five welds which were ground, were the manufacturer's minimum wall thickness requirements encroached upon? If so, to what extent?

10. In 4.4.1, page 10, line 1, the rough condition of two welds found during the reinspection is discussed. Provide information that justifies the statement, "The indepth investigation of the welder and inspector qualification revealed no indications of inadequacy of the welder or inspector capabilities." What was done to demonstrate that this level of workmanship by this welder and/or judgement by this inspector were not repeated elsewhere at Sequoyah?

11. In 4.4.1, page 11, in the table titled "PIPING WELDS", the rejection rate when expressed in terms of the percentage of welds rejected is 56% (184/333). Even allowing for some rejected welds counted more than once because of more than one rejectable attribute, the rejection rate is very high. a) What is the root cause of this high rejection rate of originally inspected and accepted welds? b) Is there any basis for concluding that there is a connection between the employee concerns expressing doubt about inspectors capabilities or that harassment and intimidation of inspectors occurred? c) With respect to question a), address in particular the attribute underfill, which has very specific code requirements. d) The arc strike/weld spatter rejection rate was 31%. What is the root cause for this high rejection rate? e) What were the original inspection criteria for these weld attributes? f) What were the reinspection criteria for these attributes? g) What is the justification for elimination of inspecting arc strikes for cracks in G-29C?

12. In 4.4.1, page 11 and 4.4.2, page 13, in the tables titled "PIPING WELDS" and "STRUCTURAL WELDS" respectively, expressing weld rejection rates based upon the attribute inches is misleading. There was only a finite number of welds inspected, and a qualified craftsman should be capable of making welds which meet all of the attributes in all of the inches submitted to inspection. For these tables, please rearrange the data as follows:

PIPE WELDS

<u>TYPE OF WELD</u>	<u>NO. OF WELDS REINSPECTED</u>	<u>NO. OF WELDS REJECTED</u>
Socket Welds		
Office of Const.		
Nuclear Ops.		
Butt Welds		
Office of Const.		
Nuclear Ops.		
Other (specify)		
Office of Const.		
Nuclear Ops.		
Total Welds		
Office of Const.		
Nuclear Ops.		

STRUCTURAL WELDS

<u>TYPE OF WELD</u>	<u>NO. OF WELDS REINSPECTED</u>	<u>NO. OF WELDS REJECTED</u>
Fillet weld		
Office of Const.		
Nuclear Ops.		
Butt Weld		
Office of Const.		
Nuclear Ops.		
Other (specify)		
Office of Const.		
Nuclear Ops.		

13. In the TVA Reinspection Report, a comparison is made between original inspection results and the reinspection results for piping welds. If such a comparison can be made in a quantitative manner for structural welds, please present the data.

14. Referring to the Legend for Table 4.2, in the Final Resolution column, define the meaning of the letter codes in parentheses.

15. There are some employee concerns about various structures not being in accordance with the as built drawings. Did the TVA reinspection address this issue? If so, report the deviations from the as built drawings found. Report the deviations in configuration as to type of deviation, the rate of a type of deviation compared to the number in the reinspection population, and if such deviations resulted in not meeting code requirements.

16. Table 4.3 shows that a total of 50 structures were reinspected in the TVA reinspection program. However, Table 4.4 shows only 31 structures as having been reinspected. Explain the discrepancy.